



**Siskiyou County, California**  
**Weed Airport**

# **Volume I**

## **Bidding and Contract Documents**

**Issued for Bid**

**April 2023**

### **Taxiway and Apron Reconstruction Project - Phase 1**

**FAA AIG No. 3-06-0274-017-2023**

**FAA AIP No. 3-06-0274-018-2023**

Sponsor: Ms. Joy Hall  
Address: Siskiyou County General Services  
190 Greenhorn Road  
Yreka, CA 96097

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**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

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**NOTICE OF INVITATION FOR BID**

BID INVITATION NUMBER: **AIG Project No. 3-06-0274-017-2023**  
**AIP Project No. 3-06-0274-018-2023**

BID OPENING DATE AND TIME: **Wednesday, April 26, 2023 at 12:00 PM (Local Time)**

LOCATION: Siskiyou County General Services  
190 Greenhorn Drive  
Yreka, CA 96097

Sealed bids for the service/improvement specified will be received by Siskiyou County at the Office of General Service, until the time and date cited above. Bids received by the correct time and date will be opened publicly and read aloud at the Siskiyou County, Yreka, CA.

Late bids, bids with insufficient postage, and bids that are not signed in the appropriate place in the Bidder's Offer section will not be considered under any circumstances. All bids shall be addressed to the General Services, 190 Greenhorn Drive, Yreka, California, 96097, and shall be marked: "Weed Airport, Taxiway and Apron Reconstruction Project – Phase 1, AIG Project No. 3-06-0274-017-2023 and AIP Project No. 3-06-0274-018-2023."

Bids must be submitted in a sealed envelope. The bid invitation number and Bidder's name and address should clearly be indicated on the envelope. All bids must be completed in ink or typewritten and the entire specification book returned with the bid intact, along with all descriptive literature by the time and date cited above.

The work in the contract is included in Airport Improvement Grant Project No. 3-06-0274-017-2023 and Airport Improvement Program Project No. 3-06-0274-018-2023 which is being undertaken and accomplished by Siskiyou County in accordance with the terms and conditions of a financial grant agreement between the City and the United States, under the Airport and Airway Safety and Capacity Expansion Act of 1987, and the California Aeronautics Program.

**I. PROJECT DESCRIPTION**

The Contractor shall provide unit prices for both the base bid. The Construction of the Taxiway and Apron Reconstruction Project – Phase 1 includes two (2) base bid schedules and two bid alternates as follows:

**Base Bid Schedules I and II** include the pulverization of the existing asphalt taxiways and aprons, earthwork and grading operations, pulverizing the existing pavement section, subgrade preparation, re-use of the pulverized material as recycled asphalt aggregate base, asphalt concrete, installation of storm drain pipe and facilities, pavement markings, and installation of airfield electrical facilities.

**Bid Alternates 1 and 2** include the pulverization of the existing asphalt taxiways and aprons, earthwork and grading operations, pulverizing the existing pavement section, subgrade preparation, re-use of the pulverized material as recycled asphalt aggregate base, asphalt concrete, installation of storm drain pipe and facilities, pavement markings, and installation of airfield electrical facilities.

## II. FEDERAL REQUIREMENTS

- A) The proposed contract is under and subject to Executive Order 11246, as amended, of September 24, 1965, and to the Equal Opportunity (EEO) and Federal Labor Provisions.
- B) All labor on the project shall be paid no less than the minimum wage rates established by the U.S. Secretary of Labor.
- C) Each Bidder must supply all the information required by the bid documents and specifications.
- D) The EEO requirements, labor provisions and wage rates are included in the specifications and bid documents.
- E) Each Bidder must complete, sign and furnish, the "Bidder's Statement on Previous Contracts Subject to EEO Clause," a "Certification of Nonsegregated Facilities," and the "Assurance of Disadvantaged Business Enterprise Participation" as contained in the Bid Proposal.
- F) A contractor having 50 or more employees and his subcontractors having 50 or more employees and who may be awarded a contract of \$50,000 or more will be required to maintain an affirmative action program, the standards for which are contained in the specifications.
- G) To be eligible for award, each bidder must comply with the affirmative action requirements which are contained in the specifications.
- H) Disadvantaged business enterprises (DBEs) as defined in 49 CFR Part 23 shall have the maximum opportunity to participate in the performance of contracts financed in whole or in part with federal funds under this agreement. Consequently, the DBE requirements of 49 CFR Part 23 applies to this agreement. Women will be afforded equal opportunity in all areas of employment. However, the employment of women shall not diminish the standards or requirements for the employment of minorities. Siskiyou County has set a DBE race conscious contract goal of 3.0% for the project. Award of the contract is conditioned upon meeting the DBE contract goal or demonstrating that good faith efforts have been made pursuant to Appendix A of Title 49 CFR Part 26. The determination regarding whether good faith efforts has been made will be made at the sole discretion of Siskiyou County. DBE participating firms must be certified as disadvantaged business enterprises prior to bid submission. Failure to meet the goal or make good faith efforts to meet the goal may render a bidder non-responsive. DBE participants must be listed in the bid as instructed. DBE participation is required. If a bidder cannot meet the advertised DBE goal, the bidder must submit good faith efforts with its bid in order to be considered responsive.
- I) All solicitations, contracts and subcontracts resulting from projects funded under the AIP must contain the foreign trade restriction required by 49 CFR Part 30, Denial of Public Works Contracts to Suppliers of Goods and Services of Countries that Deny Procurement Market Access to U.S. Contractors.
- J) The Aviation Safety and Capacity Expansion Act of 1990 provides that preference be given to steel and manufactured products produced in the United States when funds are expended pursuant to a grant issued under the Airport Improvement Program.
- K) The Contractor shall require all subcontractors on any first tier subcontracts in excess of \$50,000 and who employ 50 or more employees to file a compliance report (SF 100) prior to award of the subcontract.

## III. STATE REQUIREMENTS

- A) Contractors desiring to bid on this work shall be presently licensed in accordance with California State law.
- B) Prevailing wage rates for California shall be paid to all classifications of labor as required by the laws of the State of California (The greater of either Davis Bacon or California Prevailing Wages)
- C) Disadvantaged business enterprises will be afforded full opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award of any contract entered into pursuant to this advertisement. A race/gender neutral goal is established for this project.

#### **IV. PLANS, SPECIFICATIONS, CONTRACT DOCUMENTS**

Copies of the Plans and Specifications will be on file for download and/or viewing at the Siskiyou County Website, Association of California Airports website, and Shasta Builder's Exchange, 2990 Innsbruck Drive, Redding, CA 96003.

A non-mandatory pre-bid conference will be held for this project on April 12, 2023 at 12:00pm Local Time. All Contractors interested in the project are encouraged to visit the site. A preconstruction conference will be held at the Airport prior to the commencement of construction.

Siskiyou County reserves the right to waive any and all technicalities and reject any or all bids as may be deemed to be in the Owner's best interest.

Dated at Siskiyou County, California this 4th day of April 2023.

SISKIYOU COUNTY

Joy Hall  
Director of General Services  
PUBLISH: Date April 3, 2023

## INSTRUCTION TO BIDDERS

These Instructions to Bidders may modify sections within the General Provisions and Special Provisions in which case these Instructions to Bidders shall govern.

### **ARTICLE 1 - DEFINED TERMS**

- 1.1 Terms used in these Instructions to Bidders will have the meanings indicated in the General Provisions and Special Provisions. Additional terms used in these Instructions to Bidders have the meanings indicated below which are applicable to both the singular and plural thereof:
- A. *Bidder*--The individual or entity who submits a Bid directly to OWNER.
  - B. *Issuing Office*--The office from which the Bidding Documents are to be issued and where the bidding procedures are to be administered.
  - C. *Successful Bidder*--The lowest responsible Bidder submitting a responsive Bid to whom OWNER (on the basis of OWNER'S evaluation as hereinafter provided) makes an award.

### **ARTICLE 2 - COPIES OF BIDDING DOCUMENTS**

- 2.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement or Invitation for Bid may be obtained from the Issuing Office. Refer to Notice of Invitation for Bid for information on examination and procurement of documents. All plan holders shall be responsible for submitting accurate information to the ENGINEER at the time of purchasing plans and specifications. As a minimum, the information submitted to the ENGINEER shall include the name of company, current mailing address, telephone and telecopier (FAX) number. The OWNER and ENGINEER shall not be responsible for non-receipt of addendums due to incorrect or missing information furnished by the plan holder.
- 2.2 Complete sets of Bidding Documents must be used in preparing Bids; neither OWNER nor ENGINEER assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 2.3 OWNER and ENGINEER in making copies of Bidding Documents available on the above terms do so only for the purpose of obtaining bids for the work and do not confer a license or grant for any other use.

### **ARTICLE 3 - QUALIFICATIONS OF BIDDERS**

- 3.1 Bidders shall be experienced in the kind of work to be performed, shall have the necessary equipment therefore, and shall possess sufficient capital to properly execute the work within the time allowed. Bids received from Bidders who have previously failed to complete work within the time required, or who have previously performed similar work in an unsatisfactory



manner, may be rejected. A Bid may be rejected if Bidder cannot show that he has the necessary ability, plant and equipment to commence the work at the time prescribed and thereafter to prosecute and complete the work at the rate or within the time specified. A Bid may be rejected if Bidder is already obligated for the performance of other work which should delay the commencement, prosecution or completion of the work. A bid may be rejected if Bidder does not submit completed federal assurances with their bid.

#### **ARTICLE 4 - EXAMINATION OF BIDDING DOCUMENTS, OTHER RELATED DATA, AND SITE**

- 4.1 Before submitting the bid, each Bidder must:
- a) Examine the Contract Documents thoroughly
  - b) Visit the site to familiarize himself with local conditions that may in any manner that may affect performance of the work
  - c) Familiarize himself with federal, state, and local laws, ordinances, rules and regulations affecting the performance of the work
  - d) Carefully correlate his observations with the requirements of the Contract Documents

Reference is made to the Special Provisions for the identification of those surveys and investigation reports of subsurface or latent physical conditions at the site, or otherwise affecting performance of the work, which have been relied upon by the engineer in preparing the Drawings and Specifications. Owner will make copies of such surveys and reports available to any Bidder requesting them. Before submitting his bid, each Bidder will, at his own expense, make such additional surveys and investigations as he may deem necessary to determine his bid price for performance of the work within the terms of the Contract Documents.

The submission of a bid will constitute an incontrovertible representation by the Bidder that he has complied with every requirement of this article.

#### **ARTICLE 5 - PRE-BID CONFERENCE**

- 5.1 A Pre-Bid conference will be held for this project on April 12, 2023 and 12:00pm Local time. Credentials to attend the Pre-bid conference virtually will be sent to Plan Holders prior to the meeting.

#### **ARTICLE 6 - INTERPRETATIONS AND ADDENDA**

- 6.1 All questions about the meaning or intent of the Bid Documents are to be submitted to ENGINEER in writing. Interpretations or clarifications considered necessary by ENGINEER in response to such questions will be issued by Addenda mailed, faxed or delivered to all parties recorded by ENGINEER as having received the Bid Documents. Questions received less than ten days prior to the date for opening of bids may not be answered. Only questions answered by Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

- 6.2 Addenda may be issued to clarify, correct, or change the Bid Documents as deemed advisable by OWNER or ENGINEER.
- 6.3 Addenda issued before the time in which to submit bids shall be included in the bid and shall be made a part of the Contract Documents.

#### **ARTICLE 7 - BID SECURITY**

- 7.1 A bid must be accompanied by a Bid Security made payable to OWNER in an amount of 10% of Bidder's maximum bid price and in the form of a certified or bank check or a Bid Bond on the form attached issued by a surety meeting the requirements of the State of California.
- 7.2 If the security is submitted in the form of a bond, it shall be issued and executed solely by a surety company or companies that hold a Certificate of Authority to Transact Surety Business in the State of California issued by the Director of the Department of Insurance. An individual surety or sureties will not be accepted. A copy of the surety's current Certificate of Authority to Transact Surety Business in the State of California shall accompany the Bid Bond. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of his power. The Bid Bond shall be in the form required by California Revised Statutes and shall name the Owner as obligee.
- 7.3 The Bid Security of the successful Bidder will be retained until such Bidder has executed the Contract Documents, furnished the required contract security and met the other conditions of the Notice of Award, whereupon the Bid Security will be returned. If the successful Bidder fails to execute and deliver the Contract Documents and furnish the required contract security within 10 days after the Notice of Award, OWNER may annul the Notice of Award and the Bid Security of that Bidder will be forfeited. The Bid Security of other Bidders whom OWNER believes to have a reasonable chance of receiving the award may be retained by OWNER until the earlier of seven days after the effective date of the agreement or 91 days after the bid opening, whereupon Bid Security furnished by such Bidders will be returned.
- 7.4 Bid Security of other Bidders whom OWNER believes do not have a reasonable chance of receiving the award will be returned within seven days after the bid opening.

#### **ARTICLE 8 - CONTRACT TIMES**

- 8.1 The times for substantial completion and readiness for final payment are to be set forth by Bidder in the bid and will be entered into the agreement (or incorporated therein by reference to the specific language of the bid). The times will be taken into consideration by OWNER during the evaluation of bids, and it will be necessary for the apparent successful Bidder to satisfy OWNER that it will be able to achieve substantial completion and be ready for final payment within the times designated in the Bid. See Article 3 of the construction contract for work milestones and durations of construction activities.

## **ARTICLE 9 - LIQUIDATED DAMAGES**

9.1 Provisions for liquidated damages are set forth in SP1-13 of the Special Provision No. 1.

## **ARTICLE 10 - SUBSTITUTE AND "OR-EQUAL" ITEMS**

10.1 The contract, if awarded, will be on the basis of materials and equipment specified or described in the Bid Documents without consideration of possible substitute or "or-equal" items. Whenever it is specified or described in the Bid Documents that a substitute or "or-equal" item of material or equipment may be furnished or used by CONTRACTOR if acceptable to ENGINEER, application for such acceptance will not be considered by ENGINEER until after the effective date of the agreement. The procedure for submission of any such application by CONTRACTOR and consideration by ENGINEER is set forth in Section 60 of the General Provisions.

## **ARTICLE 11 - SUBCONTRACTORS, SUPPLIERS, AND OTHERS**

11.1 The apparent successful Bidder, and any other Bidder so requested, shall within five days after bid opening, submit to OWNER a list of all such Subcontractors, Suppliers, Individuals, or Entities proposed for those portions of the Work for which such identification is required. Such list shall be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor, Supplier, Individual, or Entity if requested by OWNER. If OWNER or ENGINEER, after due investigation, has reasonable objection to any proposed Subcontractor, Supplier, Individual, or Entity, OWNER may, before the Notice of Award is given, request apparent successful Bidder to submit a substitute, without an increase in the bid.

11.2 If apparent successful Bidder declines to make any such substitution, OWNER may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors, Suppliers, Individuals, or Entities. Declining to make requested substitutions will not constitute grounds for forfeiture of the Bid Security of any Bidder. Any Subcontractor, Supplier, Individual, or Entity so listed and against which OWNER or ENGINEER makes no written objection prior to the giving of the Notice of Award will be deemed acceptable to OWNER and ENGINEER subject to revocation of such acceptance after the effective date of the agreement as provided in the Special Provisions.

11.3 CONTRACTOR shall not be required to employ any Subcontractor, Supplier, Individual, or Entity against whom CONTRACTOR has reasonable objection.

11.4 CONTRACTOR shall not subcontract more than fifty (50) percent of the total contract award amount (exclusive of suppliers).

11.5 All Bidders are hereby advised that this contract is under and subject to Executive Order 11246, as amended, of September 24, 1965, the Federal Labor provisions and the Equal Employment Opportunity (EEO) provisions as contained in the contract, Specifications and Bid Documents.

- 11.6 The Bidder must supply all the information required by the proposal forms and specifications.
- 11.7 The Sponsor, in accordance with Title VI of the Civil Rights Act of 1964, hereby notifies all Bidders that they must affirmatively insure that in any contract entered into pursuant to this advertisement, the contract shall comply with the regulations relative to nondiscrimination in federally-assisted programs of the Department of Transportation (Title 49, Code of Federal Regulations, Part 21), as they may be amended from time to time.
- 11.8 CONTRACTORS shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of contracts.
- 11.9 The successful Bidder will be required to notify all prospective subcontractors of the requirement for certification of non-segregated facilities where the subcontract exceeds \$10,000.
- 11.10 CONTRACTORS and subcontractors may satisfy requirements of the EEO contract clause by stating in all solicitations or advertisements for employees that:
- "All qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin."
- or by using a single advertisement in which appears in clearly distinguished type, the phrase:
- "An Equal Opportunity Employer."
- 11.11 The OWNER hereby gives notice that a contractor having 50 or more employees and first tier subcontractors having 50 or more employees and who may be awarded a subcontract of \$50,000 or more will be required to comply with the following:
- a. If the CONTRACTOR has not submitted a complete and accurate Compliance Report within 12 months preceding the date of award, he must file a Compliance Report (SF 100) within 30 days after award of this contract.
  - b. The CONTRACTOR shall require the subcontractor on any first tier subcontracts to file a SF 100 prior to award of the subcontract if the above conditions apply. A SF 100 will be furnished upon request.
- 11.12 A Certification of Nonsegregated Facilities must be submitted prior to the award of a subcontract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.
- 11.13 CONTRACTORS receiving subcontract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause. NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

## **ARTICLE 12 - PREPARATION OF BID**

- 12.1 The proposal form is included with the Contract Documents and shall not be separated nor shall it be altered in any way unless altered by addendum.
- 12.2 All blanks on the proposal form shall be completed by printing in ink or by typewriter and the bid signed. A bid price shall be indicated for each bid item and alternative. No "Ditto" marks shall be used.
- 12.3 Erasures, interlineations or other corrections shall be authenticated by affixing in the margin immediately opposite the correction the initials of the person signing the proposal form.
- 12.4 Bids shall not contain any recapitulation of the work to be done.
- 12.5 A bid by a corporation shall be executed in the corporate name by the president or a vice-president or other corporate officer accompanied by evidence of authority to sign. The corporate seal shall be affixed and attested by the secretary or an assistant secretary. The corporate address and state of incorporation shall be shown below the signature.
- 12.6 A bid by a partnership shall be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership shall be shown below the signature.
- 12.7 A bid by an individual shall show the Bidder's name and official address.
- 12.8 A bid by a joint venture shall be executed by each joint venturer in the manner indicated on the bid form. The official address of the joint venture must be shown below the signature.
- 12.9 All names shall be typed or printed in ink below the signatures.
- 12.10 The bid shall contain an acknowledgment of receipt of all Addenda, the numbers of which shall be filled in on the proposal form.
- 12.11 The address and telephone number for communications regarding the bid shall be shown.
- 12.12 The bid shall contain evidence of Bidder's authority and qualification to do business in the state where the project is located or covenant to obtain such qualification prior to award of the contract. Bidder's state contractor license number for the state of the project, if any, shall also be shown on the bid form.
- 12.13 No oral, telegraphic, faxed or telephone proposal or modifications shall be considered.

## **ARTICLE 13 - BASIS OF BID; EVALUATION OF BIDS**

- 13.1 *Unit Price*

- A. Bidders shall submit a bid on a unit price basis for each item of work listed in the bid schedule.
  - B. The total of all estimated prices will be determined as the sum of the products of the estimated quantity of each item and the unit price bid for the item. The final quantities and contract price will be determined in accordance with these Contract Documents.
  - C. Discrepancies between the multiplication of units of work and unit prices will be resolved in favor of the unit prices. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum. Discrepancies between words and figures will be resolved in favor of the words.
- 13.2 The bid price shall include such amounts as the Bidder deems proper for overhead and profit on account of cash allowances, if any, named in the Contract Documents.
- 13.3 The Bidder must provide unit prices for all the items in the base bid and all additive alternate bids. The OWNER reserves the right to award the contract based on the lowest responsible and responsive bid for the sum of the base bid, and all of the additive alternate bids.

#### **ARTICLE 14 - SUBMITTAL OF BID**

- 14.1 A bid shall be submitted no later than the date and time prescribed and at the place indicated in the advertisement or Notice of Invitation for Bid and shall be enclosed in an opaque sealed envelope plainly marked with the project title, the name and address of Bidder, and shall be accompanied by the bid security and other required documents. If a bid is sent by mail or other delivery system, the sealed envelope containing the bid shall be enclosed in a separate envelope plainly marked on the outside with the notation "BID ENCLOSED." A mailed bid shall be addressed to the addressee included in the Notice of Invitation for Bid.
- 14.2 Bid shall be submitted at the time and place indicated in the Notice of Invitation for Bid.
- 14.3 A bid will not be accepted after the time indicated in the Notice of Invitation for Bid. Bid envelopes with insufficient postage will not be accepted by the OWNER. It is the sole responsibility of the Bidder to see that his Bid is delivered and received by the proper time and at the proper place.
- 14.4 In addition to the bid proposal, the following listed documents, which are bound in the Contract Documents, shall be executed in the manner described in herein, unless another manner is indicated.
- a. Bid Proposal
  - b. Certified Copy of Resolution of Board of Directors
  - c. Statutory Bid Bond
  - d. Certificate of Insurability

- e. Non-Collusive Bidding Certification
- f. Bidders Qualification Statement
- g. List of Subcontractors and Suppliers
- h. Certification of Buy American – Construction Projects
- i. Certification of Buy American – Equipment/Building Projects
- j. Certification Regarding Debarment and Suspension
- k. Certification Regarding Domestic Preference for Procurements
- l. Trade Restriction Certification
- m. Certification Regarding Lobbying and Influencing Federal Employees
- n. Certification of Prohibition of Certain Telecommunications and Video Surveillance Services or Equipment
- o. Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions

**ARTICLE 15 - MODIFICATION AND WITHDRAWAL OF BID**

- 15.1 A bid may be modified or withdrawn by an appropriate document duly executed in the manner that a bid must be executed and delivered to the place where bids are to be submitted prior to the date and time for the opening of bids.
- 15.2 If within 24 hours after bids are opened any Bidder files a duly signed written notice with OWNER and promptly thereafter demonstrates to the reasonable satisfaction of OWNER that there was a material and substantial mistake in the preparation of its bid, that Bidder may withdraw its bid, and the Bid Security will be returned. Thereafter, if the work is rebid, that Bidder will be disqualified from further bidding on the work.

**ARTICLE 16 - OPENING OF BIDS**

- 16.1 Bids will be opened at the time and place indicated in the Advertisement or Notice of Invitation for Bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base bids and major alternates, if any, will be made available to Bidders after the opening of bids.

**ARTICLE 17 - BIDS TO REMAIN SUBJECT TO ACCEPTANCE**

- 17.1 All bids will remain subject to acceptance for the period of 90 days after the day of the opening of bids, but OWNER may, in its sole discretion, release any bid and return the Bid Security prior to the end of this period.

## **ARTICLE 18 - AWARD OF CONTRACT**

- 18.1 OWNER reserves the right to reject any or all bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional bids. OWNER further reserves the right to reject the bid of any Bidder whom it finds, after reasonable inquiry and evaluation, to be non-responsible. OWNER may also reject the bid of any Bidder if OWNER believes that it would not be in the best interest of the project to make an award to that Bidder. OWNER also reserves the right to waive all informalities not involving price, time, or changes in the work and to negotiate contract terms with the successful Bidder.
- 18.2 More than one bid for the same work from an individual or entity under the same or different names will not be considered. Reasonable grounds for believing that any Bidder has an interest in more than one bid for the work may be cause for disqualification of that Bidder and the rejection of all bids in which that Bidder has an interest.
- 18.3 In evaluating bids, OWNER will consider whether or not the bids comply with the prescribed requirements, and such alternates, unit prices and other data, as may be requested in the proposal form or prior to the Notice of Award.
- 18.4 In evaluating Bidders, OWNER will consider the qualifications of Bidders and may consider the qualifications and experience of Subcontractors, Suppliers, and other Individuals or Entities proposed for those portions of the work for which the identity of Subcontractors, Suppliers, and other Individuals or Entities must be submitted.
- 18.5 OWNER may conduct such investigations as OWNER deems necessary to establish the responsibility, qualifications, and financial ability of Bidders, proposed Subcontractors, Suppliers, Individuals, or Entities to perform the work in accordance with the Contract Documents.
- 18.6 If the contract is to be awarded, OWNER will award the contract to the Bidder whose bid is the lowest responsive and responsible Bidder and is in the best interests of the project.
- 18.7 The award of the contract shall be made by Siskiyou County to the lowest responsive and responsible bidder for whose proposal conforms to the cited requirements by the owner. The low bid will be based on the sum of the base bid, and all of the additive alternate bids.

## **ARTICLE 19 - CONTRACT SECURITY AND INSURANCE**

- 19.1 Section 30 of the General Provisions, as may be modified by the Special Provisions, sets forth OWNER'S requirements as to performance and payment Bonds.
- 19.2 Special Provision No. 3 sets forth OWNER'S requirements as to insurance.



- 19.3 When the successful Bidder delivers the executed Agreement to OWNER, it must be accompanied by such bonds and certificates and endorsement of the required insurance.

## **ARTICLE 20 - SIGNING OF AGREEMENT**

- 20.1 When OWNER gives a Notice of Award to the successful Bidder, it shall be accompanied by the required number of unsigned bounded Contract Documents for execution of the agreement and the other Contract Documents which are identified in the agreement as attached thereto. Within 10 days thereafter, successful Bidder shall sign and deliver the required number of bound Contract Documents to OWNER. Within ten days thereafter, OWNER shall deliver one fully signed and executed Contract Document to successful Bidder.
- 20.2 Upon execution of the agreement, the CONTRACTOR shall provide a letter of certification from the Industrial Commission of California that the CONTRACTOR is insured by the State Compensation Fund or is an authorized self-insurer, or a certificate of insurance issued by an insurance company authorized by the Insurance Department of California to write Workmen's Compensation and Occupational Disease Insurance in the State of California.

## **ARTICLE 21 - SALES AND USE TAXES**

- 21.1 Refer to SP1-14 of the Special Provisions No. 1 for State sales and use taxes on materials and equipment.

## **ARTICLE 22 - NOTICE TO PROCEED**

- 22.1 Issuance of the Notice to Proceed shall be as stated in the General Provisions.

## **ARTICLE 23 - RETAINAGE**

- 23.1 Provisions concerning CONTRACTOR'S rights to deposit securities in lieu of retainage are set forth in the General Provisions.

**BID PROPOSAL**  
(Exhibit 1 of the Agreement)

(This Bid Proposal shall not be detached from the Contract Documents. The entire Contract Documents shall be returned with the executed Bid).

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT – PHASE 1**

**CONTRACT IDENTIFICATION AND NUMBERS: FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

**1.01** The undersigned Bidder proposes and agrees, if this bid is accepted, to enter into an agreement with OWNER in the form included in the Bid Documents to perform all work as specified or indicated in the Contract Documents for the prices and within the times indicated in this bid and in accordance with the other terms and conditions of the Bid Documents.

**2.01** Bidder accepts all of the terms and conditions of the Advertisement or Notice of Invitation for Bid, including without limitation those dealing with the disposition of Bid Security. The bid will remain subject to acceptance for 90 days after the bid opening, or for such longer period of time that Bidder may agree to in writing upon request of OWNER.

**3.01** In submitting this bid, Bidder represents, as set forth in the Agreement, that:

A. Bidder has examined and carefully studied the Bid Documents, the other related data identified in the Bid Documents, and the following Addenda, receipt of all which is hereby acknowledged.

| <u>Addendum No.</u> | <u>Addendum Date</u> |
|---------------------|----------------------|
| _____               | _____                |
| _____               | _____                |
| _____               | _____                |

B. Bidder has visited the site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress, and performance of the work.

C. Bidder is familiar with and is satisfied as to all federal, state and local Laws and Regulations that may affect cost, progress and performance of the work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the site and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the site (except underground facilities) which have been identified in the Special Provisions, and (2) reports and drawings of a Hazardous Environmental Condition, if any, which has been identified in the Special Provisions.

- E. Bidder has obtained and carefully studied (or assumes responsibility for having done so) all additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions (surface, subsurface and underground facilities) at or contiguous to the site which may affect cost, progress, or performance of the work or which relate to any aspect of the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents to be employed by Bidder, and safety precautions and programs incident thereto.
- F. Bidder does not consider that any further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this bid for performance of the work at the price(s) bid and within the times and in accordance with the other terms and conditions of the Bid Documents.
- G. Bidder is aware of the general nature of work to be performed by OWNER and others at the site that relates to the work as indicated in the Bid Documents.
- H. Bidder has correlated the information known to Bidder, information and observations obtained from visits to the site, reports and drawings identified in the Bid Documents, and all additional examinations, investigations, explorations, tests, studies, and data with the Bid Documents.
- I. Bidder has given ENGINEER written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bid Documents, and the written resolution thereof by ENGINEER is acceptable to Bidder.
- J. The Bid Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the work for which this Bid is submitted.

**4.01** Bidder further represents that this bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham bid; Bidder has not solicited or induced any individual or entity to refrain from bidding; and Bidder has not sought by collusion to obtain for itself any advantage over any other Bidder or over OWNER.

**5.01** Bidder will complete the work in accordance with the Contract Documents for the following price(s):

The following estimated quantities are given only as a basis for comparison of proposals and the award of contract. The item cost shall reflect all labor, materials, and equipment necessary to furnish construct and install the item in accordance with these plans, specifications and manufacturer's instruction.

**BID PROPOSAL – TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

Due to budgetary and coordination constraints, it is the intent of Siskiyou County to award the Base Bid Schedules I and II and any Bid Alternates or options as budgetary and coordination constraints allow. The owner reserves the right in its sole and absolute discretion to award or not award the Base Bid or Bid Alternates as denoted elsewhere in these Bid Documents. This decision will be made after opening the bids. The decision to award the Bid Alternates could change the identity of the lowest bidder.

Unit Prices have been computed in accordance with the General Conditions. Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of bids, and final payment for all Unit Price Bid items will be based on actual quantities provided, determined as provided in the Contract Documents.

**BASE BID SCHEDULE I – TOTAL:**

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(in numbers)

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(in words)

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Dollars and \_\_\_\_\_ Cents

**BASE BID SCHEDULE II – TOTAL:**

---

(in numbers)

---

(in words)

---

Dollars and \_\_\_\_\_ Cents

**BID ALTERNATE 1 – TOTAL**

---

(in numbers)

---

(in words)

---

Dollars and \_\_\_\_\_ Cents

**BID ALTERNATE 2 – TOTAL**

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(in numbers)

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(in words)

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Dollars and \_\_\_\_\_ Cents

Which are the sum of the prices set forth in the following Bid Schedules – Unit Pricing.

**BASE BID SCHEDULE I - APRON**

| ITEM NO. | SPEC NO. | DESCRIPTION  | UNIT | QUANTITY | UNIT PRICE | AMOUNT |
|----------|----------|--|------|----------|------------|--------|
| 1        | C-100-1  | Contractor Quality Control Program (CQCP)                      | LS   | 1        |            |        |
| 2        | C-102-1  | Temporary Erosion and Pollution Control                        | LS   | 1        |            |        |
| 3        | C-105-1  | Mobilization (7%)  | LS   | 1        |            |        |
| 4        | P-101-1  | Pulverize Existing Asphalt Pavement (10 inches Depth)          | SY   | 8,000    |            |        |
| 5        | P-102-1  | Airport Safety and Security                                    | MO   | 1        |            |        |
| 6        | P-152-1  | Excavation   | CY   | 610      |            |        |
| 7        | P-152-2  | Embankment   | CY   | 50       |            |        |
| 8        | P-152-3  | Export   | CY   | 560      |            |        |
| 9        | P-152-4  | Disposal of Contaminated Material (Contingent)                 | CY   | 200      |            |        |
| 10       | P-156-1  | Cement Treated Subgrade (8 Inches Thick)                       | SY   | 1,600    |            |        |
| 11       | P-207-1  | Recycled Asphalt Aggregate Base Course (7 Inches Thick)        | SY   | 8,000    |            |        |
| 12       | P-403-1  | Hot Mix Asphalt (HMA) Pavement Surface Course (3 Inches Thick) | SY   | 8,000    |            |        |
| 13       | P-620-2  | Permanent Non-Reflective Airfield Pavement Markings            | SF   | 650      |            |        |
| 14       | P-620-4  | Tie-Down Anchor  | EA   | 15       |            |        |
| 15       | L-108-1  | No. 8 AWG, L-824 Type C Cable, 5kV Rated Airfield Cable        | LF   | 800      |            |        |
| 16       | L-108-2  | Wind Cone Feeder   | LF   | 450      |            |        |
| 17       | L-108-3  | VASI Feeder  | LF   | 450      |            |        |
| 18       | L-108-4  | No. 6 AWG, Solid, Bare Copper Counterpoise Wire                | LF   | 380      |            |        |
| 19       | L-110-4  | 6-2" Schedule 40 PVC Duct Bank, Direct Buried, Non-Encased     | LF   | 20       |            |        |

|    |         |   |    |     |  |  |
|----|---------|---|----|-----|--|--|
| 20 | L-110-5 | 6-2" Schedule 40 PVC Duct Bank,<br>Concrete Encased   | LF | 170 |  |  |
| 21 | L-110-6 | 6-2" Schedule 80 HDPE Duct Bank,<br>Directional Bored | LF | 190 |  |  |
| 22 | L-115-1 | H-20 Load Rated Concrete Hand Hole                    | EA | 3   |  |  |

**BASE BID SCHEDULE II**

| ITEM NO. | SPEC NO. | DESCRIPTION  | UNIT | QUANTITY | UNIT PRICE | AMOUNT |
|----------|----------|--|------|----------|------------|--------|
| 1        | C-100-1  | Contractor Quality Control Program (CQCP)                      | LS   | 1        |            |        |
| 2        | C-102-1  | Temporary Erosion and Pollution Control                        | LS   | 1        |            |        |
| 3        | C-105-1  | Mobilization (7%)  | LS   | 1        |            |        |
| 4        | P-101-1  | Pulverize Existing Asphalt Pavement (10 inches Depth)          | SY   | 20,800   |            |        |
| 5        | P-101-2  | Mill Existing Asphalt Pavement                                 | SY   | 185      |            |        |
| 6        | P-101-3  | Remove Existing Storm Drain Pipe                               | LF   | 400      |            |        |
| 7        | P-101-4  | Remove Existing Storm Drain Inlet                              | EA   | 1        |            |        |
| 8        | P-102-1  | Airport Safety and Security                                    | MO   | 2        |            |        |
| 9        | P-151-1  | Clearing and Grubbing  | AC   | 6        |            |        |
| 10       | P-152-1  | Excavation   | CY   | 4,200    |            |        |
| 11       | P-152-2  | Embankment   | CY   | 1,700    |            |        |
| 12       | P-152-3  | Export   | CY   | 2,500    |            |        |
| 13       | P-152-4  | Owner Authorized Over-Excavation (Contingent)                  | CY   | 700      |            |        |
| 14       | P-152-5  | Infield Surface Rock (3-inches Thick)                          | SY   | 28,000   |            |        |
| 15       | P-156-1  | Cement Treated Subgrade (8 Inches Thick)                       | SY   | 4,100    |            |        |
| 16       | P-207-1  | Recycled Asphalt Aggregate Base Course (7 Inches Thick)        | SY   | 20,100   |            |        |
| 17       | P-403-1  | Hot Mix Asphalt (HMA) Pavement Surface Course (3 Inches Thick) | SY   | 19,750   |            |        |
| 18       | P-620-1  | Permanent Reflective Airfield Pavement Markings                | SF   | 2,500    |            |        |
| 19       | P-620-2  | Permanent Non-Reflective Airfield Pavement Markings            | SF   | 1,900    |            |        |



|    |         |   |    |       |  |  |
|----|---------|---|----|-------|--|--|
| 20 | P-620-3 | Remove Existing Pavement Markings   | SF | 275   |  |  |
| 21 | P-620-4 | Tie-Down Anchor   | EA | 30    |  |  |
| 22 | D-701-1 | Install 15 Inch Pipe (Reinforced Concrete Class IV)   | LF | 310   |  |  |
| 23 | D-701-2 | Install 18 Inch Pipe (Reinforced Concrete Class IV)   | LF | 90    |  |  |
| 24 | D-701-3 | Install 15 Inch Flared End Section (Precast Concrete) with Riprap   | EA | 6     |  |  |
| 25 | D-701-4 | Install 18 Inch Flared End Section (Precast Concrete) with Riprap   | EA | 3     |  |  |
| 26 | L-100-1 | Airfield Electrical Demolition  | LS | 1     |  |  |
| 27 | L-100-2 | Airfield Lighting Vault Modifications   | LS | 1     |  |  |
| 28 | L-108-1 | No. 8 AWG, L-824 Type C Cable, 5kV Rated Airfield Cable   | LF | 800   |  |  |
| 29 | L-108-2 | Wind Cone Feeder  | LF | 1,450 |  |  |
| 30 | L-108-3 | VASI Feeder   | LF | 1,700 |  |  |
| 31 | L-108-4 | No. 6 AWG, Solid, Bare Copper Counterpoise Wire   | LF | 3,290 |  |  |
| 32 | L-110-1 | 1-2" Schedule 40 PVC Conduit, Direct Buried, Non-Encased  | LF | 3,000 |  |  |
| 33 | L-110-3 | 4-2" Schedule 40 PVC Duct Bank, Concrete Encased  | LF | 220   |  |  |
| 34 | L-110-5 | 6-2" Schedule 40 PVC Duct Bank, Concrete Encased  | LF | 70    |  |  |
| 35 | L-115-1 | H-20 Load Rated Concrete Hand Hole  | EA | 8     |  |  |
| 36 | L-115-2 | L-867B Base Can with Steel Lid  | EA | 2     |  |  |
| 37 | L-125-1 | L-861 Elevated Runway Edge Light Installed on L-867 Base Can including Isolation Transformer, stem, plate, mounting hardware and splice kit | EA | 1     |  |  |
| 38 | L-125-2 | L-853 Retro-reflective Marker, Stake Mounted  | EA | 43    |  |  |

**BID ALTERNATE 1**

| ITEM NO. | SPEC NO. | DESCRIPTION  | UNIT | QUANTITY | UNIT PRICE | AMOUNT |
|----------|----------|--|------|----------|------------|--------|
| 1        | C-100-1  | Contractor Quality Control Program (CQCP)                      | LS   | 1        |            |        |
| 2        | C-102-1  | Temporary Erosion and Pollution Control                        | LS   | 1        |            |        |
| 3        | P-101-1  | Pulverize Existing Asphalt Pavement (10 inches Depth)          | SY   | 4,500    |            |        |
| 4        | P-151-1  | Clearing and Grubbing  | AC   | 1        |            |        |
| 5        | P-152-1  | Excavation   | CY   | 100      |            |        |
| 6        | P-152-2  | Embankment   | CY   | 200      |            |        |
| 7        | P-152-4  | Owner Authorized Over-Excavation (Contingent)                  | CY   | 150      |            |        |
| 8        | P-152-5  | Infield Surface Rock (3-inches Thick)                          | SY   | 1,200    |            |        |
| 9        | P-156-1  | Cement Treated Subgrade (8 Inches Thick)                       | SY   | 1,000    |            |        |
| 10       | P-207-1  | Recycled Asphalt Aggregate Base Course (7 Inches Thick)        | SY   | 4,650    |            |        |
| 11       | P-403-1  | Hot Mix Asphalt (HMA) Pavement Surface Course (3 Inches Thick) | SY   | 4,500    |            |        |
| 12       | P-620-1  | Permanent Reflective Airfield Pavement Markings                | SF   | 1,650    |            |        |
| 13       | P-620-2  | Permanent Non-Reflective Airfield Pavement Markings            | SF   | 800      |            |        |
| 14       | P-620-3  | Remove Existing Pavement Markings                              | SF   | 410      |            |        |
| 15       | P-620-4  | Tie-Down Anchor  | EA   | 3        |            |        |
| 16       | L-100-1  | Airfield Electrical Demolition                                 | LS   | 1        |            |        |
| 17       | L-108-1  | No. 8 AWG, L-824 Type C Cable, 5kV Rated Airfield Cable        | LF   | 210      |            |        |
| 18       | L-108-4  | No. 6 AWG, Solid, Bare Copper Counterpoise Wire                | LF   | 705      |            |        |
| 19       | L-110-1  | 1-2" Schedule 40 PVC Conduit, Direct Buried, Non-Encased       | LF   | 400      |            |        |

|    |         |   |    |     |  |  |
|----|---------|---|----|-----|--|--|
| 20 | L-110-2 | 2-2" Schedule 40 PVC Duct Bank,<br>Direct Buried, Non-Encased | LF | 105 |  |  |
| 21 | L-110-3 | 4-2" Schedule 40 PVC Duct Bank,<br>Concrete Encased           | LF | 200 |  |  |
| 22 | L-115-1 | H-20 Load Rated Concrete Hand Hole                            | EA | 5   |  |  |
| 23 | L-125-2 | L-853 Retro-reflective Marker, Stake<br>Mounted               | EA | 29  |  |  |

**BID ALTERNATE 2**

| ITEM NO. | SPEC NO. | DESCRIPTION   | UNIT | QUANTITY | UNIT PRICE | AMOUNT |
|----------|----------|---|------|----------|------------|--------|
| 1        | C-100-1  | Contractor Quality Control Program (CQCP)                         | LS   | 1        |            |        |
| 2        | C-102-1  | Temporary Erosion and Pollution Control                           | LS   | 1        |            |        |
| 3        | P-101-1  | Pulverize Existing Asphalt Pavement (10 inches Depth)             | SY   | 3,750    |            |        |
| 4        | P-101-3  | Remove Existing Storm Drain Pipe                                  | LF   | 120      |            |        |
| 5        | P-151-1  | Clearing and Grubbing   | AC   | 1.25     |            |        |
| 6        | P-152-1  | Excavation  | CY   | 250      |            |        |
| 7        | P-152-2  | Embankment  | CY   | 100      |            |        |
| 8        | P-152-3  | Export  | CY   | 150      |            |        |
| 9        | P-152-4  | Owner Authorized Over-Excavation (Contingent)                     | CY   | 100      |            |        |
| 10       | P-152-5  | Infield Surface Rock (3-inches Thick)                             | SY   | 4,100    |            |        |
| 11       | P-156-1  | Cement Treated Subgrade (8 Inches Thick)                          | SY   | 700      |            |        |
| 12       | P-207-1  | Recycled Asphalt Aggregate Base Course (7 Inches Thick)           | SY   | 3,150    |            |        |
| 13       | P-403-1  | Hot Mix Asphalt (HMA) Pavement Surface Course (3 Inches Thick)    | SY   | 2,900    |            |        |
| 14       | P-620-1  | Permanent Reflective Airfield Pavement Markings                   | SF   | 370      |            |        |
| 15       | P-620-2  | Permanent Non-Reflective Airfield Pavement Markings               | SF   | 1,300    |            |        |
| 16       | P-620-3  | Remove Existing Pavement Markings                                 | SF   | 275      |            |        |
| 17       | D-701-1  | Install 15 Inch Pipe (Reinforced Concrete Class IV)               | LF   | 85       |            |        |
| 18       | D-701-3  | Install 15 Inch Flared End Section (Precast Concrete) with Riprap | EA   | 2        |            |        |
| 19       | L-100-1  | Airfield Electrical Demolition                                    | LS   | 1        |            |        |

|    |         |   |    |     |  |  |
|----|---------|---|----|-----|--|--|
| 20 | L-108-1 | No. 8 AWG, L-824 Type C Cable, 5kV Rated Airfield Cable   | LF | 200 |  |  |
| 21 | L-108-4 | No. 6 AWG, Solid, Bare Copper Counterpoise Wire   | LF | 360 |  |  |
| 22 | L-110-1 | 1-2" Schedule 40 PVC Conduit, Direct Buried, Non-Encased  | LF | 200 |  |  |
| 23 | L-110-3 | 4-2" Schedule 40 PVC Conduit, Concrete Encased  | LF | 160 |  |  |
| 24 | L-115-1 | H-20 Load Rated Concrete Hand Hole  | EA | 3   |  |  |
| 25 | L-125-1 | L-861 Elevated Runway Edge Light Installed on L-867 Base Can including Isolation Transformer, stem, plate, mounting hardware and splice kit | EA | 1   |  |  |
| 26 | L-125-2 | L-853 Retro-reflective Marker, Stake Mounted  | EA | 20  |  |  |

**6.01** Bidder agrees that the work will be substantially completed in accordance with Paragraph 50-15 of the General Provisions and ready for final payment in accordance with paragraph 90-09 of the General Provisions on or before the dates indicated in the agreement.

**6.02** Bidder accepts the provisions of the agreement as to liquidated damages in the event of failure to complete the work within the times specified above, which shall be stated in the agreement.

**7.01** The following documents are attached to and made a condition of this bid:

1. Certified Copy of Resolution of Board of Directors
2. Statutory Bid Bond
3. Certificate of Insurability
4. Noncollusive Bidding Certification
5. Bidders Qualification Statements
6. List of Subcontractors and Suppliers
7. Bidders Statement on Previous Contracts Subject to EEO Clause
8. Certification of Non-Segregated Facilities
9. Suspension and Debarment Requirements for All Contractors
10. Trade Restriction Certificate
11. Buy American Certificate
12. Tax Delinquency and Felony Convictions

**8.01** The terms used in this bid with initial capital letters have the meanings indicated in the Instructions to Bidders, the General Conditions, and the Special Provisions.

SUBMITTED on \_\_\_\_\_, 2023.

Contractor License No. \_\_\_\_\_.

If Bidder is:

An Individual

Name (typed or printed): \_\_\_\_\_

By: \_\_\_\_\_ (SEAL)  
*(Individual's signature)*

Doing business as: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A Partnership

Partnership Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
*(Signature of general partner -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

A Corporation

Corporation Name: \_\_\_\_\_ (SEAL)

State of Incorporation: \_\_\_\_\_

Type (General Business, Professional, Service, Limited Liability): \_\_\_\_\_

By: \_\_\_\_\_  
*(Signature -- attach evidence of authority to sign)*

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(CORPORATE SEAL)

Attest \_\_\_\_\_  
*(Signature of Corporate Secretary)*

By: \_\_\_\_\_  
(Signature -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

(CORPORATE SEAL)

Attest \_\_\_\_\_  
(Signature of Corporate Secretary)

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Date of Qualification to do business is \_\_\_\_\_

A Joint Venture

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature of joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Joint Venturer Name: \_\_\_\_\_ (SEAL)

By: \_\_\_\_\_  
(Signature -- attach evidence of authority to sign)

Name (typed or printed): \_\_\_\_\_

Title: \_\_\_\_\_

Business address: \_\_\_\_\_

Phone No.: \_\_\_\_\_ FAX No.: \_\_\_\_\_

Phone and FAX Number, and Address for receipt of official communications:

**(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)**



**CERTIFIED COPY OF RESOLUTION OF BOARD OF DIRECTORS**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

**(Name of Corporation)**

RESOLVED that \_\_\_\_\_, \_\_\_\_\_  
(Person Authorized to Sign) (Title)

Of \_\_\_\_\_ be authorized to sign and submit the  
Bid

Of \_\_\_\_\_  
(Name of Corporation)

Proposal of this corporation for the following project:

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

The foregoing is a true and correct copy of the resolution adopted by \_\_\_\_\_ at  
the meeting of its Board of Directors held on the \_\_\_\_\_ day of \_\_\_\_\_, 2023.

By: \_\_\_\_\_

Title: \_\_\_\_\_

(SEAL)

**STATUTORY BID BOND**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA  
TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

**(Penalty of this bond must not be less than 10%  
of the bid amount)**

**KNOW ALL MEN BY THESE PRESENTS:**

That \_\_\_\_\_, (hereinafter "Principal"), as Principal, and  
\_\_\_\_\_ a corporation duly organized under the laws of the State of \_\_\_\_\_, with its principal offices in the City of \_\_\_\_\_, (hereinafter "Surety"), as Surety, are held and firmly bound unto the \_\_\_\_\_, (hereinafter "Obligee") in the amount of \_\_\_\_\_ (Dollars) (\$ \_\_\_\_\_), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has submitted a bid for the Weed Airport.

NOW, THEREFORE, if the Obligee shall accept the proposal of the Principal and the Principal shall enter into a contract with the Obligee in accordance with the terms of the proposal and give bonds and certificates of insurance as specified in the standard specifications with good and sufficient surety for the faithful performance of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give the bonds and certificates of insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal then this obligation is void.

Signed and Sealed this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
(Principal) SEAL

\_\_\_\_\_  
(Title)

By: \_\_\_\_\_  
SURETY SEAL

\_\_\_\_\_  
(Title)

(SEAL AND NOTARIAL ACKNOWLEDGMENT OF SURETY)

**CERTIFICATE OF INSURABILITY**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

I hereby certify that as a Bidder for this project, I am fully aware of the Insurance Requirements for the Contractor and that by submitting this bid proposal, assure the Owner that I am able to produce the required minimum insurance coverage should I be selected to be the successful bidder.

Should I be selected to be the successful bidder and then become unable to produce the insurance coverage prior to the award of the project, I understand that my bid will be rejected and that I will forfeit by bid bond.

\_\_\_\_\_ Date: \_\_\_\_\_  
COUNTERSIGNED BY (Insurance Representative)

\_\_\_\_\_ Date: \_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Firm's Name)  
\_\_\_\_\_

**NONCOLLUSIVE BIDDING CERTIFICATION**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

STATE OF \_\_\_\_\_ )  
 )  
COUNTY OF \_\_\_\_\_ )

I, \_\_\_\_\_ of the City of \_\_\_\_\_, in the  
County of \_\_\_\_\_ and the State of \_\_\_\_\_, of full age,  
being duly sworn according to the law on my oath depose and says that:

I am \_\_\_\_\_ a, \_\_\_\_\_  
(Name) (Title, Position, Etc.)

of the firm of \_\_\_\_\_,  
the Bidder making the bid for the proposed project as described in this set of contract documents, and that  
I executed the said Bid with full authority so to do; that said Bidder as not, directly or indirectly entered  
into any agreement, participated in any collusion, or otherwise taken any action in restraint of free,  
competitive bidding in connection with the above named Project; and that all statements contained in said  
Bid and in this affidavit are true and correct, and made with full knowledge that the Owner relies upon the  
truth of the statements contained in said Bid and in the statements contained in this affidavit is awarding  
the Contract for the said Project.

I further warrant that no person or selling agency has been employed or retained to solicit or secure  
such Contract upon an agreement of understanding, for a commission, percentage, brokerage or contingent  
fee, except bonafide employees or bonafide established commercial or selling agencies maintained by:

\_\_\_\_\_  
Signature of Bidder

\_\_\_\_\_  
Printed or Typed Name of Bidder

SEAL (if corporation)

Sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 2023, in the County of \_\_\_\_\_, State  
of California.

(Notary Public)

**BIDDERS QUALIFICATION STATEMENTS**

**(Completion of This Statement is Required for Advance of  
Consideration for Award of Contract)**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

**SUBMITTED BY:**

Name: \_\_\_\_\_  
(Print or Type Name of Bidder)

(A Corporation/A Partnership/An Individual/A Joint Venture)  
([Bidder to strike out non-applicable terms])

Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Gentlemen:

The undersigned certifies under oath the truth and correctness of all statements and of all answers to questions made hereinafter.

(Note: Attach Separate Sheets as Required)

1.0 How many years has your organization been in business as a Contractor? \_\_\_\_\_

2.0 How many years has your organization been in business under its present name? \_\_\_\_\_  
\_\_\_\_\_

3.0 If a corporation, answer the following: \_\_\_\_\_

3.1 Date of incorporation: \_\_\_\_\_

3.2 State of incorporation: \_\_\_\_\_

3.3 President's name: \_\_\_\_\_

3.4 Vice president's name(s): \_\_\_\_\_

3.5 Secretary's or Clerk's name: \_\_\_\_\_

3.6 Treasurer's name: \_\_\_\_\_

4.0 If individual or partnership, answer the following:

4.1 Date of organization: \_\_\_\_\_

4.2 Name and address of all partners. (State whether general or limited partnership):  
\_\_\_\_\_  
\_\_\_\_\_

5.0 If other than corporation or partnership, describe organization and name principals:

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6.0 Do you plan to subcontract any part of this project? \_\_\_\_\_. If so, give details (i.e. names, addresses and dollar value of each proposed subcontract and mention DBE goals)

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7.0 Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety expended any monies in connection with a contract for which they furnished a bond on your behalf? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

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8.0 Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or financed such completion; or had any surety expend any monies in connection with a contract for which they furnished a bond? If the answer to any portion of this question is "yes", please furnish details of all such occurrences including name of owner, architect or engineer, and surety, and name and date of project.

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9.0 List name of project, owner, architect or engineer, contract amount, percent complete and schedule completion of the major construction projects your organization has in process on this date.

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10.0 List name of project, owner, architect or engineer, contract amount, date of completion and percent of work completed with your own forces of the major projects of the same general nature as this project that your organization has completed in the past five years.

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11.0 List name, address and telephone number of a reference for each project listed under Items 9.0 and 10.0, above.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12.0 List name and construction experience of the principal individuals of your organization.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13.0 List the states and categories of construction in which your organization is legally qualified to do business.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14.0 List name, address and telephone number of an individual who represents each of the following and whom OWNER may contact for a financial reference:

- 14.1 A surety \_\_\_\_\_
- 14.2 A bank: \_\_\_\_\_
- 14.3 A major potential supplier: \_\_\_\_\_

15.0 Attach a financial statement, prepared on an accrual basis, in a form which clearly indicates Bidder's assets, liabilities and net worth.

- 15.1 Date of financial statement \_\_\_\_\_
- 15.2 Name of firm preparing statement: \_\_\_\_\_

16.0 Attach a list of all proposed electrical equipment, including the name of equipment and manufacturer, model number and estimated time for delivery to the project site. \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

17.0 Dated at \_\_\_\_\_

This \_\_\_\_ day of \_\_\_\_\_, 2023.

(Print or Type Name of Bidder)

By \_\_\_\_\_

\_\_\_\_\_  
Title

(Seal, if corporation)

**LIST OF SUBCONTRACTORS AND SUPPLIERS**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

| <b>Subcontractors and Suppliers</b> | <b>Address, Contact, Phone No.</b> | <b>Services to be Provided</b> | <b>DBE (Yes / No)</b> | <b>If DBE, % of Bid</b> |
|-------------------------------------|------------------------------------|--------------------------------|-----------------------|-------------------------|
|                                     |                                    |                                |                       |                         |
|                                     |                                    |                                |                       |                         |
|                                     |                                    |                                |                       |                         |
|                                     |                                    |                                |                       |                         |
|                                     |                                    |                                |                       |                         |
|                                     |                                    |                                |                       |                         |
|                                     |                                    |                                |                       |                         |

**TOTAL DBE PERCENTAGE**

I hereby certify by signing below that the foregoing Subcontractors and Suppliers shall be contracted to work on the trades identified above or supply material and/or equipment for this project. The information shown is a true reflection of the proposed subcontracts expressed as a percentage of the base bid.

\_\_\_\_\_  
**Signature**

\_\_\_\_\_  
**Date**

\_\_\_\_\_  
**Title**

\_\_\_\_\_  
**Firm**



**CERTIFICATION OF COMPLIANCE WITH BUY AMERICAN PREFERENCE -  
CONSTRUCTION**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023**

**FAA AIP PROJECT NO. 3-06-0274-018-2023**

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,<sup>1</sup> U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA’s Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA’s Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter “X”.

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<sup>1</sup> Per Executive Order 14005 “Made in America Laws” means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to “Buy America” or “Buy American,” that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

- Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- a) Only installing iron, steel and manufactured products produced in the United States;
  - b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
  - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
  - d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
  - b) To faithfully comply with providing U.S. domestic products.
  - c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
  - d) Certify that all construction materials used in the project are manufactured in the U.S.
- The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
- a) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
  - b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
  - c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
  - d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
  - e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

**Required Documentation**

**Type 2 Waiver (Nonavailability)** - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

**Type 3 Waiver** – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
- d) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

**Type 4 Waiver (Unreasonable Costs)** - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bids and/or offers;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

**False Statements:** Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code..

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Full Name and Title

**CERTIFICATION OF COMPLIANCE WITH BUY AMERICAN PREFERENCE –  
EQUIPMENT/BUILDING**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023**

**FAA AIP PROJECT NO. 3-06-0274-018-2023**

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,<sup>2</sup> U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA’s Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA’s Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter “X”.

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<sup>2</sup> Per Executive Order 14005 “Made in America Laws” means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to “Buy America” or “Buy American,” that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with their proposal. The bidder or offeror must indicate how they intend to comply with 49 USC § 50101, and other Made in America Laws, U.S. statutes, guidance, and FAA policies by selecting one on the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (not both) by inserting a checkmark (✓) or the letter “X”.

- Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- a) Only installing steel and manufactured products produced in the United States;
  - b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
  - c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
  - d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- a) To provide to the Airport Sponsor or FAA evidence that documents the source and origin of the steel and manufactured product.
  - b) To faithfully comply with providing U.S. domestic product.
  - c) To furnish U.S. domestic product for any waiver request that the FAA rejects.
  - d) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:
- a) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
  - b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
  - c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
  - d) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

**Required Documentation**

**Type 2 Waiver (Nonavailability)** - The iron, steel, manufactured goods or construction materials are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

**Type 3 Waiver** – The cost of the item components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “item”. The required documentation for a Type 3 waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
- b) Listing of all product components and subcomponents that are not comprised of 100 percent U.S. domestic content (Excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108 (products of unknown origin must be considered as non-domestic products in their entirety).
- c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly at place of manufacture.
- d) Percentage of non-domestic component and subcomponent cost as compared to total “item” component and subcomponent costs, excluding labor costs associated with final assembly at place of manufacture.

**Type 4 Waiver (Unreasonable Costs)** - Applying this provision for iron, steel, manufactured goods or construction materials, would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- a) Completed Content Percentage Worksheet and Final Assembly Questionnaire from
- b) At minimum two comparable equal bidders and/or offerors;
- c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- d) Completed waiver applications for each comparable bid and/or offer.

**False Statements:** Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Full Name and Title

**CERTIFICATION REGARDING DEBARMENT AND SUSPENSION**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

**CERTIFICATION OF OFFEROR/BIDDER REGARDING DEBARMENT**

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

**CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT**

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a “covered transaction”, must confirm each lower tier participant of a “covered transaction” under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: <http://www.sam.gov>.
2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Full Name and Title

**CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Full Name and Title



**TRADE RESTRICTION CERTIFICATION**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
- 2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
- 3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

- 1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
- 2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
- 3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely

on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

\_\_\_\_\_

Date

\_\_\_\_\_

Signature

\_\_\_\_\_

Company Name

\_\_\_\_\_

Full Name and Title

**CERTIFICATION REGARDING LOBBYING AND INFLUENCING FEDERAL EMPLOYEES**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Full Name and Title

**PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE  
SERVICES OR EQUIPMENT**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

\_\_\_\_\_

Date

\_\_\_\_\_

Signature

\_\_\_\_\_

Company Name

\_\_\_\_\_

Full Name and Title

**CERTIFICATION OF OFFEROR/BIDDER REGARDING TAX DELINQUENCY AND FELONY  
CONVICTIONS**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023**

**FAA AIP PROJECT NO. 3-06-0274-018-2023**

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

**Certifications**

- 1.) The applicant represents that it is (  ) is not (  ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2.) The applicant represents that it is (  ) is not (  ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

**Note**

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

**Term Definitions**

**Felony conviction:** Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

**Tax Delinquency:** A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Full Name and Title

**CONSTRUCTION CONTRACT**

**A. EFFECTIVE DATE**

This Contract is entered into by and between the Owner and the Contractor for construction of the project and shall be effective as of \_\_\_\_\_, 2023.

**B. OWNER**

Siskiyou County  
190 Greenhorn Road  
Yreka, CA 96097

**C. CONTRACTOR**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**D. ENGINEER/PROJECT MANAGER**

Heath Hildebrandt, P.E.  
Kimley-Horn and Associates, Inc.  
7900 Rancharrah Parkway, Suite 100  
Reno, NV. 89511  
Phone: (775) 787-7552

**E. PROJECT**

Weed Airport, Siskiyou County, California  
Taxiway and Apron Reconstruction Project - Phase 1  
FAA AIG No. 3-06-0274-017-2023 and FAA AIP No. 3-06-0274-018-2023

**F. WORK TO BE PERFORMED**

**Project Bid** includes the reconstruction of approximately 28,000 square yards of asphalt pavement on the apron and taxiways. The existing asphalt pavement and aggregate base will be pulverized and re-used as recycled aggregate base course. Demolition also includes the removal of the existing the storm drain systems. New asphalt pavement will be installed on the apron and taxiways. In addition, earthwork grading and drainage improvements will be installed throughout the area of

improvements. The project also includes the installation of pavement markings, reflector lights, and airfield electrical. There are two bid alternates of asphalt pavement reconstruction with areas of 4,500 square yards and 3,000 square yards, respectively.

## **G. RECITALS**

The Owner intends to construct the **Taxiway and Apron Reconstruction Project - Phase 1** and other items as necessary for the full and efficient use of the project in connection with Weed Airport located in Siskiyou County, California. The Owner desires to contract for a certain construction services and materials, and the Contractor desires to provide construction services and materials.

NOW, THEREFORE, intending to be legally bound and for valuable consideration, the receipt and sufficiency of which are acknowledged, the Owner and Contractor agree as follows:

## **H. AGREEMENTS**

### **ARTICLE 1 THE CONTRACT**

The contract consists of (1) this Construction Contract, (2) the General Conditions, (3) Federal Assurances, (4) Special Provisions, (5) Drawings, Technical Specifications and other documents or amendments referenced in Article 7 of the Construction Contract, and (6) any amendments or modifications to the foregoing documents, including (a) a written amendment signed by both parties, (b) a Change Order, (c) a Change Directive, (d) Supplementary Instructions, or (e) a written order for a minor change in the work (collectively the "Contract").

### **ARTICLE 2 THE WORK**

The Contractor shall execute the entire work described in the Contract and all work reasonably inferable as necessary to produce the results intended by the Contract.

### **ARTICLE 3 CONTRACT TIME**

- 3.1 The Contractor shall achieve Substantial Completion of the work (as defined in the General Conditions and evidenced by a Certificate of Substantial Completion) not later than 5 calendar days from the date of the official notice to proceed.
- 3.2 Final Completion of the work shall occur not more than five (5) calendar days after the Substantial Completion date.

Whether the Owner assesses liquidated damages or not for the Contractor's failure to achieve Partial Acceptance, Substantial Completion, or Final Completion of the work, the Owner shall have the right to retain any liquidated damages from payments due Contractor. Liquidated damages, for failure to reach substantial completion, within the time specified for any or all construction phases, shall be five hundred dollars (\$500.00) per calendar day.

### **ARTICLE 4 CONTRACT SUM**

- 4.1 The Owner shall pay the Contractor in current funds for the Contractor's performance of the Contract the Contract Sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), subject to the additions and deductions as provided in the Contract.
- 4.2 Unit prices are set forth in the Bid Proposal attached hereto as Exhibit A. The unit prices include (1) all materials, equipment, labor, delivery, installation, overhead, profit, taxes, bond, insurance, and commissions, and (2) any other costs or expenses in connection with or incidental to the performance of that portion of the work to which such unit prices apply.

#### **ARTICLE 5      PROGRESS PAYMENTS**

Progress payments will be made in accordance with Section 90 of the General Provisions.

#### **ARTICLE 6      FINAL PAYMENT**

Final payment will be made in accordance with Section 90 of the General Provisions.

#### **ARTICLE 7      CONTRACT DOCUMENTS**

- 7.1 The Contract, except for modifications issued after the effective date of the Construction Contract, consists of the following documents:
- 7.1.1 The Construction Contract.
- 7.1.2 Plans, Specifications and Addenda attached.
- 7.1.3 Bid Documents as follows:
- p. Bid Proposal
  - q. Certified Copy of Resolution of Board of Directors
  - r. Statutory Bid Bond
  - s. Certificate of Insurability
  - t. Non-Collusive Bidding Certification
  - u. Bidders Qualification Statement
  - v. List of Subcontractors and Suppliers
  - w. Certification of Buy American – Construction Projects
  - x. Certification of Buy American – Equipment/Building Projects
  - y. Certification Regarding Debarment and Suspension
  - z. Certification Regarding Domestic Preference for Procurements
  - aa. Trade Restriction Certification
  - bb. Certification Regarding Lobbying and Influencing Federal Employees
  - cc. Certification of Prohibition of Certain Telecommunications and Video Surveillance Services or Equipment
  - dd. Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions
- 7.1.4 Amendments or modifications to the Contract, if any, to which the parties may agree during Contract performance.



- 7.2 There are no Contract Documents other than those listed above in this Article 7. The Contract Documents may only be amended, modified, or supplemented as provided in the General Conditions.
- 7.3 The Contract Documents are complementary, and a requirement called for by one is as binding as if called for by all. In resolving conflicts, if any, the Contract Documents shall be given the precedence that the Engineer determines is consistent with their intent and that will produce the intended result. When not in contradiction with this priority, the Contract Documents shall be given precedence in the order in which they are listed in this Article 7.

## **ARTICLE 8 MISCELLANEOUS**

- 8.1 If any provision(s) of the Contract is/are invalid, illegal or unenforceable, all other provisions of the Contract shall nevertheless remain in full force and effect. If any Contract provision is inapplicable to any person or circumstance, that provision shall nevertheless remain applicable to all other persons and circumstances.
- 8.2 It is Contractor's and Owner's intent that all provisions of law required to be inserted or referenced in the Contract Documents shall be incorporated into them. If any provision of law is not inserted or referenced in the Contract Documents, or is inserted or referenced in improper form, the provision shall be considered inserted or referenced in proper form at no increase in Contract Price or Contract Time.
- 8.3 Contractor shall not sell, assign, transfer or otherwise convey any of its rights and shall not delegate any of its duties under this Contract without Owner's prior express written consent. In its sole discretion Owner may refuse to consent to any proposed assignment or delegation. Any attempted sale, assignment, transfer, conveyance or delegation in violation of this Paragraph 8.3 shall be void and shall relieve Owner of any further liability under the Contract Documents. If Owner consents in writing to an assignment, unless specifically stated to the contrary in the consent, the assignment shall not release or discharge Contractor from any duty or responsibility set forth in the Contract Documents.
- 8.4 Nothing contained in the Contract shall in any manner authorize, empower, or constitute Contractor, its subcontractors, or suppliers as agent(s) of Owner, authorize or empower Contractor, its subcontractors, or suppliers to assume or create any obligation or responsibility whatsoever, express or implied, on behalf of or in the name of Owner or authorize or empower Contractor, its subcontractors or suppliers to bind Owner in any manner or to make any representation, warranty, covenant, agreement, or commitment on Owner's behalf. Contractor shall perform all work under this Contract as an independent contractor. This Contract shall not create any rights enforceable by any person not a party to the Contract.

- 8.5 This Contract shall be binding on Owner and Contractor and all of their respective successors, heirs, legal representatives, and, if Owner has consented to an assignment or delegation as provided in Paragraph 8.3, assigns and delegates.
- 8.6 This Contract supersedes all prior oral or written agreements, if any, between the parties and constitutes the entire, integrated agreement between the parties with respect to the work to be performed under the Contract Documents.
- 8.7 This Contract shall be governed by and construed in accordance with the laws of the state of California, without giving effect to any rules governing conflict of laws.

The Contract is effective as of the day and year first written above.

**SISKIYOU COUNTY**

**CONTRACTOR**

By: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

By: \_\_\_\_\_  
 Title: \_\_\_\_\_  
 Date: \_\_\_\_\_

**ATTEST:**

By: \_\_\_\_\_  
 Official Record Keeper

By \_\_\_\_\_  
 General Counsel

**STATUTORY PERFORMANCE BOND**

KNOW ALL MEN BY THESE PRESENTS:

That, \_\_\_\_\_, (hereinafter called the Principal), as Principal, and the \_\_\_\_\_, a corporation duly organized under the laws of the State of \_\_\_\_\_, with its principal office in the City of \_\_\_\_\_, (hereinafter called the Surety), as Surety, are held and firmly bound unto **SISKIYOU COUNTY, Yreka, California 96097** (hereinafter called the Obligee), in the amount of \_\_\_\_\_ (Dollars) (\$ \_\_\_\_\_), 100% of the contract amount for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Obligee, dated the \_\_\_\_ day of \_\_\_\_\_, 2023 to construct Taxiway and Apron Reconstruction Project – Phase 1, project number AIG 3-06-0274-017-2023 and AIP 3-06-0274-018-2023, which contract is hereby referred to and made a part of this bond as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms, conditions, and agreements of the contract during the original term of the contract and any extension of the contract, with or without notice to the Surety, and during the life of any guaranty required under the contract, and also performs and fulfills all the undertakings, covenants, terms, conditions, and agreements of all duly authorized modifications of the contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension time, alteration or addition to the terms of the contract or to work to be performed thereunder of the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications.

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
**AGENCY OF RECORD, STATE OF CALIFORNIA**

\_\_\_\_\_  
**PRINCIPAL**

BY: \_\_\_\_\_

\_\_\_\_\_  
AGENCY ADDRESS

\_\_\_\_\_  
TITLE:

\_\_\_\_\_  
**SURETY**

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

**BOND NUMBER:** \_\_\_\_\_  
**ATTORNEY**

**ATTACH SURETY POWER OF**

NOTE: Date of bond must not be prior to the date of Contract. If Contractor is a Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where project is located.

**STATUTORY PAYMENT BOND**  
**(Labor and Materials)**

KNOW ALL MEN BY THESE PRESENTS:

That, \_\_\_\_\_, (hereinafter called the Principal), as Principal, and the \_\_\_\_\_, a corporation duly organized under the laws of the State of \_\_\_\_\_, with its principal office in the City of \_\_\_\_\_, (hereinafter called the Surety), as Surety, are held and firmly bound unto **SISKIYOU COUNTY, Yreka, California 96097** (hereinafter called the Obligee), in the amount of \_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), 100% of the contract amount for the payment of which the Principal and Surety bind themselves and their heirs, administrators, executors, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with Obligee, dated the \_\_\_\_ day of \_\_\_\_\_, 2023 to construct Taxiway and Apron Reconstruction Project - Phase 1, project number AIG 3-06-0274-017-2023 and AIP 3-06-0274-018-2023, which contract is hereby referred to and made a part of this bond as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in the contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED FURTHER, that the said Surety, for value received, hereby stipulates and agrees that no change, extension time, alteration or addition to the terms of the contract or to work to be performed thereunder of the specifications accompanying the same shall in any way affect its obligation on this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of the contract or to the work or to the specifications.

PROVIDED FURTHER, that no final settlement between the Owner and the Contractor shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

Witness our hands this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
**AGENCY OF RECORD, STATE OF CALIFORINA**

\_\_\_\_\_  
**PRINCIPAL**

BY: \_\_\_\_\_

\_\_\_\_\_  
AGENCY ADDRESS

\_\_\_\_\_  
TITLE:

\_\_\_\_\_  
**SURETY**

BY: \_\_\_\_\_

TITLE: \_\_\_\_\_

**BOND NUMBER:** \_\_\_\_\_  
**ATTORNEY**

**ATTACH SURETY POWER OF**

NOTE: Date of bond must not be prior to the date of Contract. If Contractor is a Partnership, all partners should execute bond.

IMPORTANT: Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the state where project is located.

**CERTIFICATE OF SUBSTANTIAL COMPLETION**

**(To be completed by Engineer)**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

I hereby certify that \_\_\_\_\_ has substantially completed \_\_\_\_\_ (Name of Contractor)

The work under:

**Project Nos.:            FAA AIG PROJECT NO. 3-06-0274-017-2023  
                              FAA AIP PROJECT NO. 3-06-0274-018-2023**

**Project Name:            Taxiway and Apron Reconstruction Project - Phase 1**

In accordance with the contract documents and bid specifications, and all activities required by the Contractor under the Contract have been substantially completed as of \_\_\_\_\_ (date).

Firm Name: \_\_\_\_\_

Principal: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)

**CERTIFICATE OF COMPLETION**  
**(To be completed by Contractor)**

**WEED AIRPORT**  
**SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023**  
**FAA AIP PROJECT NO. 3-06-0274-018-2023**

I hereby certify that all goods and/or services required by **SISKIYOU COUNTY**, have been delivered in accordance with the Contract Documents and bid specifications, and all activities required by the Contractor under the Contract have been completed, including all items on the final punch list, including administrative items, as of \_\_\_\_\_  
\_\_\_\_\_.

(Date)

Firm Name: \_\_\_\_\_

Principal: \_\_\_\_\_  
(Name)

\_\_\_\_\_  
(Title)

\_\_\_\_\_  
(Signature)

\_\_\_\_\_  
(Date)





**APPLICATION AND CERTIFICATE FOR PAYMENT**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

CONSULTANT: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

Application No. \_\_\_\_\_ Period From \_\_\_\_\_ To: \_\_\_\_\_

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Application is made for payment, as shown below, and on the attached Construction Progress Estimate Form, in accordance with the Contract Documents:

Original Contract Price: \$ \_\_\_\_\_

Approved Change Orders and Dates:

|                   |            |          |
|-------------------|------------|----------|
| Change Order No.1 | Date _____ | \$ _____ |
| Change Order No.2 | Date _____ | \$ _____ |
| Change Order No.3 | Date _____ | \$ _____ |

Total Change Orders Approved to Date: \$ \_\_\_\_\_

Adjusted Contract Price \$ \_\_\_\_\_

Total Amount Due to Date  
(from attached Construction Progress Estimate) \$ \_\_\_\_\_

Retainage \_\_\_\_\_% \$ \_\_\_\_\_

Total Earned Less Retainage \$ \_\_\_\_\_

Less Previous Certificates for Payment \$ \_\_\_\_\_

Currently Payment Due \$ \_\_\_\_\_

Notice to Proceed Date \_\_\_\_\_ Date of Substantial Completion \_\_\_\_\_

Time Used \_\_\_\_\_% Complete \_\_\_\_\_%

**PAYMENT APPLICATION CERTIFICATE**

**Contractor's Certification**

The undersigned Contractor certifies that the work covered by this Application for Payment has been completed in accordance with the Contract Documents and that all amounts have been paid by him for work for which previous Certificates for Payment were issued and payments received from the Owner, that the current payment shown is that due. The Contractor has reviewed this application, provided certified calculations, data and quantities to justify the quantities in this estimate.

CONTRACTOR

By: \_\_\_\_\_

Date: \_\_\_\_\_

**Engineer's Certification**

The Engineer has reviewed this application, accompanying data and schedules and having made on-site observation of the work consistent with his assigned responsibilities certifies that to his best knowledge and belief, the quality of the work performed is in accordance with the Contract Documents, that the work has progressed as indicated herein, and that the Contractor is entitled payment to the amount shown above.

ENGINEER

By: \_\_\_\_\_

Date: \_\_\_\_\_

SISKIYOU COUNTY

By: \_\_\_\_\_

Date: \_\_\_\_\_

**NOTICE OF AWARD**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1  
FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

TO: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Siskiyou County has considered the BID submitted by you for the above described WORK in response to the Advertisement for BIDS dated \_\_\_\_\_. You are hereby notified that you were awarded this bid by Siskiyou County on \_\_\_\_\_, in the amount of \$\_\_\_\_\_. You are required by the Terms and Conditions of this bid to execute the Construction Contract and to furnish Contractor’s Performance and Payment Bonds and submit the appropriate Certificate(s) of Insurance within ten (10) days from this Notice.

If you fail to execute the Construction Contract, furnish the required bonds, and submit Insurance Certificate(s) within ten (10) days from the date of this Notice, the Owner will consider this as a forfeiture of your Bid Bond. The Owner will be entitled to such other rights as may be granted by law.

A pre-construction meeting is scheduled for \_\_\_\_\_2023, at \_\_\_\_\_ in the City Hall, Siskiyou County, California. Submittals that are to be provided prior to the pre-construction meeting are specified in Special Provisions Section 5.

You are required to return an acknowledged copy of the NOTICE OF AWARD to Siskiyou County Dated this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

**SISKIYOU COUNTY:**

By: \_\_\_\_\_

Title: \_\_\_\_\_

**ACCEPTANCE OF NOTICE:**

Receipt of the above NOTICE OF AWARD is hereby acknowledged.

By: \_\_\_\_\_

Title: \_\_\_\_\_

Subscribed and sworn before me this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
(Notary Public)

\_\_\_\_\_  
(My Commission Expires)

**NOTICE TO PROCEED**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

[Contractor Name]  
[Contractor Address]

**Attn: [Contractor's Project Manager]**

**Re: Weed Airport  
Taxiway and Apron Reconstruction Project - Phase 1  
AIG Project No. 3-06-0274-017-2023  
AIP Project No. 3-06-0274-018-2023  
Notice to Proceed**

Dear [name]:

You are unconditionally authorized to proceed with the above-referenced project effective the date of this letter. The contract time is \_\_\_\_ calendar days. All work shall be performed strictly in accordance with the Contract Documents, including all project schedule requirements.

Your contact for this project is \_\_\_\_\_, phone no. \_\_\_\_\_, and all project communications should be directed to him [or her]. If the preconstruction conference has not already occurred, he will contact you shortly about scheduling it.

Remember, the Owner must approve *in writing* any and all changes in the project scope of work before you start work on the change.

Siskiyou County looks forward to a successful project with your firm.

Sincerely,

**SISKIYOU COUNTY**

**CHANGE ORDER**

PROJECT: Weed Airport CHANGE ORDER NO: \_\_\_\_  
Siskiyou County, California  
Taxiway and Apron Reconstruction Project - Phase 1  
INITIATION DATE: \_\_\_\_\_

TO CONTRACTOR: [Name] CONTRACT NO: \_\_\_\_\_  
[Address] CONTRACT DATE: \_\_\_\_\_

**The Contract is changed as follows.** Contractor shall provide all labor, materials, equipment, services, transportation, utilities, and facilities to perform all of the following changes: [describe].

This Change Order shall constitute a final settlement of all matters relating to the change in the work that is the subject of the Change Order, including but not limited to all direct or indirect costs associated with such change, all delay and disruption costs, any impact such change may have on unchanged work, and any and all adjustments to the Contract Sum or the Contract Time. This Change Order supersedes all prior reservations stated or implied.

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**Not Valid until signed by the Owner, Engineer, and Contractor.**

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The original *Contract Sum* was..... \$ \_\_\_\_\_  
Net change by previously authorized Change Orders..... \$ \_\_\_\_\_  
The *Contract Sum* prior to this Change Order was..... \$ \_\_\_\_\_  
The *Contract Sum* will be *increased* [or *decreased*] by this Change Order..... \$ \_\_\_\_\_  
The new *Contract Sum* including this Change Order is..... \$ \_\_\_\_\_  
The Contract Time will be *unchanged* [or *increased/decreased by* \_\_\_\_ *calendar days*.]  
The Substantial Completion date for base contract work is *unchanged* [or *changed to* \_\_\_\_\_, 2023.]

[Contractor],

**SISKIYOU COUNTY**

By \_\_\_\_\_

By \_\_\_\_\_

It's \_\_\_\_\_

It's \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_  
Date

Kimley-Horn and Associates, Inc.

By \_\_\_\_\_

\_\_\_\_\_  
Date

It's \_\_\_\_\_

**CONDITIONAL FULL RELEASE OF ALL CLAIMS AND WAIVER OF LIEN UPON FINAL  
PAYMENT  
(GENERAL CONTRACTOR)**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

WHEREAS, the undersigned, \_\_\_\_\_ (General Contractor) has furnished labor, materials, and services and/or equipment for the construction of Taxiway and Apron Reconstruction Project - Phase 1 at the Weed Airport, Siskiyou County, State of California, on the Property of Weed Airport, Siskiyou County, California.

NOW, THEREFORE, the undersigned, on receipt of a check from the Owner payable to the General Contractor in the sum of \$ \_\_\_\_\_, said sum representing full and final payment for the above-mentioned labor, materials, services and/or equipment, does hereby waive and release any and all liens, claims of lien, and demands whatsoever that now exist or may hereafter accrue against the Owner and the Property on account of labor and materials furnished by the undersigned.

The undersigned warrants that all materials and labor placed by the undersigned in the Project are free from any claims, liens, or encumbrances and that all bills and obligations incurred for labor, taxes, withholding taxes based on payroll and payable to the United State of America or State of California, premiums under a voluntary disability insurance policy, if any, carried with a private insurer, and payments to all union health, welfare, pension, apprentice training and vacation funds applicable for workmen employed on the above-described Project, in connection with the work of improvement on the Project, have been paid in full. The undersigned warrants that all subcontractors and materialmen who may have delivered materials and performed work upon the Property for the Project have been fully paid or will be paid from monies received from this final payment. The undersigned shall and does hereby indemnify, save, and hold harmless the Owner and Contractor from all claims, damages, liens and losses, including all costs, professional fees, and reasonable attorney's fees, which the Owner may suffer by reason of filing of any claims, notices, liens or encumbrances, or the failure of the undersigned to obtain cancellation and discharge thereof.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
Company Name

By \_\_\_\_\_

\_\_\_\_\_  
(Title)

**CONDITIONAL FULL RELEASE OF ALL CLAIMS AND WAIVER OF LIEN UPON FINAL  
PAYMENT  
(SUB-CONTRACTOR / SUPPLIER)**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

WHEREAS, the undersigned, \_\_\_\_\_ (Sub-Contractor) has furnished labor, materials, and services and/or equipment to \_\_\_\_\_ (General Contractor) for the construction of Taxiway and Apron Reconstruction Project - Phase 1 at the Weed Airport, Siskiyou County, State of California, on the Property of Weed Airport, Siskiyou County, California.

NOW, THEREFORE, the undersigned, on receipt of a check from the General Contractor payable to the Sub-Contractor in the sum of \$ \_\_\_\_\_, said sum representing full and final payment for the above-mentioned labor, materials, services and/or equipment, does hereby waive and release any and all liens, claims of lien, and demands whatsoever that now exist or may hereafter accrue against the Owner and the Property on account of labor and materials furnished by the undersigned.

The undersigned warrants that all materials and labor placed by the undersigned in the Project are free from any claims, liens, or encumbrances and that all bills and obligations incurred for labor, taxes, withholding taxes based on payroll and payable to the United State of America or State of California, premiums under a voluntary disability insurance policy, if any, carried with a private insurer, and payments to all union health, welfare, pension, apprentice training and vacation funds applicable for workmen employed on the above-described Project, in connection with the work of improvement on the Project, have been paid in full. The undersigned warrants that all subcontractors and materialmen who may have delivered materials and performed work upon the Property for the Project have been fully paid or will be paid from monies received from this final payment. The undersigned shall and does hereby indemnify, save, and hold harmless the Owner and Contractor from all claims, damages, liens and losses, including all costs, professional fees, and reasonable attorney's fees, which the Owner may suffer by reason of filing of any claims, notices, liens or encumbrances, or the failure of the undersigned to obtain cancellation and discharge thereof.

DATED this \_\_\_\_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
Company Name

By \_\_\_\_\_

\_\_\_\_\_  
(Title)



**DEFECTIVE MATERIALS AND WORKMANSHIP BOND (SURETY)**

**WEED AIRPORT  
SISKIYOU COUNTY, CALIFORNIA**

**TAXIWAY AND APRON RECONSTRUCTION PROJECT - PHASE 1**

**FAA AIG PROJECT NO. 3-06-0274-017-2023  
FAA AIP PROJECT NO. 3-06-0274-018-2023**

KNOW ALL MEN BY THESE PRESENTS:

That we, \_\_\_\_\_,  
(hereinafter called the Principal), as Principal, and \_\_\_\_\_, a  
corporation organized and existing under the laws of the State of \_\_\_\_\_, and  
authorized to do a general surety business in the State of California, as Surety, are held and firmly  
bound unto Siskiyou County, California 96025, a County of the State of California, in the just and  
full sum of \_\_\_\_\_ (Dollars) (\$\_\_\_\_\_), which is  
five percent (5%) of the contract amount, in lawful money of the United States of America, for which  
sum, well and truly to be paid, we bind ourselves, our heirs, executors, administrators, successors, and  
assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that whereas the said Principal entered into a certain contract  
with the Owner entitled "Taxiway and Apron Reconstruction Project - Phase 1, Weed Airport" and  
whereas the Principal contracted to give the Owner a Surety Bond in the sum stated above,  
conditioned that the Principal would make good and protect the Owner against the results of any work  
or labor done or materials furnished which are defective or not in accordance with the terms of said  
contract having been used or incorporated in any part of the work so contracted for, which shall have  
appeared or been discovered within the period of one (1) year from and after the completion and final  
acceptance of the work done under said contract.

NOW, THEREFORE, if the Principal shall well and truly make good and protect the Owner against  
the results of any work or labor done or materials furnished which are defective or not in accordance  
with the terms of said contract having been used or incorporated in any part of the work performed  
under said contract, which shall have appeared or been discovered within said one (1) year period  
from and after completion and final acceptance of said work, then this obligation shall be null and  
void; otherwise to remain in full force and effect.

**SIGNED AND SEALED THIS** \_\_\_\_\_ day of \_\_\_\_\_, 2023.

By \_\_\_\_\_ By \_\_\_\_\_

**PRINCIPAL**

**SURETY**

Title \_\_\_\_\_ Title \_\_\_\_\_

(Attach Acknowledgement of both Principal and Surety signatures)

## **FEDERAL ASSURANCES**

### **ACCESS TO RECORDS AND REPORTS**

(Reference: 2 CFR § 200.334, 2 CFR § 200.337, and FAA Order 5100.38)

### **ACCESS TO RECORDS AND REPORTS**

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

**AFFIRMATIVE ACTION REQUIREMENT**

(Reference: 41 CFR part 60-4 and Executive Order 11246)

**NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION to  
ENSURE EQUAL EMPLOYMENT OPPORTUNITY**

1. The Offeror’s or Bidder’s attention is called to the “Equal Opportunity Clause” and the “Standard Federal Equal Employment Opportunity Construction Contract Specifications” set forth herein.
2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor’s aggregate workforce in each trade on all construction work in the covered area, are as follows:

**Timetables**

- Goals for minority participation for each trade: 3.0%
- Goals for female participation in each trade: 6.9%

These goals are applicable to all of the Contractor’s construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor’s compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor’s goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the “covered area” is California, Siskiyou County.

**BREACH OF CONTRACT TERMS**

(Reference: 2 CFR § 200 Appendix II(A))

**BREACH OF CONTRACT TERMS**

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner’s notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner’s notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

## **BUY AMERICAN PREFERENCE**

(Reference: Title 49 USC § 50101)

### **FAA BUY AMERICAN PREFERENCE**

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,<sup>3</sup> U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

- Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:
- e) Only installing iron, steel and manufactured products produced in the United States;
  - f) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.

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<sup>3</sup> Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

- g) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
- h) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

- e) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
- f) To faithfully comply with providing U.S. domestic products.
- g) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
- h) Certify that all construction materials used in the project are manufactured in the U.S.

The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

- f) To submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
- g) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
- h) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
- i) To furnish U.S. domestic product for any waiver request that the FAA rejects.
- j) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

### Required Documentation

**Type 2 Waiver (Nonavailability)** - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

- d) Completed Content Percentage Worksheet and Final Assembly Questionnaire
- e) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
- f) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

**Type 3 Waiver** – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the “facility/project.” The required documentation for a Type 3 waiver is:

- e) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;

- f) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
- g) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
- h) Percentage of non-domestic component and subcomponent cost as compared to total “facility” component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

**Type 4 Waiver** (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

- e) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
- f) At minimum two comparable equal bids and/or offers;
- g) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
- h) Completed waiver applications for each comparable bid and/or offer.

**CIVIL RIGHTS – GENERAL**

(Reference: 49 USC § 47123)

**GENERAL CIVIL RIGHTS PROVISIONS**

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.



## CIVIL RIGHTS – TITLE VI ASSURANCE

(Reference: 49 USC § 47123 and FAA Order 1400.11)

### Title VI Solicitation Notice:

Siskiyou, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, or disadvantaged business enterprises or airport concession disadvantaged business enterprises] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

### Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”) agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq.*, 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq.*), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27;
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq.*) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 471, Section 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-209) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 USC §§ 12131 – 12189) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration’s Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take

reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC 1681 et seq).

### **Compliance with Nondiscrimination Requirements:**

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the “Contractor”), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.
2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.
3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor’s obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.
4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.
5. **Sanctions for Noncompliance:** In the event of a Contractor’s noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:
  - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
  - b. Cancelling, terminating, or suspending a contract, in whole or in part.
6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or

the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

**CLEAN AIR AND WATER POLLUTION CONTROL**

(Reference: 2 CFR § 200, Appendix II(G) and 42 USC § 7401, et seq and 33 USC § 1251, et seq)

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceed \$150,000.

## **CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS**

(Reference: 2 CFR § 200, Appendix II(E), 2 CFR § 5.5(b), 40 USC § 3702 and 40 USC § 3704)

### 1. Overtime Requirements.

No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

### 2. Violation; Liability for Unpaid Wages; Liquidated Damages.

In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of \$29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

### 3. Withholding for Unpaid Wages and Liquidated Damages.

The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

### 4. Subcontractors.

The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

**COPELAND “ANTI-KICKBACK” ACT**

(Reference: 2 CFR § 200, Appendix II(D) and 29 CFR Parts 3 and 5)

Contractor must comply with the requirements of the Copeland “Anti-Kickback” Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

## DAVIS-BACON REQUIREMENTS

(Reference: 2 CFR § 200, Appendix II(D), 29 CFR Part 5, 49 USC § 47112(b), and 40 USC § 3141-3144,3146, and 3147)

### 1. Minimum Wages.

(i) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

(ii)(A) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

- (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
- (2) The classification is utilized in the area by the construction industry; and
- (3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(B) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(C) In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the

contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

(D) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided*, that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

### 3. Payrolls and Basic Records.

(i) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(ii)(A) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if



the agency is not such a party, the Contractor will submit the payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

(B) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

(2) That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(C) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

(D) The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

#### 4. Apprentices and Trainees.

(i) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(iii) Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

(i) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

## **DEBARMENT AND SUSPENSION**

(Reference: 2 CFR part 180 (Subpart B), 2 CFR part 200, Appendix II(H), 2 CFR part 1200, DOT Order 4200.5, and Executive Orders 12549 and 12689)

### **CERTIFICATION OF OFFERER/BIDDER REGARDING DEBARMENT**

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

### **CERTIFICATION OF LOWER TIER CONTRACTORS REGARDING DEBARMENT**

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a “covered transaction”, must confirm each lower tier participant of a “covered transaction” under the project is not presently debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

4. Checking the System for Award Management at website: <http://www.sam.gov>.
5. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.
6. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

## **DISADVANTAGED BUSINESS ENTERPRISE**

(Reference: 49 CFR part 26)

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

- 1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
- 2) A description of the work that each DBE firm will perform;
- 3) The dollar amount of the participation of each DBE firm listed under (1);
- 4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
- 5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
- 6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Siskiyou County to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

### **Contract Assurance (§ 26.13) –**

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

- 1) Withholding monthly progress payments;
- 2) Assessing sanctions;
- 3) Liquidated damages; and/or
- 4) Disqualifying the Contractor from future bidding as non-responsible.

### **Prompt Payment (§26.29) –**

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than 30 days from the receipt of each payment the prime contractor receives from Siskiyou County. The prime contractor agrees further to return retainage payments to each subcontractor within 30 days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause

following written approval of the Siskiyou County. This clause applies to both DBE and non-DBE subcontractors.

**Termination of DBE Subcontracts (49 CFR § 26.53(f); acceptable/sample text provided) –**

The prime contractor must not terminate a DBE subcontractor listed in response to this solicitation (or an approved substitute DBE firm) without prior written consent of Siskiyou County. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent Siskiyou County. Unless Siskiyou County consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

[Name of Recipient] may provide such written consent only if Siskiyou County agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to Siskiyou County its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to Siskiyou County, of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise [Name of Recipient] and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why Siskiyou County should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), Siskiyou County may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

**DISTRACTED DRIVING**

(Reference: Executive Order 13513 and DOT Order 3902.10)

**TEXTING WHEN DRIVING**

In accordance with Executive Order 13513, “Federal Leadership on Reducing Text Messaging While Driving”, (10/1/2009) and DOT Order 3902.10, “Text Messaging While Driving”, (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding \$10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

**PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE  
SERVICES OR EQUIPMENT**

(Reference: 2 CFR § 200, Appendix II(K) and 2 CFR § 200.216)

**PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE  
SERVICES OR EQUIPMENT**

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].



**DRUG FREE WORKPLACE REQUIREMENTS**

(Reference: 49 CFR Part 32 and Drug-Free Workplace Act of 1988 (41 USC § 8101-8106, as amended))

## **EQUAL EMPLOYEMENT OPPORTUNITY (EEO)**

(Reference: 2 CFR 200, Appendix II(C), 41 CFR § 60-1.4, 41 CFR § 60-4.3, and Executive Order 11246)

### **EQUAL OPPORTUNITY CLAUSE**

During the performance of this contract, the Contractor agrees as follows:

(1) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identity, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

(3) The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

(4) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(5) The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(6) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(7) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(8) The Contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding

upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance: *Provided*, however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

## **STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS**

1. As used in these specifications:

- a. "Covered area" means the geographical area described in the solicitation from which this contract resulted;
- b. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;
- c. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;
- d. "Minority" includes:
  - (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
  - (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
  - (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
  - (4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of \$10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract

resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

a. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such as superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

k. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

l. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint

contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program

**FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)**

(Reference: 29 USC § 201, et seq and 2 CFR § 200.430)

**FEDERAL FAIR LABOR STANDARDS ACT**

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

## **LOBBYING AND INFLUENCING FEDERAL EMPLOYEES**

(Reference: 31 USC § 1352 – Byrd Anti-Lobbying Amendment, 29 CFR Part 200, Appendix II(I), 49 CFR Part 20, Appendix A)

### **CERTIFICATION REGARDING LOBBYING**

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (4) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (5) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- (6) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



## **PROHIBITION OF SEGREGATED FACILITIES**

(Reference: 2 CFR Part 200, Appendix II(C) and 41 CFR Part 60-1)

### **PROHIBITION OF SEGREGATED FACILITIES**

(a) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

(b) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

(c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

**OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

(Reference: 29 CFR part 1910)

**OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

## **PROCUREMENT OF RECOVERED MATERIALS**

(Reference: 2 CFR § 200.323, 2 CFR Part 200, Appendix II(J), 40 CFR part 247, et seq (Resource Conservation and Recovery Act (RCRA))

## **PROCUREMENT OF RECOVERED MATERIALS**

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

- 1) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year;  
or
- 2) The contractor has procured \$10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at [www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products](http://www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products).

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

## **RIGHT TO INVENTIONS**

(Reference: 2 CFR Part 200, Appendix II(F), 37 CFR Part 401)

## **RIGHT TO INVENTIONS**

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

## **SEISMIC SAFETY**

(Reference: 49 CFR Part 41)

## **SEISMIC SAFETY**

In the performance of design services, the Consultant agrees to furnish a building design and associated construction specification that conform to a building code standard that provides a level of seismic safety substantially equivalent to standards as established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their building code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety. At the conclusion of the design services, the Consultant agrees to furnish the Owner a “certification of compliance” that attests conformance of the building design and the construction specifications with the seismic standards of NEHRP or an equivalent building code.

The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.

## TAX DELINQUENCY AND FELONY CONVICTIONS

(Reference: Section 8113 of the Consolidated Appropriations Act, 2022 (Public Law 117-103) and similar provisions in subsequent appropriations acts and DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions)

## TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant must complete the following two certification statements. The applicant must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The applicant agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

### Certifications

- 1) The applicant represents that it is (  ) is not (  ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
- 2) The applicant represents that it is (  ) is not (  ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

### Note

If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The applicant therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

### Term Definitions

**Felony conviction:** Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

**Tax Delinquency:** A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

## **TERMINATION OF CONTRACT**

(Reference: 2 CFR Part 200 Appendix II(B) and FAA Advisory Circular 150/5370-10, Section 80-09)

### **TERMINATION FOR CONVENIENCE (CONSTRUCTION & EQUIPMENT CONTRACTS)**

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.
2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.
3. Discontinue orders for materials and services except as directed by the written notice.
4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.
5. Complete performance of the work not terminated by the notice.
6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;
2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;
3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and
4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

### **TERMINATION FOR CONVENIENCE (PROFESSIONAL SERVICES)**

The Owner may, by written notice to the Consultant, terminate this Agreement for its convenience and without cause or default on the part of Consultant. Upon receipt of the notice of termination, except as explicitly directed by the Owner, the Contractor must immediately discontinue all services affected.

Upon termination of the Agreement, the Consultant must deliver to the Owner all data, surveys, models, drawings, specifications, reports, maps, photographs, estimates, summaries, and other documents and materials prepared by the Engineer under this contract, whether complete or partially complete.

Owner agrees to make just and equitable compensation to the Consultant for satisfactory work completed up through the date the Consultant receives the termination notice. Compensation will not include anticipated profit on non-performed services.

Owner further agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause

### **TERMINATION FOR DEFAULT (CONSTRUCTION)**

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

### **TERMINATION FOR DEFAULT (EQUIPMENT)**

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract for cause if the Contractor:

1. Fails to begin the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or
6. Becomes insolvent or declares bankruptcy.

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within [10] days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

The rights and remedies of the Owner in this clause are in addition to any other rights and remedies provided by law or under this contract.



### TERMINATION FOR CAUSE (PROFESSIONAL SERVICES)

Either party may terminate this Agreement for cause if the other party fails to fulfill its obligations that are essential to the completion of the work per the terms and conditions of the Agreement. The party initiating the termination action must allow the breaching party an opportunity to dispute or cure the breach.

The terminating party must provide the breaching party [7] days advance written notice of its intent to terminate the Agreement. The notice must specify the nature and extent of the breach, the conditions necessary to cure the breach, and the effective date of the termination action. The rights and remedies in this clause are in addition to any other rights and remedies provided by law or under this agreement.

- a) **Termination by Owner:** The Owner may terminate this Agreement for cause in whole or in part, for the failure of the Consultant to:
1. Perform the services within the time specified in this contract or by Owner approved extension;
  2. Make adequate progress so as to endanger satisfactory performance of the Project; or
  3. Fulfill the obligations of the Agreement that are essential to the completion of the Project.

Upon receipt of the notice of termination, the Consultant must immediately discontinue all services affected unless the notice directs otherwise. Upon termination of the Agreement, the Consultant must deliver to the Owner all data, surveys, models, drawings, specifications, reports, maps, photographs, estimates, summaries, and other documents and materials prepared by the Engineer under this contract, whether complete or partially complete.

Owner agrees to make just and equitable compensation to the Consultant for satisfactory work completed up through the date the Consultant receives the termination notice. Compensation will not include anticipated profit on non-performed services.

Owner further agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause.

If, after finalization of the termination action, the Owner determines the Consultant was not in default of the Agreement, the rights and obligations of the parties shall be the same as if the Owner issued the termination for the convenience of the Owner.

- b) **Termination by Consultant:** The Consultant may terminate this Agreement for cause in whole or in part, if the Owner:
1. Defaults on its obligations under this Agreement;
  2. Fails to make payment to the Consultant in accordance with the terms of this Agreement;
  3. Suspends the project for more than [180] days due to reasons beyond the control of the Consultant.

Upon receipt of a notice of termination from the Consultant, Owner agrees to cooperate with Consultant for the purpose of terminating the agreement or portion thereof, by mutual consent. If Owner and Consultant cannot reach mutual agreement on the termination settlement, the Consultant may, without prejudice to any rights and remedies it may have, proceed with terminating all or parts of this Agreement based upon the Owner's breach of the contract.

In the event of termination due to Owner breach, the Consultant is entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with this Agreement and all justified reimbursable expenses incurred by the Consultant through the effective date of termination action. Owner agrees to hold Consultant harmless for errors or omissions in documents that are incomplete as a result of the termination action under this clause.

**TRADE RESTRICTION CERTIFICATION**  
(Reference: 49 USC § 50104 and 49 CFR Part 30)

**TRADE RESTRICTION CERTIFICATION**

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

- 4) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);
- 5) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and
- 6) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

- 4) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
- 5) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
- 6) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

## **VETERAN'S PREFERENCE**

(Reference: 49 USC § 47112(c))

## **VETERAN'S PREFERENCE**

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

**DOMESTIC PREFERENES FOR PROCURMENTS**

(Reference: 2 CFR § 200.322 and 2 CFR Part 200, Appendix II(L))

**CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS**

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

**FEDERAL WAGE RATES AND  
CALIFORNIA WAGE RATES**

The Federal and State Wage Rates applicable to this Project can be found at the Federal and State authority's websites provided below. Federal and State Wage Rates for this project will be the rate(s) current at the time of bid opening.

<https://beta.sam.gov/>

<https://www.dir.ca.gov/Public-Works/Prevailing-Wage.html>

## SPECIAL PROVISIONS

### **SP1 - CONSTRUCTION SCHEDULE AND LIQUIDATED DAMAGES**

**SP1-01 OWNER** Wherever the word Owner, Sponsor, or Municipality appears in these specifications it shall be construed to mean Siskiyou County.

The owner's contact is:

Joy Hall  
Director of General Services  
Siskiyou County  
190 Greenhorn Road  
Yreka, CA 96097

### **SP1-02 ENGINEER**

The engineering company and contact:

Mr. Heath Hildebrandt, P.E., Project Manager  
Kimley-Horn and Associates, Inc.  
7900 Rancharrah Parkway, Suite 100  
Reno, NV. 89511  
Tel. (775) 787-7552

**SP1-03 LOCATION OF WORK** The Weed Airport is owned and operated by Siskiyou County, California. The airport is located in Siskiyou County, California.

**SP1-04 DESCRIPTION** The work shown in the Proposal Form consists of all work, equipment, materials, labor to complete the construction of taxiway extension and hillside grading.

**SP1-05 PRELIMINARY CONSTRUCTION SCHEDULE** The Contractor shall submit for approval their proposed Critical Path Method (CPM) construction schedule at the Preconstruction Conference. The construction schedule shall be in the form of tabulation chart or graph. The Preliminary Construction Schedule shall include a comprehensive overview of the project, including an activity line for each major element of the work segments to be performed as identified herein.

Arrange the schedule to indicate required sequencing of work as outlined below and in the Contract Documents and to indicate estimated starting and completion dates of various activities, submittal of shop drawings and mix designs to the Engineer for approval, procurement, scheduling of equipment, inspections and similar time margins.

The schedule shall reflect the Contractor's modifications and suggested revisions to work sequencing and barricade arrangements indicated in the Contract Documents. The Owner reserves the right to approve or disapprove such modifications or revisions.

The CPM schedule shall be submitted and reviewed for comment by the Engineer and Owner for conformance to Critical Milestone Completion Dates and overall project completion time criteria. Lack of this information shall be cause for rejection of the schedule.

**SP1-06 PROJECT CONSTRUCTION SCHEDULE** Subsequent to review and comment in a reasonable period by the Engineer and Owner of the preliminary construction schedule, and prior to commencement of work, the Contractor shall submit a graphic diagram schedule.

Review and recognition of this schedule shall not relieve the Contractor of responsibility for scheduling of the work and maintaining progress in accordance with the contract documents. The initial construction schedule will be recognized by the Engineer when it is prepared in accordance with the contract documents.

In addition to the construction related work items, the following shall be included:

- a. Critical submittal dates related to each activity or prepare separate coordinated listing of critical submittal dates.
- b. Sequences of work within each activity which involve purpose lead-time, mock-ups, testing or similar phases as well as installation.
- c. The construction schedule shall relate to the entire project to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of the work.

The following items define the term "activities" as it pertains to the Trade Contractor's schedule:

1. Each activity shall be a unit of work which requires an amount of time for its performance.
2. Each activity shall be a logically separate part of the work defined by an observable start and an observable finish.
3. To establish the scope of an activity for schedule purposes, the Trade Contractor shall form a single activity from the largest grouping of related operations which permit a continuous and measurable flow of work and which can proceed without affecting or being affected by work of another Trade Contractor.
4. The scope of an activity shall be small enough to permit a reasonable appraisal of its status or as directed by the Construction Manager.
5. Activities of either contractors that shall be completed prior to the start of the Trade Contractor's work or portion of work shall be included in the Trade Contractor's schedule as milestones and identified with a designation approved by the Engineer.

The following information shall be furnished on the diagram for each activity in the Trade Contractor's schedule:

1. Description of the activity
2. Duration of the activity in days.

**SP1-07 CHANGES TO SCHEDULE** Contractor may at any time make changes to its current schedule upon notification to Engineer. Contractor shall submit changes to the schedule for any of the following reasons:

- a. When delay in completion of any activity or group of activities indicates an extension of the scheduled project completion, including delays which may be involved with change orders, strikes, unusual weather, etc.
- b. Delays in submittals or deliveries on work stoppage are encountered which make re-planning or rescheduling of the work necessary.
- c. The schedule does not represent actual prosecution and progress of project.

Changes to the schedule will not relieve the contractor from the requirements under this section.

**SP1-08 DISTRIBUTION** Following the initial revision of the schedule of values after the Engineer's review, print and distribute the schedule to entities with a need-to-know responsibility, including three (3) copies to the Engineer. Post in the construction office space. Provide three (3) copies required with payment requests.

**SP1-09 MAINTENANCE OF SCHEDULE** The Contractor's recognized construction schedule shall be updated monthly, and three (3) printed copies shall be submitted with each of the Contractor's Application for Payment. The updated construction schedule shall describe work completed during the preceding month. Work in progress, major issues, schedule deviations, organizational changes, subcontractor progress and "Record Document" schedule progress dates. The updated construction schedule shall also include a section detailing activities planned for the next month. Progress shall be reported in comparison with the recognized construction schedule. A special section of the updated construction schedule shall address any activities that are behind schedule, describing reason therefore, any impact on the overall contract completion dates and the Contractor's plans for overcoming any delays. Updates shall also be made any time that changes in the design, construction, procurement and installation cause any major change in the overall schedule.

The Engineer will review the updated construction schedule and provide comment with regard to the schedule's compliance with the provisions of the Contract Documents. The updated construction schedule will be recognized by the Engineer when it is prepared in accordance with the Contract Documents. The Engineer will not approve the Contractor's Application for Payment without the contractor's monthly submission of an acceptably updated construction schedule. Each monthly construction schedule shall show all work substantially complete by the contract completion dates.

If the Contractor's monthly update of the construction schedule reflects, or Engineer determines, that the Contractor is at least ten percent (10%) or fourteen (14) or more calendar days behind the recognized construction schedule for:

- a. The work in phases or as a whole;
- b. A project milestone item,

Then such may constitute a material breach of the contract. The Contractor shall submit with the monthly update of the construction schedule or within seven (7) days of a written request from the Engineer, whichever is earlier, his proposed plan for beginning the work back on schedule and completing the work by the contract completion date or calendar days.

The Contractor shall comply fully with all time and other requirements of the Contract Documents. Recommendation of an Application for Payment by the Engineer and payment thereon by the Owner, without the submission of a recognized monthly update of the construction schedule shall not constitute a



waiver of the requirements for such updates, nor shall it relieve the Contractor from the obligation to complete the work by the contract completion date(s) or calendar days.

**SP1-10 SCHEDULE ACCEPTABLE** Acceptance or approval of the Contractor's schedule by the Engineer or Owner will not relieve the Contractor from compliance with all conditions of the contract. Errors and omissions in approval or accepted Contractor's schedule will not be cause for future claims by the Contractor for extra costs or increased contract time.

**SP1-11 WEEKLY SCHEDULES** In addition to the preliminary schedule, the Contractor shall prepare a weekly schedule to show all major elements of the work to be constructed in the next two-week period. This schedule shall consist of a neat, easy-to-read bar graph format and shall be submitted to the Engineer at the weekly progress meetings. Work to be done in the operations areas shall be clearly identified along with estimated time duration, required access and approximate locations. This information will be updated as often as necessary by the Contractor and communicated to the Engineer who will then advise the owner of progress, access requirements, etc. No access to the operations area will be permitted prior to the Owner's receipt of complete scheduling information.

**SP1-12 COMPLIANCE** Contractor's failure to comply with this section, Special Provisions No. 1, Construction Schedule, shall be a material breach of this contract.

**SP1-13 PHASING, DURATION, AND LIQUIDATED DAMAGES** The work under this contract for the Taxiway and Apron Reconstruction Project - Phase 1 at Weed Airport shall be performed in a phased construction schedule in order to minimize impacts on airport operations and to maximize flexibility for the Contractor. The Contractor shall prepare a phasing plan in order to maximize his efficiency, while addressing certain constraints imposed by Airport Operations.

The entire project shall consist of the construction items as stipulated in the contract documents. The Owner will award the contract per the provisions of the bid documents.

A notice to proceed will be issued upon which the Contractor shall commence a non-construction Procurement Phase. Only after items necessary to complete the Procurement Phase have been achieved will a notice to proceed for construction be issued. The schedule below indicates the order and duration for each phase.

| <b>Phase of Work</b>        | <b>Duration from NTP<br/>(Calendar Days)</b> |
|-----------------------------|--|
|                             | <b>Procurement NTP</b>                       |
| Procurement Period          | 45   |
|                             | <b>Construction NTP</b>                      |
| Phase 1 Construction Period | 30   |
| Phase 2 Construction Period | 45   |
| Phase 3 Construction Period | 15   |
| Project Closeout            | 30   |
| Overall Duration            | 165  |

\*An additional 15 calendar days will be provided for any combination of Bid Alternates 1 and/or 2 that are awarded.

**The entire work of this contract shall be complete within a period of 165 days. The duration for the construction begins on the date of the Construction Notice to Proceed.**

The Procurement Phase consists of a non-construction period that includes all work necessary for project startup. **The Overall Project Duration includes the Procurement Phase Calendar Days. Project Calendar days will accrue during the Procurement Phase and a construction notice to proceed will not be issued until the Procurements Phase items are complete.** The Procurement Phase includes submission and acceptance of all contract and material submittals and permits, including, but not limited to, the Safety Plan Compliance Document (SPCD), and P-403 asphaltic concrete pavement. The Procurement Phase, separate Construction Phases, and overall project duration shall not be extended to accommodate submittals that are rejected or that require re-submission. Unused Procurement Phase Calendar Days shall not be applied to increase the duration of the work. **No extension in contract time will be allowed and the Construction Notice to proceed shall not be issued if the Contractor has not completed items required under the Procurement Phase within the 45 days from the start of the procurement period.**

A separate Construction Notice to Proceed will be issued for the project after the completion of the Procurement Phase by the Contractor.

Prior to beginning any operations on site, the Contractor shall prepare a detailed written and graphic construction progress plan indicating how he intends to perform the work addressing the constraints listed. Such plan must address work areas, haul routes, staging areas, flagged crossings and schedule at a minimum. Costs for these items shall be reflected in the bid price for P-102-1 Airport Safety and Security.

This plan shall be submitted during the Procurement Phase and must be approved by the Owner and RPR prior to the Contractor beginning any work.

The Contractor is to use staging areas as shown on the Project Drawings.

The Contractor agrees that he/she and his/her Surety shall be liable for and pay to the Owner the dollar amounts as fixed below, agreed as liquidated damages per each calendar day, Sundays and holidays included, that the Work remains incomplete or area unopened, not as penalty but as a liquidation of a reasonable portion of damages that will be incurred by the Owner by the failure of the Contractor to meet his/her obligation by the time or date stipulated. For failure to have the following areas open during the periods specified or for failure to complete and open areas in durations specified hereinbefore:

| <b>AREA</b>                    | <b>LIQUIDATED DAMAGES</b>   |
|--------------------------------|---|
| Procurement Period             | None  |
| Phase 1 Construction Period    | \$1,500 per calendar day for each day beyond the specified duration from the phase Notice-To-Proceed  |
| Phase 2 Construction Period    | \$1,500 per calendar day for each day beyond the specified duration from the phase Notice-To-Proceed  |
| Phase 3 Construction Period    | \$3,000 per calendar day for each day beyond the specified duration from the phase Notice-To-Proceed  |
| Overall Construction Timeframe | \$1,500 per calendar day for each day beyond the specified duration from the project Notice-To-Proceed  |
| Airfield Cables & Equipment    | \$500 per hour for each hour that the airfield cables and equipment remain inoperable. The contractor will be responsible for the cost to replace these cables in addition to liquidated damages. |

These damages are cumulative in that any damages assessed for failure to complete one area are in addition to damages being assessed for failure to complete another.

If the Work is determined to be unsatisfactory for any reason and requires removal and replacement, rework, or any action that will affect Airport Operations, it will be considered part of the Work, and if the time period exceeds that specified or if areas cannot be opened, liquidated damages will be assessed.

**SP1-14 TAXES** Each Contractor shall thoroughly familiarize himself with all laws, ordinances, regulations and rules required for the payment of taxes, and each Contractor is responsible for checking with State of California and Siskiyou County on items that may be exempt and the steps which could be taken to obtain such exception.

**END OF SECTION SP1**

## **SP2 - PERMITS**

**SP2-01 PERMITS** Permits required for work performed at the Weed Airport will be as administered by federal, state and county local governments. Weed Airport will not require additional permits. It is the responsibility of the Contractor to acquire and pay for all necessary permits as required for work performed at the Airport. The Contractor is responsible for the cost of, but not limited to, grading permits, SWPPP permits, federal clean water act, air quality permits, water meters, water and sewer taps, fire lines and taps, and all water bills on the project until the project is finally accepted. This provision does not constitute an assumption by the Owner of an obligation of any kind for violation of said permit or notice requirements. The cost of all required permits shall be included as non-pay items.

**END OF SECTION SP2**

**SP3 - INSURANCE REQUIREMENTS**

**SP3-01 INSURANCE**

1. Responsibility for Damage and Claims: The Contractor shall indemnify and save harmless the Owner, the Engineer, their officers and employees from all suits, actions, and claims of any character brought because of injuries or damages received or sustained by any person, persons, or property on account of the operations of said Contractor; or on account of or in sequence of any act or omission, neglect, or misconduct of said Contractor; or because of any claims arising or amounts recovered from infringements of patent, trademark, or copyright; or because of any claims arising or amounts recovered under the Worker’s Compensation Act; or under any other law, ordinance, order, or decree.
2. Without limiting any liabilities or any other obligation of Contractor, the Contractor shall purchase and maintain, and cause its subcontractors to purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction of the State and, unless otherwise required in the Contract Documents, rated at least A Minus or better the current A.M. Best ratings, the minimum insurance coverage set forth below which shall be maintained to protect against claims relate to the Work or the Contractor’s operations under the Contract and for which the Contractor may be legally liable.

**COMPREHENSIVE GENERAL LIABILITY**

Combined single limit for Bodily Injury and Property Damage, in an amount not less than:  
\$1,000,000 each occurrence  
\$2,000,000 aggregate

**COMPREHENSIVE AUTOMOBILE LIABILITY**

Combined single limit for Bodily Injury and Property Damage, in an amount not less than:  
\$1,000,000

**WORKMAN’S AND OCCUPATION DISEASE COMPENSATION**

Statutory Minimum \$100,000

**END OF SECTION SP3**

## **SP4 - TEMPORARY FACILITIES AND UTILITIES**

**SP4-01 EXISTING UTILITIES** The Contractor is hereby advised that the location of all utilities, as shown on the plans, may not be complete nor exact and the Contractor shall satisfy himself as to the exact location of the utilities. The Contractor shall be responsible for any damage done to public or private property and shall be repaired at the Contractor's expense.

Location of any underground gas, electrical, or telephone lines will be field verified by calling the California Underground Service Alert North at 1-800-227-2600 not less than 48-hours or more than 14-days prior to digging. The Contractor shall be responsible to verify the location of airport utilities.

**SP4-02 WATER FOR CONSTRUCTION PURPOSES** All water required for and in connection with the work to be performed shall be provided by the Contractor at his expense. The Contractor shall remove all temporary waterlines installed by him, after completion of the work, if directed to do so by the Engineer.

The Contractor must submit a water source and its intended use to the Engineer for approval. No direct payment will be made for construction water. The cost thereof shall be included in other items for which direct payment is made.

**SP4-03 ELECTRICAL POWER** All power for lighting, operation of Contractor's plant or equipment, or for any other use as may be required in the execution of the work to be performed under the provision of these Contract Documents shall be provided by the Contractor at his expense. The Contractor shall remove all temporary electrical facilities installed by him, after completion of the work, if ordered to do so by the Engineer.

**SP4-04 TELEPHONE SERVICE** – Not applicable to this project

**SP4-05 SANITARY FACILITIES** Contractor shall furnish temporary sanitary facilities at the site, as provided herein, for the needs of all construction workers and other performing work or furnishing services on the Project. Sanitary facilities shall be of reasonable capacity, properly maintained throughout the construction period, and obscured from public view to the greatest practical extent. If toilets of the chemically treated type are used, at least one toilet will be furnished for each 20 men. Contractor shall enforce the use of such sanitary facilities by all personnel at the site.

**SP4-06 CONTRACTOR'S AND ENGINEER'S FIELD OFFICES**

**Contractor's Field Office** – Not applicable to this project.

**Engineer's Field Office** – Not applicable to this project.

**SP4-07 STORAGE OF MATERIALS AND EQUIPMENT** Equipment and stockpiled materials can be stored in areas on the project site provided they are kept below FAR Part 77 surfaces. The Contractor may ask for a determination from the Engineer if the selected site is permissible. The Engineer may request survey data from the Contractor to calculate Part 77 surfaces.

**SP4-08 ACCESS ROADS** The Contractor shall establish and maintain temporary access roads to various parts of the site as required to complete the project. Such roads shall be available for the use of all others performing work or furnishing services in connection with the Project. In addition, they must be out

of the areas of the project that are open to aviation traffic. Approval of the Owner is required for all desired locations.

**SP4-09 FENCE** The Contractor shall provide temporary fencing for their staging area.

**SP4-10 PARKING** The Contractor shall provide and maintain suitable parking areas for the use of all construction workers and others performing work or furnishing services in connection with the project, as required to avoid any need for parking personal vehicles where they may interfere with public traffic, Owner's operations, or construction activities.

**SP4-11 DUST CONTROL** Contractor shall take reasonable measures to prevent unnecessary dust. Earth surfaces subject to dusting shall be kept moist with water or by application of a chemical dust suppressant. Dusty materials in piles or in transit shall be covered when practicable to prevent blowing. Buildings or operating facilities which may be affected adversely by dust shall be adequately protected from dust. Existing or new machinery, motors, instrument panels or similar equipment, shall be protected by suitable dust screens. Proper ventilation shall be included with dust screens.

**SP4-12 DRAINAGE PROVISIONS** The Contractor shall provide for the drainage of storm water and such water as may be applied or discharged on the site in performance of the work. Drainage facilities shall be adequate to prevent damage to the work, the site, and adjacent property. Existing drainage channels and conduits shall be cleaned, enlarged or supplemented as necessary to carry all increased runoff attributable to Contractor's operations. Dikes shall be constructed as necessary to divert increased runoff from entering adjacent property (except in natural channels), to protect Owner's facilities and the work, and to direct water to drainage channels or conduits. Ponding shall be provided as necessary to prevent downstream flooding.

**SP4-13 EROSION CONTROL** Contractor shall prevent erosion of soil on the site and adjacent property resulting from his construction activities. Effective measures shall be initiated prior to the commencement of clearing, grading, excavation, or other operation that will disturb the natural protection. Work shall be scheduled to expose areas subject to erosion of the shortest possible time. Temporary storage and construction buildings shall be located, and construction traffic routed, to minimize erosion.

**SP4-14 POLLUTION CONTROL** Contractor shall prevent the pollution of drains and water courses by sanitary wastes, sediment, debris and other substances resulting from construction activities. No sanitary wastes will be permitted to enter any drain or watercourse other than sanitary sewers. No sediment, debris or other substance will be permitted to enter sanitary sewers and reasonable measures will be taken to prevent such materials from entering any drain or watercourse.

**SP4-15 EXCESS AND UNSUITABLE MATERIAL** Excess or unsuitable material and broken Portland cement concrete resulting from the construction shall be removed from the project and disposed of by the Contractor unless otherwise noted for disposal on site. Disposal of material from the project within the project area shall not be permitted without prior authorization from the RPR.

**SP4-16 RESEEDING OF SEEDED AREAS** Not Used.

**SP4-17 CONSTRUCTION DEBRIS** The Contractor shall use his own forces and equipment to dispose of site refuse or construction debris at a legal disposal point of his choosing.

**SP4-18 CLEAN-UP** The Contractor shall upon completion of the work remove all temporary construction facilities, debris, and unused materials provided for in the work, and restore the site of the work and public right-of-way in a neat and clean condition.

**SP4-19 DAMAGE TO EXISTING PROPERTY** Contractor will be held responsible for any damage to existing structures, work, materials, or equipment because of his operations and shall repair or replace any damaged structures, work, materials, or equipment to the satisfaction of, and at no additional cost to the Owner.

Contractor shall protect all existing structures and property from damage and shall provide bracing, shoring, or other work necessary for such protection. Contractor shall be responsible for all damage to street, roads, curbs, sidewalks, highways, shoulders, ditches, embankments, culverts, bridges, fences, or other public or private property, which may be caused by transporting equipment, materials, or men to or from the work. Contractor shall make satisfactory and acceptable arrangements with the agency having jurisdiction over the damaged property concerning its repair or replacement.

**END OF SECTION SP4**



## **SP5 - SUBMITTALS AND CERTIFICATIONS**

**SP5-01 GENERAL** As required by the contract documents and indicated herein, the Contractor shall make submittals, furnish shop drawings and furnish material certifications.

**SP5-02 SUBMITTALS REQUIRED/SCHEDULE** A partial list of submittals has been provided below, and it is intended to provide the Contractor with the minimum of required submittals. This list may not be complete, and it may be revised from time to time as the project progresses. Additional submittals may be required throughout the duration of the project at the direction of the Resident Project Representative.

The date when the Contractor provides the submittal(s) to the Engineer shall be included in the Contractor's critical path method (CPM) schedule using a distinct schedule activity ID number for each submittal. All submittals shall have assigned due dates. Due dates shall correspond with the approved CPM schedule start dates for related activities allowing a minimum of fifteen (15) calendar days, or otherwise specified in the Technical Specifications, for the Engineer's review as well as adequate time for fabrication and delivery of the material. The Engineer and Siskiyou County shall not be held responsible for late or inadequate submittals provided by the Contractor. Failure to submit by the submittal date may result in withholding of payment either in part or in full until the submittals are received. Materials shall not be incorporated into the work without the submittal reviewed, or the material certification reviewed by the Engineer.

**SP5-03 COPIES REQUIRED** Number of copies to be submitted will be according to the following:

Submittals and Shop Drawings – three (3) copies

Original Certifications - 3 Originals (conforming certifications will not be returned)

**SP5-04 REVIEW** Prior to submission, the Contractor shall review each submittal and indicate by stamp on an original letter (Contractor's original letterhead) that he has reviewed and approved the submittal and that it conforms to the contract documents. If this original letter with a certification is not included, the submittal and/or shop drawing will be returned without any action by the Resident Project Representative. At the time of each submittal, the Contractor shall define and delineate in writing on the certification, any deviations from the contract documents.

Review by the Engineer is only for conformance with the design concept. Review does not cover dimensions, quantities, accuracy, fit, compatibility or any assembly for which the item under review may be a component. Review action does not authorize deviation from contract documents or substitution of materials. Deviation from the contract documents may only be addressed by change order or supplemental agreement.

Shop drawings and submittals will be stamped by the Engineer after review as follows:

No Exceptions Taken  
Exceptions As Noted  
No Exceptions Taken, Resubmit with Complete Group Submittal  
Corrections Required-Resubmit

Rejected-Resubmit

One (1) copy will be returned to the Contractor after they have been reviewed by the Engineer.

**SP5-05 REVIEW TIME** The Engineer will complete the review within a reasonable period of time depending upon the size, complexity and number of submittals received. Every effort will be made to review submittals within ten (10) calendar days of receipt by the Engineer, however, the Owner and/or the Engineer will not be responsible for any project impacts should the review period exceed the ten (10) calendar days.

**SP5-06 FORMAT** The required number of submittals shall be delivered to the Engineer with one counterpart of the following Transmittal Form (page follows).



Submittals denoted with an asterisk\* indicated that the submittal or shop drawing is due at the pre-construction conference.

The submittals listing is intended to provide the Contractor with a minimum listing of required submittals. Additional submittals may be required at the discretion of the Engineer. The submittals listed shall be included in the Contractor's CPM schedule using a discreet schedule activity ID number for each submittal with the exception of Operation and maintenance Manuals and Manufacturer's Warranty Certificates. All submittals shall have assigned due dates. Due dates shall correspond with the approved scheduled start dates for related activities allowing a minimum of two weeks for Engineer's review and adequate time for fabrication and delivery of the material.

| <b>Number</b> | <b>Submittal Description</b>   |
|---------------|--|
| 1.            | Preliminary CPM Contractor's construction schedule *   |
| 2.            | A schedule of values *   |
| 3.            | Revisions to the critical path method construction schedule and monthly report.  |
| 4.            | Contractor's emergency names and phone list *  |
| 5.            | A list designating those portions of the work to be performed by subcontractor's and the Contractor's own forces   |
| 6.            | A list of subcontractors and material suppliers with an experience statement   |
| 7.            | Copy of all executed subcontracts, including material suppliers (to be submitted before any subcontractor or material supplier begins work)  |
| 8.            | Certification from the Contractor's registered land surveyor or professional Engineer that the primary control established are acceptable and adequate to allow the Contractor's construction staking to meet the accuracy requirements of the specification |
| 9.            | Duplicate original certified payroll reports and statement of compliance, from the Contractor and all subcontractors   |
| 10.           | Manufacturer's certified test reports for all paint shipped to the project (Civil Technical Specification Item P-620)  |
| 11.           | Contractor's affidavit regarding settlement of claims (Project Close Out Requirement)  |
| 12.           | Submit a Disadvantage Business Enterprise (DBE) utilization percent obtained for the project (Project Close Out Requirement)   |
| 13.           | Original affidavit acknowledging that all subcontractors, material suppliers, payrolls, bills for materials and equipment, and other indebtedness connected with the work have been paid or otherwise satisfied (Project Close Out Requirement)              |
| 14.           | Record drawings with written certification that the drawings are accurate and complete, due to substantial completion (Project Close Out Requirement)  |
| 15.           | An original, with Notary Signature, full and final release and waiver on liens from the Contractor and each subcontractor and material supplier that documents that they have been paid in full (Project Close Out Requirement)                              |
| 16.           | A lien release documenting that all subcontractors and material suppliers have been paid for the previous months work (Monthly Requirement)  |
| 17.           | Certificate of Final Completion (Project Close Out Requirement)  |
| 18.           | Written warrantee, due at final completion (Project Close Out Requirement)   |

| <b><u>Number</u></b> | <b><u>Submittal Description</u></b>  |
|----------------------|--|
| 19.                  | Furnish properly executed complete releases of lien form all material men and subcontractors who have furnished materials or labor for the work and submit supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required              |
| 20.                  | Furnish Contractor's affidavit of release of liens (2 copies) that all material, men, women and subcontractors have been paid in full. In the event they have not been paid in full, the Owner shall retain a sufficient sum to pay them in full and at his option may make direct payment to obtain complete releases of lien |
| 21.                  | Furnish Contractor's affidavit of debts and claims (2 copies)  |
| 22.                  | Submit specific warranties, workmanship-maintenance bonds, maintenance agreements, final certifications and similar documents  |
| 23.                  | Furnish consent of surety to final payment   |
| 24.                  | Submit evidence of final, continuing insurance coverage complying with insurance requirements  |
| 25.                  | Certify that all social security, unemployment and all other taxes, (City, State and Federal Government) have been paid  |
| 26.                  | Provide receipt, as applicable, of affidavits certifying all labor standards of local, state, or federal requirements have been complied with by the Contractor  |
| 27.                  | Submit actual (final) Disadvantage Business Enterprise (DBE) subcontractor participation amounts and percentages   |

**END OF SECTION SP5**

## **SP6 - PROGRESS MEETINGS**

**SP6-01 WEEKLY PROGRESS MEETINGS** The Resident Project Representative or the City's representative will conduct weekly progress meetings at regularly scheduled times convenient for all parties involved. Progress meetings are in addition to specific meetings held for other purposes, such as coordination meetings. A three (3) week look-ahead schedule shall be developed by the Contractor prior to the start of the meeting and will be discussed during the planning portion of the agenda by a representative of the Contractor. Additionally, discussions will address administrative and technical issues of concern, determining resolutions and development of deadlines for resolution with allowable time frames.

Refer to Special Provision No. 1, *Construction Schedule* for additional requirements.

**SP6-02 ATTENDEES** As may be required by the Engineer, in addition to representatives of the Airport and the Contractor, each subcontractor, supplier or other entity concerned with current work in progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by individuals directly involved with the contract and authorized to conclude matters relating to progress.

**SP6-03 AGENDA** Review and correct or approve minutes of the previous progress meeting prepared by the Engineer. The meeting minutes will document issues of significance including submittals, schedules, quality control, safety, problems encountered, and the assignment of responsibilities for future action. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the current status of the project.

**SP6-04 CONTRACTOR'S CONSTRUCTION SCHEDULE** Review progress since the last meeting. Determine where such activity is in relation to the Contractor's construction schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the contract time.

Review the present and future needs of each entity present, including such items as:

- a. Interface requirements
- b. Time
- c. Sequences
- d. Deliveries
- e. Off-Site Fabrication Problems
- f. Access
- g. Site Utilization
- h. Submittals
- i. Requests for Information
- j. Non-Compliance Notices
- k. Temporary Facilities and Services
- l. Hours of Work
- m. Resource Allocation
- n. Hazards and Risks
- o. Housekeeping
- p. Quality and Work Standards
- q. Safety Issues
- r. Change Orders

s. Documentation of Information for Payment Requests

The Engineer will record meeting results and distribute copies to the prime contractor and owner.

**END OF SECTION SP6**

## SP7 - RECORD DOCUMENTS AND PROJECT CLOSEOUT REQUIREMENTS

**SP7-01 DEFINITION** Record copies are defined to include those documents or copies relating directly to performance of the work, which Contractor is required to prepare or maintain for Owner's records, recording the work as actually performed. In particular, record copies show changes in the work in relation to way in which shown and specified by original contract documents; and show additional information of value to Owner's records, but not indicated by original Contract Documents. Record copies include newly-prepared drawings (if any are specified), marked-up product data submittals, record samples, field records for variable and concealed conditions such as excavations and foundations, and miscellaneous record information on work which is otherwise recorded only schematically or not at all.

**SP7-02 RECORD DRAWINGS** The Contractor shall maintain a set of Record Drawings at the job site. These shall be kept legible and current and shall be available for inspection at all times by the Engineer. Show all changes or work added on these Record Drawings in a contrasting color.

- 1. Mark-up Procedure** - During progress of the work, the Contractor shall maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whatever drawing is most capable of showing actual physical condition, fully and accurately. Where shop drawings are marked up, mark cross-reference on contract drawings at corresponding location. Mark with erasable colored pencil, using separate colors where feasible to distinguish between changes for different categories of work at same general location. Mark-up important additional information which was either shown schematically or omitted from original drawings. Give particular attention to information on work concealed, which would be difficult to identify or measure and record at a later date. Note alternate numbers, change order numbers and similar identification. Require each person preparing mark-up to initial and date mark-up and indicate name of firm. Label each sheet "PROJECT RECORD" in 1½-inch high letters. In showing changes in the work use the same legends as used on the original drawings. Indicate exact locations by dimensions and exact elevations by project datum. Give dimensions from a permanent point.
- 2. Preparation of Transparencies** - In preparation for certification of substantial completion on last major portion of the work, review completed mark-up of record drawings and shop drawings with the Engineer. The Engineer will then proceed with preparation of a full set of corrected transparencies for contract drawings. The Engineer will date each updated drawing and label each sheet "PROJECT RECORD" in 1½-inch high letters. Printing as required herein is the responsibility of the Engineer.
- 3. Copies and Distribution** - Upon completion of transparency record drawings, the Engineer shall prepare three blue-line or black-line prints of each drawing, regardless of whether changes and additional information were recorded thereon. The Engineer shall then organize each of three copies into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates. The mark-up set of prints maintained during the construction period shall be bound in the same manner. The Engineer will retain one copy set. At completion of the project, the Engineer shall submit one (1) set of bond, one (1) set of prints, with changes noted thereon, and one (1) AutoCAD files to the Owner.
- 4. Additional Requirements** - Record Drawings shall contain the names, addresses and phone numbers of the General Contractor and the major sub-contractors.
- 5. Acceptability** - The Engineer shall be the sole judge of the acceptability of the Record Drawings. Receipt and acceptance of the As-Built drawings is a pre-requisite for Final Payment.

**SP7-3 RECORD SPECIFICATIONS** During progress of the work, maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, mark-up variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon



completion of mark-up on to Engineer for Owner's records, label front cover "PROJECT RECORD" in 1½-inch high letters.

Where the manual is printed on one side of page only, mark the variation on blank left-hand pages of Project Manual, facing printed right-hand pages containing text affected by variation.

**SP7-04 RECORD PRODUCT DATA** During progress of the work, maintain one copy of each product data submittal, and mark-up significant variations in the actual work in comparison with submitted information. Include both variations in product as delivered to site and variations from manufacturer's instructions and recommendation for installation. Give particular attention to concealed products and portions of the work, which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders and mark-up of record drawings and specifications. Upon completion of mark-up, submit complete set of product data submittal to the Engineer for Owner's records. Label each data submittal "PROJECT RECORD" in 1½-inch High letters.

**SP7-05 RECORD SAMPLE SUBMITTAL** Immediately prior to date(s) of substantial completion, the Engineer and Owner's personnel will meet with the Contractor at the site, and will determine if any of submitted samples maintained by Contractor during progress of the work are to be transmitted to Owner for record purposes. Comply with the Engineer's instructions for packaging, identification marking, and delivery to Owner's sample storage space. Dispose of other samples in the manner specified for disposal of surplus and waste materials, unless otherwise indicated by the Engineer.

**SP7-06 MISCELLANEOUS RECORD SUBMITTALS** Refer to other sections of these specifications for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to date(s) of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for Owner's records. Categories of requirements resulting in miscellaneous work-records are recognized to include, but are not limited to, the following:

1. Surveys by a Registered Land Surveyor establishing lines and levels of finished construction.
2. Inspection and Testing Report: Where not processed as shop drawings or product data.

**SP7-07 PROJECT CLOSEOUT** Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by the Owner and similar actions evidencing completion of the work. Specific requirements for individual units or work are specified in other sections. Time of closeout is directly related to substantial completion, and therefore may be a single time period for the entire work or a series of time periods for individual parts of the work, which have been certified as substantially complete at different dates. The time variation, if any, shall be applicable to other provisions of this section.

**SP7-08 PRE-REQUISITES TO SUBSTANTIAL COMPLETION** Prior to requesting the Engineer's inspection for certification of substantial completion, for either entire work or portions thereof, complete the following and list known exceptions in request.

- a. In progress payment request coincident with, or first following date claimed, show 100% completion for portion of work claimed as "substantially completed" or list incomplete items, value of incompleteness, and reasons for being incomplete.
- b. Include supporting documentation for completion as indicated in the Contract Documents.
- c. Submit statement showing accounting of changes to the Contract Sum.
- d. Advise Owner of pending insurance changeover requirements.
- e. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including, where required, occupancy permits, operating certificates, and similar releases.
- f. Deliver tools, spare parts, extra stocks of materials and similar physical items to Owner.

- g. Make final change-over of lock and transmit keys to Owner, and advise Owner's personnel of change-over in security provisions.
- h. Complete start-up testing of systems, and instructions of Owner's operating maintenance personnel. Discontinue or change over and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups and similar elements.

**Inspection Procedures** - Upon receipt of Contractor's request, the Engineer will proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, the Engineer will prepare a Certificate of Substantial Completion or advise the Contractor of work which must be performed prior to issuance of Certificate and will perform a repeat inspection when requested and assured by the Contractor that work has been substantially completed. Results of completed inspection will form initial "punchlist" for final acceptance.

**SP7-09 PRE-REQUISITES TO FINAL ACCEPTANCE** Prior to requesting the Engineer's final inspection for certification of final acceptance as required by the Special Provisions, the Contractor shall complete the following and list known exceptions in the request:

- a. Submit a certified copy of the Engineer's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by the Engineer.
- b. Complete final clean-up requirements.
- c. Re-inspection Procedures: Following Substantial Completion, the Contractor shall correct or remedy all Punch-list items to the satisfaction of the Engineer and Owner within a two (2) week period after the Date of Substantial Completion. If subsequent inspections are necessary after the two-week period in order to eliminate all deficiencies, the cost of all subsequent inspections with respect to Owner and Engineer's time shall be paid by Contractor. When ready, the Contractor shall request in writing a final inspection of the work. The City Engineering Department, City of El Paso, will make the final inspection for acceptance. Upon completion of re-inspection, the Engineer will prepare certificate of Final Acceptance or advise the Contractor of work not completed or obligations not fulfilled as required for Final Acceptance. If necessary, procedures will be repeated.

**SP7-10 PRE-REQUISITES TO FINAL PAYMENT** Final Payment will be made after final acceptance of the project by the Engineer and Owner upon request by the Contractor on condition that the Contractor:

- a. Furnish properly executed complete releases of lien from all material men and subcontractors who have furnished materials or labor for the Work and submit supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
- b. Furnish Contractor's Affidavit of Release of Liens (2 copies) that all material men and subcontractors have been paid in full. In the event they have not been paid in full, the Owner shall retain a sufficient sum to pay them in full and at his option may make direct payment to obtain complete releases of lien.
- c. Furnish Contractor's Affidavit of Debts and Claims (2 copies).
- d. Furnish required set of record drawings and maintenance and operating instructions of new equipment.
- e. Submit specific warranties, workmanship-maintenance bonds, maintenance agreements, final certifications and similar documents.
- f. Furnish a signed guarantee, in form acceptable to Engineer and Owner agreeing to repair or replace as decided by the Engineer, all work and materials that prove defective within one (1) year (or more) from the date of final acceptance, including restoration of all other work damaged in making such repairs or replacements.
- g. Furnish consent of Surety to final payment.

- h. Submit updated final statement, accounting for final changes to Contract Sum.
- i. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- j. Certify that all Social Security, Unemployment and all other taxes, (City, State, and Federal Government) have been paid.
- k. Provide receipt, as applicable, of affidavits certifying all labor standards of local, State, or Federal requirements have been complied with by the Contractor.
- l. Submit actual DBE Subcontractor participation amounts and percentages.
- m. Submit all remaining certified payroll reports and statement of compliance for the Contractor and all subcontractors.
- n. Collect and submit all security badges from terminated employees (to be submitted within 24-hours when employee is terminated, however final payment is contingent upon notification to Airport Operations).

**SP7-11 RECORD DOCUMENT SUBMITTALS** Specific requirements for record documents are shown in Section No. 7, *Record Documents and Project Closeout Documents*. General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in secure, fire-resistive location; provide access to record documents for the Engineer's reference during normal working hours.

1. **Record Drawings.** The Engineer shall organize record drawing sheets into manageable sets, bind with durable paper cover sheet, and print suitable titles, dates and other identification on cover of each set.
2. **Record Specifications.** Upon completion of mark-up, submit to the Engineer for the Owner's records.
3. **Record Product Data.** Upon completion of mark-up, submit complete set to the Engineer for Owner's records.
4. **Record Sample Submittal.** Comply with the Engineer's instructions for packaging, identification marking, and delivery to Owner's sample storage space.
5. **Miscellaneous Record Submittals.** Complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to the Engineer for the Owner's records.
6. **Maintenance Manuals.** Complete, place in order, properly identify and submit to the Engineer for the Owner's records.

**SP7-12 CLOSEOUT PROCEDURES** General operating and maintenance instructions: Arrange for each installer of work requiring continuing maintenance or operation to meet with Owner's personnel at project site to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts, and materials, lubricants, fuel, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate start-up, shut-down, emergency operations, noise and vibration adjustments, safety, economy, efficiency adjustments, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain bonds and similar continuing commitments.

**SP7-13 FINAL CLEANING** Provide final clean-up of the work at time indicated consisting of cleaning each surface or unit of work to normal "clean" condition.

**Removal of Protection** - Remove temporary protection devices and facilities which were installed during the course of the work to protect previous completed work during the remainder of construction period.

**Compliances** - Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, bury debris or excess materials on the owner's property; discharge volatile or

other harmful or dangerous materials into drainage systems. Remove waste materials from site and dispose of in a lawful manner. Where extra materials of value remain after completion of associated work and such materials have become the Owner's property, dispose of or store these as directed by the Owner.

**END OF SECTION SP7**

## **SP8 - OPERATIONS AND SECURITY**

**SP8-01 CONTRACTOR OPERATIONS ON THE AIRPORT** The Contractor shall control his operations so as to cause minimal interference with Airport and aviation operations. Access to the construction area will be controlled by the Airport Manager.

The Contractor will be required to attend a Pre-construction Conference and at that time will be informed of acceptable access routes and whether there are any restricted areas on the airport.

Any damage to paved areas, lighting, existing structures, vehicles, fences, or other areas outside the project area due to the Contractor's operations shall be repaired by the Contractor at no cost to the Owner.

The construction operations plan has been developed to mitigate the adverse impacts of construction on aeronautical operations on the airport. Strict adherence to the provisions of the construction operations plan by all personnel assigned to or visiting the construction site is mandatory for all construction projects. In the event contractor activities are not in conformance with the provisions of the construction operations plan, the contractor shall immediately cease those operations involved in the violation of the provisions of the construction operations plan and conduct a safety meeting. The owner may direct the contractor, in writing, to immediately cease those operations involved of the provisions of the construction operations plan. The contractor shall not resume construction operations until an appropriate action is taken as determined by the Owner.

**SP8-02 LIMITATIONS OF OPERATIONS** The following scheduling requirements are being provided to serve as supplemental information in preparation of the bid, as well as the operation criteria which must be met under this contract.

1. Definitions:

- a. Air Operations Area: For the purpose of these specifications, the term air operations area shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
- b. Runway Lights/Runway Edge Lights: Lights having a prescribed angle of emission used to define the lateral limits of a runway. Runway lights are uniformly spaced and the intensity may be controlled or preset.
- c. Threshold Lights: Fixed green lights arranged symmetrically left and right of the runway centerline, identifying the runway threshold.
- d. Runway End Identifier Lights/REIL: Two synchronized flashing lights, one on each side of the runway threshold, which provide rapid and positive identification of the approach end of a particular runway.
- e. Precision Approach Path Indicator/PAPI: An airport lighting facility providing vertical visual approach slope guidance to aircraft during approach to landing by radiating a directional pattern of high intensity red and white focused light beams which indicate to the pilot that he/she is "on path" if he sees red/white, "above path" if white/white, and "below path" if red/red.

f. Airport Marking Aids: Marking used on runway and taxiway surfaces to identify a specific runway, a runway threshold, a centerline, a hold line, etc. A runway should be marked in accordance with its present usage such as:

- (1) Visual.
- (2) Nonprecision instrument.
- (3) Precision instrument.

g. General Aviation: That portion of civil aviation which encompasses all facets of aviation except air carriers holding a certificate of public convenience and necessity from a Civil Aeronautics Board and Large aircraft commercial operators.

h. Runway: A defined rectangular area on a land airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees; e.g., runway 16 and runway 34.

i. Taxi: The movement of an airplane under its own power on the surface of an airport.

j. Taxiway Lights/Taxiway Edge Lights: Lights having a prescribed angle of emission used to define the lateral limits of a taxiway and are blue in color.

k. Visual Flight Rules/VFR: Rules that govern the procedures for conducting flight under visual conditions. The term "VFR" is also used in the United States to indicate weather conditions that are equal to or greater than minimum VFR requirements.

l. Air Carrier Operation: The takeoff and landing of an air carrier aircraft and includes the period of time from 15 minutes before and until 15 minutes after the takeoff or landing.

m. Air Carrier Aircraft: An aircraft with a seating capacity of more than 30 passengers which is being operated by an air carrier.

n. Safety Area: A designated area abutting the edges of a runway or taxiway intended to reduce the risk of damage to an aircraft inadvertently leaving the runway or taxiway.

## 2. Limitations of Operations.

a. The Contractor shall control his/her operations and the operations of his/her subcontractors and all suppliers so as to provide for the free and unobstructed movement of aircraft in the air operations areas of the airport.

b. When the work requires the Contractor to conduct his/her operations within an air operations areas of the airport, the work shall be coordinated with the Owner (through the Engineer) at least 48 hours prior to commencement of such work.

c. When the Contractor's equipment crosses any area used by aircraft for taxiing, takeoff or parking, a power broom and/or hand sweeping shall be used to keep this area clean of debris which would damage aircraft engine or propeller.

d. The perimeters of the actual work areas shall be adequately barricaded (low level barricades) and lighted with omnidirectional flashing yellow obstruction clearance lights to prevent intrusion by taxiing aircraft and vehicles. The Contractor is required to prepare a barricade plan and to submit the plan to the Engineer at the Pre-construction Conference. All barricades shall be low profile type and have alternate orange and white marking and supplemented with two (2) orange flags and least 20- by 20- inches square and made and installed so that they are always in the extended position and properly oriented. Written approval of the Contractor's barricade plan is required prior to commencing work. The Contractor will be obligated to protect the public and will be expected to provide suitable quantity and quality of barricades and to rearrange them as the project progresses.

e. If existing edge lighting is rendered inoperable on an active taxiway, the Contractor must install temporary signs and lights, meeting FAA Advisory Circular for obstruction lights, or lights and wiring meeting NEC Article 300, and FAA Advisory Circular for permanent lighting. There will be no separate pay item for temporary signs and lights except as specified and indicated, specifically in the technical provisions and on the drawings. Costs for all temporary wiring other than specified and indicated shall be included with and allocated among other bid items.

f. The Contractor will provide yellow rotating beacons at all times during night work hours and checkered flags during daylight for all vehicles on the construction site, in accordance with AC150/5210-5D Painting, Marking, and Lighting of vehicles used on an airport. There will be no separate pay item for yellow warning lights temporary signs and lights, obstruction lights, barricades or checkered flags. The cost will be included in other bid items.

3. Maintenance of traffic. See General Provisions, Paragraph 80-04 (Limitations of Operations)

a. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas of the airport with respect to his/her own operations and the operations of all his/her subcontractors.

b. With respect to his/her own operations and the operations of all his/her subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying: personnel; equipment; vehicles; storage areas; and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport. See General Conditions, Paragraph 40-05 (Maintenance of Traffic).

**SP8-03 SECURITY REQUIREMENTS** Contractor shall be responsible for protection of the construction site, and all work, materials, equipment, and existing facilities thereon, against vandals and other unauthorized persons. Security measures shall include such additional security fencing, barricades, lighting, and other measures as the Contractor may deem necessary to protect the site.

In addition, the Owner will require that:

- a. Contractor's job superintendent and other person(s) entering the airport for construction purposes shall attend a security training session administered by the Airport Security Officer.
- b. The contractor and subcontractors shall provide to airport management a letter verifying ten-year background on their foreman who will be responsible for the job site. This letter need only verify employment/unemployment status.

- c. The job superintendent and assistant superintendent, will be responsible for escorting their employees while on the job site, assuring that no breeches of the airport security program occur. The construction area must be clearly spelled out in a diagram or map.
- d. The contractor must maintain a sign-in sheet, kept on a daily basis, recording the names and company of all visitors and employees working on the job site. A copy shall be given to airport management when requested. If an access gate is unguarded, it must be securely locked.
- e. The contractor shall place a construction employee at the vehicle gate used to bring construction materials to the job site. That individual shall be responsible for maintaining a log of the suppliers entering the AOA, company name, driver name, time in and out, and provide security information as to areas they are permitted to be in and the most direct route giving access to and from the job site. This information shall be kept by the job foreman and provided by airport management. No vehicles or personnel will be allowed to pass through an active AOA without an escort. When air carriers or other aviation passengers are present on the ramp, all vehicles and personnel will remain a minimum of 200 feet from aircraft and/or passengers.
- f. The job superintendent shall be responsible for assuring that the construction site is secured from unlawful intrusions by unauthorized individuals at the end of each day by exercising security awareness and oversight and locking gates used.
- g. All construction personnel in the AOA shall wear a uniform shirt/jacket which will clearly identify them as being authorized to work/have access in the AOA.

**SP8-04 SAFETY AND HEALTH REGULATIONS** The CONTRACTOR shall comply with the Department of Labor Safety and Health Regulations for construction promulgated under the Occupational Safety and Health Act of 1970 (PL 91-596) and under Section 107 of the Contract Work Hours and Safety Standards Act (PL 91-54), as amended.

The attention of the CONTRACTOR is directed to the provisions of Section 4(B) (4) of the Occupational Safety and Health Act of 1970, as follows:

"Nothing in this Act shall be construed to supersede or in any manner affect any workman's compensation law or to enlarge or diminish or affect in any manner the common law or statutory rights, duties, or liabilities of employers and employees under any law with respect to injuries, diseases, or death of employees arising out of, or in the course of, employment."

**END OF SECTION SP8**



## **SP9 - CONTRACTOR'S QA/QC PLAN**

**SP9-01 NOTIFICATION.** The Owner has identified the tests and frequencies in the following to be the minimum reasonable numbers and types of tests to be performed by the Owner and Contractor for this work. The Owner reserves the right to unilaterally adjust the numbers and/or frequencies of those tests he will perform. Such listing of tests required by the Contractor may not be all-inclusive and does not relieve the Contractor of any QA/QC obligation included elsewhere in the Contract Documents.

**TABLE 1**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| <b>Spec Item</b>    | <b>Reference</b>    | <b>Description</b>                                   | <b>Minimum Frequency</b>                         | <b>Owner's Responsibility</b> | <b>Contractor's Responsibility</b> |
|---------------------|---------------------|--|--|-------------------------------|------------------------------------|
| P-152<br>Field      | ASTM D1557          | Moisture-Density Relations                           | As required                                      | X                             | X                                  |
| P-152<br>Field      | ASTM D4718          | Correction for Oversized<br>Particles                | As Required                                      | X                             | X                                  |
| P-152<br>Field      | ASTM D1556 or D6938 | Density of In-Place Soil/<br>Soil Aggregate Mixtures | 500 square yards of completed<br>subgrade        | X                             |                                    |
| P-156<br>Mix Design | ASTM D1633          | 7-Day Compressive<br>Strength                        | 1 each per mix design                            |                               | X                                  |
| P-156<br>Acceptance | ASTM D558           | Density  | 1 per each 2 days of placement or<br>as required | X                             | X                                  |
| P-156<br>Field      | ASTM D6938          | In-place density                                     | 1 per 1,000 square yards                         | X                             | X                                  |
| P-156<br>Field      | ASTM C174           | Thickness  | 1 per 1,000 square yards                         |                               | X                                  |
| P-156<br>Field      |                     | Surface Test   | As Required                                      |                               | X                                  |

**TABLE 1 (cont'd)**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| <b>Spec Item</b>    | <b>Reference</b>    | <b>Description</b>        | <b>Minimum Frequency</b>                         | <b>Owner's Responsibility</b> | <b>Contractor's Responsibility</b> |
|---------------------|---------------------|---------------------------|--|-------------------------------|------------------------------------|
| P-207<br>Mix Design | ASTM D1883          | CBR                       | 1 per each                                       |                               | X                                  |
| P-207<br>Field      | ASTM C117 & C136    | Gradation                 | 2 samples per day                                | X                             | X                                  |
| P-207<br>Field      | ASTM D1556 or D6938 | Field Density             | 1 per 1,200 square yards                         | X                             | X                                  |
| P-207<br>Field      | ASTM D1557          | Moisture-Density Relation | 1 per each 5 days of placement<br>or as required | X                             | X                                  |
| P-207<br>Field      | -                   | Surface Tolerances        | As Required                                      | X                             | X                                  |
| P-207<br>Field      | -                   | Thickness                 | 1 per 1,200 square yards                         |                               | X                                  |

**TABLE 1 (cont'd)**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| <b>Spec Item</b> | <b>Reference</b>   | <b>Description</b>                            | <b>Minimum Frequency</b> | <b>Owner's Responsibility</b> | <b>Contractor's Responsibility</b> |
|------------------|--------------------|---|--------------------------|-------------------------------|------------------------------------|
| P-403 Acceptance | ASTM C131          | Los Angeles Abrasion for Coarse Aggregate     | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM C88           | Sodium Sulfate Soundness for Coarse Aggregate | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM C142          | Clay Lumps and Friable Particles              | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM D5821         | Fractured Faces                               | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM D4791         | Flat or Elongated Pieces for Coarse Aggregate | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM D4318         | Atterberg Limits for Fine Aggregate           | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM C88           | Soundness                                     | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM C142          | Clay Lumps                                    | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM D2419         | Sand Equivalent                               | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM D4867         | Tensile Strength Ratio                        | 1 per each mix design    |                               | X                                  |
| P-403 Acceptance | ASTM D6084         | Elastic Recovery                              | 1 each                   |                               | X                                  |
| P-403 Acceptance | ASTM C136 and C117 | Aggregate Gradation                           | 1 per each mix design    |                               | X                                  |

**TABLE 1 (cont'd)**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| <b>Spec Item</b> | <b>Reference</b> | <b>Description</b>                           | <b>Minimum Frequency</b>  | <b>Owner's Responsibility</b> | <b>Contractor's Responsibility</b> |
|------------------|------------------|--|---|-------------------------------|------------------------------------|
| P-403 Acceptance | AASHTO T316      | Rotational Viscosity                         | 1 each  |                               | X                                  |
| P-403 Acceptance | AASHTO T48       | Flash Point                                  | 1 each or as required   |                               | X                                  |
| P-403 Acceptance | NEV T746         | Ductility                                    | 1 each on Unaged Binder or as required<br>1 each on PAV Binder or as required |                               | X                                  |
| P-403 Acceptance | NEV T745         | Toughness and Tenacity                       | 1 each or as required   |                               | X                                  |
| P-403 Acceptance | NEV T730         | Sieve Test                                   | 1 each  |                               | X                                  |
| P-403 Acceptance | AASHTO T315      | Dynamic Shear Modulus                        | 1 each on Unaged Binder<br>1 each on RTFO Binder<br>1 each on PAV Binder      |                               | X                                  |
| P-403 Acceptance | NEV T728         | Average Mass Change                          | 1 each  |                               | X                                  |
| P-403 Acceptance | AASHTO T313      | Flexural Creep Stiffness Modulus and m-value | 1 each  |                               | X                                  |
| P-403 Acceptance | AASHTO T314      | Direct Tension Strain                        | 1 each or as required   |                               | X                                  |

**TABLE 1 (cont'd)**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| <b>Spec Item</b>       | <b>Reference</b>                  | <b>Description</b>  | <b>Minimum Frequency</b>                     | <b>Owner's Responsibility</b> | <b>Contractor's Responsibility</b> |
|------------------------|-----------------------------------|---|--|-------------------------------|------------------------------------|
| P-403 Plant Production | AASHTO T324                       | Hamburg Wheel Test  | 1 per mix design                             | X                             |                                    |
| P-403 Plant Production | ASTM D3203                        | Laboratory Compacted Determination of Air Voids           | 1 per subplot                                | X                             |                                    |
| P-403 Plant Production | ASTM D2726                        | Laboratory Compacted Bulk Specific Gravity                | 1 per subplot                                | X                             |                                    |
| P-403 Plant Production | ASTM D2041                        | Laboratory Compacted Theoretical Maximum Specific Gravity | 1 per subplot                                | X                             |                                    |
| P-403 Plant Production | ASTM D2726                        | Cored Samples Bulk Specific Gravity                       | Mat – 1 per subplot<br>Joint – 1 per subplot | X                             | X<br>Coring                        |
| P-403 Plant Production | ASTM D2172 or D6307 or D4125      | Asphalt Content   | 1 per subplot                                |                               | X                                  |
| P-403 Plant Production | ASTM D5444 and ASTM C136 and C117 | Aggregate Gradation                                       | 1 per subplot                                |                               | X                                  |
| P-403 Plant Production | ASTM C566                         | Moisture Content of Aggregate                             | 1 per day                                    |                               | X                                  |
| P-403 Plant Production | ASTM D1461 or AASHTO T110         | Moisture Content of Mixture                               | 1 per subplot                                |                               | X                                  |
| P-403 Field            | ASTM D2950                        | In-Place Density  | As Required                                  |                               | X                                  |

**TABLE 1 (cont'd)**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| <b>Spec Item</b>    | <b>Reference</b> | <b>Description</b>            | <b>Minimum Frequency</b>              | <b>Owner's Responsibility</b> | <b>Contractor's Responsibility</b> |
|---------------------|------------------|-------------------------------|---------------------------------------|-------------------------------|------------------------------------|
| P-610<br>Mix Design | ASTM C1260       | Reactivity                    | 1 each as outlined in specification   |                               | X                                  |
| P-610<br>Mix Design | ASTM C33         | Course Aggregate Gradation    | 1 each                                |                               | X                                  |
| P-610<br>Mix Design | ASTM C618        | Fly Ash Material              | 1 each                                |                               | X                                  |
| P-610<br>Mix Design | ASTM C311        | Fly Ash Calcium Oxide content | 1 each                                |                               | X                                  |
| P-610<br>Mix Design | ASTM C618        | Fly Ash Reporting             | 3 previous reports                    |                               | X                                  |
| P-610<br>Mix Design | ASTM C989        | Slag Cement                   | 1 each                                |                               | X                                  |
| P-610<br>Mix Design | ASTM C1602       | Water                         | 1 each                                |                               | X                                  |
| P-610<br>Mix Design | ASTM C260 & C494 | Admixtures                    | 1 each                                |                               | X                                  |
| P-610<br>Mix Design | ASTM C31 & C39   | Compressive Strength          | 3 per each test age;<br>7, 14, 28 day |                               | X                                  |
| P-610<br>Field      | ASTM C143        | Slump                         | Once per day                          | X                             |                                    |
| P-610<br>Field      | ASTM C231        | Air Content                   | Once per day                          | X                             |                                    |
| P-610<br>Field      | ASTM C31 & C39   | Compressive Strength          | 3 per each test age;<br>7, 14, 28 day | X                             |                                    |

**TABLE 1 (cont'd)**  
**TABLE OF TESTING REQUIREMENTS**  
**QUALITY ASSURANCE (OWNER) AND QUALITY CONTROL (CONTRACTOR)**

| Spec Item      | Reference                                 | Description  | Minimum Frequency | Owner's Responsibility | Contractor's Responsibility |
|----------------|---|--|-------------------|------------------------|-----------------------------|
| D-701<br>Field | ASTM C 136                                | Gradation  | As Required       |                        | X                           |
| D-701<br>Field | ASTM D 1557                               | Moisture-Density Relations                           | As Required       |                        | X                           |
| D-701<br>Field | ASTM D 1556,2167, 6938, or<br>2922 & 3017 | Density of In-Place Soil/ Soil<br>Aggregate Mixtures | 1 per each lift   | X                      | X                           |
| D-701<br>Field |   | Video Inspection                                     |                   |                        |                             |
| D-701<br>Field |   | Hydrostatic Testing                                  | As required       |                        | X                           |
| D-705<br>Field | ASTM C 136                                | Gradation  |                   |                        | X                           |
| D-705<br>Field | ASTM D 6938                               | Density of In-Place Soil/ Soil<br>Aggregate Mixtures | As required       |                        | X                           |
| D-751<br>Field | Requirements per P-610 &<br>P-152         | Concrete & Backfill                                  | As required       |                        | X                           |

Refer to Section L-100 Electrical Testing Requirements

**END OF SECTION SP9**





**Siskiyou County, California  
Weed Airport**

# **Volume II Technical Specifications**

**Issued for Bid**

**April 2023**

## **Taxiway and Apron Reconstruction Project – Phase 1**

**FAA AIG No. 3-06-0274-017-2023**

**FAA AIP No. 3-06-0274-018-2023**

**Sponsor: Ms. Joy Hall  
Address: Siskiyou County General Services  
190 Greenhorn Road  
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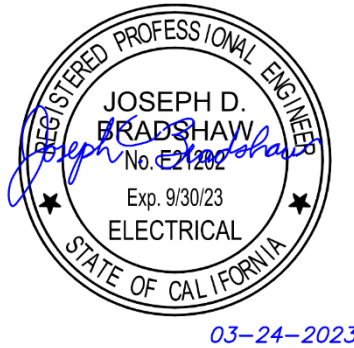
These Specifications have been prepared under the direction of the following Registered Engineer(s). It is the professional opinion of the following Registered Engineers that, to the extent that these Specifications have been prepared in reliance upon the recommendations, conclusions, and determinations of technical specialists providing engineering data, those technical specialists possess the required qualifications.

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Attachment A – Geotechnical Report





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## Part 1 – General Contract Provisions

### Section 10 Definition of Terms

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

| Subsection Number | Term                              | Definition  |
|-------------------|-----------------------------------|---|
| 10-01             | AASHTO                            | The American Association of State Highway and Transportation Officials.   |
| 10-02             | Access Road                       | The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.  |
| 10-03             | Advertisement                     | A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.  |
| 10-04             | Airport                           | Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.  |
| 10-05             | Airport Improvement Program (AIP) | A grant-in-aid program, administered by the Federal Aviation Administration (FAA).  |
| 10-06             | Air Operations Area (AOA)         | The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron. |
| 10-07             | Apron                             | Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.   |
| 10-08             | ASTM International (ASTM)         | Formerly known as the American Society for Testing and Materials (ASTM).  |

| <b>Subsection Number</b> | <b>Term</b>                            | <b>Definition</b>  |
|--------------------------|--|--|
| <b>10-09</b>             | <b>Award</b>                           | The Owner's notice to the successful bidder of the acceptance of the submitted bid.  |
| <b>10-10</b>             | <b>Bidder</b>                          | Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.  |
| <b>10-11</b>             | <b>Building Area</b>                   | An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.   |
| <b>10-12</b>             | <b>Calendar Day</b>                    | Every day shown on the calendar.   |
| <b>10-13</b>             | <b>Certificate of Analysis (COA)</b>   | The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.  |
| <b>10-14</b>             | <b>Certificate of Compliance (COC)</b> | The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.   |
| <b>10-15</b>             | <b>Change Order</b>                    | A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.   |
|                          | <b>Construction Manager</b>            | The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.  |
| <b>10-16</b>             | <b>Contract</b>                        | <p>A written agreement between the Owner and the Contractor that establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment.</p> <p>The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.</p> |

| <b>Subsection Number</b> | <b>Term</b>  | <b>Definition</b>   |
|--------------------------|--|---|
| <b>10-17</b>             | <b>Contract Item (Pay Item)</b>                    | A specific unit of work for which a price is provided in the contract.  |
| <b>10-18</b>             | <b>Contract Time</b>                               | The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date. |
| <b>10-19</b>             | <b>Contractor</b>                                  | The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.                                 |
| <b>10-20</b>             | <b>Contractors Quality Control (QC) Facilities</b> | The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).  |
| <b>10-21</b>             | <b>Contractor Quality Control Program (CQCP)</b>   | Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.        |
| <b>10-22</b>             | <b>Control Strip</b>                               | A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.   |
| <b>10-23</b>             | <b>Construction Safety and Phasing Plan (CSPP)</b> | The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications.                        |
| <b>10-24</b>             | <b>Drainage System</b>                             | The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.   |
| <b>10-25</b>             | <b>Engineer</b>                                    | The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.  |
| <b>10-26</b>             | <b>Equipment</b>                                   | All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus   |

| Subsection Number | Term                            | Definition   |
|-------------------|---------------------------------|--|
|                   |                                 | necessary for the proper construction and acceptable completion of the work.   |
| 10-27             | <b>Extra Work</b>               | An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.  |
| 10-28             | <b>FAA</b>                      | The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.  |
| 10-29             | <b>Federal Specifications</b>   | The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.   |
| 10-30             | <b>Force Account</b>            | <p><b>a.</b> Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.</p> <p><b>b.</b> Owner Force Account - Work performed for the project by the Owner's employees.</p>  |
|                   | <b>Ground Support Equipment</b> | Airport ground support equipment (GSE) is used to service airplanes between flights. Services include refueling, towing airplanes or luggage/freight carts, loading luggage/freight, transporting passengers, loading potable water, removing sewage, loading food, de-icing airplanes, and fire-fighting. See also Electric Ground Support Equipment (eGSE).  |
| 10-31             | <b>Intention of Terms</b>       | <p>Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner.</p> <p>Any reference to a specific requirement of a numbered subsection of the contract specifications or a cited standard shall be interpreted to include all general requirements of</p> |

| <b>Subsection Number</b> | <b>Term</b>                            | <b>Definition</b>  |
|--------------------------|--|--|
|                          |  | the entire section, specification item, or cited standard that may be pertinent to such specific reference.  |
| <b>10-32</b>             | <b>Lighting</b>                        | A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface. |
| <b>10-33</b>             | <b>Major and Minor Contract Items</b>  | A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.   |
| <b>10-34</b>             | <b>Materials</b>                       | Any substance specified for use in the construction of the contract work.  |
| <b>10-35</b>             | <b>Modification of Standards (MOS)</b> | Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.  |
| <b>10-36</b>             | <b>Notice to Proceed (NTP)</b>         | A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.  |
| <b>10-37</b>             | <b>Owner</b>                           | The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is Siskiyou County, California.  |
| <b>10-38</b>             | <b>Passenger Facility Charge (PFC)</b> | Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.  |
| <b>10-39</b>             | <b>Pavement Structure</b>              | The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.   |
| <b>10-40</b>             | <b>Payment bond</b>                    | The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.   |
| <b>10-41</b>             | <b>Performance bond</b>                | The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will  |

| Subsection Number | Term   | Definition  |
|-------------------|--|---|
|                   |  | complete the work in accordance with the terms of the contract.   |
| 10-42             | <b>Plans</b>                                 | The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'   |
| 10-43             | <b>Project</b>                               | The agreed scope of work for accomplishing specific airport development with respect to a particular airport.   |
| 10-44             | <b>Proposal</b>                              | The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.  |
| 10-45             | <b>Proposal guaranty</b>                     | The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.  |
| 10-46             | <b>Quality Assurance (QA)</b>                | Owner's responsibility to assure that construction work completed complies with specifications for payment.   |
| 10-47             | <b>Quality Control (QC)</b>                  | Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.   |
| 10-48             | <b>Quality Assurance (QA) Inspector</b>      | An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.  |
| 10-49             | <b>Quality Assurance (QA) Laboratory</b>     | The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.  |
| 10-50             | <b>Resident Project Representative (RPR)</b> | The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative. |



| <b>Subsection Number</b> | <b>Term</b>                                   | <b>Definition</b>  |
|--------------------------|---|--|
| <b>10-51</b>             | <b>Runway</b>                                 | The area on the airport prepared for the landing and takeoff of aircraft.  |
| <b>10-52</b>             | <b>Runway Safety Area (RSA)</b>               | A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.  |
| <b>10-53</b>             | <b>Safety Plan Compliance Document (SPCD)</b> | Details how the Contractor will comply with the CSPP.  |
| <b>10-54</b>             | <b>Specifications</b>                         | A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.  |
| <b>10-55</b>             | <b>Sponsor</b>                                | A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.  |
| <b>10-56</b>             | <b>Structures</b>                             | Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.   |
| <b>10-57</b>             | <b>Subgrade</b>                               | The soil that forms the pavement foundation.   |
| <b>10-58</b>             | <b>Superintendent</b>                         | The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.  |
| <b>10-59</b>             | <b>Supplemental Agreement</b>                 | A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%; (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item. |

| <b>Subsection Number</b> | <b>Term</b>                               | <b>Definition</b>   |
|--------------------------|---|---|
| <b>10-60</b>             | <b>Surety</b>                             | The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.   |
| <b>10-61</b>             | <b>Taxilane</b>                           | A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.  |
| <b>10-62</b>             | <b>Taxiway</b>                            | The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.  |
| <b>10-63</b>             | <b>Taxiway/Taxilane Safety Area (TSA)</b> | A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.   |
| <b>10-64</b>             | <b>Work</b>                               | The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.   |
| <b>10-65</b>             | <b>Working day</b>                        | A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days. |
| <b>10-66</b>             | <b>Owner Defined terms</b>                | None.   |

**END OF SECTION 10**

## Section 20 Proposal Requirements and Conditions

**20-01 Advertisement (Notice to Bidders).** The Owner has published the advertisement at such places and at such times as are required by local law or ordinances. The published advertisement states the time and place for submitting sealed proposals; a description of the proposed work; instructions to bidders as to obtaining proposal forms, plans, and specifications; proposal guaranty required; and the Owner's right to reject any and all bids.

**20-02 Qualification of bidders.** Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of his or her competency to perform the proposed work. Such evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, a list of equipment that would be available for the work, and a list of key personnel that would be available. In addition, each bidder shall furnish the Owner satisfactory evidence of his or her financial responsibility. Such evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner at the time of bid opening.

**20-03 Contents of proposal forms.** The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in subsection 20-09, titled IRREGULAR PROPOSALS.

Mobilization is limited to 10 percent of the total project cost.

An in-person prebid conference will be conducted at the time and location indicated in the bidding documents. The conference will serve as an opportunity for the bidders walk the site ahead of bidding. Material requirements, submittal process, quality control/quality assurance requirements, the construction safety and phasing plan, airport access, allowable staging areas, and paving requirements unique to the airport will be discussed. Bidder attendance at the prebid conference is optional. Attendees of the project's prebid conference will be recorded onsite at the beginning of the site walk and distributed to members of the planholder's list.

**20-04 Issuance of proposal forms.** The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:

- a. Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.
- b. Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.
- c. Documented record of Contractor default under previous contracts with the Owner.
- d. Documented record of unsatisfactory work on previous contracts with the Owner.

**20-05 Interpretation of estimated proposal quantities.** An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, subsection 40-02, ALTERATION OF WORK AND QUANTITIES of Section 40, without in any way invalidating the unit bid prices.

**20-06 Examination of plans, specifications, and site.** The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

**20-07 Preparation of proposal.** The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

**20-08 Responsive and responsible bidder.** A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the

exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

**20-09 Irregular proposals.** Proposals shall be considered irregular for the following reasons:

- a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.
- b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
- c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.
- d. If the proposal contains unit prices that are obviously unbalanced.
- e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.
- f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

**20-10 Bid guarantee.** Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner. The Surety on the Proposal Bond shall be a corporate Surety authorized under the laws of the State of California to do business in California and to write that type of bond through a resident agent of the corporation.

**20-11 Delivery of proposal.** Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

**20-12 Withdrawal or revision of proposals.** A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner in writing or by email before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

**20-13 Public opening of proposals.** Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

**20-14 Disqualification of bidders.** A bidder shall be considered disqualified for any of the following reasons:

- a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

**b.** Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

**c.** If the bidder is considered to be in “default” for any reason specified in subsection 20-04 titled ISSUANCE OF PROPOSAL FORMS of this section.

**20-15 Discrepancies and Omissions.** A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner’s Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner’s Engineer a written request for interpretation no later than 10 days prior to bid opening.

Any interpretation of the project bid documents by the Owner’s Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

**END OF SECTION 20**

## Section 30 Award and Execution of Contract

**30-01 Consideration of proposals.** After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

**a.** If the proposal is irregular as specified in Section 20, subsection 20-09, titled IRREGULAR PROPOSALS.

**b.** If the bidder is disqualified for any of the reasons specified Section 20, subsection 20-14, titled DISQUALIFICATION OF BIDDERS.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

**30-02 Award of contract.** The award of a contract, if it is to be awarded, shall be made within 90 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

No award shall be made until the FAA has concurred in the Owner's recommendation to make such award and has approved the Owner's proposed contract, to the extent that such concurrence and approval are required by 2 CFR 200.324.

There is no guarantee that any or all of the bid alternates will be selected for construction as part of this project. Project bid alternates will be constructed based on federal grant availability. In the event that a funding source is available for the construction of bid alternates the Owner will select a low bid based on the total cost of the base bid and any bid alternates in which the total cost can be surmounted with the assistance of federal funding. Bid alternates will not be constructed without the base bid schedule. Project funding will be applied first to the base bid and then to subsequent bid alternates in level of importance to the project's owner.

**30-03 Cancellation of award.** The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with subsection 30-07, titled APPROVAL OF CONTRACT of this section.

**30-04 Return of proposal guaranty.** All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the subsection 30-01, titled CONSIDERATION OF PROPOSALS of this section. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will

be returned as soon as the Owner receives the contract bonds as specified in subsection 30-05, titled REQUIREMENTS OF CONTRACT BONDS of this section.

**30-05 Requirements of contract bonds.** At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

**30-06 Execution of contract.** The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in subsection 30-05, titled REQUIREMENTS OF CONTRACT BONDS of this section, within **15** calendar days from the date mailed or otherwise delivered to the successful bidder.

**30-07 Approval of contract.** Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

**30-08 Failure to execute contract.** Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the **15** calendar day period specified in subsection 30-06, titled EXECUTION OF CONTRACT of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.

**END OF SECTION 30**



## Section 40 Scope of Work

**40-01 Intent of contract.** The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

All labor, materials, tools, equipment and services shall be furnished and work performed and completed subject to the approval of the Owner or its authorized representatives.

All taxes of any nature whatsoever shall be included in the overall cost of the Project. The Contractor shall be prohibited from making any further claims for taxes.

The Contractor shall carefully study and compare all plans, drawings, details and specifications and other instructions and shall at once report any error, inconsistency or omission which Contractor or as subcontractor may discover. While it is believed that much of the information pertaining to conditions which may affect the cost of the work will be shown on the Plans, Drawings, Details or indicated in the Specifications. The Owner does not warrant the completeness or the accuracy of such information. The Contractor shall ascertain the existence of any conditions affecting the cost of the work that would have been disclosed by reasonable examination of the site.

It is mutually agreed that the submission of a proposal shall be considered prima facie evidence that the bidder has made such examination and is familiar with the character, quality and quantity of the work to be performed and material to be furnished. After the submission of the proposal, no complaint or claim that there was any misunderstanding as to the quantities, conditions or nature of the work will be entertained. The Contractor shall be liable to the Owner for any damage resulting from any errors or deficiencies in the Contract Documents or instructions furnished by the Owner or its Agent if said errors or deficiencies were or could have been discoverable by reasonable inspection prior to the commencement of construction.

**40-02 Alteration of work and quantities.** The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, subsection 90-03, titled COMPENSATION FOR ALTERED QUANTITIES.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any

contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

All Supplemental Agreements shall be approved by the FAA and shall include valid wage determination of the U.S. Secretary of Labor.

**40-03 Omitted items.** The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with subsection 90-04, titled PAYMENT FOR OMITTED ITEMS of Section 90.

**40-04 Extra work.** Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in subsection 90-05, titled PAYMENT FOR EXTRA WORK of Section 90. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in subsection 10-59, titled SUPPLEMENTAL AGREEMENT of Section 10.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

**40-05 Maintenance of traffic.** It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

**a.** It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in subsection 80-04, titled LIMITATION OF OPERATIONS of Section 80. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in subsection 70-15 titled CONTRACTOR'S RESPONSIBILITY FOR UTILITY SERVICE AND FACILITIES OF OTHERS in Section 70.

**b.** With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

**c.** When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's

equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (<http://mutcd.fhwa.dot.gov/>), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways.

**40-06 Removal of existing structures.** All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Engineer shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in subsection 40-07 titled RIGHTS IN AND USE OF MATERIALS FOUND IN THE WORK of this section, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

**40-07 Rights in and use of materials found in the work.** Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

- a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,
- b. Remove such material from the site, upon written approval of the RPR; or
- c. Use such material for the Contractor's own temporary construction on site; or,
- d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

**40-08 Final cleanup.** Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

**40-09 Contractor Key Personnel.** The Contractor shall employ a competent Superintendent(s) and necessary assistants who shall be in attendance at the Project site during the progress of the work. The Superintendent(s) shall be satisfactory to the Owner, and shall not be changed except with the written consent of the Owner. The Contractor shall identify the key personnel he intends to assign to the Project prior to execution of the Contract.

Any person employed by the Contractor or any Subcontractor who, in the opinion of the Engineer or RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer or RPR, be removed from the work by the Contractor or Subcontractor employing such person, and shall not be employed again in any portion of the work without the written approval of the Engineer. The Contractor or Subcontractor shall keep the Owner and Engineer harmless from damages or claims for compensation that may occur in the enforcement of this Section.

The Contractor's Superintendent shall represent the Contractor and all written communications given to the Superintendent(s) shall be as binding as if given to the Contractor. In addition to the Superintendent(s), the Contractor's Project Manager or other representative on site shall have the authority to accept instructions from the Engineer or RPR.

A duly authorized representative of the Contractor shall be available for emergency telephone communications from the Owner or Engineer on a 24-hour basis, seven (7) days a week during the performance of the work.

Nothing contained in this Contract shall create any Contractual relations between the Owner and subcontractor(s). Except as otherwise specifically provided herein under warranties, the Contractor shall not be an agent for the Owner.

**END OF SECTION 40**

## Section 50 Control of Work

**50-01 Authority of the Resident Project Representative (RPR).** The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

**50-02 Conformity with plans and specifications.** All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

**50-03 Coordination of contract, plans, and specifications.** The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If

any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

**50-04 List of Special Provisions.** No special provisions require their own additional subsections in this document. Special provisions have been incorporated into existing specification subsections.

**50-05 Cooperation of Contractor.** The Contractor shall be supplied with an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

**50-06 Cooperation between Contractors.** The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

**50-07 Construction layout and stakes.** The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in digital format.

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

**50-08 Authority and duties of Quality Assurance (QA) inspectors.** QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

**50-09 Inspection of the work.** All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

**50-10 Removal of unacceptable and unauthorized work.** All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in subsection 50-02, titled CONFORMITY WITH PLANS AND SPECIFICATIONS, in this section.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of subsection 70-14, titled CONTRACTOR'S RESPONSIBILITY FOR WORK in section 70.

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

**50-11 Load restrictions.** The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

**50-12 Maintenance during construction.** The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

**50-13 Failure to maintain the work.** Should the Contractor at any time fail to maintain the work as provided in subsection 50-12, titled MAINTENANCE DURING CONSTRUCTION, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

**50-14 Partial acceptance.** If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

**50-15 Final acceptance.** Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such



inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

**50-16 Claims for adjustment and disputes.** If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on differences in measurements or computations.

**50-17 Retest of Work.** When, as provided for in the Contract Documents, the Owner or Contractor performs sampling and tests of the work and the tests show a failure to meet the requirements of the Contract Documents, the expense of re-testing, after re-working substitution by the Contractor, will be at the expense of Contractor, and such costs will be paid directly to the Owner, or Construction Manager.

**50-18 Correction of Work After Final Payment.** Neither the final certificate for payment, nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship and, unless otherwise specified, he shall remedy any defect due thereto and pay for any damage to other work resulting therefrom, which shall appear within a period of one (1) year from date of Final Acceptance.

The Owner shall give notice of observed defects with reasonable promptness. Wherever the word "acceptance" occurs, it shall be understood to mean Final Acceptance.

## END OF SECTION 50

## Section 60 Control of Materials

**60-01 Source of supply and quality requirements.** The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program and Addendum*, that is in effect on the date of advertisement.

**60-02 Samples, tests, and cited specifications.** All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with *Item C-100 Contractor Quality Control Program (CQCP)*.

**60-03 Certification of compliance/analysis (COC/COA).** The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by “brand name or equal” and the Contractor elects to furnish the specified “or equal,” the Contractor shall be required to furnish the manufacturer’s certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

- a. Conformance to the specified performance, testing, quality or dimensional requirements; and,
- b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed “or equal” is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

**60-04 Plant inspection.** The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

- a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
- b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.
- c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

**60-05 Engineer/ Resident Project Representative (RPR) field office.** An Engineer/RPR field office is not required.

**60-06 Storage of materials.** Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor’s plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner’s permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

**60-07 Unacceptable materials.** Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the site of the work until such time as the RPR has approved its use in the work.

**60-08 Owner furnished materials.** The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

**END OF SECTION 60**

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## Section 70 Legal Regulations and Responsibility to Public

**70-01 Laws to be observed.** The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

**70-02 Permits, licenses, and taxes.** The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

**70-03 Patented devices, materials, and processes.** If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

**70-04 Restoration of surfaces disturbed by others.** The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans.

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

**70-05 Federal Participation.** The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

**70-06 Sanitary, health, and safety provisions.** The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

**70-07 Public convenience and safety.** The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, subsection 40-05, titled MAINTENANCE OF TRAFFIC, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, subsection 80-04, LIMITATION OF OPERATIONS.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

**70-08 Construction Safety and Phasing Plan (CSPP).** The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is within the project plans.

**70-09 Use of explosives.** The use of explosives is not permitted on this project.

**70-10 Protection and restoration of property and landscape.** The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

**70-11 Responsibility for damage claims.** The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the

Contractor will not be withheld when the Contractor produces satisfactory evidence that he or she is adequately protected by public liability and property damage insurance.

**70-12 Third party beneficiary clause.** It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

**70-13 Opening sections of the work to traffic.** If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such “phasing” of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, subsection 50-14, titled PARTIAL ACCEPTANCE.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

**70-14 Contractor’s responsibility for work.** Until the RPR’s final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, subsection 50-14, titled PARTIAL ACCEPTANCE, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.



**70-15 Contractor's responsibility for utility service and facilities of others.** As provided in subsection 70-04, titled RESTORATION OF SURFACES DISTURBED BY OTHERS, the Contractor shall cooperate with the owner of any public or private utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and subsection 70-04, titled RESTORATION OF SURFACES DISTURBED BY OTHERS. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

**70-15.1 FAA facilities and cable runs.** The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport manager a minimum of seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice.

**70-16 Furnishing rights-of-way.** The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

**70-17 Personal liability of public officials.** In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

**70-18 No waiver of legal rights.** Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

**70-19 Environmental protection.** The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

**70-20 Archaeological and historical findings.** Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, Subsection 40-04, titled EXTRA WORK, and Section 90, subsection 90-05, titled PAYMENT FOR EXTRA WORK. If appropriate, the contract change order or supplemental agreement shall include an extension of contract time in accordance with Section 80, subsection 80-07, titled DETERMINATION AND EXTENSION OF CONTRACT TIME.

**END OF SECTION 70**

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## Section 80 Execution and Progress

**80-01 Subletting of contract.** The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least 25 percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR 14 days prior to being utilized on the project. As a minimum, the information shall include the following:

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

**80-02 Notice to proceed (NTP).** The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within 3 days of the NTP date. The Contractor shall notify the RPR at least 24 hours in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

**80-03 Execution and progress.** Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least 10 days prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least 24 hours in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date.

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a twice monthly basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

**80-04 Limitation of operations.** The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least 48 hours prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, subsection 70-08, titled CONSTRUCTION SAFETY AND PHASING PLAN (CSPP).

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as shown on the CSPP.

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

**80-04.1 Operational safety on airport during construction.** All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

**80-05 Character of workers, methods, and equipment.** The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

**80-06 Temporary suspension of the work.** The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for

consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

**80-07 Determination and extension of contract time.** The number of calendar days shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

**80-07.1 Contract time based on calendar days.** Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

- At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance.

**80-08 Failure to complete on time.** For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in subsection 80-07, titled DETERMINATION AND EXTENSION OF CONTRACT TIME) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

**80-09 Default and termination of contract.** The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

- a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or
- b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or
- c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
- d. Discontinues the execution of the work, or
- e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
- f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
- g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or
- h. Makes an assignment for the benefit of creditors, or



i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

**80-10 Termination for national emergencies.** The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

**80-11 Work area, storage area and sequence of operations.** The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

## END OF SECTION 80

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## Section 90 Measurement and Payment

**90-01 Measurement of quantities.** All work completed under the contract will be measured by the RPR, or their authorized representatives, using United States Customary Units of Measurement.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term “lump sum” when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, “lump sum” work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

### Measurement and Payment Terms

| Term  | Description   |
|---|---|
| <b>Excavation and Embankment Volume</b>     | In computing volumes of excavation, the average end area method will be used unless otherwise specified.  |
| <b>Measurement and Proportion by Weight</b> | The term “ton” will mean the short ton consisting of 2,000 pounds (907 kg) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark. |
| <b>Measurement by Volume</b>                | Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this   |

| Term                       | Description   |
|----------------------------|---|
|                            | purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.   |
| <b>Asphalt Material</b>    | Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.   |
| <b>Cement</b>              | Cement will be measured by the ton (kg) or hundredweight (km).  |
| <b>Structure</b>           | Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.   |
| <b>Timber</b>              | Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.   |
| <b>Plates and Sheets</b>   | The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.   |
| <b>Miscellaneous Items</b> | When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.  |
| <b>Scales</b>              | Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end.<br><br>Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. |

| Term                    | Description  |
|-------------------------|--|
|                         | <p>In the event inspection reveals the scales have been “overweighing” (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%.</p> <p>In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded.</p> <p>Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.</p> <p>Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment.</p> <p>All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.</p> |
| <b>Rental Equipment</b> | <p>Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in subsection 90-05 <i>Payment for Extra Work</i>.</p>   |
| <b>Pay Quantities</b>   | <p>When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.</p>   |

**90-02 Scope of payment.** The Contractor shall receive and accept compensation provided for in the contract as full payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, subsection 70-18, titled NO WAIVER OF LEGAL RIGHTS.

When the “basis of payment” subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

**90-03 Compensation for altered quantities.** When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, subsection 40-02, titled

ALTERATION OF WORK AND QUANTITIES, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

**90-04 Payment for omitted items.** As specified in Section 40, subsection 40-03, titled OMITTED ITEMS, the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

**90-05 Payment for extra work.** Extra work, performed in accordance with Section 40, subsection 40-04, titled EXTRA WORK, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

**90-06 Partial payments.** Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with subsection 90-07, titled PAYMENT FOR MATERIALS ON HAND. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.

From the total of the amount determined to be payable on a partial payment, 5% percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

- (1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with subsection 50-14. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.
- (2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per subsection 90-08.

The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in subsection 90-09, titled ACCEPTANCE AND FINAL PAYMENT.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

**90-07 Payment for materials on hand.** Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

- a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.
- b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.
- c. The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.
- d. The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.
- e. The Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.

It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.

In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.

No partial payment will be made for stored or stockpiled living or perishable plant materials.

The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.

**90-08 Payment of withheld funds.** At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in subsection 90-06 titled PARTIAL PAYMENTS, the Contractor

may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

- a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.
- b. The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.
- c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.
- d. The Contractor shall obtain the written consent of the surety to such agreement.

**90-09 Acceptance and final payment.** When the contract work has been accepted in accordance with the requirements of Section 50, subsection 50-15, titled FINAL ACCEPTANCE, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, subsection 50-16, titled CLAIMS FOR ADJUSTMENT AND DISPUTES.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in subsection 90-11, titled CONTRACTOR FINAL PROJECT DOCUMENTATION, final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, subsection 50-16, titled CLAIMS FOR ADJUSTMENTS AND DISPUTES, or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

**90-10 Construction warranty.**

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics.

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal



property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

**d.** The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

**e.** The Owner will notify the Contractor, in writing, within seven (7) days after the discovery of any failure, defect, or damage.

**f.** If the Contractor fails to remedy any failure, defect, or damage within 14 days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

**g.** With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

**h.** This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

**90-11 Contractor Final Project Documentation.** Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

**a.** Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.

**b.** Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.

**c.** Complete final cleanup in accordance with Section 40, subsection 40-08, *Final Cleanup*.

**d.** Complete all punch list items identified during the Final Inspection.

**e.** Provide complete release of all claims for labor and material arising out of the Contract.

**f.** Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.

**g.** When applicable per state requirements, return copies of sales tax completion forms.

**h.** Manufacturer's certifications for all items incorporated in the work.

**i.** All required record drawings, as-built drawings or as-constructed drawings.

**j.** Project Operation and Maintenance (O&M) Manual(s).

**k.** Security for Construction Warranty.

**l.** Equipment commissioning documentation submitted, if required.

**90-12 Estimated Quantities.** The quantities in the bid schedule stated herein are estimates. The Contractor shall furnish whatever quantities are actually needed to complete the Work, whether the quantities are more or less than the estimates, at the unit prices bid. There is no guarantee that the total amount bid will be reached, and it may be exceeded.

## END OF SECTION 90



## Part 2 – General Construction Items

### Item C-100 Contractor Quality Control Program (CQCP)

**100-1 General.** Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.

The Contractor shall establish a CQCP that will:

- a. Provide qualified personnel to develop and implement the CQCP.
- b. Provide for the production of acceptable quality materials.
- c. Provide sufficient information to assure that the specification requirements can be met.
- d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction. The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

- a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.
- b. Discussion of the QA program.
- c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.
- d. Establish regular meetings to discuss control of materials, methods and testing.
- e. Establishment of the overall QC culture.

#### **100-2 Description of program.**

**a. General description.** The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors.

The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

**b. Contractor Quality Control Program (CQCP).** The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least 20 calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittals schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

**100-3 CQCP organization.** The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of subsections 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.

The QC organization shall, as a minimum, consist of the following personnel:

**a. Program Administrator.** The Contractor Quality Control Program Administrator (CQCPA) must be a full-time on-site employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

- (1) Professional Engineer with one (1) year of airport paving experience.
- (2) Engineer-in-training with two (2) years of airport paving experience.
- (3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.
- (4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

**b. QC technicians.** A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

- (1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by subsection 100-6.
- (2) Performance of all QC tests as required by the technical specifications and subsection 100-8.
- (3) Performance of tests for the RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

**c. Staffing levels.** The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

**100-4 Project progress schedule.** Critical QC activities must be shown on the project schedule as required by Section 80, subsection 80-03, titled EXECUTION AND PROGRESS.

**100-5 Submittals schedule.** The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

- a. Specification item number
- b. Item description
- c. Description of submittal
- d. Specification paragraph requiring submittal
- e. Scheduled date of submittal

**100-6 Inspection requirements.** QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by subsection 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

**a.** During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

**b.** During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

**100-7 Contractor QC testing facility.**

**a.** For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 Test Methods and Procedures

**b.** For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, *Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation*:

- 7 Test Methods and Procedures
- 8 Facilities, Equipment, and Supplemental Procedures

**100-8 QC testing plan.** As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

- a.** Specification item number (e.g., P-401)
- b.** Item description (e.g., Hot Mix Asphalt Pavements)
- c.** Test type (e.g., gradation, grade, asphalt content)
- d.** Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The RPR shall be provided the opportunity to witness QC sampling and testing.

All QC test results shall be documented by the Contractor as required by subsection 100-9.

**100-9 Documentation.** The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

**a. Daily inspection reports.** Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

- (1) Technical specification item number and description
- (2) Compliance with approved submittals
- (3) Proper storage of materials and equipment
- (4) Proper operation of all equipment
- (5) Adherence to plans and technical specifications
- (6) Summary of any necessary corrective actions
- (7) Safety inspection.
- (8) Photographs and/or video

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The RPR shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

**b. Daily test reports.** The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

- (1) Technical specification item number and description
- (2) Test designation

- (3) Location
- (4) Date of test
- (5) Control requirements
- (6) Test results
- (7) Causes for rejection
- (8) Recommended remedial actions
- (9) Retests

Test results from each day's work period shall be submitted to the RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

**100-10 Corrective action requirements.** The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

**100-11 Inspection and/or observations by the RPR.** All items of material and equipment are subject to inspection and/or observation by the RPR at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

**100-12 Noncompliance.**

**a.** The Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

**b.** When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the RPR will recommend the Owner take the following actions:

- (1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or
- (2) Order the Contractor to stop operations until appropriate corrective actions are taken.



## METHOD OF MEASUREMENT

**100-13 Basis of measurement and payment.** Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:

- a. With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.
- b. When 25% or more of the original contract is earned, an additional 25%.
- c. When 50% or more of the original contract is earned, an additional 20%.
- d. When 75% or more of the original contract is earned, an additional 20%
- e. After final inspection and acceptance of project, the final 10%.

## BASIS OF PAYMENT

**100-14 Payment will be made under:**

Item C-100-1 Contractor Quality Control Program (CQCP)

## REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

|            |  |
|------------|--|
| ASTM C1077 | Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation |
| ASTM D3665 | Standard Practice for Random Sampling of Construction Materials  |
| ASTM D3666 | Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials                              |

**END OF ITEM C-100**

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## Item C-102 Temporary Air and Water Pollution, Soil Erosion, and Siltation Control

### DESCRIPTION

**102-1.** This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

### MATERIALS

**102-2.1 Grass.** Grass that will not compete with the grasses sown later for permanent cover per Item T-901 shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

**102-2.2 Mulches.** Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.

**102-2.3 Fertilizer.** Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

**102-2.4 Slope drains.** Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.

**102-2.5 Silt fence.** Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.

**102-2.6 Other.** All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project.

### CONSTRUCTION REQUIREMENTS

**102-3.1 General.** In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.

The RPR shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

**102-3.2 Schedule.** Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.

**102-3.3 Construction details.** The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

**102-3.4 Installation, maintenance and removal of silt fence.** Silt fences shall extend a minimum of 16 inches (41 cm) and a maximum of 34 inches (86 cm) above the ground surface. Posts shall be set no more than 10 feet (3 m) on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch (300-mm) overlap and securely sealed. A trench shall be excavated approximately 4 inches (100 mm) deep by 4 inches (100 mm) wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall

remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent erosion control is established. Silt fence shall be removed upon approval of the RPR.

**102-3.5 Stormwater Pollution Prevention Plan Requirements.** Water pollution control work shall conform to the provisions in this section. Prior to commencing any working on the Airport, the contractor shall prepare and submit to the Engineer for approval a Storm Water Pollution Prevention Plan (SWPPP).

The Contractor may obtain other National Pollutant Discharge Elimination System (NPDES) permits that apply to activities and mobile operations within or outside of the project limits including hot mix asphalt batch plants, material borrow areas, concrete plants, staging areas, storage yards, or access roads.

The Contractor shall perform water pollution control work in conformance with the requirements in the "Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual" and its addenda in effect on the day the Notice to Contractors is dated. This manual is referred to as the "Preparation Manual." Copies of the Preparation Manual may be obtained from:

State of California  
Department of Transportation  
Publication Distribution Unit  
1900 Royal Oaks Drive  
Sacramento, California 95815  
Telephone: (916) 445-3520

The Preparation Manual and other references for performing water pollution control work are available from the State's Construction Storm Water and Water Pollution Control web site at:

<http://www.dot.ca.gov/hq/construc/stormwater/stormwater1.htm>

Before the start of job site activities, the Contractor shall provide training for project managers, supervisory personnel, and employees involved with water pollution control work. The training shall include:

- A. Rules and regulations
- B. Implementation and maintenance for:
  - 1. Temporary Soil Stabilization
  - 2. Temporary Sediment Control
  - 3. Tracking Control
  - 4. Wind Erosion Control

The Contractor shall designate in writing a Water Pollution Control Manager (WPCM). The Contractor shall submit a statement of qualifications describing the training, work history, and expertise of the proposed WPCM. The qualifications must include:

- A. Qualified SWPP Practitioner Certification

The WPCM shall be:

- A. Responsible for water pollution control work.
- B. The primary contact for water pollution control work.
- C. Have authority to mobilize crews to make immediate repairs to water pollution control practices.

The Contractor may designate one manager to prepare the SWPPP and a different manager to implement the plan. The SWPPP preparer shall meet the training requirements for the WPCM.

## **STORM WATER POLLUTION PREVENTION PLAN**

The Contractor shall submit a Storm Water Pollution Prevention Plan (SWPPP) to the Engineer for approval. The SWPPP shall conform to the requirements in the WPCP Preparation Manual, the NPDES Regional and General permits, and these special provisions.

The SWPPP shall include water pollution control practices:

- A. For storm water and non-storm water from areas outside of the job site related to construction activities for this contract such as:
  - 1. Staging areas.
  - 2. Storage yards.
  - 3. Access roads.
- B. Appropriate for each season as described in "Implementation Requirements" of this Item.
- C. For activities or mobile operations related to all NPDES permits.

The Contractor shall develop a Water Pollution Control Schedule that describes the timing of grading or other work activities that could affect water pollution. The Water Pollution Control Schedule shall be updated by the Contractor to reflect changes in the Contractor's operations that would affect the necessary implementation of water pollution control practices.

One hundred percent (100%) of exposed disturbed areas, including all flat areas and slopes, shall have erosion protection BMPs properly installed and maintained year-round.

The SWPPP shall include a schedule that:

- A. Describes when work activities that could cause water pollution will be performed.
- B. Identifies soil stabilization and sediment control practices for disturbed soil area.
- C. Includes dates when these practices will be 25, 50, and 100 percent complete.
- D. Shows 100 percent completion of these practices before the rainy season.

The SWPPP shall include the following temporary water pollution control practices and their associated items of work as required to complete the project as shown on the plans and specified.

- A. Temporary Soil Stabilization
- B. Temporary Sediment Control
- C. Tracking Control
- D. Wind Erosion Control
- E. Non-Storm Water Management
- F. Waste Management and Materials Pollution Control

Within 5 working days after the date the Notice to Proceed is issued, the Contractor shall submit 5 copies of the SWPPP to the Engineer.

The Contractor shall not perform work that may cause water pollution until the SWPPP has been approved by the Engineer, a WDID is issued by the State Water Resource Control Board in response to a Notice of Intent (NOI). The Engineer's review and approval shall not waive any contract requirements and shall not relieve the Contractor from complying with Federal, State and local laws, regulations, and requirements.

If there is a change in construction schedule or activities, the Contractor shall prepare an amendment to the SWPPP to identify additional or revised water pollution control practices. The Contractor shall submit the amendment to the Engineer for review within a time agreed to by the Engineer not to exceed the number of days specified for the initial submittal of the SWPPP. The Engineer will review the amendment within the same time allotted for the review of the initial submittal of the SWPPP.

If directed by the Engineer or requested in writing by the Contractor and approved by the Engineer, changes to the water pollution control work specified in these special provisions will be allowed.

Changes may include addition of new water pollution control practices. The Contractor shall incorporate these changes in the SWPPP.

The Contractor shall keep a copy of the approved SWPPP and approved amendments at the job site. The SWPPP and approved amendments shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the Engineer.

### METHOD OF MEASUREMENT

**102-4.1** Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured as follows:

- a. Temporary air and water pollution, soil erosion and siltation control, SWPPP Preparation and implementation, fiber rolls, silt fence, gravel bags, concrete washouts, stabilized construction entrances, inlet protection and other BMPs shall be measured as a lump sum. A detailed list of each item installed and maintained shall be prepared and provided by the contractor if requested.

**102-4.2** Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

### BASIS OF PAYMENT

**102-5.1** Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in subsection 102-4.1 will be paid for under:

Item C-102-1                      Temporary Erosion and Pollution Control – Lump Sum

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 90, subsection 90-05, titled PAYMENT FOR EXTRA WORK.

### REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5200-33                      *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2                      *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461                      *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

**END OF ITEM C-102**



## Item C-105 Mobilization

**105-1 Description.** This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

**105-2 Mobilization limit.** Mobilization shall be limited to 7 percent of the total project cost.

**105-3 Posted notices.** Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster “Equal Employment Opportunity is the Law” in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL “Notice to All Employees” Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

**105-4 Engineer/RPR field office.** An Engineer/RPR field office is not required.

### METHOD OF MEASUREMENT

**105-5 Basis of measurement and payment.** Based upon the contract lump sum price for “Mobilization” partial payments will be allowed as follows:

- a. With first pay request, 25%.
- b. When 25% or more of the original contract is earned, an additional 25%.
- c. When 50% or more of the original contract is earned, an additional 40%.
- d. After Final Inspection, Staging area clean-up and delivery of all Project Closeout materials as required by Section 90, subsection 90-11, titled CONTRACTOR FINAL PROJCT DOCUMENTATION, the final 10%.

### BASIS OF PAYMENT

**105-6 Payment will be made under:**

|              |                   |
|--------------|-------------------|
| Item C-105-1 | Mobilization (7%) |
|--------------|-------------------|

### REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)  
WH 1321 – Employee Rights under the Davis-Bacon Act Poster

**END OF ITEM C-105**

## Item C-110 Method of Estimating Percentage of Material Within Specification Limits (PWL)

**110-1 General.** When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average ( $\bar{X}$ ) and sample standard deviation ( $S_n$ ) of the specified number ( $n$ ) of sublots for the lot and the specification tolerance limits,  $L$  for lower and  $U$  for upper, for the particular acceptance parameter. From these values, the respective Quality index,  $Q_L$  for Lower Quality Index and/or  $Q_U$  for Upper Quality Index, is computed and the PWL for the lot for the specified  $n$  is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

**110-2 Method for computing PWL.** The computational sequence for computing PWL is as follows:

- a. Divide the lot into  $n$  sublots in accordance with the acceptance requirements of the specification.
- b. Locate the random sampling position within the subplot in accordance with the requirements of the specification.
- c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.
- d. Find the sample average ( $\bar{X}$ ) for all subplot test values within the lot by using the following formula:

$$\bar{X} = (x_1 + x_2 + x_3 + \dots + x_n) / n$$

Where:  $\bar{X}$  = Sample average of all subplot test values within a lot

$x_1, x_2, \dots, x_n$  = Individual subplot test values

$n$  = Number of subplot test values

- e. Find the sample standard deviation ( $S_n$ ) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \dots + d_n^2)/(n-1)]^{1/2}$$

Where:  $S_n$  = Sample standard deviation of the number of subplot test values in the set

$d_1, d_2, \dots, d_n$  = Deviations of the individual subplot test values  $x_1, x_2, \dots$  from the average value  $X$

that is:  $d_1 = (x_1 - X), d_2 = (x_2 - X) \dots d_n = (x_n - X)$

$n$  = Number of subplot test values

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index  $Q_L$  by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with  $Q_L$ , using the column appropriate to the total number ( $n$ ) of measurements. If the value of  $Q_L$  falls between values shown on the table, use the next higher value of PWL.

g. For double-sided specification limits (i.e., L and U), compute the Quality Indexes  $Q_L$  and  $Q_U$  by use of the following formulas:

$$Q_L = (X - L) / S_n$$

and

$$Q_U = (U - X) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with  $Q_L$  and  $Q_U$ , using the column appropriate to the total number ( $n$ ) of measurements, and determining the percent of material above  $P_L$  and percent of material below  $P_U$  for each tolerance limit. If the values of  $Q_L$  fall between values shown on the table, use the next higher value of  $P_L$  or  $P_U$ . Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where:  $P_L$  = percent within lower specification limit

$P_U$  = percent within upper specification limit

## EXAMPLE OF PWL CALCULATION

**Project:** Example Project

**Test Item:** Item P-401, Lot A.

### A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 = 96.60

A-2 = 97.55

A-3 = 99.30

A-4 = 98.35

$n = 4$

2. Calculate average density for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$
$$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$$
$$X = 97.95\% \text{ density}$$

3. Calculate the standard deviation for the lot.

$$S_n = [((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2) / (4 - 1)]^{1/2}$$
$$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$$
$$S_n = 1.15$$

4. Calculate the Lower Quality Index  $Q_L$  for the lot. ( $L=96.3$ )

$$Q_L = (X - L) / S_n$$
$$Q_L = (97.95 - 96.30) / 1.15$$
$$Q_L = 1.4348$$

5. Determine PWL by entering Table 1 with  $Q_L = 1.44$  and  $n = 4$ .

$$PWL = 98$$

#### **B. PWL Determination for Air Voids.**

1. Air Voids of four random samples taken from Lot A.

$$A-1 = 5.00$$
$$A-2 = 3.74$$
$$A-3 = 2.30$$
$$A-4 = 3.25$$

2. Calculate the average air voids for the lot.

$$X = (x_1 + x_2 + x_3 + \dots + x_n) / n$$
$$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$$
$$X = 3.57\%$$

3. Calculate the standard deviation  $S_n$  for the lot.

$$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$$
$$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$$
$$S_n = 1.12$$

4. Calculate the Lower Quality Index  $Q_L$  for the lot. ( $L = 2.0$ )

$$Q_L = (X - L) / S_n$$
$$Q_L = (3.57 - 2.00) / 1.12$$
$$Q_L = 1.3992$$

5. Determine  $P_L$  by entering Table 1 with  $Q_L = 1.41$  and  $n = 4$ .

$$P_L = 97$$

6. Calculate the Upper Quality Index  $Q_U$  for the lot. ( $U = 5.0$ )

$$Q_U = (U - X) / S_n$$
$$Q_U = (5.00 - 3.57) / 1.12$$

$$Q_U = 1.2702$$

7. Determine  $P_U$  by entering Table 1 with  $Q_U = 1.29$  and  $n = 4$ .

$$P_U = 93$$

8. Calculate Air Voids PWL

$$PWL = (P_L + P_U) - 100$$

$$PWL = (97 + 93) - 100 = 90$$

### EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

**Project:** Example Project

**Test Item:** Item P-401, Lot A.

#### A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

$$A-3 = 99.30$$

$$A-4 = 98.35$$

$$A-2 = 97.55$$

$$A-1 = 96.60$$

2. From ASTM E178, Table 1, for  $n=4$  an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

a. For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-3, check if  $(99.30 - 97.95) / 1.15$  is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if  $(97.95 - 96.60) / 1.15$  is greater than 1.463.

Since 1.135 is less than 1.463, the value is not an outlier.

**Note:** In this example, a measurement would be considered an outlier if the density were:

$$\text{Greater than } (97.95 + 1.463 \times 1.15) = 99.63\%$$

OR

$$\text{less than } (97.95 - 1.463 \times 1.15) = 96.27\%.$$

**Table 1. Table for Estimating Percent of Lot Within Limits (PWL)**

| Percent Within Limits (P <sub>L</sub> and P <sub>U</sub> ) | Positive Values of Q (Q <sub>L</sub> and Q <sub>U</sub> ) |        |        |        |        |        |        |        |
|--|---|--------|--------|--------|--------|--------|--------|--------|
|  | n=3   | n=4    | n=5    | n=6    | n=7    | n=8    | n=9    | n=10   |
| 99   | 1.1541  | 1.4700 | 1.6714 | 1.8008 | 1.8888 | 1.9520 | 1.9994 | 2.0362 |
| 98   | 1.1524  | 1.4400 | 1.6016 | 1.6982 | 1.7612 | 1.8053 | 1.8379 | 1.8630 |
| 97   | 1.1496  | 1.4100 | 1.5427 | 1.6181 | 1.6661 | 1.6993 | 1.7235 | 1.7420 |

| Percent Within Limits<br>(P <sub>L</sub> and P <sub>U</sub> ) | Positive Values of Q (Q <sub>L</sub> and Q <sub>U</sub> ) |        |        |        |        |        |        |        |
|---|---|--------|--------|--------|--------|--------|--------|--------|
|   | n=3   | n=4    | n=5    | n=6    | n=7    | n=8    | n=9    | n=10   |
| 96  | 1.1456  | 1.3800 | 1.4897 | 1.5497 | 1.5871 | 1.6127 | 1.6313 | 1.6454 |
| 95  | 1.1405  | 1.3500 | 1.4407 | 1.4887 | 1.5181 | 1.5381 | 1.5525 | 1.5635 |
| 94  | 1.1342  | 1.3200 | 1.3946 | 1.4329 | 1.4561 | 1.4717 | 1.4829 | 1.4914 |
| 93  | 1.1269  | 1.2900 | 1.3508 | 1.3810 | 1.3991 | 1.4112 | 1.4199 | 1.4265 |
| 92  | 1.1184  | 1.2600 | 1.3088 | 1.3323 | 1.3461 | 1.3554 | 1.3620 | 1.3670 |
| 91  | 1.1089  | 1.2300 | 1.2683 | 1.2860 | 1.2964 | 1.3032 | 1.3081 | 1.3118 |
| 90  | 1.0982  | 1.2000 | 1.2290 | 1.2419 | 1.2492 | 1.2541 | 1.2576 | 1.2602 |
| 89  | 1.0864  | 1.1700 | 1.1909 | 1.1995 | 1.2043 | 1.2075 | 1.2098 | 1.2115 |
| 88  | 1.0736  | 1.1400 | 1.1537 | 1.1587 | 1.1613 | 1.1630 | 1.1643 | 1.1653 |
| 87  | 1.0597  | 1.1100 | 1.1173 | 1.1192 | 1.1199 | 1.1204 | 1.1208 | 1.1212 |
| 86  | 1.0448  | 1.0800 | 1.0817 | 1.0808 | 1.0800 | 1.0794 | 1.0791 | 1.0789 |
| 85  | 1.0288  | 1.0500 | 1.0467 | 1.0435 | 1.0413 | 1.0399 | 1.0389 | 1.0382 |
| 84  | 1.0119  | 1.0200 | 1.0124 | 1.0071 | 1.0037 | 1.0015 | 1.0000 | 0.9990 |
| 83  | 0.9939  | 0.9900 | 0.9785 | 0.9715 | 0.9671 | 0.9643 | 0.9624 | 0.9610 |
| 82  | 0.9749  | 0.9600 | 0.9452 | 0.9367 | 0.9315 | 0.9281 | 0.9258 | 0.9241 |
| 81  | 0.9550  | 0.9300 | 0.9123 | 0.9025 | 0.8966 | 0.8928 | 0.8901 | 0.8882 |
| 80  | 0.9342  | 0.9000 | 0.8799 | 0.8690 | 0.8625 | 0.8583 | 0.8554 | 0.8533 |
| 79  | 0.9124  | 0.8700 | 0.8478 | 0.8360 | 0.8291 | 0.8245 | 0.8214 | 0.8192 |
| 78  | 0.8897  | 0.8400 | 0.8160 | 0.8036 | 0.7962 | 0.7915 | 0.7882 | 0.7858 |
| 77  | 0.8662  | 0.8100 | 0.7846 | 0.7716 | 0.7640 | 0.7590 | 0.7556 | 0.7531 |
| 76  | 0.8417  | 0.7800 | 0.7535 | 0.7401 | 0.7322 | 0.7271 | 0.7236 | 0.7211 |
| 75  | 0.8165  | 0.7500 | 0.7226 | 0.7089 | 0.7009 | 0.6958 | 0.6922 | 0.6896 |
| 74  | 0.7904  | 0.7200 | 0.6921 | 0.6781 | 0.6701 | 0.6649 | 0.6613 | 0.6587 |
| 73  | 0.7636  | 0.6900 | 0.6617 | 0.6477 | 0.6396 | 0.6344 | 0.6308 | 0.6282 |
| 72  | 0.7360  | 0.6600 | 0.6316 | 0.6176 | 0.6095 | 0.6044 | 0.6008 | 0.5982 |
| 71  | 0.7077  | 0.6300 | 0.6016 | 0.5878 | 0.5798 | 0.5747 | 0.5712 | 0.5686 |
| 70  | 0.6787  | 0.6000 | 0.5719 | 0.5582 | 0.5504 | 0.5454 | 0.5419 | 0.5394 |
| 69  | 0.6490  | 0.5700 | 0.5423 | 0.5290 | 0.5213 | 0.5164 | 0.5130 | 0.5105 |
| 68  | 0.6187  | 0.5400 | 0.5129 | 0.4999 | 0.4924 | 0.4877 | 0.4844 | 0.4820 |
| 67  | 0.5878  | 0.5100 | 0.4836 | 0.4710 | 0.4638 | 0.4592 | 0.4560 | 0.4537 |
| 66  | 0.5563  | 0.4800 | 0.4545 | 0.4424 | 0.4355 | 0.4310 | 0.4280 | 0.4257 |
| 65  | 0.5242  | 0.4500 | 0.4255 | 0.4139 | 0.4073 | 0.4030 | 0.4001 | 0.3980 |
| 64  | 0.4916  | 0.4200 | 0.3967 | 0.3856 | 0.3793 | 0.3753 | 0.3725 | 0.3705 |
| 63  | 0.4586  | 0.3900 | 0.3679 | 0.3575 | 0.3515 | 0.3477 | 0.3451 | 0.3432 |
| 62  | 0.4251  | 0.3600 | 0.3392 | 0.3295 | 0.3239 | 0.3203 | 0.3179 | 0.3161 |
| 61  | 0.3911  | 0.3300 | 0.3107 | 0.3016 | 0.2964 | 0.2931 | 0.2908 | 0.2892 |
| 60  | 0.3568  | 0.3000 | 0.2822 | 0.2738 | 0.2691 | 0.2660 | 0.2639 | 0.2624 |
| 59  | 0.3222  | 0.2700 | 0.2537 | 0.2461 | 0.2418 | 0.2391 | 0.2372 | 0.2358 |
| 58  | 0.2872  | 0.2400 | 0.2254 | 0.2186 | 0.2147 | 0.2122 | 0.2105 | 0.2093 |
| 57  | 0.2519  | 0.2100 | 0.1971 | 0.1911 | 0.1877 | 0.1855 | 0.1840 | 0.1829 |
| 56  | 0.2164  | 0.1800 | 0.1688 | 0.1636 | 0.1607 | 0.1588 | 0.1575 | 0.1566 |
| 55  | 0.1806  | 0.1500 | 0.1406 | 0.1363 | 0.1338 | 0.1322 | 0.1312 | 0.1304 |
| 54  | 0.1447  | 0.1200 | 0.1125 | 0.1090 | 0.1070 | 0.1057 | 0.1049 | 0.1042 |
| 53  | 0.1087  | 0.0900 | 0.0843 | 0.0817 | 0.0802 | 0.0793 | 0.0786 | 0.0781 |
| 52  | 0.0725  | 0.0600 | 0.0562 | 0.0544 | 0.0534 | 0.0528 | 0.0524 | 0.0521 |
| 51  | 0.0363  | 0.0300 | 0.0281 | 0.0272 | 0.0267 | 0.0264 | 0.0262 | 0.0260 |
| 50  | 0.0000  | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| Percent Within Limits<br>(P <sub>L</sub> and P <sub>U</sub> ) | Negative Values of Q (Q <sub>L</sub> and Q <sub>U</sub> ) |         |         |         |         |         |         |         |
|---|---|---------|---------|---------|---------|---------|---------|---------|
|   | n=3   | n=4     | n=5     | n=6     | n=7     | n=8     | n=9     | n=10    |
| 49  | -0.0363   | -0.0300 | -0.0281 | -0.0272 | -0.0267 | -0.0264 | -0.0262 | -0.0260 |
| 48  | -0.0725   | -0.0600 | -0.0562 | -0.0544 | -0.0534 | -0.0528 | -0.0524 | -0.0521 |
| 47  | -0.1087   | -0.0900 | -0.0843 | -0.0817 | -0.0802 | -0.0793 | -0.0786 | -0.0781 |
| 46  | -0.1447   | -0.1200 | -0.1125 | -0.1090 | -0.1070 | -0.1057 | -0.1049 | -0.1042 |
| 45  | -0.1806   | -0.1500 | -0.1406 | -0.1363 | -0.1338 | -0.1322 | -0.1312 | -0.1304 |
| 44  | -0.2164   | -0.1800 | -0.1688 | -0.1636 | -0.1607 | -0.1588 | -0.1575 | -0.1566 |
| 43  | -0.2519   | -0.2100 | -0.1971 | -0.1911 | -0.1877 | -0.1855 | -0.1840 | -0.1829 |

| Percent Within Limits (P <sub>L</sub> and P <sub>U</sub> ) | Negative Values of Q (Q <sub>L</sub> and Q <sub>U</sub> ) |         |         |         |         |         |         |         |
|--|---|---------|---------|---------|---------|---------|---------|---------|
|  | n=3   | n=4     | n=5     | n=6     | n=7     | n=8     | n=9     | n=10    |
| 42   | -0.2872   | -0.2400 | -0.2254 | -0.2186 | -0.2147 | -0.2122 | -0.2105 | -0.2093 |
| 41   | -0.3222   | -0.2700 | -0.2537 | -0.2461 | -0.2418 | -0.2391 | -0.2372 | -0.2358 |
| 40   | -0.3568   | -0.3000 | -0.2822 | -0.2738 | -0.2691 | -0.2660 | -0.2639 | -0.2624 |
| 39   | -0.3911   | -0.3300 | -0.3107 | -0.3016 | -0.2964 | -0.2931 | -0.2908 | -0.2892 |
| 38   | -0.4251   | -0.3600 | -0.3392 | -0.3295 | -0.3239 | -0.3203 | -0.3179 | -0.3161 |
| 37   | -0.4586   | -0.3900 | -0.3679 | -0.3575 | -0.3515 | -0.3477 | -0.3451 | -0.3432 |
| 36   | -0.4916   | -0.4200 | -0.3967 | -0.3856 | -0.3793 | -0.3753 | -0.3725 | -0.3705 |
| 35   | -0.5242   | -0.4500 | -0.4255 | -0.4139 | -0.4073 | -0.4030 | -0.4001 | -0.3980 |
| 34   | -0.5563   | -0.4800 | -0.4545 | -0.4424 | -0.4355 | -0.4310 | -0.4280 | -0.4257 |
| 33   | -0.5878   | -0.5100 | -0.4836 | -0.4710 | -0.4638 | -0.4592 | -0.4560 | -0.4537 |
| 32   | -0.6187   | -0.5400 | -0.5129 | -0.4999 | -0.4924 | -0.4877 | -0.4844 | -0.4820 |
| 31   | -0.6490   | -0.5700 | -0.5423 | -0.5290 | -0.5213 | -0.5164 | -0.5130 | -0.5105 |
| 30   | -0.6787   | -0.6000 | -0.5719 | -0.5582 | -0.5504 | -0.5454 | -0.5419 | -0.5394 |
| 29   | -0.7077   | -0.6300 | -0.6016 | -0.5878 | -0.5798 | -0.5747 | -0.5712 | -0.5686 |
| 28   | -0.7360   | -0.6600 | -0.6316 | -0.6176 | -0.6095 | -0.6044 | -0.6008 | -0.5982 |
| 27   | -0.7636   | -0.6900 | -0.6617 | -0.6477 | -0.6396 | -0.6344 | -0.6308 | -0.6282 |
| 26   | -0.7904   | -0.7200 | -0.6921 | -0.6781 | -0.6701 | -0.6649 | -0.6613 | -0.6587 |
| 25   | -0.8165   | -0.7500 | -0.7226 | -0.7089 | -0.7009 | -0.6958 | -0.6922 | -0.6896 |
| 24   | -0.8417   | -0.7800 | -0.7535 | -0.7401 | -0.7322 | -0.7271 | -0.7236 | -0.7211 |
| 23   | -0.8662   | -0.8100 | -0.7846 | -0.7716 | -0.7640 | -0.7590 | -0.7556 | -0.7531 |
| 22   | -0.8897   | -0.8400 | -0.8160 | -0.8036 | -0.7962 | -0.7915 | -0.7882 | -0.7858 |
| 21   | -0.9124   | -0.8700 | -0.8478 | -0.8360 | -0.8291 | -0.8245 | -0.8214 | -0.8192 |
| 20   | -0.9342   | -0.9000 | -0.8799 | -0.8690 | -0.8625 | -0.8583 | -0.8554 | -0.8533 |
| 19   | -0.9550   | -0.9300 | -0.9123 | -0.9025 | -0.8966 | -0.8928 | -0.8901 | -0.8882 |
| 18   | -0.9749   | -0.9600 | -0.9452 | -0.9367 | -0.9315 | -0.9281 | -0.9258 | -0.9241 |
| 17   | -0.9939   | -0.9900 | -0.9785 | -0.9715 | -0.9671 | -0.9643 | -0.9624 | -0.9610 |
| 16   | -1.0119   | -1.0200 | -1.0124 | -1.0071 | -1.0037 | -1.0015 | -1.0000 | -0.9990 |
| 15   | -1.0288   | -1.0500 | -1.0467 | -1.0435 | -1.0413 | -1.0399 | -1.0389 | -1.0382 |
| 14   | -1.0448   | -1.0800 | -1.0817 | -1.0808 | -1.0800 | -1.0794 | -1.0791 | -1.0789 |
| 13   | -1.0597   | -1.1100 | -1.1173 | -1.1192 | -1.1199 | -1.1204 | -1.1208 | -1.1212 |
| 12   | -1.0736   | -1.1400 | -1.1537 | -1.1587 | -1.1613 | -1.1630 | -1.1643 | -1.1653 |
| 11   | -1.0864   | -1.1700 | -1.1909 | -1.1995 | -1.2043 | -1.2075 | -1.2098 | -1.2115 |
| 10   | -1.0982   | -1.2000 | -1.2290 | -1.2419 | -1.2492 | -1.2541 | -1.2576 | -1.2602 |
| 9  | -1.1089   | -1.2300 | -1.2683 | -1.2860 | -1.2964 | -1.3032 | -1.3081 | -1.3118 |
| 8  | -1.1184   | -1.2600 | -1.3088 | -1.3323 | -1.3461 | -1.3554 | -1.3620 | -1.3670 |
| 7  | -1.1269   | -1.2900 | -1.3508 | -1.3810 | -1.3991 | -1.4112 | -1.4199 | -1.4265 |
| 6  | -1.1342   | -1.3200 | -1.3946 | -1.4329 | -1.4561 | -1.4717 | -1.4829 | -1.4914 |
| 5  | -1.1405   | -1.3500 | -1.4407 | -1.4887 | -1.5181 | -1.5381 | -1.5525 | -1.5635 |
| 4  | -1.1456   | -1.3800 | -1.4897 | -1.5497 | -1.5871 | -1.6127 | -1.6313 | -1.6454 |
| 3  | -1.1496   | -1.4100 | -1.5427 | -1.6181 | -1.6661 | -1.6993 | -1.7235 | -1.7420 |
| 2  | -1.1524   | -1.4400 | -1.6016 | -1.6982 | -1.7612 | -1.8053 | -1.8379 | -1.8630 |
| 1  | -1.1541   | -1.4700 | -1.6714 | -1.8008 | -1.8888 | -1.9520 | -1.9994 | -2.0362 |

### REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM E178                      Standard Practice for Dealing with Outlying Observations

**END OF ITEM C-110**



## Part 3 – Sitework

### Item P-101 Surface Preparation

#### DESCRIPTION

**101-1.1** This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

#### EQUIPMENT AND MATERIALS

**101-2.1** All equipment and materials shall be specified here and in the following subsections or approved by the Engineer. The equipment shall not cause damage to the pavement to remain in place.

#### CONSTRUCTION

##### **101-3.1 Removal of existing pavement.**

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

Contractor shall refer to the Geotechnical Investigation for known pavement types, thicknesses, and locations. Contractor shall be aware that actual pavement types, thicknesses, and locations may vary those shown in the geotechnical investigation and the plans. There will be no additional compensation for additional pavement removal in excess of that which is shown on the plans or in the Geotechnical Investigation.

The Contractor is advised that there are numerous existing tie-down anchors, grounding rods and fence posts sleeves located within the existing pavement. These items consist of concrete and steel and some of them may be buried and not be visible on the surface. All of these items shall be removed as a part of the pavement demolition; there shall be no separate measurement or payment for the removal of these items and they shall be considered incidental to the pavement removal.

**a. Concrete pavement removal.** Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. If the material is to be wasted on the airport site, it shall be reduced to a maximum size of 2-inches. Concrete slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the Engineer.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlying material that is to remain in place, shall be recompact and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

**b. Pulverize Asphalt pavement.** Asphalt concrete pavement to be pulverized shall be sawcut to the full depth of the bituminous material around the perimeter of the area to be removed and as shown on the Plans. All asphalt pavement and aggregate base shall be removed by pulverization; no other removal method will be accepted unless otherwise noted on the plans. The Contractor shall pulverize existing asphalt and base to a minimum depth of 10 inches from the top of the existing asphalt surface or full depth of existing asphalt, whichever is greater. The Contractor shall locate and protect existing utility conduits prior to pulverization. The resulting pulverized material shall be: 1) processed, screened, and re-used in the production of P-207 used as Recycled Aggregate Base provided it meets the P-207 specification criteria; 2) hauled, spread and compacted to a minimum of 3” depth on the unpaved areas as shown on the Plans or as directed by the RPR. All excess pulverized material not used on the airfield shall be hauled to the disposal site location as shown on the plans with no additional cost to the Owner. Payment for processing and mixing the material shall be per section P-207.

**c. Asphalt pavement removal.** Asphalt pavement not designated for pulverization shall be cold milled. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. Asphalt pavement not designated for pulverization shall be cold milled. The resulting milled material shall be used for re-installation on the project as Infield Surface Rock as described in P-152.

All milled asphalt material re-used on site shall meet the requirements of the material gradation in Table 1 below. Milled asphalt shall be free of objectionable material including existing crack seal and joint seal material, existing tiedowns, fence post sleeves, and rebar.

**TABLE 1: ASPHALT MILLINGS GRADATION REQUIREMENTS**

| Sieve designation as per ASTM C 136 | Percentage by weight passing sieves |
|-------------------------------------|-------------------------------------|
| 2 inch                              | 100                                 |
| No. 10                              | 20-100                              |
| No. 40                              | 5-60                                |
| No. 200                             | 0-15                                |
| Diameter 0.02 mm                    | Less than 3.0%                      |

**d. Repair or removal of Base, Subbase, and/or Subgrade.** All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the CM. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor’s removal process shall be repaired at the Contractor’s expense.

**101-3.2** This section not used.

**101-3.3** This section not used.

**101-3.4 Concrete spall or failed asphaltic concrete pavement repair.** This section not used.

**101-3.5 Cold milling.** Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed, processed, and installed in areas designated on the plans. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

**a. Patching.** The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The CM shall layout the area to be milled with a straightedge in increments of 1-foot (30 cm) widths. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

**b. Profiling, grade correction, or surface correction.** The milling machine shall have a minimum width of 7 feet (2 m) and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch (+0 mm and -6mm) of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to remove the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of in areas designated on the plans.

**c. Clean-up.** The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed off Airport property.

**101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment.** This section not used.

**101-3.7 Maintenance.** The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the Engineer. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

**101-3.8 Preparation of Joints in Rigid Pavement prior to resealing.** This section not used.

**101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing.** This section not used.

**101-3.9.4 Removal of Pipe and other Buried Structures.**

**a. Removal of Existing Pipe Material.** Remove the types of pipe as indicated on the plans. The pipe material shall be legally disposed of off-site in a timely manner following removal. Trenches shall be backfilled with material equal to or better in quality than adjacent embankment. Trenches under paved areas must be compacted to 95% of ASTM D1557.

**b. Removal of Storm Drain Inlets/Manholes.** Where indicated on the plans or as directed by the CM, inlets and/or manholes shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. Backfill shall be compacted to 95% of ASTM D1557.

**c. Removal of Trench Drains and Slot Drains.** Where indicated on the plans or as directed by the CM, trench drains and slot drains shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. Backfill shall be compacted to 95% of ASTM D1557.

**d. General.** All existing items that need to be removed, whether specifically identified on the plans or not, and removal of those items is necessary for the progression of the work and are encountered within the established lines, grades, or grading sections, or as designated on the plans, shall be removed by the Contractor, unless such existing items are otherwise specified to be relocated, adjusted, salvaged, abandoned in place, reused in the work, or are designated to remain in place. The Contractor's removal plans and operations shall not cause damage to cables, utility ducts, pipelines, or drainage structures or other structures, pavements, or facilities under or adjacent to the pavement. Any damages, whether inadvertent or not, caused by the Contractor's actions shall be repaired by the Contractor at no expense to the airport Owner and to the satisfaction of the Engineer.

These project plans and specifications constitute the best available information for the site and facilities. However, the Contractor shall satisfy itself of all site facilities and items required to be removed and shall include all costs for complete removal and disposal of those items within the project limits or as required for completing the work. The Contractor is responsible for reviewing all demolition plans, all existing and proposed utility plans, and all other project plans as they apply to demolition and removals, and shall inspect the site and verify the undertaking of all removals required for construction, prior to conducting the work. From this investigation, the Contractor shall submit a plan for the specific demolition activities, to the Engineer, for review and approval prior to commencement of all demolition activities. The Contractor shall consider in the demolition and removal plan any items that are required for salvage and handover to the Owner or other parties as identified in the Contract Documents.

All services shall be maintained throughout the duration of construction except for those systems designated for disconnection, removal, abandonment, or modification throughout the proposed utility plans. Existing and proposed utility plans and site demolition plans depict the best available information for the project site and the Engineer accepts no responsibility for unknown or non-specified removals beyond this specification or beyond what is shown on the project plans. The Contractor shall, through his own plan review and site inspection, be responsible for removal of all items shown, described, or implied throughout the limits of the project. The Contractor shall demonstrate to the Engineer that all remaining utilities and appurtenances are not a part of an active system and are therefore authorized for removal, prior to removal of any utility items. Pending that evaluation, the Contractor shall be authorized by the Engineer to commence removal of all utility items and appurtenances. If any active systems are encountered which cannot be taken out of service or cannot be removed and are in conflict with the proposed construction of this project, the Contractor shall immediately bring this to the Engineer's attention.

All materials and debris which are to be discarded shall be disposed of by the Contractor in accordance with the contract documents. Voids left below the new structural section shall be filled with crushed aggregate base and compacted to the requirements of subgrade preparation.

Removal items may include but are not limited to the following items, which the Contractor should anticipate encountering and shall be responsible for removing from the site:

**Objects and Obstructions:**

1. All catch basins, grates, collars, drainage swales, and all other assorted drainage structures or appurtenances.
2. Pavement markings designated for removal on the pavement marking plans.

**Utility Items:**

1. Underground electrical lighting facilities including junction boxes, pull boxes, electrical vaults, duct bank, conduit with slurry backfill, cable, raceways, grounding equipment systems, light cans with concrete foundations, and all appurtenances.

2. Water main piping, valves, valve boxes, meter boxes, utility covers, concrete collars, pipe restraints, thrust blocks, manholes, cleanouts, utility vaults and appurtenances.
3. Removal of storm drain manholes, catch basins, pipe plugs, storm drainage piping and associated appurtenances.

Pavement Markings:

1. Pavement markings, on pavement to remain, designated for removal on plans and/or as required to facilitate new pavement marking installations.

Other Assorted Items:

1. Any and all objects, obstructions, or other deleterious items which are located within the proposed construction prism of the project.

### **METHOD OF MEASUREMENT**

**101-4.1** The unit of measurement for pulverize existing pavement and mill asphalt pavement shall be the number of square yards removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment.

**101-4.2** Measurement for Removal of Existing Storm Drain Pipe will be by linear foot.

**101-4.3** Measurement for Removal of Existing Storm Drain Inlet will be each.

### **BASIS OF PAYMENT**

**101-5.1** Payment for pulverize existing pavement mill asphalt pavement shall be made at contract unit price per square yard. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item. No additional payment shall be made for stockpiling material for use in other items for the project. No additional pavement shall be made for the haul and placement of material in the disposal site indicated on the plans.

**101-5.2** Payment for storm drain pipe removal, regardless of size or material, shall be paid at the contract unit price per linear foot per pipe size, which payment and price shall constitute full compensation for furnishing all labor, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off airport property and backfilling the resultant void with suitable material. Removal of storm drain pipe shall include removal of all associated concrete encasements, fittings, and all appurtenances and temporary or permanent plugging of the utility at the limits of removal.

**101-5.2** Payment for storm drain inlet removal shall be paid at the contract unit price per each, which payment and price shall constitute full compensation for furnishing all labor, materials, tools equipment and incidentals necessary to remove the items from the project site and dispose of the materials in a legal manner, off airport property and backfilling the resultant void with suitable material. Removal of storm drain inlets shall include removal of concrete, reinforcing, grates, frames, manhole covers, steps and all other hardware that is part of the structure.

Payment will be made under:

- Item P 101-1 Pulverize Existing Asphalt Pavement (10 inches depth) – per square yard.
- Item P 101-2 Mill Existing Asphalt Pavement – per linear foot
- Item P 101-3 Remove Existing Storm Drain Pipe – per linear foot
- Item P 101-4 Remove Existing Storm Drain Inlet – per each

### **MATERIAL REQUIREMENTS**

ASTM D6690 Standard Specification For Joint And Crack Sealants, Hot Applied, For Concrete And Asphalt Pavements

**END OF ITEM P-101**

## Item P-102 Airport Safety and Security

### DESCRIPTION

**102-1.1 General.** This specification outlines safety procedures and regulations to be followed by the Contractor during the course of this work. The work item “Airport Safety and Security” shall consist of furnishing, installing, and removing temporary marking, signing, lighting, and barricades required during the course of this work to conform with FAA Advisory Circular 150/5370-2G “Operational Safety on Airports During Construction.” It shall also include furnishing sufficient flaggers, vacuum trucks, pilot cars and other required items for traffic control throughout the duration of the project. The Contractor shall be required to submit a Safety Plan to the Owner and have it approved prior to beginning construction activities.

Regulations for Contractors in Operating Areas – For the purpose and intent of these regulations, flight operation areas are construed to mean all areas restricted to public access on the field. The airport will remain in operation during the course of the contract work. The following operating regulations shall be adhered to at all times. The contractor shall indoctrinate all of his personnel and subcontractors on these regulations.

1. Prior to commencement of the work on any portion of the airport area, the Contractor shall schedule a meeting with the Construction Manager and Airport Manager to discuss and interview the personnel planned to operate any and all pilot vehicles and vacuum trucks during the course of construction. The Dunsmuir representative will have final approval authority of the selected driver(s). To the extent possible the driver(s) shall remain the same during the course of construction.
2. Absolutely no access to the Airport’s movement areas will be allowed without an active pilot vehicle, gate guard, flagger and other security measures as described within this specification and as deemed appropriate by the airport and RPR.
3. Prior to the commencement of any work within the Airport’s movement area, the Contractor must provide flaggers in the areas shown within the plans or as directed by the airport or RPR. If the RPR deems any one flagger to not meet expectations for flagging within the airport’s operational area, they shall be replaced immediately with another flagger that has met all the same criteria. To the extent possible the flaggers shall remain the same during the course of the project.
4. Should a winter shutdown occur, after the winter shut down and prior to starting construction again in the spring, the pilot vehicle and vacuum truck driver(s), flaggers and gate guards must attend an orientation meeting to reaffirm their aptitude regardless of their previous work.
5. Prior to commencement of the work on any of the airport’s operations apron area, the Contractor and the RPR will review the selected haul routes to be used by personnel and vehicles during the course of the work in various stages as shown within the drawings. The Contractor shall furnish, install, and maintain appropriate flaggers, traffic signs, barricades and pilot cars that clearly identify a haul route throughout its length within the flight operation area.
6. FAA approved orange and white-checked flags or omni-directional amber flashing lights shall be provided by the Contractor on all vehicles and equipment.
7. During night operations, each vehicle shall be equipped with omni-directional amber flashing light mounted on the roof of the cab. Headlights, taillights, and flashers shall be used for all activities during these hours. FAA approved orange and white-checked flags will not be sufficient during night hours when operating inside of the perimeter fence.

8. No construction activity will be allowed within 225 feet of the centerline of any active runway, within 65.5 feet of the centerline of an active taxiway or within 25 feet of parked aircraft without prior approval. The contractor shall notify the Construction Manager at least 48 hours prior to any need to do work inside these limits so that necessary notices or closures can be made. The Airport Authority will issue airport closures (NOTAMS).
9. No vehicles shall pass in front of taxiing aircraft or emergency vehicles at any time.
10. The flight operation area is immediately adjacent to the designated construction area. Activities beyond the construction limits will require prior clearance.
11. Construction equipment that extends 15 feet or more above ground level shall be cleared through the RPR. It shall be lighted at night in an approved manner and/or lowered to the height of adjacent structural surroundings at the discretion of the Engineer or RPR.
12. Welding equipment shall not be used within 100 feet of aircraft.
13. All accidents shall be reported to the RPR immediately.
14. In the event of an airport emergency, persons and equipment shall be moved immediately at the direction of the RPR or Owner.
15. The Contractor shall be responsible for ensuring that the construction area is kept free of construction debris, equipment, and/or materials that might endanger or be ingested by an aircraft.
16. The Contractor is required to provide a vacuum truck in any and all areas that construction activities commingle with aircraft or other vehicles within airport property. The vacuum truck shall be manned at all times during construction activity. The construction area shall be kept clean at all times.
17. The Contractor's Flaggers shall be equipped with Contractor supplied handheld ICOM VHF Air Band Transceivers model IC-A14, or approved equal, capable of monitoring ground and tower frequencies. All radios shall become the property of Dunsmuir Airport at the end of construction.
18. Contractor's access to the site shall be as shown on the plans. No other access points shall be allowed unless approved by the RPR or Owner. Contractor's traffic authorized to enter the site shall be experienced in the route or guided by contractor personnel. The contractor shall be responsible for traffic control to and from the various construction areas on the airport property. The contractor is responsible for immediate clean-up of any debris deposited along the delivery route to the storage area or work site shall be as directed by the RPR.
19. The Contractor shall notify the Engineer at least 48 hours in advance of the need to enter the work area. Absolutely no access to the work area will be given without prior consent. Delays to construction due to access restrictions will not be just cause for contract time extensions.

## **MATERIALS**

**102-2.1 Construction Safety and Phasing Plan (CSPP).** The Contractor's attention is drawn towards the Special Provisions as well as the Construction Safety and Phasing Plan included within Volume III of these project documents. The contractor shall prepare their own Construction Safety and Phasing Plan in accordance with these documents for submission and approval by the Engineer. The project specific CSPP prepared by the contractor shall be submitted and approved prior to contractor's access being granted to the project site.

**102-2.2 Barricades.** Lighted low-level barricades marked with diagonal, alternating orange and white stripes shall be provided by the contractor and placed continuously as shown within plans and as directed by the Construction Manager. All low-level barricades shall have at least one steady burning red light



affixed to one of the ends. Orange lights will not be allowed. All barricades shall be firmly anchored against overturning and displacement from wind, jet blast, or prop wash. Should the Contractor need barrier rail within the construction zone, it shall be provided and removed by the Contractor. No direct payment will be made for flashing barricades or other types of barrier rail as described or for labor, equipment, and materials necessary to install them.

**102-2.3 Temporary Marking and Signing.** The Contractor shall install temporary signs, lights, traffic control devices, and other temporary markings other than striping required during the course of this contract. The temporary marking shall conform to applicable Federal Aviation Administration markings and shall be constructed of materials approved by the Engineer.

It is incumbent on the Contractor to consider these costs as they relate to his phasing plan and durations.

### **METHOD OF MEASUREMENT AND PAYMENT**

**102-3.1** The accepted pay quantity for “Airport Safety and Security” will be paid for at the contract unit price per month stated in the proposal. This price shall be full compensation including Contractor overhead and profit for furnishing flaggers, radios, barricades, lights, and other temporary markings as well as maintenance of those items during the duration of the project and for all labor, equipment tools and incidentals necessary to complete the item. This item shall be continued until such time as the Contractor has completed the contract to the satisfaction of the Engineer. The payment for this item shall not exceed the original contract time unless otherwise approved by the Engineer.

Payment will be made under:

Item P-102-1 Airport Safety and Security – per month

**END OF ITEM P-102**

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## Item P-151 Clearing and Grubbing

### DESCRIPTION

**151-1.1** This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the plans or as required by the Resident Project Representative (RPR).

**a. Clearing** shall consist of the cutting and removal of all trees, stumps, brush, logs, hedges, the removal of fences and other loose or projecting material from the designated areas. The grubbing of stumps and roots will not be required.

**b. Clearing and grubbing** shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the RPR is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing.

**c. Tree Removal.** Tree Removal shall consist of the cutting and removal of isolated single trees or isolated groups of trees, and the grubbing of stumps and roots. The removal of all the trees of this classification shall be in accordance with the requirements for the particular area being cleared.

### CONSTRUCTION METHODS

**151-2.1 General.** The areas denoted on the plans to be cleared and grubbed shall be staked on the ground by the Contractor as indicated on the plans.

The removal of existing structures and utilities required to permit orderly progress of work shall be accomplished by local agencies, unless otherwise shown on the plans. Whenever a telephone pole, pipeline, conduit, sewer, roadway, or other utility is encountered and must be removed or relocated, the Contractor shall advise the RPR who will notify the proper local authority or owner to secure prompt action.

**151-2.1.1 Disposal.** All materials removed by clearing or by clearing and grubbing shall be disposed of outside the Airport's limits at the Contractor's responsibility, except when otherwise directed by the RPR. As far as practicable, waste concrete and masonry shall be placed on slopes of embankments or channels. When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments. Any broken concrete or masonry that cannot be used in construction and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case, shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be subject to the approval of the RPR and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

**151-2.1.2 Blasting.** Blasting shall not be allowed.

**151-2.2 Clearing.** The Contractor shall clear the staked or indicated area of all materials as indicated on the plans. Trees unavoidably falling outside the specified clearing limits must be cut up, removed, and

disposed of in a satisfactory manner. To minimize damage to trees that are to be left standing, trees shall be felled toward the center of the area being cleared. The Contractor shall preserve and protect from injury all trees not to be removed. The trees, stumps, and brush shall be cut flush with the original ground surface. The grubbing of stumps and roots will not be required.

Fences shall be removed and disposed of as directed by the RPR. Fence wire shall be neatly rolled and the wire and posts stored on the airport if they are to be used again, or stored at a location designated by the RPR if the fence is to remain the property of a local owner or authority.

**151-2.3 Clearing and grubbing.** In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials as indicated on the plans, shall be removed, except where embankments exceeding 3-1/2 feet (105 cm) in depth will be constructed outside of paved areas. For embankments constructed outside of paved areas, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off flush with the original ground and allowed to remain. Tap roots and other projections over 1-1/2 inches (38 mm) in diameter shall be grubbed out to a depth of at least 18 inches (0.5 m) below the finished subgrade or slope elevation.

Any buildings and miscellaneous structures that are shown on the plans to be removed shall be demolished or removed, and all materials shall be disposed of by removal from the site. The cost of removal is incidental to this item. The remaining or existing foundations, wells, cesspools, and like structures shall be destroyed by breaking down the materials of which the foundations, wells, cesspools, etc., are built to a depth at least 2 feet (60 cm) below the existing surrounding ground. Any broken concrete, blocks, or other objectionable material that cannot be used in backfill shall be removed and disposed of at the Contractor's expense. The holes or openings shall be backfilled with acceptable material and properly compacted.

All holes in embankment areas remaining after the grubbing operation shall have the sides of the holes flattened to facilitate filling with acceptable material and compacting as required in Item P-152. The same procedure shall be applied to all holes remaining after grubbing in areas where the depth of holes exceeds the depth of the proposed excavation.

### **METHOD OF MEASUREMENT**

**151-3.1** The quantities of clearing and grubbing as shown by the limits on the plans shall be the number of acres (square meters) or fractions thereof of land specifically cleared and grubbed.

### **BASIS OF PAYMENT**

**151-4.1** Payment shall be made at the contract unit price per acre (square meter) for clearing and grubbing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-151-1 Clearing and grubbing - per acre

### **END OF ITEM P-151**

## Item P-152 Excavation, Subgrade, and Embankment

### DESCRIPTION

**152-1.1** This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, and intermediate areas as well as other areas for drainage, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

**152-1.2 Classification.** All material excavated shall be classified as defined below:

**a. Excavation.** Unclassified excavation shall consist of the excavation of all material, regardless of its nature.

**b. Embankment.** Embankment shall consist of the formation of onsite embankments with suitable material.

**c. Export.** Export shall consist of the removal of excess excavated onsite material and pulverized material from the airport. The material shall be disposed of at the designated material stockpile area as shown within the plans.

**d. Unsuitable Material.** Unsuitable excavation material shall consist of deposits of mixtures of soils that contain deleterious material, organic matter or highly plastic material considered by the RPR not suitable for foundation material. Unsuitable materials shall include materials that will decay or produce subsidence in the embankment. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR.

**e. Stabilizing Fill.** Stabilizing fill shall consist of furnishing, moving, placing, and compacting the below defined material as backfill. Stabilizing fill material shall be placed to the lines and grades as directed by the Owner or Engineer. The material shall be placed in 12-inch lifts and densified with a 20-ton minimum self-propelled tamping-foot compactor until no deflection/consolidation is observed. Gradation may be a visual determination by the Owner. However, if there is any disagreement, it shall be the Contractor's responsibility to verify the gradation by furnishing adequate scales, screens, labor, and equipment necessary to screen the material.

Stabilizing fill shall meet the following criteria:

| SIEVE SIZE<br>(Square Opening) | PERCENT PASSING<br>(by Dry Weight) |
|--------------------------------|------------------------------------|
| 12 in                          | 100                                |
| 6 in                           | 30 - 70                            |
| 2 in                           | 0 - 15                             |

**f. Geotextile Fabric.** A geotextile fabric will be placed over the stabilizing fill. The geotextile shall have the following properties:

| GEOTEXTILE PROPERTIES               | GEOTEXTILE MINIMUM STRENGTH VALUES |
|-------------------------------------|------------------------------------|
| Grab Tensile Strength (ASTM D 4632) | 270 lbs.                           |
| Mullen Burst (ASTM D 3786)          | 450 psi                            |
| Puncture (ASTM D 4833)              | 110 lbs.                           |
| Trapezoid Tear (ASTM D 4533)        | 75 lbs.                            |

The geotextile fabric shall be placed with a minimum joint overlay of 3 feet. Placement should be such that construction equipment does not travel directly over the geotextile fabric. Subgrade Preparation shall not be measured nor paid in this area.

**g. Subgrade Preparation:** Subgrade preparation shall consist of any required scarifying, grading, adding or removing moisture, and compacting existing and proposed subgrade material in pavement areas to the depth and density shown on the plans.

**h. Infield Surface Rock:** Infield Surface Rock consists of the installation of pulverized material on the infield (unpaved) areas within the limits of construction.

## CONSTRUCTION METHODS

**152-2.1 General.** Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of in waste areas as shown on the plans. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, subsection 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their

own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

The Contractor shall excavate the site in such a manner that stockpiling of excavated materials or the use of offsite borrow materials will not be necessary. If the Contractor does desire to stockpile excavated material, prior approval must be obtained from the Engineer. When approved, temporary material stockpiling may occur in the Contractor's staging area shown on the Plans. Height restrictions for material stockpiles in the staging area shall be in accordance with Federal Aviation Regulation (FAR) Part 77 Civil Imaginary Surfaces. The Contractor shall control dust, erosion, and FOD related to the stockpiled material as required in the Plans and Specifications. No separate measurement or payment will be made for the use of material, excavated and stockpiled by the Contractor. If the Contractor desires to use offsite borrow material for backfill, prior approval must be obtained from the Engineer. No separate measurement or payment will be made for the offsite borrow material used for backfill or embankment by the Contractor.

**a. Blasting.** Blasting shall not be allowed.

**152-2.2 Excavation.** No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot (30 mm) of the stated elevations for ground surfaces, or within 0.04 foot (12 mm) for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

All areas to be excavated shall be stripped of vegetation and surface rock. Surface rock shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, hauled to the disposal site or other purposes as shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

**a. Selective grading.** When selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

**b. Undercutting.** Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches (300 mm) below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified by the RPR. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard (per cubic meter) for Owner Authorized Over Excavation.

**c. Over-break.** Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

**d. Removal of utilities.** The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor. All existing foundations shall be excavated at least 2 feet (60 cm) below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

**e. Compaction requirements.** The subgrade under areas to be paved shall be compacted to a depth and to a density as shown on the plans. The material to be compacted shall be within  $\pm 2\%$  of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils).

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade. The finished grading operations, conforming to the typical cross-section, shall be completed and maintained at least 1,000 feet (300 m) ahead of the paving operations or as directed by the Engineer.

All loose or protruding rocks on the back slopes of cuts shall be pried loose or otherwise removed to the slope finished grade line. All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the Engineer.

Blasting shall not be allowed.

**f. Proof rolling.** After compaction is completed, the subgrade area shall be proof rolled with a heavy pneumatic-tired roller having four or more tires abreast, each tire loaded to a minimum of 30,000 pounds (13.6 metric tons) and inflated to a minimum of 125 psi (0.861 MPa) in the presence of the RPR. Apply a minimum of two coverages, or as specified by the RPR, to all paved areas. A coverage is defined



as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications.

**152-2.3 Borrow excavation.** Borrow areas are not required.

**152-2.4 Drainage excavation.** Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

**152-2.5 Preparation of cut areas or areas where existing pavement has been removed.** In those areas on which a subbase or base course is to be placed, the top of the subgrade shall be compacted to the maximum density and depth shown on the plans.

**152-2.6 Preparation of embankment area.** All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches (150 mm) and shall then be compacted per subsection 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches (300 mm) and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

**152-2.7 Control Strip.** The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches (300 mm) upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

**152-2.8 Formation of embankments.** The material shall be constructed in lifts as established in the control strip, but not less than 6 inches (150 mm) nor more than 12 inches (300 mm) of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within  $\pm 2\%$  of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The Contractor will take samples of excavated materials which will be used in embankment for testing to obtain a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D698. A new Proctor shall be obtained for each soil type based on visual classification.

Density tests will be taken by the Contractor for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM D698. Under all areas to be paved, the embankments shall be compacted to a depth and to a density as shown in the plans. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 12 inches (300 mm) of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense,

compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet (60 cm) in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet (1.2 m) below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

**152-2.9 Proof rolling.** The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. Before start of embankment, and after compaction is completed, the subgrade area shall be proof rolled with a 20 ton (18.1 metric ton) Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 80/100/150 psi (0.551 MPa/0.689 MPa/1.034 MPa) in the presence of the RPR. Apply a minimum of 15% coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

**152-2.10 Compaction requirements.** The subgrade under areas to be paved shall be compacted to a depth and to a density as shown on the plans. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth and to a density as shown on the plans.

The material to be compacted shall be within  $\pm 2\%$  of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the  $\frac{3}{4}$  inch (19.0 mm) sieve, follow the methods in ASTM D698. Tests for moisture content and compaction will be taken at a minimum of 1,000 S.Y. of subgrade. All quality assurance testing shall be done by the Contractor's laboratory in the presence of the RPR, and density test results shall be furnished upon completion to the RPR for acceptance determination.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Density tests will be taken by the RPR for every 1000 S.Y. of completed subgrade.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

**152-2.11 Finishing and protection of subgrade.** Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades

shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

**152-2.12 Haul.** All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

**152-2.13 Surface Tolerances.** In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

- a. **Smoothness.** The finished surface shall not vary more than +/- ½ inch (12 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.
- b. **Grade.** The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +/- 0.05 feet (15 mm) of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to be placed, grade shall not vary more than 0.10 feet (30 mm) from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

**152-2.14 Owner Authorized Over Excavation.** Owner Authorized Over excavation shall consist of the removal of material (i.e. unsuitable, saturated, etc.) and replacement with Suitable Material/Stabilizing Fill beyond the extent of excavation indicated on the Drawings. Pulverized material may be used provided that it meets the gradation requirements of P-207. In structural areas, the top 6" of over excavation (to top of subgrade) shall consist of Recycled Aggregate Base (P-207). This work shall only be done with written approval by the OWNER or RPR. Compaction for replacement materials shall be 100%.

**152-2.15 Disposal Area Grading.** As a last step, the disposal area shall be graded to allow positive drainage of the entire area and of adjacent areas as directed by the RPR. The entire area shall be proof rolled after grading as directed by the RPR prior to placing topsoil.

## METHOD OF MEASUREMENT

**152-3.1 General.** All measurements of quantities shall be provided to Owner by Contractor and subsequently verified by Owner. Contractor is responsible for indicating to Owner all discrepancies between existing plan grades and existing grades found in the field prior to any earthwork. If discrepancies are not brought to Owner's attention then no claims may be made for differences earthwork quantities because of said discrepancy.

**152-3.2 Excavation.** The quantity of excavation, including existing aggregate base material not removed under P-207, to be paid for shall be the number of cubic yards measured in its original position. Measurements shall be done by the Contractor with the Owner in attendance and shall be done by cross sectioning areas at 50-foot intervals.

Quantities for Excavation shall be computed by the average end area method. The end area is that bound by the original ground line, after pavement removal, and the planned top of subgrade as shown on the Drawings. The original ground line shall be established by field cross sections taken randomly at intervals not exceeding 50 foot grid, subject to verification by Owner.

Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed by the Owner or material excavated, placed and paid for under other items such as subgrade stabilization, saturated soils, stabilized soils, etc. There shall be no separate measurement for excavation of hard pan layer(s).

**152-3.3 Embankment.** Embankment shall be measured by the cubic yard in its final position for onsite materials, excluding Surface Rock, moved within the project limits to create the subgrade lines and grades as shown on the Drawings.

Quantities for Embankment shall be computed by the average end area method.

**152-3.4 Export.** Export shall be measured by the cubic yard in its original position of excavated material that is excess to the project embankment and transported and deposited to designated disposal area(s) on Airport Property.

This item does not include haul-off of Owner Authorized Over-Excavation, and materials from structural excavations and utility and drainage pipe trenching. The export on site of these materials is included under respective work and shall be subject to approval of the Owner.

**152-3.5 Infield Surface Rock.** Infield Surface Rock shall be measured by the square yard of pulverized material in its final position, processed, transported/hailed, placed, and compacted in the areas specified on the Plans.

**152-3.6 Owner Authorized Over-Excavation (Revocable).** Owner Authorized Over-Excavation shall be measured by the cubic yard from its original position for excavation and removal to the designated disposal site and replacement with Suitable material/Stabilizing Fill and Geotextile Fabric, as determined by the RPR. Owner Authorized Over-Excavation shall not be measured for payment unless specifically directed in writing by the Owner or RPR.

**152-3.7 Stabilizing Fill.** Stabilizing fill shall not be measured for payment but shall be included under "Owner Authorized Over-Excavation".

**152-3.8 Geotextile Fabric.** Geotextile fabric shall not be measured for payment but shall be included under "Owner Authorized Over-Excavation".

**152-3.9 Drainage Excavation.** Drainage Excavation shall not be measured for payment but shall be included under respective work.

**152-3.10 Stockpiled Material.** Stockpiled Material, including all handling, re-handling, and placement of stockpiles, shall not be measured for payment but considered incidental to other items of work.

**152-3.11 Subgrade Preparation.** Subgrade preparation shall not be measured for payment but shall be included under respective work.

## **BASIS OF PAYMENT**

**152-4.1 Excavation.** Payment for Excavation shall be made at the Contract Unit Price per cubic yard. This price shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Item, including excavation, temporary stockpiling and re-handling of the materials to accommodate construction phasing.

**152-4.2 Embankment.** Payment for Embankment shall be made at the Contract Unit Price per cubic yard. This price shall be full compensation for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Item, including temporary stockpiling and re-handling of the materials to accommodate construction phasing.

**152-4.3 Export.** Payment for Export shall be made at the Contract Unit Price per cubic yard. This price shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals for loading, hauling and disposing of excess soil material to designated disposal area(s) on Airport Property.

**152-4.4 Infield Surface Rock.** Payment for Infield Surface Rock shall be made at the contract unit price per square yard for pulverized material processed, hauled, placed, and compacted. This price shall be considered as full compensation for all labor, materials, tools, equipment and incidentals to complete the item, including processing the pulverized material to meet the specifications, loading, hauling, placing, spreading, and compacting the infield surface rock in the areas designated on the Plans.

**152-4.4 Subgrade Preparation.** No separate payment shall be made for Subgrade preparation, but shall be considered incidental to the Items in which it is included.

**152-4.5 Owner Authorized Over-Excavation (Revocable).** Payment for Owner Authorized Over-Excavation shall be made at the Contract Unit Price per cubic yard. This price shall be considered as full compensation for furnishing all labor, materials, tools, equipment and incidentals for loosening, excavating, hauling, and disposing of Material off Airport Property and any costs associated with disposing of the material and the replacement with Suitable material/Stabilizing Fill as determined by the RPR.

**152-4.6 Stabilizing Fill.** Stabilizing fill shall not be paid for separately but shall be included under "Owner Authorized Over-Excavation"

**152-4.7 Geotextile Fabric.** Geotextile fabric shall not be paid for separately but shall be included under "Owner Authorized Over-Excavation"

**152-4.8 Drainage Excavation.** No separate payment shall be made for Drainage Excavation, but shall be considered incidental to the Items in which it is included.

**152-4.9 Stockpiled Material.** Stockpiled Material, including all handling, re-handling, and placement of stockpiles, shall not be paid for separately but considered incidental to other items of work.

**152-4.10 Subgrade Preparation.** No separate payment shall be made for Subgrade preparation, but shall be considered incidental to the Items in which it is included.

**152-4.11 Payment.** The basis of payment for the above Items of Work shall be full compensation for furnishing all material, labor, equipment, tools, and incidentals necessary to complete the excavation, grading, processing, screening, loading, hauling, placement, and incidentals, as required to complete the Work.

Payment will be made under:

|              |   |
|--------------|---|
| Item P-152-1 | Excavation - per cubic yard                                   |
| Item P-152-2 | Embankment - per cubic yard                                   |
| Item P-152-3 | Export - per cubic yard                                       |
| Item P-152-4 | Owner Authorized Over-Excavation (Revocable) - per cubic yard |
| Item P-152-5 | Infield Surface Rock (3 Inches Thick) – per square yard       |

### **TESTING REQUIREMENTS**

|            |   |
|------------|---|
| ASTM D698  | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft <sup>3</sup> (600 kN-m/m <sup>3</sup> ))  |
| ASTM D1556 | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method   |
| ASTM D1557 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft <sup>3</sup> (2700 kN-m/m <sup>3</sup> )) |
| ASTM D2167 | Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method  |
| ASTM D6938 | Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)                                |

**END OF ITEM P-152**

## Item P-156 Cement Treated Subgrade

### DESCRIPTION

**156-1.1** This item shall consist of constructing one or more courses of a mixture of soil, stabilizer, and water in accordance with this specification, and in conformity with the lines, grades, thickness, and typical cross-sections shown on the plans.

### MATERIALS

**156-2.1 Cement.** Cement shall conform to the requirements of ASTM C150, Type I, IA, II, or IIA or ASTM C595, Type IS, IL, IP, or IS(A).

**156-2.2 Water.** Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

**156-2.3 Soil.** The soil for this work shall consist of on-site materials free of roots, sod, weeds, and stones larger than 2-1/2 inches (60 mm) and have a sulfate content of less than 0.3%.

### COMPOSITION

**156-3.1 Soil-cement mixture.** The mix design shall use a cement content that, when tested in the laboratory per ASTM D1633, produces a 7-day compressive strength at least 300 pounds per square inch (2068 kPa) minimum. It is anticipated the cement shall be added at an application rate of 5-8 percent of dry unit weight of soil to achieve this compressive.

**156-3.2 Tolerances.** At final compaction, the cement and water content for each course of subgrade treatment shall conform to the following tolerances:

#### Tolerances

| Material/Properties | Target      | Tolerance | Specifications        |
|---------------------|-------------|-----------|-----------------------|
| Cement              | TBD         | 0 to +1%  | % Total Dry Materials |
| Moisture Content    | Optimum +2% | 0 to +1%  | ASTM D1557            |

### WEATHER LIMITATIONS

**156-4.1 Weather limitation.** Do not construct subgrade when weather conditions detrimentally affect the quality of the materials. Do not apply cement unless the air temperature is at least 40°F (4°C) and rising. Do not apply cement to soils that are frozen or contain frost. Do not apply cement when conditions are too windy to allow even distribution of the cement to the subgrade. If the air temperature falls below 35°F (2°C), protect completed treated areas against freezing. Remove and replace any damaged portion of the completed treated area with new material in accordance with this specification.



## EQUIPMENT

**156-5.1 Equipment.** All equipment necessary to grade, scarify, spread, mix and compact the material shall be provided. The Construction Manager (CM) must approve the Contractor's proposed equipment prior to the start of the treatment.

## CONSTRUCTION METHODS

**156-6.1 General.** This specification is to construct a subgrade consisting of a uniform cement mixture which shall be free from loose or segregated areas. The subgrade shall be of uniform density and moisture content, well mixed for its full depth and have a smooth surface suitable for placing subsequent courses. The Contractor shall be responsible for meeting the above requirements.

Prior to any treatment, the subgrade shall be constructed as specified in Item P-152, Excavation, Subgrade and Embankment, and shaped to conform to the typical sections, lines, and grades as shown on the plans.

The mixing machine must give visible indication at all times that it is cutting, pulverizing and mixing the material uniformly to the proper depth over the full width of the cut.

**156-6.2 Application.** Cement shall be uniformly spread only over an area where the initial mixing operations and compaction can be completed during the same workday. The cement shall not be applied when wind conditions are detrimental to proper application. A motor grader shall not be used to spread the lime. Adequate moisture shall be added to the cement/soil mixture to maintain the proper moisture content. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

**156-6.3 Mixing Procedure.** The full depth of the treated subgrade shall be mixed with equipment as approved by the CM. Cement shall not be left exposed for more than one (1) hour after distribution. Mixing and pulverization shall continue until the soil cement mixture contains no clods greater than 1-1/2 inches (38 mm) in size. Final moisture content of the mix shall be determined by the Contractor immediately prior to compaction in accordance with ASTM D2216 or ASTM D4959.

**156-6.4 Control Strip.** The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the CM, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the CM. Upon acceptance of the control strip by the CM, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the CM.

**156-6.5 Treatment Application and Depth Checks.** The amount of cement applied shall be monitored by the Contractor to assure that no less than the amount of cement required by the mix design is applied. The depth of stabilization shall be measured by the Contractor no less than 2 tests per day of material placed; test shall be witnessed by the CM. Measurements shall be made in test holes excavated to show the full depth of mixing.

**156-6.6 Compaction.** The moisture content shall be within the tolerance as specified in paragraph 156-3.2. The field density of the compacted mixture shall be at least 95% of the maximum density as specified in paragraph 156-6.10. Compaction of the soil/cement mixture shall begin within 30 minutes after mixing the cement into the subgrade. All compaction operations shall be completed within 2 hours from the start of mixing.

Perform in-place density test immediately after completion of compaction to determine degree of compaction. If the material fails to meet the density requirements, compaction shall continue or the material shall be removed and replaced. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

**156-6.7 Finishing and curing.** After the final lift or course of treated subgrade has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections. Finished portions of treated subgrade shall be protected to prevent equipment from marring, permanently deforming, or damaging completed work.

Not later than 24 hours after completion of final finishing, the surface shall be cured by application of an curing compound or other moisture retention methods as approved by the CM.

Sufficient protection from freezing shall be provided for at least 7 days after its construction or as approved by the CM.

**156-6.8 Maintenance.** The Contractor shall maintain the entire treated subgrade in good condition from the start of work until all the work has been completed, cured, and accepted by the CM. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meets all specification requirements. The cost shall be incidental to this item.

**156-6.9 Surface tolerance.** In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the CM. The Contractor shall perform all final smoothness and grade checks in the presence of the CM. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

**a. Smoothness.** The finished surface shall not vary more than  $\pm 1/2$  inch (12 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

**b. Grade.** The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within  $\pm 0.05$  feet (15 mm) of the specified grade.

**156-6.10 Acceptance sampling and testing.** Aggregate base course shall be accepted for density and thickness on an area basis. Testing frequency shall be a minimum of one (1) compaction and thickness test per 1000 square yards of stabilized subgrade, but not less than four (4) tests per day of production. Sampling locations will be determined on a random basis per ASTM D3665.

**a. Density.** All testing shall be done by the Contractor's laboratory in the presence of the CM and density test results shall be furnished upon completion to the CM for acceptance determination.

The field density of the compacted mixture shall be at least 95% of the maximum density as determined by ASTM D558. The in-place field density shall be determined in accordance with ASTM D6938, Procedure A, direct transmission method. The in-place moisture content shall be determined in accordance with ASTM D2216. If the material fails to meet the density requirements, compaction shall continue or the material shall be removed and replaced. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

**b. Thickness.** The thickness of the base course shall be within  $+0$  and  $-1/2$  inch (12 mm) of the specified thickness as determined by depth tests taken by the Contractor in the presence of the CM for

each subplot. Where the thickness is deficient by more than 1/2-inch (12 mm), the material shall be removed to full depth and replaced, at Contractor's expense.

### METHOD OF MEASUREMENT

**156-7.1** The amount of cement treated subgrade shall be based on the number of square yards complete and accepted.

### BASIS OF PAYMENT

**156-8.1** Payment for placement shall be made at the contract unit price per square yard (m) for the cement treated subgrade for the thickness specified. The price shall be full compensation for all preparation, delivering, placing and mixing these materials, and all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item P 156-1                      Cement Treated Subgrade (8 Inches Thick) per square yard

### REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

|            |  |
|------------|--|
| ASTM C150  | Standard Specification for Portland Cement   |
| ASTM C595  | Standard Specification for Blended Hydraulic Cements   |
| ASTM C1602 | Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete  |
| ASTM D558  | Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures   |
| ASTM D1556 | Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method  |
| ASTM D1557 | Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft <sup>3</sup> (2,700 kN-m/m <sup>3</sup> )) |
| ASTM D1663 | Standard Test Methods for Compressive Strength of Molded Soil-Cement Cylinders   |
| ASTM D2216 | Test Methods for Laboratory Determination of Water (Moisture) Soil and Rock by Mass  |
| ASTM D2487 | Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)  |
| ASTM D4318 | Standard Test Methods for Liquid Limit, Plastic Limit and Plasticity Index of Soils  |
| ASTM D4959 | Standard Test Method for Determination of Water Content of Soil by Direct Heating  |

ASTM D6938

Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

**END OF ITEM P-156**

## Part 4 – Base Courses

### Item P-207 Recycled Asphalt Aggregate Base Course

#### DESCRIPTION

**207-1.1** This item consists of a recycled asphalt aggregate base course resulting from the pulverization of the existing pavement section (asphalt wearing surface and aggregate base), plus mechanical stabilization with additional aggregate or chemical stabilization with cement, asphalt emulsion or fly ash when required.

#### MATERIALS

**207-2.1 Aggregate.** The aggregate shall consist of materials produced by recycling (processing and mixing) the existing asphalt pavement, aggregate base, and any additional aggregate as necessary. Material larger than 2 inches in any dimension shall not be permitted in the recycle asphalt aggregate base course.

The aggregate material shall exhibit a California Bearing Ratio (CBR) value of at least 30 when tested in accordance with ASTM D1883. The aggregate shall meet the gradation in the table below.

#### Gradation

| Sieve           | Minimum Percentage by weight passing sieves |
|-----------------|---|
| 2 inch (51 mm)  | 100   |
| No. 4 (4.75 mm) | 55  |
| No. 40 (425 µm) | 5-40  |
| No. 200 (75 µm) | 0-15  |

**a. Deleterious substances.** Materials for aggregate base shall be kept free from weeds, sticks, grass, roots and other foreign matter.

**b. Uniformity.** The materials shall be thoroughly recycled (pulverized and mixed) to ensure a uniform gradation.

#### 207-2.2 Stabilization.

**a. Mechanical stabilization.** Not required.

**b. Chemical Stabilization.** Stabilizing agent is not required.

**207-2.3 Water.** Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

**207-2.4 Quality Control (QC) Sampling and testing.** The Contractor shall take at least two aggregate samples per day of production in the presence of the Resident Project Representative (RPR) to check the

gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in subsection 207-2.1. Samples shall be taken from the in-place, un-compacted material at random sampling locations per ASTM D3665.

## CONSTRUCTION METHODS

**207-3.1 Pulverizing.** The existing asphalt pavement and aggregate base shall be pulverized to a depth of 10 inches below surface grade of the existing asphalt pavement as described in section P-101.

**207-3.2 Control Strip.** The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

**207-3.3 Mixing and Processing.** The pulverized asphalt pavement and aggregate base shall be mixed and processed into a uniformly blended mixture and installed to the depth indicated on the plans. All material over approximately 2 inches (50 mm) shall be removed by the Contractor. The mixture shall be brought to the desired moisture content.

The maximum lift thickness of the recycled aggregate base course material to be compacted shall be 6 inches.

**207-3.4 Grading and compaction.** Upon completion and acceptance of the subgrade preparation, the base material shall be placed, shaped and graded in accordance with the project plans. The recycled asphalt aggregate base course shall be compacted to the in-place density indicated on the plans. The moisture content of the material during compaction shall be within  $\pm 2\%$  of the optimum moisture content as determined by ASTM D2216. The number, type and weight of rollers shall be sufficient to compact the material to the required density. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

**207-3.5 Finishing.** The surface of the aggregate base course shall be finished by blading or with automated equipment designed for this purpose. If the top layer is 1/2 inch (12 mm) or more below grade, the top layer shall be scarified to a depth of at least 3 inches (75mm), new material added, and the layer blended and re-compacted to bring it to grade. The addition of layers less than 3 inches (75mm) shall not be allowed.

**207-3.6 Proof rolling.** Compacted asphalt aggregate base course shall be proof rolled with a tandem axle dual wheel dump truck loaded to the legal limit with tires inflated to 80 psi (550 kPa) in the presence of the RPR. Soft areas that deflect greater than 0.5 inch (12 mm) or show permanent deformation greater than 0.5 inch (12 mm) shall be removed and reworked at the Contractor's expense.

**207-3.7 Weather limitations.** When weather conditions detrimentally affect the construction process and/or quality of the materials, the Contractor shall stop construction. Cement or fly ash shall not be applied when wind conditions affect the distribution of the materials. When the aggregates contain frozen materials or when the underlying course is frozen or wet, the construction shall be stopped. Construction shall not be performed unless the atmospheric temperature is above 35°F (2°C) and rising or approved by the RPR. When the temperature falls below 35°F (2°C), protect all completed areas against detrimental effects of freezing by approved methods. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements.

**207-3.8 Maintenance.** The asphalt aggregate base course shall be maintained in a satisfactory condition until the work is accepted by the RPR. Equipment used in the construction of an adjoining section may be routed over completed sections of asphalt aggregate base course, provided that no damage results and equipment is routed over the full width of the completed asphalt aggregate base course. Any damage to the recycled asphalt aggregate base course shall be repaired by the Contractor at the Contractor's expense.

**207-3.9 Surface tolerances.** The finished surface shall be tested for smoothness and accuracy of grade. Any area failing smoothness or grade shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted by the Contractor at the Contractor's expense.

**a. Smoothness.** The finished surface shall not vary more than 3/8-inch (9 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

**b. Grade.** The grade shall be measured on a 30-foot grid and shall be within +0 and -1/2 inch (12 mm) of the specified grade.

**207-3.10 Acceptance sampling and testing for density.** Recycled base course shall be accepted for density and thickness on an area basis. One (1) test for density and thickness will be made for each 1000 square yds. Sampling locations will be determined on a random basis in accordance with ASTM D3665.

**a. Density.** Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. The Contractor shall perform all density tests with the RPR present and observing.

Each area will be accepted for density when the field density is at least the density of the recycled base course in accordance with the plans. The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

**b. Thickness.** The thickness of the base course shall be within +0 and -1/2 inch (12 mm) of the specified thickness as determined by survey performed by the Contractor in the presence of the RPR before and after placement of the base. The survey shall be performed on a 25' grid by a licensed Professional Land Surveyor in the state of California. Where the thickness is deficient by more than 1/2-inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material, and recompacted to grade. The Contractor shall replace, at his or her expense, base material where depth tests have been taken.

## METHOD OF MEASUREMENT

**207-4.1** The quantity of recycled asphalt aggregate base course shall be measured by the number of square yards (m<sup>2</sup>) of material in compliance with the plans and specifications. All excess recycled asphalt aggregate base course shall be hauled and stockpiled at the disposal site as shown on the plans. There will be no separate measurement or payment for hauling and temporary stockpiling recycled asphalt aggregate base course material to accommodate other items of work.

## BASIS OF PAYMENT

**207-5.1** Payment shall be made at the contract unit price per square yard (m<sup>2</sup>) for processing the existing asphalt pavement, aggregate base course, and mixing with stabilizing agent, if required, spreading, compacting, and maintaining the recycled material to the compacted thickness as indicated on the drawings. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools and incidentals to complete the item, including temporary stockpiling and re-handling of the materials to accommodate other items of work.

Payment will be made under:

Item P-207-1      Recycled Asphalt Aggregate Base Course (7 Inches Thick) –per square yard

## REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

|            |  |
|------------|--|
| ASTM C29   | Unit Weight of Aggregate   |
| ASTM C88   | Soundness of Aggregates by Use of Sodium or Magnesium Sulfate  |
| ASTM C117  | Materials Finer than 75- $\mu$ m (No. 200) Sieve in Mineral Aggregate by Washing                     |
| ASTM C131  | Resistance to abrasion of Small Size Coarse Aggregate by Use of Los Angeles Machine                  |
| ASTM C136  | Sieve or Screen Analysis of Fine and Coarse Aggregate  |
| ASTM C150  | Standard Specification for Portland Cement   |
| ASTM C595  | Standard Specification for Blended Hydraulic Cements   |
| ASTM C1602 | Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete          |
| ASTM D75   | Sampling Aggregate   |
| ASTM D558  | ASTM D558 Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures |
| ASTM D698  | Moisture Density Relations of Soils and Aggregate using 5.5 lb. Rammer and 12 in drop                |
| ASTM D977  | Standard Specification for Emulsified Asphalt  |
| ASTM D1556 | Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method                     |
| ASTM D1557 | Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort                 |
| ASTM D2216 | Test Methods for Laboratory Determination of Water (Moisture) Soil and Rock by Mass                  |
| ASTM D2419 | Test Method for Sand Equivalent Value of Soils and Fine Aggregate                                    |



|   |   |
|---|---|
| ASTM D2487  | Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)               |
| ASTM D3665  | Standard Practice for Random Sampling of Construction Materials   |
| ASTM D4318  | Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils                                      |
| ASTM D4491  | Standard Test Methods for Water Permeability of Geotextiles by Permittivity   |
| ASTM D4751  | Standard Test Methods for Determining Apparent Opening Size of a Geotextile   |
| ASTM D5821  | Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate                            |
| ASTM D6938  | Standard Test Method for In-Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth) |
| American Association of State Highway and Transportation Officials (AASHTO) |   |
| M288  | Standard Specification for Geosynthetic Specification for Highway Applications  |

**END OF ITEM P-207**

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## Part 6 – Flexible Pavements

### Item P-403 Asphalt Pavement Mix Surface Course

#### DESCRIPTION

**403-1.1** This item shall consist of pavement courses composed of mineral aggregate and asphalt binder mixed in a central mixing plant and placed on a prepared course in accordance with these specifications and shall conform to the lines, grades, thicknesses, and typical cross-sections shown on the plans. Each course shall be constructed to the depth, typical section, and elevation required by the plans and shall be rolled, finished, and approved before the placement of the next course.

#### MATERIALS

**403-2.1 Aggregate.** Aggregates shall consist of crushed stone, crushed gravel, crushed slag, screenings, natural sand and mineral filler, as required. The aggregates should have no known history of detrimental pavement staining due to ferrous sulfides, such as pyrite. Coarse aggregate is the material retained on the No. 4 (4.75 mm) sieve. Fine aggregate is the material passing the No. 4 (4.75 mm) sieve.

a. Coarse aggregate. Coarse aggregate shall consist of sound, tough, durable particles, free from films of matter that would prevent thorough coating and bonding with the asphalt material and free from organic matter and other deleterious substances. Coarse aggregate material requirements are given in the table below.

### Coarse Aggregate Material Requirements

| Material Test   | Requirement  | Standard   |
|---|--|------------|
| Resistance to Degradation   | Loss: 40% maximum for surface, asphalt binder, and leveling course<br>Loss: 50% maximum for base course  | ASTM C131  |
| Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate | Loss after 5 cycles:<br>12% maximum using Sodium sulfate - or -<br>18% maximum using magnesium sulfate   | ASTM C88   |
| Clay lumps and friable particles                                      | 0.3% maximum   | ASTM C142  |
| Percentage of Fractured Particles                                     | For pavements designed for aircraft gross weights of 60,000 pounds (27200 kg) or more:<br><br>Minimum 75% by weight of particles with at least two fractured faces and 85% with at least one fractured face <sup>1</sup> | ASTM D5821 |
|   | For pavements designed for aircraft gross weights less than 60,000 pounds (27200 kg):<br><br>Minimum 50% by weight of particles with at least two fractured faces and 65% with at least one fractured face <sup>1</sup>  |            |
| Flat, Elongated, or Flat and Elongated Particles                      | 8% maximum, by weight, of flat, elongated, or flat and elongated particles with a value of 5:1 <sup>2</sup>  | ASTM D4791 |
| Bulk density of slag <sup>3</sup>                                     | Weigh not less than 70 pounds per cubic foot (1.12 Mg/cubic meter)   | ASTM C29.  |

<sup>1</sup> The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

<sup>2</sup> A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

<sup>3</sup> Only required if slag is specified.

**b. Fine aggregate.** Fine aggregate shall consist of clean, sound, tough, durable, angular shaped particles produced by crushing stone, slag, or gravel and shall be free from coatings of clay, silt, or other objectionable matter. Natural (non-manufactured) sand may be used to obtain the gradation of the aggregate blend or to improve the workability of the mix. Fine aggregate material requirements are listed in the table below.

### Fine Aggregate Material Requirements

| Material Test   | Requirement  | Standard   |
|---|--|------------|
| Liquid limit  | 25 maximum   | ASTM D4318 |
| Plasticity Index  | 4 maximum  | ASTM D4318 |
| Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate | Loss after 5 cycles:<br>10% maximum using Sodium sulfate - or -<br>15% maximum using magnesium sulfate | ASTM C88   |
| Clay lumps and friable particles                                      | 0.3% maximum   | ASTM C142  |
| Sand equivalent   | 45 minimum   | ASTM D2419 |
| Natural Sand  | The use of natural sand is not permitted.  | ASTM D1073 |

**c. Sampling.** ASTM D75 shall be used in sampling coarse and fine aggregate, and ASTM C183 shall be used in sampling mineral filler.

**403-2.2 Mineral filler.** Mineral filler (baghouse fines) may be added in addition to material naturally present in the aggregate. Mineral filler shall meet the requirements of ASTM D242.

### Mineral filler Requirements

| Material Test    | Requirement | Standard   |
|------------------|-------------|------------|
| Plasticity Index | 4 maximum   | ASTM D4318 |

**403-2.3 Asphalt binder.** Asphalt binder shall conform to ASTM D6373 Performance Grade (PG)76-28.

### Asphalt Binder PG Plus Test Requirements

| Material Test    | Requirement | Standard   |
|------------------|-------------|------------|
| Elastic Recovery | 75% minimum | ASTM D6084 |

**403-2.4 Anti-stripping agent.** Any anti-stripping agent or additive (anti-strip) shall be heat stable and shall not change the asphalt binder grade beyond specifications. Anti-strip shall be an approved material of the Department of Transportation of the State in which the project is located.

## COMPOSITION

**403-3.1 Composition of mixture.** The asphalt plant mix shall be composed of a mixture of well-graded aggregate, filler and anti-strip agent if required, and asphalt binder. The several aggregate fractions shall be sized, handled in separate size groups, and combined in such proportions that the resulting mixture meets the grading requirements of the job mix formula (JMF).

**403-3.2 Job mix formula (JMF) laboratory.** The laboratory used to develop the JMF shall possess a current certificate of accreditation, listing D3666 from a national accrediting authority and all test methods required for developing the JMF, and listed on the accrediting authority's website. A copy of the laboratory's current accreditation and accredited test methods shall be submitted to the RPR prior to start of construction.

**403-3.3 Job mix formula (JMF).** No asphalt mixture shall be placed until an acceptable mix design has been submitted to the RPR for review and accepted in writing. The RPR's review shall not relieve the Contractor of the responsibility to select and proportion the materials to comply with this section.

When the project requires asphalt mixtures of differing aggregate gradations and/or binders, a separate JMF shall be submitted for each mix. Add anti-stripping agent to meet tensile strength requirements.

The JMF shall be prepared by an accredited laboratory that meets the requirements of subsection 403-3.2. The asphalt mixture shall be designed using procedures contained in Asphalt Institute MS-2 Mix Design Manual, 7th Edition. Samples shall be prepared and compacted using the gyratory compactor in accordance with ASTM D6925.

Should a change in sources of materials be made, a new JMF must be submitted to the RPR for review and accepted in writing before the new material is used. After the initial production JMF has been approved by the RPR and a new or modified JMF is required for whatever reason, the subsequent cost of the new or modified JMF, including a new control strip when required by the RPR, will be borne by the Contractor.

The RPR may request samples at any time for testing, prior to and during production, to verify the quality of the materials and to ensure conformance with the applicable specifications.

The JMF shall be submitted in writing by the Contractor at least 30 days prior to the start of paving operations. The JMF shall be developed within the same construction season using aggregates proposed for project use.

The submitted JMF shall be dated, and stamped or sealed by the responsible professional Engineer of the laboratory and shall include the following items as a minimum:

- Manufacturer's Certificate of Analysis (COA) for the asphalt binder used in the JMF in accordance with subsection 403-2.3. Certificate of asphalt performance grade is with modifier already added, if used and must indicate compliance with ASTM D6373. For plant modified asphalt binder, certified test report indicating grade certification of modified asphalt binder.
- Manufacturer's Certificate of Analysis (COA) for the anti-stripping agent if used in the JMF in accordance with subsection 403-2.4.
- Certified material test reports for the course and fine aggregate and mineral filler in accordance with subsections 403-2.1 and 403-2.2.
- Percent passing each sieve size for individual gradation of each aggregate cold feed and/or hot bin; percent by weight of each cold feed and/or hot bin used; and the total combined gradation in the JMF.
- Specific Gravity and absorption of each course and fine aggregate.
- Percent natural sand.
- Percent fractured faces.
- Percent by weight of flat particles, elongated particles, and flat and elongated particles (and criteria).
- Percent of asphalt.
- Number of blows or gyrations.
- Laboratory mixing and compaction temperatures.
- Supplier recommended mixing and compaction temperatures.

- Plot of the combined gradation on the 0.45 power gradation curve.
- Graphical plots of air voids, voids in the mineral aggregate (VMA), and unit weight versus asphalt content. To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.
- Tensile Strength Ratio (TSR).
- Type and amount of Anti-strip agent when used.
- Hamburg Wheel Test results.
- Date the JMF was developed. Mix designs that are not dated or which are from a prior construction season shall not be accepted.
- Percentage and properties (asphalt content, asphalt binder properties, and aggregate properties) of reclaimed asphalt pavement (RAP) in accordance with subsection 403-3.4, Reclaimed Hot-Mix Asphalt, if RAP is used.

**Table 1. Asphalt Design Criteria**

| <b>Test Property</b>                              | <b>Value</b>                               | <b>Test Method</b> |
|---|--|--------------------|
| Number of blows/gyrations                         | 50   |                    |
| Air voids (%)                                     | 3.5  | ASTM D3203         |
| Percent voids in mineral aggregate (VMA), minimum | See Table 2                                | ASTM D6995         |
| TSR <sup>1</sup>                                  | not less than 80 at a saturation of 70-80% | ASTM D4867         |
| Hamburg Wheel Test                                | 10 mm @ 20,000 passes at 50°C              | AASHTO T324        |

<sup>1</sup> Test specimens for TSR shall be compacted at  $7 \pm 1.0$  % air voids. In areas subject to freeze-thaw, use freeze-thaw conditioning in lieu of moisture conditioning per ASTM D4867.

The mineral aggregate shall be of such size that the percentage composition by weight, as determined by laboratory sieves, will conform to the gradation or gradations specified in Table 2 when tested in accordance with ASTM C136 and ASTM C117.

The gradations in Table 2 represent the limits that shall determine the suitability of aggregate for use from the sources of supply, be well graded from coarse to fine and shall not vary from the low limit on one sieve to the high limit on the adjacent sieve, or vice versa.

**Table 2. Aggregate - Asphalt Pavements**

| Sieve Size   | Percentage by Weight Passing Sieve |
|--|------------------------------------|
| 1 inch (25.0 mm)                                       | 100                                |
| 3/4 inch (19.0 mm)                                     | 90-100                             |
| 1/2 inch (12.5 mm)                                     | 68-88                              |
| 3/8 inch (9.5 mm)                                      | 60-82                              |
| No. 4 (4.75 mm)  | 45-67                              |
| No. 8 (2.36 mm)  | 32-54                              |
| No. 16 (1.18 mm)                                       | 22-44                              |
| No. 30 (600 µm)  | 15-35                              |
| No. 50 (300 µm)  | 9-25                               |
| No. 100 (150 µm)                                       | 6-18                               |
| No. 200 (75 µm)  | 3-6                                |
| <b>Voids in Mineral Aggregate (VMA)<sup>1</sup></b>    | 14                                 |
| <b>Asphalt Percent:</b>                                |                                    |
| Stone or gravel  | 4.5-7.0                            |
| Slag   | 5.0-7.5                            |
| <b>Recommended Minimum Construction Lift Thickness</b> | 3 inch                             |

<sup>1</sup>To achieve minimum VMA during production, the mix design needs to account for material breakdown during production.

The aggregate gradations shown are based on aggregates of uniform specific gravity. The percentages passing the various sieves shall be corrected when aggregates of varying specific gravities are used, as indicated in the Asphalt Institute MS-2 Mix Design Manual, 7th Edition.

**403-3.4 Reclaimed Asphalt Pavement (RAP).** RAP shall not be used

**403-3.5 Control strip.** Full production shall not begin until an acceptable control strip has been constructed and accepted in writing by the RPR. The Contractor shall prepare and place a quantity of asphalt according to the JMF. The underlying grade or pavement structure upon which the control strip is to be constructed shall be the same as the remainder of the course represented by the control strip.

The Contractor will not be allowed to place the control strip until the Contractor quality control program (CQCP), showing conformance with the requirements of paragraph 403-5.1, has been accepted, in writing, by the RPR.

The control strip will consist of at least 250 tons (227 metric tons) or 1/2 subplot, whichever is greater. The control strip shall be placed in two lanes of the same width and depth to be used in production with a longitudinal cold joint. The cold joint must be cut back in accordance with paragraph 403-4.13 using the same procedure that will be used during production. The cold joint for the control strip will be an exposed construction joint at least four (4) hours old or when the mat has cooled to less than 160°F (71°C). The equipment used in construction of the control strip shall be the same type, configuration and weight to be used on the project.

The control strip shall be evaluated for acceptance as a single lot in accordance with the acceptance criteria in paragraph 403-6.1 and 403- 6.2.



The control strip will be considered acceptable by the RPR if the gradation, asphalt content, and VMA are within the action limits specified in paragraph 403-5.5a; and Mat density greater than or equal to 94%, air voids 3.5% +/- 1%, and joint density greater than or equal to 92%.

If the control strip is unacceptable, necessary adjustments to the JMF, plant operation, placing procedures, and/or rolling procedures shall be made and another control strip shall be placed. Unacceptable control strips shall be removed at the Contractor's expense.

The control strip will be considered one lot for payment based upon the average of a minimum of 3 samples (no sublots required for control strip). Payment will only be made for an acceptable control strip in accordance with paragraph 403-8.1.

## CONSTRUCTION METHODS

**403-4.1 Weather limitations.** The asphalt shall not be placed upon a wet surface or when the surface temperature of the underlying course is less than specified in Table 4. The temperature requirements may be waived by the RPR, if requested; however, all other requirements including compaction shall be met.

**Table 4. Surface Temperature Limitations of Underlying Course**

| Mat Thickness  | Base Temperature (Minimum) |           |
|--|----------------------------|-----------|
|  | Degrees F                  | Degrees C |
| 3 inches (7.5 cm) or greater                                     | 40                         | 4         |
| Greater than 2 inches (50 mm)<br>but less than 3 inches (7.5 cm) | 45                         | 7         |

**403-4.2 Asphalt plant.** Plants used for the preparation of asphalt shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M156 including the following items:

**a. Inspection of plant.** The RPR, or RPR's authorized representative, shall have access, at all times, to all areas of the plant for checking adequacy of equipment; inspecting operation of the plant: verifying weights, proportions, and material properties; and checking the temperatures maintained in the preparation of the mixtures.

**b. Storage bins and surge bins.** The asphalt mixture stored in storage and/or surge bins shall meet the same requirements as asphalt mixture loaded directly into trucks. Asphalt mixture shall not be stored in storage and/or surge bins for a period greater than twelve (12) hours. If the RPR determines there is an excessive heat loss, segregation or oxidation of the asphalt mixture due to temporary storage, temporary storage shall not be allowed.

**403-4.3 Aggregate stockpile management.** Aggregate stockpiles shall be constructed in such a manner that prevents segregation and intermixing of deleterious materials. Aggregates from different sources shall be stockpiled, weighed and batched separately at the concrete batch plant. Aggregates that have become segregated or mixed with earth or foreign material shall not be used.

A continuous supply of materials shall be provided to the work to ensure continuous placement.

**403-4.4 Hauling equipment.** Trucks used for hauling asphalt shall have tight, clean, and smooth metal beds. To prevent the asphalt from sticking to the truck beds, the truck beds shall be lightly coated with a minimum amount of paraffin oil, lime solution, or other material approved by the RPR. Petroleum products shall not be used for coating truck beds. Each truck shall have a suitable cover to protect the

mixture from adverse weather. When necessary, to ensure that the mixture will be delivered to the site at the specified temperature, truck beds shall be insulated or heated and covers shall be securely fastened.

**403-4.4.1 Material transfer vehicle (MTV).** A material transfer vehicle is not required.

**403-4.5 Asphalt pavers.** Asphalt pavers shall be self-propelled with an activated heated screed, capable of spreading and finishing courses of asphalt that will meet the specified thickness, smoothness, and grade. The paver shall have sufficient power to propel itself and the hauling equipment without adversely affecting the finished surface. The asphalt paver shall be equipped with a control system capable of automatically maintaining the specified screed grade and elevation.

If the spreading and finishing equipment in use leaves tracks or indented areas, or produces other blemishes in the pavement that are not satisfactorily corrected by the scheduled operations, the use of such equipment shall be discontinued.

The paver shall be capable of paving to a minimum width specified in subsection 401-4.11.

**403-4.6 Rollers.** The number, type, and weight of rollers shall be sufficient to compact the asphalt to the required density while it is still in a workable condition without crushing of the aggregate, depressions or other damage to the pavement surface. Rollers shall be in good condition, capable of operating at slow speeds to avoid displacement of the asphalt. All rollers shall be specifically designed and suitable for compacting asphalt concrete and shall be properly used. Rollers that impair the stability of any layer of a pavement structure or underlying soils shall not be used.

**403-4.6.1 Density device.** The Contractor shall have on site a density gauge during all paving operations in order to assist in the determination of the optimum rolling pattern, type of roller and frequencies, as well as to monitor the effect of the rolling operations during production paving. The Contractor shall also supply a qualified technician during all paving operations to calibrate the density gauge and obtain accurate density readings for all new asphalt. These densities shall be supplied to the RPR upon request at any time during construction. No separate payment will be made for supplying the density gauge and technician.

**403-4.7 Preparation of asphalt binder.** The asphalt binder shall be heated in a manner that will avoid local overheating and provide a continuous supply of the asphalt material to the mixer at a uniform temperature. The temperature of the unmodified asphalt binder delivered to the mixer shall be sufficient to provide a suitable viscosity for adequate coating of the aggregate particles, but shall not exceed 325°F (160°C) when added to the aggregate. The temperature of modified asphalt binder shall be no more than 350°F (175°C) when added to the aggregate.

**403-4.8 Preparation of mineral aggregate.** The aggregate for the asphalt shall be heated and dried. The maximum temperature and rate of heating shall be such that no damage occurs to the aggregates. The temperature of the aggregate and mineral filler shall not exceed 350°F (175°C) when the asphalt binder is added. Particular care shall be taken that aggregates high in calcium or magnesium content are not damaged by overheating. The temperature shall not be lower than is required to obtain complete coating and uniform distribution on the aggregate particles and to provide a mixture of satisfactory workability.

**403-4.9 Preparation of asphalt mixture.** The aggregates and the asphalt binder shall be weighed or metered and introduced into the mixer in the amount specified by the JMF. The combined materials shall be mixed until the aggregate obtains a uniform coating of asphalt binder and is thoroughly distributed throughout the mixture. Wet mixing time shall be the shortest time that will produce a satisfactory mixture, but not less than 25 seconds for batch plants. The wet mixing time for all plants shall be established by the Contractor, based on the procedure for determining the percentage of coated particles described in ASTM D2489, for each individual plant and for each type of aggregate used. The wet mixing time will be set to achieve 95% of coated particles. For continuous mix plants, the minimum mixing time shall be determined by dividing the weight of its contents at operating level by the weight of the mixture

delivered per second by the mixer. The moisture content of all asphalt upon discharge shall not exceed 0.5%.

**403-4.10 Application of Prime and Tack Coat.** Immediately before placing the asphalt mixture, the underlying course shall be cleaned of all dust and debris.

A prime coat in accordance with Item P-602 shall be applied to aggregate base prior to placing the asphalt mixture.

A tack coat shall be applied in accordance with Item P-603 to all vertical and horizontal asphalt and concrete surfaces prior to placement of the first and each subsequent lift of asphalt mixture.

**403-4.11 Laydown plan, transporting, placing, and finishing.** Prior to the placement of the asphalt, the Contractor shall prepare a laydown plan with the sequence of paving lanes and width to minimize the number of cold joints; the location of any temporary ramps; laydown temperature; and estimated time of completion for each portion of the work (milling, paving, rolling, cooling, etc.). The laydown plan and any modifications shall be approved by the RPR.

Deliveries shall be scheduled so that placing and compacting of asphalt is uniform with minimum stopping and starting of the paver. Hauling over freshly placed material shall not be permitted until the material has been compacted, as specified, and allowed to cool to approximately ambient temperature. The Contractor, at their expense, shall be responsible for repair of any damage to the pavement caused by hauling operations.

Contractor shall survey each lift of asphalt surface course and certify to RPR that every lot of each lift meets the grade tolerances of subsection 401-6.2e before the next lift can be placed.

Edges of existing asphalt pavement abutting the new work shall be saw cut and the cut off material and laitance removed. Apply a tack coat in accordance with P-603 before new asphalt material is placed against it.

The speed of the paver shall be regulated to eliminate pulling and tearing of the asphalt mat. Placement of the asphalt mix shall begin along the centerline of a crowned section or on the high side of areas with a one way slope unless shown otherwise on the laydown plan as accepted by the RPR. The asphalt mix shall be placed in consecutive adjacent lanes having a minimum width of **15** feet except where edge lanes require less width to complete the area. Additional screed sections attached to widen the paver to meet the minimum lane width requirements must include additional auger sections to move the asphalt mixture uniformly along the screed extension.

The longitudinal joint in one course shall offset the longitudinal joint in the course immediately below by at least 1 foot (30 cm); however, the joint in the surface top course shall be at the centerline of crowned pavements. Transverse joints in one course shall be offset by at least 10 feet (3 m) from transverse joints in the previous course. Transverse joints in adjacent lanes shall be offset a minimum of 10 feet (3 m). On areas where irregularities or unavoidable obstacles make the use of mechanical spreading and finishing equipment impractical, the asphalt may be spread and luted by hand tools.

The RPR may at any time, reject any batch of asphalt, on the truck or placed in the mat, which is rendered unfit for use due to contamination, segregation, incomplete coating of aggregate, or overheated asphalt mixture. Such rejection may be based on only visual inspection or temperature measurements. In the event of such rejection, the Contractor may take a representative sample of the rejected material in the presence of the RPR, and if it can be demonstrated in the laboratory, in the presence of the RPR, that such material was erroneously rejected, payment will be made for the material at the contract unit price.

Areas of segregation in the surface course, as determined by the RPR, shall be removed and replaced at the Contractor's expense. The area shall be removed by saw cutting and milling a minimum of the construction lift thickness as specified in subsection 401-3.3, Table 2 for the approved mix design. The

area to be removed and replaced shall be a minimum width of the paver and a minimum of 10 feet (3 m) long.

**403-4.12 Compaction of asphalt mixture.** After placing, the asphalt mixture shall be thoroughly and uniformly compacted by self-propelled rollers. The surface shall be compacted as soon as possible when the asphalt has attained sufficient stability so that the rolling does not cause undue displacement, cracking or shoving. The sequence of rolling operations and the type of rollers used shall be at the discretion of the Contractor. The speed of the roller shall, at all times, be sufficiently slow to avoid displacement of the hot mixture and be effective in compaction. Any surface defects and/or displacement occurring as a result of the roller, or from any other cause, shall be corrected at the Contractor's expense.

Sufficient rollers shall be furnished to handle the output of the plant. Rolling shall continue until the surface is of uniform texture, true to grade and cross-section, and the required field density is obtained. To prevent adhesion of the asphalt to the roller, the wheels shall be equipped with a scraper and kept moistened with water as necessary.

In areas not accessible to the roller, the mixture shall be thoroughly compacted with approved power tampers.

Any asphalt that becomes loose and broken, mixed with dirt, contains check-cracking, or in any way defective shall be removed and replaced with fresh hot mixture and immediately compacted to conform to the surrounding area. This work shall be done at the Contractor's expense. Skin patching shall not be allowed.

**403-4.13 Joints.** The formation of all joints shall be made in such a manner as to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid asphalt except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods, all contact surfaces shall be coated with an asphalt tack coat before placing any fresh asphalt against the joint.

Longitudinal joints which are have been left exposed for more than four (4) hours; the surface temperature has cooled to less than 175°F (80°C); or are irregular, damaged, uncompacted or otherwise defective shall be cut back with a cutting wheel or pavement saw a maximum of 3 inches (75 mm) to expose a clean, sound, uniform vertical surface for the full depth of the course. All cutback material and any laitance produced from cutting joints shall be removed from the project. An asphalt tack coat or other product approved by the RPR shall be applied to the clean, dry joint prior to placing any additional fresh asphalt against the joint. The cost of this work shall be considered incidental to the cost of the asphalt.

**403-4.14 Saw-cut grooving.** Saw-cut grooving is not required.

**403-4.15 Diamond grinding.** Diamond grinding shall be completed prior to pavement grooving. Diamond grinding shall be accomplished by sawing with saw blades impregnated with industrial diamond abrasive.

Diamond grinding shall be performed with a machine designed specifically for diamond grinding capable of cutting a path at least 3 feet (0.9 m) wide. The saw blades shall be 1/8-inch (3-mm) wide with a minimum of 55 to 60 blades per 12 inches (300 mm) of cutting head width; grooves between 0.090 and 0.130 inches (2 and 3.5 mm) wide; and peaks and ridges approximately 1/32 inch (1 mm) higher than the bottom of the grinding cut. The actual number of blades will be determined by the Contractor and depend on the hardness of the aggregate. Equipment or grinding procedures that causes ravels, aggregate fractures, spalls or disturbance to the pavement will not be permitted.

Grinding will be tapered in all directions to provide smooth transitions to areas not requiring grinding. The slurry resulting from the grinding operation shall be continuously removed and the pavement left in a clean condition. The Contractor shall apply a surface treatment per P-608 to all areas that have been subject to grinding.

**403-4.16 Nighttime Paving Requirements.** The Contractor shall provide adequate lighting during any nighttime construction. A lighting plan shall be submitted by the Contractor and approved by the RPR prior to the start of any nighttime work. All work shall be in accordance with the approved CSPP and lighting plan.

### CONTRACTOR QUALITY CONTROL (CQC)

**403-5.1 General.** The Contractor shall develop a CQCP in accordance with Item C-100. No partial payment will be made for materials that are subject to specific QC requirements without an approved CQCP.

**403-5.2 Contractor quality control (QC) facilities.** The Contractor shall provide or contract for testing facilities in accordance with Item C-100. The RPR shall be permitted unrestricted access to inspect the Contractor's QC facilities and witness QC activities. The RPR will advise the Contractor in writing of any noted deficiencies concerning the QC facility, equipment, supplies, or testing personnel and procedures. When the deficiencies are serious enough to be adversely affecting the test results, the incorporation of the materials into the work shall be suspended immediately and will not be permitted to resume until the deficiencies are satisfactorily corrected.

**403-5.3 Quality Control (QC) testing.** The Contractor shall perform all QC tests necessary to control the production and construction processes applicable to these specifications and as set forth in the approved CQCP. The testing program shall include, but not necessarily be limited to, tests for the control of asphalt content, aggregate gradation, temperatures, aggregate moisture, field compaction, and surface smoothness. A QC Testing Plan shall be developed as part of the CQCP.

**a. Asphalt content.** A minimum of two tests shall be performed per day in accordance with ASTM D6307 or ASTM D2172 for determination of asphalt content. When using ASTM D6307, the correction factor shall be determined as part of the first test performed at the beginning of plant production; and as part of every tenth test performed thereafter. The asphalt content for the day will be determined by averaging the test results.

**b. Gradation.** Aggregate gradations shall be determined a minimum of twice per lot from mechanical analysis of extracted aggregate in accordance with ASTM D5444 and ASTM C136, and ASTM C117.

**c. Moisture content of aggregate.** The moisture content of aggregate used for production shall be determined a minimum of once per lot in accordance with ASTM C566.

**d. Moisture content of asphalt.** The moisture content of the asphalt shall be determined once per lot in accordance with AASHTO T329 or ASTM D1461.

**e. Temperatures.** Temperatures shall be checked, at least four times per lot, at necessary locations to determine the temperatures of the dryer, the asphalt binder in the storage tank, the asphalt at the plant, and the asphalt at the job site.

**f. In-place density monitoring.** The Contractor shall conduct any necessary testing to ensure that the specified density is being achieved. A nuclear gauge may be used to monitor the pavement density in accordance with ASTM D2950.

**g. Smoothness for Contractor Quality Control.** The Contractor shall perform smoothness testing in transverse and longitudinal directions daily to verify that the construction processes are producing

pavement with variances less than ¼ inch in 12 feet, identifying areas that may pond water which could lead to hydroplaning of aircraft. If the smoothness criteria is not met, appropriate changes and corrections to the construction process shall be made by the Contractor before construction continues

The Contractor may use a 12-foot (3.7 m) “straightedge, a rolling inclinometer meeting the requirements of ASTM E2133 or rolling external reference device that can simulate a 12-foot (3.7m) straightedge approved by the RPR. Straight-edge testing shall start with one-half the length of the straightedge at the edge of pavement section being tested and then moved ahead one-half the length of the straightedge for each successive measurement. Testing shall be continuous across all joints. The surface irregularity shall be determined by placing the freestanding (unleveled) straightedge on the pavement surface and allowing it to rest upon the two highest spots covered by its length, and measuring the maximum gap between the straightedge and the pavement surface in the area between the two high points. If the rolling inclinometer or external reference device is used, the data may be evaluated using the FAA profile program, ProFAA, using the 12-foot straightedge simulation function.

Smoothness readings shall not be made across grade changes or cross slope transitions. The transition between new and existing pavement shall be evaluated separately for conformance with the plans.

**(1) Transverse measurements.** Transverse measurements shall be taken for each day’s production placed. Transverse measurements will be taken perpendicular to the pavement centerline each 50 feet (15 m) or more often as determined by the RPR. The joint between lanes shall be tested separately to facilitate smoothness between lanes.

**(2) Longitudinal measurements.** Longitudinal measurements shall be taken for each day’s production placed. Longitudinal tests will be parallel to the centerline of paving; at the center of paving lanes when widths of paving lanes are less than 20 feet (6 m); and at the third points of paving lanes when widths of paving lanes are 20 ft (6 m) or greater.

Deviations on the final surface course in either the transverse or longitudinal direction that will trap water greater than 1/4 inch (6 mm) shall be corrected with diamond grinding per subsection 403-4.15 or by removing and replacing the surface course to full depth. Grinding shall be tapered in all directions to provide smooth transitions to areas not requiring grinding. All areas in which diamond grinding has been performed shall be subject to the final pavement thickness tolerances specified in subsection 401-6.1d(3) Areas that have been ground shall be sealed with a surface treatment in accordance with Item P-608. To avoid the surface treatment creating any conflict with runway or taxiway markings, it may be necessary to seal a larger area.

Control charts shall be kept to show area of each day’s placement and the percentage of corrective grinding required. Corrections to production and placement shall be initiated when corrective grinding is required. If the Contractor’s machines and/or methods produce significant areas that need corrective actions in excess of 10 percent of a day’s production, production shall be stopped until corrective measures are implemented by the Contractor.

**h. Grade.** Grade shall be evaluated daily to allow adjustments to paving operations when grade measurements do not meet specifications. As a minimum, grade shall be evaluated prior to the placement of the first lift and then prior to and after placement of the surface lift.

Measurements will be taken at appropriate gradelines (as a minimum at center and edges of paving lane) and longitudinal spacing as shown on cross-sections and plans. The final surface of the pavement will not vary from the gradeline elevations and cross-sections shown on the plans by more than 1/2 inch (12 mm) vertically and 0.1 feet (30 mm) laterally. The documentation will be provided by the Contractor to the RPR by the end of the following working day.

Areas with humps or depressions that exceed grade or smoothness criteria and that retain water on the surface must be ground off provided the course thickness after grinding is not more than 1/2 inch (12 mm) less than the thickness specified on the plans. Grinding shall be in accordance with subsection 403-4.15.

The Contractor shall repair low areas or areas that cannot be corrected by grinding by removal of deficient areas to the depth of the final course plus 1/2 inch and replacing with new material. Skin patching is not allowed.

**403-5.4 Sampling.** When directed by the RPR, the Contractor shall sample and test any material that appears inconsistent with similar material being sampled, unless such material is voluntarily removed and replaced or deficiencies corrected by the Contractor. All sampling shall be in accordance with standard procedures specified.

**403-5.5 Control charts.** The Contractor shall maintain linear control charts both for individual measurements and range (i.e., difference between highest and lowest measurements) for aggregate gradation, asphalt content, and VMA. The VMA for each day shall be calculated and monitored by the QC laboratory.

Control charts shall be posted in a location satisfactory to the RPR and kept current. As a minimum, the control charts shall identify the project number, the contract item number, the test number, each test parameter, the Action and Suspension Limits applicable to each test parameter, and the Contractor's test results. The Contractor shall use the control charts as part of a process control system for identifying potential problems and assignable causes before they occur. If the Contractor's projected data during production indicates a problem and the Contractor is not taking satisfactory corrective action, the RPR may suspend production or acceptance of the material.

**a. Individual measurements.** Control charts for individual measurements shall be established to maintain process control within tolerance for aggregate gradation, asphalt content, and VMA. The control charts shall use the JMF target values as indicators of central tendency for the following test parameters with associated Action and Suspension Limits:

**Control Chart Limits for Individual Measurements**

| Sieve              | Action Limit | Suspension Limit |
|--------------------|--------------|------------------|
| 3/4 inch (19.0 mm) | ±6%          | ±9%              |
| 1/2 inch (12.5 mm) | ±6%          | ±9%              |
| 3/8 inch (9.5 mm)  | ±6%          | ±9%              |
| No. 4 (4.75 mm)    | ±6%          | ±9%              |
| No. 16 (1.18 mm)   | ±5%          | ±7.5%            |
| No. 50 (300 µm)    | ±3%          | ±4.5%            |
| No. 200 (75 µm)    | ±2%          | ±3%              |
| Asphalt Content    | ±0.45%       | ±0.70%           |
| Minimum VMA        | -0.5%        | -1.0%            |

**b. Range.** Control charts for range shall be established to control process variability for the test parameters and Suspension Limits listed below. The range shall be computed for each lot as the difference between the two test results for each control parameter. The Suspension Limits specified below are based on a sample size of n = 2. Should the Contractor elect to perform more than two tests per lot, the Suspension Limits shall be adjusted by multiplying the Suspension Limit by 1.18 for n = 3 and by 1.27 for n = 4.

### Control Chart Limits Based on Range

(n = 2)

| Sieve              | Suspension Limit |
|--------------------|------------------|
| 1/2 inch (12.5 mm) | 11%              |
| 3/8 inch (9.5 mm)  | 11%              |
| No. 4 (4.75 mm)    | 11%              |
| No. 16 (1.18 mm)   | 9%               |
| No. 50 (300 µm)    | 6%               |
| No. 200 (75 µm)    | 3.5%             |
| Asphalt Content    | 0.8%             |

**c. Corrective action.** The CQCP shall indicate that appropriate action shall be taken when the process is believed to be out of tolerance. The Plan shall contain sets of rules to gauge when a process is out of control and detail what action will be taken to bring the process into control. As a minimum, a process shall be deemed out of control and production stopped and corrective action taken, if:

- (1) One point falls outside the Suspension Limit line for individual measurements or range; or
- (2) Two points in a row fall outside the Action Limit line for individual measurements.

### MATERIAL ACCEPTANCE

**403-6.1. Quality Assurance Acceptance sampling and testing.** Unless otherwise specified, all acceptance sampling and testing necessary to determine conformance with the requirements specified in this section will be performed by the RPR at no cost to the Contractor except that coring as required in this section shall be completed and paid for by the Contractor.

**a. Quality Assurance (QA) testing laboratory.** The QA testing laboratory performing these acceptance tests will be accredited in accordance with ASTM D3666. The QA laboratory accreditation will be current and listed on the accrediting authority's website. All test methods required for acceptance sampling and testing will be listed on the lab accreditation.

**b. Lot Size.** A standard lot will be equal to one day's production divided into approximately equal sublots of between 400 to 600 tons. When only one or two sublots are produced in a day's production, the sublots will be combined with the production lot from the previous or next day.

Where more than one plant is simultaneously producing asphalt for the job, the lot sizes will apply separately for each plant.

**c. Asphalt air voids.** Plant-produced asphalt will be tested for air voids on a subplot basis.

**(1) Sampling.** Material from each subplot shall be sampled in accordance with ASTM D3665. Samples shall be taken from material deposited into trucks at the plant or at the job site in accordance with ASTM D979. The sample of asphalt may be put in a covered metal tin and placed in an oven for not less than 30 minutes nor more than 60 minutes to maintain the material at or above the compaction temperature as specified in the JMF.

**(2) Testing.** Air voids will be determined for each subplot in accordance with ASTM D3203 for a set of compacted specimens prepared in accordance with ASTM D6926.

**d. In-place asphalt mat and joint density.** Each subplot will be tested for in-place mat and joint density as a percentage of the theoretical maximum density (TMD).



**(1) Sampling.** The Contractor will cut minimum 5 inches (125 mm) diameter samples in accordance with ASTM D5361. The Contractor shall furnish all tools, labor, and materials for cleaning, and filling the cored pavement. Laitance produced by the coring operation shall be removed immediately after coring, and core holes shall be filled within one day after sampling in a manner acceptable to the RPR.

**(2) Bond.** Each lift of asphalt shall be bonded to the underlying layer. If cores reveal that the surface is not bonded, additional cores shall be taken as directed by the RPR to determine the extent of unbonded areas. Unbonded areas shall be removed by milling and replaced at no additional cost as directed by the RPR.

**(3) Thickness.** Thickness of each lift of surface course will be evaluated by the RPR for compliance to the requirements shown on the plans after any necessary corrections for grade. Measurements of thickness will be made using the cores extracted for each subplot for density measurement. The maximum allowable deficiency at any point will not be more than 1/4 inch (6 mm) less than the thickness indicated for the lift. Average thickness of lift, or combined lifts, will not be less than the indicated thickness. Where the thickness tolerances are not met, the lot or subplot shall be corrected by the Contractor at his expense by removing the deficient area and replacing with new pavement. The Contractor, at his expense, may take additional cores as approved by the RPR to circumscribe the deficient area.

**(4) Mat density.** One core shall be taken from each subplot. Core locations will be determined by the RPR in accordance with ASTM D3665. Cores for mat density shall not be taken closer than one foot (30 cm) from a transverse or longitudinal joint. The bulk specific gravity of each cored sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each subplot sample by the TMD for that subplot.

**(5) Joint density.** One core centered over the longitudinal joint shall be taken for each subplot which contains a longitudinal joint. Core locations will be determined by the RPR in accordance with ASTM D3665. The bulk specific gravity of each core sample will be determined in accordance with ASTM D2726. The percent compaction (density) of each sample will be determined by dividing the bulk specific gravity of each joint density sample by the average TMD for the lot. The TMD used to determine the joint density at joints formed between lots will be the lower of the average TMD values from the adjacent lots.

#### **403-6.2 Acceptance criteria.**

**a. General.** Acceptance will be based on the implementation of the Contractor Quality Control Program (CQCP) and the following characteristics of the asphalt and completed pavements: air voids, mat density, joint density, and grade.

**b. Air voids.** Acceptance of each lot of plant produced material for air voids will be based upon the average air void from the sublots. If the average air voids of the lot are equal to or greater than 2% and equal to or less than 5%, then the lot will be acceptable. If the average is below 2% or greater than 5%, the lot shall be removed and replaced at the Contractor's expense.

**c. Mat density.** Acceptance of each lot of plant produced material for mat density will be based on the average of all of the densities taken from the sublots. If the average mat density of the lot so established equals or exceeds 94%, the lot will be acceptable. If the average mat density of the lot is below 94%, the lot shall be removed and replaced at the Contractor's expense.

**d. Joint density.** Acceptance of each lot of plant produced asphalt for joint density will be based on the average of all of the joint densities taken from the sublots. If the average joint density of the lot so established equals or exceeds 92%, the lot will be acceptable. If the average joint density of the lot is less than 92%, the Contractor shall stop production and evaluate the method of compacting joints. Production

may resume once the reason for poor compaction has been determined and appropriate measures have been taken to ensure proper compaction.

**e. Grade.** The final finished surface of the pavement of the completed project shall be surveyed to verify that the grade elevations and cross-sections shown on the plans do not deviate more than 1/2 inch (12 mm) vertically or 0.1 feet (30 mm) laterally.

Cross-sections of the pavement shall be taken at a minimum 50-foot longitudinal spacing and at all longitudinal grade breaks.

The survey and documentation shall be stamped and signed by a licensed surveyor. Payment for sublots that do not meet grade for over 25% of the subplot shall not be more than 95%.

**f. Profilograph roughness for QA Acceptance.** The final profilograph shall be the full length of the project to facilitate testing of roughness between lots. The Contractor, in the presence of the RPR shall perform a profilograph roughness test on the completed project with a profilograph meeting the requirements of ASTM E1274 or a Class I inertial profiler meeting ASTM E950. Data and results shall be provided within 48 hrs of profilograph roughness tests.

The pavement shall have an average profile index less than 15 inches per mile per 1/10 mile. The equipment shall utilize electronic recording and automatic computerized reduction of data to indicate “must grind” bumps and the Profile Index for the pavement using a 0.2- inch (5 mm) blanking band. The bump template must span one inch (25 mm) with an offset of 0.4 inches (10 mm). The profilograph must be calibrated prior to use and operated by a factory or State DOT approved, trained operator. Profilograms shall be recorded on a longitudinal scale of one inch (25 mm) equals 25 feet (7.5 m) and a vertical scale of one inch (25 mm) equals one inch (25 mm). Profilograph shall be performed one foot right and left of project centerline and 15 feet (4.5 m) right and left of project centerline. Any areas that indicate “must grind” shall be corrected with diamond grinding per paragraph 401-4.15 or by removing and replacing full depth of surface course, as directed by the RPR. Where corrections are necessary, a second profilograph run shall be performed to verify that the corrections produced an average profile index of 15 inches per mile per 1/10 mile or less.

#### **403-6.3 Resampling Pavement for Mat Density.**

**a. General.** Resampling of a lot of pavement will only be allowed for mat density and then, only if the Contractor requests same in writing, within 48 hours after receiving the written test results from the RPR. A retest will consist of all the sampling and testing procedures contained in subsections 403-6.1. Only one resampling per lot will be permitted.

(1) A redefined mat density will be calculated for the resampled lot. The number of tests used to calculate the redefined mat density will include the initial tests made for that lot plus the retests.

(2) The cost for resampling and retesting shall be borne by the Contractor.

**b. Payment for resampled lots.** The redefined mat density for a resampled lot will be used to evaluate the acceptance of that lot in accordance with subsection 403-6.2.

**c. Outliers.** Check for outliers in accordance with ASTM E178, at a significance level of 5%. Outliers will be discarded and density determined using the remaining test values.

### **METHOD OF MEASUREMENT**

**403-7.1 Measurement.** Asphalt shall be measured by the number of square yards of asphalt used in the accepted work.

## BASIS OF PAYMENT

**403-8.1 Payment.** Payment for a lot of asphalt mixture meeting all acceptance criteria as specified in subsection 403-6.2 shall be made at the contract unit price per square yard for asphalt. The price shall be compensation for furnishing all materials, for all preparation, mixing, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-403-1 Hot Mix Asphalt (HMA) Pavement Surface Course (3 Inches Thick) - per square yard

## REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

|            |   |
|------------|---|
| ASTM C29   | Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate  |
| ASTM C88   | Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate                                      |
| ASTM C117  | Standard Test Method for Materials Finer than 75- $\mu$ m (No. 200) Sieve in Mineral Aggregates by Washing                          |
| ASTM C127  | Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate                           |
| ASTM C131  | Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine |
| ASTM C136  | Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates   |
| ASTM C142  | Standard Test Method for Clay Lumps and Friable Particles in Aggregates   |
| ASTM C183  | Standard Practice for Sampling and the Amount of Testing of Hydraulic Cement  |
| ASTM C566  | Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying   |
| ASTM D75   | Standard Practice for Sampling Aggregates   |
| ASTM D242  | Standard Specification for Mineral Filler for Bituminous Paving Mixtures  |
| ASTM D946  | Standard Specification for Penetration-Graded Asphalt Cement for Use in Pavement Construction                                       |
| ASTM D979  | Standard Practice for Sampling Bituminous Paving Mixtures   |
| ASTM D1073 | Standard Specification for Fine Aggregate for Bituminous Paving Mixtures  |
| ASTM D1074 | Standard Test Method for Compressive Strength of Bituminous Mixtures  |
| ASTM D1461 | Standard Test Method for Moisture or Volatile Distillates in Bituminous Paving Mixtures   |
| ASTM D2041 | Standard Test Method for Theoretical Maximum Specific Gravity and Density of Bituminous Paving Mixtures                             |

|            |  |
|------------|--|
| ASTM D2172 | Standard Test Method for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures  |
| ASTM D2419 | Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate   |
| ASTM D2489 | Standard Practice for Estimating Degree of Particle Coating of Bituminous-Aggregate Mixtures   |
| ASTM D2726 | Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures   |
| ASTM D2950 | Standard Test Method for Density of Bituminous Concrete in Place by Nuclear Methods  |
| ASTM D3203 | Standard Test Method for Percent Air Voids in Compacted Dense and Open Bituminous Paving Mixtures  |
| ASTM D3381 | Standard Specification for Viscosity-Graded Asphalt Cement for Use in Pavement Construction  |
| ASTM D3665 | Standard Practice for Random Sampling of Construction Materials  |
| ASTM D3666 | Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials  |
| ASTM D4125 | Standard Test Methods for Asphalt Content of Bituminous mixtures by the Nuclear Method   |
| ASTM D4318 | Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils   |
| ASTM D4552 | Standard Practice for Classifying Hot-Mix Recycling Agents   |
| ASTM D4791 | Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate  |
| ASTM D4867 | Standard Test Method for Effect of Moisture on Asphalt Concrete Paving Mixtures  |
| ASTM D5444 | Standard Test Method for Mechanical Size Analysis of Extracted Aggregate   |
| ASTM D5581 | Standard Test Method for Resistance to Plastic Flow of Bituminous Mixtures Using Marshall Apparatus (6 inch-Diameter Specimen)                                 |
| ASTM D5821 | Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate   |
| ASTM D6307 | Standard Test Method for Asphalt Content of Hot-Mix Asphalt by Ignition Method   |
| ASTM D6373 | Standard Specification for Performance Graded Asphalt Binder   |
| ASTM D6752 | Standard Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Automatic Vacuum Sealing Method                              |
| ASTM D6925 | Standard Test Method for Preparation and Determination of the Relative Density of Hot Mix Asphalt (HMA) Specimens by Means of the SuperPave Gyratory Compactor |
| ASTM D6926 | Standard Practice for Preparation of Bituminous Specimens Using Marshall Apparatus   |

|   |   |
|---|---|
| ASTM D6927  | Standard Test Method for Marshall Stability and Flow of Bituminous Mixtures   |
| ASTM D6995  | Standard Test Method for Determining Field VMA based on the Maximum Specific Gravity of the Mix (Gmm)                                 |
| ASTM E11  | Standard Specification for Woven Wire Test Sieve Cloth and Test Sieves  |
| ASTM E178   | Standard Practice for Dealing with Outlying Observations  |
| ASTM E2133  | Standard Test Method for Using a Rolling Inclinator to Measure Longitudinal and Transverse Profiles of a Traveled Surface             |
| American Association of State Highway and Transportation Officials (AASHTO) |   |
| AASHTO M156   | Standard Specification for Requirements for Mixing Plants for Hot-Mixed, Hot-Laid Bituminous Paving Mixtures                          |
| AASHTO T329   | Standard Method of Test for Moisture Content of Hot Mix Asphalt (HMA) by Oven Method  |
| AASHTO T 340  | Standard Method of Test for Determining the Rutting Susceptibility of Hot Mix Asphalt (APA) Using the Asphalt Pavement Analyzer (APA) |
| Asphalt Institute (AI)  |   |
| MS-2  | Mix Design Manual, 7th Edition  |
| MS-26   | Asphalt Binder Handbook<br>AI State Binder Specification Database   |
| FAA Orders  |   |
| 5300.1  | Modifications to Agency Airport Design, Construction, and Equipment Standards   |
| Federal Highway Administration (FHWA)                                       |   |
| Long Term Pavement Performance Binder program                               |   |
| Software  |   |
| FAARFIELD   |   |

**END OF ITEM P-403**

## Part 9 – Miscellaneous

### Item P-602 Emulsified Asphalt Prime Coat

#### DESCRIPTION

**602-1.1** This item shall consist of an application of emulsified asphalt material on the prepared base course in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

#### MATERIALS

**602-2.1 Emulsified Asphalt material.** The emulsified asphalt material shall be as specified in ASTM D3628 for use as a prime coat appropriate to local conditions. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the emulsified asphalt material. The COA shall be provided to and approved by the Resident Project Representative (RPR) before the emulsified asphalt material is applied. The furnishing of the COA for the emulsified asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

#### CONSTRUCTION METHODS

**602-3.1 Weather limitations.** The emulsified asphalt prime coat shall be applied only when the existing surface is dry; the atmospheric temperature is 50°F (10°C) or above, and the temperature has not been below 35°F (2°C) for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

**602-3.2 Equipment.** The equipment shall include a self-powered pressure asphalt material distributor and equipment for heating asphalt material.

Provide a distributor with pneumatic tires of such size and number that the load produced on the base surface does not exceed 65.0 psi (4.5 kg/sq. cm) of tire width to prevent rutting, shoving or otherwise damaging the base, surface or other layers in the pavement structure. Design and equip the distributor to spray the asphalt material in a uniform coverage at the specified temperature, at readily determined and controlled rates from 0.05 to 1.0 gallons per square yard (0.23 to 4.5 L/square meter), with a pressure range of 25 to 75 psi (172.4 to 517.1 kPa) and with an allowable variation from the specified rate of not more than  $\pm 5\%$ , and at variable widths. Include with the distributor equipment a separate power unit for the bitumen pump, full-circulation spray bars, tachometer, pressure gauges, volume-measuring devices, adequate heaters for heating of materials to the proper application temperature, a thermometer for reading the temperature of tank contents, and a hand hose attachment suitable for applying asphalt material manually to areas inaccessible to the distributor. Equip the distributor to circulate and agitate the asphalt material during the heating process. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

A power broom and power blower suitable for cleaning the surfaces to which the asphalt coat is to be applied shall be provided.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

**602-3.3 Application of emulsified asphalt material.** Immediately before applying the prime coat, the full width of the surface to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material.

The asphalt emulsion material shall be uniformly applied with an asphalt distributor at the rate of 0.15 to 0.30 gallons per square yard (0.68 to 1.36 liters per square meter) depending on the base course surface texture. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Following application of the emulsified asphalt material and prior to application of the succeeding layer of pavement, allow the asphalt coat to cure and to obtain evaporation of any volatiles or moisture. Maintain the coated surface until the succeeding layer of pavement is placed, by protecting the surface against damage and by repairing and recoating deficient areas. Allow the prime coat to cure without being disturbed for a period of at least 48 hours or longer, as may be necessary to attain penetration into the treated course. Furnish and spread sand to effectively blot up and cure excess asphalt material. The Contractor shall remove blotting sand prior to asphalt concrete lay down operations at no additional expense to the Owner. Keep traffic off surfaces freshly treated with asphalt material. Provide sufficient warning signs and barricades so that traffic will not travel over freshly treated surfaces.

**602-3.4 Trial application rates.** The Contractor shall apply a minimum of three lengths of at least 100 feet (30 m) for the full width of the distributor bar to evaluate the amount of emulsified asphalt material that can be satisfactorily applied with the equipment. Apply three different application rates of emulsified asphalt materials within the application range specified in subsection 602-3.3. Other trial applications can be made using various amounts of material as directed by the RPR. The trial application is to demonstrate the equipment can uniformly apply the emulsified asphalt material within the rates specified and determine the application rate for the project.

**602-3.5 Freight and waybills.** The Contractor shall submit waybills and delivery tickets during the progress of the work. Before the final estimate is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

## METHOD OF MEASUREMENT AND BASIS OF PAYMENT

**602-4.1** No separate measurement or payment shall be made for emulsified asphalt prime coat; it shall be considered a subsidiary obligation of the Contractor cover under the other contract items.

## REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D2995                      Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors

ASTM D3628                      Standard Practice for Selection and Use of Emulsified Asphalts

**END OF ITEM P-602**



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## Item P-603 Emulsified Asphalt Tack Coat

### DESCRIPTION

**603-1.1** This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

### MATERIALS

**603-2.1 Asphalt materials.** The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

### CONSTRUCTION METHODS

**603-3.1 Weather limitations.** The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F (10°C) or above; the temperature has not been below 35°F (2°C) for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

**603-3.2 Equipment.** The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour (13 km per hour) or seven (700) feet per minute (213 m per minute).

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot (3.7-m) spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR.

A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

**603-3.3 Application of emulsified asphalt material.** The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

#### **Emulsified Asphalt**

| <b>Surface Type</b>     | <b>Residual Rate, gal/SY<br/>(L/square meter)</b> | <b>Emulsion Application Bar Rate, gal/SY<br/>(L/square meter)</b> |
|-------------------------|---|---|
| <b>New asphalt</b>      | 0.02-0.05 (0.09-0.23)                             | 0.03-0.07 (0.13-0.32)   |
| <b>Existing asphalt</b> | 0.04-0.07 (0.18-0.32)                             | 0.06-0.11 (0.27-0.50)   |
| <b>Milled Surface</b>   | 0.04-0.08 (0.18-0.36)                             | .06-0.12 (0.27-0.54)  |
| <b>Concrete</b>         | 0.03-0.05 (0.13-0.23)                             | 0.05-0.08 (0.23-0.36)   |

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

**603-3.4 Freight and waybills** The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

#### **METHOD OF MEASUREMENT AND BASIS OF PAYMENT**

**603-4.1** No separate measurement or payment shall be made for emulsified asphalt tack coat; it shall be considered a subsidiary obligation of the Contractor cover under the other contract items.

#### **REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM D1250 Standard Guide for Use of the Petroleum Measurement Tables

ASTM D2995 Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors

ASTM D3628 Standard Practice for Selection and Use of Emulsified Asphalts

**END ITEM P-603**

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## Item P-610 Structural Portland Cement Concrete

### DESCRIPTION

**610-1.1** This item shall consist of plain and/or reinforced structural portland cement concrete (PCC), prepared and constructed in accordance with these specifications, at the locations and of the form and dimensions shown on the plans. This specification shall be used for all structural and miscellaneous concrete including signage bases.

### MATERIALS

**610-2.1 General.** Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Engineer before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.

The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

**a. Reactivity.** Fine and Coarse aggregates to be used in all concrete shall be evaluated and tested by the Contractor for alkali-aggregate reactivity in accordance with both ASTM C1260 and C1567. Aggregate and mix proportion reactivity tests shall be performed for each project.

(1) Coarse and fine aggregate shall be tested separately in accordance with ASTM C1260. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.10% at 28 days (30 days from casting).

(2) Combined coarse and fine aggregate shall be tested in accordance with ASTM C1567, modified for combined aggregates, using the proposed mixture design proportions of aggregates, cementitious materials, and/or specific reactivity reducing chemicals. If lithium nitrate is proposed for use with or without supplementary cementitious materials, the aggregates shall be tested in accordance with Corps of Engineers (COE) CRD C662. If lithium nitrate admixture is used, it shall be nominal 30%  $\pm$ 0.5% weight lithium nitrate in water.

(3) If the expansion of the proposed combined materials test specimens, tested in accordance with ASTM C1567, modified for combined aggregates, or COE CRD C662, does not exceed 0.10% at 28 days, the proposed combined materials will be accepted. If the expansion of the proposed combined materials test specimens is greater than 0.10% at 28 days, the aggregates will not be accepted unless adjustments to the combined materials mixture can reduce the expansion to less than 0.10% at 28 days, or new aggregates shall be evaluated and tested.

**610-2.2 Coarse aggregate.** The coarse aggregate for concrete shall meet the requirements of ASTM C33. The Engineer may consider and reserve final approval of other State classification procedures addressing aggregate durability.

Coarse aggregate shall be well graded from coarse to fine and shall meet the following gradation shown in the table below when tested per ASTM C136.

**Gradation For Coarse Aggregate**

| Sieve Designation<br>(square openings) | Percentage by Weight<br>Passing Sieves |                   |               |                 |                 |                |       |
|--|--|-------------------|---------------|-----------------|-----------------|----------------|-------|
|  | 2"<br>(50 mm)                          | 1-1/2"<br>(38 mm) | 1"<br>(25 mm) | 3/4"<br>(19 mm) | 1/2"<br>(12 mm) | 3/8"<br>(9 mm) | No. 4 |
| No. 4 to 3/4 in. (4.75-19 mm)          |  |                   | 100           | 90-100          |                 | 20-55          | 0-10  |
| No. 4 to 1 in. (4.75-25 mm)            |  | 100               | 90-100        |                 | 25-60           |                | 0-10  |
| No. 4 to 1-1/2 in. (4.75-38 mm)        | 100                                    | 95-100            |               | 35-70           |                 | 10-30          | 0-5   |

**610-2.2.1 Aggregate susceptibility to durability (D) cracking.** Aggregates that have a history of D-cracking shall not be used. Coarse aggregate may be accepted from sources that have a 20-year service history for the same gradation to be supplied with no durability issues.

**a.** Material currently being produced shall have a durability factor  $\geq 95$  using ASTM C666. Coarse aggregates that are crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test but must meet all other quality tests. Aggregates meeting State Highway Department material specifications may be acceptable with concurrence of the FAA.

**b.** The Contractor shall submit a current certification that the aggregate does not have a history of D-cracking and that the aggregate meets the state specifications for use in PCC pavement for use on interstate highways. Certifications, tests and any history reports must be for the same gradation as being proposed for use on the project. Certifications which are not dated, or which are over one (1) year old or which are for different gradations will not be accepted. Test results will only be accepted when tests were performed by a State Department of Transportation (DOT) materials laboratory or an accredited laboratory.

**610-2.3 Fine aggregate.** The fine aggregate for concrete shall meet the requirements of ASTM C33.

The fine aggregate shall be well graded from fine to coarse and shall meet the requirements of the table below when tested in accordance with ASTM C136:

**Gradation For Fine Aggregate**

| Sieve Designation<br>(square openings) | Percentage by Weight<br>Passing Sieves |
|--|--|
| 3/8 inch (9 mm)                        | 100                                    |
| No. 4 (4.75 mm)                        | 95-100                                 |
| No. 16 (1.18 mm)                       | 45-80                                  |
| No. 30 (0.60 mm)                       | 25-55                                  |
| No. 50 (0.30 mm)                       | 10-30                                  |
| No. 100 (0.15 mm)                      | 2-10                                   |

Blending will be permitted, if necessary, to meet the gradation requirements for fine aggregate. Fine aggregate deficient in the percentage of material passing the No. 50 mesh sieve may be accepted, if the deficiency does not exceed 5% and is remedied by the addition of pozzolanic or cementitious materials

other than Portland cement, as specified in paragraph 610-2.6, Admixtures, in sufficient quantity to produce the required workability as approved by the Engineer.

**610-2.4 Cement.** Cement shall conform to the requirements of ASTM C150 Type II.

If aggregates are deemed innocuous when tested in accordance with paragraph 610-2.1.a.1 and accepted in accordance with paragraph 610-2.1.a.3, higher equivalent alkali content in the cement may be allowed if approved by the Engineer and FAA. If cement becomes partially set or contains lumps of caked cement, it shall be rejected. Cement salvaged from discarded or used bags shall not be used.

The Contractor shall furnish vendors' certified test reports for each carload, or equivalent, of cement shipped to the project. The report shall be delivered to the Engineer before use of the cement is granted. All test reports shall be subject to verification by testing sample materials received for use on the project.

**610-2.5 Water.** The water used in concrete shall be fresh, clean and potable; free from injurious amounts of oils, acids, alkalies, salts, organic materials or other substances deleterious to concrete.

**610-2.6 Admixtures and supplementary cementitious material.** The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the Engineer may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the Engineer from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

**a. Air-entraining admixtures.** Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

**b. Water-reducing admixtures.** Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

**c. Other chemical admixtures.** The use of set retarding, and set-accelerating admixtures shall be approved by the Engineer. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

**d. Lithium nitrate.** The lithium admixture shall be a nominal 30% aqueous solution of Lithium Nitrate, with a density of 10 pounds/gallon (1.2 kg/L), and shall have the approximate chemical form as shown below:

| <u>Constituent</u>                  | <u>Limit (Percent by Mass)</u> |
|-------------------------------------|--------------------------------|
| LiNO <sub>3</sub> (Lithium Nitrate) | 30 ±0.5                        |
| SO <sub>4</sub> (Sulfate Ion)       | 0.1 (max)                      |
| Cl (Chloride Ion)                   | 0.2 (max)                      |
| Na (Sodium Ion)                     | 0.1 (max)                      |
| K (Potassium Ion)                   | 0.1 (max)                      |

Provide a trained representative to supervise the lithium nitrate admixture dispensing and mixing operations.

**e. Fly ash.** Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash for use in mitigating alkali-silica reactivity shall have a Calcium Oxide (CaO) content of less than 13%.



**610-2.7 Premolded joint material.** Premolded joint material for expansion joints shall meet the requirements of ASTM D1751.

**610-2.8 Joint filler.** The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

**610-2.9 Steel reinforcement.** Reinforcing shall be as indicated on the plans. Reinforcing shall meet the following requirements: Reinforcing Steel (ASTM A615, ASTM A706, ASTM A775, ASTM A934), Welded Steel Wire Fabric (ASTM A1064), Welded Deformed Steel Fabric (ASTM A1064), or Bart Mats (ASTM A184 or ASTM A704).

**610-2.10 Materials for curing concrete.** Curing materials shall conform to one or more of the following:

|   |           |
|---|-----------|
| Waterproof paper  | ASTM C171 |
| Clear or white Polyethylene Sheeting                              | ASTM C171 |
| White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B | ASTM C309 |

## CONSTRUCTION METHODS

**610-3.1 General.** The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the Engineer.

**610-3.2 Concrete composition.** The concrete shall develop the required compressive strength in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cement per cubic yard (280 kg per cubic meter). The concrete shall contain 5% of entrained air,  $\pm 1\%$ , as determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

**610-3.3 Acceptance sampling and testing.** Concrete for each structure will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The concrete shall be sampled in accordance with ASTM C172. Concrete cylindrical compressive strength specimens shall be made in accordance with ASTM C31 and tested in accordance with ASTM C39. The Contractor shall cure and store the test specimens under such conditions as directed by the Engineer. The Engineer will make the actual tests on the specimens at no expense to the Contractor.

**610-3.4 Qualifications for concrete testing service.** Perform concrete testing by an approved laboratory and inspection service experienced in sampling and testing concrete. Testing agency must meet the requirements of ASTM C1077 or ASTM E329.

**610-3.5 Proportioning and measuring devices.** When package cement is used, the quantity for each batch shall be equal to one or more whole sacks of cement. The aggregates shall be measured separately by weight. If aggregates are delivered to the mixer in batch trucks, the exact amount for each mixer charge shall be contained in each batch compartment. Weighing boxes or hoppers shall be approved by the Engineer and shall provide means of regulating the flow of aggregates into the batch box so the required, exact weight of aggregates is obtained.

**610-3.6 Consistency.** The consistency of the concrete shall be determined by the slump test specified in ASTM C143.

**610-3.7 Mixing.** Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94.

**610-3.8 Mixing conditions.** The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without permission of the Engineer. If permission is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material shall not be permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

**610-3.9 Forms.** Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the Engineer. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface. The forms shall not be removed until at least 30 hours after concrete placement for vertical faces, walls, slender columns, and similar structures. Forms supported by falsework under slabs, beams, girders, arches, and similar construction shall not be removed until tests indicate the concrete has developed at least 60% of the design strength.

**610-3.10 Placing reinforcement.** All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

**610-3.11 Embedded items.** Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

**610-3.12 Placing concrete.** All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the Engineer. Concrete shall be placed as soon as practical after mixing, but in no case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

**610-3.13 Vibration.** Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309, Guide for Consolidation of Concrete. Where bars meeting ASTM A775 or A934 are used, the vibrators shall be equipped with rubber or non-metallic vibrator heads. Furnish a spare, working, vibrator on the job site whenever concrete is placed. Consolidate concrete slabs greater than 4 inches (100 mm) in depth with high frequency mechanical vibrating equipment supplemented by hand spading and tamping. Consolidate concrete slabs 4 inches (100 mm) or less in depth by wood tampers, spading, and

settling with a heavy leveling straightedge. Operate internal vibrators with vibratory element submerged in the concrete, with a minimum frequency of not less than 6000 cycles per minute when submerged. Do not use vibrators to transport the concrete in the forms. Penetrate the previously placed lift with the vibrator when more than one lift is required. Use external vibrators on the exterior surface of the forms when internal vibrators do not provide adequate consolidation of the concrete. Vibrators shall be manipulated to work the concrete thoroughly around the reinforcement and embedded fixtures and into corners and angles of the forms. The vibration at any point shall be of sufficient duration to accomplish compaction but shall not be prolonged to where segregation occurs. Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie or other approved method and shall not be disturbed after placement.

**610-3.14 Construction joints.** If the placement of concrete is suspended, necessary provisions shall be made for joining future work before the placed concrete takes its initial set. For the proper bonding of old and new concrete, provisions shall be made for grooves, steps, reinforcing bars or other devices as specified. The work shall be arranged so that a section begun on any day shall be finished during daylight of the same day. Before depositing new concrete on or against concrete that has hardened, the surface of the hardened concrete shall be cleaned by a heavy steel broom, roughened slightly, wetted, and covered with a neat coating of cement paste or grout.

**610-3.15 Expansion joints.** Expansion joints shall be constructed at such points and dimensions as indicated on the drawings. The premolded filler shall be cut to the same shape as the surfaces being joined. The filler shall be fixed firmly against the surface of the concrete already in place so that it will not be displaced when concrete is deposited against it.

**610-3.16 Defective work.** Any defective work discovered after the forms have been removed, which in the opinion of the Engineer cannot be repaired satisfactorily, shall be immediately removed and replaced at the expense of the Contractor. Defective work shall include deficient dimensions, or bulged, uneven, or honeycomb on the surface of the concrete.

**610-3.17 Surface finish.** All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated. Mortar finishing shall not be permitted, nor shall dry cement or sand-cement mortar be spread over the concrete during the finishing of horizontal plane surfaces.

The surface finish of exposed concrete shall be a rubbed finish. If forms can be removed while the concrete is still green, the surface shall be wetted and then rubbed with a wooden float until all irregularities are removed. If the concrete has hardened before being rubbed, a carborundum stone shall be used to finish the surface. When approved, the finishing can be done with a finishing machine.

**610-3.18 Curing and protection.** All concrete shall be properly cured and protected by the Contractor. The concrete shall be protected from the weather, flowing water, and from defacement of any nature during the project. The concrete shall be cured by covering with an approved material as soon as it has sufficiently hardened. Water-absorptive coverings shall be thoroughly saturated when placed and kept saturated for at least three (3) days following concrete placement. All curing mats or blankets shall be sufficiently weighted or tied down to keep the concrete surface covered and to prevent the surface from being exposed to air currents. Wooden forms shall be kept wet at all times until removed to prevent opening of joints and drying out of the concrete. Traffic shall not be allowed on concrete surfaces for seven (7) days after the concrete has been placed.

**610-3.19 Drains or ducts.** Drainage pipes, conduits, and ducts that are to be encased in concrete shall be installed by the Contractor before the concrete is placed. The pipe shall be held rigidly so that it will not be displaced or moved during the placing of the concrete.

**610-3.20 Cold weather placing.** When concrete is placed at temperatures below 40°F (4°C), the Contractor shall provide satisfactory methods and means to protect the mix from injury by freezing. The aggregates, or water, or both, shall be heated to place the concrete at temperatures between 50°F and 100°F (10°C and 38°C).

Calcium chloride may be incorporated in the mixing water when directed by the Engineer. Not more than pounds (908 grams) of Type 1 nor more than 1.6 pounds (726 grams) of Type 2 shall be added per bag of cement. After the concrete has been placed, the Contractor shall provide sufficient protection such as cover, canvas, framework, heating apparatus, etc., to enclose and protect the structure and maintain the temperature of the mix at not less than 50°F (10°C) until at least 60% of the designed strength has been attained.

**610-3.21 Hot weather placing.** Concrete shall be properly placed and finished with procedures previously submitted. The concrete-placing temperature shall not exceed 90°F (32°C) when measured in accordance with ASTM C1064. Cooling of the mixing water and aggregates, or both, may be required to obtain an adequate placing temperature. A retarder meeting the requirements of paragraph 610-2.6 may be used to facilitate placing and finishing. Steel forms and reinforcement shall be cooled prior to concrete placement when steel temperatures are greater than 120°F (50°C). Conveying and placing equipment shall be cooled if necessary to maintain proper concrete-placing temperature. Submit the proposed materials and methods for review and approval by the Engineer, if concrete is to be placed under hot weather conditions.

**610-3.22 Filling joints.** All joints that require filling shall be thoroughly cleaned, and any excess mortar or concrete shall be cut out with proper tools. Joint filling shall not start until after final curing and shall be done only when the concrete is completely dry. The cleaning and filling shall be done with proper equipment to obtain a neat looking joint free from excess filler.

## METHOD OF MEASUREMENT

**610-4.** No separate measurement shall be made for structural Portland Cement Concrete.

## BASIS OF PAYMENT

**610-5.1** No separate payment shall be made for this item. Portland Cement Concrete shall be included in the unit cost of the item to which it pertains.

## TESTING REQUIREMENTS

|           |  |
|-----------|--|
| ASTM C31  | Standard Practice for Making and Curing Concrete Test Specimens in the Field                     |
| ASTM C39  | Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens                  |
| ASTM C136 | Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates                  |
| ASTM C138 | Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete |
| ASTM C143 | Standard Test Method for Slump of Hydraulic-Cement Concrete                                      |
| ASTM C231 | Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method            |

|  |   |
|--|---|
| ASTM C666  | Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing   |
| ASTM C1017   | Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete  |
| ASTM C1064   | Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete   |
| ASTM C1077   | Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation                            |
| ASTM C1260   | Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)  |
| ASTM C1567   | Standard Test Method for Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials and Aggregates (Accelerated Mortar-Bar Method)  |
| ASTM E329  | Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection  |
| U.S. Army Corps of Engineers (USACE) Concrete Research Division (CRD) C662 | Determining the Potential Alkali-Silica Reactivity of Combinations of Cementitious Materials, Lithium Nitrate Admixture and Aggregate (Accelerated Mortar-Bar Method) |

### **MATERIAL REQUIREMENTS**

|            |  |
|------------|--|
| ASTM A184  | Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement                         |
| ASTM A185  | Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete                              |
| ASTM A615  | Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement                   |
| ASTM A704  | Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement                     |
| ASTM A706  | Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement                |
| ASTM A775  | Standard Specification for Epoxy-Coated Steel Reinforcing Bars   |
| ASTM A934  | Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars                                 |
| ASTM A1064 | Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete |
| ASTM C33   | Standard Specification for Concrete Aggregates   |
| ASTM C94   | Standard Specification for Ready-Mixed Concrete  |
| ASTM C150  | Standard Specification for Portland Cement   |
| ASTM C171  | Standard Specification for Sheet Materials for Curing Concrete   |
| ASTM C172  | Standard Practice for Sampling Freshly Mixed Concrete  |
| ASTM C260  | Standard Specification for Air-Entraining Admixtures for Concrete  |

|            |  |
|------------|--|
| ASTM C309  | Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete   |
| ASTM C494  | Standard Specification for Chemical Admixtures for Concrete  |
| ASTM C595  | Standard Specification for Blended Hydraulic Cements   |
| ASTM C618  | Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete   |
| ASTM D1751 | Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types) |
| ASTM D1752 | Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction       |
| ACI 305R   | Hot Weather Concreting   |
| ACI 306R   | Cold Weather Concreting  |
| ACI 309R   | Guide for Consolidation of Concrete  |

**END OF ITEM P-610**

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## Item P-620 Runway and Taxiway Marking

### DESCRIPTION

**620-1.1** This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms “paint” and “marking material” as well as “painting” and “application of markings” are interchangeable throughout this specification. **All permanent apron and taxiway markings shall receive two coats of paint.**

### MATERIALS

**620-2.1 Materials acceptance.** The Contractor shall furnish manufacturer’s certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer’s surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

**620-2.2 Marking materials.**

**Table 1. Marking Materials**

| Paint <sup>1</sup> |        |                     |   | Glass Beads <sup>2</sup>  |                          |
|--------------------|--------|---------------------|---|---------------------------|--------------------------|
| Type               | Color  | Fed Std. 595 Number | Application Rate Maximum                            | Type                      | Application Rate Minimum |
| I                  | Yellow | 33538 or 33655      | 115 ft <sup>2</sup> /gal<br>(2.8 m <sup>2</sup> /l) | Type I,<br>Gradation<br>A | 7 lb./gal<br>(0.85 kg/l) |
| I                  | Black  | 37038               | 115 ft <sup>2</sup> /gal<br>(2.8 m <sup>2</sup> /l) | Type I,<br>Gradation<br>A | N/A                      |

**a. Paint.** Paint shall be waterborne in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

**Waterborne.** Paint shall meet the requirements of Federal Specification TT-P-1952F, Type I. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

**b. Reflective media.** Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.



Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black paint.

## CONSTRUCTION METHODS

**620-3.1 Weather limitations.** Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with subsection 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

**620-3.2 Equipment.** Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

**620-3.3 Preparation of surfaces.** Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminants that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

**a. Preparation of new pavement surfaces.** The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

**b. Preparation of pavement to remove existing markings.** Existing pavement markings shall be removed by rotary grinding, water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. The removal area may need to be larger than the area of the markings to eliminate ghost markings. After removal of markings on asphalt pavements, apply a fog seal or seal coat to 'block out' the removal area to eliminate 'ghost' markings.

**c. Preparation of pavement markings prior to remarking.** Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

**620-3.4 Layout of markings.** The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans.

**620-3.5 Application.** A period of 30 days shall elapse between placement of surface course or seal coat and application of the final coat of permanent paint markings. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch (12 mm) in 50 feet (15 m), and marking dimensions and spacing shall be within the following tolerances:

**Marking Dimensions and Spacing Tolerance**

| Dimension and Spacing                             | Tolerance         |
|---|-------------------|
| 36 inch (910 mm) or less                          | ±1/2 inch (12 mm) |
| greater than 36 inch to 6 feet (910 mm to 1.85 m) | ±1 inch (25 mm)   |
| greater than 6 feet to 60 feet (1.85 m to 18.3 m) | ±2 inch (50 mm)   |
| greater than 60 feet (18.3 m)                     | ±3 inch (76 mm)   |

The paint shall be mixed in accordance with the manufacturer’s instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of each coat of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

**620-3.6 Application--preformed thermoplastic airport pavement markings.**

Preformed thermoplastic pavement markings not used.

**620-3.7 Control strip.** Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

**620-3.8 Retro-reflectance.** Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average shall be equal to or above the minimum levels of all readings which are within 30% of each other.

**Minimum Retro-Reflectance Values**

| Material  | Retro-reflectance mcd/m <sup>2</sup> /lux |        |     |
|---|---|--------|-----|
|   | White                                     | Yellow | Red |
| Initial Type I                                    | 300                                       | 175    | 35  |
| Initial Type III                                  | 600                                       | 300    | 35  |
| Initial Thermoplastic                             | 225                                       | 100    | 35  |
| All materials, remark when less than <sup>1</sup> | 100                                       | 75     | 10  |

<sup>1</sup> Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance

**620-3.9 Protection and cleanup.** After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

**620-3.10 Paint Removal.** Existing paint removal shall be accomplished by the methods described in Section 620-3.3.b.

**METHOD OF MEASUREMENT**

**620-4.1** The quantity of Permanent Reflective and Non-Reflective airfield pavement markings to be paid for shall be the number of square feet (square meters) for each coat of painting performed in accordance with the specifications and accepted by the Engineer.

No separate measurement or payment shall be made for the glass beads, they shall be considered a subsidiary obligation of the contractor covered under this contract item.

**620-4.2** The quantity of “Remove Existing Pavement Markings” to be paid for shall be the number of square feet (square meters).

**BASIS OF PAYMENT**

**620-5.1** Payment shall be made at the respective contract price per square foot (square meter) for Permanent Reflective and Non-Reflective Airfield Pavement Markings. This price shall be full compensation for furnishing all materials including reflective media and for all labor, equipment, tools, and incidentals necessary to complete the item.

**620-5.2** Payment for “Remove Existing Pavement Markings” shall be made at the contract price per square foot (square meter) which price shall be full compensation for furnishing all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

- Item P-620-1 Permanent Reflective Airfield Pavement Markings - per square foot (square meter)
- Item P-620-2 Permanent Non-Reflective Airfield Pavement Markings - per square foot (square meter)
- Item P-620-3 Remove Existing Pavement Markings - per square foot (square meter)
- Item P-620-4 Tie-Down Anchor - per each

### **TESTING REQUIREMENTS**

- ASTM C371 Standard Test Method for Wire-Cloth Sieve Analysis of Nonplastic Ceramic Powders
- ASTM D92 Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester
- ASTM D711 Standard Test Method for No-Pick-Up Time of Traffic Paint
- ASTM D968 Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
- ASTM D1652 Standard Test Method for Epoxy Content of Epoxy Resins
- ASTM D2074 Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
- ASTM D2240 Standard Test Method for Rubber Property - Durometer Hardness
- ASTM D7585 Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
- ASTM E1710 Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
- ASTM E2302 Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
- ASTM G154 Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

### **MATERIAL REQUIREMENTS**

- ASTM D476 Standard Classification for Dry Pigmentary Titanium Dioxide Products
- 40 CFR Part 60, Appendix A-7, Method 24  
Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
- 29 CFR Part 1910.1200 Hazard Communication
- FED SPEC TT-B-1325D  
Beads (Glass Spheres) Retro-Reflective
- American Association of State Highway and Transportation Officials (AASHTO) M247  
Standard Specification for Glass Beads Used in Pavement Markings
- FED SPEC TT-P-1952E  
Paint, Traffic and Airfield Marking, Waterborne

Commercial Item Description A-A-2886B

Paint, Traffic, Solvent Based

FED STD 595 Colors used in Government Procurement

AC 150/5340-1 Standards for Airport Markings

**END OF ITEM P-620**

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## Part 11 – Drainage

### Item D-701 Pipe for Storm Drains and Culverts

#### DESCRIPTION

**701-1.1** This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

#### MATERIALS

**701-2.1** Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

**701-2.2 Pipe.** The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate American Association of State Highway and Transportation Officials (AASHTO) requirements:

|            |   |
|------------|---|
| AASHTO R73 | Standard Practice for Evaluation of Precast Concrete Drainage Productions   |
| ASTM C76   | Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe   |
| ASTM C1479 | Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations    |
| ASTM C1840 | Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe |

**701-2.3 Concrete.** Concrete for pipe cradles shall have a minimum compressive strength of 2000 psi (13.8 MPa) at 28 days and conform to the requirements of ASTM C94.

**701-2.4 Rubber gaskets.** Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe, polyethylene, and polypropylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precoated galvanized pipe shall conform to the requirements of ASTM D1056, for the “RE” closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

**701-2.5 Joint mortar.** Pipe joint mortar shall consist of one part Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

**701-2.6 Joint fillers.** Poured filler for joints shall conform to the requirements of ASTM D6690.

**701-2.7 Plastic gaskets.** Plastic gaskets shall conform to the requirements of ASTM C990.

**701-2.9 Precast box culverts.** Manufactured in accordance with and conforming to ASTM C1433.

**701-2.10 Precast concrete pipe.** Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or American Concrete Pipe Association QCast Plant Certification program.

### CONSTRUCTION METHODS

**701-3.1 Excavation.** The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 12 inches (300 mm) on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch (200 mm) or 1/2 inch (12 mm) for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

**701-3.2 Bedding.** The bedding surface for the pipe shall provide a foundation of uniform density to support the pipe throughout its entire length.

**a. Rigid pipe.** The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 in when the bedding thickness is less than 6 inches, and 1-1/2 in when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.

**b. Flexible pipe.** For flexible pipe, the bed shall be roughly shaped to fit the pipe, and a bedding blanket of sand or fine granular material shall be provided as follows:

#### Flexible Pipe Bedding

| Pipe Corrugation Depth |    | Minimum Bedding Depth |    |
|------------------------|----|-----------------------|----|
| inch                   | mm | inch                  | mm |
| 1/2                    | 12 | 1                     | 25 |
| 1                      | 25 | 2                     | 50 |
| 2                      | 50 | 3                     | 75 |
| 2-1/2                  | 60 | 3-1/2                 | 90 |



**c. Other pipe materials.** For PVC, polyethylene, polypropylene, or fiberglass pipe, the bedding material shall consist of coarse sands and gravels with a maximum particle size of 3/4 inches (19 mm). For pipes installed under paved areas, no more than 12% of the material shall pass the No. 200 (0.075 mm) sieve. For all other areas, no more than 50% of the material shall pass the No. 200 (0.075 mm) sieve. The bedding shall have a thickness of at least 6 inches (150 mm) below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of the pipe's vertical outside diameter.

**701-3.3 Laying pipe.** The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of the pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

**701-3.4 Joining pipe.** Joints shall be made with (1) cement mortar, (2) cement grout, (3) rubber gaskets, (4) plastic gaskets or (5) coupling bands.

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

**a. Concrete pipe.** Concrete pipe may be either bell and spigot or tongue and groove. Pipe sections at joints shall be fully seated and the inner surfaces flush and even. Concrete pipe joints shall be sealed with rubber gaskets meeting ASTM C443 when leak resistant joints are required.

**b. Metal pipe.** Not used.

**c. PVC, Polyethylene, or Polypropylene pipe.** Not used.

**d. Fiberglass pipe.** Not used.

**701-3.5 Embedment and Overfill.** Pipes shall be inspected before any fill material is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced at the Contractor's expense.

#### **701-3.5-1 Embedment Material Requirements**

**a. Concrete Pipe.** Embedment material and compaction requirements shall be in accordance with the applicable Type of Standard Installation (Types 1, 2, 3, or 4) per ASTM C1479. If a concrete cradle or CLSM embedment material is used, it shall conform to the plan details.

**b. Plastic and fiberglass Pipe.** Embedment material shall meet the requirements of ASTM D3282, A-1, A-2-4, A-2-5, or A-3. Embedment material shall be free of organic material, stones larger than 1.5 inches in the greatest dimension, or frozen lumps. Embedment material shall extend to 12 inches above the top of the pipe.

**c. Metal Pipe.** Embedment material shall be granular as specified in the contract document and specifications, and shall be free of organic material, rock fragments larger than 1.5 inches in the greatest dimension and frozen lumps. As a minimum, backfill materials shall meet the requirements of ASTM D3282, A-1, A-2, or A-3. Embedment material shall extend to 12 inches above the top of the pipe.

### **701-3.5-2 Placement of Embedment Material**

The embedment material shall be compacted in layers not exceeding 6 inches (150 mm) on each side of the pipe and shall be brought up one foot (30 cm) above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches (150 mm) and shall be brought up evenly on each side of the pipe to one foot (30 cm) above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

Concrete cradles and flowable fills, such as controlled low strength material (CLSM) or controlled density fill (CDF), may be used for embedment provided adequate flotation resistance can be achieved by restraints, weighing, or placement technique.

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

### **701-3.6 Overfill**

Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be placed and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D698. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

### **701-3.7 Inspection Requirements**

An initial post installation inspection shall be performed by the RPR no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe interior. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition. The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe.

Incorporate specific inspection requirements for the various types of pipes beneath the general inspection requirements.

Reinforced concrete pipe shall be inspected, evaluated, and reported on in accordance with ASTM C1840, "Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe." Any issues reported shall include still photo and video documentation. The zoom ratio shall be provided for all still or video images that document any issues of concern by the inspection firm.

## METHOD OF MEASUREMENT

**701-4.1** The length of pipe shall be measured in linear feet (m) of pipe in place, completed, and accepted. It shall be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. Each class, type, and size of pipe shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipe being measured. There shall be no separate measurement for bedding, embedment, and backfill as indicated in the plans.

Flared End Sections shall be measured per each in place, completed, and approved.

## BASIS OF PAYMENT

**701-5.0** These prices shall fully compensate the Contractor for furnishing all materials and for all preparation, excavation, and installation of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item. There shall be no separate payment for riprap, bedding, embedment, and backfill as indicated in the plans.

Payment will be made at the contract unit price per linear foot (meter) for each class, type, and size of pipe and per each Flared End Section.

No additional payment will be made for connecting existing and new pipes together, connecting a new pipe to another new pipe, or providing bends to make connections.

Payment will be made under:

|              |   |
|--------------|---|
| Item D-701-1 | Install 15 inch Pipe (Reinforced Concrete Class IV) - per linear foot (meter) |
| Item D-701-2 | Install 18 inch Pipe (Reinforced Concrete Class IV) - per linear foot (meter) |
| Item D-701-3 | Install 15 inch Flared End Section (Precast Concrete) with Riprap - per each  |
| Item D-701-4 | Install 18 inch Flared End Section (Precast Concrete) with Riprap - per each  |

## REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American Association of State Highway and Transportation Officials (AASHTO)

|             |   |
|-------------|---|
| AASHTO M167 | Standard Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches |
| AASHTO M190 | Standard Specification for Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches                                |
| AASHTO M196 | Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains   |
| AASHTO M219 | Standard Specification for Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches      |
| AASHTO M243 | Standard Specification for Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches   |
| AASHTO M252 | Standard Specification for Corrugated Polyethylene Drainage Pipe  |
| AASHTO M294 | Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter                         |

|                           |   |
|---------------------------|---|
| AASHTO M304               | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter |
| AASHTO MP20               | Standard Specification for Steel Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 900-mm (12- to 36-in.) Diameter              |
| ASTM International (ASTM) |   |
| ASTM A760                 | Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains   |
| ASTM A761                 | Standard Specification for Corrugated Steel Structural Plate, Zinc Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches       |
| ASTM A762                 | Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains                                       |
| ASTM A849                 | Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe             |
| ASTM B745                 | Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains   |
| ASTM C14                  | Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe  |
| ASTM C76                  | Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe   |
| ASTM C94                  | Standard Specification for Ready Mixed Concrete   |
| ASTM C144                 | Standard Specification for Aggregate for Masonry Mortar   |
| ASTM C150                 | Standard Specification for Portland Cement  |
| ASTM C443                 | Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets  |
| ASTM C506                 | Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe  |
| ASTM C507                 | Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe                                   |
| ASTM C655                 | Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe                                       |
| ASTM C990                 | Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants |
| ASTM C1433                | Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers           |
| ASTM D1056                | Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber  |
| ASTM D3034                | Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings   |
| ASTM D3212                | Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals                            |

|   |  |
|---|--|
| ASTM D3262                                  | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Sewer Pipe  |
| ASTM D3282                                  | Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes  |
| ASTM D4161                                  | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals                      |
| ASTM D6690                                  | Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements   |
| ASTM F477                                   | Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe  |
| ASTM F667                                   | Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings  |
| ASTM F714                                   | Standard Specification for Polyethylene (PE) Plastic Pipe (DR PR) Based on Outside Diameter  |
| ASTM F794                                   | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter                       |
| ASTM F894                                   | Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe  |
| ASTM F949                                   | Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings                                       |
| ASTM F2435                                  | Standard Specification for Steel Reinforced Polyethylene (PE) Corrugated Pipe  |
| ASTM F2562                                  | Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage                                       |
| ASTM F2736                                  | Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe                             |
| ASTM F2764                                  | Standard Specification for 30 to 60 in. (750 to 1500 mm) Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications |
| ASTM F2881                                  | Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications      |
| National Fire Protection Association (NFPA) |  |
| NFPA 415                                    | Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways  |

**END ITEM D-701**

## Part 13 – Lighting Installation

### Item L-100 Electrical General Requirements

#### DESCRIPTION

**100-1.1 GENERAL.** This Item includes the removal and if needed the reinstallation of all material, equipment and apparatus, and all labor, tools, services and equipment required for the following:

- a. The demolition and salvage/removal of portions of the existing airfield lighting systems.

Installation shall be in accordance with Specifications FAA-C-1217 and FAA-C-1391 (current editions), except as specified herein. Perform all work not included in the FAA Specifications in accordance with the National Electrical Code, applicable local and Weed Airport standards and regulations.

#### **100-1.2 DEMOLITION.**

- a. Demolition (removal and non-salvage to Owner or for re-installation) of other airfield electrical system elements shall include the intent, but not be limited to the specific elements, of the following:

- (1) Quartz lamp type lights.
- (2) Power and signal cables.

- b. Demolition (removal and non-salvage) of other elements associated with the airfield electrical system is included under other Items of this project (Item P-151 “Removal of Existing Facilities (Clearing)”). Elements covered shall include the intent, but not be limited to the specific elements, of the following:

- (1) Underground conduits and duct banks, both concrete encased and direct earth buried.
- (2) Underground electrical concrete structures including manholes and handholes of varying sizes.
- (3) Light concrete encased bases and miscellaneous concrete footings.
- (4) Grading and backfill associated with removal of the foregoing elements shall be covered under other Items of these specifications (P-152, “Excavation and Embankment”).

**100-1.3 RELATED DOCUMENTS.** The General Provisions of the Contract, including General and Special Conditions, apply to work specified in this Item.

- a. See General Conditions for liquidated damages.
- b. See Item P-151 “Removal of Existing Facilities (Clearing)” for specifics of demolition and adjustment of existing facilities.

**100-1.4 CONSTRUCTION DOCUMENTS COORDINATION.** Contractor coordination of Construction Documents (plans, details, specifications, etc.) shall meet the following:

- a. Drawings and Specifications are complementary: Work, material or requirements called for by either one is binding as if called for by both.
- b. Notification of the Engineer of Conflicts between Drawing and Specifications (Contract Documents) and between Contract Documents and references within the Contract Documents: Prospective contractors shall, in the processes of preparing their bids, enumerate, identify and list conflicts they find to exist within the Contract Documents, and between these Documents and the rules, regulations, standards and codes of the authority having jurisdiction (Airport Authority, City, County, etc.), local Utility companies and local County or State governing bodies. The Contractor shall notify the Engineer of discovered conflicts during the bidding process. No allowance shall subsequently be made to the Contractor by reason of his/her failure to have brought said discrepancies to the attention of the Engineer during the bidding period or by reason of any error on the Contractor's part.
- c. Conflicts between Contract Documents and References not disclosed to the Engineer or discovered after bidding: Conflicts shall be resolved according to the most stringent or detailed requirements.
- d. Execution of Contract is evidence that Contractor has examined all existing conditions, drawings and specifications related to work, and is informed to extent and character of work. Claims made during construction for labor and materials required due to difficulties encountered as a result of Contractor's inattention to this issue, which could have been clarified prior to bid had examination been made, will be denied.

**100-1.5 SPECIFICATIONS AND STANDARDS.** As a supplement to the installation requirements of this item, the following standard specifications and regulations of the issues in effect on the date of this solicitation are incorporated herein by reference and are made a part hereof for electrical work and installation and splicing of underground cables. Referenced documents – below and hereinafter in the L-series documents - shall be the current edition in force by the jurisdiction having authority.

|                                       |  |
|---------------------------------------|--|
| NEC                                   | National Electrical Code   |
| FAA-STD-019                           | Lightning Protection, Grounding, Bonding and Shielding Requirements for Facilities   |
| FAA-C-1217                            | Electrical Work, Interior  |
| FAA-C-1391                            | Installation, Termination, Splicing, and Transient/Surge Protection of Underground Electrical Distribution System Power Cables |
| Utility Company Rules and Regulations | Pacific Power  |

**100-1.6 SUBMITTALS, SHOP DRAWINGS AND MATERIAL LISTS.** Prior to the installation of any material and equipment and within 30 days of contract award, the Contractor shall submit to the Owner for approval shop drawings, material lists and manufacturers' brochures containing complete dimensional and performance characteristics, wiring diagrams, installation and operation instructions, etc., for the equipment listed in the individual L-Series specification Items. The Contractor's submittals shall be either electronic submittals in PDF format.

A materials list shall be submitted listing each specification paragraph number and stating whether the materials proposed are as specified or are substitutions. If the item is a substitute item, a complete submittal as described in the above paragraph shall be provided for that item.

Unless otherwise coordinated with the Engineer, the submittal shall be complete and made in a single PDF. Partial submissions will not be reviewed or considered. The Engineer reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be boldly and clearly made with arrows or circles (highlighting is not acceptable). Contractor is solely responsible for delays in project accruing directly or indirectly from late submissions or resubmissions of submittals.

**100-1.7 DIRECTIVE VERBS.** The material in the L-Series specification Items and any referenced FAA Advisory Circulars (ACs), Orders, Specifications and Standards contain criteria, recommended practices and other guidance material which require the use of certain verbs such as **SHALL, MUST, SHOULD, WILL** and **MAY**. In these specifications and reference materials the explicit meanings of these verbs is as follows:

- a. **SHALL.** The action is mandatory. For example: "Contractor **SHALL** coordinate with Operations and Maintenance 2 hours before the end of each daylight work shift to verify that all airfield lighting circuits are operational."
- b. **MUST.** The action is mandatory. For example: "The localizer station **MUST** automatically shut down if the monitor detects an out of tolerance condition."
- c. **SHOULD.** The action is desirable or recommended. For example: "The glide slope **SHOULD** be located 400 feet from the runway centerline."
- d. **WILL.** The action is to be taken in the future. For example: "These items **WILL** not be available from Airport Maintenance." or "Some facilities **WILL** be programmed for upgrading to provide Category II performance."
- e. **MAY.** The action is permissible. For example: "... it is expected that the Contractor **MAY** draw down this material for use in permanent installations." or "parking of unattended vehicles or aircraft



within this area is prohibited at all times, except for maintenance vehicles which MAY be parked adjacent to the equipment shelter.”

**EQUIPMENT AND MATERIALS**

**100-2.1 EQUIPMENT.** Conduits, conduit fittings, conductors, connectors, boxes, wiring devices, panelboards, and circuit breakers shall meet requirements of Specification FAA-C-1217.

**100-2.2 CONDUIT, INTERIOR.** Conduits installed building interiors shall be as follows:

a. Exposed conduit and fittings shall be rigid galvanized steel (RGS). Conduits run on the exterior of the building above or below the grade for the earth grounding system shall be rigid zinc-coated steel. Radius of bends in RGS shall be minimum 12 nominal pipe diameters.

b. Exposed conduits shall be galvanized steel electrical metallic tubing (EMT). Radius of bends in EMT shall be minimum 12 nominal pipe diameters. EMT fittings shall be compression type – set screw types are not acceptable.

c. Conduit run in concrete or below slab on grade shall be per paragraph 100-2.3 below.

**100-2.3 CONDUIT, EXTERIOR.** Conduits in concrete slabs, in block walls or exterior exposed shall be rigid galvanized steel (RGS). Conduits run on the exterior of the building above or below the grade for the earth grounding system shall be rigid zinc-coated steel. Radius of bends in RGS shall be minimum 12 nominal pipe diameters. Rigid galvanized steel conduit run in concrete or below slab on grade, or in the ground, shall be field wrapped or shall have factory-applied coating as required in Specification FAA-C-1217. Field-made joints, fittings, abrasions and holidays shall be coated or wrapped with material equal to the original coating or wrapping.

**100-2.4 CONDUIT, UNDERGROUND.** Conduits run underground are specified in Item L-110 of these specifications.

**100-2.5 600 VOLT WIRE.** All wire shall have copper conductors. Size shall be American Wire Gauge (AWG) with size for power circuit as shown on the project drawings. All Power wire shall be stranded. Insulation shall be Type THWN-2 (above ground) or XHHW or XHHW-2 (below ground) and shall be continuous and color coded as follows:

|           |               |                  |          |
|-----------|---------------|------------------|----------|
|           |               | 120/208V         | 277/480V |
| Line 1 or | Phase "A"     | Black            | Brown    |
| Line 2 or | Phase "B"     | Red              | Orange   |
|           | Phase "C"     | Blue             | Yellow   |
|           | Neutral White |                  | Gray     |
|           | Ground        | See Item 100-3.5 |          |

Control

Black with numbered adhesive

Markers on both ends

All wire shall be continuous; no splices will be permitted. All wire shall be drawn into conduit with adequate lubricating compound to prevent damage to insulation. Pull tension shall not exceed manufacturer's recommendation.

**100-2.6 SIGNAL AND CONTROL CABLES:** All signal and control cables shall have copper conductors. Cable configuration and voltage rating shall be as shown on the plans. Assume 600 volt rating if none is shown.

**100-2.7 5KV WIRE.** All 5 KV cables for airfield lighting shall have copper conductors and shall be as specified in Item L-108.

**100-2.8 CONDUIT FITTINGS.** Each conduit and nipple entrance to junction boxes, panelboards, disconnect switches, duct, raceway, equipment cabinets, and other such electrical enclosures shall be fitted with double locknuts (one each side of metal penetrated) and insulating bushing. Bushings on 1-1/4 inch and larger conduits shall be insulated metallic, type OZ/Gedney Cat. No. IBC Series, or equal; bushings for 3/4 inch and 1 inch shall be plastic insulated T&B rated for 150 C, or equal. All insulated bonding and grounding bushings of conduits for 2400 volts or higher voltages, for conduit going underground, and for conduits going into concrete slabs shall be OZ/Gedney Cat. No. IBC-xxL (fitted with grounding lug), or equal. The bushings shall be connected to the grounding system within the terminating enclosure and not on the underground end. The buried end of each conduit shall be fitted with a thermosetting, plastic-insulated, metallic bushing. All openings where conduits enter junction boxes, other enclosures and shelters shall be sealed weathertight. The conduit shall be capped, if left empty, or sealed with Duceal, or equal, around the conductors for exterior conduits.

**100-2.9 UNDERGROUND DUCT.** Concrete-encased and direct earth buried PVC ducts shall be as detailed on the plans. Directional bore PVC or HDPE ducts shall be as detailed on the plans. All ducts shall be as specified in Item L-110.

**100-2.10 STRUCTURAL CONCRETE.** Structural Concrete shall be as specified in Item P-610 and installed as detailed on drawings.

**100-2.11 CONTROLLED LOW STRENGTH MATERIAL (CLSM).** Not Used.

**100-2.12 CONCRETE DUCT MARKERS.** Markers shall be as specified in Item L-110 and as detailed on drawings.

**100-2.13 CONCRETE MANHOLES AND HANDHOLES.** Manholes and handholes shall be as specified in Item L-115 and as detailed on drawings.

**100-2.14 LIGHT BASES AND TRANSFORMER HOUSING.** Bases and covers shall be specified in item L-125 and as detailed on drawings.

**100-2.15 OTHER ELECTRICAL EQUIPMENT.** Cutouts, relays, terminal blocks, transfer relays, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by FAA equipment specifications shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers (IEEE) or the National Electrical Manufacturers Association (NEMA). When specified, test reports from a testing laboratory indicating that the equipment meets the specifications shall be supplied. In all cases, equipment shall be new and a first-grade product. This equipment shall be supplied in the quantities required for the specific project and shall incorporate the electrical and mechanical characteristics specified in the specification and plans.

## **CONSTRUCTION METHODS**

**100-3.1 EXISTING UTILITIES.** Prior to any excavation or trenching, provide utility locator and verify any existing cables and utilities which will be crossed by the trench. Ensure these utilities are permanently disconnected if they are going to be demolished. The existing service lines shall be exposed by hand-digging in those areas that will be crossed and shall be protected from any possible damage. If any damage occurs, it shall be the Contractor's responsibility to immediately repair such damage with materials and methods approved by the Owner and in compliance with applicable codes and standards, at no additional cost to the Owner.

### **100-3.2 DEMOLITION.**

**a. Demolition.** Removal of indicated portions of the airfield lighting system serving and associated taxiways as follows:

- (1) Remove indicated power and signal cables from conduits and ducts.
- (2) Demolish indicated conduits, ducts, handholes and concrete light and sign bases per the requirements of Item P-151 "Removal of Existing Facilities (Clearing)". Elements covered shall include the intent, but not be limited to the specific elements, of the following:
  - (a) Underground conduits and duct banks, both concrete encased and direct earth buried.
  - (b) Underground electrical concrete structures including manholes and handholes of varying sizes.
  - (c) Sign and light concrete encased bases and miscellaneous concrete footings.
- (3) Remove demolished material from site and dispose of according to local regulations.
- (4) Provide backfill meeting the requirements of P-152. Unless otherwise required for general Civil excavation and embankment, replacement backfill and paving repair shall be incidental to the demolition item.

**b. Salvage.** Removal and salvage of airfield electrical elements is included under this Item shall include the intent, but not be limited to the specific elements, of the following:

- (1) Light fixtures and isolation transformers.

- (2) Salvageable material and equipment slated for reinstallation including indicated signs, panels and lights shall be stored securely for reinstallation as noted on drawings.
- (3) Salvageable material and equipment not slated for reinstallation, and deemed salvageable by the Airport shall be removed and salvaged to the Airport as directed by appropriate Airport personnel.
- (4) All lights shall become the property of the Contractor and shall be removed from the site.

**100-3.3 CLEANING AND RACKING OF MANHOLES AND HANDHOLES.** Manholes and handholes through which new cables are to be pulled, or those designated by the Owner, shall be cleaned and have the cables racked as follows:

- a. Pump out standing water – enough to safely and thoroughly accomplish all of the other tasks.
- b. Remove mud/dirt at bottom of enclosure - enough to safely and thoroughly accomplish all of the other tasks as well as enough to uncover drain sumps, pulling eyes, etc.
- c. Remove non-affixed construction debris.
- d. Install new saddle racks per specification and as shown on the drawings
- e. Rack existing and new cables in loops around inside of enclosure. If slack in existing cables is insufficient for full cable loop, hang cables on rack(s) on one wall.

**100-3.4 CLEANING AND RACKING OF MANHOLES AND HANDHOLES.** Handholes through which new cables are to be pulled, or those designated by the Owner, shall be cleaned and have the cables racked as follows:

- a. Pump out standing water – enough to safely and thoroughly accomplish all of the other tasks.
- b. Remove mud/dirt at bottom of enclosure - enough to safely and thoroughly accomplish all of the other tasks as well as enough to uncover drain sumps, pulling eyes, etc.
- c. Remove non-affixed construction debris.
- d. Install new saddle racks per specification and as shown on the drawings
- e. Rack existing and new cables in loops around inside of enclosure. If slack in existing cables is insufficient for full cable loop, hang cables on rack(s) on one wall.

**100-3.5 AIRFIELD POWER CONDUCTORS.** Installation of underground 5 kV conductors is specified in Item L-108 of these specifications.

**100-3.6 INSTALLATION OF MISCELLANEOUS CABLES AND CONDUCTORS.** Where new cables or conductors are to be installed in an existing conduit which already contains cables or conductors, all of the existing cables or conductors shall be pulled from the conduit and the conduit cleaned as described below. If, as noted on the drawings the re-use of the existing cable or conductors is intended - or as

otherwise approved by the RPR.- all cables or conductors (new and re-used) shall then be pulled into the conduit as a bundled unit.

Existing underground conduit to be incorporated into a new/extended system shall be cleaned with a mandrel or cylinder wire brush and blown clean with compressed air.

**100-3.7 GROUNDING.** All metal support structures and metal enclosures shall be grounded in accordance with the requirements of the Specifications FAA-C-1217, FAA-C-1391, and FAA-STD-019, and as indicated on the drawings.

**100-3.8 GROUND RODS.** Grounding rods shall be 3/4-inch diameter by 10 feet long copper-jacketed steel. Grounding connections shall be by the exothermic weld process, Cadweld or equal. Extruded, drawn or stamped-type ground clamps will not be acceptable unless otherwise noted. The resistance to ground shall not exceed 25 ohms.

**100-3.9 GROUND CONDUCTORS.** Equipment grounding conductors shall be insulated copper, except where shown on the project drawings to be bare, and sized as shown on the project drawings; and all grounds will be shown in accordance of the National Electrical Code and with FAA-STD-019. Attachment of wire to supports, boxes, etc., shall be accomplished using approved ground lug attached with a separate stainless steel screw, lock washer and nut. Screws used for support of the electrical enclosure shall not be used for connection of the ground wire. Pipe straps shall not be used for ground purposes.

#### COLOR CODING OF GROUND CONDUCTORS

| TYPE OF GROUND CONDUCTOR      | COLOR OF INSULATION             |
|-------------------------------|---------------------------------|
| Grounding Electrode Conductor | Bare - No Insulation            |
| Equipment Grounding Conductor | Green (safety)                  |
| *Multipoint Ground (Frame)    | Green with bright orange tracer |
| *Signal Ground                | Green with bright yellow tracer |

\*Where these cables are concealed and not color coded, an exposed portion of the cable and each end of the cable for a minimum length of 2 feet shall be color coded with green tape overlaid with a bright orange or yellow to form a tracer. Where routed through raceways or wireways, the color coding shall be such that by removing or opening any one cover, the coding will be visible. Where conductors are routed through cable trays, color coding shall be accomplished at intervals not exceeding 3 feet.

The multi-ground system supplements but does not replace the equipment grounding conductor required by the National Electrical Code.

Each of these separate ground conductors is insulated in order to keep it distinct and not allow contact with any other conductor.

Electrical continuity of cable armor or shield shall be maintained. Grounding of the cable armor or shield shall be required at all terminations and shall be accomplished by connecting a #6 AWG solid bare copper wire to the cable armor or shield by means of a compression-type ground clamp installed within the terminating enclosure. Armor or shield ground wire shall be connected to the ground electrode conductor using split bolt connector, Burndy or equal. Grounding of direct earth burial (DEB) armored power and shielding control cable shall be at each end in accordance with FAA-C-1391.

**100-3.10 IDENTIFICATION.** Handhole, manhole, fixture and sign identification shall be as detailed on the drawings and as indicated in the associated “L” series Items. Cable tagging and markers shall be identified as per FAA-C-1391, Sections 3.5.1 and 2.

**100-3.11 NOTIFICATION OF TESTING.** The Contractor shall notify the Engineer and the Owner a minimum of 48 hours in advance of system, or partial system, testing, including but not limited to, installed cable megger testing, operational testing of any modified lighting circuit and fixture and signs photometric testing.

**100-3.12 TESTING AND SUBMITTALS.** Equipment and materials list and shop drawings shall be submitted as per FAA-C-1217, Section 5.1. Testing shall be required and performed as per FAA-C-1217, Section 5.3 and FAA-C-1391, Section 4. The Contractor shall be responsible for repairs or replacement of any cable found defective after installation.

The Contractor shall secure the services of an independent testing service to test the installed airfield lighting and miscellaneous power cables prior to the start of and at the completion of this project. The results of the testing shall be provided to the Owner for review and acceptance. The Contractor shall be responsible for repairs or replacement of any cable found defective after installation.

Installation tests in addition to all tests contained in other L-Series Items shall be provided as follows:

| Item  | Test Required   | Manufacturer's Rep. Present? |
|---|---|------------------------------|
| 5 kV Rated Airfield Lighting and Power Cables (On the Reel, Not Including Equipment for Contractor Quality Control. May be deleted per coordination with Engineer). | Megger check at 1000 volts prior to installation. Values of insulation resistance for each reel shall be noted and given to the Construction Manager or Resident Engineer and Owner for acceptance. It is expected that the readings will be greater than 1000 megohms (1 gigohm).<br><br><u>This test is for Contractor assurance and may be waived as coordinated with the Resident Engineer/Owner.</u> | No                           |

| Item   | Test Required   | Manufacturer's Rep. Present? |
|--|---|------------------------------|
| 5 kV Rated Airfield Lighting and Power Cables (Installed in This Project)  | <p>Megger check at 1000 volts at the completion of installation. Test every circuit for conductor-to-ground and conductor-to-conductor (between circuits) insulation resistance. Test results shall be tabulated and given to the Construction Manager/Owner for acceptance.</p> <p><u>It is required that the readings be greater than 100 megohms.</u></p>  | No                           |
| 5 kV Rated Airfield Lighting and Power Cables (All Circuits Modified in This Project, Emanating from any Lighting Vault) | <p>Megger check at 1000 volts prior to the start of and at the completion of installation. Test every circuit for conductor-to-ground and conductor-to-conductor (between circuits) insulation resistance. Test results shall be tabulated and given to the Construction Manager or Resident Engineer and Owner for acceptance.</p> <p>End state circuits with megger test results significantly less than the start of construction test results shall be diagnosed and repaired to the Owner's satisfaction at Contractor's expense.</p>                          | No                           |
| 600 Volt Rated Power Cables (Installed in This Project)  | <p>Megger check at 500 volts prior to the start of and at the completion of installation. Test every circuit for conductor-to-ground and conductor-to-conductor (between circuits) insulation resistance. Test results shall be tabulated and given to the Engineer for acceptance. It is <u>required</u> that the readings be greater than 100 megohms.</p> <p>End state circuits with megger test results significantly less than the start of construction test results shall be diagnosed and repaired to the Owner's satisfaction at Contractor's expense.</p> | No                           |
| 5 kV and 600 Volt and Multi-pair Cables  | <p>If a power cable puller is used, continuous-tape pull tension readings for each section of cable shall be provided to the Construction Manager or Owner for review.</p>  | No                           |

| Item  | Test Required  | Manufacturer's Rep. Present? |
|---|--|------------------------------|
| Airfield Light Fixture<br>(Testing prior to installation is for Contractor Quality Control. May be deleted per coordination with Engineer). | Each light fixture will be carefully examined prior to installation to ensure that lenses, where required, have been fitted, no signs of physical damage to the fittings exist and the lamps are working by connecting the fittings' electrical leads to a DC voltage source not exceeding 6 volts, such as a motorcycle battery. Any failures are to be reported to the Construction Manager or Owner. The fittings, when installed, shall be torqued to manufacturer's and FAA requirements and noted. | No                           |

#### METHOD OF MEASUREMENT

**100-4.1 AIRFIELD ELECTRICAL SYSTEM DEMOLITION.** This Item consists of the removal of indicated portions of the airfield lighting system serving Weed Airport, of selected light fixtures, transformers and fixture bases. This work also includes the removal of all conductors which are not to remain in service from ducts or conduits accessed under this project. Conduit, duct banks, fixture bases and concrete handholes are to be selectively demolished as part of the grading and excavation or abandoned in place.

**100-4.2 AIRFIELD LIGHTING VAULT MODIFICATIONS.** This item consists of all the work required to connect the new duct bank to the existing airfield lighting vault and make any wiring connections to the panel and/or regulator. All junction boxes, wiring, wireways, and incidentals are included to make the airfield lighting system complete and operational.



## **BASIS OF PAYMENT**

**100-5.1 AIRFIELD ELECTRICAL SYSTEM DEMOLITION.** Payment will be made at the contract Lump Sum price for the electrical demolition and removal services and incidental repair material completed and accepted. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete this Item as accepted by the Owner.

**100-5.2 AIRFIELD ELECTRICAL SYSTEM DEMOLITION.** Payment will be made at the contract Lump Sum price for the electrical demolition and removal services and incidental repair material completed and accepted. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete this Item as accepted by the Owner.

Payment will be made under:

Item L-100-1 Airfield Electrical System Demolition – Per Lump Sum

Item L-100-2 Airfield Lighting Vault Modifications – Per Lump Sum

**101 REFERENCE DOCUMENTS** (All references shall be current edition)

National Fire Protection Association:

NFPA No. 70          National Electrical Code (NEC)

Underwriters Laboratories Inc.:

UL 67                  Panelboards

UL 1283              Electromagnetic Interference Filters

UL 1449              Transient Voltage Surge Suppressors

Institute of Electrical and Electronics Engineers:

IEEE 1100            Recommended Practice for Powering and Grounding Electronic Equipment

IEEE C62.41        Recommended Practice on Surge Voltages in Low-Voltage AC Power Circuits

IEEE C62.45        Guide on Surge Testing for Equipment Connected to Low-Voltage AC Power Circuits

National Electrical Manufacturers Association:

NEMA AB 1          Molded Case Circuit Breakers and Molded Case Switches

NEMA FU 1          Low Voltage Cartridge Fuses

NEMA ICS 2        Industrial Control and Systems: Controllers, Contactors, and Overload Relays, Rated Not More Than 2000 Volts AC or 750 Volts DC

NEMA ICS 5        Industrial Control and Systems: Control Circuit and Pilot Devices

NEMA KS 1        Enclosed and Miscellaneous Distribution Equipment Switches (600 Volts Maximum)

NEMA LS 1        Low Voltage Surge Protection Devices

NEMA PB 1        Panelboards

NEMA PB 1.1      General Instructions for Proper Installation, Operation, and Maintenance of  
Panelboards Rated 600 Volts or Less

ANSI/IEEE

ANSI/IEEE Std 81      IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth  
Surface Potentials of a Ground System

**END OF ITEM L-100**

## Item L-108 Underground Power Cable for Airports

### DESCRIPTION

**108-1.1** This item shall consist of furnishing and installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

### EQUIPMENT AND MATERIALS

#### **108-2.1 General.**

**a.** Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

**b.** All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

**c.** Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

**d.** All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

**e.** The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications and shall be submitted in .PDF format. The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

**f.** All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least **12 months** from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing circuits through the end of the contract warranty period when tested in accordance

with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

**108-2.2 Cable.** Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 **Type C**, 5,000 volts, non-shielded, with **cross linked polyethylene insulation**. Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 **Type C**, 5,000 volts, non-shielded, with **cross linked polyethylene insulation**. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2 unless otherwise noted, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

**108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods).** Wire for counterpoise or ground installations for airfield lighting systems shall be No. 6 AWG bare solid copper wire for counterpoise and/or No. 6 AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be **bare copper wire**. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be **copper clad-steel**. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than 10' long and 3/4" in diameter.

**108-2.4 Cable connections.** In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

**a. The cast splice.** A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

**b. The field-attached plug-in splice.** Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall

be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable.

**c. The factory-molded plug-in splice.** Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

**d. The taped or heat-shrink splice.** Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Additionally, heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

**108-2.5 Splicer qualifications.** Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

**108-2.6 Concrete.** Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

**108-2.7 Flowable backfill.** Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

**108-2.8 Cable identification tags.** Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

**108-2.9 Tape.** Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch (38 mm) wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch (50 mm) wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

**108-2.10 Electrical coating.** Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

**108-2.11 Existing circuits.** Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second

reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

**108-2.12 Detectable warning tape.** Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

## CONSTRUCTION METHODS

**108-3.1 General.** The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than 3 feet (1 m) of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot (30 cm) vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch (6 mm) in size. The cable circuit identification shall match the circuits noted on the construction plans.

**108-3.2 Installation in duct banks or conduits.** This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.

Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit

prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

**108-3.3 Splicing.** Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

**a. Cast splices.** These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.

**b. Field-attached plug-in splices.** These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches (38 mm) on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

**c. Factory-molded plug-in splices.** These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1)



Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches (38 mm) on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

**d. Taped or heat-shrink splices.** A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches (75 mm) on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminants prior to application.

**e. Assembly.** Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

**108-3.6 Bare counterpoise wire installation for lightning protection and grounding.** If shown on the plans or included in the job specifications, bare solid [ #6 AWG ] copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

**a. Equipotential.** The counterpoise size is as shown on the plans. The equipotential method is applicable to all airfield lighting systems; i.e. runway, taxiway, apron – touchdown zone, centerline, edge, threshold and approach lighting systems. The equipotential method is also successfully applied to provide lightning protection for power, signal and communication systems. The light bases, counterpoise, etc – all components - are bonded together and bonded to the vault power system ground loop/electrode.

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise is centered over the cable/conduit/duct to be protected.

The counterpoise conductor shall be installed no less than 8 inches (200 mm) minimum or 12 inches (300 mm) maximum above the raceway or cable to be protected, except as permitted below:

(1) The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.

(2) The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45-degree area of protection, (45 degrees on each side of vertical creating a 90 degree angle).

The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component.

All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

All components rise and fall at the same potential; with no potential difference, no damaging arcing and no damaging current flow.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Equipotential Method of lightning protection.

Reference FAA STD-019E, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment, Part 4.1.1.7.][not used]

**b. Isolation.** Not used.

**c. Common Installation requirements.** When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet (150 m) apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

**d. Parallel Voltage Systems.** Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

**108-3.4 Counterpoise installation above multiple conduits and duct banks.** Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

**108-3.5 Counterpoise installation at existing duct banks.** When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

**108-3.6 Exothermic bonding.** Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

**108-3.7 Testing.** The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

**d.** That all affected circuits (existing and new) are free from unspecified grounds.

**e.** That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than **100** megohms. Verify continuity of all series airfield lighting circuits prior to energization.

**f.** That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

**g.** That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

**h.** That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

**i.** That the impedance to ground of each ground rod does not exceed **25** ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved “repair” procedures for items that have failed testing other than complete replacement.

## **METHOD OF MEASUREMENT**

**108-4.1** Cable, Cable Feeders or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (meters) installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall include additional quantities required for slack.

VASI Feeder – (3)#6 L-824 Type C Cable.

Windcone Feeder – (3)#8 L-824 Type C cable.

**108-4.2** No separate payment will be made for ground rods.

## **BASIS OF PAYMENT**

**108-5.1** Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

|              |  |
|--------------|--|
| Item L-108-1 | #8 AWG, L-824 Type C Cable, 5 kV Rated installed in duct bank or conduit – per linear foot   |
| Item L-108-2 | Windcone Feeder – per linear foot  |
| Item L-108-3 | VASI Feeder – per linear foot  |
| Item L-108-4 | No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed above the Duct Bank or Conduit Including Connections/Terminations - per linear foot |

## REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

### Advisory Circulars (AC)

|                |  |
|----------------|--|
| AC 150/5340-26 | Maintenance of Airport Visual Aid Facilities                                       |
| AC 150/5340-30 | Design and Installation Details for Airport Visual Aids                            |
| AC 150/5345-7  | Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits |
| AC 150/5345-26 | Specification for L-823 Plug and Receptacle, Cable Connectors                      |
| AC 150/5345-53 | Airport Lighting Equipment Certification Program                                   |

### Commercial Item Description

|            |   |
|------------|---|
| A-A-59544A | Cable and Wire, Electrical (Power, Fixed Installation)            |
| A-A-55809  | Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic |

### ASTM International (ASTM)

|            |  |
|------------|--|
| ASTM B3    | Standard Specification for Soft or Annealed Copper Wire  |
| ASTM B8    | Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft |
| ASTM B33   | Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes       |
| ASTM D4388 | Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes  |

### Mil Spec

|                |   |
|----------------|---|
| MIL-PRF-23586F | Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical |
| MIL-I-24391    | Insulation Tape, Electrical, Plastic, Pressure Sensitive                                    |

### National Fire Protection Association (NFPA)

|          |   |
|----------|---|
| NFPA-70  | National Electrical Code (NEC)                                |
| NFPA-780 | Standard for the Installation of Lightning Protection Systems |

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81 IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

**END OF ITEM L-108**

## Item L-110 Airport Underground Electrical Duct Banks and Conduits

### DESCRIPTION

**110-1.1** This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground. It shall also include all turfing, trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

### EQUIPMENT AND MATERIALS

#### 110-2.1 General.

**a.** All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

**b.** Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

**c.** All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

**d.** The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be **electronically submitted in pdf format tabbed by section**. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

**e.** All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **12 months** from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

**110-2.2 Steel conduit.** Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth.”

**110-2.3 Plastic conduit.** Plastic conduit and fittings shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

- a. Type I–Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.
- b. Type II–Schedule 40 PVC suitable for either above ground or underground use.
- c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.
- d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

**110-2.4 Split conduit.** Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

**110-2.5 Conduit spacers.** Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

**110-2.6 Concrete.** Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

**110-2.7 Precast concrete structures.** Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

**110-2.9 Detectable warning tape.** Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), orange (telephone/fiber optic cabling) with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item.



## CONSTRUCTION METHODS

**110-3.1 General.** The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches (75 mm) per 100 feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches (0.5 m) below the subgrade; in other locations, the top of the duct bank or underground conduit shall be not less than 18 inches (0.5 m) below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound (90 kg) test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet (1.5 m).

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching

equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill may alternatively be used

Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet (60 cm).

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

**a.** Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

**b.** Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

**110-3.2 Duct banks.** Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches (0.5 m) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches (0.5 m) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet (1 m) beyond the edges of the pavement or 3 feet (1 m) beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches (75 mm) thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches (75 mm) apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches (75 mm) thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (1.5-m) intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches (75 to 150 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches (600 mm) in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

**110-3.3 Conduits without concrete encasement.** Trenches for single-conduit lines shall be not less than 6 inches (150 mm) nor more than 12 inches (300 mm) wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches (100 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch (6.3 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches (0.5 m) below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches (60 cm) below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

**110-3.4 Markers.** Not Used.

**110-3.5 Backfilling for conduits.** For conduits, 8 inches (200 mm) of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches (100 mm) in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

**110-3.6 Backfilling for duct banks.** After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 "Excavation and Embankment" except that the material used for backfill shall be select material not larger than 4 inches (100 mm) in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet (76 m) of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

**110-3.7 Restoration.** Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include restoring the surface to native condition. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport

movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

### METHOD OF MEASUREMENT

**110-4.1** Underground conduits and duct banks shall be measured by the linear feet of conduits and duct banks and directional bores installed, including encasement, locator tape, trenching and backfill with designated material all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

### BASIS OF PAYMENT

**110-5.1** Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank or directional bores completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

|              |  |
|--------------|--|
| Item L-110-1 | 1-2" Sch. 40 PVC Conduit, Direct Buried - per linear foot        |
| Item L-110-2 | 2-2" Sch. 40 PVC Duct Bank, Direct Buried - per linear foot      |
| Item L-110-3 | 4-2" Sch. 40 PVC Duct Bank, Concrete Encased – per linear foot   |
| Item L-110-4 | 6-2" Sch. 40 PVC Duct Bank, Direct Buried – per linear foot      |
| Item L-110-5 | 6-2" Sch. 40 PVC Duct Bank, Concrete Encased – per linear foot   |
| Item L-110-6 | 6-2" Sch. 80 HDPE Duct Bank, Directional Bored – per linear foot |

### REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circular (AC)

AC 150/5340-30 Design and Installation Details for Airport Visual Aids

AC 150/5345-53 Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

National Fire Protection Association (NFPA)

NFPA-70 National Electrical Code (NEC)

Underwriters Laboratories (UL)

|                  |   |
|------------------|---|
| UL Standard 6    | Electrical Rigid Metal Conduit - Steel                        |
| UL Standard 514B | Conduit, Tubing, and Cable Fittings                           |
| UL Standard 514C | Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers      |
| UL Standard 1242 | Electrical Intermediate Metal Conduit Steel                   |
| UL Standard 651  | Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings |
| UL Standard 651A | Type EB and A Rigid PVC Conduit and HDPE Conduit              |

**END OF ITEM L-110**

## Item L-115 Electrical Manholes and Junction Structures

### DESCRIPTION

**115-1.1** This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR

### EQUIPMENT AND MATERIALS

#### 115-2.1 General.

**a.** All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

**b.** Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

**c.** All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

**d.** The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be **electronically submitted in .PDF format**. The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

**e.** All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **12 months** from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

**115-2.2 Concrete structures.** Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. Cast-in-place concrete structures shall be as shown on the plans.

**115-2.3 Precast concrete structures.** Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program. Provide precast concrete structures where shown on the plans.

Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand **22,000** lb or H-20 vehicle loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.

Threaded inserts and pulling eyes shall be cast in as shown on the plans.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings, design calculations, and other information requested by the RPR shall be submitted by the Contractor to allow for a full evaluation by the RPR. The RPR shall review per the process defined in the General Provisions.

**115-2.4 Junction boxes.** Junction boxes shall be L-867 Class 1 (non-load bearing). The light bases shall have a steel blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch (9-mm) thickness for L-867. All junction boxes shall be provided with both internal and external ground lugs.

**115-2.5 Mortar.** The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

**115-2.6 Concrete.** Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures.

**115-2.7 Frames and covers.** The frames shall conform to one of the following requirements:

- a. ASTM A48      Gray iron castings
- b. ASTM A47      Malleable iron castings
- c. ASTM A27      Steel castings
- d. ASTM A283, Grade D    Structural steel for grates and frames
- e. ASTM A536      Ductile iron castings
- f. ASTM A897      Austempered ductile iron castings

All castings specified shall withstand a maximum load of **22,000** lbs.

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.



Each manhole shall be provided with a “DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER” safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

**115-2.8 Ladders.** Not Used.

**115-2.9 Reinforcing steel.** All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

**115-2.10 Bedding/special backfill.** Bedding or special backfill shall be as shown on the plans.

**115-2.11 Flowable backfill.** Not Used.

**115-2.12 Cable trays.** Cable trays or ladder racks shall be of galvanized steel.

**115-2.13 Plastic conduit.** Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

**115-2.14 Conduit terminators.** Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

**115-2.15 Pulling-in irons.** Pulling-in irons shall be manufactured with 7/8-inch (22 mm) diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7 strand, 1/2-inch (12 mm) diameter with an ultimate strength of 270,000 psi (1862 MPa)). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.

**115-2.16 Ground rods.** Ground rods shall be **copper clad-steel**. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than **10'** long and **3/4"** in diameter.

## CONSTRUCTION METHODS

**115-3.1 Unclassified excavation.** It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner

that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches (150 mm) of sand or a material approved by the RPR as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

**115-3.2 Concrete structures.** Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

**115-3.3 Precast unit installations.** Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

**115-3.4 Placement and treatment of castings, frames and fittings.** All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense.

Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.

**115-3.5 Installation of ladders.** Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

**115-3.6 Removal of sheeting and bracing.** In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches (150 mm) of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

**115-3.7 Backfilling.** After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches (150 mm) in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the RPR establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

**115-3.8 Connection of duct banks.** To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

**115-3.9 Grounding.** A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches (150 mm) above the floor. The ground rod shall be installed within one foot (30 cm) of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch (100 mm) diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot (30 cm) above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtailed shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

**115-3.10 Cleanup and repair.** After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

**115-3.11 Restoration.** After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

**115-3.12 Inspection.** Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other ground electrodes.

**115-3.13 Manhole elevation adjustments.** Not Used.

**115-3.14 Duct extension to existing ducts.** Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

#### **METHOD OF MEASUREMENT**

**115-4.1** Electrical handholes and junction structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

#### **BASIS OF PAYMENT**

**115-5.1** The accepted quantity of electrical handholes and junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

Payment will be made under:

|              |  |
|--------------|--|
| Item L-115-1 | H-20 Load Rated Concrete Handhole - Per Each |
| Item L-115-2 | L-867B Basecan with Steel Lid – Per Each     |

#### **REFERENCES**

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81     IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Advisory Circular (AC)

- AC 150/5345-7            Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
- AC 150/5345-26        Specification for L-823 Plug and Receptacle, Cable Connectors
- AC 150/5345-42        Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
- AC 150/5340-30        Design and Installation Details for Airport Visual Aids
- AC 150/5345-53        Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

- A-A 59544                Cable and Wire, Electrical (Power, Fixed Installation)

ASTM International (ASTM)

- ASTM A27                Standard Specification for Steel Castings, Carbon, for General Application
- ASTM A47                Standard Specification for Ferritic Malleable Iron Castings
- ASTM A48                Standard Specification for Gray Iron Castings
- ASTM A123               Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
- ASTM A283               Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
- ASTM A536               Standard Specification for Ductile Iron Castings
- ASTM A615               Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
- ASTM A897               Standard Specification for Austempered Ductile Iron Castings
- ASTM C144               Standard Specification for Aggregate for Masonry Mortar
- ASTM C150               Standard Specification for Portland Cement
- ASTM C206               Standard Specification for Finishing Hydrated Lime

FAA Engineering Brief (EB)

- EB #83                    In Pavement Light Fixture Bolts

Mil Spec

- MIL-P-21035             Paint High Zinc Dust Content, Galvanizing Repair

National Fire Protection Association (NFPA)

- NFPA-70                 National Electrical Code (NEC)

**END OF ITEM L-115**

## Item L-125 Installation of Airport Lighting Systems

### DESCRIPTION

**125-1.1** This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

### EQUIPMENT AND MATERIALS

#### 125-2.1 General.

**a.** Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not perform as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

**b.** Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

**c.** All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

**d.** The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in **electronic pdf format**. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

**e.** All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **12 months** from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

### EQUIPMENT AND MATERIALS

**125-2.2 Conduit/Duct.** Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

**125-2.3 Cable and Counterpoise.** Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

**125-2.4 Tape.** Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

**125-2.5 Cable Connections.** Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

**125-2.6 Retroreflective Markers.** Retroreflective markers shall be type L-853, blue, stake mounted and shall conform to the requirements of AC 150/5345-39.

**125-2.7 Runway and Taxiway Lights.** Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

### Lights

| Type  | Class | Mode | Style | Option | Base   | Filter | Transformer | Notes  |
|-------|-------|------|-------|--------|--------|--------|-------------|--------|
| L-861 | 2     | 1    | N/A   | 4      | L-867B | White  | 45W         | Quartz |

**125-2.8 Runway and Taxiway Signs.** Not used.

**125-2.9 Runway End Identifier Light (REIL).** Not used.

**125-2.10 Precision Approach Path Indicator (PAPI).** Not used.

**125-2.11 Visual Approach Slope Indicator (VASI).** New feeders will be pulled to equipment or spliced to existing feeders as indicated in plans.

**125-2.11 Circuit Selector Cabinet.** Not used.

**125-2.12 Light Base and Transformer Housings.** Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class **1A**, Size **B** shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

**125-2.13 Isolation Transformers.** Isolation Transformers shall be Type **L-831**, size as required for each installation. Transformer shall conform to AC 150/5345-47.

## INSTALLATION

**125-3.1 Installation.** The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

**125-3.2 Testing.** All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in

each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

**125-3.3 Shipping and Storage.** Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

**125-3.4 Elevated Lights.** Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

### METHOD OF MEASUREMENT

**125-4.1** Reflective markers will be measured by the number installed as completed units in place, ready for operation, and accepted by the RPR. Runway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR.

### BASIS OF PAYMENT

**125-5.1** Payment will be made at the Contract unit price for each complete runway, reflective marker, installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

|              |  |
|--------------|--|
| Item L-125-1 | L-861 Elevated Runway Edge Light with isolation transformer, stem, base plate installed on new L-867B basecan – per Each |
| Item L-125-2 | L-853 Retro-reflective Marker, Stake Mounted – per Each  |

### REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

#### Advisory Circulars (AC)

|                |  |
|----------------|--|
| AC 150/5340-18 | Standards for Airport Sign Systems   |
| AC 150/5340-26 | Maintenance of Airport Visual Aid Facilities                                       |
| AC 150/5340-30 | Design and Installation Details for Airport Visual Aids                            |
| AC 150/5345-5  | Circuit Selector Switch  |
| AC 150/5345-7  | Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits |
| AC 150/5345-26 | Specification for L-823 Plug and Receptacle, Cable Connectors                      |
| AC 150/5345-28 | Precision Approach Path Indicator (PAPI) Systems                                   |



|                        |   |
|------------------------|---|
| AC 150/5345-39         | Specification for L-853, Runway and Taxiway Retroreflective Markers                           |
| AC 150/5345-42         | Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories  |
| AC 150/5345-44         | Specification for Runway and Taxiway Signs  |
| AC 150/5345-46         | Specification for Runway and Taxiway Light Fixtures   |
| AC 150/5345-47         | Specification for Series to Series Isolation Transformers for Airport Lighting Systems        |
| AC 150/5345-51         | Specification for Discharge-Type Flashing Light Equipment                                     |
| AC 150/5345-53         | Airport Lighting Equipment Certification Program  |
| Engineering Brief (EB) |   |
| EB No. 67              | Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures |

**END OF ITEM L-125**

## **Attachment A – Geotechnical Report**

Geotechnical Investigation

# Weed Airport

# Taxiway and Aircraft Parking

# Apron

Siskiyou County, California

March 15, 2023

Prepared for  
Kimley-Horn and Associates, Inc.

Prepared By



**Corestone Engineering, Inc.**



**CORESTONE ENGINEERING, INC.**  
Geotechnical Services & Construction Materials Testing

Mr. Heath Hildebrandt, P.E.  
Kimley-Horn and Associates, Inc.  
7900 Rancharrah Parkway, Suite 100  
Reno, NV 89511

March 15, 2023  
Project No.: 5013-03-1

L

**RE: Geotechnical Investigation  
Weed Airport Taxiway and Aircraft Parking Apron  
Siskiyou County, California**

Dear Mr. Hildebrandt:

Corestone Engineering, Inc. is pleased to present the results of our geotechnical investigation for the proposed airport asphalt concrete pavement reconstruction project at Weed Airport (O46) in Siskiyou County, California. Our investigation consisted of research, field exploration, laboratory testing, and geotechnical analysis to develop geotechnical recommendations for the proposed pavement reconstruction project. Pavement analyses were completed by Kimley-Horn and Associates, Inc.

The project will include the design and reconstruction of an asphalt concrete taxiway and apron at the Weed Airport (O46) located north of the town of Weed in Siskiyou County, California. Depending on the final design and budget, several hundred thousand square feet of existing asphalt concrete pavement may be reconstructed. The design and construction of the project will follow Federal Aviation Administration (FAA) requirements.

The subgrade soils beneath the existing pavements predominantly consist of non-expansive, silty sand with gravel soils that are considered non-cohesive per FAA design guidelines. The existing structural sections within the project area consists of 1.5 to 3 inches of asphalt concrete underlain by about 6.5 to 11 inches aggregate base. Depending on the final design, the reconstruction may utilize a full-depth reclamation of existing asphalt concrete and underlying base for use as recycled aggregate asphalt concrete base for the new pavement.

We appreciate having the opportunity to work with you on this project. If you have any questions regarding the content of the attached report, please do not hesitate to contact us.

Sincerely,

**Corestone Engineering, Inc.**



Vimal P. Vimalaraj, P.E., G.E.  
President  
PV:RVS:pv/lkv

3.15.2023

Copies to: Addressee (PDF)



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## Introduction

Presented herein are the results of Corestone Engineering, Inc.'s (CEI's) geotechnical investigation, laboratory testing, and associated geotechnical design recommendations for the design and reconstruction of the taxiway and aircraft parking at the Weed Airport located north of the town of Weed in Siskiyou County, California. These recommendations are based on surface and subsurface conditions encountered in our explorations and on details of the proposed project as described in this report. The objectives of this study were to:

1. Determine general soil and groundwater conditions pertaining to design and construction of the proposed airport pavement reconstruction project.
2. Provide geotechnical recommendations for design and construction of the project as related to the geotechnical conditions encountered in our study.

The area covered by this report is shown on Plate 1 (Plot Plan). Our investigation included field exploration, laboratory testing, and limited geotechnical engineering analysis to determine the physical and mechanical properties of the various on-site materials. Results of our field exploration and testing programs are included in this report and form the basis for all geotechnical data, conclusions, and recommendations.

The services described above were conducted in accordance with the Kimley-Horn and Associates, Inc. (KH) Master Agreement for Continuing Professional Services between KH and a Subconsultant dated July 29, 2021, and the Individual Project Order Number 02 dated September 18, 2021, issued by KH for the subject Weed Airport project.



## Project Description

The Weed Airport project site is located approximately 5 miles north of the town of Weed in Siskiyou County, California. The overall airport is contained in Sections 17, 18 and 20, Township 42 North, Range 5 West, Mount Diablo Meridian. The project area consists of the existing taxiway that runs the entire length of runway 14-32, several other smaller taxiways leading to the airport hangers and parking apron to the west, and the aircraft parking apron within the southwestern portion of the airport. The project site is bordered to the north and south by undeveloped land, to the east by existing drainage area and the runway, to the west by undeveloped land and the rest area associated with Interstate Highway (I)-5. Weed Airport Road provides access to the airport off I-5.

The project will involve the design and reconstruction of an asphalt concrete taxiway and apron at the Weed Airport (O46) located north of the town of Weed in Siskiyou County, California. Final reconstruction limits and design details were not available at the time of this report. It is expected entire main taxiway that runs for the full length of runway will be reconstructed. The aircraft parking apron within the southern limits of the airport limit off airport entry way as well as other short taxiways that runs from the main taxiway, taxiway between the airport hangers will also be constructed. It is our understanding the project will also include improvement to surface drainage conditions via providing appropriate drainage slopes to the airport pavements. Aircraft loading on the taxiway and parking apron involve light aircraft with gross weights of 10,000 pounds or less. The driveway and aircraft parking areas will also be subject to irregular maintenance and fueling truck traffic. The pavement design for the project is to be completed by KH using the information contained in this geotechnical report.

The reconstructed AC pavement will need to match the grades of the finished grades at the existing improvements. As such, it is expected only minimal grading will be necessary on the project. Any minor grading on the project will essentially be to provide appropriate surface drainage for stormwater runoff to minimize ponding of water.





## Site Conditions

The existing pavements within the project area at Weed Airport appears to be a few decades old. Based on the review of Google Earth™ historical aerial images, the airport may have been originally constructed with unpaved runway several decades ago. The existing runway may have been recently repaved based on the conditions observed in the field. The main taxiway is located west of the runway and is connected to the runway at 5 locations. The aircraft parking apron is located within the southwestern limits of the overall airport premises. The main entry way to the airport leads to a parking lot that is connected to the aircraft parking apron and the main airport/maintenance building is located at the south end of the parking lot. The airport fueling station/storage area is located at the south end of the aircraft parking apron. A separate taxiway that extends north from the aircraft parking apron provide access to several small metal-framed aircraft hangars. The rest area associated with I-5 is located just west of the north end of the aircraft parking apron beyond the airport security fence.

The project area is relatively flat with minor drainage slopes to the unimproved medians that lie slightly below the existing pavement surfaces. The project area is devoid of vegetation. However, moderate vegetation exists beyond the limits of the pavements and on the fill slopes of the northern limit of the taxiway. There are surficial boulders within the native areas beyond the airport pavements; the area of south of the south end of taxiway shows a heavy concentration of surficial cobbles and large boulders.

The existing asphalt concrete pavements within the taxiway and parking apron are serviceable but they are most likely beyond their design life. The taxiway exhibits transverse cracks at about 50 to 60 feet spacing through the entire length. Majority of the cracks are over 1 inch in width and some cracks are over 2 inches in width. Previous crack filling is present within most of the cracks. In addition to transverse cracking, there are areas of surface raveling and localized areas of fatigue cracking exist within the taxiway pavement. The aircraft parking apron and the taxiway leading to the aircraft hangars exhibit longitudinal cracks, transverse cracks, and several areas of random and fatigue cracks. Previous crack filling exists within most of these cracks. The taxiway that leads north from the hangars exhibit intense surface raveling.



**Existing Taxiway - View to the North (Runway on the Right)**



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## Exploration

Field exploration for the project included advancement of 12 borings. The borings were advanced to reveal the existing structural section and underlying subgrade soils. The locations of the borings were selected by KH to provide a uniform distribution over the reconstruction project area in general accordance with the Federal Aviation Administration (FAA) Advisory Circular No. 150/5320-6G (FAA, 2021). Prior to the exploration, CEI contacted Underground Service Alert to mark the major public utilities. After the exploration was complete, borings were backfilled with drill spoils within the lower section and then by cement grout.

## Drilling

The Weed Airport Project site was explored on October 19 and 20 of 2021, by drilling 12 test borings (B-01 through B-12) using a trailer-mounted CME 45 soils sampling drill rig. All borings were advanced using solid-flight auger drilling method and the maximum depth of exploration was 10 feet below the existing pavement surface. The locations of the test borings are shown on Plate 1.

The native soils were sampled in-place every 2.5 feet by use of a standard, 2-inch-O.D., split-spoon sampler driven by a 140-pound auto hammer with a 30-inch stroke. The number of blows to drive the sampler the final 12 inches of an 18-inch penetration (Standard Penetration Test [SPT] - American Society for Testing and Materials [ASTM] D 1586) into undisturbed soil is an indication of the density and consistency of the material.

A 3-½-inch-O.D., split-spoon sampler (ASTM D 3550; aka Modified California [MC] sampler) was also used to sample soils at the horizons where in-situ dry densities of the subgrade soils were required, generally within subgrade at shallow depths. Sampling methods used were similar to the SPT but also included the use of 2-½-inch-diameter, 6-inch-long, stainless steel sampling tubes placed inside the split-spoon sampler. Because of



Drilling Exploration



the larger diameter of the sampler, blowcounts are typically higher than those obtained with the SPT and should not be directly equated to SPT blowcounts. The logs, included as Plate 2 (Boring Logs), indicate the type of sampler used for each sample.

Due to the relatively small diameter of the samplers, the maximum panicle size that could be obtained was approximately 1.5 inches. The final logs may not, therefore, adequately represent the actual quantity or presence of oversized particles. Several borings encountered refusal SPT blowcounts at various depths, which may indicate the presence of some oversized particles or hard strata.

## Material Classification

A geotechnical engineer examined and identified all soils in the field in accordance with ASTM D 2488. Geotechnical engineer also measured the existing structural section (asphalt concrete and underlying aggregate base) at each boring location. During drilling exploration, representative bulk samples were placed in sealed plastic bags and returned to Reno, Nevada, for additional evaluation and laboratory testing. Additional soil classification was subsequently performed in accordance with ASTM 2487 (Unified Soil Classification System [USCS]) upon completion of laboratory testing, as described in the **Laboratory Testing** section. Logs of the test borings are presented in Plate 2, and a USCS chart has been included as Plate 3 (USCS Soil Classification Chart).

Table 1 (Field Exploration Results Summary) provides the summary of the structural section thicknesses measured in the field exploration and the subgrade USCS soil type.



**TABLE 1 - FIELD EXPLORATION RESULTS SUMMARY**

| Boring (B) No. | Existing Asphalt Concrete Thickness (Inches) | Existing Aggregate Base Thickness (Inches) | Subgrade Predominant Soil Type (USCS) <sup>1</sup> |
|----------------|--|--|--|
| B-01           | 2.75   | 11.25                                      | SM   |
| B-02           | 3.00   | 9.50                                       | SM   |
| B-03           | 2.25   | 9.25                                       | SM   |
| B-04           | 2.00   | 10.00                                      | SM   |
| B-05           | 2.50   | 9.00                                       | SM   |
| B-06           | 2.50   | 8.50                                       | SM   |
| B-07           | 3.00   | 5.50                                       | GW-GM  |
| B-08           | 2.75   | 7.25                                       | GC   |
| B-09           | 2.75   | 7.25                                       | SM   |
| B-10           | 2.50   | 7.25                                       | SM <sup>1</sup>                                    |
| B-11           | 1.75   | 9.25                                       | SM   |
| B-12           | 1.50   | 6.50                                       | SP-SM  |

<sup>1</sup>Classification was based on the gradation and plasticity index test results on the bulk sample from drill cuttings.



## Laboratory Testing

Corestone Engineering, Inc. subcontracted Geotechnical & Environmental Services, Inc. of Reno, Nevada to complete laboratory testing to analyze soil characteristics (detailed below) in general accordance with the standards and methodologies described in Volume 4.08 of the ASTM Standards. Chemical testing detailed below were performed by Silver State Analytical Laboratories of Reno, Nevada and total petroleum hydrocarbon testing were completed by Alpha Analytical Inc. of Sparks, Nevada.

### Index Tests

Samples of subgrade soils were analyzed to determine their in-situ moisture content (ASTM D 2216), grain size distribution (ASTM D 422), and plasticity index (ASTM D 4318). Grain size distribution testing included sieve analysis (ASTM D 6913) on all samples tested as well as hydrometer analysis (ASTM D 7928) and soil specific gravity (ASTM D 854) on selected samples. Moisture content and dry density testing (ASTM D 2937) were also performed on selected MC samples of subgrade soils collected at shallow depths. The results of these tests are shown on Appendix A (Index Test Results). The soil specific gravity values are noted on the remark section of the grain size distribution results included in Appendix A. Test results were used to classify the soils according to ASTM D 2487 and to verify field logs, which were then updated as appropriate. Classification in this manner provides an indication of the soil's mechanical properties and is used in geotechnical analysis of subgrade soils. The in-place density values for the MC samples collected at shallow depths can be compared with maximum laboratory density values to determine the relative compaction of in-place soils for use in the evaluation of compaction requirements in the airport pavement design.

Table 2 (In-Place Dry Density, Moisture Content, and Relative Compaction of Near-Surface Soils) provides a summary of the in-place density and moisture content test results and, as applicable, estimated in-place relative compaction based on the results from moisture-density relation testing (ASTM D 698) performed as part of California Bearing Ratio (CBR) tests (ASTM D 1883) discussed below under **California Bearing Ratio Tests**.



**TABLE 2 - IN-PLACE DENSITY, MOISTURE CONTENT AND RELATIVE COMPACTION OF SUBGRADE SOILS**

| Boring (B) No. | Depth (feet) | Field Density (pcf) <sup>1</sup> | Field Moisture Content (%) | USCS Soil Type <sup>2</sup> | Applicable Laboratory Maximum Dry Density (pcf) <sup>3</sup> | Estimated Field Relative Compaction (%) |
|----------------|--------------|----------------------------------|----------------------------|-----------------------------|--|---|
| B-01           | 1.0          | 113.6                            | 6.3                        | SM                          | 119.5  | 95                                      |
| B-02           | 1.0          | 107.2                            | 7.5                        | SM                          | 119.5  | 90                                      |
| B-03           | 1.0          | 120.0                            | 0.9                        | SM                          | NT   | NA                                      |
| B-05           | 1.0          | 107.9                            | 16.6                       | SM                          | 113.9  | 95                                      |
| B-06           | 1.0          | 107.6                            | 7.7                        | SM                          | NT   | NA                                      |
| B-07           | 1.0          | 111.7                            | 10.4                       | GW-GM                       | NT   | NA                                      |
| B-08           | 1.0          | 114.8                            | 17.5                       | SM                          | 124.2  | 92                                      |
| B-09           | 1.0          | 121.0                            | 11.6                       | SM                          | 124.2  | 97                                      |
| B-10           | 1.0          | 119.7                            | 19.8                       | SM                          | 113.9  | >100                                    |
| B-11           | 1.0          | 101.1                            | 14.1                       | SM                          | NT   | NA                                      |

<sup>1</sup>ASTM D 2937. pcf - pounds per cubic foot

<sup>2</sup> Based on gradation and plasticity index testing on MC samples or combined bulk samples, as available.

<sup>3</sup> ASTM D 698. Performed as part of CBR testing on bulk sample collected from drill cuttings from 2 borings.

<sup>4</sup> NT - Not Tested.

<sup>5</sup> NA - Not Applicable. Laboratory maximum density values are not available.

## Laboratory Moisture-Density Relationship Tests

Three standard moisture-density relationship (Proctor) tests (ASTM D 698) were performed on all 3 representative subgrade soil samples selected for CBR tests, as part of the CBR test requirements. Samples were collected below the existing asphalt concrete and aggregate base to an approximate depth of 4 feet below existing grade. Due to the sample size, subgrade soils from 2 borings exhibiting similar soil type based on field classification were combined to complete proctor tests and the CBR tests. The maximum dry densities and optimum moisture contents from these test results were utilized to prepare samples for CBR testing as described below. The moisture-density curves are included as Appendix B (Moisture-Density Relationship Test Results).

## California Bearing Ratio Tests

A total of 3 CBR tests (ASTM D 1883) were completed on bulk samples of drill cuttings collected from representative boring locations. Initially, moisture-density relation testing (ASTM D 698) was completed on each subgrade sample for CBR testing to determine the laboratory maximum dry density and associated



optimum moisture content. The results of CBR tests are included in Appendix C (CBR Test Results). Appendix B also shows laboratory maximum dry density (in pounds per cubic foot [pcf]) and associated optimum moisture content values for each sample determined per ASTM D 698. The results of the CBR tests are summarized in Table 3 (CBR Test Results Summary).

| TABLE 3 - CBR TEST RESULTS SUMMARY |                       |                           |                              |                  |                |
|------------------------------------|-----------------------|---------------------------|------------------------------|------------------|----------------|
| Boring (B) Nos.                    | Depth Interval (feet) | Maximum Dry Density (pcf) | Optimum Moisture Content (%) | CBR <sup>1</sup> | USCS Soil Type |
| B-01 and B-02                      | 1.0 - 4.0             | 119.5                     | 7.5                          | 15               | SM             |
| B-05 and B-10                      | 1.0 - 4.0             | 113.9                     | 12.3                         | 9 <sup>2</sup>   | SM             |
| B-08 and B-09                      | 1.0 - 3.5             | 124.2                     | 9.7                          | 16               | SM             |

<sup>1</sup> At 100 percent relative compaction as determined per ASTM D 698.

<sup>2</sup> Inconsistent relative compaction values. Value for 56-blow point is reported for CBR at 100 percent relative compaction.

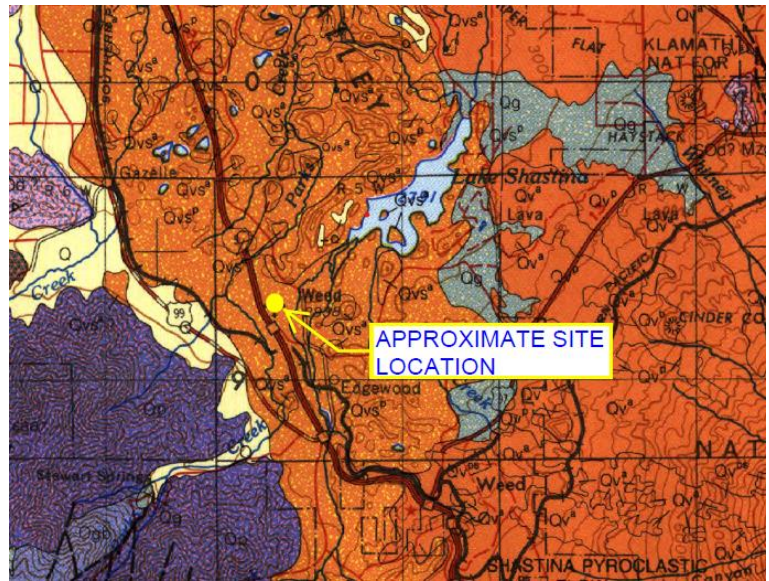
## Chemical Tests

Corrosion testing (pH, resistivity, soluble sulfates, and chlorides) was completed on a selected representative sample of subgrade soils. Total petroleum hydrocarbon testing was also completed on a subgrade soil sample collected from the boring B-11 that was advanced in the vicinity of the exiting fueling area associated with the airport. The results of the chemical tests are shown on Appendix D (Chemical Test Results).



## Geologic and General Soil Conditions

The Weed Airport is located near the southern end of a large region known as the Cascade Range Geomorphic Province. This region is characterized by a chain of volcanic cones that extend from Northern California into Oregon and Washington. Mt. Shasta, a dormant volcano, lies approximately 14 miles southeast of the site. Lava flows and other volcanic deposits compose much of the surface deposits in this region. Mapping by the California Geological Survey indicates the project area is located within Quaternary age *Volcanic rocks of Shasta Valley* consisting of pyroclastic deposits (Wagner and Saucedo, 1987). Geotechnical exploration encountered mostly dense to very dense coarse-grained soil-like materials that are pyroclastic deposits mapped by the geological map. Andesite volcanic rocks are also mapped in the nearby area.



Geologic Map

The native materials at the airport site are predominantly dense to very silty sand with gravel soils exhibiting up to 25 percent non-plastic to low plasticity fines and as much as 40 percent subangular to angular gravel up to 2 inches in diameter. The northern end of the taxiway (and runway) lies in existing fill that are likely generated onsite via cut to fill operation for the airport construction. The northern borings B-01 and B-02 encountered silty sand with gravel fill soils through about 6 feet below existing pavement surface and these fill soils exhibit similar mechanical characteristics as the native subgrade soils encountered within the southern limits of the airport that lie in cuts. The subgrade soils locally vary from poorly graded sand with silt and gravel to silty gravel to clayey gravel with sand soils. The borings advanced within the northern limits of the aircraft parking area and the taxiway that leads in between the small aircraft hangers encountered relatively shallow refusal on very dense volcanic deposits or cobbles/boulders (hard volcanic rocks) in the volcanic rock units mapped in the area. Contractor should be aware of encountering hard materials and possible need for aggressive techniques in the grading and trenching work in this area.

Groundwater was not encountered during exploration and is expected to lie at a depth below that which would affect project design or construction. Perched seepage water was encountered in boring B-08 advanced within the aircraft parking area. Due to very dense consistency, native volcanic rock units will likely have low permeability as such any standing water in a low area can percolate and travel within the



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upper permeable strata in seepage/perched water conditions. It is noted that standing water was present during our exploration in the drainage/channel area just east of the northern aircraft parking apron where boring B-08 was located.



# Geologic Hazards

## Seismicity and Faults

Much of the western United States is a region of moderate to intense seismicity related to the movement of crustal masses (plate tectonics). The Weed area lies within a region with a potential for moderate earthquake shaking.

The United States Geological Survey (USGS) Quaternary Fault and Fold Database (2021) does not show any faults within 9 miles of the airport. Because no faults of any age are mapped as crossing the project site and the proposed runway and taxiway projects do not include an occupied structure, no further fault hazard investigation or mitigation is necessary.

## Ground Motion and Liquefaction

The United States Geological Survey seismic design maps that have been incorporated with the American Society of Civil Engineers (ASCE) Online *ASCE 7 Hazard Tool* indicate that there is a 2 percent probability that a *bedrock* ground acceleration of 0.25 g will be exceeded in any 50-year interval (ASCE, 2021).

Weed Airport project site is located within an area exhibiting shallow volcanic rock units and a relatively deep groundwater table. As such, the potential for soil liquefaction is low at the site.

## Volcanic Activity

Mt. Shasta is located approximately 14 miles southeast of the Weed airport. Mt. Shasta is considered a dormant volcano, but it has the potential to erupt again. On average the volcano has erupted once per 600 years during the last 4,500 years. Based on radiocarbon dating, the last eruption occurred about 200 years ago (Miller, 1980). It is impossible to predict the date of the next eruption, but it will likely occur within the next several hundred years. If Mt. Shasta were to erupt, lava flows, pyroclastic flows, and mud flows could adversely affect and cause destruction of airport facilities.

## Flood Plains

The Federal Emergency Management Agency (FEMA) has identified the site as lying in unshaded Zone X, or outside the limits of a 500-year flood plain (FEMA, 2011).

## Other Geologic Hazards

A moderate to high potential for dust generation is present if subgrade preparation is performed in dry weather. No other geologic hazards were identified.



## Discussion and Recommendations

### General Information

The project will involve the design and reconstruction of an asphalt concrete taxiway and aircraft parking apron at the Weed Airport in Siskiyou County, California. Final reconstruction limits and design details were not available at the time of this report. It is expected entire main taxiway, the entire aircraft parking apron within the southwestern limit of the airport, and several other short taxiways that lead from the main taxiway will be reconstructed. The project design will be performed in accordance with the FAA requirements, specifically FAA Advisory Circular No. 150/5320-6G (FAA, 2021). The materials specifications for the project construction will be in accordance with FAA Advisory Circular No. 150/5370-10H (FAA, 2018).

The existing structural sections within the project area consists of 1.5 to 3 inches of asphalt concrete underlain by about 6.5 to 11 inches aggregate base. The subgrade materials associated with the existing pavement are mostly silty sand with gravel soils exhibiting less than 20 percent of non-plastic to low plasticity fines and are considered non-cohesive soils per the FAA guidelines. Existing subgrade soils exhibit low to moderate CBR values; based on the laboratory testing, a design CBR value of 10 may be utilized in the airport pavement design. Based on the pavement design by KH, the structural section for the new pavement will consist of asphalt concrete underlain by a recycled asphalt aggregate base generated from pulverization of existing pavement structural section.

The recommendations provided herein are intended to minimize risks of structural distress related to consolidation or expansion of native soils and/or structural fills. These recommendations, along with proper design and construction of the proposed structural improvements, work together as a system to improve overall performance. If any aspect of this system is ignored or is poorly implemented, the performance of the project will suffer. Sufficient quality control should be performed to verify that the recommendations presented in this report are followed.

Structural areas referred to in this report include all areas within the footprint of the proposed reconstruction, including asphalt concrete pavements and any adjacent shoulders. Based on the design aircraft weight, compaction requirements presented in this report are relative to ASTM D 698, except for P-207 recycled asphalt aggregate base course that requires compaction relative to ASTM D 1557 per FAA Advisory Circular No. 150/5370-10H (FAA, 2018). As noted above, onsite subgrade materials are exclusively non-cohesive soils exhibiting less than 50 percent by weight passing number 200 sieve and a plasticity index lower than 3.

Any evaluation of the site for the presence of surface or subsurface hazardous substances is beyond the scope of this investigation. When suspected hazardous substances are encountered during routine



geotechnical investigations, they are noted in the exploration logs and immediately reported to the client. No such substances were revealed during our exploration. However, our scope included the task to complete hydrocarbon testing on the subgrade soil sample collected from the pavement area near existing fueling station of the airport; the results from these chemical tests are presented in Appendix A for evaluation by others.

## Subgrade Preparation, Compaction and Stabilization

### Site/Subgrade Preparation and Compaction

The existing pavement in improvement areas shall be removed either by pulverizing or simply by heavy equipment. An average pulverization depth of 10 inches should be appropriate. The pulverized asphalt concrete and aggregate base blend may be reused as recycled asphalt aggregate base provided it meets the specifications for P-207 recycled asphalt aggregate base. If pulverized material does not meet the requirements for P-207 recycled asphalt aggregate base, it may be reused as P-154 subbase material to backfill any over-excavation of as part of stabilization discussed later in this section.

Aggregate base and subbase materials shall be placed in maximum 8-thick-loose lifts, moisture conditioned to within 2 percent of optimum moisture content, and compacted according to the recommendations set forth in Table 4 (Compaction Requirements). Subgrade soils shall also be scarified through 12 inches, moisture conditioned to within 2 percent of optimum moisture content, and compacted in place per Table 4.

**TABLE 4 - COMPACTION REQUIREMENTS**

| Material Type                                   | Minimum Relative Compaction (Percent) |
|---|---------------------------------------|
| P-207 Recycled Asphalt Aggregate Base           | 95 <sup>1</sup>                       |
| P-208 Aggregate Base (if utilized)              | 100 <sup>2</sup>                      |
| P-154 Subbase (if utilized as stabilizing fill) | 100 <sup>2</sup>                      |
| Subgrade Soils                                  | 95 <sup>2, 3</sup>                    |

<sup>1</sup> ASTM D 1557 Modified Proctor

<sup>2</sup> ASTM D 698 Standard Proctor

<sup>3</sup> Alternatively, subgrade soils may be densified to at least 92 percent relative compaction as determined per ASTM D 1557.

The recommended compaction for various materials in Table 4 will generally meet the compaction requirements through various depths recommended in the FAARFIELD design program. It is noted that P-207 recycled asphalt aggregate base will require densification to at least 95 percent relative compaction, as determined by ASTM D 1557, per the requirements of the FAA Standard Specifications for Construction of Airports AC 150/5570-10H (FAA, 2018). If desired for a uniform project specification, P-209 aggregate base



and P-154 subbase material can alternatively be densified to at least 95 percent relative compaction, as determined per ASTM D 1557.

Where exposed, the subgrade should be densified to 95 percent relative compaction (ASTM D 698), proof rolled with a heavily loaded, pneumatic tired vehicle, and checked for moisture and stability. Areas that are unstable or exhibit excessive deflection during proof rolling should be excavated and replaced and/or stabilized per the later recommendations in this section.

Where full-depth reclamation and pulverization is utilized and if it is feasible to slightly raise the grade, the pulverized material may be compacted in place to meet the above-listed compaction specifications. However, test sections will be necessary to evaluate the level of compaction with depth. In most cases, removal/flip-flop of pulverized material will likely be necessary to expose the subgrade soils and compact the grade to the required level of compaction.

## Stabilization

If wet weather construction is anticipated, the subgrade soils may be well above optimum moisture and very difficult to compact. Furthermore, over-optimum subgrade soils beneath existing pavement may be encountered, particularly in locations of poor drainage. Even with a pulverization option where subgrade is not exposed, there are localized areas with moisture sensitive clay rich subgrade soils (as encountered in boring B-08) and these soils may become unstable with construction vehicle traffic and may demand stabilization. However, these areas should be of limited extent and most subgrade soils are granular non-cohesive materials that should exhibit stability. In some situations, moisture conditioning may be possible by scarifying the top 12 inches of subgrade and allowing it to air-dry to near-optimum moisture prior to compaction. Where this procedure is ineffective or where construction schedules preclude delays, mechanical stabilization will be necessary.

Mechanical stabilization should generally be possible at the site via over-excavating the unstable subgrade soils and replacing with a compacted stabilizing fill section. A subbase material that meets the specifications of P-154 (FAA, 2018) is appropriate for stabilizing fill. Removal of unstable, wet soils should extend a minimum depth of 12 inches. Additional depth of removal may be necessary based on the conditions and stability of the exposed subgrade at the bottom of the over-excavation. Removal beyond a depth of 18 inches is not generally expected. A woven or nonwoven separation geotextile should be placed at the over-excavation grade prior to backfilling with subbase material. The geotextile shall meet the mechanical properties requirements for a Class 2 geotextile (American Association of State Highway and Transportation Officials, 2017) and shall exhibit a minimum permeability of  $0.02 \text{ sec}^{-1}$  per ASTM D4491 and a maximum apparent opening size of 0.60 millimeters per ASTM D4751. The subgrade should be levelled and lightly compacted using static compaction with a smooth drum roller compactor to receive stabilizing fill. The stabilizing fill should be placed in no more than 12-inch-thick, loose lifts each densified to relative compaction specifications provided earlier in Table 4. A geotextile such as Mirafi® 600X will meet the above-recommended specifications.



As an alternate stabilization method, the contractor may propose cement treatment of subgrade soils to achieve a stable subgrade. In this case, a mix design should be performed to determine the required percentage of cement. For this alternate, we recommend the cement treatment be extended a minimum depth of 8 inches from the subgrade elevation and the cement treated subgrade exhibit a minimum 7-day unconfined compressive strength of 300 pounds per square inch. Based on the granular soil conditions, we anticipate the required compressive strength for the cement treated subgrade can be achieved with about 5 to 8 percent cement (based on the dry unit weight of subgrade soils).

Subgrade instability is a function of subgrade soil type and their moisture content. It is difficult to predict the extend of exposed subgrade areas requiring stabilization. Our exploration indicates some subgrade soils to exhibit somewhat elevated fines and relatively high moisture levels. For project planning and budget purpose, we recommend a minimum of 15 percent of the total subgrade area be assumed to require stabilization via removal through at least 12 inches depth and replacement with stabilizing fill underlain by a separation geotextile or stabilization via cement treated subgrade.

## Trenching and Utility Backfill

The project may include some utility improvements requiring trenching and utility backfill. Temporary trenches with near-vertical sidewalls should be stable to a depth of approximately 4 feet. Temporary trenches are defined as those that will be open for less than 24 hours. Excavations to greater depths will require shoring or laying back of sidewalls to maintain adequate stability. Regulations contained in Part 1926, Subpart P, of Title 29 of the Code of Federal Regulations (2010) require that temporary sidewall slopes be no greater than those presented in Table 5 (Maximum Allowable Temporary Slopes).

| TABLE 5 - MAXIMUM ALLOWABLE TEMPORARY SLOPES |  |
|--|--|
| Soil or Rock Type                            | Maximum Allowable Slopes <sup>1</sup> for Deep Excavations less than 20 Feet Deep <sup>2</sup> |
| Stable Rock                                  | Vertical (90 degrees)  |
| Type A <sup>3</sup>                          | 3H:4V (53 degrees)   |
| Type B                                       | 1H:1V (45 degrees)   |
| Type C                                       | 3H:2V (34 degrees)   |
| <i>Notes:</i>                                |  |

<sup>1</sup> Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.

<sup>2</sup> Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

<sup>3</sup> A short-term (open 24 hours or less) maximum allowable slope of 1H:2V (63 degrees) is allowed in excavation in Type A soils that are 12 feet or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet in depth shall be 3H:4V (53 degrees).

The State of California, Department of Industrial Relations, Division of Occupational Safer and Health (Cal/OSHA) has adopted and strictly enforces these regulations, including the classification system and the



maximum slopes. In general, Type A soils are cohesive, non-fissured soils with an unconfined compressive strength of 1.5 tons per square foot (tsf) or greater. Type B are cohesive soils with an unconfined compressive strength between 0.5 and 1.5 tsf. Type C soils have an unconfined compressive strength below 0.5 tsf. Numerous additional factors and exclusions are included in the formal definitions. The client, owner, design engineer, and contractor shall refer to Appendix A and B of Subpart P of the previously referenced Federal Register for complete definitions and requirements on sloping and benching of trench sidewalks. Appendices C through F of Subpart P apply to requirements and methodologies for shoring.

On the basis of our exploration, onsite soils are predominately Type C. All drenching shall be performed and stabilized in accordance with local, state, and Cal/OSHA standards.

The maximum panicle size in trench backfill shall be 4 inches. Bedding and initial backfill 12 inches over the pipe will require import and shall conform to the requirements of the utility having jurisdiction. Bedding and initial backfill shall be densified to at least 90 percent relative compaction. Imposed materials will be needed for final backfill in structural areas. Backfill shall be placed in maximum 8-inch-thick loose lifts that are compacted to a minimum of 90 percent relative compaction in all structural areas.

Trenching will be difficult where cobbles and boulders are present within the subgrade soils; such soils were encountered in the area of borings B-07 and B-08 during our exploration.

## Design CBR

The design CBR for the structural section design shall be selected based on the CBR test results for various subgrade soils presented in this report (refer to Table 3) using a statistical evaluation. A design CBR based on the average CBR value minus one standard deviation is considered appropriate. We calculate a design CBR of 10 for the subgrade soils at the airport and is considered appropriate for the silty sand with gravel soils that was encountered in most of the borings in our exploration.

## Frost Considerations

The existing subgrade soils consist primarily of silty sand with gravel soils with less than 10 percent of particles finer than 0.02 millimeters in size. This material corresponds to FAA frost group classification of FG-2, suggesting the subgrade will have low to moderate susceptibility to frost. The City of Mt. Shasta Building Department indicates a frost depth of 12 inches in the vicinity of the airport. Given the limited frost depth, we expect frost mitigation is not a design concern for the proposed airport pavements.

## Erosion Control

There are no major cut or fill slopes planned for in the proposed pavement reconstruction project. Dust potential at this site will be moderate to high during dry periods. Temporary (during construction) and permanent (after construction) erosion control will be required for all disturbed areas. The contractor shall prevent dust from being generated during construction in compliance with all applicable city, county, state,



and federal regulations. The contractor shall submit an acceptable dust control plan to the governing entity prior to starting site preparation or earthwork. Project specifications should include an indemnification by the contractor of the owner and engineer for any dust generation during the construction period

To minimize erosion and downstream impacts to sedimentation from this site, best management practices with respect to stormwater discharge shall be implemented.

## Site Drainage

Adequate surface drainage should be provided so moisture is directed away from the edge of any pavement. The bonding of water on finished grade or at the edge of pavement should be prevented by proper grading. It is recommended edge drains with impermeable geomembrane on the pavement side be installed where drainage features for collection of surface runoff are planned next to paved areas on the project.





## Anticipated Construction Problems

Once the asphalt concrete is removed, soft, wet surface soils may make it difficult for construction equipment to travel and operate and will tend to rut and pump under construction traffic. When occurs, mechanical stabilization may be necessary.

Perched water was encountered during exploration just beneath the pavement structural section within the northern limits of the aircraft parking apron. Depending on the construction, these areas may warrant significant stabilization measures and other drainage controls for the pavement reconstruction.

Excavation and trenching will be difficult due to the presence of cobbles and boulders in the subgrade soils within the northern limits of aircraft parking lot and the taxiway extends north from the parking lot. Borings B-07 and B-08 advanced in this area encountered at shallow depths at about 2.5 to 5 feet below existing pavement surface. Therefore, oversize particles should be expected in this area from shallow depths. Neat line trenching will be difficult to impossible in this area.



## Quality Control

All plans and specifications should be reviewed for conformance with this geotechnical report prior to submitting them to the governing agencies.

The recommendations presented in this report are based on the assumption that sufficient field testing and construction review will be provided during all phases of construction. We should review the final plans and specifications to check for conformance with the intent of our recommendations.

During construction, we should have the opportunity to provide sufficient on-site observation of preparation and grading, over-excavation, fill placement, foundation installation, and paving. These observations would allow us to verify that the geotechnical conditions are as anticipated, and that the contractor's work is in conformance with the approved plans and specifications.



## Standard Limitations

This report has been prepared in accordance with generally accepted geotechnical practices. The analyses and recommendations submitted are based on field exploration performed at the locations shown on Plate 1. This report does not reflect soils variations that may become evident during the construction period, at which time re-evaluation of the recommendations may be necessary. We recommend our firm be retained to perform construction observation in all phases of the project related to geotechnical factors to ensure compliance with our recommendations.

This report has been produced to provide information allowing the architect or engineer to design the project. The client is responsible for distributing this report to all designers and contractors whose work is affected by geotechnical aspects. In the event there are changes in the design, location, or ownership of the project from the time this report is issued, recommendations should be reviewed and possibly modified by the engineer. If the engineer is not granted the opportunity to make this recommended review, he can assume no responsibility for misinterpretation or misapplication of his recommendations or their validity in the event changes have been made in the original design concept without his prior review. The engineer makes no other warranties, either express or implied, as to the professional advice provided under the terms of this agreement and included in this report.



## References

- American Association of State Highway and Transportation Officials, 2017, *Standard Specifications for Geosynthetic Specification for Highway Applications M 288-17*, June 2017.
- American Society of Civil Engineers (ASCE), 2021, *ASCE 7 Hazard Tool* at <https://asce7hazardtool.online>, accessed December 2021.
- American Society for Testing and Materials (ASTM), 2018, *Soil and Rock (I and II)*, Volumes 4.08 and 4.09.
- Code of Federal Regulations, 2010, Title 29, Part 1926, Subpart P – Excavations.
- Federal Aviation Administration (FAA), 2021, *Airport Pavement Design and Evaluation*, Advisory Circular 150/5320-6G, June 7, 2021.
- FAA, 2018, *Standard Specifications for Construction of Airports*, Advisory Circular 150/5370-10H, December 21, 2018, and Errata Sheet for Advisory Circular dated August 19, 2020.
- Federal Emergency Management Agency (FEMA), 2011 (January 19, 2011), *Flood Insurance Rate Map 06093C2552D, Siskiyou County, California, and Incorporated Areas*.
- Miller C. D., 1980, *Potential Hazards from Future Eruptions in the Vicinity of Mount Shasta Volcano, Northern California*.
- United States Geological Survey (USGS), 2021, *Online Quaternary Fault and Fold Database of United States*, Google Earth™ Files at <https://earthquake.usgs.gov/hazards/qfaults/>, accessed December 2021.
- Wagner, D.L. and Saucedo, G.J., 1987, *Geologic Map of the Weed Quadrangle*, California Geological Survey (formerly California Division of Mines and Geology), Regional Geologic Map Series, Map No. 4A.




# PLATES



NORTH  
 SCALE: 1" ≈ 470'  
 (ON 11"X17" PAPER)

LEGEND

 B-01 APPROXIMATE BORING LOCATION

NOTES

BASE MAP PROVIDED BY GOOGLE EARTH™

VICINITY MAP



KIMLEY-HORN AND ASSOCIATES, INC.  
**PLOT PLAN**  
 WEED AIRPORT TAXIWAY AND AIRCRAFT PARKING APRON  
 SISKIYOU COUNTY, CALIFORNIA

**Corestone Engineering, Inc.**  
 Project No. 5013-03-1

Plate 1



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# LOG OF BORING NO. B-01

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/19/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION   |
|------------|--------------------|-----------|----------|-------------|--|
| 0.0        |                    |           |          |             | <b>Asphalt Concrete</b> Approximately 2.75-inch-thick layer of asphalt concrete.   |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 11.25-inch-thick layer of aggregate base.<br>Base is described as brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 20% non-plastic fines, 30% fine to coarse sand and 50% angular gravel up to 0.5" in diameter. Volcanic gravel base.   |
| 2.5        | MC A               | 41        |          |             | <b>Silty Sand with Gravel (Fill)</b> Reddish brown, slightly moist, dense with 23% non-plastic fines, 49% fine to coarse sand and 28% angular gravel up to 1.5" in diameter.<br>Fill material. Material is likely sourced from native cut areas during the original grading.<br>Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.  |
|            |                    |           | SM       |             | <u>Laboratory Test Results for Combined Bulk Sample from Borings B-01 &amp; B-02:</u> Moisture Content = 13.7%; Liquid Limit = No Value; Plasticity Index = Non Plastic; Maximum Dry Unit Weight = 119.5 pcf; Optimum Moisture Content = 7.5%; Specific Gravity = 2.63; CBR = 15.<br><u>Laboratory Test Results for Sample A:</u> Moisture Content = 6.3%; Dry Density = 113.6 pcf; Liquid Limit = No Value; Plasticity Index = Non Plastic. |
| 5.0        | SPT B              | 29        |          |             |  |
|            |                    |           | SC       |             | <b>Clayey Sand with Gravel</b> Dark brown, moist, medium dense with an estimated 40% medium plasticity fines, 45% fine to coarse sand and 15% angular gravel up to 1" in diameter.   |
| 7.5        | SPT C              | 23        |          |             | <b>Silty Gravel with Sand</b> Gray, slightly moist, medium dense with an estimated 15% non-plastic fines, 30% fine to coarse sand and 55% angular gravel up to 1" in diameter.   |
|            |                    |           | GM       |             |  |
|            |                    |           | SM       |             | <b>Silty Sand with Gravel</b> Reddish brown, slightly moist, dense with an estimated 25% non-plastic fines, 40% fine to coarse sand and 35% angular gravel up to 0.75" in diameter.  |
| 10.0       | SPT D              | 47        |          |             |  |

Bottom of borehole at 10.0 feet.

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# LOG OF BORING NO. B-02

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/19/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION  |
|------------|--------------------|-----------|----------|-------------|---|
| 0.0        |                    |           |          |             | <b>Asphalt Concrete</b> Approximately 3-inch-thick layer of asphalt concrete.   |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 9.5-inch-thick layer of aggregate base.<br>Base is described as brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 40% fine to coarse sand and 45% angular gravel up to 0.5" in diameter. Volcanic gravel base.  |
| 2.5        | MC A               | 50/6"     |          |             | <b>Silty Sand with Gravel (Fill)</b> Reddish brown, slightly moist, dense with 23% non-plastic fines, 49% fine to coarse sand and 28% angular gravel up to 1.5" in diameter.<br>Fill material. Material is likely sourced from native cut areas during the original grading.<br>Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.   |
| 5.0        | SPT B              | 38        | SM       |             | <b>Laboratory Test Results for Combined Bulk Sample from Borings B-01 &amp; B-02:</b> Moisture Content = 13.7%; Liquid Limit = No Value; Plasticity Index = Non Plastic; Maximum Dry Unit Weight = 119.5 pcf; Optimum Moisture Content = 7.5%; Specific Gravity = 2.63; CBR = 15.<br><b>Laboratory Test Results for Sample A:</b> Moisture Content = 7.5%; Dry Density = 107.2 pcf; Specific Gravity = 2.67; Liquid Limit = No Value; Plasticity Index = Non Plastic.   |
| 7.5        | SPT C              | 60/7"     | SC       |             | <b>Clayey Sand with Gravel</b> Dark brown, moist, very dense with an estimated 35% medium plasticity fines, 50% fine to coarse sand and 15% angular gravel up to 0.75" in diameter.<br>Soils profile includes up to 6-inch-thick <b>Sandy Lean Clay</b> with an estimated 65% medium plasticity fines at approximately 6 feet below existing asphalt concrete pavement surface.<br>Presence of cobbles and/or boulders indicated by drilling response from about 7 feet depth below asphalt concrete surface. |
|            | SPT D              | 80/8"     | SM       |             | <b>Silty Sand with Gravel</b> Brown, gray, slightly moist, very dense with an estimated 20% non-plastic fines, 60% fine to coarse sand and 20% angular gravel up to 1" in diameter.   |

Cobbles and/or boulders are present within the subsurface soils based on the drilling response. Cobbles and boulders within subsurface soils are not completely revealed in boring exploration.  
 Bottom of borehole at 9.7 feet.

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# LOG OF BORING NO. B-03

PAGE 1 OF 1

**CLIENT** Kimley-Horn and Associates, Inc. **PROJECT NAME** Weed Airport Taxiway and Aircraft Parking  
**PROJECT NUMBER** 5013-03-1 **PROJECT LOCATION** Siskiyou County, California  
**DATE :** 10/19/21 **GROUND ELEVATION (FT) :** NA  
**EQUIPMENT :** CME 45 **GROUNDWATER DEPTH (FT) :** NE  
**LOGGED BY :** PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION  |
|------------|--------------------|-----------|----------|-------------|---|
| 0.0        |                    |           |          |             |   |
|            |                    |           | GM       |             | <b>Asphalt Concrete</b> Approximately 2.25-inch-thick layer of asphalt concrete.  |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 9.25-inch-thick layer of aggregate base.  |
| 2.5        | MC A               | 52        | GM       |             | Base is described as reddish brown, slightly moist, very dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 25% fine to coarse sand and 60% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base.<br><b>Silty Gravel with Sand</b> Reddish brown, slightly moist, very dense with 19% non-plastic fines, 40% fine to coarse sand and 41% angular gravel up to 2" in diameter.<br>Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.<br><u>Laboratory Test Results for Sample A:</u> Moisture Content = 0.9%; Dry Density = 120.0 pcf; Specific Gravity = 2.62; Liquid Limit = No Value; Plasticity Index = Non Plastic. |
| 5.0        | SPT B              | 71        | SM       |             | <b>Silty Sand with Gravel</b> Light reddish brown, brown, slightly moist, very dense with an estimated 20% non-plastic fines, 65% fine to coarse sand and 15% angular fine gravel.  |
| 7.5        | SPT C              | 58        | SM       |             | <b>Silty Sand with Gravel</b> Light reddish brown, brown, slightly moist, very dense with an estimated 25% non-plastic fines, 65% fine to coarse sand and 10% angular gravel up to 0.75" in diameter.   |
| 10.0       | SPT D              | 75        | SM       |             |   |

Bottom of borehole at 10.0 feet.

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# LOG OF BORING NO. B-04

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/20/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION   |
|------------|--------------------|-----------|----------|-------------|--|
| 0.0        |                    |           |          |             | <b>Asphalt Concrete</b> Approximately 2-inch-thick layer of asphalt concrete.  |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 10-inch-thick layer of aggregate base.   |
|            | MC A               | 50/4"     | SM       |             | Base is described as reddish brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 35% fine to coarse sand and 50% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base.<br><b>Silty Sand with Gravel</b> Brown, slightly moist, very dense with an estimated 13% non-plastic fines, 52% fine to coarse sand and 35% angular gravel up to 1" in diameter. |
| 2.5        |                    |           |          |             | Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.<br><br><u>Laboratory Test Results for Sample A:</u> Moisture Content = 9.5%; Liquid Limit = No Value; Plasticity Index = Non Plastic.  |
|            | SPT B              | 30        | SM       |             | <b>Silty Sand with Gravel</b> Brown, slightly moist, medium dense with 25% non-plastic fines, 53% fine to coarse sand and 22% angular gravel up to 1" in diameter.<br><br><u>Laboratory Test Results for Sample B:</u> Moisture Content = 10.8%; Liquid Limit = No Value; Plasticity Index = Non Plastic.  |
| 5.0        |                    |           |          |             |  |
|            | SPT C              | 56        | SC-SM    |             | <b>Silty, Clayey Sand with Gravel</b> Brown, dark brown, slightly moist, very dense with an estimated 25% low plasticity fines, 60% fine to coarse sand and 15% angular gravel up to 0.75" in diameter.  |
| 7.5        |                    |           |          |             |  |
|            | SPT D              | 23        | SM       |             | <b>Silty Sand with Gravel</b> Brown, slightly moist, medium dense with an estimated 20% non-plastic to low plasticity fines, 55% fine to coarse sand and 25% angular gravel up to 1" in diameter.  |
| 10.0       |                    |           |          |             |  |

Bottom of borehole at 10.0 feet.

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# LOG OF BORING NO. B-05

PAGE 1 OF 1

**CLIENT** Kimley-Horn and Associates, Inc. **PROJECT NAME** Weed Airport Taxiway and Aircraft Parking  
**PROJECT NUMBER** 5013-03-1 **PROJECT LOCATION** Siskiyou County, California  
**DATE** : 10/19/21 **GROUND ELEVATION (FT)** : NA  
**EQUIPMENT** : CME 45 **GROUNDWATER DEPTH (FT)** : NE  
**LOGGED BY** : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION   |
|------------|--------------------|-----------|----------|-------------|--|
| 0.0        |                    |           |          |             | <b>Asphalt Concrete</b> Approximately 2.5-inch-thick layer of asphalt concrete.  |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 9-inch-thick layer of aggregate base.<br>Base is described as reddish brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 35% fine to coarse sand and 50% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base.   |
| 2.5        | MC A               | 77        | SM       |             | <b>Silty Sand with Gravel</b> Brown, black, slightly moist, very dense with 23% non-plastic fines, 49% fine to coarse sand and 28% subangular to angular gravel up to 1" in diameter.<br><br>Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.<br><br><u>Laboratory Test Results for Combined Bulk Sample from Borings B-05 &amp; B-10:</u> Moisture Content = 7.3%; Liquid Limit = No Value; Plasticity Index = Non Plastic; Maximum Dry Unit Weight = 113.9 pcf; Optimum Moisture Content = 12.3%; Specific Gravity = 2.62; CBR = 9. |
| 5.0        | SPT B              | 50/5"     |          |             |  |
| 7.5        | SPT C              | 50/4"     | SC       |             | <b>Clayey Sand with Gravel</b> Brown, slightly moist, very dense with an estimated 25% low plasticity fines, 45% fine to coarse sand and 30% angular gravel up to 0.75" in diameter.   |
| 10.0       | SPT D              | 96        | SC-SM    |             | <b>Silty, Clayey Sand with Gravel</b> Brown, slightly moist, very dense with an estimated 20% low plasticity fines, 45% fine to coarse sand and 35% angular gravel up to 0.75" in diameter.  |

Bottom of borehole at 10.0 feet.

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# LOG OF BORING NO. B-06

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/20/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION   |
|------------|--------------------|-----------|----------|-------------|--|
| 0.0        |                    |           |          |             |  |
|            |                    |           | GM       |             | <b>Asphalt Concrete</b> Approximately 2.5-inch-thick layer of asphalt concrete.  |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 8.5-inch-thick layer of aggregate base.  |
| 2.5        | MC A               | 63        | SM       |             | Base is described as brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 25% fine to coarse sand and 60% angular gravel up to 0.5" in diameter. Volcanic gravel base.<br><b>Silty Gravel with Sand</b> Brown, reddish brown, slightly moist, dense with an estimated 18% low plasticity fines, 48% fine to coarse sand and 34% angular gravel up to 1" in diameter.<br>Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.<br><u>Laboratory Test Results for Sample A:</u> Moisture Content = 7.7%; Dry Density = 107.6 pcf; Specific Gravity = 2.59; Liquid Limit = 23; Plasticity Index = 2. |
| 5.0        | SPT B              | 24        |          |             | <b>Poorly Graded Sand with Silt and Gravel</b> Reddish brown, slightly moist, medium dense to dense with 11% non-plastic fines, 48% fine to coarse sand and 41% angular gravel up to 1" in diameter.<br><u>Laboratory Test Results for Sample B:</u> Moisture Content = 7.1%; Liquid Limit = No Value; Plasticity Index = Non Plastic.   |
| 7.5        | SPT C              | 44        | SP-SM    |             |  |
| 10.0       | SPT D              | 35        |          |             |  |

Bottom of borehole at 10.0 feet.

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# LOG OF BORING NO. B-07

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/20/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION  |
|------------|--------------------|-----------|----------|-------------|---|
| 0.0        |                    |           |          |             |   |
|            |                    |           | GM       |             | <b>Asphalt Concrete</b> Approximately 3-inch-thick layer of asphalt concrete.   |
|            |                    |           |          |             | <b>Aggregate Base</b> Approximately 5.5-inch-thick layer of aggregate base.   |
|            | MC A               | 50/5.5"   | GW-GM    |             | Base is described as brown, moist, medium dense <b>Silty Gravel with Sand</b> with an estimated 15% low plasticity fines, 35% fine to coarse sand and 50% subangular to subrounded gravel up to 0.5" in diameter. Volcanic gravel base. |
| 2.5        |                    |           |          |             | <b>Well Graded Gravel with Sand and Sandy</b> Brown, moist, very dense with 11% low plasticity fines, 36% fine to coarse sand and 53% angular gravel up to 2" in diameter.  |
|            |                    |           |          |             | Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.   |
|            |                    |           |          |             | <u>Laboratory Test Results for Sample A:</u> Moisture Content = 10.4%; Dry Density = 111.7 pcf; Specific Gravity = 2.62; Liquid Limit = 25; Plasticity Index = 2.   |
|            |                    |           | SM       |             | <b>Silty Sand with Gravel</b> Brown, slightly moist, very dense with an estimated 15% non-plastic fines, 60% fine to coarse sand and 25% angular gravel up to 1" in diameter.   |
|            | SPT B              | 76        |          |             | No sample recovery. SPT sampler tip broke due to driving into very dense soils profile. Soil classification based on bulk sample collected during drilling.   |
| 5.0        |                    |           |          |             |   |

Boring terminated at 5 feet depth below existing asphalt concrete surface with very dense drilling and broken SPT sampler tip. Very dense soil profile based on drilling response.  
 Bottom of borehole at 5.0 feet.

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# LOG OF BORING NO. B-08

PAGE 1 OF 1

**CLIENT** Kimley-Horn and Associates, Inc. **PROJECT NAME** Weed Airport Taxiway and Aircraft Parking  
**PROJECT NUMBER** 5013-03-1 **PROJECT LOCATION** Siskiyou County, California  
**DATE :** 10/20/21 **GROUND ELEVATION (FT) :** NA  
**EQUIPMENT :** CME 45 **GROUNDWATER DEPTH (FT) :** NE  
**LOGGED BY :** PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION  |
|------------|--------------------|-----------|----------|-------------|---|
| 0.0        |                    |           |          |             | <b>Asphalt Concrete</b> Approximately 2.75-inch-thick layer of asphalt concrete.  |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 7.25-inch-thick layer of aggregate base.  |
|            | MC A               | 21        | GC       |             | Base is described as brown, moist to wet, medium dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic to low plasticity fines, 35% fine to coarse sand and 55% subangular to subrounded gravel up to 0.5" in diameter. Volcanic gravel base. |
| 2.5        |                    |           |          |             | <b>Clayey Gravel with Sand</b> Dark brown, brown, moist to wet, medium dense with 30% medium plasticity fines, 38% fine to coarse sand and 42% angular gravel up to 2" in diameter.   |
|            |                    |           |          |             | Bulk sample collected from drill cuttings from 1 to 3 feet below existing asphalt concrete surface.   |
|            |                    |           |          |             | <u>Laboratory Test Results for Sample A:</u> Moisture Content = 17.5%; Dry Density = 114.8 pcf; Liquid Limit = 31; Plasticity Index = 13.   |

Laboratory Test Results for Combined Bulk Sample from Borings B-08 & B-09: Moisture Content = 16.3%; Liquid Limit = No Value; Plasticity Index = Non Plastic; Maximum Dry Unit Weight = 124.2 pcf; Optimum Moisture Content = 9.7%; Specific Gravity = 2.66; CBR = 16.

First boring encountered drilling refusal on a boulder at 2 feet depth below asphalt concrete surface. Boring was offset 5 feet north of first location and encountered refusal on cobble and/or boulder at 3 feet depth below asphalt concrete surface.

Perched standing water (seepage) in the boring just beneath the structural section of the parking apron. Standing water is present in the adjacent drainage area east of the parking apron.

Standing water was not encountered in the second boring but the soils were moist to wet.

Cobbles and/or boulders are present within the subsurface soils based on the drilling response. Cobbles and boulders within subsurface soils are not completely revealed in boring exploration.

Bottom of borehole at 3.0 feet.


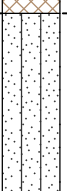

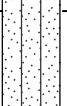



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# LOG OF BORING NO. B-09

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/20/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG   | MATERIAL DESCRIPTION   |
|------------|--------------------|-----------|----------|---|--|
| 0.0        |                    |           |          |   | <b>Asphalt Concrete</b> Approximately 2.75-inch-thick layer of asphalt concrete.   |
|            |                    |           | GM       |    | <b>Aggregate Base</b> Approximately 7.25-inch-thick layer of aggregate base.<br><br>Base is described as brown, moist, medium dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 25% fine to coarse sand and 60% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base.  |
| 2.5        | MC A               | 80        | SM       |    | <b>Silty Sand with Gravel</b> Dark brown, brown, moist, very dense with 17% non-plastic fine, 46% fine to coarse sand and 37% subangular to angular gravel up to 1.5" in diameter.<br><br>Bulk sample collected from drill cuttings from 1 to 3.5 feet below existing asphalt concrete surface.<br><br><u>Laboratory Test Results for Sample A:</u> Moisture Content = 11.6%; Dry Density = 121.0 pcf; Specific Gravity = 2.59; Liquid Limit = No Value; Plasticity Index = Non Plastic. |
|            | SPT B              | 50/6"     |          |  | <u>Laboratory Test Results for Combined Bulk Sample from Borings B-08 &amp; B-09:</u> Moisture Content = 16.3%; Liquid Limit = No Value; Plasticity Index = Non Plastic; Maximum Dry Unit Weight = 124.2 pcf; Optimum Moisture Content = 9.7%; Specific Gravity = 2.66; CBR = 16.  |
| 5.0        |                    |           | SM       |  | <b>Silty Sand with Gravel</b> Light brown, slightly moist, very dense with an estimated 25% non-plastic fines, 60% fine to coarse sand and 15% angular gravel up to 0.5" in diameter.  |
|            | SPT C              | 50/4"     |          |  |  |

Practical drilling refusal on possible cobble and/or boulder at about 6 feet depth below pavement surface.

Cobbles and/or boulders are present within the subsurface soils based on the drilling response. Cobbles and boulders within subsurface soils are not completely revealed in boring exploration.  
 Bottom of borehole at 6.0 feet.

BORING LOG 5013031.GPJ Printed On: 1/17/22








**Corestone Engineering, Inc.**  
 10751 Grayslake Dr  
 Reno, NV 89521  
 Telephone: 775-636-5916

# LOG OF BORING NO. B-10

PAGE 1 OF 1

**CLIENT** Kimley-Horn and Associates, Inc. **PROJECT NAME** Weed Airport Taxiway and Aircraft Parking  
**PROJECT NUMBER** 5013-03-1 **PROJECT LOCATION** Siskiyou County, California  
**DATE :** 10/20/21 **GROUND ELEVATION (FT) :** NA  
**EQUIPMENT :** CME 45 **GROUNDWATER DEPTH (FT) :** NE  
**LOGGED BY :** PV

| DEPTH (ft)  | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG   | MATERIAL DESCRIPTION   |
|---|--------------------|-----------|----------|---|--|
| 0.0   |                    |           |          |   | <b>Asphalt Concrete</b> Approximately 2.5-inch-thick layer of asphalt concrete.  |
|   |                    |           | GM       |    | <b>Aggregate Base</b> Approximately 7.25-inch-thick layer of aggregate base.<br><br>Base is described as brown, moist, medium dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 25% fine to coarse sand and 60% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base.  |
| 2.5   | MC A               | 50/5"     |          |    | <b>Silty Sand with Gravel</b> Brown, dark brown, slightly moist to moist, very dense with 18% non-plastic fines, 45% fine to coarse sand and 37% angular gravel up to 1" in diameter.<br><br>Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.<br><br><u>Laboratory Test Results for Combined Bulk Sample from Borings B-05 &amp; B-10:</u> Moisture Content = 7.3%; Liquid Limit = No Value; Plasticity Index = Non Plastic; Maximum Dry Unit Weight = 113.9 pcf; Optimum Moisture Content = 12.3%; Specific Gravity = 2.62; CBR = 9. |
| 5.0   | SPT B              | 50/1"     | SM       |  | <u>Laboratory Test Results for Sample A:</u> Moisture Content = 19.8%; Dry Density = 119.7 pcf; Specific Gravity = 2.63; Liquid Limit = 34; Plasticity Index = 14. Sample classified as Sandy Lean Clay with 50% medium plasticity fines.  |
| 7.5   | SPT C              | 40        |          |  | <b>Silty Sand with Gravel</b> Brown, gray, slightly moist, dense with an estimated 15-20% non-plastic fines, 55-60% fine to coarse sand and 25% angular gravel up to 1" in diameter.   |
| 10.0  | SPT D              | 34        | SM       |  |  |
| <p>First boring encountered refusal at 5 feet depth below asphalt concrete surface on very dense soils with possible cobble and/or boulder. Boring was offset 4 feet south of first location and drilled to 6 feet depth to continue SPT sampling and to achieve target 10 feet depth.</p> <p>Cobbles and/or boulders are present within the subsurface soils based on the drilling response. Cobbles and boulders within subsurface soils are not completely revealed in boring exploration.<br/>         Bottom of borehole at 10.0 feet.</p> |                    |           |          |   |  |

BORING LOG 5013031.GPJ Printed On: 1/17/22





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# LOG OF BORING NO. B-11

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/20/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION  |
|------------|--------------------|-----------|----------|-------------|---|
| 0.0        |                    |           |          |             |   |
|            |                    |           | GM       |             | <b>Asphalt Concrete</b> Approximately 1.75-inch-thick layer of asphalt concrete.  |
|            |                    |           | GM       |             | <b>Aggregate Base</b> Approximately 9.25-inch-thick layer of aggregate base.  |
|            | MC A               | 82/10.5"  | SM       |             | Base is described as reddish brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 25% fine to coarse sand and 60% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base. |
| 2.5        |                    |           | SM       |             | <b>Silty Sand with Gravel</b> Dark brown, brown, slightly moist, very dense with 21% low plasticity fines, 55% fine to coarse sand and 24% angular gravel up to 0.75" in diameter.  |
|            |                    |           |          |             | Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.   |
|            |                    |           |          |             | Laboratory Test Results for Sample A: Moisture Content = 14.1%; Dry Density = 119.7 pcf; Specific Gravity = 2.65; Liquid Limit = 30; Plasticity Index = 2.  |
|            | SPT B              | 50/5"     | SM       |             | <b>Silty Sand with Gravel</b> Brown, slightly moist, very dense with an estimated 15% low plasticity fines, 50% fine to coarse sand and 35% angular gravel up to 0.75" in diameter.   |
| 5.0        |                    |           |          |             |   |
|            | SPT C              | 50/3.5"   | SM       |             | <b>Silty Sand with Gravel</b> Brown, slightly moist, very dense with an estimated 15% non-plastic to low plasticity fines, 65% fine to coarse sand and 20% angular gravel up to 0.75" in diameter.  |
| 7.5        |                    |           |          |             |   |
|            | SPT D              | 86/10"    | SC-SM    |             | <b>Silty, Clayey Sand with Gravel</b> Grayish brown, slightly moist, very dense with an estimated 15% low plasticity fines, 50% fine to coarse sand and 35% angular gravel up to 0.75" in diameter.   |

Hard drilling condition in very dense soils though the entire depth of boring.  
 Bottom of borehole at 9.8 feet.

BORING LOG 5013031.GPJ Printed On: 1/17/22



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# LOG OF BORING NO. B-12

PAGE 1 OF 1

CLIENT Kimley-Horn and Associates, Inc. PROJECT NAME Weed Airport Taxiway and Aircraft Parking  
 PROJECT NUMBER 5013-03-1 PROJECT LOCATION Siskiyou County, California  
 DATE : 10/20/21 GROUND ELEVATION (FT) : NA  
 EQUIPMENT : CME 45 GROUNDWATER DEPTH (FT) : NE  
 LOGGED BY : PV

| DEPTH (ft) | SAMPLE TYPE NUMBER | BLOWS/12" | U.S.C.S. | GRAPHIC LOG | MATERIAL DESCRIPTION  |
|------------|--------------------|-----------|----------|-------------|---|
| 0.0        |                    |           |          |             |   |
|            |                    |           | GM       |             | <b>Asphalt Concrete</b> Approximately 1.5-inch-thick layer of asphalt concrete.   |
|            |                    |           |          |             | <b>Aggregate Base</b> Approximately 6.5-inch-thick layer of aggregate base.   |
|            | MC A               | 50/4"     |          |             | Base is described as reddish brown, slightly moist, dense <b>Silty Gravel with Sand</b> with an estimated 15% non-plastic fines, 25% fine to coarse sand and 60% subangular to angular gravel up to 0.5" in diameter. Volcanic gravel base. |
| 2.5        |                    |           | SP-SM    |             | <b>Poorly Graded Sand with Silt and Gravel</b> Dark brown, brown, slightly moist, very dense with 12% non-plastic fines, 52% fine to coarse sand and 36% angular gravel up to 1" in diameter.   |
|            | SPT B              | 50/4"     |          |             | Bulk sample collected from drill cuttings from 1 to 4 feet below existing asphalt concrete surface.<br><br>Laboratory Test Results for Sample A: Moisture Content = 11.6%; Liquid Limit = No Value; Plasticity Index = Non Plastic.         |
| 5.0        |                    |           |          |             |   |
|            | SPT C              | 35        |          |             | <b>Silty Gravel with Sand</b> Dark gray, brown, orange brown, slightly moist, dense to very dense with an estimated 10-15% non-plastic fines, 40% fine to coarse sand and 45-50% angular gravel up to 1" in diameter.                       |
| 7.5        |                    |           | GM       |             |   |
|            | SPT D              | 59        |          |             |   |
| 10.0       |                    |           |          |             |   |

Hard drilling condition in very dense soils within upper 5 feet depth of boring.  
 Bottom of borehole at 10.0 feet.

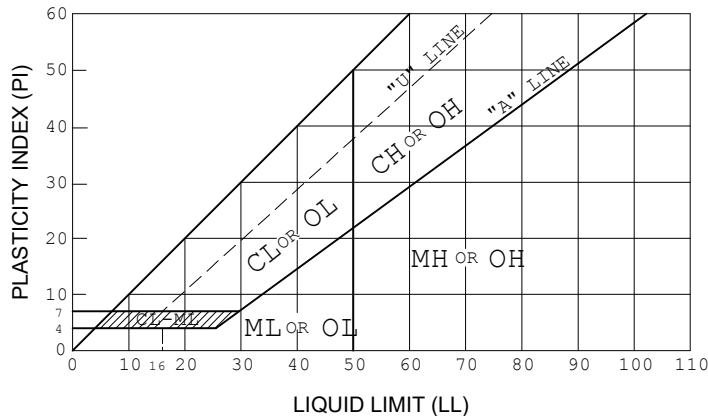
BORING LOG 5013031.GPJ Printed On: 1/17/22

# SOIL CLASSIFICATION CHART

| MAJOR DIVISIONS   |   |   | SYMBOLS  | TYPICAL   |
|---|---|---|--|---|
|   |   |   | GRAPH LETTER   | DESCRIPTIONS  |
| COARSE GRAINED SOILS<br><br>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE | GRAVEL AND GRAVELLY SOILS<br><br>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE | CLEAN GRAVELS<br>(LITTLE OR NO FINES)               |  | GW<br>WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES   |
|   |   | GRAVELS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES) |  | GP<br>POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES |
|   |   | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES)   |  | SM<br>SILTY SANDS, SAND - SILT MIXTURES                                 |
|   |   | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES)   |  | SC<br>CLAYEY SANDS, SAND - CLAY MIXTURES                                |
|   | SAND AND SANDY SOILS<br><br>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE       | CLEAN SANDS<br>(LITTLE OR NO FINES)                 |  | SW<br>WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES             |
|   |   | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES)   |  | SP<br>POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES            |
|   |   | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES)   |  | SM<br>SILTY SANDS, SAND - SILT MIXTURES                                 |
|   |   | SANDS WITH FINES<br>(APPRECIABLE AMOUNT OF FINES)   |  | SC<br>CLAYEY SANDS, SAND - CLAY MIXTURES                                |
| FINE GRAINED SOILS<br><br>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE  | SILTS AND CLAYS<br><br>LIQUID LIMIT LESS THAN 50  |   | ML<br>INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY |   |
|   |   |   | CL<br>INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS                  |   |
|   |   |   | OL<br>ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY  |   |
|   | SILTS AND CLAYS<br><br>LIQUID LIMIT GREATER THAN 50                                       |   | MH<br>INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS  |   |
|   |   |   | CH<br>INORGANIC CLAYS OF HIGH PLASTICITY   |   |
|   |   |   | OH<br>ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS  |   |
| HIGHLY ORGANIC SOILS  |   |   | PT<br>PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS  |   |
| FILL MATERIAL   |   |   | --<br>FILL MATERIAL, NON-NATIVE  |   |

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.  
SYMBOL COLORS ARE NOT SHOWN IN THE GRAPHIC DISPLAY

## PLASTICITY CHART



FOR CLASSIFICATION OF FINE-GRAINED SOILS AND FINE-GRAINED FRACTION OF COARSE-GRAINED SOILS

## EXPLORATION SAMPLE TERMINOLOGY

| Sample Type                 | Sample Symbol | Sample Code |
|-----------------------------|---------------|-------------|
| Auger Cuttings              |               | Auger       |
| Bulk (Grab) Sample          |               | Grab        |
| Modified California Sampler |               | MC          |
| Shelby Tube                 |               | SH or ST    |
| Standard Penetration Test   |               | SPT         |
| Split Spoon                 |               | SS          |
| No Sample                   |               |             |

## GRAIN SIZE TERMINOLOGY

| Component of Sample | Size Range                         |
|---------------------|------------------------------------|
| Boulders            | Over 12 in. (300mm)                |
| Cobbles             | 12 in. to 3 in. (300mm to 75mm)    |
| Gravel              | 3 in. to #4 sieve (75mm to 2mm)    |
| Sand                | # 4 to #200 sieve (2mm to 0.074mm) |
| Silt or Clay        | Passing #200 sieve (0.074mm)       |

## RELATIVE DENSITY OF GRANULAR SOILS

| N - Blows/ft    | Relative Density |
|-----------------|------------------|
| 0 - 4           | Very Loose       |
| 5 - 10          | Loose            |
| 11 - 30         | Medium Dense     |
| 31 - 50         | Dense            |
| greater than 50 | Very Dense       |

## CONSISTENCY OF COHESIVE SOILS

| Unconfined Compressive Strength, psf | N - Blows/ft    | Consistency |
|--------------------------------------|-----------------|-------------|
| less than 500                        | 0 - 1           | Very Soft   |
| 500 - 1,000                          | 2 - 4           | Soft        |
| 1,000 - 2,000                        | 5 - 8           | Firm        |
| 2,000 - 4,000                        | 9 - 15          | Stiff       |
| 4,000 - 8,000                        | 16 - 30         | Very Stiff  |
| 8,000 - 16,000                       | 31 - 60         | Hard        |
| greater than 16,000                  | greater than 60 | Very Hard   |



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## USCS Soil Classification Chart

Project: Weed Airport Taxiway and Parking Apron

Location: Siskiyou County, California

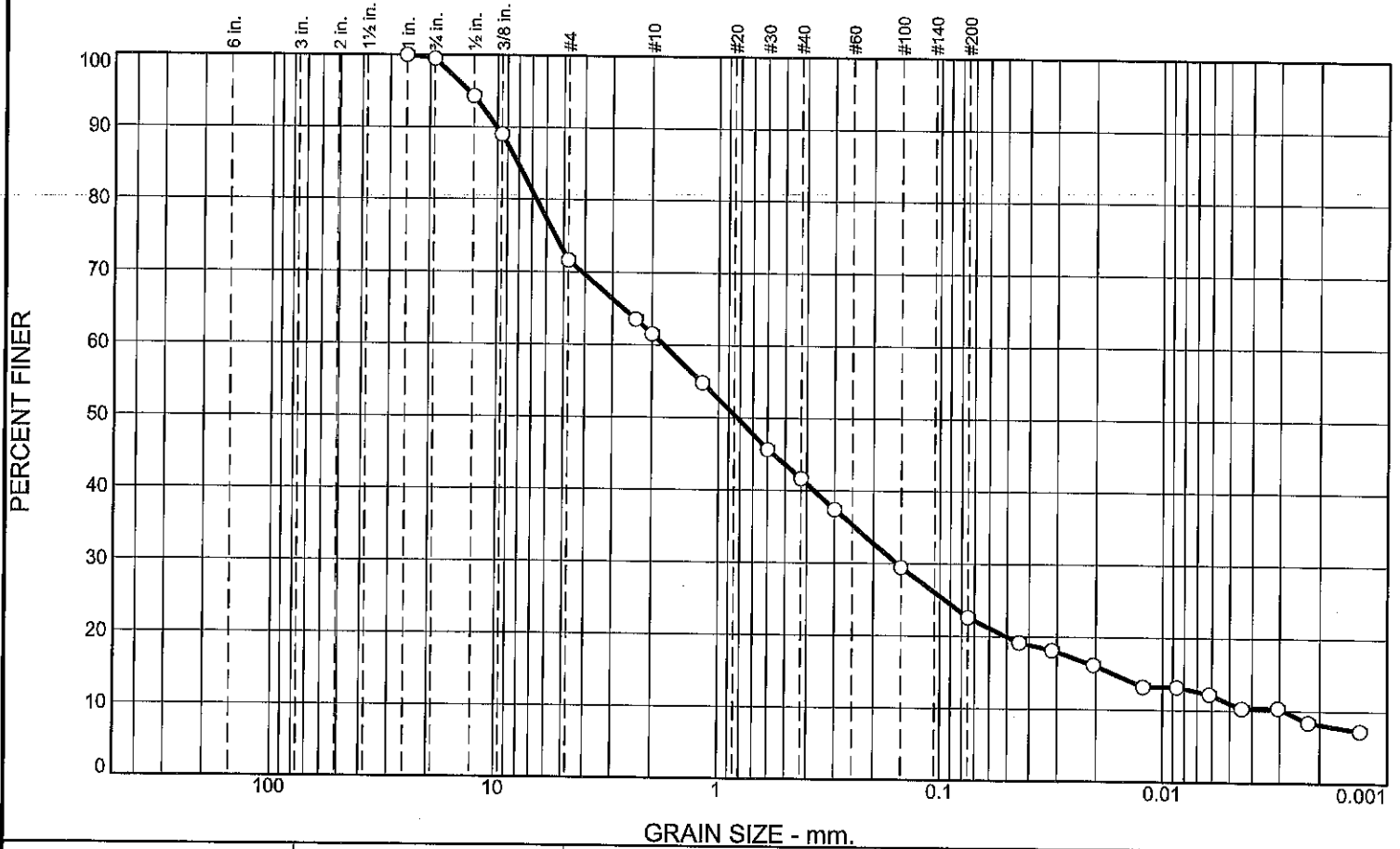
Project Number: 5013-03-1

Plate 3

# APPENDIX A

## INDEX TEST RESULTS

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 0        | 28   | 10     | 20     | 19   | 12      | 11   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1          | 100           |                |              |
| .75        | 100           |                |              |
| .5         | 94            |                |              |
| .375       | 89            |                |              |
| #4         | 72            |                |              |
| #8         | 64            |                |              |
| #10        | 62            |                |              |
| #16        | 55            |                |              |
| #30        | 46            |                |              |
| #40        | 42            |                |              |
| #50        | 37            |                |              |
| #100       | 29            |                |              |
| #200       | 23            |                |              |
| 0.0442 mm. | 19            |                |              |
| 0.0316 mm. | 18            |                |              |
| 0.0205 mm. | 16            |                |              |
| 0.0122 mm. | 13            |                |              |
| 0.0086 mm. | 13            |                |              |
| 0.0062 mm. | 12            |                |              |
| 0.0044 mm. | 10            |                |              |
| 0.0031 mm. | 10            |                |              |
| 0.0022 mm. | 8.4           |                |              |
| 0.0013 mm. | 7.3           |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 10.0522      D<sub>85</sub>= 8.1133      D<sub>60</sub>= 1.7722  
D<sub>50</sub>= 0.8262      D<sub>30</sub>= 0.1572      D<sub>15</sub>= 0.0168  
D<sub>10</sub>= 0.0029      C<sub>u</sub>= 613.21      C<sub>c</sub>= 4.82

**Classification**

USCS= SM      AASHTO= A-1-b


**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.63

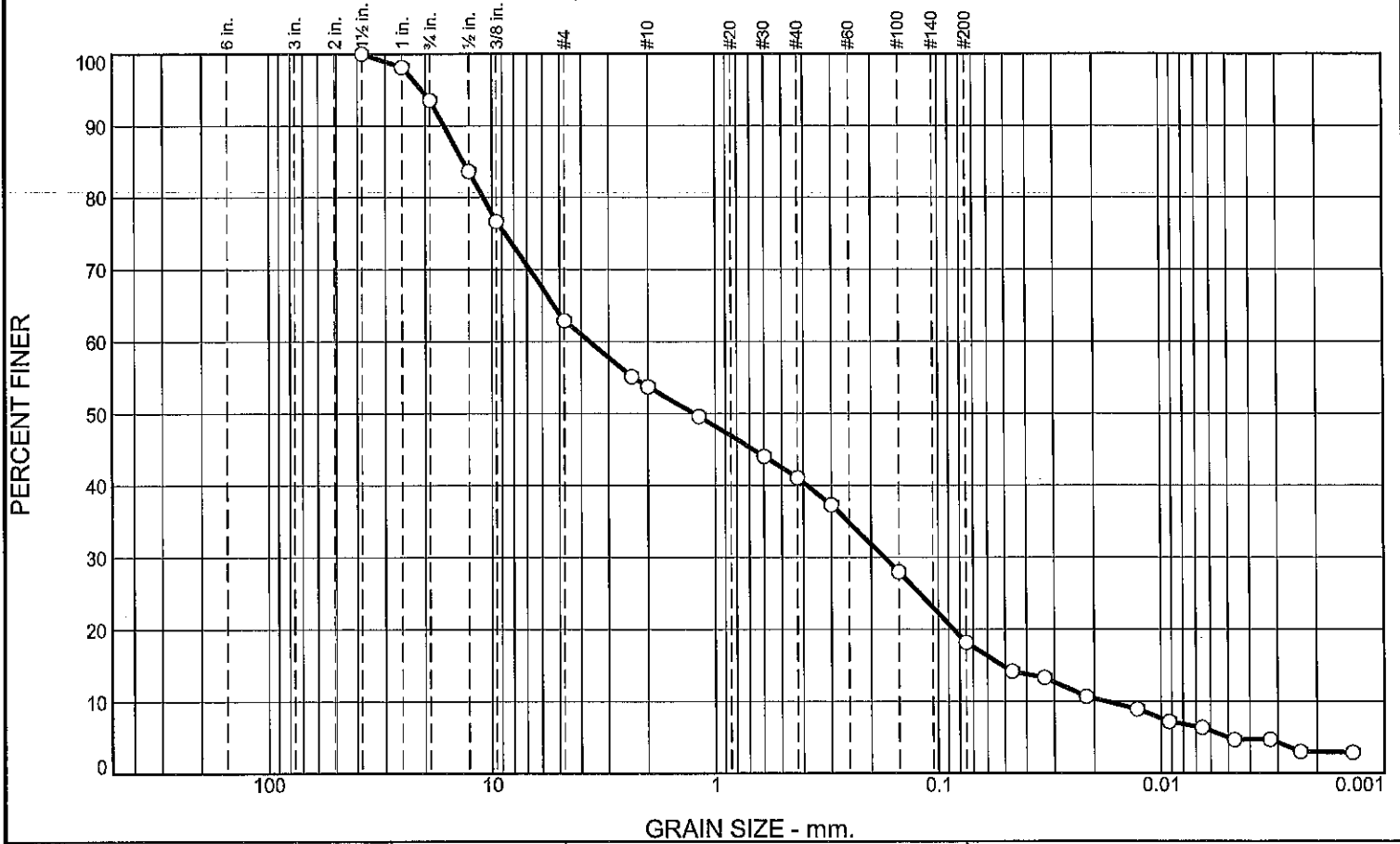
\* (no specification provided)

**Location:** 5013-03-1/B-1 THRU B-2 BULK

**Date:** 12/14/21

|   |  |  |               |
|---|--|--|---------------|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT<br><br><b>Project No:</b> R20215509C1 | <b>Figure</b> |
|---|--|--|---------------|

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 6        | 31   | 9      | 13     | 23   | 13      | 5    |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5        | 100           |                |              |
| 1          | 98            |                |              |
| .75        | 94            |                |              |
| .5         | 84            |                |              |
| .375       | 77            |                |              |
| #4         | 63            |                |              |
| #8         | 55            |                |              |
| #10        | 54            |                |              |
| #16        | 50            |                |              |
| #30        | 44            |                |              |
| #40        | 41            |                |              |
| #50        | 37            |                |              |
| #100       | 28            |                |              |
| #200       | 18            |                |              |
| 0.0464 mm. | 14            |                |              |
| 0.0332 mm. | 13            |                |              |
| 0.0217 mm. | 11            |                |              |
| 0.0128 mm. | 8.9           |                |              |
| 0.0092 mm. | 7.2           |                |              |
| 0.0066 mm. | 6.3           |                |              |
| 0.0047 mm. | 4.7           |                |              |
| 0.0032 mm. | 4.7           |                |              |
| 0.0024 mm. | 3.0           |                |              |
| 0.0014 mm. | 2.9           |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 16.4867      D<sub>85</sub>= 13.4498      D<sub>60</sub>= 3.6639  
D<sub>50</sub>= 1.2441      D<sub>30</sub>= 0.1746      D<sub>15</sub>= 0.0514  
D<sub>10</sub>= 0.0178      C<sub>u</sub>= 205.70      C<sub>c</sub>= 0.47

**Classification**

USCS= SM      AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.62

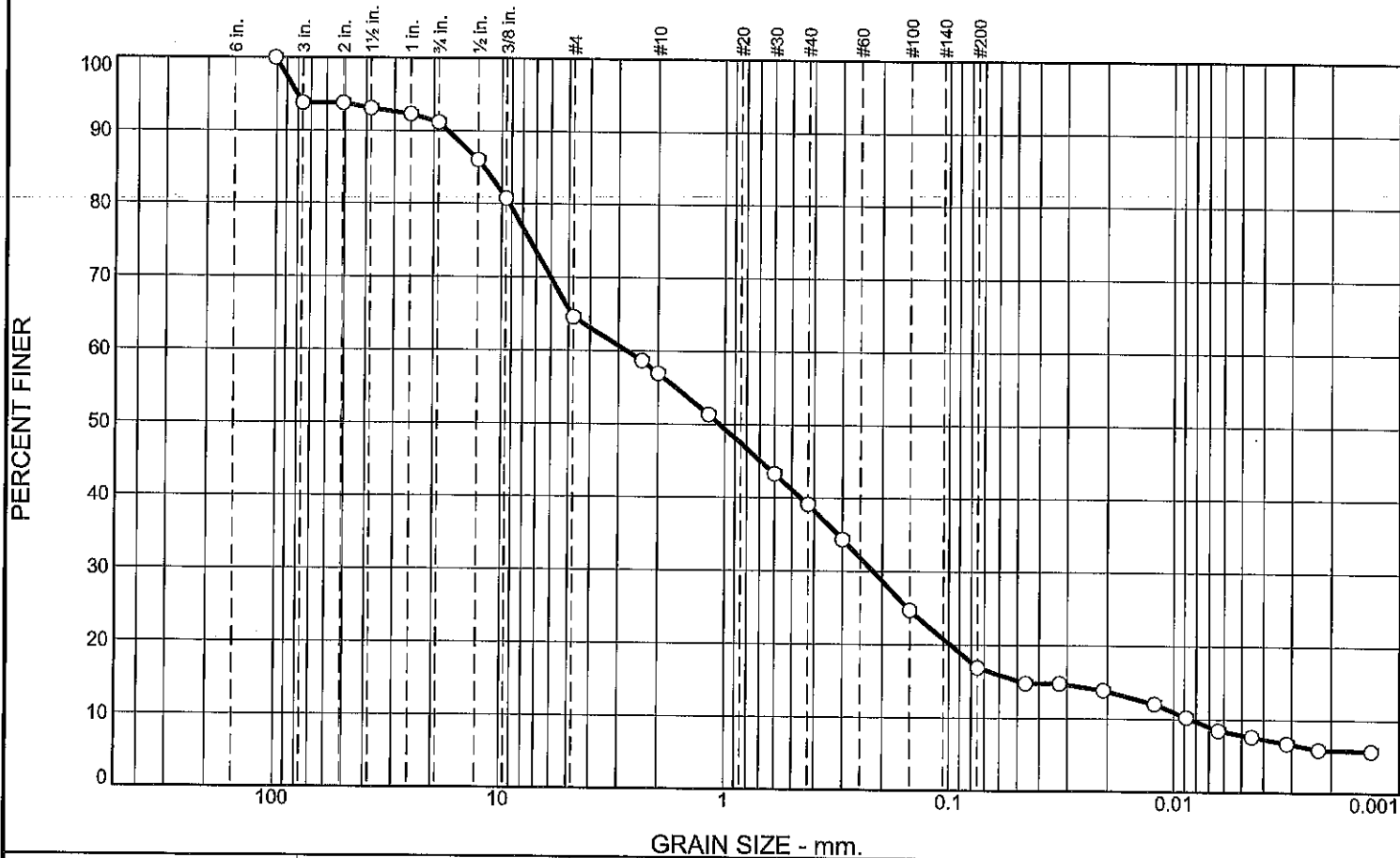
\* (no specification provided)

**Location:** 5013-03-1/B-5 AND B-10 BULK

**Date:** 12/14/21

|   |   |
|---|---|
| <p><b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b></p> | <p><b>Client:</b> Corestone Engineering<br/> <b>Project:</b> WEED AIRPORT PROJECT</p> <p><b>Project No:</b> R20215509C1</p> |
| <p><b>Figure</b></p>  |   |

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 6     | 3        | 26   | 8      | 18     | 22   | 9       | 8    |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 4          | 100           |                |              |
| 3          | 94            |                |              |
| 2          | 94            |                |              |
| 1.5        | 93            |                |              |
| 1          | 92            |                |              |
| .75        | 91            |                |              |
| .5         | 86            |                |              |
| .375       | 81            |                |              |
| #4         | 65            |                |              |
| #8         | 59            |                |              |
| #10        | 57            |                |              |
| #16        | 51            |                |              |
| #30        | 43            |                |              |
| #40        | 39            |                |              |
| #50        | 34            |                |              |
| #100       | 25            |                |              |
| #200       | 17            |                |              |
| 0.0459 mm. | 15            |                |              |
| 0.0325 mm. | 15            |                |              |
| 0.0208 mm. | 14            |                |              |
| 0.0123 mm. | 12            |                |              |
| 0.0083 mm. | 10            |                |              |
| 0.0064 mm. | 8.4           |                |              |
| 0.0045 mm. | 7.6           |                |              |
| 0.0031 mm. | 6.7           |                |              |
| 0.0023 mm. | 5.9           |                |              |
| 0.0013 mm. | 5.7           |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 17.3646      D<sub>85</sub>= 11.9977      D<sub>60</sub>= 2.7623  
D<sub>50</sub>= 1.0535      D<sub>30</sub>= 0.2195      D<sub>15</sub>= 0.0483  
D<sub>10</sub>= 0.0085      C<sub>u</sub>= 326.08      C<sub>c</sub>= 2.06

**Classification**

USCS= SM      AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.66

\* (no specification provided)

**Location:** 5013-03-1/B-8 THRU B-9 BULK

**Date:** 12/14/21



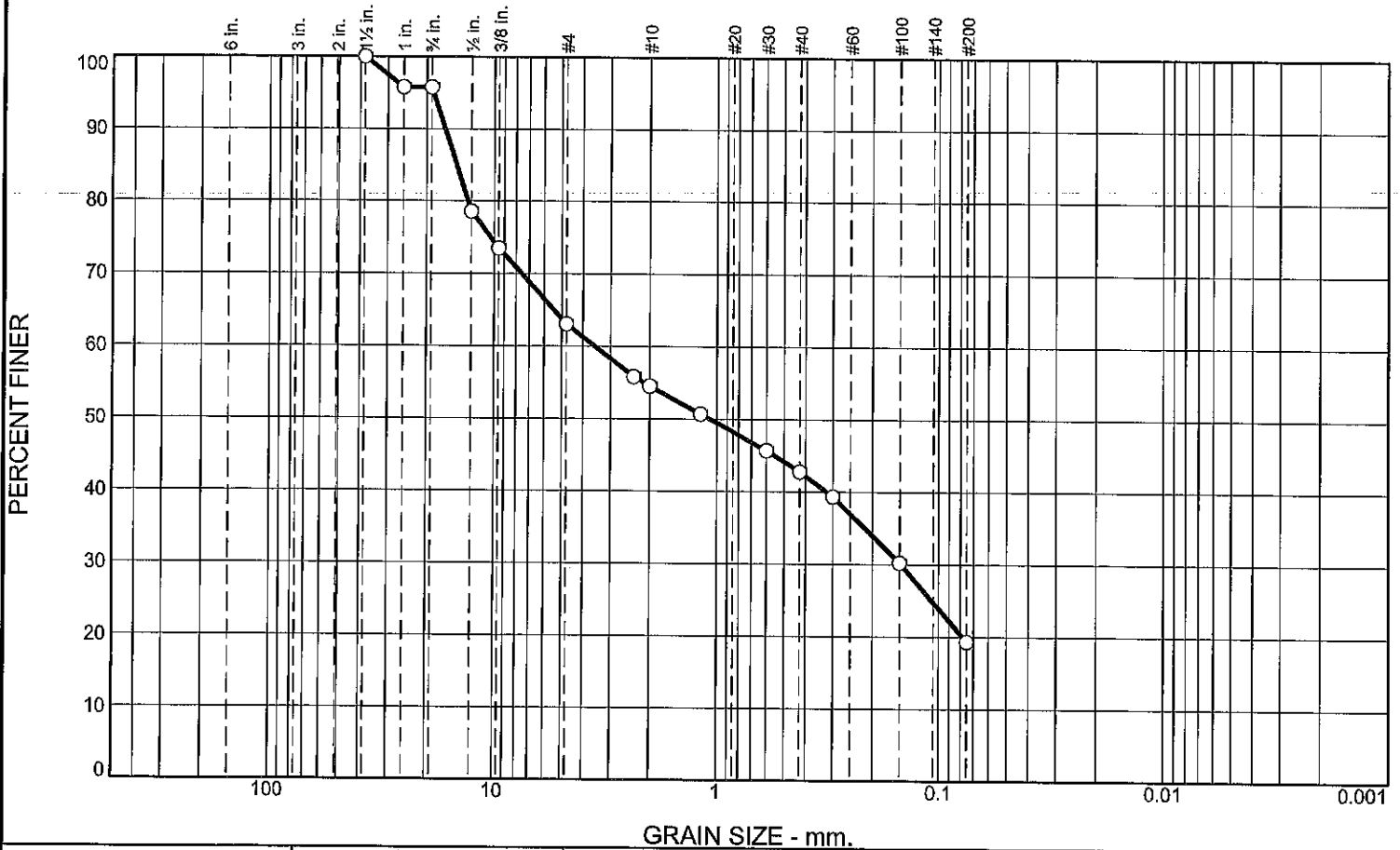
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 4        | 33   | 8      | 12     | 24   | 19      |      |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5        | 100           |                |              |
| 1          | 96            |                |              |
| .75        | 96            |                |              |
| .5         | 79            |                |              |
| .375       | 74            |                |              |
| #4         | 63            |                |              |
| #8         | 56            |                |              |
| #10        | 55            |                |              |
| #16        | 51            |                |              |
| #30        | 46            |                |              |
| #40        | 43            |                |              |
| #50        | 39            |                |              |
| #100       | 30            |                |              |
| #200       | 19            |                |              |

**Soil Description**

silty sand with gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 16.6191      D<sub>85</sub>= 14.7664      D<sub>60</sub>= 3.5410  
D<sub>50</sub>= 1.0775      D<sub>30</sub>= 0.1478      D<sub>15</sub>=  
D<sub>10</sub>=      C<sub>u</sub>=      C<sub>c</sub>=

**Classification**

USCS= SM      AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT

\* (no specification provided)

**Location:** 5013-03-1/B-01 A 1.0'

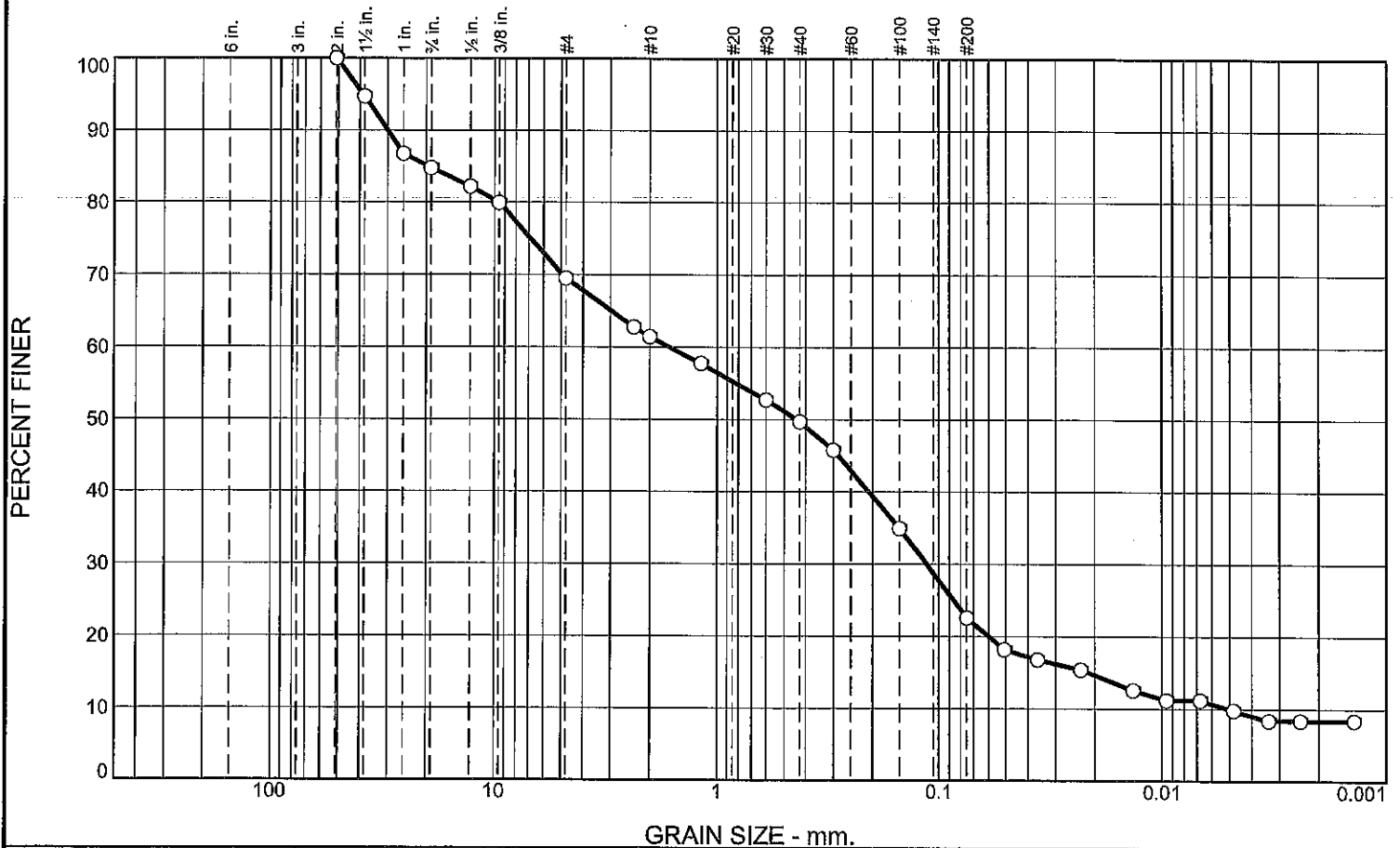
**Date:** 12/14/21

|  |  |  |               |
|--|--|--|---------------|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT<br><br><b>Project No:</b> R20215509C1 | <b>Figure</b> |
|--|--|--|---------------|

**Tested By:** A. SANDERS



# Particle Size Distribution Report



GRAIN SIZE - mm.

| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 15       | 15   | 9      | 11     | 27   | 13      | 10   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 2          | 100           |                |              |
| 1.5        | 95            |                |              |
| 1          | 87            |                |              |
| .75        | 85            |                |              |
| .5         | 82            |                |              |
| .375       | 80            |                |              |
| #4         | 70            |                |              |
| #8         | 63            |                |              |
| #10        | 61            |                |              |
| #16        | 58            |                |              |
| #30        | 53            |                |              |
| #40        | 50            |                |              |
| #50        | 46            |                |              |
| #100       | 35            |                |              |
| #200       | 23            |                |              |
| 0.0509 mm. | 18            |                |              |
| 0.0362 mm. | 17            |                |              |
| 0.0230 mm. | 15            |                |              |
| 0.0134 mm. | 13            |                |              |
| 0.0096 mm. | 11            |                |              |
| 0.0068 mm. | 11            |                |              |
| 0.0048 mm. | 9.8           |                |              |
| 0.0033 mm. | 8.4           |                |              |
| 0.0024 mm. | 8.4           |                |              |
| 0.0014 mm. | 8.4           |                |              |

\* (no specification provided)

**Soil Description**  
silty sand with gravel

**Atterberg Limits**  
 PL= NP      LL= NV      PI= NP

**Coefficients**  
 D<sub>90</sub>= 29.9590      D<sub>85</sub>= 19.6438      D<sub>60</sub>= 1.6340  
 D<sub>50</sub>= 0.4403      D<sub>30</sub>= 0.1138      D<sub>15</sub>= 0.0214  
 D<sub>10</sub>= 0.0051      C<sub>u</sub>= 321.09      C<sub>c</sub>= 1.56

**Classification**  
 USCS= SM      AASHTO= A-1-b

**Remarks**  
 SAMPLED BY: CLIENT  
 SPECIFIC GRAVITY=2.67

Location: 5013-03-1/B-02 A 1.0'

Date: 12/14/21



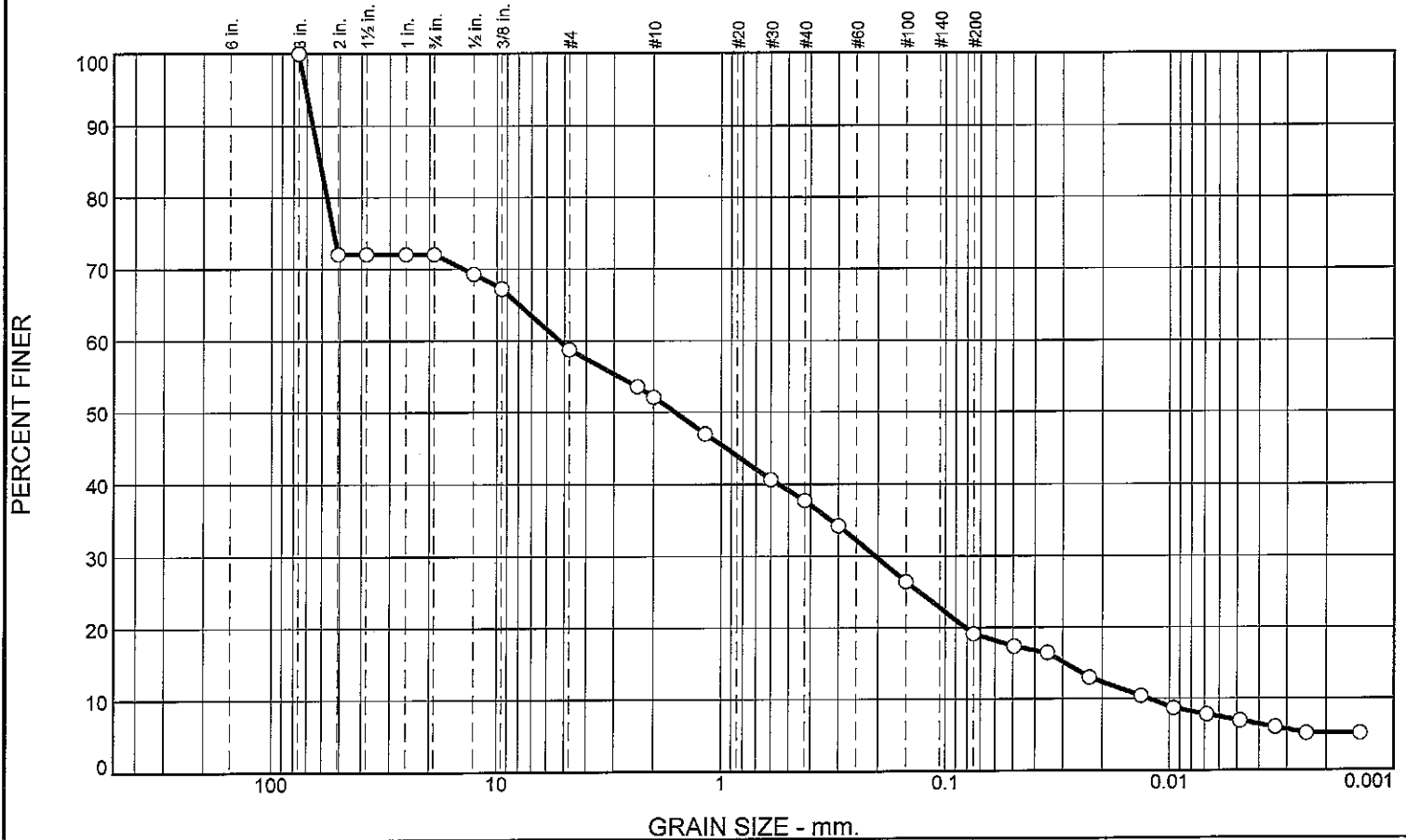
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 28       | 13   | 7      | 14     | 19   | 12      | 7    |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 3          | 100           |                |              |
| 2          | 72            |                |              |
| 1.5        | 72            |                |              |
| 1          | 72            |                |              |
| .75        | 72            |                |              |
| .5         | 69            |                |              |
| .375       | 67            |                |              |
| #4         | 59            |                |              |
| #8         | 54            |                |              |
| #10        | 52            |                |              |
| #16        | 47            |                |              |
| #30        | 41            |                |              |
| #40        | 38            |                |              |
| #50        | 34            |                |              |
| #100       | 26            |                |              |
| #200       | 19            |                |              |
| 0.0495 mm. | 17            |                |              |
| 0.0352 mm. | 16            |                |              |
| 0.0228 mm. | 13            |                |              |
| 0.0134 mm. | 10            |                |              |
| 0.0096 mm. | 8.7           |                |              |
| 0.0068 mm. | 7.8           |                |              |
| 0.0048 mm. | 6.9           |                |              |
| 0.0034 mm. | 6.0           |                |              |
| 0.0025 mm. | 5.2           |                |              |
| 0.0014 mm. | 5.2           |                |              |

\* (no specification provided)

**Soil Description**  
poorly graded sand with silt and gravel

**Atterberg Limits**  
 PL= NP      LL= NV      PI= NP

**Coefficients**  
 D<sub>90</sub>= 65.9017      D<sub>85</sub>= 61.2868      D<sub>60</sub>= 5.2384  
 D<sub>50</sub>= 1.6086      D<sub>30</sub>= 0.2057      D<sub>15</sub>= 0.0293  
 D<sub>10</sub>= 0.0124      C<sub>u</sub>= 421.07      C<sub>c</sub>= 0.65

**Classification**  
 USCS= GM      AASHTO= A-1-b

**Remarks**  
 SAMPLED BY: CLIENT  
 SPECIFIC GRAVITY=2.62

Location: 5013-03-1/B-03 A 1.0'

Date: 12/14/21



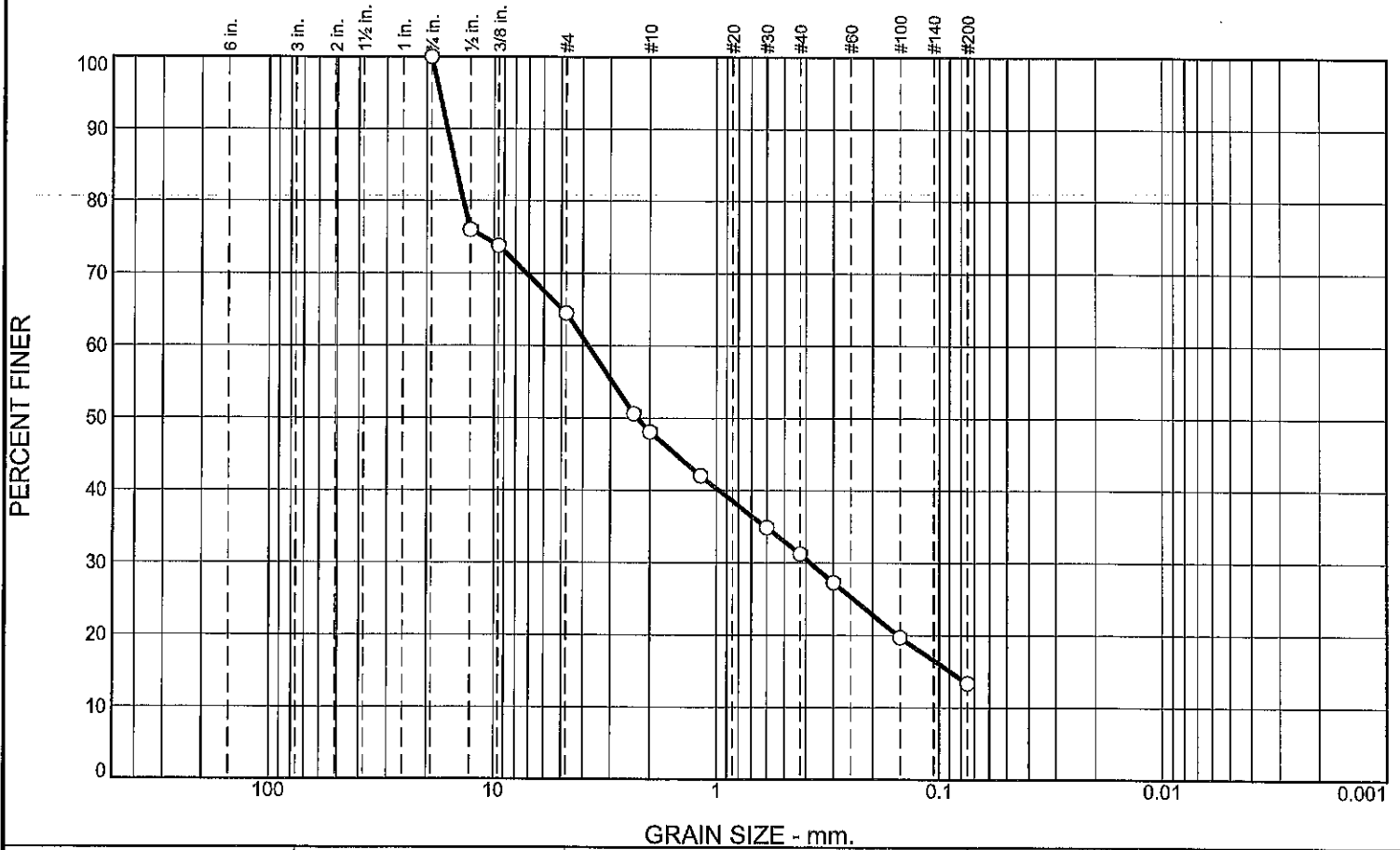
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

Client: Corestone Engineering  
 Project: Weed Airport Project

Project No: R20215509C1

Figure

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 0        | 35   | 17     | 17     | 18   | 13      |      |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75        | 100           |                |              |
| .5         | 76            |                |              |
| .375       | 74            |                |              |
| #4         | 65            |                |              |
| #8         | 51            |                |              |
| #10        | 48            |                |              |
| #16        | 42            |                |              |
| #30        | 35            |                |              |
| #40        | 31            |                |              |
| #50        | 27            |                |              |
| #100       | 20            |                |              |
| #200       | 13            |                |              |

**Soil Description**  
silty sand with gravel

**Atterberg Limits**  
 PL= NP      LL= NV      PI= NP

**Coefficients**  
 D<sub>90</sub>= 16.0854      D<sub>85</sub>= 14.7808      D<sub>60</sub>= 3.7877  
 D<sub>50</sub>= 2.2700      D<sub>30</sub>= 0.3814      D<sub>15</sub>= 0.0896  
 D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=


**Classification**  
 USCS= SM              AASHTO= A-1-b

**Remarks**  
 SAMPLED BY: CLIENT

\* (no specification provided)

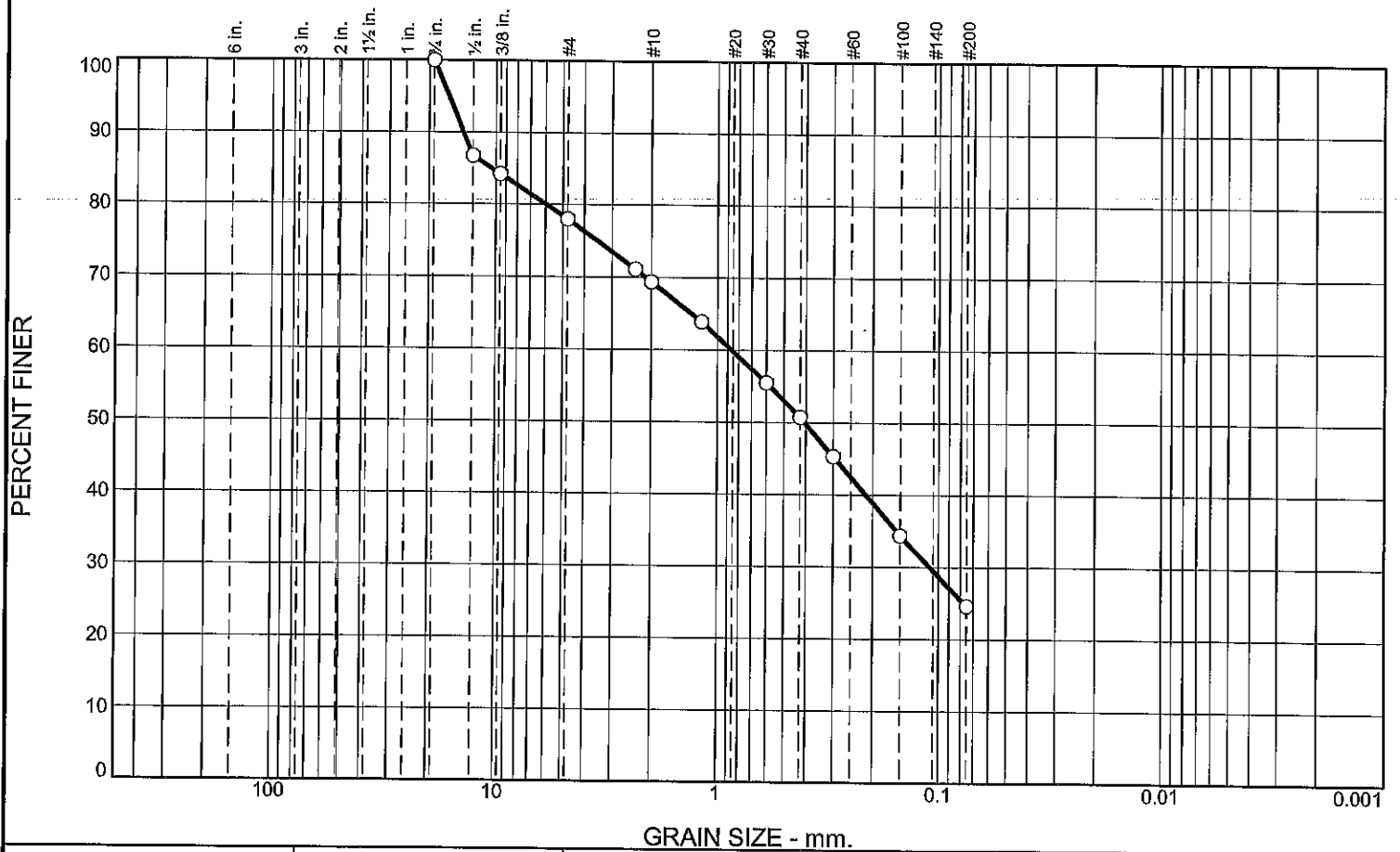
**Location:** 5013-03-1/B-04 A 1.0'

**Date:** 12/14/21

|   |  |  |               |
|---|--|--|---------------|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT<br><br><b>Project No:</b> R20215509C1 | <b>Figure</b> |
|---|--|--|---------------|

**Tested By:** A. SANDERS

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 0        | 22   | 9      | 18     | 26   | 25      |      |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75        | 100           |                |              |
| .5         | 87            |                |              |
| .375       | 84            |                |              |
| #4         | 78            |                |              |
| #8         | 71            |                |              |
| #10        | 69            |                |              |
| #16        | 64            |                |              |
| #30        | 55            |                |              |
| #40        | 51            |                |              |
| #50        | 45            |                |              |
| #100       | 34            |                |              |
| #200       | 25            |                |              |

**Soil Description**

silty sand with gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 14.0425      D<sub>85</sub>= 10.4122      D<sub>60</sub>= 0.8633  
D<sub>50</sub>= 0.4054      D<sub>30</sub>= 0.1098      D<sub>15</sub>=  
D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=

**Classification**

USCS= SM                      AASHTO= A-2-4(0)


**Remarks**

SAMPLED BY: CLIENT

\* (no specification provided)

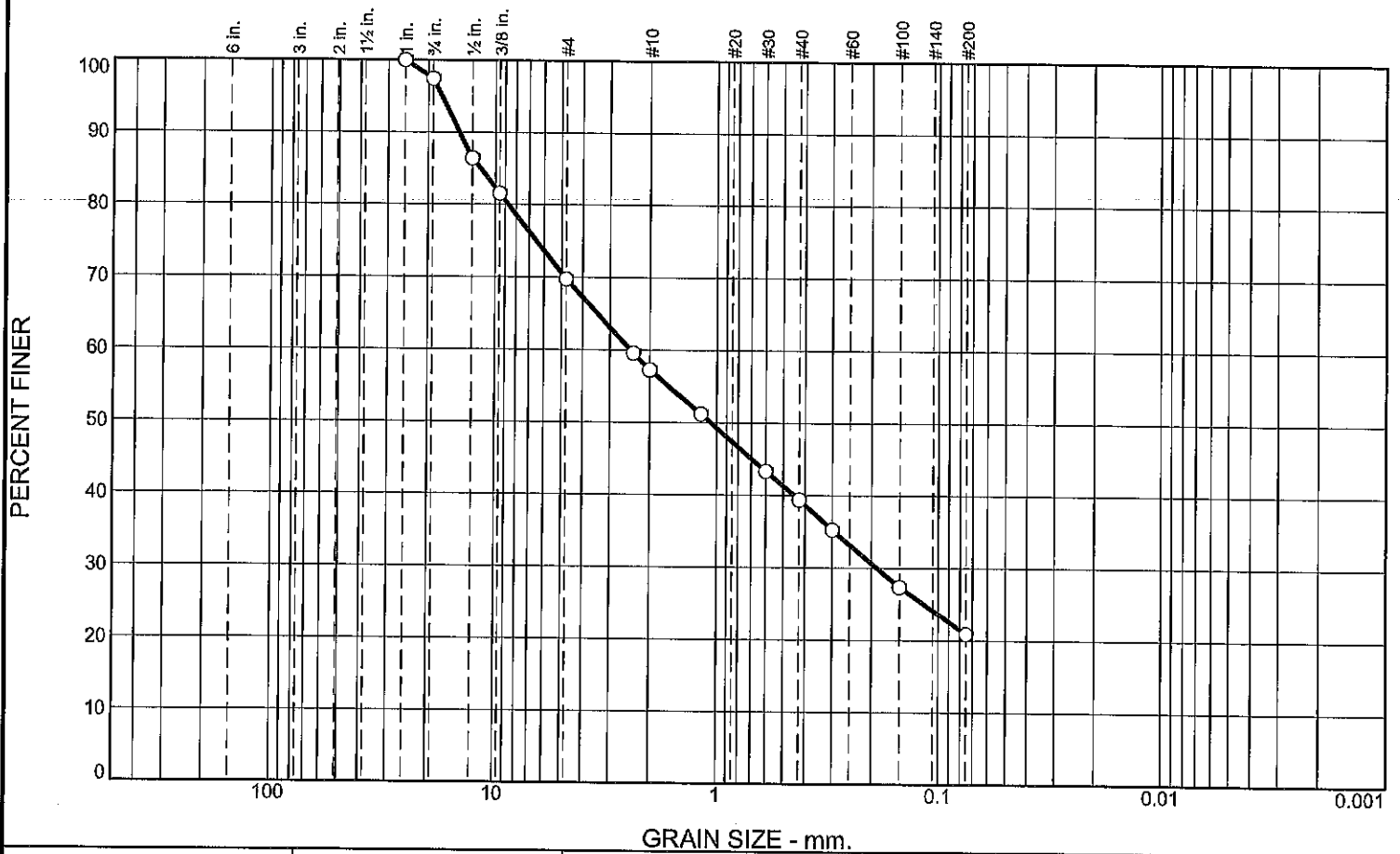
**Location:** 5013-03-1/B-04 B 3.5'

**Date:** 12/14/21

|   |  |  |   |
|---|--|--|---|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT | <b>Project No:</b> R20215509C1<br><b>Figure</b> |
|---|--|--|---|

**Tested By:** A. SANDERS

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 3        | 27   | 13     | 18     | 18   | 21      |      |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1          | 100           |                |              |
| .75        | 97            |                |              |
| .5         | 86            |                |              |
| .375       | 82            |                |              |
| #4         | 70            |                |              |
| #8         | 60            |                |              |
| #10        | 57            |                |              |
| #16        | 51            |                |              |
| #30        | 43            |                |              |
| #40        | 39            |                |              |
| #50        | 35            |                |              |
| #100       | 27            |                |              |
| #200       | 21            |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= 23      LL= 23      PI= NP

**Coefficients**

D<sub>90</sub>= 14.4926      D<sub>85</sub>= 11.6823      D<sub>60</sub>= 2.4299  
D<sub>50</sub>= 1.0674      D<sub>30</sub>= 0.1891      D<sub>15</sub>=  
D<sub>10</sub>=                  C<sub>u</sub>=                  C<sub>c</sub>=

**Classification**

USCS= SM                  AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT

\* (no specification provided)

**Location:** 5013-03-1/B-05 A 1.0'

**Date:** 12/14/21



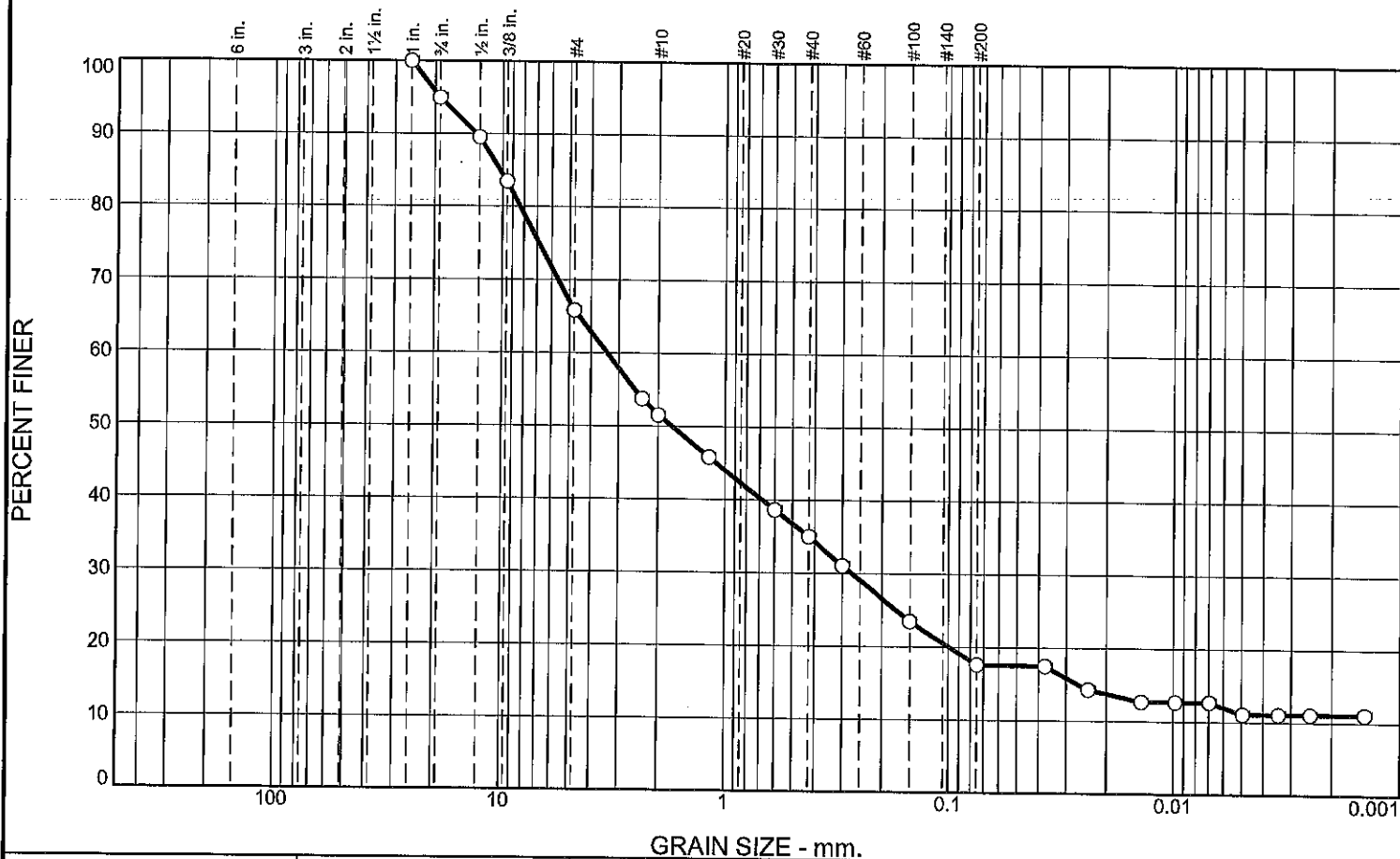
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 5        | 29   | 14     | 17     | 17   | 7       | 11   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1          | 100           |                |              |
| .75        | 95            |                |              |
| .5         | 90            |                |              |
| .375       | 83            |                |              |
| #4         | 66            |                |              |
| #8         | 54            |                |              |
| #10        | 52            |                |              |
| #16        | 46            |                |              |
| #30        | 39            |                |              |
| #40        | 35            |                |              |
| #50        | 31            |                |              |
| #100       | 23            |                |              |
| #200       | 18            |                |              |
| 0.0374 mm. | 17            |                |              |
| 0.0239 mm. | 14            |                |              |
| 0.0139 mm. | 13            |                |              |
| 0.0098 mm. | 13            |                |              |
| 0.0069 mm. | 13            |                |              |
| 0.0049 mm. | 11            |                |              |
| 0.0034 mm. | 11            |                |              |
| 0.0025 mm. | 11            |                |              |
| 0.0014 mm. | 11            |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= 21      LL= 23      PI= 2

**Coefficients**

D<sub>90</sub>= 13.1559      D<sub>85</sub>= 10.2575      D<sub>60</sub>= 3.3902  
D<sub>50</sub>= 1.7385      D<sub>30</sub>= 0.2727      D<sub>15</sub>= 0.0265  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= SM      AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.59

\* (no specification provided)

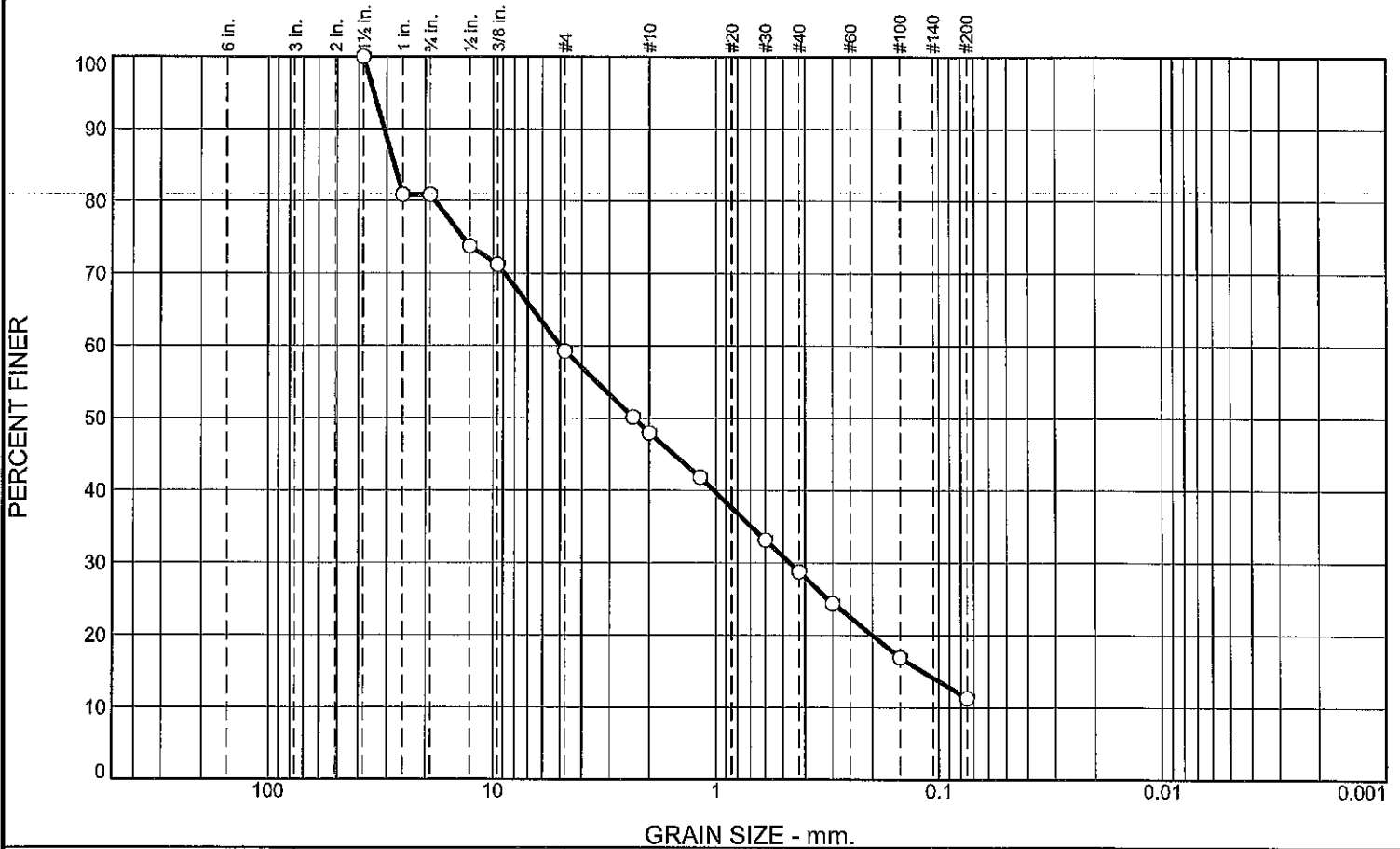
Location: 5013-03-1/B-06 A 1.0'

Date: 12/14/21

|  |  |  |               |
|--|--|--|---------------|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT |               |
|  |  | <b>Project No:</b> R20215509C1   | <b>Figure</b> |

Tested By: A. SANDERS

# Particle Size Distribution Report



GRAIN SIZE - mm.

| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 19       | 22   | 11     | 19     | 18   | 11      |      |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5        | 100           |                |              |
| 1          | 81            |                |              |
| .75        | 81            |                |              |
| .5         | 74            |                |              |
| .375       | 71            |                |              |
| #4         | 59            |                |              |
| #8         | 50            |                |              |
| #10        | 48            |                |              |
| #16        | 42            |                |              |
| #30        | 33            |                |              |
| #40        | 29            |                |              |
| #50        | 24            |                |              |
| #100       | 17            |                |              |
| #200       | 11            |                |              |

**Soil Description**

Poorly graded sand with silt and gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 30.8141      D<sub>85</sub>= 27.7116      D<sub>60</sub>= 4.9592  
D<sub>50</sub>= 2.3389      D<sub>30</sub>= 0.4686      D<sub>15</sub>= 0.1188  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= SP-SM      AASHTO= A-1-a

**Remarks**

SAMPLED BY: CLIENT

\* (no specification provided)

**Location:** 5013-03-1/B-06 B 3.5'

**Date:** 12/14/21



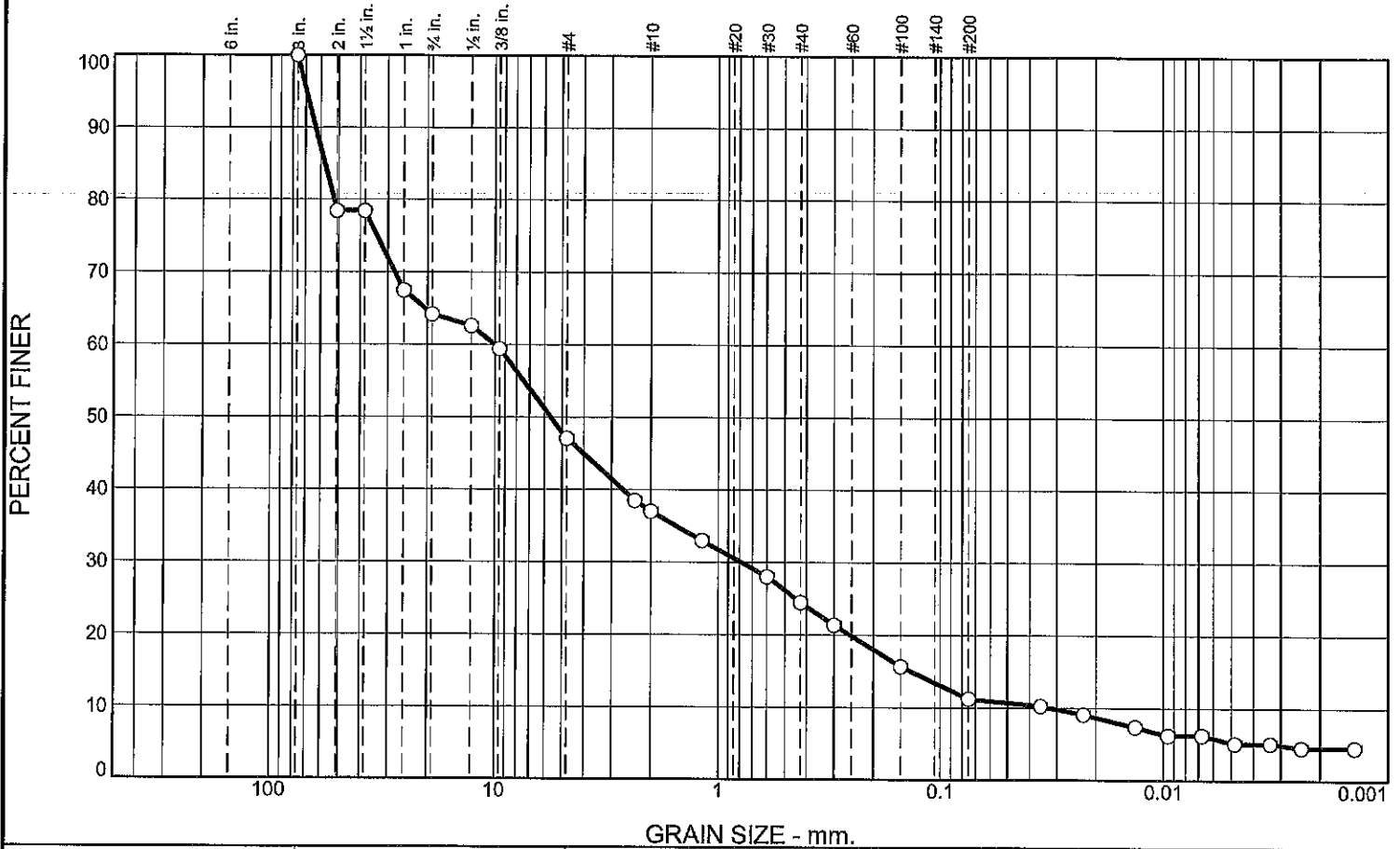
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 36       | 17   | 10     | 13     | 13   | 6       | 5    |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 3          | 100           |                |              |
| 2          | 78            |                |              |
| 1.5        | 78            |                |              |
| 1          | 67            |                |              |
| .75        | 64            |                |              |
| .5         | 63            |                |              |
| .375       | 59            |                |              |
| #4         | 47            |                |              |
| #8         | 38            |                |              |
| #10        | 37            |                |              |
| #16        | 33            |                |              |
| #30        | 28            |                |              |
| #40        | 24            |                |              |
| #50        | 21            |                |              |
| #100       | 16            |                |              |
| #200       | 11            |                |              |
| 0.0356 mm. | 10            |                |              |
| 0.028 mm.  | 9.1           |                |              |
| 0.0134 mm. | 7.4           |                |              |
| 0.0096 mm. | 6.2           |                |              |
| 0.0068 mm. | 6.2           |                |              |
| 0.0048 mm. | 5.1           |                |              |
| 0.0034 mm. | 5.1           |                |              |
| 0.0024 mm. | 4.5           |                |              |
| 0.0014 mm. | 4.5           |                |              |

**Soil Description**

Poorly graded gravel with silt and sand

**Atterberg Limits**

PL= 23      LL= 25      PI= 2

**Coefficients**

D<sub>90</sub>= 63.1408      D<sub>85</sub>= 57.4762      D<sub>60</sub>= 10.0400  
D<sub>50</sub>= 5.6099      D<sub>30</sub>= 0.7857      D<sub>15</sub>= 0.1353  
D<sub>10</sub>= 0.0325      C<sub>u</sub>= 308.47      C<sub>c</sub>= 1.89

**Classification**

USCS= GW-GM      AASHTO= A-1-a

**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.62

\* (no specification provided)

**Location:** 5013-03-1/B-07 A 1.0'

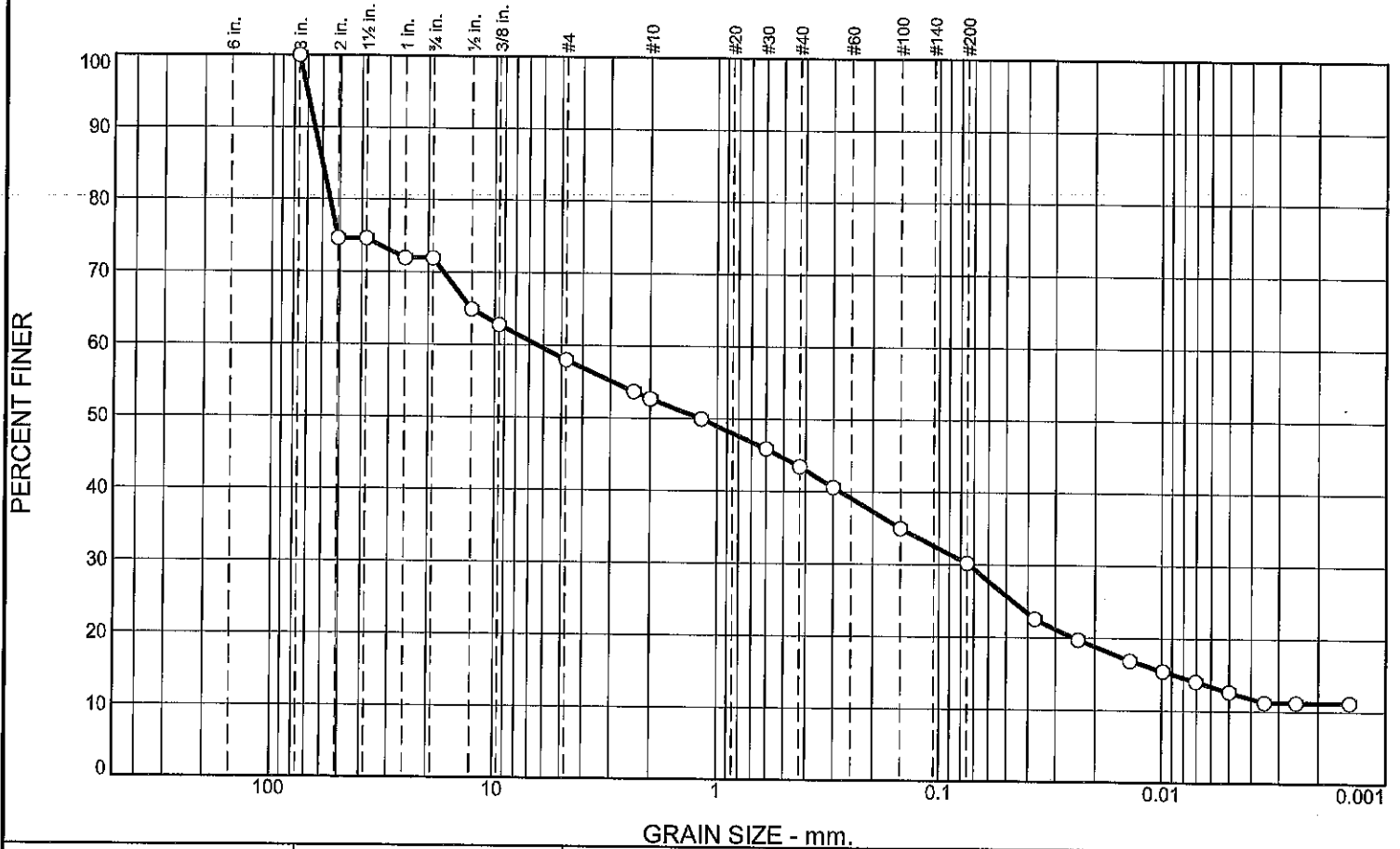
**Date:** 12/14/21

|  |  |  |               |
|--|--|--|---------------|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT |               |
|  |  | <b>Project No:</b> R20215509C1   | <b>Figure</b> |

Tested By: A. SANDERS



# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 28       | 14   | 5      | 10     | 13   | 17      | 13   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 3          | 100           |                |              |
| 2          | 75            |                |              |
| 1.5        | 75            |                |              |
| 1          | 72            |                |              |
| .75        | 72            |                |              |
| .5         | 65            |                |              |
| .375       | 63            |                |              |
| #4         | 58            |                |              |
| #8         | 54            |                |              |
| #10        | 53            |                |              |
| #16        | 50            |                |              |
| #30        | 46            |                |              |
| #40        | 43            |                |              |
| #50        | 41            |                |              |
| #100       | 35            |                |              |
| #200       | 30            |                |              |
| 0.0372 mm. | 23            |                |              |
| 0.0238 mm. | 20            |                |              |
| 0.0139 mm. | 17            |                |              |
| 0.0099 mm. | 15            |                |              |
| 0.0070 mm. | 14            |                |              |
| 0.0050 mm. | 13            |                |              |
| 0.0035 mm. | 11            |                |              |
| 0.0025 mm. | 11            |                |              |
| 0.0015 mm. | 11            |                |              |

**Soil Description**

Clayey gravel with sand

**Atterberg Limits**

PL= 18      LL= 31      PI= 13

**Coefficients**

D<sub>90</sub>= 64.9488      D<sub>85</sub>= 59.9624      D<sub>60</sub>= 6.3931  
D<sub>50</sub>= 1.1913      D<sub>30</sub>= 0.0737      D<sub>15</sub>= 0.0089  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= GC              AASHTO= A-2-6(0)

**Remarks**

Sampled by: client

\* (no specification provided)

Location: 5013-03-1/B-08 A 1.0'

Date: 12/15/21

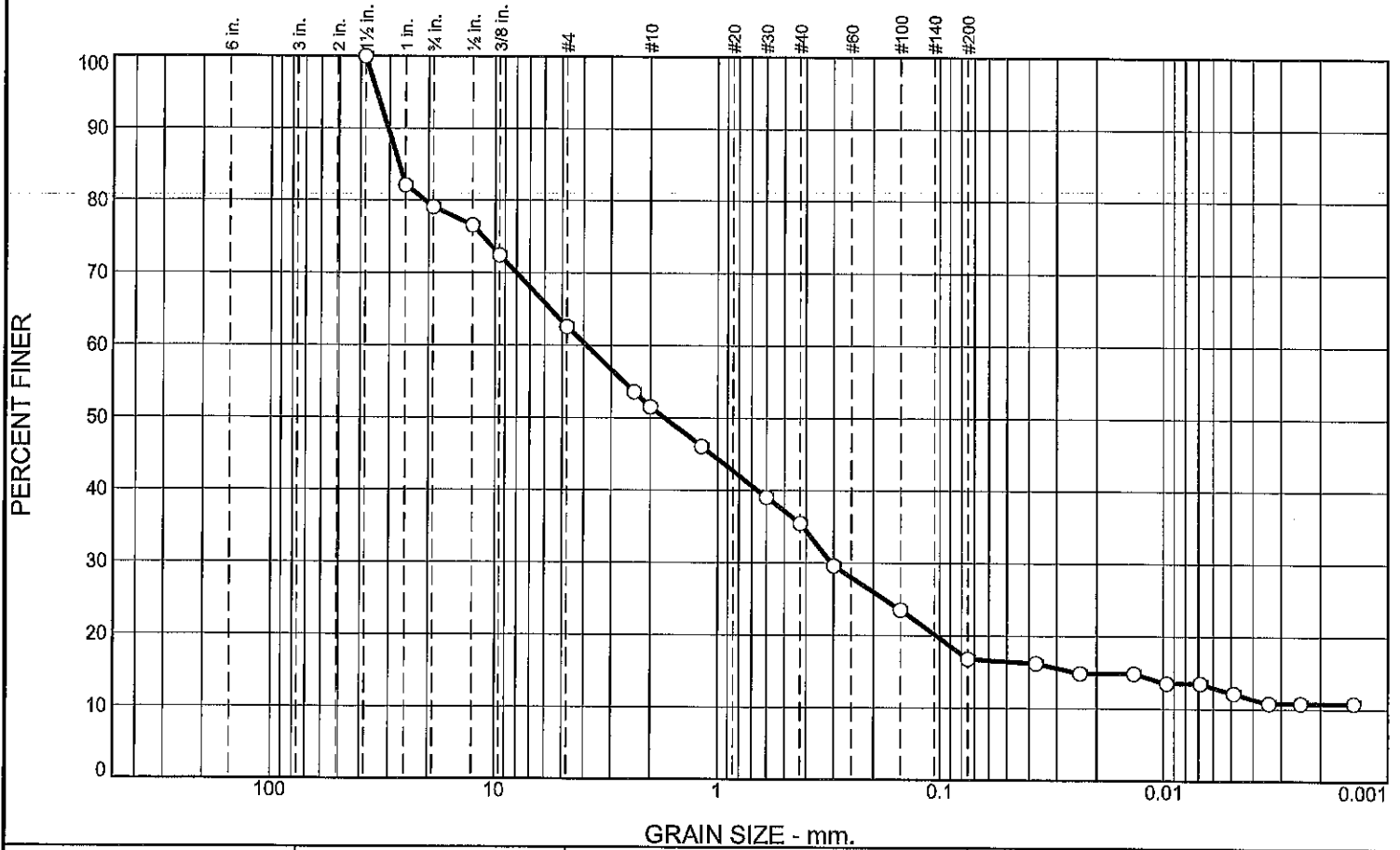
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 21       | 16   | 12     | 16     | 18   | 5       | 12   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5        | 100           |                |              |
| 1          | 82            |                |              |
| .75        | 79            |                |              |
| .5         | 77            |                |              |
| .375       | 72            |                |              |
| #4         | 63            |                |              |
| #8         | 54            |                |              |
| #10        | 51            |                |              |
| #16        | 46            |                |              |
| #30        | 39            |                |              |
| #40        | 35            |                |              |
| #50        | 30            |                |              |
| #100       | 24            |                |              |
| #200       | 17            |                |              |
| 0.0372 mm. | 16            |                |              |
| 0.0237 mm. | 15            |                |              |
| 0.0137 mm. | 15            |                |              |
| 0.0097 mm. | 13            |                |              |
| 0.0069 mm. | 13            |                |              |
| 0.0049 mm. | 12            |                |              |
| 0.0034 mm. | 11            |                |              |
| 0.0025 mm. | 11            |                |              |
| 0.0014 mm. | 11            |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 30.3625      D<sub>85</sub>= 27.1046      D<sub>60</sub>= 3.8880  
D<sub>50</sub>= 1.7293      D<sub>30</sub>= 0.3075      D<sub>15</sub>= 0.0249  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= SM              AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.59

\* (no specification provided)

**Location:** 5013-03-1/B-09 A 1.0'

**Date:** 10/14/21



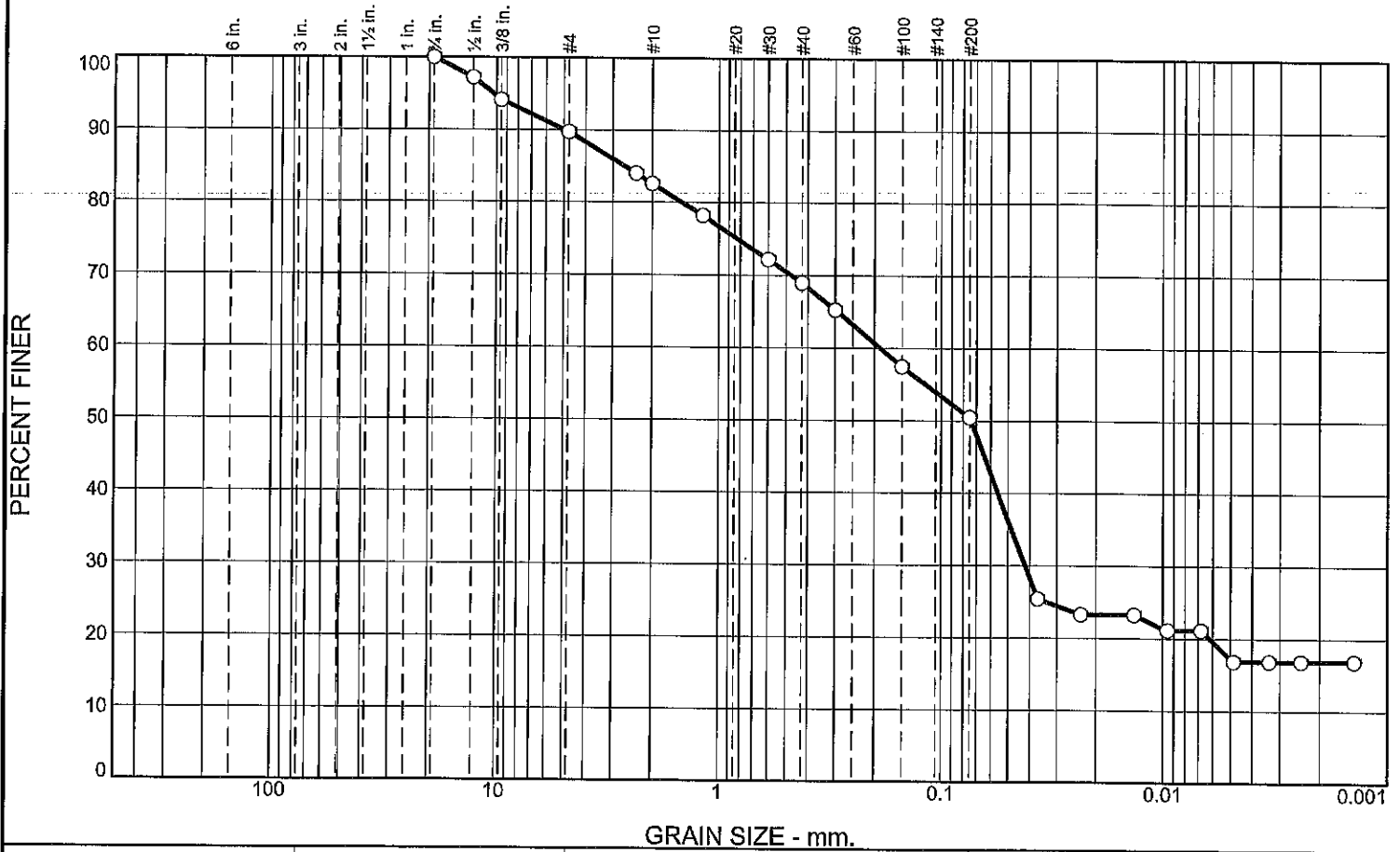
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 0        | 10   | 7      | 14     | 19   | 33      | 17   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75        | 100           |                |              |
| .5         | 97            |                |              |
| .375       | 94            |                |              |
| #4         | 90            |                |              |
| #8         | 84            |                |              |
| #10        | 83            |                |              |
| #16        | 78            |                |              |
| #30        | 72            |                |              |
| #40        | 69            |                |              |
| #50        | 65            |                |              |
| #100       | 57            |                |              |
| #200       | 50            |                |              |
| 0.0368 mm. | 25            |                |              |
| 0.0234 mm. | 23            |                |              |
| 0.0135 mm. | 23            |                |              |
| 0.0096 mm. | 21            |                |              |
| 0.0068 mm. | 21            |                |              |
| 0.0049 mm. | 17            |                |              |
| 0.0034 mm. | 17            |                |              |
| 0.0024 mm. | 17            |                |              |
| 0.0014 mm. | 17            |                |              |

**Soil Description**  
Sandy lean clay

**Atterberg Limits**  
 PL= 20      LL= 34      PI= 14

**Coefficients**  
 D<sub>90</sub>= 4.9689      D<sub>85</sub>= 2.6655      D<sub>60</sub>= 0.1882  
 D<sub>50</sub>= 0.0740      D<sub>30</sub>= 0.0419      D<sub>15</sub>=  
 D<sub>10</sub>=                      C<sub>u</sub>=                      C<sub>c</sub>=


**Classification**  
 USCS= CL                      AASHTO= A-6(4)

**Remarks**  
 SAMPLED BY: CLIENT  
 SPECIFIC GRAVITY=2.63

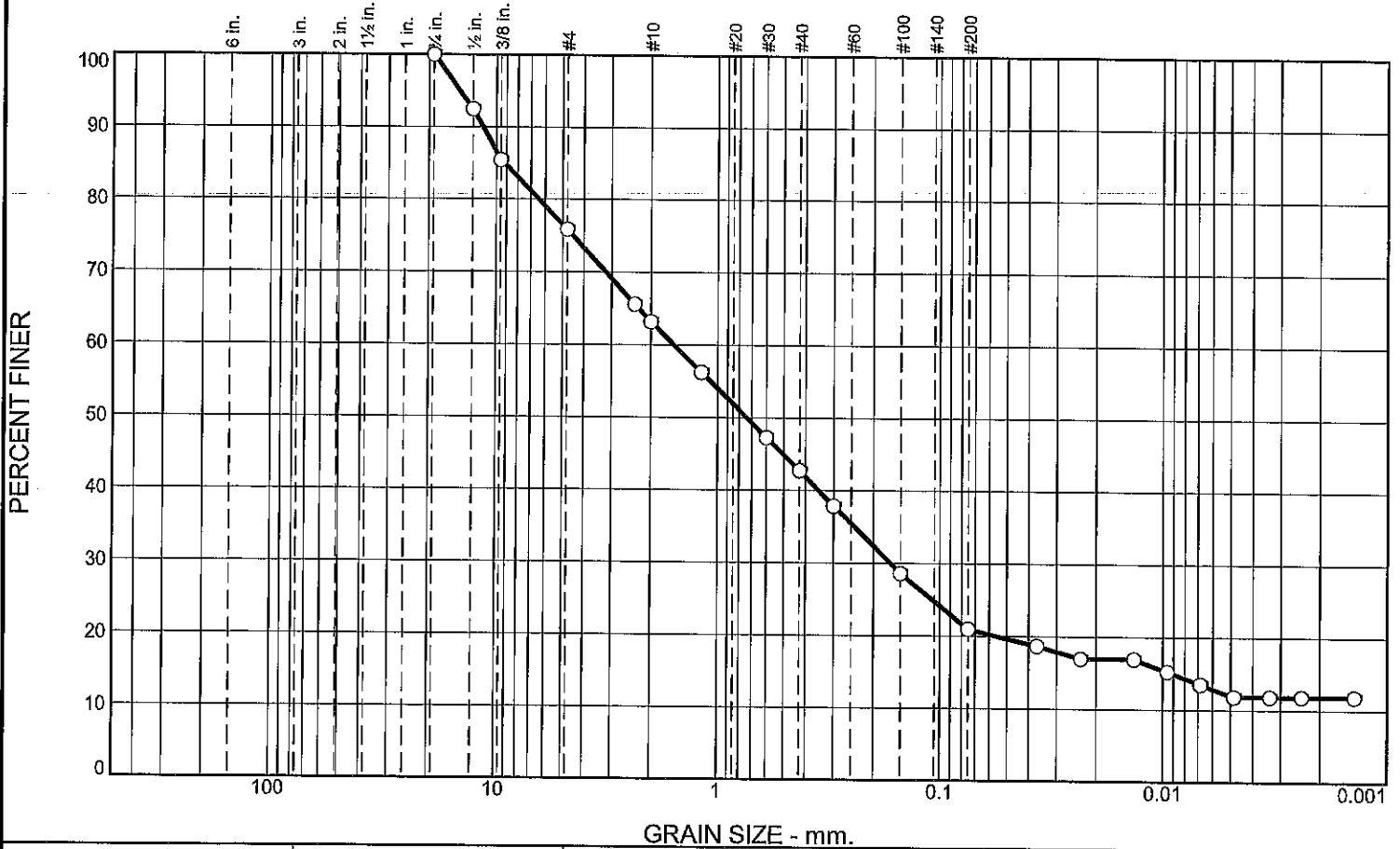
\* (no specification provided)

Location: 5013-03-1/B-10 A 1.0

Date:

|   |  |  |               |
|---|--|--|---------------|
|  | <b>GEOTECHNICAL &amp; ENVIRONMENTAL SERVICES, INC.</b> | <b>Client:</b> Corestone Engineering<br><b>Project:</b> WEED AIRPORT PROJECT<br><br><b>Project No:</b> R20215509C1 | <b>Figure</b> |
|---|--|--|---------------|

# Particle Size Distribution Report



GRAIN SIZE - mm.

| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 0        | 24   | 13     | 20     | 22   | 9       | 12   |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| .75        | 100           |                |              |
| .5         | 92            |                |              |
| .375       | 85            |                |              |
| #4         | 76            |                |              |
| #8         | 66            |                |              |
| #10        | 63            |                |              |
| #16        | 56            |                |              |
| #30        | 47            |                |              |
| #40        | 43            |                |              |
| #50        | 38            |                |              |
| #100       | 29            |                |              |
| #200       | 21            |                |              |
| 0.0367 mm. | 19            |                |              |
| 0.0234 mm. | 17            |                |              |
| 0.0135 mm. | 17            |                |              |
| 0.0096 mm. | 15            |                |              |
| 0.0068 mm. | 14            |                |              |
| 0.0049 mm. | 12            |                |              |
| 0.0034 mm. | 12            |                |              |
| 0.0024 mm. | 12            |                |              |
| 0.0014 mm. | 12            |                |              |

**Soil Description**

Silty sand with gravel

**Atterberg Limits**

PL= 28      LL= 30      PI= 2

**Coefficients**

D<sub>90</sub>= 11.4737      D<sub>85</sub>= 9.2198      D<sub>60</sub>= 1.5696  
D<sub>50</sub>= 0.7376      D<sub>30</sub>= 0.1667      D<sub>15</sub>= 0.0092  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= SM              AASHTO= A-1-b

**Remarks**

SAMPLED BY: CLIENT  
SPECIFIC GRAVITY=2.65

\* (no specification provided)

Location: 5013-03-1/B-11 A 1.0'

Date:



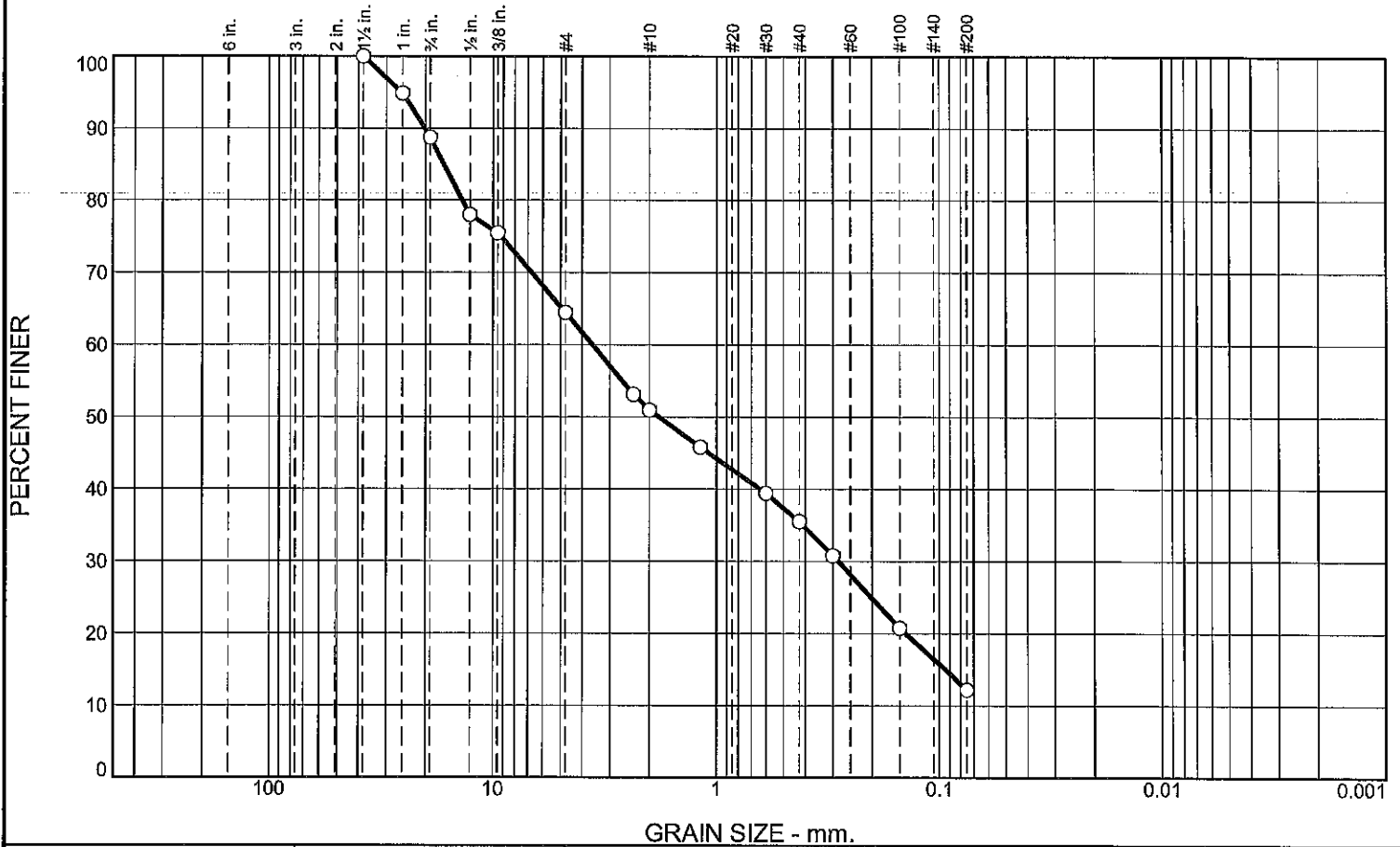
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Client: Corestone Engineering  
Project: WEED AIRPORT PROJECT

Project No: R20215509C1

Figure

# Particle Size Distribution Report



| % +3" | % Gravel |      | % Sand |        |      | % Fines |      |
|-------|----------|------|--------|--------|------|---------|------|
|       | Coarse   | Fine | Coarse | Medium | Fine | Silt    | Clay |
| 0     | 11       | 25   | 13     | 15     | 24   | 12      |      |

| SIEVE SIZE | PERCENT FINER | SPEC.* PERCENT | PASS? (X=NO) |
|------------|---------------|----------------|--------------|
| 1.5        | 100           |                |              |
| 1          | 95            |                |              |
| .75        | 89            |                |              |
| .5         | 78            |                |              |
| .375       | 76            |                |              |
| #4         | 64            |                |              |
| #8         | 53            |                |              |
| #10        | 51            |                |              |
| #16        | 46            |                |              |
| #30        | 39            |                |              |
| #40        | 36            |                |              |
| #50        | 31            |                |              |
| #100       | 21            |                |              |
| #200       | 12            |                |              |

**Soil Description**

Poorly graded sand with silt and gravel

**Atterberg Limits**

PL= NP      LL= NV      PI= NP

**Coefficients**

D<sub>90</sub>= 20.2243      D<sub>85</sub>= 16.5455      D<sub>60</sub>= 3.6043  
D<sub>50</sub>= 1.8164      D<sub>30</sub>= 0.2840      D<sub>15</sub>= 0.0943  
D<sub>10</sub>=              C<sub>u</sub>=              C<sub>c</sub>=

**Classification**

USCS= SP-SM      AASHTO= A-1-b

**Remarks**

Sampled by: Client

\* (no specification provided)

**Location:** 5013-03-1/B-12 A 1.0'

**Date:** 12/15/21



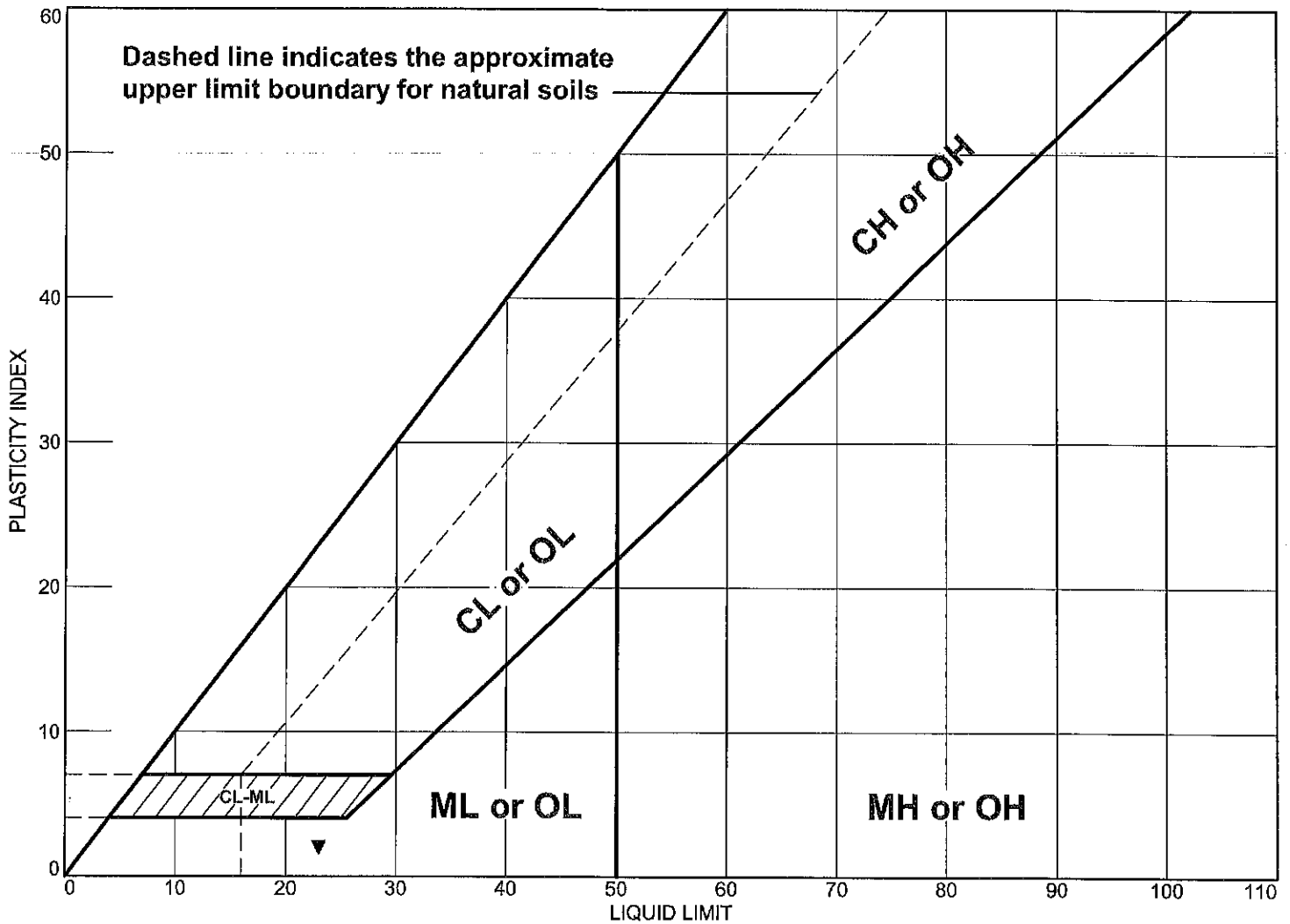
**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

**Project No:** R20215509C1

**Figure**


# LIQUID AND PLASTIC LIMITS TEST REPORT



|   | MATERIAL DESCRIPTION                    | LL | PL | PI | %<#40 | %<#200 | USCS |
|---|---|----|----|----|-------|--------|------|
| ● | poorly graded sand with silt and gravel | NV | NP | NP | 38    | 19     | GM   |
| ■ | silty sand with gravel                  | NV | NP | NP | 31    | 13     | SM   |
| ▲ | silty sand with gravel                  | NV | NP | NP | 51    | 25     | SM   |
| ◆ | Silty sand with gravel                  | 23 | 23 | NP | 39    | 21     | SM   |
| ▼ | Silty sand with gravel                  | 23 | 21 | 2  | 35    | 18     | SM   |

**Project No.** R20215509C1 **Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

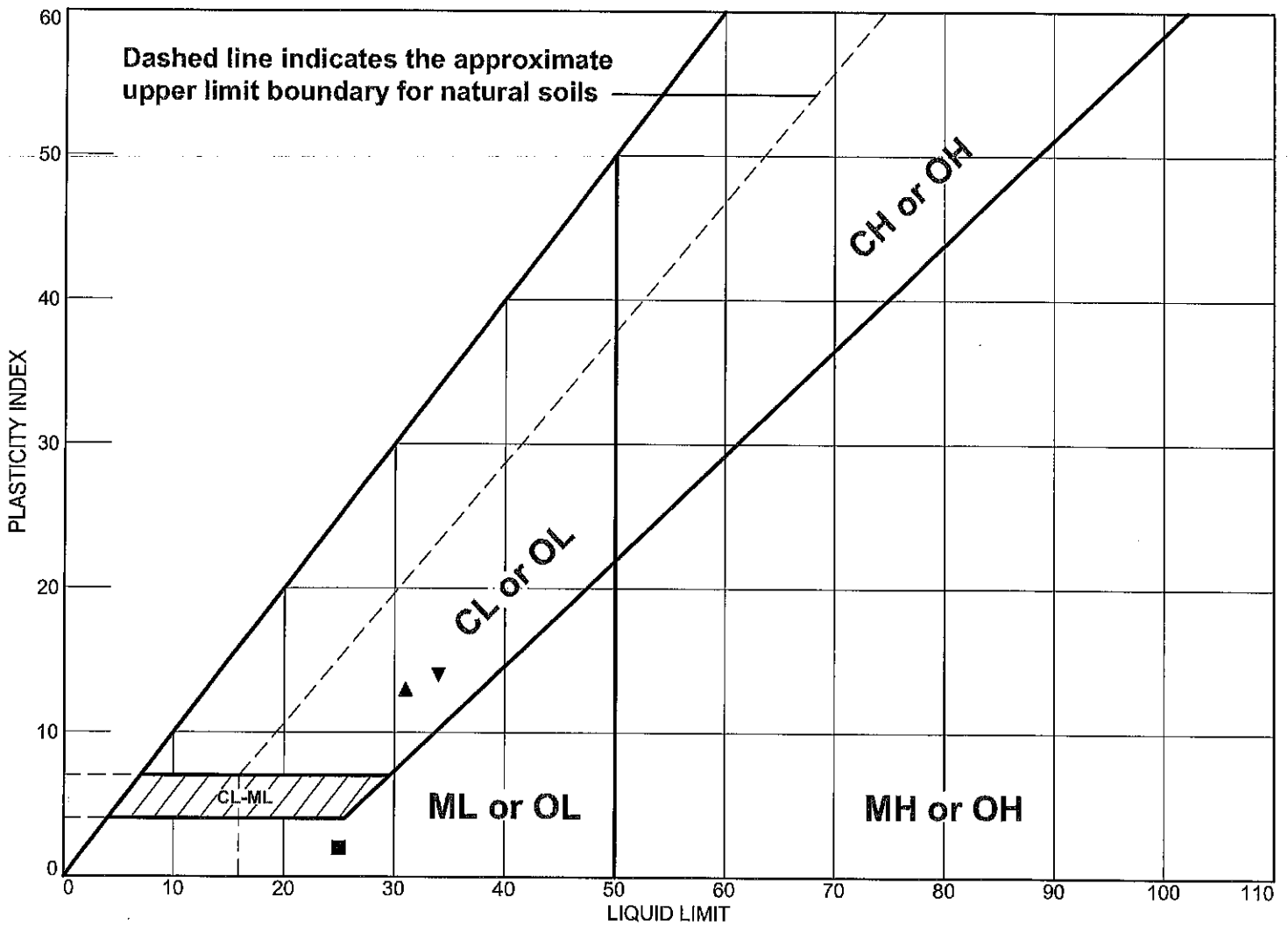
- **Location:** 5013-03-1/B-03 A 1.0'
- **Location:** 5013-03-1/B-04 A 1.0'
- ▲ **Location:** 5013-03-1/B-04 B 3.5'
- ◆ **Location:** 5013-03-1/B-05 A 1.0'
- ▼ **Location:** 5013-03-1/B-06 A 1.0'


**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Remarks:**

**Figure**

# LIQUID AND PLASTIC LIMITS TEST REPORT



|   | MATERIAL DESCRIPTION                    | LL | PL | PI | %<#40 | %<#200 | USCS  |
|---|---|----|----|----|-------|--------|-------|
| ● | Poorly graded sand with silt and gravel | NV | NP | NP | 29    | 11     | SP-SM |
| ■ | Poorly graded gravel with silt and sand | 25 | 23 | 2  | 24    | 11     | GW-GM |
| ▲ | Clayey gravel with sand                 | 31 | 18 | 13 | 43    | 30     | GC    |
| ◆ | Silty sand with gravel                  | NV | NP | NP | 35    | 17     | SM    |
| ▼ | Sandy lean clay                         | 34 | 20 | 14 | 69    | 50     | CL    |

**Project No.** R20215509C1 **Client:** Corestone Engineering

**Project:** WEED AIRPORT PROJECT

● **Location:** 5013-03-1/B-06 B 3.5'

■ **Location:** 5013-03-1/B-07 A 1.0'

▲ **Location:** 5013-03-1/B-08 A 1.0'

◆ **Location:** 5013-03-1/B-09 A 1.0'

▼ **Location:** 5013-03-1/B-10 A 1.0'

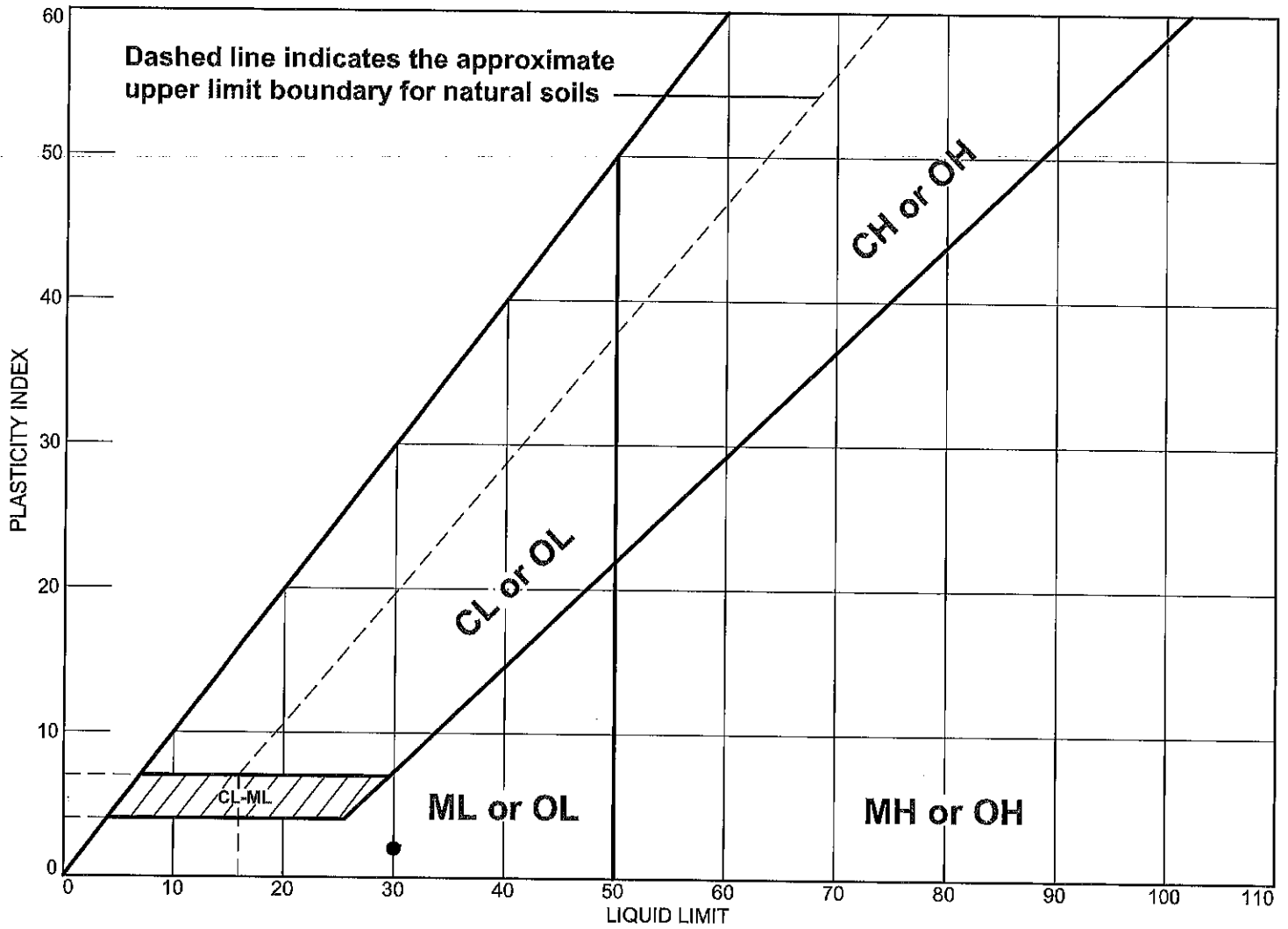
**Remarks:**



Figure

Tested By: ● A. Sanders ■ A. Sanders ▲ A. Sanders ◆ A. SANDERS ▼ A. SANDERS

# LIQUID AND PLASTIC LIMITS TEST REPORT



|   | MATERIAL DESCRIPTION                    | LL | PL | PI | %<#40 | %<#200 | USCS  |
|---|---|----|----|----|-------|--------|-------|
| ● | Silty sand with gravel                  | 30 | 28 | 2  | 43    | 21     | SM    |
| ■ | Poorly graded sand with silt and gravel | NV | NP | NP | 36    | 12     | SP-SM |
|   |   |    |    |    |       |        |       |
|   |   |    |    |    |       |        |       |
|   |   |    |    |    |       |        |       |

**Project No.** R20215509C1 **Client:** Corestone Engineering  
**Project:** WEED AIRPORT PROJECT

● **Location:** 5013-03-1/B-11 A 1.0'  
 ■ **Location:** 5013-03-1/B-12 A 1.0'

**Remarks:**



Figure





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Las Vegas, NV 89119  
(702) 365-1001

**Moisture/Density Log - Sample Rings**

| Project Name: WEED AIRPORT PROJECT      |         |         |                       |         | Lab No.: 21-148 |                |         |         |
|---|---------|---------|-----------------------|---------|-----------------|----------------|---------|---------|
| Project No.: R20215509C1                |         |         | Tested By: A. Sanders |         |                 | Date: 10/14/21 |         |         |
| Sample                                  | B-01    | B-02    | B-03                  | B-05    | B-06            | B-07           | B-08    | B-09    |
| Depth                                   | A 1.0'  | A 1.0'  | A 1.0'                | A 1.0'  | A 1.0'          | A 1.0'         | A 1.0'  | A 1.0'  |
| Soil Description:<br>Remarks/Condition: |         |         |                       |         |                 |                |         |         |
| Length (in)                             | 5.5     | 6       | 6                     | 6       | 6               | 6              | 5       | 5       |
| Tube + Wet Soil (gm)                    | 1020.00 | 1073.00 | 1114.20               | 1098.70 | 1077.92         | 1130.72        | 1010.84 | 1011.25 |
| Tube (gm)                               | 231.00  | 252.00  | 252.00                | 252.00  | 252.00          | 252.00         | 210.00  | 210.00  |
| Wet Soil (gm)                           | 789.00  | 821.00  | 862.20                | 846.70  | 825.92          | 878.72         | 800.84  | 801.25  |
| Volume (ft <sup>3</sup> )               | 0.0144  | 0.0157  | 0.0157                | 0.0157  | 0.0157          | 0.0157         | 0.0131  | 0.0131  |
| Wet Density lbs/ft <sup>3</sup>         | 120.8   | 115.2   | 121.0                 | 118.8   | 115.9           | 123.3          | 134.9   | 134.9   |
| Tare + Wet Soil (gm)                    | 481.20  | 316.20  | 696.30                | 557.03  | 511.48          | 429.81         | 565.43  | 948.55  |
| Tare + Dry Soil (gm)                    | 461.70  | 304.90  | 691.60                | 499.07  | 485.76          | 403.92         | 503.82  | 866.10  |
| Water Loss (gm)                         | 19.50   | 11.30   | 4.70                  | 57.96   | 25.72           | 25.89          | 61.61   | 82.45   |
| Tare Weight (gm)                        | 153.00  | 153.30  | 152.60                | 150.58  | 153.05          | 154.08         | 151.07  | 152.36  |
| Wt. Dry Soil (gm)                       | 308.70  | 151.60  | 539.00                | 348.49  | 332.71          | 249.84         | 352.75  | 713.74  |
| Moisture Content (%)                    | 6.3     | 7.5     | 0.9                   | 16.6    | 7.7             | 10.4           | 17.5    | 11.6    |
| Dry Density (lbs/ft <sup>3</sup> )      | 113.6   | 107.2   | 120.0                 | 101.9   | 107.6           | 111.7          | 114.8   | 121.0   |



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(702) 365-1001

**Moisture/Density Log - Sample Rings**

|   |         |         |                              |                        |  |                       |  |
|---|---------|---------|------------------------------|------------------------|--|-----------------------|--|
| <b>Project Name:</b> WEED AIRPORT PROJECT |         |         |                              | <b>Lab No.:</b> 21-148 |  |                       |  |
| <b>Project No.:</b> R20215509C1           |         |         | <b>Tested By:</b> A. Sanders |                        |  | <b>Date:</b> 10/14/21 |  |
| Sample                                    | B-10    | B-11    |                              |                        |  |                       |  |
| Depth                                     | A 1.0'  | A 4.0'  |                              |                        |  |                       |  |
| Soil Description:<br>Remarks/Condition:   |         |         |                              |                        |  |                       |  |
| Length (in)                               | 5       | 6       |                              |                        |  |                       |  |
| Tube + Wet Soil (gm)                      | 1061.10 | 1074.06 |                              |                        |  |                       |  |
| Tube (gm)                                 | 210.00  | 252.00  |                              |                        |  |                       |  |
| Wet Soil (gm)                             | 851.10  | 822.06  |                              |                        |  |                       |  |
| Volume (ft³)                              | 0.0131  | 0.0157  |                              |                        |  |                       |  |
| Wet Density lbs/ft³                       | 143.3   | 115.4   |                              |                        |  |                       |  |
| Tare + Wet Soil (gm)                      |         |         |                              |                        |  |                       |  |
| Tare + Wet Soil (gm)                      | 542.73  | 340.24  |                              |                        |  |                       |  |
| Tare + Dry Soil (gm)                      | 478.40  | 317.10  |                              |                        |  |                       |  |
| Water Loss (gm)                           | 64.33   | 23.14   |                              |                        |  |                       |  |
| Tare Weight (gm)                          | 152.96  | 153.38  |                              |                        |  |                       |  |
| Wt. Dry Soil (gm)                         | 325.44  | 163.72  |                              |                        |  |                       |  |
| Moisture Content (%)                      |         |         |                              |                        |  |                       |  |
| Moisture Content (%)                      | 19.8    | 14.1    |                              |                        |  |                       |  |
| Dry Density (lbs/ft³)                     |         |         |                              |                        |  |                       |  |
| Dry Density (lbs/ft³)                     | 119.7   | 101.1   |                              |                        |  |                       |  |



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### Moisture Content Log

**Project Name:** WEED AIRPORT PROJECT

**Lab No.:** 21-148

**Project No.:** R20215509C1

**Tested By:** A. Sanders

**Date:** 10/14/2021

|                | Sample: | B-01   | B-02   | B-03   | B-04   | B-04   | B-05   |
|----------------|---------|--------|--------|--------|--------|--------|--------|
|                | Depth:  | A 1.0' | A 1.0' | A 1.0' | A 1.0' | B 3.5' | A 1.0' |
| WET WT. + TARE |         | 481.20 | 316.20 | 696.30 | 526.50 | 636.60 | 760.33 |
| DRY WT. + TARE |         | 461.70 | 304.90 | 691.60 | 494.30 | 589.50 | 723.37 |
| TARE WT.       |         | 153.00 | 153.30 | 152.60 | 155.00 | 155.00 | 151.02 |
| DRY WT.        |         | 308.70 | 151.60 | 539.00 | 339.30 | 434.50 | 572.35 |
| WEIGHT LOST    |         | 19.50  | 11.30  | 4.70   | 32.20  | 47.10  | 36.96  |
| % MOISTURE     |         | 6.3    | 7.5    | 0.9    | 9.5    | 10.8   | 6.5    |

**Remarks/Condition:** \_\_\_\_\_

\_\_\_\_\_



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Las Vegas, NV 89119  
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### Moisture Content Log

**Project Name:** WEED AIRPORT PROJECT

**Lab No.:** 21-148

**Project No.:** R20215509C1

**Tested By:** A. Sanders

**Date:** 10/14/2021

|                | Sample: | B-06   | B-06    | B-07   | B-08   | B-09   | B-10   |
|----------------|---------|--------|---------|--------|--------|--------|--------|
|                | Depth:  | A 1.0' | B 3.5'  | A 1.0' | A 1.0' | A 1.0' | A 1.0' |
| WET WT. + TARE |         | 537.83 | 1143.40 | 433.47 | 565.43 | 948.55 | 542.73 |
| DRY WT. + TARE |         | 512.43 | 1101.20 | 410.97 | 503.82 | 866.10 | 478.40 |
| TARE WT.       |         | 152.69 | 379.80  | 153.62 | 151.07 | 152.36 | 152.96 |
| DRY WT.        |         | 359.74 | 721.40  | 257.35 | 352.75 | 713.74 | 325.44 |
| WEIGHT LOST    |         | 25.40  | 42.20   | 22.50  | 61.61  | 82.45  | 64.33  |
| % MOISTURE     |         | 7.1    | 5.8     | 8.7    | 17.5   | 11.6   | 19.8   |

**Remarks/Condition:** \_\_\_\_\_  
\_\_\_\_\_



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(702) 365-1001

### Moisture Content Log

**Project Name:** WEED AIRPORT PROJECT

**Lab No.:** 21-148

**Project No.:** R20215509C1

**Tested By:** A. Sanders

**Date:** 10/14/2021

| Sample:        | B-11   | B-12    | B-01&B-02 | B-05&B-10 | B-08&B-09 |  |
|----------------|--------|---------|-----------|-----------|-----------|--|
| Depth:         | A 1.0' | A 1.0'  |           |           |           |  |
|                |        |         |           |           |           |  |
| WET WT. + TARE | 340.24 | 1065.00 | 434.40    | 403.80    | 414.30    |  |
| DRY WT. + TARE | 317.10 | 993.60  | 397.40    | 385.40    | 374.00    |  |
| TARE WT.       | 153.38 | 380.21  | 126.50    | 134.80    | 127.40    |  |
| DRY WT.        | 163.72 | 613.39  | 270.90    | 250.60    | 246.60    |  |
| WEIGHT LOST    | 23.14  | 71.40   | 37.00     | 18.40     | 40.30     |  |
| % MOISTURE     | 14.1   | 11.6    | 13.7      | 7.3       | 16.3      |  |

**Remarks/Condition:** \_\_\_\_\_

\_\_\_\_\_

## APPENDIX B

# MOISTURE-DENSITY RELATIONSHIP TEST RESULTS

# COMPACTION TEST REPORT

**Project No.:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Client:** Corestone Engineering  
**Location:** 5013-03-1/B-1 THRU B-2 BULK

**Date:** 12/14/21

**Remarks:**

## MATERIAL DESCRIPTION

**Description:** Silty sand with gravel

**Classifications -**

**USCS:** SM

**AASHTO:** A-1-b

**Nat. Moist. =**

**Sp.G. =** 2.110

**Liquid Limit =** NV

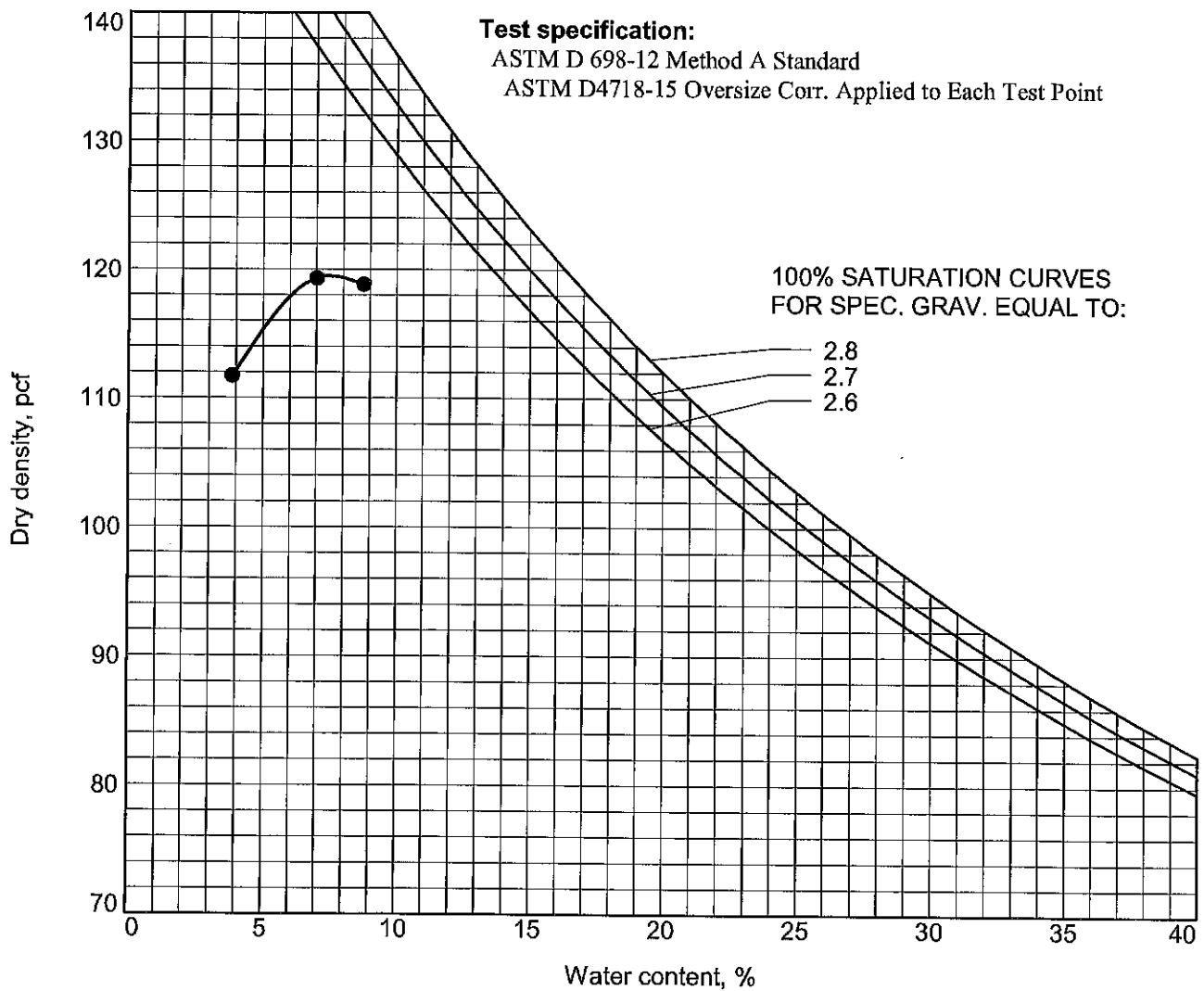
**Plasticity Index =** NP

**% < No.200 =** 23 %

## ROCK CORRECTED TEST RESULTS

Maximum dry density = 119.5 pcf

Optimum moisture = 7.5 %



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Figure

Tested By: D. YOON

# COMPACTION TEST REPORT

Project No.: R20215509C1

Date: 12/14/21

Project: WEED AIRPORT PROJECT

Client: Corestone Engineering

Location: 5013-03-1/B-5 AND B-10 BULK

Remarks:

## MATERIAL DESCRIPTION

Description: Silty sand with gravel

Classifications -

USCS: SM

AASHTO: A-1-b

Nat. Moist. =

Sp.G. = 2.343

Liquid Limit = NV

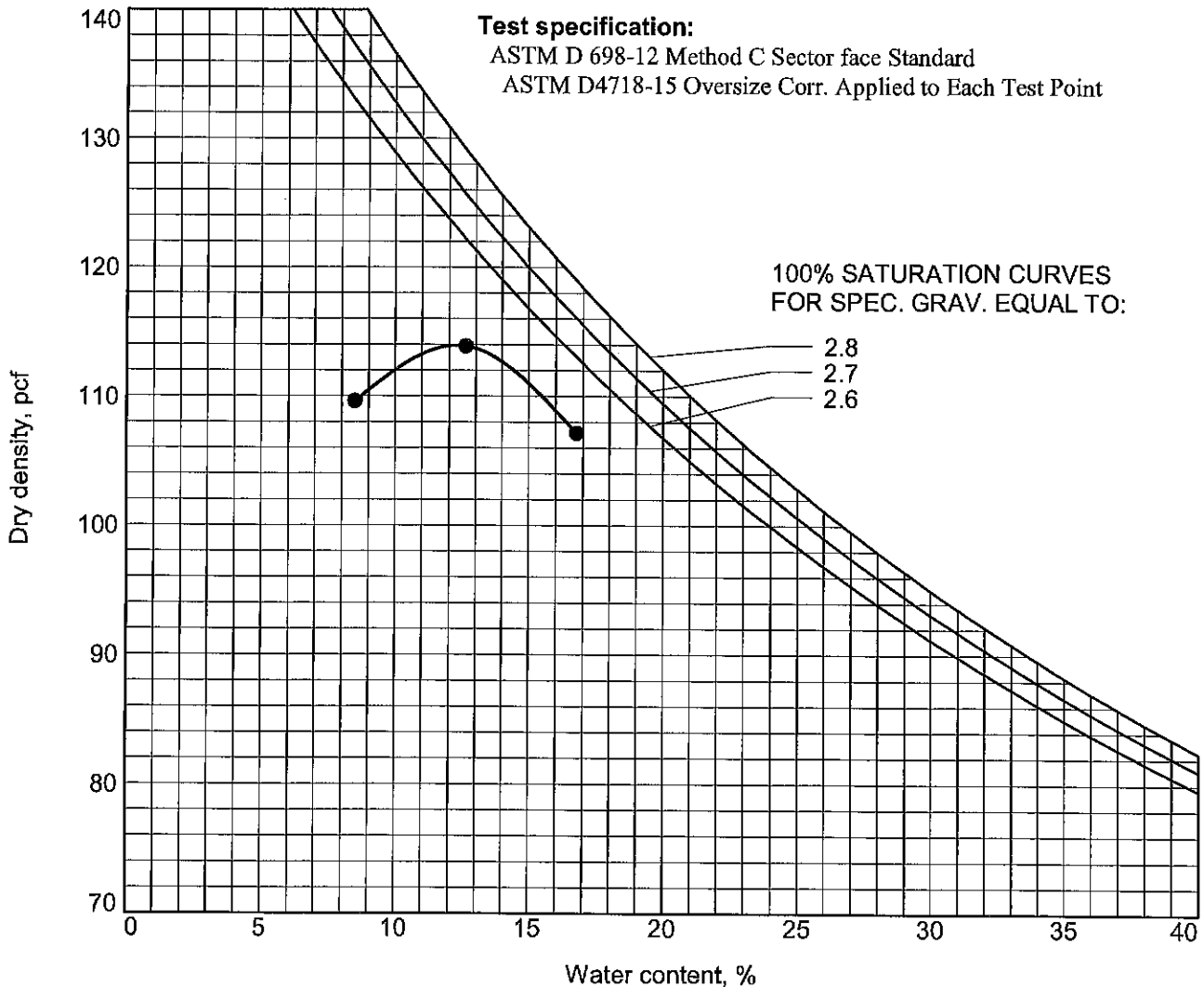
Plasticity Index = NP

% < No.200 = 18 %

## ROCK CORRECTED TEST RESULTS

Maximum dry density = 113.9 pcf

Optimum moisture = 12.3 %



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

Figure

Tested By: D. YOON



# COMPACTION TEST REPORT

**Project No.:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Client:** Corestone Engineering  
**Location:** 5013-03-1/B-8 THRU B-9 BULK

**Date:** 10/14/21

**Remarks:**

## MATERIAL DESCRIPTION

**Description:** Silty sand with gravel

**Classifications -**

**USCS:** SM

**AASHTO:** A-1-b

**Nat. Moist. =**

**Sp.G. =** 2.343

**Liquid Limit =** NV

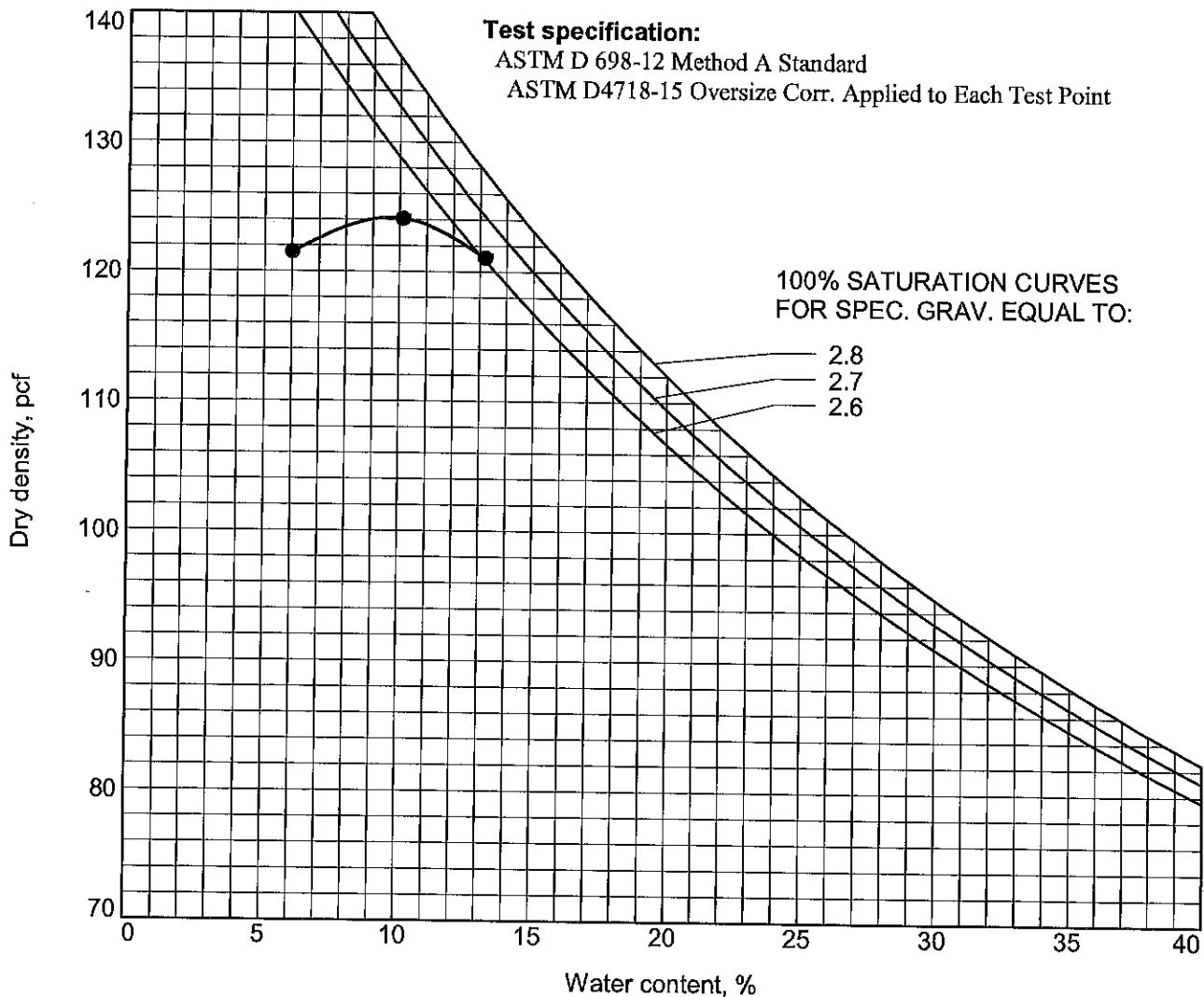
**Plasticity Index =** NP

**% < No.200 =** 17 %

## ROCK CORRECTED TEST RESULTS

Maximum dry density = 124.2 pcf

Optimum moisture = 9.7 %



GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.

Figure

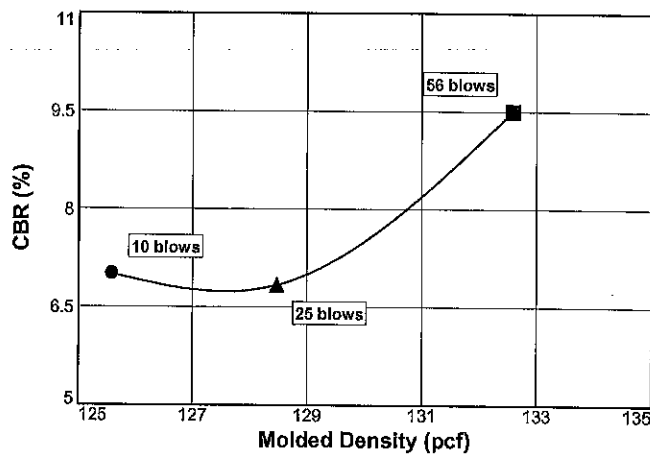
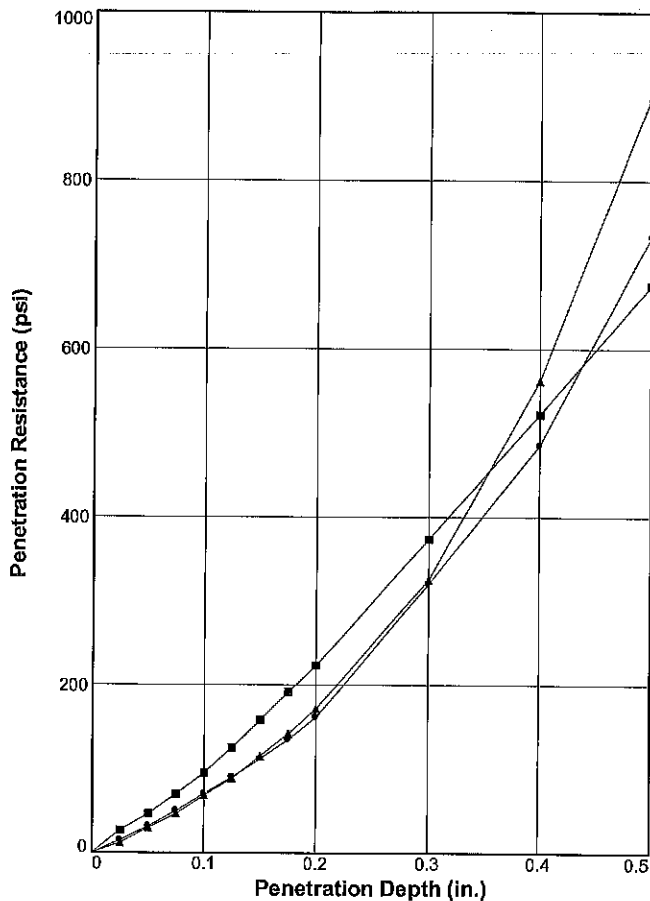
Tested By: D. YOON

# APPENDIX C

## CBR TEST RESULTS

# BEARING RATIO TEST REPORT

## ASTM D1883-05



|                        | Molded        |                       |              | Soaked        |                       |              | CBR (%)  |                  | Linearity Correction (in.) | Surcharge (lbs.) | Max. Swell (%) |
|------------------------|---------------|-----------------------|--------------|---------------|-----------------------|--------------|----------|------------------|----------------------------|------------------|----------------|
|                        | Density (pcf) | Percent of Max. Dens. | Moisture (%) | Density (pcf) | Percent of Max. Dens. | Moisture (%) | 0.10 in. | 0.20 in.         |                            |                  |                |
| 1 ○                    | 125.6         | 110.3                 | 14.5         | 125.5         | 110.2                 | 14.5         | 7.0      | 10.8             | 0.000                      |                  | 0.1            |
| 2 △                    | 128.5         | 112.8                 | 13.0         | 128.5         | 112.8                 | 13.0         | 6.8      | 11.4             | 0.000                      |                  | 0              |
| 3 □                    | 132.6         | 116.4                 | 12.0         | 130.3         | 114.4                 | 12.0         | 9.5      | 14.9             | 0.000                      |                  | 1.8            |
| Material Description   |               |                       |              |               |                       |              | USCS     | Max. Dens. (pcf) | Optimum Moisture (%)       | LL               | PI             |
| Silty sand with gravel |               |                       |              |               |                       |              | SM       | 113.9            | 12.3                       | NV               | NP             |

**Project No:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Location:** 5013-03-1/B-5 AND B-10 BULK  
  
**Date:** 12/14/21

**Test Description/Remarks:**

Figure \_\_\_\_\_



Tested By: C. Byer \_\_\_\_\_

**BEARING RATIO TESTING RESULTS  
(ASTM D1883-05)**

**Date:** 12/14/21  
**Project No.:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Location:** 5013-03-1/B-5 AND B-10 BULK  
**Material Description:** Silty sand with gravel  
**USCS Classification:** SM  
**Liquid Limit:** NV **Plasticity Index:** NP

**Test Description:**  
**Maximum Dry Density, pcf:** 113.9 **Optimum Moisture Content, %:** 12.3  
**Testing Remarks:**

**Sample 1 (10 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 581.5    Wt. Soil+Tare, gms. 525.5    Wt. Tare, gms. 139.4    **Moisture, % 14.5**

**Unit Weight**

Wt. Mold+Soil, gms. 8466.8    Wt. Mold, gms. 4197.0    Ht. Soil, in. 4    **Density, pcf 125.6**

**Swell Data**

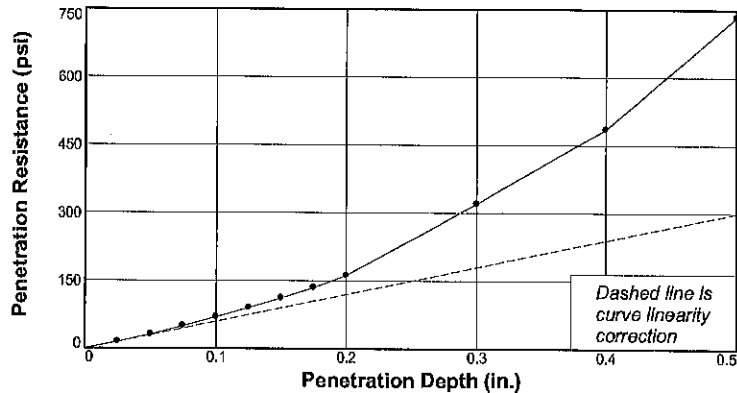
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 556                      | 0.0     |
| 96                 | 560                      | 0.1     |

**Final Water Content**

|    | Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|----|-------------------------|---------------|-------|-------------|
| 1) | 581.5                   | 525.5         | 139.4 | <b>14.5</b> |

**Penetration Test Data**

| Pen. in.   | Dial Reading | Stress psl   | CBR %       |
|------------|--------------|--------------|-------------|
| 0.0        | 0            | 0.0          |             |
| 0.025      | 45           | 15.0         |             |
| 0.05       | 95           | 31.7         |             |
| 0.075      | 150          | 50.0         |             |
| <b>0.1</b> | <b>210</b>   | <b>70.0</b>  | <b>7.0</b>  |
| 0.125      | 270          | 90.0         |             |
| 0.15       | 335          | 111.7        |             |
| 0.175      | 405          | 135.0        |             |
| <b>0.2</b> | <b>485</b>   | <b>161.7</b> | <b>10.8</b> |
| 0.3        | 960          | 320.0        | 16.8        |
| 0.4        | 1455         | 485.0        | 21.1        |
| 0.5        | 2200         | 733.3        | 28.2        |



**Sample 2 (25 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 548.0    Wt. Soil+Tare, gms. 501.8    Wt. Tare, gms. 145.5    **Moisture, % 13.0**

**Unit Weight**

Wt. Mold+Soil, gms. 8502.4    Wt. Mold, gms. 4194.0    Ht. Soil, in. 4    **Density, pcf 128.5**

**Swell Data**

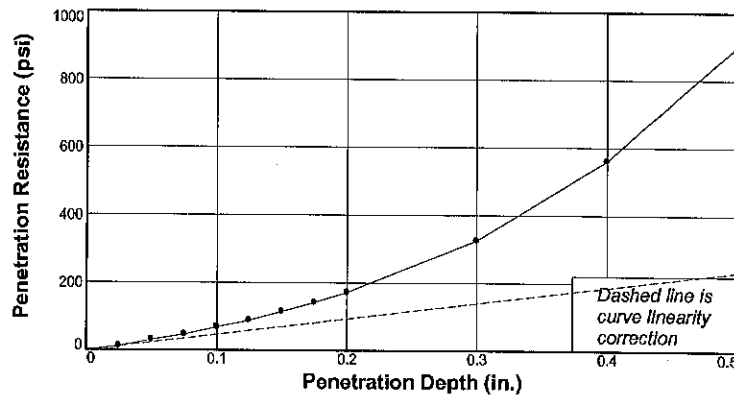
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 674                      | 0.0     |
| 96                 | 348                      | -8.2    |

**Final Water Content**

| Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|-------------------------|---------------|-------|-------------|
| 1) 548.0                | 501.8         | 145.5 | <b>13.0</b> |

**Penetration Test Data**

| Pen. In. | Dial Reading | Stress psi | CBR % |
|----------|--------------|------------|-------|
| 0.0      | 0            | 0.0        |       |
| 0.025    | 35           | 11.7       |       |
| 0.05     | 90           | 30.0       |       |
| 0.075    | 140          | 46.7       |       |
| 0.1      | 205          | 68.3       | 6.8   |
| 0.125    | 265          | 88.3       |       |
| 0.15     | 345          | 115.0      |       |
| 0.175    | 425          | 141.7      |       |
| 0.2      | 515          | 171.7      | 11.4  |
| 0.3      | 975          | 325.0      | 17.1  |
| 0.4      | 1685         | 561.7      | 24.4  |
| 0.5      | 2700         | 900.0      | 34.6  |



**Sample 3 (56 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 456.4    Wt. Soil+Tare, gms. 422.0    Wt. Tare, gms. 136.2    **Moisture, % 12.0**

**Unit Weight**

Wt. Mold+Soil, gms. 8599.3    Wt. Mold, gms. 4189.3    Ht. Soil, in. 4    **Density, pcf 132.6**

**Swell Data**

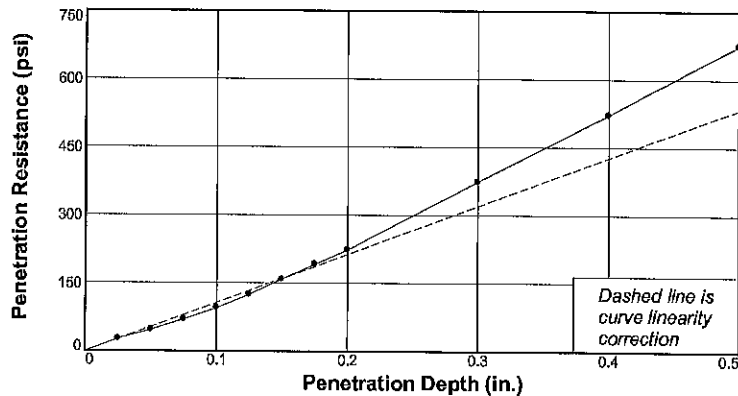
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 697                      | 0.0     |
| 96                 | 767                      | 1.8     |

**Final Water Content**

| Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|-------------------------|---------------|-------|-------------|
| 1) 456.4                | 422.0         | 136.2 | <b>12.0</b> |

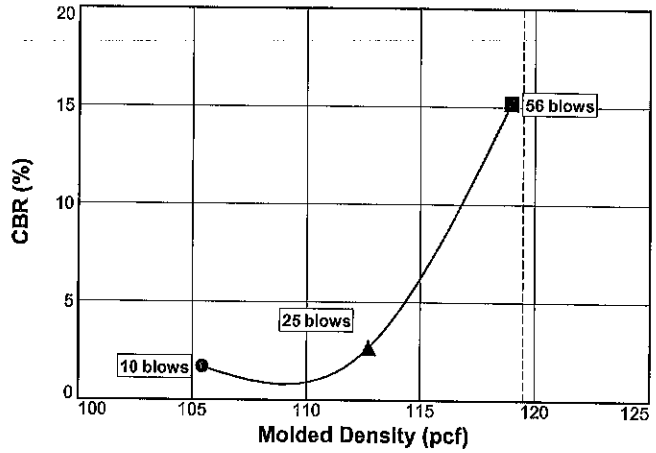
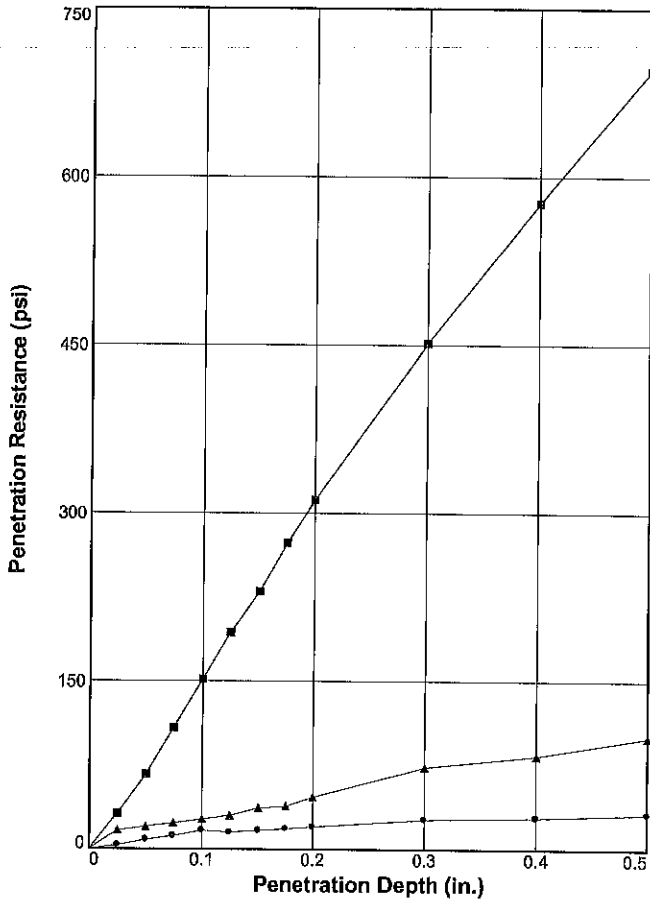
**Penetration Test Data**

| Pen. in. | Dial Reading | Stress psi | CBR % |
|----------|--------------|------------|-------|
| 0.0      | 0            | 0.0        |       |
| 0.025    | 80           | 26.7       |       |
| 0.05     | 140          | 46.7       |       |
| 0.075    | 210          | 70.0       |       |
| 0.1      | 285          | 95.0       | 9.5   |
| 0.125    | 375          | 125.0      |       |
| 0.15     | 475          | 158.3      |       |
| 0.175    | 575          | 191.7      |       |
| 0.2      | 670          | 223.3      | 14.9  |
| 0.3      | 1120         | 373.3      | 19.6  |
| 0.4      | 1565         | 521.7      | 22.7  |
| 0.5      | 2025         | 675.0      | 26.0  |



# BEARING RATIO CBR TEST REPORT

## ASTM D1883-05



|     | Molded        |                       |              | Soaked        |                       |              | CBR (%)  |          | Linearity Correction (in.) | Surcharge (lbs.) | Max. Swell (%) |
|-----|---------------|-----------------------|--------------|---------------|-----------------------|--------------|----------|----------|----------------------------|------------------|----------------|
|     | Density (pcf) | Percent of Max. Dens. | Moisture (%) | Density (pcf) | Percent of Max. Dens. | Moisture (%) | 0.10 in. | 0.20 in. |                            |                  |                |
| 1 ○ | 105.5         | 88.3                  | 18.7         | 105.5         | 88.3                  | 18.7         | 1.7      | 1.3      | 0.000                      |                  | 0              |
| 2 △ | 112.7         | 94.3                  | 18.8         | 112.7         | 94.3                  | 18.8         | 2.7      | 3.1      | 0.000                      |                  | 0              |
| 3 □ | 119.0         | 99.6                  | 16.0         | 113.6         | 95.1                  | 16.0         | 15.2     | 20.8     | 0.000                      |                  | 4.7            |

| Material Description | USCS                   | Max. Dens. (pcf) | Optimum Moisture (%) | LL  | PI |
|----------------------|------------------------|------------------|----------------------|-----|----|
|                      | Silty sand with gravel | SM               | 119.5                | 7.5 | NV |

**Project No:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Location:** 5013-03-1/B-1 THRU B-2 BULK  
  
**Date:** 12/14/21

**GEOTECHNICAL & ENVIRONMENTAL SERVICES, INC.**

**Test Description/Remarks:**

Figure \_\_\_\_\_

Tested By: C. Byer

**BEARING RATIO TESTING RESULTS  
(ASTM D1883-05)**

**Date:** 12/14/21  
**Project No.:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Location:** 5013-03-1/B-1 THRU B-2 BULK  
**Material Description:** Silty sand with gravel  
**USCS Classification:** SM  
**Liquid Limit:** NV **Plasticity Index:** NP

**Test Description:**  
**Maximum Dry Density, pcf :** 119.5 **Optimum Moisture Content, %:** 7.5  
**Testing Remarks:**

**Sample 1 (10 Blows)**

**Water Content**  
 Wt. Wet Soil+Tare, gms. 455.8    Wt. Soil+Tare, gms. 404.1    Wt. Tare, gms. 127.1    **Moisture, % 18.7**

**Unit Weight**  
 Wt. Mold+Soil, gms. 7907.8    Wt. Mold, gms. 4192.4    Ht. Soll, in. 4    **Density, pcf 105.5**

**Swell Data**

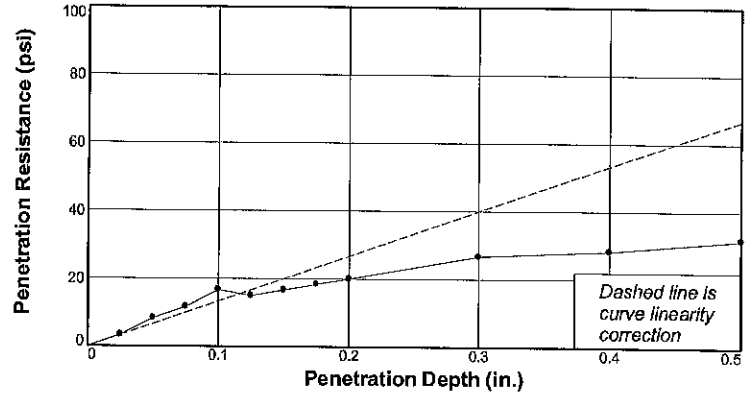
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 485                      | 0.0     |
| 96                 | 412                      | -1.8    |

**Final Water Content**

|    | Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|----|-------------------------|---------------|-------|-------------|
| 1) | 455.8                   | 404.1         | 127.1 | <b>18.7</b> |

**Penetration Test Data**

| Pen. in. | Dial Reading | Stress psi | CBR % |
|----------|--------------|------------|-------|
| 0.0      | 0            | 0.0        |       |
| 0.025    | 10           | 3.3        |       |
| 0.05     | 25           | 8.3        |       |
| 0.075    | 35           | 11.7       |       |
| 0.1      | 50           | 16.7       | 1.7   |
| 0.125    | 45           | 15.0       |       |
| 0.15     | 50           | 16.7       |       |
| 0.175    | 55           | 18.3       |       |
| 0.2      | 60           | 20.0       | 1.3   |
| 0.3      | 80           | 26.7       | 1.4   |
| 0.4      | 85           | 28.3       | 1.2   |
| 0.5      | 95           | 31.7       | 1.2   |



**Sample 2 (25 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 419.7    Wt. Soil+Tare, gms. 374.2    Wt. Tare, gms. 132.7    **Moisture, % 18.8**

**Unit Weight**

Wt. Mold+Soil, gms. 8171.3    Wt. Mold, gms. 4194.1    Ht. Soil, in. 4    **Density, pcf 112.7**

**Swell Data**

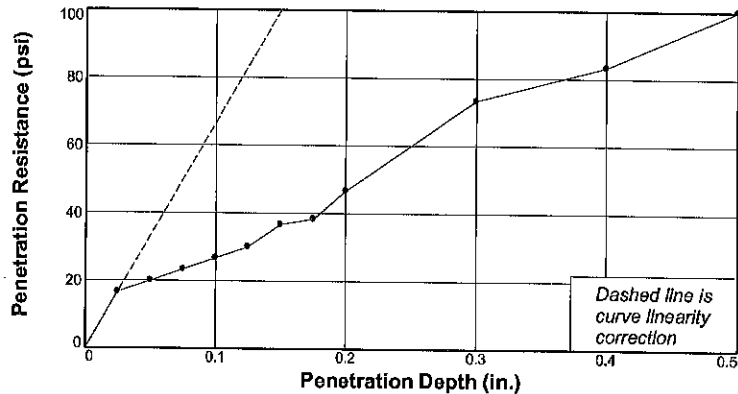
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 596                      | 0.0     |
| 96                 | 85                       | -12.8   |

**Final Water Content**

| Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|-------------------------|---------------|-------|-------------|
| 1) 419.7                | 374.2         | 132.7 | <b>18.8</b> |

**Penetration Test Data**

| Pen. In.   | Dial Reading | Stress psi  | CBR %      |
|------------|--------------|-------------|------------|
| 0.0        | 0            | 0.0         |            |
| 0.025      | 50           | 16.7        |            |
| 0.05       | 60           | 20.0        |            |
| 0.075      | 70           | 23.3        |            |
| <b>0.1</b> | <b>80</b>    | <b>26.7</b> | <b>2.7</b> |
| 0.125      | 90           | 30.0        |            |
| 0.15       | 110          | 36.7        |            |
| 0.175      | 115          | 38.3        |            |
| <b>0.2</b> | <b>140</b>   | <b>46.7</b> | <b>3.1</b> |
| 0.3        | 220          | 73.3        | 3.9        |
| 0.4        | 250          | 83.3        | 3.6        |
| 0.5        | 300          | 100.0       | 3.8        |



**Sample 3 (56 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 388.9    Wt. Soil+Tare, gms. 354.6    Wt. Tare, gms. 139.7    **Moisture, % 16.0**

**Unit Weight**

Wt. Mold+Soil, gms. 6834.2    Wt. Mold, gms. 2738.8    Ht. Soil, in. 4    **Density, pcf 119.0**

**Swell Data**

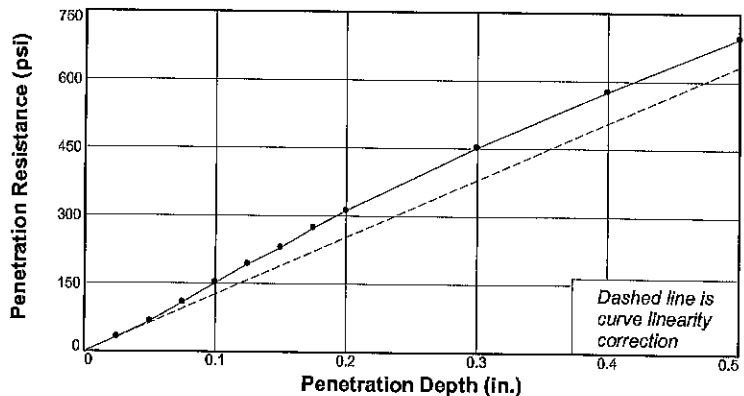
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 643                      | 0.0     |
| 96                 | 832                      | 4.7     |

**Final Water Content**

| Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|-------------------------|---------------|-------|-------------|
| 1) 388.9                | 354.6         | 139.7 | <b>16.0</b> |

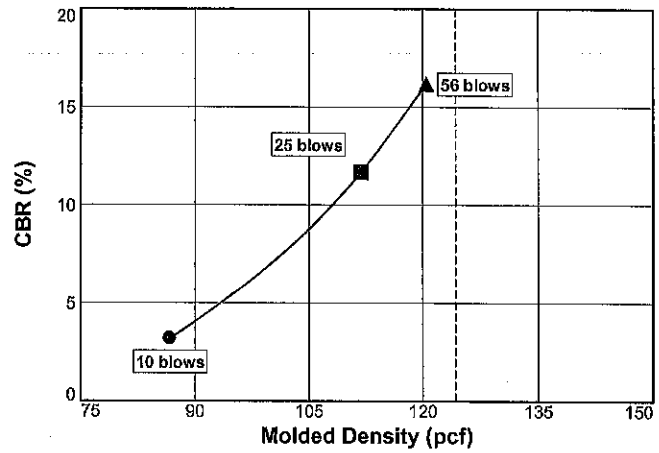
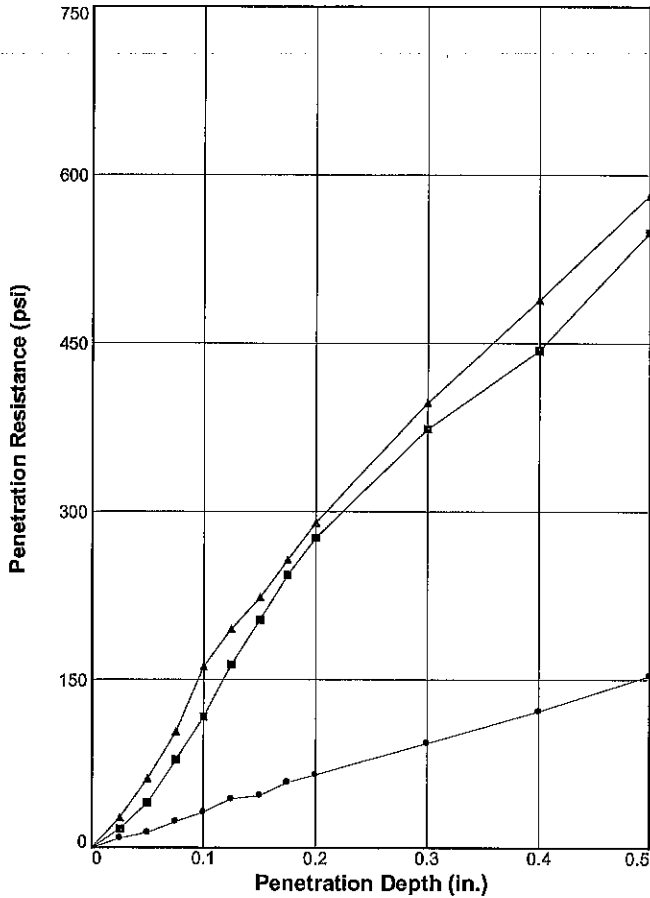
**Penetration Test Data**

| Pen. In.   | Dial Reading | Stress psi   | CBR %       |
|------------|--------------|--------------|-------------|
| 0.0        | 0            | 0.0          |             |
| 0.025      | 95           | 31.7         |             |
| 0.05       | 200          | 66.7         |             |
| 0.075      | 325          | 108.3        |             |
| <b>0.1</b> | <b>455</b>   | <b>151.7</b> | <b>15.2</b> |
| 0.125      | 580          | 193.3        |             |
| 0.15       | 690          | 230.0        |             |
| 0.175      | 820          | 273.3        |             |
| <b>0.2</b> | <b>935</b>   | <b>311.7</b> | <b>20.8</b> |
| 0.3        | 1355         | 451.7        | 23.8        |
| 0.4        | 1730         | 576.7        | 25.1        |
| 0.5        | 2085         | 695.0        | 26.7        |





# BEARING RATIO TEST REPORT ASTM D1883-05



|                             | Molded        |                       |              | Soaked        |                       |              | CBR (%)  |                  | Linearity Correction (in.) | Surcharge (lbs.) | Max. Swell (%) |
|-----------------------------|---------------|-----------------------|--------------|---------------|-----------------------|--------------|----------|------------------|----------------------------|------------------|----------------|
|                             | Density (pcf) | Percent of Max. Dens. | Moisture (%) | Density (pcf) | Percent of Max. Dens. | Moisture (%) | 0.10 in. | 0.20 in.         |                            |                  |                |
| 1 ○                         | 86.8          | 69.9                  | 17.6         | 72.5          | 58.3                  | 17.6         | 3.2      | 4.3              | 0.000                      |                  | 19.7           |
| 2 △                         | 120.5         | 97                    | 15.2         | 120.5         | 97                    | 15.2         | 16.2     | 19.3             | 0.000                      |                  | 0              |
| 3 □                         | 111.9         | 90.1                  | 15.1         | 107.2         | 86.3                  | 15.1         | 11.7     | 18.4             | 0.000                      |                  | 4.4            |
| <b>Material Description</b> |               |                       |              |               |                       |              | USCS     | Max. Dens. (pcf) | Optimum Moisture (%)       | LL               | PI             |
| Silty sand with gravel      |               |                       |              |               |                       |              |          |                  |                            |                  |                |

**Project No:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Location:** 5013-03-1/B-8 THRU B-9 BULK  
  
**Date:** 12/14/21

**Test Description/Remarks:**



Figure \_\_\_\_\_

Tested By: C. Byer

**BEARING RATIO TESTING RESULTS  
(ASTM D1883-05)**

**Date:** 12/14/21  
**Project No.:** R20215509C1  
**Project:** WEED AIRPORT PROJECT  
**Location:** 5013-03-1/B-8 THRU B-9 BULK  
**Material Description:** Silty sand with gravel  
**USCS Classification:** SM  
**Liquid Limit:** NV **Plasticity Index:** NP

**Test Description:**  
**Maximum Dry Density, pcf:** 124.2 **Optimum Moisture Content, %:** 9.7  
**Testing Remarks:**

**Sample 1 (10 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 445.1    Wt. Soil+Tare, gms. 398.1    Wt. Tare, gms. 131.6    **Moisture, % 17.6**

**Unit Weight**

Wt. Mold+Soil, gms. 6548.3    Wt. Mold, gms. 3518.2    Ht. Soil, in. 4    **Density, pcf 86.8**

**Swell Data**

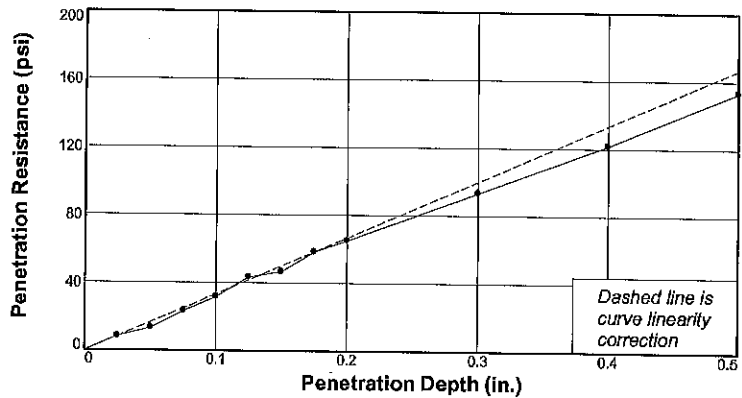
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 94                       | 0.0     |
| 96                 | 883                      | 19.7    |

**Final Water Content**

|    | Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|----|-------------------------|---------------|-------|-------------|
| 1) | 445.1                   | 398.1         | 131.6 | <b>17.6</b> |

**Penetration Test Data**

| Pen. in.   | Dial Reading | Stress psi  | CBR %      |
|------------|--------------|-------------|------------|
| 0.0        | 0            | 0.0         |            |
| 0.025      | 25           | 8.3         |            |
| 0.05       | 40           | 13.3        |            |
| 0.075      | 70           | 23.3        |            |
| <b>0.1</b> | <b>95</b>    | <b>31.7</b> | <b>3.2</b> |
| 0.125      | 130          | 43.3        |            |
| 0.15       | 140          | 46.7        |            |
| 0.175      | 175          | 58.3        |            |
| <b>0.2</b> | <b>195</b>   | <b>65.0</b> | <b>4.3</b> |
| 0.3        | 280          | 93.3        | 4.9        |
| 0.4        | 365          | 121.7       | 5.3        |
| 0.5        | 460          | 153.3       | 5.9        |



**Sample 2 (56 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 394.1    Wt. Soil+Tare, gms. 360.1    Wt. Tare, gms. 135.8    **Moisture, % 15.2**

**Unit Weight**

Wt. Mold+Soil, gms. 8316.0    Wt. Mold, gms. 4197.6    Ht. Soil, in. 4    **Density, pcf 120.5**

**Swell Data**

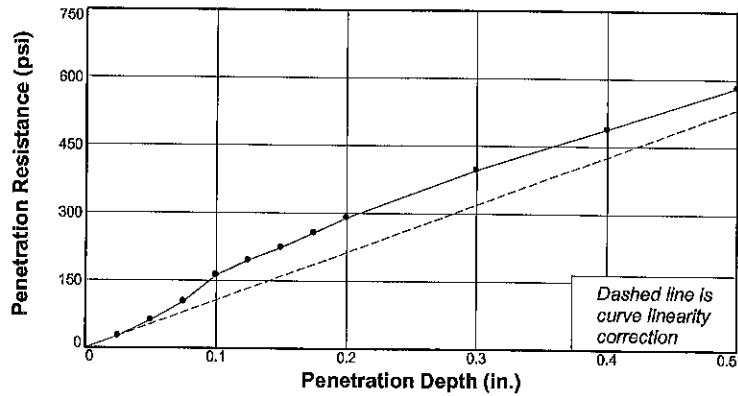
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 700                      | 0.0     |
| 96                 | 241                      | -11.5   |

**Final Water Content**

|    | Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|----|-------------------------|---------------|-------|-------------|
| 1) | 394.1                   | 360.1         | 135.8 | <b>15.2</b> |

**Penetration Test Data**

| Pen. in.   | Dial Reading | Stress psl   | CBR %       |
|------------|--------------|--------------|-------------|
| 0.0        | 0            | 0.0          |             |
| 0.025      | 80           | 26.7         |             |
| 0.05       | 185          | 61.7         |             |
| 0.075      | 310          | 103.3        |             |
| <b>0.1</b> | <b>485</b>   | <b>161.7</b> | <b>16.2</b> |
| 0.125      | 585          | 195.0        |             |
| 0.15       | 670          | 223.3        |             |
| 0.175      | 770          | 256.7        |             |
| <b>0.2</b> | <b>870</b>   | <b>290.0</b> | <b>19.3</b> |
| 0.3        | 1190         | 396.7        | 20.9        |
| 0.4        | 1465         | 488.3        | 21.2        |
| 0.5        | 1745         | 581.7        | 22.4        |



**Sample 3 (25 Blows)**

**Water Content**

Wt. Wet Soil+Tare, gms. 356.5    Wt. Soil+Tare, gms. 328.0    Wt. Tare, gms. 139.0    **Moisture, % 15.1**

**Unit Weight**

Wt. Mold+Soil, gms. 6842.6    Wt. Mold, gms. 3020.7    Ht. Soil, in. 4    **Density, pcf 111.9**

**Swell Data**

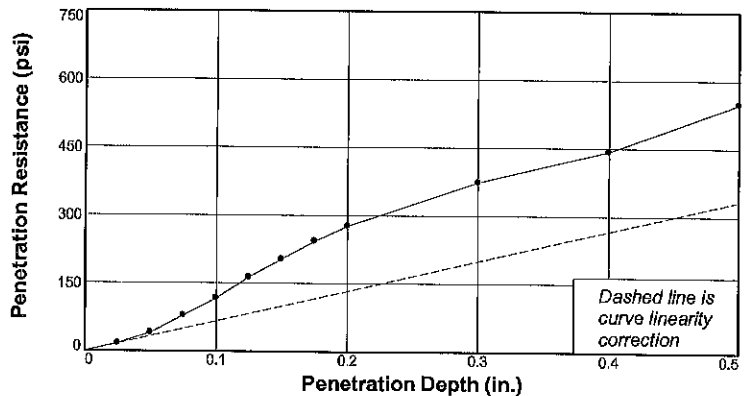
| Elapsed Time, hrs. | Dial Reading in. x 1,000 | Swell % |
|--------------------|--------------------------|---------|
| 0                  | 150                      | 0.0     |
| 96                 | 325                      | 4.4     |

**Final Water Content**

|    | Wt. Wet Soil+Tare, gms. | Dry Soil+Tare | Tare  | Moisture, % |
|----|-------------------------|---------------|-------|-------------|
| 1) | 356.5                   | 328.0         | 139.0 | <b>15.1</b> |

**Penetration Test Data**

| Pen. in.   | Dial Reading | Stress psl   | CBR %       |
|------------|--------------|--------------|-------------|
| 0.0        | 0            | 0.0          |             |
| 0.025      | 50           | 16.7         |             |
| 0.05       | 120          | 40.0         |             |
| 0.075      | 235          | 78.3         |             |
| <b>0.1</b> | <b>350</b>   | <b>116.7</b> | <b>11.7</b> |
| 0.125      | 490          | 163.3        |             |
| 0.15       | 610          | 203.3        |             |
| 0.175      | 730          | 243.3        |             |
| <b>0.2</b> | <b>830</b>   | <b>276.7</b> | <b>18.4</b> |
| 0.3        | 1120         | 373.3        | 19.6        |
| 0.4        | 1330         | 443.3        | 19.3        |
| 0.5        | 1645         | 548.3        | 21.1        |



# APPENDIX D

## CHEMICAL TEST RESULTS



Silver State Labs-Reno  
1135 Financial Blvd  
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www.ssalabs.com

January 05, 2022  
Workorder **21110040**

Vimal P. Vimalaraj  
Corestone Engineering, Inc.  
1345 Capital Blvd., Ste. B  
Reno, NV 89502

Project: 5013-03-1; B-08 A 0'

Dear Vimal P. Vimalaraj:

It is the policy of Silver State Analytical Laboratory - Reno to strictly adhere to a comprehensive Quality Assurance Plan that ensures the data presented in this report are both accurate and precise. Silver State Analytical Laboratory - Reno maintains accreditation in the State of Nevada (NV-00015) and the State of California (ELAP 2990).

The data presented in this report was obtained from the analysis of samples received under a chain of custody. Unless otherwise noted below, samples were received in good condition, properly preserved and within the hold time for the requested analyses. Any anomalies associated with the analysis of the samples have been flagged in the Analytical Report with an appropriate explanation in the Definitions & Qualifiers.

21110040: TPHP/E 8015 has been Sub Contracted.

Revised Report.

Sincerely,

Carly Wood  
Laboratory Director  
1135 Financial Blvd  
Reno, NV 89502



Silver State Labs-Reno  
 1135 Financial Blvd  
 Reno, NV 89502  
 (775) 857-2400 FAX: (888) 398-7002  
 www.ssalabs.com

# Analytical Report

Workorder#: 21110040  
 Date Reported: 1/5/2022

**Client:** Corestone Engineering, Inc.  
**Project Name:** 5013-03-1; B-08 A 0'  
**PO #:**

**Sampled By:** Vimal

**Laboratory Accreditation Number:** NV015/CA2990

| Laboratory ID | Client Sample ID     | Date/Time Sampled | Date Received |
|---------------|----------------------|-------------------|---------------|
| 21110040-01   | 5013-03-1; B-08 A 0' | 10/20/2021 9:00   | 11/1/2021     |

| Parameter      | Method       | Result | Units    | PQL | Analyst | Date/Time Analyzed | Data Flag |
|----------------|--------------|--------|----------|-----|---------|--------------------|-----------|
| Chloride       | EPA 9056     | 7      | mg/Kg    | 5   | MA      | 11/13/2021 2:20    |           |
| pH             | SW-846 9045D | 6.95   | pH Units |     | AC      | 11/08/2021 9:32    |           |
| pH Temperature | SW-846 9045D | 20.0   | °C       |     | AC      | 11/08/2021 9:32    |           |
| Resistivity    | EPA 120.1    | 5000   | Ohms-cm  |     | AC      | 11/08/2021 11:24   |           |
| Sulfate        | EPA 9056     | 110    | mg/Kg    | 2   | MA      | 11/13/2021 2:20    |           |

**Laboratory Accreditation Number:** NV015/CA2990

| Laboratory ID | Client Sample ID     | Date/Time Sampled | Date Received |
|---------------|----------------------|-------------------|---------------|
| 21110040-02   | 5013-03-1; B-11 A 0' | 10/20/2021 14:00  | 11/1/2021     |

| Parameter        | Method   | Result     | Units | PQL | Analyst | Date/Time Analyzed | Data Flag |
|------------------|----------|------------|-------|-----|---------|--------------------|-----------|
| TPH Extractables | EPA 8015 | See Report |       |     | CW      |                    |           |
| TPH Purgables    | EPA 8015 | See Report |       |     | CW      |                    |           |

**Analysis:** PASTE pH  
**Method:** SW-846 9045D

**Batch ID:** R59952

**Laboratory Control Sample (LCS)**

RunID: 59952 SeqNo 1460044 Units: pH Units  
Analysis Date: 11/8/2021 9:32:00 AM Analyst: AC

| Analyte | LCS Spike Added | LCS Result | LCS % Recovery | LCSD Spike Added | LCSD Result | LCSD % Recovery | RPD | RPD Limit | Low Limit | High Limit | Qual |
|---------|-----------------|------------|----------------|------------------|-------------|-----------------|-----|-----------|-----------|------------|------|
| pH      | 7.020           | 7.05       | 100            |                  |             |                 |     |           |           |            |      |

**Analysis:** Anions 300.0 Solid  
**Method:** EPA 9056

**Batch ID:** R60231

**Method Blank**

RunID: 60231 SeqNo 1467049 Units: mg/Kg  
Analysis Date: 11/5/2021 2:36:00 PM Analyst: JF

| Analyte  | Result | Rep Limit | Rep Qual |
|----------|--------|-----------|----------|
| Chloride | < 0.50 | 0.50      |          |
| Sulfate  | < 0.20 | 0.20      |          |

**Method Blank**

RunID: 60231      SeqNo 1467115      Units: mg/Kg  
Analysis Date: 11/5/2021 5:22:00 PM      Analyst: JF

| Analyte  | Result | Rep Limit | Rep Qual |
|----------|--------|-----------|----------|
| Chloride | < 0.50 | 0.50      |          |
| Sulfate  | < 0.20 | 0.20      |          |

**Laboratory Control Sample (LCS)**

RunID: 60231      SeqNo 1467050      Units: mg/L  
Analysis Date: 11/5/2021 6:24:00 PM      Analyst: JF

| Analyte  | LCS Spike Added | LCS Result | LCS % Recovery | LCSD Spike Added | LCSD Result | LCSD % Recovery | RPD | RPD Limit | Low Limit | High Limit | Qual |
|----------|-----------------|------------|----------------|------------------|-------------|-----------------|-----|-----------|-----------|------------|------|
| Chloride | 10.00           | 9.6        | 96.4           |                  |             |                 |     |           |           |            |      |
| Sulfate  | 10.00           | 9.6        | 95.7           |                  |             |                 |     |           |           |            |      |

**Matrix Spike (MS) / Matrix Spike Duplicate (MSD)**

Sample Spiked: 21110038-01A

RunID: 60231      SeqNo 1467100      Units: mg/Kg  
Analysis Date: 11/13/2021 1:15:00 AM      Analyst: JF

| Analyte  | Sample Result | MS Spike Added | MS Result | MS % Recovery | MSD Spike Added | MSD Result | MSD % Recovery | RPD  | RPD Limit | Low Limit | High Limit | Qual |
|----------|---------------|----------------|-----------|---------------|-----------------|------------|----------------|------|-----------|-----------|------------|------|
| Chloride | 5.856         | 100.0          | 100       | 97.4          | 100.0           | 100        | 95.9           | 1.48 | 20        | 90        | 110        |      |
| Sulfate  | 22.43         | 100.0          | 120       | 96.1          | 100.0           | 120        | 94.2           | 1.68 | 20        | 90        | 110        |      |





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November 10, 2021

Joe Nava  
Silver State Analytical Laboratories  
1135 Financial Blvd  
Reno, NV 89502  
TEL: (775) 857-2400  
FAX: (888) 398-7002  
RE: 21110040

Order No.: SSL2111079

Dear Joe Nava:

The result of this report apply to the sample(s) as received.

There were no problems with the analytical events associated with this report unless noted.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

A handwritten signature in cursive script that reads "Randy Gardner".

Randy Gardner  
Laboratory Director  
255 Glendale Ave, #21  
Sparks, Nevada 89431



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 Sparks, Nevada 89431  
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# Analytical Report

WO#: SSL2111079

Report Date: 11/10/2021

**CLIENT:** Silver State Analytical Laboratories

**Collection Date:** 10/20/2021 2:00:00 PM

**Project:** 21110040

**Lab ID:** 2111079-01

**Matrix:** SOIL

**Client Sample ID:** 5013-03-1; B-11 A 0'

| Analyses                    | Result | RL     | Qual | Units | Date Analyzed | Method             |
|-----------------------------|--------|--------|------|-------|---------------|--------------------|
| TPH-E (DRO)                 | 75     | 25     | Z    | mg/Kg | 11/3/2021     | TPH-E by EPA 8015C |
| TPH-E (ORO)                 | 700    | 50     |      | mg/Kg | 11/3/2021     | TPH-E by EPA 8015C |
| Surr: Nonane                | 98     | 66-134 |      | %Rec  | 11/3/2021     | TPH-E by EPA 8015C |
| TPH-P (GRO)                 | ND     | 10     |      | mg/Kg | 11/2/2021     | TPH-P by EPA 8015C |
| Surr: 1,2-Dichloroethane-d4 | 96     | 70-130 |      | %Rec  | 11/2/2021     | TPH-P by EPA 8015C |
| Surr: Toluene-d8            | 100    | 70-130 |      | %Rec  | 11/2/2021     | TPH-P by EPA 8015C |
| Surr: 4-Bromofluorobenzene  | 99     | 70-130 |      | %Rec  | 11/2/2021     | TPH-P by EPA 8015C |



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# QC SUMMARY REPORT

WO#: 2111079

10-Nov-21

**Client:** Silver State Analytical Laboratories

**Project:** 21110040

**TestCode:** TPH/E\_S

| Sample ID: <b>MB-14198</b>      | SampType: <b>MBLK</b>  | TestCode: <b>TPH/E_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|---------------------------------|------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>PBS</b>           | Batch ID: <b>14198</b> | TestNo: <b>SW8015</b>    | <b>SW8015</b>       |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/1/2021</b>     | RunNo: <b>12986</b>    | SeqNo: <b>360886</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/1/2021</b> |                        |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                 | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-E (DRO)                     | ND                     | 5                        |                     |             |      |          |           |             |      |          |      |
| TPH-E (ORO)                     | ND                     | 10                       |                     |             |      |          |           |             |      |          |      |
| Surr: Nonane                    | 5.9                    |                          | 6                   |             | 98.4 | 66       | 134       |             |      |          |      |

| Sample ID: <b>LCSD-14198</b>    | SampType: <b>LCSD</b>  | TestCode: <b>TPH/E_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|---------------------------------|------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>LCSS02</b>        | Batch ID: <b>14198</b> | TestNo: <b>SW8015</b>    | <b>SW8015</b>       |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/1/2021</b>     | RunNo: <b>12986</b>    | SeqNo: <b>360888</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/1/2021</b> |                        |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                 | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-E (DRO)                     | 104                    | 5                        | 100                 | 0           | 104  | 79.4     | 120.49    | 105         | 0.72 | 37.9     |      |
| Surr: Nonane                    | 6.05                   |                          | 6                   |             | 101  | 78       | 138       | 6.05        | 0    | 37.9     |      |

| Sample ID: <b>LCS-14198</b>     | SampType: <b>LCS</b>   | TestCode: <b>TPH/E_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|---------------------------------|------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>LCSS</b>          | Batch ID: <b>14198</b> | TestNo: <b>SW8015</b>    | <b>SW8015</b>       |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/1/2021</b>     | RunNo: <b>12986</b>    | SeqNo: <b>360887</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/1/2021</b> |                        |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                 | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-E (DRO)                     | 105                    | 5                        | 100                 | 0           | 105  | 79.4     | 120.49    |             |      |          |      |
| Surr: Nonane                    | 6.05                   |                          | 6                   |             | 101  | 78       | 138       |             |      |          |      |

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits



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# QC SUMMARY REPORT

WO#: 2111079

10-Nov-21

**Client:** Silver State Analytical Laboratories

**Project:** 21110040

**TestCode:** TPH/P\_S

| Sample ID: <b>MB-14205</b>      | SampType: <b>MBLK</b>    | TestCode: <b>TPH/P_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|---------------------------------|--------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>PBS</b>           | Batch ID: <b>A14205B</b> | TestNo: <b>SW8015</b>    |                     |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/3/2021</b>     | RunNo: <b>13010</b>      | SeqNo: <b>361563</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/3/2021</b> |                          |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                   | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-P (GRO)                     | ND                       | 1                        |                     |             |      |          |           |             |      |          |      |
| Surr: 1,2-Dichloroethane-d4     | 0.19                     |                          | 0.2                 |             | 93.5 | 69.51    | 130.49    |             |      |          |      |
| Surr: Toluene-d8                | 0.21                     |                          | 0.2                 |             | 107  | 69.51    | 130.49    |             |      |          |      |
| Surr: 4-Bromofluorobenzene      | 0.19                     |                          | 0.2                 |             | 95.4 | 69.51    | 130.49    |             |      |          |      |

| Sample ID: <b>GLCS-14205</b>    | SampType: <b>GLCS</b>    | TestCode: <b>TPH/P_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|---------------------------------|--------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>BatchQC</b>       | Batch ID: <b>A14205B</b> | TestNo: <b>SW8015</b>    |                     |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/2/2021</b>     | RunNo: <b>12999</b>      | SeqNo: <b>361261</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/2/2021</b> |                          |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                   | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-P (GRO)                     | 14.9                     | 2                        | 16                  | 0           | 92.9 | 64.64    | 146.49    |             |      |          |      |
| Surr: 1,2-Dichloroethane-d4     | 0.371                    |                          | 0.4                 |             | 92.6 | 69.51    | 130.49    |             |      |          |      |
| Surr: Toluene-d8                | 0.409                    |                          | 0.4                 |             | 102  | 69.51    | 130.49    |             |      |          |      |
| Surr: 4-Bromofluorobenzene      | 0.428                    |                          | 0.4                 |             | 107  | 69.51    | 130.49    |             |      |          |      |

| Sample ID: <b>2111030-01AGSD</b> | SampType: <b>GSD</b>     | TestCode: <b>TPH/P_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|----------------------------------|--------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>BatchQC</b>        | Batch ID: <b>A14205B</b> | TestNo: <b>SW8015</b>    |                     |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/2/2021</b>      | RunNo: <b>12999</b>      | SeqNo: <b>361263</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/2/2021</b>  |                          |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                          | Result                   | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-P (GRO)                      | 13.5                     | 2                        | 16                  | 0           | 84.2 | 57.6     | 179       | 14.7        | 8.9  | 19.4     |      |
| Surr: 1,2-Dichloroethane-d4      | 0.369                    |                          | 0.4                 |             | 92.4 | 69.51    | 130.49    | 0.378       | 0    | 0        |      |
| Surr: Toluene-d8                 | 0.412                    |                          | 0.4                 |             | 103  | 69.51    | 130.49    | 0.415       | 0    | 0        |      |
| Surr: 4-Bromofluorobenzene       | 0.435                    |                          | 0.4                 |             | 109  | 69.51    | 130.49    | 0.43        | 0    | 0        |      |

| Sample ID: <b>2111030-01AGS</b> | SampType: <b>GS</b>      | TestCode: <b>TPH/P_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
|---------------------------------|--------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Client ID: <b>BatchQC</b>       | Batch ID: <b>A14205B</b> | TestNo: <b>SW8015</b>    |                     |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/2/2021</b>     | RunNo: <b>12999</b>      | SeqNo: <b>361262</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/2/2021</b> |                          |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                   | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |
| TPH-P (GRO)                     | 14.7                     | 2                        | 16                  | 0           | 92.1 | 57.6     | 179       |             |      |          |      |
| Surr: 1,2-Dichloroethane-d4     | 0.378                    |                          | 0.4                 |             | 94.4 | 69.51    | 130.49    |             |      |          |      |
| Surr: Toluene-d8                | 0.415                    |                          | 0.4                 |             | 104  | 69.51    | 130.49    |             |      |          |      |
| Surr: 4-Bromofluorobenzene      | 0.43                     |                          | 0.4                 |             | 107  | 69.51    | 130.49    |             |      |          |      |

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits



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# QC SUMMARY REPORT

WO#: 2111079

10-Nov-21

**Client:** Silver State Analytical Laboratories

**Project:** 21110040

**TestCode:** TPH/P\_S

|                                 |                          |                          |                     |             |      |          |           |             |      |          |      |
|---------------------------------|--------------------------|--------------------------|---------------------|-------------|------|----------|-----------|-------------|------|----------|------|
| Sample ID: <b>2111030-01AGS</b> | SampType: <b>GS</b>      | TestCode: <b>TPH/P_S</b> | Units: <b>mg/Kg</b> |             |      |          |           |             |      |          |      |
| Client ID: <b>BatchQC</b>       | Batch ID: <b>A14205B</b> | TestNo: <b>SW8015</b>    |                     |             |      |          |           |             |      |          |      |
| Prep Date: <b>11/2/2021</b>     | RunNo: <b>12999</b>      | SeqNo: <b>361262</b>     |                     |             |      |          |           |             |      |          |      |
| Analysis Date: <b>11/2/2021</b> |                          |                          |                     |             |      |          |           |             |      |          |      |
| Analyte                         | Result                   | PQL                      | SPK Value           | SPK Ref Val | %REC | LowLimit | HighLimit | RPD Ref Val | %RPD | RPDLimit | Qual |

- Qualifiers:**
- B Analyte detected in the associated Method Blank
  - ND Not Detected at the Reporting Limit
  - R RPD outside accepted recovery limits
  - S Spike Recovery outside accepted recovery limits



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## Definition Only

WO#: 2111079  
Date: 11/3/2021

---

### Definitions:

ND = Not Detected

C = Reported concentration includes additional compounds uncharacteristic of common fuels and lubricants.

D = Reporting Limits were increased due to high concentrations of non-target analytes.

H = Reporting Limits were increased due to the hydrocarbons present in the sample.

J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.

K = DRO concentration may include contributions from lighter-end hydrocarbons (e.g. gasoline) that elute in the DRO range.

L = DRO concentration may include contributions from heavier-end hydrocarbons (e.g. motor oil) that elute in the DRO range.

O = Reporting Limits were increased due to sample foaming.

V = Reporting Limits were increased due to high concentrations of target analytes.

X = Reporting Limits were increased due to sample matrix interferences.

Z = DRO concentration may include contributions from lighter-end (e.g. gasoline) and heavier-end (e.g. motor oil) hydrocarbons that elute in the DRO range.

S50 = The analysis of the sample required a dilution such that the surrogate concentration was diluted below the laboratory acceptance criteria. The laboratory control sample was acceptable.

S51 = Surrogate recovery could not be determined due to the presence of co-eluting hydrocarbons.

S52 = Surrogate recovery was above laboratory acceptance limits. Probable matrix effect.

S53 = Surrogate recovery was below laboratory acceptance limits. Probable matrix effect.

S54 = Surrogate recovery was below laboratory acceptance limits.

S55 = Surrogate recovery was above laboratory acceptance limits.

Report CC's Carly Wood  
Joe Nava

# WORKORDER SUMMARY

NV

RUSH

## Alpha Analytical, Inc.

255 Glendale Ave, #21 Sparks, Nevada 89431  
TEL: (775) 355-1044 FAX: (775) 355-0406

WorkOrder: SSL2111079  
Report Due By: 03-Nov-21  
EDD Required: NO

Report Attention: Joe Nava



Client:  
Silver State Analytical Laboratories  
1135 Financial Blvd  
Reno, NV 89502

TEL: (775) 857-2400  
FAX: (888) 398-7002  
ProjectNo: 21110040

Date Received: 02-Nov-21

| Alpha Sample ID | Client Sample ID     | Matrix | Collection Date          | No. of Bottles |     |     | Requested Tests |           |  |  |  |  | Sample Remarks |  |  |
|-----------------|----------------------|--------|--------------------------|----------------|-----|-----|-----------------|-----------|--|--|--|--|----------------|--|--|
|                 |                      |        |                          | Alpha          | Sub | TAT | TPH/E_S         | TPH/P_S   |  |  |  |  |                |  |  |
| SSL2111079-01   | 5013-03-1; B-11 A 0' | SO     | 10/20/2021<br>2:00:00 PM | 1              | 0   | 1   | A - TPH/E_N     | A - GAS-N |  |  |  |  |                |  |  |

Comments: 24 HR TAT, in order to meet holding time per Sydney.

| Signature   | Print Name   | Company                | Date/Time    |
|---|--|------------------------|--------------|
| Logged in by:  |  | Alpha Analytical, Inc. | 11.2.21 1305 |

NOTE: Samples are discarded 60 days after sample receipt unless other arrangements are made. Hazardous samples will be returned to client or disposed of at client expense.

Bottle Type: L-Liter V-Voa S-Soil Jar O-Orbo T-Tedlar B-Brass P-Plastic OT-Other Page 7 of 8



CHAIN OF CUSTODY RECORD

COC ID: 10032 PAGE: 1 OF: 1

ADDRESS  
 Silver State Labs-Reno  
 1135 Financial Blvd  
 Reno, NV 89502  
 TEL: (775) 857-2400  
 FAX: (888) 398-7002  
 Website: www.ssalabs.com

| SUB CONTRACTOR: <b>Alpha-R</b>            |                      | COMPANY: <b>Alpha Analytical</b> |             | SPECIAL INSTRUCTIONS / COMMENTS:<br>Please send results to: jnava@ssalabs.com; cwood@ssalabs.com NV SAMPLE  |                  |   |   |        |                |                      |                        |                        |                |                      |                        |                        |   |              |                      |        |      |                  |   |   |   |
|---|----------------------|----------------------------------|-------------|---|------------------|---|---|--------|----------------|----------------------|------------------------|------------------------|----------------|----------------------|------------------------|------------------------|---|--------------|----------------------|--------|------|------------------|---|---|---|
| ADDRESS: <b>255 Glendale Ave</b>          |                      | ANALYTICAL PARAMETERS            |             |   |                  |   |   |        |                |                      |                        |                        |                |                      |                        |                        |   |              |                      |        |      |                  |   |   |   |
| CITY, STATE, ZIP: <b>Sparks, NV 89431</b> |                      |                                  |             |   |                  |   |   |        |                |                      |                        |                        |                |                      |                        |                        |   |              |                      |        |      |                  |   |   |   |
| PHONE: <b>(775) 355-1044</b>              | FAX:                 | EMAIL:                           |             | <table border="1"> <thead> <tr> <th>ITEM #</th> <th>SAMPLE ID</th> <th>Client Sample ID</th> <th>Bottle Type</th> <th>MATRIX</th> <th>DATE COLLECTED</th> <th>NUMBER OF CONTAINERS</th> <th>SUB-TPHE 801.5-R (SUB)</th> <th>SUB-TPHP 801.5-R (SUB)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>21110040-02A</td> <td>5013-03-1; B-11 A 0'</td> <td>VOCHCL</td> <td>Soil</td> <td>10/20/2021 14:00</td> <td>1</td> <td>√</td> <td>√</td> </tr> </tbody> </table> |                  |   |   | ITEM # | SAMPLE ID      | Client Sample ID     | Bottle Type            | MATRIX                 | DATE COLLECTED | NUMBER OF CONTAINERS | SUB-TPHE 801.5-R (SUB) | SUB-TPHP 801.5-R (SUB) | 1 | 21110040-02A | 5013-03-1; B-11 A 0' | VOCHCL | Soil | 10/20/2021 14:00 | 1 | √ | √ |
| ITEM #                                    | SAMPLE ID            | Client Sample ID                 | Bottle Type |   |                  |   |   | MATRIX | DATE COLLECTED | NUMBER OF CONTAINERS | SUB-TPHE 801.5-R (SUB) | SUB-TPHP 801.5-R (SUB) |                |                      |                        |                        |   |              |                      |        |      |                  |   |   |   |
| 1   | 21110040-02A         | 5013-03-1; B-11 A 0'             | VOCHCL      | Soil  | 10/20/2021 14:00 | 1 | √ | √      |                |                      |                        |                        |                |                      |                        |                        |   |              |                      |        |      |                  |   |   |   |
| ACCOUNT #: <b>SSL</b>                     | PO#: <b>21110040</b> | SAMPLER: <b>Vimal</b>            |             | <p style="text-align: right; color: blue; font-size: 1.2em;">SSL2111079-01</p>  |                  |   |   |        |                |                      |                        |                        |                |                      |                        |                        |   |              |                      |        |      |                  |   |   |   |

|   |                      |                               |                                 |  |                   |  |  |
|---|----------------------|-------------------------------|---------------------------------|--|-------------------|--|--|
| Relinquished By: <i>[Signature]</i>               | Date: <b>11-2-21</b> | Time: <b>1240</b>             | Received By: <i>[Signature]</i> | Date: <b>11-2-21</b>   | Time: <b>1240</b> | REPORT TRANSMITTAL DESIRED:<br><input type="checkbox"/> HARD COPY (extra cost) <input type="checkbox"/> FAX <input type="checkbox"/> EMAIL <input type="checkbox"/> ONLINE |  |
| Relinquished By:                                  | Date:                | Time:                         | Received By:                    | Date:  | Time:             | FOR LAB USE ONLY<br>Temp of samples <u>20</u> °C    Attempt to Cool? _____<br>Comments: _____<br><p style="text-align: center; color: red;">Page 8 of 8</p>                |  |
| Relinquished By:                                  | Date:                | Time:                         | Received By:                    | Date:  | Time:             |  |  |
| TAT: Standard <input checked="" type="checkbox"/> |                      | RUSH <input type="checkbox"/> |                                 | Next BD <input type="checkbox"/> 2nd BD <input type="checkbox"/> 3rd BD <input type="checkbox"/> |                   | <p style="text-align: center; font-size: 0.8em;">Note: RUSH requests will incur surcharges!</p>  |  |



**CHAIN-OF-CUSTODY-RECORD**  
 21110040    Page 1 of 1

|  |   |   |   |
|--|---|---|---|
| <b>Report Results To:</b>                        |   | <b>Send Invoice To:</b>                           |   |
| Report Attention: Vimal P. Vimalaraj, P.E., G.E. | Project Number: 5013-03-1                   | Invoice Attention: Vimal P. Vimalaraj, P.E., G.E. | PO#   |
| Company: Corestone Engineering, Inc.             |   | Company: Corestone Engineering, Inc.              | Quote #                                     |
| Mailing Address: 10751 Grayslake Dr              |   | Mailing Address: 10751 Grayslake Dr               |   |
| City, State, Zip: Reno, NV 89521                 |   | City, State, Zip: Reno, NV 89521                  |   |
| Phone: 775-636-5916                              | Email / Fax: vimal@corestoneengineering.com | Phone: 775-636-5916                               | Email / Fax: vimal@corestoneengineering.com |

Sampled by: Vimal    Signature: *[Signature]*  
 I attest to the validity and authenticity of the sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time is considered fraud and may be grounds for legal action.

Standard:  Standard TAT 7-10 Business Days. Note that some tests vary.  
 Rush  Same Day:  3 Day:  Other (specify):  
 1 Day:  4 Day:  Rush results will be issued after 4:00 p.m.  
 2 Day:  5 Day:

Other Pertinent Information / Special Instructions  
 200c

| Date Sampled | Time Sampled | Sample Identification | SSAL - SEM Lab No. | Comp. Grab | Matrix | Preservative** | Number / Type of Containers *** | pH | Resistivity | Chlorides | Soluble Sulfates | TPH (Purgeable & Extractable) |
|--------------|--------------|-----------------------|--------------------|------------|--------|----------------|---------------------------------|----|-------------|-----------|------------------|-------------------------------|
| 10/20/2021   | 9 AM         | 5013-03-1; B-08 A 0'  |                    |            |        |                | 1                               |    |             |           |                  |                               |
| 10/20/2021   | 2 PM         | 5013-03-1; B-11 A 0'  |                    |            |        |                |                                 |    |             |           |                  |                               |

|                                     |           |                                |            |
|-------------------------------------|-----------|--------------------------------|------------|
| Relinquished By: <i>[Signature]</i> | Signature | Vimal P. Vimalaraj, P.E., G.E. | Print Name |
| Received By: <i>[Signature]</i>     |           | Corestone Engineering, Inc.    | Company    |
| Relinquished By: <i>[Signature]</i> |           | SSA                            |            |
| Received By: <i>[Signature]</i>     |           | 11/12/21                       | Date       |
| Relinquished By:                    |           | 3:52 PM                        | Time       |
| Received By:                        |           |                                |            |
| Relinquished By:                    |           |                                |            |
| Authorized By:                      |           |                                |            |

Authorization is required to process samples. This obligates your organization for service fees. SSAL Standard T & C's or other written agreement applies. If collections or legal services are required to recover said fees, your organization will be responsible for all fees and costs in addition to service fees.

Matrix\* DW-Drinking Water, WW-Waste Water, GW-Ground Water, SW-Surface Water, SS-Soil, S-Solid, OT-Other  
 Preservative\*\* 1=H<sub>2</sub>SO<sub>4</sub>, 2=HNO<sub>3</sub>, 3=HCl, 4=NaOH, 5=Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, 6=None, 7=Other  
 Container\*\*\* P-Plastic, G-Glass, V-Voa Vial, OT-Other

COMMENTS:  
 Sample delivered in plastic bag.

Samples are discarded 30 days after results are reported unless other arrangements are made and storage fees may apply. The analytical results associated with this COC apply only to these samples as they are received by the laboratory. The liability of the laboratory is limited to the amount paid for the report.



Silver State Labs-Reno  
1135 Financial Blvd  
Reno, NV 89502  
(775) 857-2400 FAX: (888) 398-7002  
www.ssalabs.com

## Definitions & Qualifiers

WO#: 21110040

Date: 1/5/2022

### Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

### Qualifiers:

\* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

C - Analyte value below Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.

Z - Batch LCS and/or LCSD were outside acceptance limits.



Siskiyou County, California  
Weed Airport

# Volume III

## Construction Safety and Phasing Plan

Issued for Bid  
April 2023

### Taxiway and Apron Reconstruction Project - Phase 1

Sponsor: Ms. Joy Hall  
Address: Siskiyou County General Services  
190 Greenhorn Road  
Yreka, CA 96097



---

TIMOTHY HEATH HILDEBRANDT, P.E.  
Project Engineer  
Kimley-Horn and Associates, Inc.  
CA Registered Civil Engineer #71966  
Expiration Date: December 31, 2023

Address: 7900 Rancharrah Parkway  
Suite 100  
Reno, NV 89511  
Phone: (775) 787-7552

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## Attachments

|              |                                       |
|--------------|---------------------------------------|
| Attachment A | FAA Advisory Circular 150/5370-2G     |
| Attachment B | Project Construction Phasing Drawings |

## **1. Introduction**

Siskiyou County, California (County) has primary responsibility for safety at Weed Airport (O46). The following document has been prepared to address construction safety and phasing for the Taxiway and Aircraft Parking Reconstruction Project.

The intent of this document is to provide the Contractor general guidance and direction on construction safety and phasing aspects of this project. In accordance with the requirements of Special Provisions No. 11 of the Contract Documents, prior to construction the Contractor shall prepare a project specific Safety Plan Compliance Document (SPCD) addressing their planned construction activities and safety measures. The SPCD shall meet the requirements of this document and the most current version of FAA Advisory Circular 150/5370-2G included herein as Attachment A.

The sections below are referenced from the requirements in AC 150/5370-2G and must be addressed in the Contractor's SPCD.

### **a. Operating Procedures**

Safety is of primary importance at airports, especially during construction projects. The following are general safety objectives that shall be achieved to maximize safety and to minimize time and economic loss to the aviation community, construction contractors, and others directly or indirectly affected by the project. The Contractor shall be responsible for controlling his operations and the operations of subcontracts (at all levels) and suppliers as they comply with the requirements of this section as listed below:

- Maximize safety of aircraft operations.
- Keep the airport operational for all users.
- Minimize delays to aircraft operations.
- Minimize delays to construction operations.
- Minimize airport operation and construction activity conflicts

### **b. Potential Safety Hazards**

An airport is a unique operational environment. Constant vigilance is required by all parties involved in construction activities to ensure a safe operating environment. The Contractor's attention is drawn to the following list of potential safety hazards that may be unique to an airport operating environment.

- Trenches, holes, or excavation on or adjacent to any open runway and taxiway or related safety area.
- Unmarked/unlighted holes or excavations in any apron, open taxiway, or related safety area.
- Mounds or piles of earth, construction materials, temporary structures, or other objects on or in the vicinity of any open runway, taxiway, or in a related safety, approach or departure area.

- Pavement drop-offs or pavement turf lips (either permanent or temporary) which would cause, if crossed at normal operating speeds, damage to aircraft that normally use the airport.
- Vehicle, equipment, excavations, stockpiles, or other materials which could impinge upon NAVAID critical areas and degrade or otherwise interfere with electron signals from radios or electronic NAVAIDs or interfere with visual NAVAID facilities.
- Unmarked utilities, NAVAIDs, weather service cables, runway lighting cables, or other power or signal cables that could be damaged during construction.
- Objects (whether marked/flagged or not) or activities anywhere on or in the vicinity of airport which could be distracting, confusing, or alarming to pilots during aircraft operations.
- Un-flagged unlighted low visibility items (such as tall cranes, drills, etc.) in the vicinity of an active runway, or in any approach or departure area.
- Misleading or malfunctioning obstruction lights.
- Unlighted unmarked obstruction in an approach to any open runway.
- Inadequate approach/departure surfaces (needed to assure adequate landing/takeoff clearance over obstructions or work or storage areas).
- Inadequate, confusing, or misleading (to pilots) marking/lighting of runways (including, displaced or relocated thresholds), taxiways, or taxilanes.
- Water, dirt, debris, or other transient accumulation which temporarily obscures pavement marking, pavement edges, or derogates the visibility of runway/taxiway marking, lighting, or construction and maintenance areas.
- Inadequate or improper methods of marking, barricading, or lighting temporarily closed portions of Aircraft Parking Apron Non-Movement Area.
- Trash or other materials with foreign object damage (FOD) potential, whether on runways, taxiways, aprons, or related safety areas.
- Inadequate fencing or other markings to separate construction or maintenance areas from open aircraft operating areas.
- Inadequate control of vehicle and human access, and non-essential, non-aeronautical activities, on open aircraft operating areas.
- Improper radio communication maintained between construction/maintenance vehicles and County ops/inspection or other on-field communications facility (e.g., FAA flight service stations (FSS) or UniCom radio).
- Construction/ maintenance activities or materials which could hamper airport rescue and firefighting vehicle access to all parts of the runway/taxiway system, runway approach and departure areas, or aircraft parking locations.

- Bird attractants such as edibles (food scraps, etc.), trees, brush, other trash, grass/crop seeding, or pond water on or near the airport.
- Personnel at the construction site without proper O46 identification.
- No escorts for person at the job site without paper identification.
- Vehicles involved in the project; that do not meet the safety requirements or O46 rules and regulations.
- Improperly marked, lighted and flagged vehicles involved in the project.

Note: Safety area encroachments, improper ground vehicle operations, and unmarked or uncovered holes and trenches in the vicinity of aircraft operating surfaces are the three most recurring threats to airside safety during construction.

### c. Scope of Work

This project involves the pulverization and reconstruction of aircraft parking apron pavements, taxiway pavements, taxilane pavements, and the demolition of existing taxiways. Changes to the airport's pavements will necessitate modifications to the storm drain system and other utilities, subgrade preparation, placement of aggregate subbase, placement of bituminous pavement, installation of pavement markings, and installation of pavement edge reflectors. As shown in plans, pavement markings will primarily be replacements of existing with minor changes to reflect taxiway deletions and the reconfiguration of aircraft tie-down locations.

## 2. Coordination

### a. Contractor Progress Meetings

Coordination of airfield activities is an important component of a safe operating environment during the construction of a project. Throughout the Taxiway and Aircraft Parking Apron Reconstruction Project, the County will hold the following coordination meetings to discuss airfield activities:

- **Pre-Construction Conference.** As soon as practicable after award of the Contract and prior to commencing any work, a pre-construction conference will be conducted by County personnel. The purpose of this conference is to determine and discuss procedures related to the smooth and safe progress of the project and to review safety and security issues and any items requiring clarification. The Contractor, each subcontractor, supplier, or other entity that will be involved with the project shall be represented at this meeting. The Pre-Construction Conference will be held prior to issuance of the Notice to Proceed for construction.
- **Weekly Progress Meetings.** The County will conduct a weekly Progress Meeting at a mutually agreed upon regularly scheduled time convenient for all parties involved. Progress Meetings are in addition to specific meetings held for other purposes such as coordination meetings. A Three-Week Schedule shall be developed by the Contractor prior to the start of the meeting and will be discussed during the planning portion of the agenda. Additionally, discussions will address administrative and technical issues of concern, determining resolutions, and development of deadlines for resolution within allowable time frames. Operational Safety and Security items will

also be discussed at these weekly meetings. These meetings will also address weekly construction issues, administrative issues such as changes orders and/or pay estimates, and any coordination required with the FAA or the Sponsor in relation to opening/closing sections of pavement, issuing NOTAMs, or impacting NAVAIDs during construction.

The Contractor, each subcontractor, supplier, or other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. Individuals who represent the Contractor and/or suppliers shall be authorized to conclude matters relating to the project.

The meeting may review and correct or approve minutes of the previous Progress meetings. The meeting minutes will document issues of significance including submittals, schedules, quality control, safety problems encountered, the assignment of responsibilities for future action and review other items of significance that could affect the project.

- **Pre-Activity Conferences for Key Project Tasks.** These meetings will be scheduled prior to key milestones in the construction of the project. These conferences will be to coordinate major construction tasks for the project. These meeting are to include at minimum; 1) Access, closures, and demolition. 2) Utilities. 3) Grading. 4) Asphalt Pre-Paving. 5) Pre-Striping.
- In addition to the above planned meetings, daily coordination will take place between County personnel, Contractors, Sub-contractors, Project Stakeholders, Construction Manager, and all other parties involved.

#### **b. Scope or Schedule Changes**

The Contractor shall notify the County of all proposed scope and schedule changes. The County will consider all scope and schedule changes to determine whether revisions to the CSPP are necessary. All revisions to the CSPP shall require review and approval by the County and the FAA.

#### **c. FAA Air Traffic Organization (ATO) Coordination**

The Contractor shall conduct all his operations in such a manner to maintain a smooth, safe, uninterrupted flow of aircraft and vehicular traffic adjacent to the work site.

- a. FAA form 7460-1 will be filed for this project along with all crane activity associated with construction.
- b. There will be a weekly coordination meeting with County staff, and O46 Stakeholders, to discuss:
  - Project progress
  - Operational impacts and solutions, including impacts to emergency response routes
  - Future schedule
- c. No NAVAIDS shutdowns are currently planned for this project.

Prior to excavation in the vicinity of existing underground facilities, the Contractor shall notify the Construction Manager, and the authorized representative of the owners and agencies responsible for such



facilities, not less than 3 working days and not more than 5 working days, prior to excavation so that a representative of the owners or agencies can be present if they so desire.

### 3. Phasing

The Project is located within the Weed Airport. The project consists of the pulverization and reconstruction of the existing Taxiways ‘A’, ‘A1’, ‘A3’, ‘A5’, ‘A6’, ‘B2’, ‘B3’, ‘B4’ and ‘B5’, existing ‘South’ taxiway, and a portion of the existing aircraft parking apron and Taxiway ‘A’. The demolition of Taxiways ‘A2’, ‘A4’, ‘B1’ and ‘B6’ will also be completed as part of this project. Additional construction elements of the project include, modifications to the storm drain system and other utilities, subgrade preparation, placement of aggregate subbase, placement of bituminous pavement, installation of pavement markings, and installation of runway reflectors.

The Contractor shall perform the awarded project schedules within the periods of time specified below. Liquidated damages in the amounts specified in Special Provision 10, Phasing, Duration, and Liquidated Damages, shall be assessed if the Contractor fails to complete any work schedule within the specified allowed duration. The words “work schedule”, “work area”, “zone”, and “phase” may be used hereafter to describe either the period of time, and/or the area in which, certain work is to be done.

A notice to proceed will be issued upon which the Contractor shall commence a non-construction Procurement Phase. Only after items necessary to complete the Procurement Phase have been achieved will a notice to proceed for construction be issued. A separate notice to proceed for construction will be issued each for work schedule. The table below indicates the order and duration allowed for each work schedule.

| Phase of Work           | Duration from NTP<br>(Calendar Days) |
|-------------------------|--------------------------------------|
|                         | <b>Procurement NTP</b>               |
| Procurement Period      | 45                                   |
|                         | <b>Construction NTP</b>              |
| Base Bid - Phase I      | 30                                   |
| Base Bid - Phase II     | 45                                   |
| Base Bid - Phase III    | 15                                   |
| Project Closeout        | 30                                   |
| <b>Overall Duration</b> | <b>165*</b>                          |

*\*An additional 15 calendar days will be provided for any combination of Bid Alternates 1 and/or 2 that are awarded.*

The entire work of this contract shall be complete within a period of 125 days. No additional payment will be considered if additional project phasing is required to accommodate this date restriction.

The Procurement Phase consists of a non-construction period that includes all work necessary for project startup. The Overall Project Duration includes the Procurement Phase Calendar Days. Project Calendar days will accrue during the Procurement Phase and a construction notice to proceed will not be issued until the Procurement Phase items are complete. The Procurement Phase includes submission and

acceptance of all contract and material submittals and permits, including, but not limited to, the Safety Plan Compliance Document (SPCD). The Procurement Phase, separate Construction Phases, and overall project duration shall not be extended to accommodate submittals that are rejected or that require re-submission. Unused Procurement Phase Calendar Days shall not be applied to increase the duration of Construction Phases of the work. No extension in contract time will be allowed and the Construction Notice to proceed shall not be issued if the Contractor has not completed items required under the Procurement Phase within the 45 days from the start of the procurement period.

A separate Construction Notice to Proceed will be issued for Phase 1 of the project after the completion of the Procurement Phase by the Contractor

## **4. Areas and Operations Affected by the Construction Activity**

### **a. Identification of Affected Areas**

Except as otherwise described in the construction safety phasing plan, no equipment or material within 44.5 feet of an active taxiway centerline, or as otherwise specified, shall be above the taxiway grade while the taxiway is being used by aircraft.

### **b. Mitigation of Effects**

- Open graded soils, crushed aggregate, or other unbound granular materials must be covered and secured or treated in a manner approved by the Construction Manager/Airport Operations so that these materials do not result in FOD or dust due to exposure to jet blast and/or weather.
- Marking and lighting of work areas adjacent to taxiways shall be required and approved by the Construction Manager in coordination with the O46 Airport Manager.
- The Contractor shall conduct all his earthwork construction in such a manner so as to minimize any potential differential settlement between the edges of two adjacent construction phases.
- Barricades with red steady burn lights shall be installed where potential conflicts with aircraft or ground vehicular traffic exists. Stockpiles shall not penetrate the FAR Part 77 imaginary surfaces, conflict with advisory circular 150/5370-2(latest edition) or present FOD problems.

## **5. Navigation Aid (NAVAIDS) Protection**

No scheduled work or vehicle haul routes for the project enter or cross NAVAID Critical Areas.

## **6. Contractor Access**

### **a. Location of stockpiled construction material**

Contractor staging areas as depicted on the contract drawings, shall be used to store all idle equipment, supplies and construction materials. Storage shall not interfere with operation areas. When not in use during working hours, and at all other times, all material and equipment shall be stored at the storage site indicated on the drawings unless prior approval is provided by the Construction Manager.

Storage of equipment and materials left overnight shall be in the contractor's staging area as shown on Construction Phasing Plans. The contractor shall be solely responsible for the security of the lay-down

area and shall be liable for any damage caused to such premises. The contractor shall restore the staging and storage areas and adjacent areas to their original condition prior to final acceptance of the work.

The contractor shall keep the work area and adjoining areas free from dirt and debris caused by the work. Noise from construction operations shall be subject to control by the Construction Manager to avoid interference with the operations of the Airport. Equipment and materials must be stored off the Aircraft Parking Apron Non-Movement Area until the time they are to be used or incorporated into the work unless otherwise approved by the Construction Manager. Materials unloaded at the work site shall be placed as to cause no greater obstruction to automobile and pedestrian traffic than is considered necessary by the Construction Manager. No roadway or passageway shall be closed or opened except by express permission of the Construction Manager. Construction equipment and material delivery vehicles shall be operated in such a manner as to avoid any hazard or apparent hazard to the public. As required by the general provisions, the contractor shall place sufficient delineator or barricades and signs closing off the work area within and adjacent to the work area, without interrupting the safe and orderly flow of aircraft, pedestrian, and vehicular traffic.

- The contractor staging area shall be used to store all idle equipment, supplies, and construction materials. Storage shall not interfere with operational areas.
- When not in use during working hours, and at all other times, all material and equipment shall be stored at the storage site unless prior approval is provided by the Construction Manager and the O46 Airport Manager.
- The contractor shall not store materials or equipment in areas in which the equipment or material will affect the operation of FAA electronics equipment.
- No materials may be stored within the Aircraft Parking Apron Non-Movement Area unless authorized by the Construction Manager and the O46 Airport Manager.
- Parking of construction workers' private vehicles shall not be allowed within the Airport's security fence unless approved by the Construction Manager and O46 Airport Manager. Any approved storage of equipment will not present a line-of-sight problem with flagman operations, vehicle traffic or aircraft.
- Stockpiling of material will only be allowed at the contractor's staging area unless otherwise approved by the Construction Manager/Airport Operations. Contractor shall be responsible for any blown debris or dust from stockpiles. The stockpile height is restricted to 20' and shall remain below the FAR part 77 imaginary surface contours. However, barricades with red flashing lights shall be installed where potential conflicts with aircraft or ground vehicular traffic exists.
- Contractor shall not park equipment, vehicles or stockpile materials within 10' of any security fence.
- Location of construction site parking access points and haul routes, see Construction Phasing Plans.

The contractor's staging area is as shown on the Construction Phasing Plans. The contractor project office shall be set up in the staging area. The contractor shall be responsible for all permitting, utility connections and cost required to operate out of this location.

## **b. Vehicle and Pedestrian Operations**

### **(1) Construction Site Parking**

- No parking is permitted on the airport roadway as the primary purpose of the airport roadway is for motor vehicle traffic.
- No person shall park any motor vehicle, other equipment, or materials within the Aircraft Parking Apron Non-Movement Area, except in a neat and orderly manner and at such locations prescribed or as directed by the Construction Manager.
- No person shall park any motor vehicle or other equipment or place materials within the Aircraft Parking Apron Non-Movement Area within 15 feet of any fire hydrant or standpipe.
- Parking of construction workers' private vehicles shall also be in a public parking or private parking facility outside the Aircraft Parking Apron Non-Movement Area unless otherwise approved by the Construction Manager. Under no circumstances shall vehicles or equipment be parked within 10 feet of the airport perimeter fence line.

### **(2) Construction Equipment Parking**

- All vehicles and equipment shall be kept within the work areas established for that work shift unless traveling to or from the site. Under no circumstances shall vehicles be parked or equipment stored outside of the immediate work areas.
- All cranes shall be lowered when not in use.
- Any equipment temporarily parked at a work site for use during the current work shift shall be properly marked, parked outside all safety areas and within the barricaded work site. Equipment shall not exceed 15 feet in height and shall be left in the lowest possible profile position.
- No equipment or construction vehicles shall be parked or left unattended outside the airfield access gates or on public roadways. When equipment or vehicles are to be delivered to the work site, the contractor must be present to accept the equipment or vehicles and shall escort them inside the airfield fence and have them parked in the contractors' staging area or other approved location on the airfield. Any construction equipment or vehicles left unattended outside the airfield gates or on public roadways shall be impounded by The County.

### **(3) Access and Haul Roads**

Haul route vehicles delivering materials to, or hauling material from the work sites shall use the gates and haul routes as shown on the plans.

- Roads designated as contractor haul routes may be used by other airport vehicles, contractors and the general public (along public roads). The contractor shall not interfere with other vehicle traffic and shall yield to emergency vehicles and aircraft along any of the airport or

public roads. The contractor shall provide all flagging, signing, lighting, etc. required by Weed Airport, Siskiyou County, and the state to provide all reasonable safety measures to protect all persons utilizing the service road, the haul road all public roads used by the contractor. The contractor shall obey all vehicular weight and speed limits established as posted on airport property and public streets.

- Any damage along the contractor access/haul routes due to the contractor's use shall be repaired immediately at no additional cost to the County. At the completion of the project, all pavements and surfaces along the access routes shall be restored to their original conditions, as determined by the Construction Manager. Contractor shall repair any damage to the haul road and public roadway due to his/her operations. The contractor shall coordinate and meet the cleaning and repair requirements set by other public agencies for use of pre-inspection and documentation of haul route conditions.
- Locations of access roads are approximate. Exact locations shall be coordinated with the Construction Manager to avoid surface utilities, navigational equipment, taxiway safety areas, etc. Access roads must be constructed and operational before any other work can begin. All vehicles and equipment must access the work area along designated access roads
- All airfield markings along haul routes and areas adjacent to the work area shall be maintained by the contractor to the satisfaction of the Construction Manager for the duration of the project.
- All surplus pavement materials designated for removal such as rock, concrete and asphalt pavement shall be hauled off to the contractor's staging area. Trucks delivering asphalt pavement or concrete shall not wash out chutes, beds, mixers, etc. on the Aircraft Parking Apron Non-Movement Area. Equipment shall not be stored between work shifts on the active Aircraft Parking Apron Non-Movement Area. Vehicles shall remain within established drive lanes. It is prohibited to use Runways or Taxiways or adjacent field areas unless specifically indicated on the plans. It is emphasized that the contractor's authority to operate does not extend to active aircraft movement areas. The contractor shall operate along established haul routes with prior approval of the Construction Manager.
- Contractor's vehicles shall not deviate from approved haul routes specified on the plans or as directed by the Construction Manager. Crossover between construction sites is prohibited. To move from one construction site to another. Vehicles must exit the Aircraft Parking Apron Non-Movement Area via the approved haul route and access point and re-enter through the approved area. If vehicles are required to travel over any portion of that area, they shall be accompanied by an approved radio-equipped escort vehicle.

#### **(4) Marking and Lighting of Vehicles**

- Vehicles entering the Aircraft Parking Apron Non-Movement Area must comply with AC 150/5210-5, Painting, Marking, and Lighting of Vehicles Used on an Airport.
- All vehicles within the Aircraft Parking Apron Non-Movement Area shall be equipped with reflectors or lights on both front and rear ends and on the sides.

- Contractor's vehicles shall be equipped with operable yellow flashing beacons. Beacons must be lighted during all periods of the vehicle operation and while vehicle is within the Aircraft Parking Apron Non-Movement Area.
- Each vehicle or unit of equipment that travels or operates on any part of the Aircraft Parking Apron Non-Movement Area shall have an approved decal or painted company name applied to both sides of the vehicles in a location opposite the driver's seat. The identification should be applied to the front door panels. Magnetic or temporary signs are not acceptable. The name of the company should be spelled out in letters no less than three (3) inches high.
- Use of logos or symbols in lieu of letters is subject to approval by the Weed Airport Manager.
- Vehicles that appear at access gates without signs on both sides of the vehicle will be denied access. Vehicles found to be missing signs within the Aircraft Parking Apron Non-Movement Area will be escorted off the jobsite and not be permitted to re-enter until signs have been installed.
- All contractor vehicles shall be properly identified and equipped with operable yellow flashing beacons, beacons must be lighted during all periods of vehicle operation and while the vehicle is on the Aircraft Parking Apron Non-Movement Area. Vehicles shall be equipped with reflectors or lights on both front and rear ends and on the sides.
- Beacons and flags required on all contractor vehicles/equipment must be maintained in good working condition, and flags shall be replaced if they become faded, discolored, or ragged.

#### **(5) Description of Proper Vehicle Operations**

- Each contractor, including each contractor/subcontractor employee, who operates a ground vehicle on any portion of the Aircraft Parking Apron Non-Movement Area at O46 must be familiar with and comply with:
  - O46's rules and regulations.
  - O46's procedures for the operation of ground vehicles.
- During the duration of the work, the contractor shall recognize and abide by all rules, regulations, and controls, as modified by federal regulations.
- In addition to the federal regulations, the Construction Manager is empowered to issue such other instructions as may be deemed necessary for the safety and well-being of airport users or otherwise in the best interest of the public.
- No person shall operate any motor vehicle or motorized equipment on the aircraft movement or non-movement areas of the airport at a speed in excess of the posted (established) speed limit. Vehicles shall be operated under safe conditions at all times, weather and traffic conditions being considered. No vehicle shall at any time be permitted to interfere with or endanger aircraft traffic.

- No person shall operate any motor vehicle or motorized equipment in the Aircraft Parking Apron Non-Movement Area of the airport unless such motor vehicle or motorized equipment is in a safe and mechanically reliable condition for such operation.
- Any person operating equipment in the Air Operations Area shall, in addition to this section, abide by all existing Federal Aviation Administration and other governmental rules and regulations.
- It is emphasized that the contractor's authority to operate does not extend to active aircraft movement area. The contractor shall operate along established haul routes with prior approval of the Construction Manager.
- Motor vehicle operations within and on the airport premises shall be governed by the provisions of the Nevada state motor vehicle codes and traffic direction procedures and signs and signals for turns. Lights and safe-driving precaution shall be in the conformity therewith. In addition, motor vehicles shall conform to all special regulations prescribed by the airport.
- Traffic on perimeter roads, enplaning and deplaning areas, public thoroughfares and parking areas of the airport is limited to those vehicles properly licensed to operate on public streets and highways or as approved by the Construction Manager/Airport Operations
- Every person operating motorized equipment of any character on any area shall operate the same in a careful and prudent manner and at a speed posted or fixed by this section or the general provisions and at no time greater than is reasonable and proper under the conditions existing at the point of operating, taking into account weather, traffic and road conditions, view and obstructions, and shall be consistent with all conditions so as not to endanger the life, limb or property, or the rights others entitled to the use thereof.
- The Contractor shall be aware that the operations of aircraft in an adjacent area will result in jet blast occurring in the work area. The Contractor vehicles, equipment and supplies must remain inside the work area established for the work shift unless in transit to or from the site. All vehicles and equipment must access the work area along designated access roads.
- All motor vehicles that enter the Aircraft Parking Apron Non-Movement Area shall possess exhaust system which are protected with screens, mufflers, or other devices adequate to prevent the escape of sparks of the propagation of flame.
- No person shall operate any motor vehicle or motorized equipment with the Aircraft Parking Apron Non-Movement Area unless such motor vehicle or motorized equipment is in a safe and mechanically reliable condition for such operation.
- Any person operating equipment within the Aircraft Parking Apron Non-Movement Area shall, in addition to this section, abide by all existing federal aviation administration and other governmental rules and regulations and shall at all times comply with any lawful signals or direction of airport employees. All traffic signs, lights and signals shall be obeyed.
- No person shall operate any motor vehicle or motorized equipment on the aircraft movement or non-movement areas of the airport at a speed in excess of the posted (established) speed

limit, and less where conditions require. Designated motor vehicle drive lanes shall be utilized where provided unless specific direction is given by the Construction Manager.

- Load Limits: When using airport roadways, the contractor shall restrict the gross combination weight to 80,000 pounds, single-axle maximum weight of 20,000 pounds, and a tandem axle weight maximum of 32,000 pounds. All vehicle weights are subject to verification by the Construction Manager.

**(6) Required Escorts** This section not used.

**(7) Training Requirements for Vehicle Drivers**

- All drivers operating vehicles on airport property must carry a valid United States driver's license on his/her person, appropriately endorsed for the type of equipment being operated.
- Drivers designated to operate vehicles within the Aircraft Parking Apron Non-Movement Area shall receive special drivers training as required in the general provisions and be approved by the airport before being allowed to operate within the Aircraft Parking Apron Non-Movement Area or must be escorted by an approved escort. Drivers operating outside the Aircraft Parking Apron Non-Movement Area may operate vehicles without attending the special drivers training.
- Every driver who operates a vehicle on the Aircraft Parking Apron Non-Movement Area of the airport must be familiar with the pertinent provisions of the state of Nevada vehicle code; and, the traffic and licensing subsections of these rules and regulations. The driver must have been trained in the vehicle to be operated.
- A minimum of eight (8) supervised hours of practical driver training (behind the wheel) on the Aircraft Parking Apron Non-Movement Area is required prior to the testing of the applicant for issuance of the restricted area driver permit. Note: all drivers training should include daylight and night driving on roadways, access lanes and ramp/apron areas. Applicant must be the driver during the required training and not the passenger in the vehicle.
- The applicant must pass a written (multiple-choice) test administered by the security badge office. The test covers Aircraft Parking Apron Non-Movement Area safety rules and regulations. If the applicant fails the test, it can be re-administered in 48 hours. If the applicant fails the second test, it can be re-administered in one month.

**(8) Situational Awareness**

All aircraft and emergency vehicles have priority over contractor vehicles. Contractor vehicles shall yield right-of-way to aircraft and emergency vehicles. Contractor shall ensure that under no circumstances will any contractor or subcontractor or other vehicle associated with the job pass beneath any part of an aircraft, or block the access to or delay any aircraft movement.

No person operating a motor vehicle or motorized equipment within the Aircraft Parking Apron Non-Movement Area shall in any way hinder, stop, slow, or otherwise interfere with the operation of any aircraft.



## **(9) Two-way Radio Communication Procedures**

The Contractor will be required to monitor by radio for aviation activity. All communication will be directly with the Construction Manager. The Contractor shall also not utilize any equipment that interferes with Weed or FAA radio frequencies.

**(10) Maintenance of the Secured Area of the Airport** This section not used.

## **7. Wildlife Management**

### **a. Trash**

Any food waste shall be controlled and promptly cleared to prevent attracting birds and animals. It is the responsibility of the contractor to make arrangements for trash removal from the project site as well as the contractor's staging area. Trash should be removed from the site on a weekly basis.

### **b. Standing Water**

After a rainfall event, standing water will not be allowed on site for more than 24 hours. The contractor shall have a pump available at all times to remove standing water from the project area. The water shall be removed from the site in accordance with all federal and state regulations for Stormwater management.

### **c. Tall Grass and Seeds**

The contractor shall maintain the parking and staging areas free of weeds and tall grasses that might attract wildlife.

### **d. Poorly Maintained Fences and Gates**

Any contractor erected fences or gates shall be properly maintained to prevent the migration of wildlife into the Aircraft Parking Apron Non-Movement Area. Inspection of the construction area will be conducted on a daily basis by the O46 Airport Manager.

### **e. Disruption of Existing Wildlife Habitat**

The contractor shall immediately notify the O46 Airport Manager of any wildlife sighting within the Aircraft Parking Apron Non-Movement Area. Any wildlife activity shall be noted on the airfield inspection check list. All personnel shall take immediate action to eliminate wildlife hazards whenever they are detected.

## **8. Foreign Object Debris (FOD) Management**

It is the contractor's responsibility to maintain a clean project site free of FOD. All aircraft movement areas will be under constant surveillance by all parties to ensure they are acceptable for aircraft operations.

No loose material or waste FOD capable of causing damage to aircraft or capable of being ingested into jet engines may be left in the working area on or next to runways, taxiways, ramps, or aprons. The contractor shall direct special attention to all areas which are operational to aircraft during construction. These shall be always kept clean and clear of all materials or debris. Any food waste shall be promptly cleared to prevent attracting birds and animals.

All loose material or waste FOD located on aircraft movement areas shall be reported to the inspectors immediately; the inspectors shall coordinate with Airfield Operations to close the area to aircraft traffic if required until cleanup is accomplished.

Trucks and equipment shall have all accumulated dirt, mud, rocks and debris removed before accessing the Aircraft Parking Apron Non-Movement Area, and when leaving the work area. Loads shall be struck flush and secured to prohibit loss of material. If spillage occurs, such roadways shall be swept clean immediately after such spillage to allow for safe operation of vehicles as determined by the Construction Manager. If the contractor is negligent in cleanup and O46 resources are required to perform the work, the expense of said cleanup shall be paid by the contractor.

The contractor shall continuously sweep and wash down all access routes to the construction areas and existing adjacent paved areas and Aircraft Parking Apron Non-Movement Area pavements. These areas shall be kept free of debris at all times, at no additional cost to the owner.

The contractor shall keep at least one (1) operational vacuum sweeper truck operational at all times during working and non-working hours and shall maintain the sites free from dust and objectionable debris. During the period of time that there is no construction activity (between work shifts), the vacuum sweeper trucks and water trucks must be ready and on-site with contractor's personnel available by phone to respond immediately to a dust or debris problem as identified by O46 Airfield Operations staff or the Construction Manager. At no time shall there be more than a 10 minute response time to calls concerning dust/debris problems during work hours and a 60 minute response time at all other times on a 24-hour per day basis. The contractor shall provide whatever means necessary to prevent foreign object debris (FOD) in aircraft movement areas and provide construction area generated dust control on a 24-hour basis.

The contractor shall provide truck washes, rumble strips, shakers or other means as necessary to prevent FOD in the Aircraft Parking Apron Non-Movement Area and will be monitored by the Construction Manager. If the contractor's method does not remove debris adequately to meet safety requirements, the contractor may be shut down and will be required to utilize other methods at no additional cost to the County.

## **9. Hazardous Materials (HAZMAT) Management**

The contractor shall comply with all USEPA regulations for hazardous waste. All construction activity involved with the handling of hazardous materials must provide the project Construction Manager with a hazardous materials removal plan. The plan will include the name of the company used for removal of hazardous materials and the names and 24-hour telephone numbers of staff authorized to handle such removals.

No fuel, oil, grease, flammable liquids, or contaminants of any kind, including detergents, shall be allowed to flow into or be placed in any sewer system or open water areas without a separator or unless connected to an industrial waste system.

## **10. Notification of Construction Activities**

### **a. List of Responsible Representatives**

Contractor to work with O46 to maintain a list of the responsible representatives/points of contact for all parties and procedures for contacting them 24 hours a day, seven days a week. This list includes local Airport Operations personnel and contractor including all subcontractors.

### **b. NOTAMs**

No ramp, apron, Taxiway or Runway area shall be closed to aircraft without approval of the O46 Airport Manager and the Construction Manager. This will enable notices to airmen (NOTAMS), or other advisory communications to be issued. A minimum of 72 hours' notice of requested closing shall be directed to O46 Airfield Operations and the Construction Manager.

### **c. Emergency Notification Procedures**

In case of an emergency caused by an accident, fire, or personal injury or illness, airport police are to be immediately notified. Police will coordinate with other emergency agencies as necessary. The contractor shall also notify the Construction Manager and Airport Operations so that any coordination or closures that may be required can be addressed immediately.

In the event of an aircraft emergency that may affect construction activities determined by the O46 Airport Manager; the contractor's personnel and/or equipment may be required to immediately vacate the area. The O46 Airport Manager will notify the County Construction Managing lead inspectors, they will coordinate with the contractor except in case imminent danger; the O46 Airport Manager will coordinate directly with the contractor. Take action to remedy any unsafe condition.

### **d. Coordination with ARFF**

O46 does not have an Aircraft Rescue and Fire Fighting (ARFF) facility at the airport. The contractor shall coordinate with the Fire Department to mitigate the impacts to emergency vehicle access to the airport during construction. The contractor shall notify the fire department of impacts to water lines and/or hydrants, alterations to emergency access routes, and the use of hazardous materials on the airfield.

### **e. Notification to the FAA**

#### **(1) Part 77**

If cranes or other equipment exceeding 15 feet in height are to be used, the contractor will be required to submit for approval the FAA's application form 7460-1 online at:

<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>

The airport has no control over the FAA's review and approval time. The contractor is encouraged to submit any required applications well in advance (at least 3 months) of the need for the use of the equipment or crane.

Contractor to Submit:

- Exhibit showing location of crane

- Latitude
- Longitude
- Existing ground elevation including vertical datum
- Height of crane, structure, stockpile, etc.

FAA form 7460-1 will be filed for this project along with all crane activity associated with construction.

**(2) Part 157**

FAA Form 7480-1 is not anticipated for this project.

**(3) NAVAIDs**

No reimbursable agreements for flight checks and/or design and construction of FAA-owned NAVAIDs are required for this project.

- a) The contractor shall preserve and/or protect existing and new pavements and other facilities from damage due to construction operations. Existing pavements, facilities, utilities, or equipment which are damaged shall be replaced or reconstructed to original strength and appearance at the contractor's expense. The contractor shall take immediate action to replace any damaged facilities and equipment and reconstruct any damaged area which is to remain in service.
- b) Construction may be stopped by the O46 Airport Manager or the Construction Manager, any time he considers that the intent of the regulations regarding safety or security requirements is being violated or that a hazardous condition exists. This decision to suspend the operation will be final and will only be rescinded by the O46 Airport Manager when satisfied that the contractor has taken action to correct the condition and prevent recurrence.
- c) Construction may also be stopped or suspended by the O46 Airport Manager, in consultation with the Construction Manager during periods of inclement weather, such as low visibility, or when it is necessary to provide an extra margin of safety to aircraft operations, or reduce other activities to keep the airport operational.

**11. Inspection Requirements**

**a. Daily Inspections**

The O46 Airport Manager and the Construction Manager will conduct continual inspections of the construction site to ensure that areas surrounding the sites are safe for aircraft operations. The O46 Airport Manager personnel will note any discrepancies on the daily inspection checklist. Any aircraft movement surface or adjoining Runway, Taxiway, Taxilane, or safety area that does not pass inspection must remain closed until such time cleanup is performed and approved.

**b. Final Inspections**

Final inspections will be made by the O46 Airport Manager and or authorized representative upon completion of critical phases of the work to ensure that no hazards exist prior to the re-opening of pavements to aircraft traffic.

## 12. Underground Utilities

Procedures for locating and protecting existing underground utilities/facilities in excavation areas:

The contractor will be required to mark all utility lines prior to any work in a given area. Marking shall consist of paint. The word danger or equivalent, shall be marked with red or orange paint to enhance visibility. Additionally, the contractor shall expose and verify (by survey) the depth and alignment of all underground utilities in the construction site. The contractor shall pothole and survey all utilities within a five-foot distance of any footing, work, utilities, etc. prior to excavation.

The contractor shall contact utility owners after the ID number is obtained from the Underground Service Alert (USA) but not less than fourteen (14) days before excavation work is started, to mark or identify existing utilities. The County will not mark utility lines owned and maintained by the County. The Contractor shall also employ a private utility locator to mark the existing underground utility lines.

- The contractor's attention is directed to the existence of certain underground facilities that may require special precautions by the contractor to protect the health, safety, and welfare of workers and of the public. Facilities requiring special precautions include: compressed air lines; conductors of petroleum products, oxygen, chlorine, and toxic or flammable gases; natural gas in pipelines greater than six inches in diameter, or pipelines operating at pressures greater than 60 psi (gauge); underground electric supply system conductors or cables, with the potential to ground more than 300 V, either directly buried or in duct or conduit that do not have concentric grounded or other effectively grounded metal shields or sheaths.
- All utilities encountered along the line of the work shall be maintained in service during all operations under the contract, unless other arrangements satisfactory to the utility owner, the affected agency, and the Construction Manager are made in advance. Utilities shall include, all above or below ground conduit, pipes, wet wells, ducts, cables, and appurtenances associated with oil, gas, water, steam, irrigation, sewer, storm drain, wastewater, air, electrical, power, instrumentation, communication, telephone, TV, and lighting systems, whether or not owned by the County. All valves, switches, vaults, and meters shall be maintained readily accessible for emergency shutoff.
- Any utility that is damaged by the contractor shall be immediately reported to the Construction Manager and Airport Operations and immediately repaired to a condition equal to, or better than, the condition they were in prior to such damage. Repair work shall be continuous until the utility or improvement is placed back in service.
- All existing utilities within the construction areas or the staging area that are designated to remain in place shall be maintained, accessible, and protected at all times (i.e., waterlines, fire hydrants, valves, drainage structures, electrical & FAA cables/equipment, etc.). Refer to the specifications, phasing plans, and demolition plans for additional requirements that are associated with this project.
- The existence, location and characteristics of underground utility information shown on these plans were obtained from available record data. No representation is made as to the accuracy or completeness of utility lines shown or any unknown utilities. Contractor shall make reasonable inferences as to existing underground utilities from observation of visible conditions and take

appropriate measures to protect all utilities including underground communication installation which are owned and operated by The County, FAA, DOA, AT&T and other third parties.

- Contractor shall perform site investigation to verify location and depth of all utilities. Investigate by means of vacuum or air pressure pot-holing or other means as approved by the Construction Manager. Contractor shall accurately record and stake the location of all utilities.
- The Contractor shall be responsible for and repair, at Contractor's own expense, any damages resulting from his/her failure to locate utilities as specified.
- Exercise extreme care when using any equipment to prevent contact with any nearby power lines and power sources. Safe working clearances shall conform to the national electrical code.
- All structures shall be designed to support aircraft loads specified unless otherwise noted.
- The contractor may make certain temporary connections to the existing airfield lighting system only if it is associated with keeping the required lighting systems operational and approved by the resident Construction Manager. The contractor shall provide a separate power source for other construction related power needs.
- Power and control cables for airfield lighting and navigational aids are located adjacent to the construction areas. The contractor's personnel shall be familiar with these cable locations and keep vehicles and equipment clear of any cables at all times. Mark/delineate the surface for each utility in a manner acceptable to the Construction Manager. As indicated on the phasing plans and the specifications, the contractor shall locate all utilities (operational and abandoned) prior to starting any excavation, demolition or earthwork. The Contractor shall contact the Airport Manager to facilitate locating FAA facilities and cables.
- All work shall be performed in conformance with all federal, state, and local utility and contract requirements. Sequencing of work and safety practices used in, on or around high voltage lines or other utility structures are the responsibility of the contractor, except where electrical distribution and transmission lines have been de-energized and visibly grounded at the point of work. Assume that all such lines are energized and the contractor shall conform his operations to (among other requirements) title 29 of the code of federal regulations Part 1926, "Safety and Health Regulations for Construction," Section 1926.550 (a) (19).

### **13. Penalties**

In the event an employee of the contractor violates a safety provision, they shall be prohibited from returning to work on the Aircraft Parking Apron Non-Movement Area without remedial safety training and the approval of the Construction Manager. Violations may be deemed as just and sufficient cause to require the employee be permanently removed from the job site. The contractor shall be responsible for all costs and delays caused by safety violation.

### **14. Special Conditions**

Airport emergencies and closures take precedent over all other activities. If an emergency or closure occurs on Airport property that requires evacuation, stoppage of work, or clearing of work area and returning that area to service, the contractor(s) shall follow the direction of O46 Operations personnel, the Airport Manager, Airport Maintenance Personnel, Local Fire or Police to ensure the safety and

protection of all affected by the emergency. The contractor(s) will be notified by the Airport Manager via the Construction Manager as to when work can safely resume.

The Contractor shall be aware that equipment taller than 20-feet will require a Form 7460-1 issued. The Form will be submitted to the FAA as indicated previously in this document. Tall equipment shall have checkered flags attached at the top of the boom for daytime operations, and a flashing yellow light at night.

## **15. Runway and Taxiway Visual Aids**

The Contractor shall follow all requirements in Section 218 of FAA Advisory Circular 150/5370-2G, included in this document as Attachment A. In addition, the following guidelines must be followed:

- The O46 Airport Manager will be responsible to ensure all marking, lighting, and signage meet appropriate standards: AC 150/3340-1, AC 150 5340-30, AC 150 5340-50, AC 150 5340-53, AC 150 5340-44, and AC 150 5340-18.
- Reference the Construction Phasing Plans for the Construction Phasing Details in Attachment B.
- All existing pavement markings requiring removal shall be obliterated in a manner that will not leave marking shadows at the direction of the O46 Airport Manager and the Construction Manager. All permanent pavement markings shall be restored at project completion.
- Taxiway/Taxilane closures: all lights and equipment designated to remain within the work areas, safety areas and on the Aircraft Parking Apron Non-Movement Area shall be protected at all times. The Contractor shall protect these lights and equipment from damage while working at the work site. When a taxiway or taxilane is closed, the lights shall be turned off or masked. The Contractor shall place barricades around any elevated lights and equipment that may be in the work area to delineate and protect them. Damage due to the contractor's operations shall be repaired immediately at the contractors' expense.
- For temporary closures of taxiways or taxilanes, contractor shall turn off/mask centerline lights, edge lights and signage around the work areas during the work shift. Contractor shall protect these lights from damage at all times while working at the work sites. All centerline and edge lights designated to remain shall be operational at the end of the closure. Submit proposed method for Construction Manager's approval.
- When existing edge lighting is rendered inoperable on an active runway or taxiway, the contractor must install temporary edge lights as directed by Construction Manager/Airport Operations.
- Every effort possible shall be made to construct temporary taxiway lighting to conform to the runway or taxiway safety area frangibility and height restrictions as specified in the FAA Advisory Circular 150/5370-2G.
- Temporary edge lights shall be securely fastened down and the electrical power cable shall not be driven across. Airfield lighting cables operate at high voltage. They have the potential of 5,000 volts and should have only qualified personnel handling them.
- Temporary light plants used in conjunction with nighttime work will not be located in such a manner as to be an obstruction or hazard. In addition, these light plants will not be located where the glare of the light will cause visual or physical interference to operating aircraft.
- All permanent signs affected by construction shall be replaced by temporary signs acceptable to the O46 Airport Manager and the Construction Manager. The contractor shall submit a sign

relocation plan to the O46 Airport Manager and the Construction Manager for approval prior to any relocation of any existing signs.

## **16. Marking and Signs for Access Routes**

All haul routes conform to marking and signage in the FAA Advisory Circular 150/5340-18 and to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications.

## **17. Hazard Marking, Lighting, and Signing**

The Contractor shall follow all requirements in Section 220 of FAA Advisory Circular 150/5370-2G, included in this document as Attachment A. In addition, the following guidelines must be followed:

- Every excavation or hazard on or adjacent to the airfield or other areas shall be marked.
- No lantern flare pots or open-flame devices shall be used.
- The contractor shall completely fence or barricade all excavations, to the satisfaction of the O46 Airport Manager and the Construction Manager, to provide protection against anyone falling into the excavation. The fencing and or barricades shall be in place at all times except when workers are present and actual construction operations are in progress.
- Continuous burning standing red barricade lights and/or other red lighted hazard devices stipulated on the phasing plans shall be operative at all times while in place. It shall be the contractor's responsibility to immediately repair or replace any light or flasher that is not operating.
- Barricades shall be in place prior to commencing construction operations, and shall be maintained for the life of the contract.
- Every excavation or hazard on or adjacent to runways, taxiways, ramps, or other areas on the airfield, shall be marked in accordance with the following conditions; lights shall be solar-powered, the contractor shall obtain the approval of the O46 Airport Manager and the Construction Manager on the condition of the work site, including lights, before leaving the work site in the evening.
- Limits of the various phases of work shall be clearly delineated with barricades, warning signs with attached steady or flashing red lights; "standing red" barricade lights and other markings as shown on the plans. Specified herein, in order to deter aircraft and vehicles from entering the construction areas.
- Contractor shall continually inspect and maintain all construction barriers, fencing, and gates in good condition, see construction phasing details in Attachment B.
- Portable lighting provided for any night work shall not interfere with air navigation. Lights shall be transported to the work areas pointed down and turned off to avoid affecting ATCT Operations.
- The contractor and subcontractor shall be required to attend a daily airfield safety coordination meeting as determined by the Construction Manager and have a representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades.



## **18. Protection of Runway and Taxiway Safety Areas**

The Contractor shall follow all requirements in Section 221 of FAA Advisory Circular 150/5370-2G, included in this document as Attachment A. In addition, the following guidelines must be followed:

- No materials or equipment may be stored or stockpiled with the TSA or TOFA at any time.
- Prior to opening the Taxiway following the work shift, the edge of the taxiway shall be continuously barricaded for the length of the adjacent excavation with approved low profile barricades and with the approval of the O46 Airport Manager and the Construction Manager.
- No ramp, apron, taxiway or runway area shall be closed to aircraft without approval of the O46 Airport Manager and the Construction Manager.
- The use of solar powered standing reds placed at all locations in which aircraft could inadvertently enter the construction area for limited duration closures; or hard wired eighteen inch high standing red lights as approved by the O46 Airport Manager and the Construction Manager for longer duration closures.
- All pertinent airfield signage will be removed, covered and de-energized where appropriate.
- A painted yellow X may be placed on the taxiway centerline for longer duration closures.
- Removal of the taxiway markings will be determined on a case by case basis.

## **19. Other Limitations on Construction**

### **a. Prohibitions**

Prior to the beginning of construction, the Contractor shall disclose the specific equipment heights on Form 7460-1 and submit for FAA review and approval. A determination letter from the FAA acknowledging equipment heights within the project area is required before the start of construction. Construction activities shall not interfere with any NAVAIDs critical areas, safety areas, obstacle-free zones, object free areas and any threshold citing criteria. This includes limitations on equipment height and stockpiled material.

Contractors may not use open flame welding or torches unless adequate fire safety precautions are provided and the Construction Manager has approved their use. Under no circumstances should flare pots be used within the Aircraft Parking Apron Non-Movement Area at any time. The use of electrical blasting caps is not permitted on or within 1,000 feet (300 m) of the airport property.

### **b. Restrictions**

The O46 Airport Manager must approve all scheduled work hours prior to the start of construction. Alternate construction hours must be discussed and approved by the O46 Airport Manager a minimum of 48 hours in advance. Restrictions may be placed on the times for certain elements of construction. Specific items of work that may be potentially disruptive to airport activity may be required to be performed at times that airport activity is reduced.

## Attachment A– FAA Advisory Circular 150/5370-2G



# Advisory Circular

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**Subject:** Operational Safety on  
Airports During Construction

**Date:** 12/13/2017

**AC No:** 150/5370-2G

**Initiated By:** AAS-100

**Change:**

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1 **Purpose.**

This AC sets forth guidelines for operational safety on airports during construction.

2 **Cancellation.**

This AC cancels AC 150/5370-2F, *Operational Safety on Airports during Construction*, dated September 29, 2011.

3 **Application.**

This AC assists airport operators in complying with Title 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. For those certificated airports, this AC provides one way, but not the only way, of meeting those requirements. The use of this AC is mandatory for those airport construction projects receiving funds under the Airport Improvement Program (AIP). See Grant Assurance No. 34, *Policies, Standards, and Specifications*. While we do not require non-certificated airports without grant agreements or airports using Passenger Facility Charge (PFC) Program funds for construction projects to adhere to these guidelines, we recommend that they do so to help these airports maintain operational safety during construction.

4 **Related Documents.**

ACs and Orders referenced in the text of this AC do not include a revision letter, as they refer to the latest version. [Appendix A](#) contains a list of reading material on airport construction, design, and potential safety hazards during construction, as well as instructions for obtaining these documents.

5 **Principal Changes.**

The AC incorporates the following principal changes:

1. Notification about impacts to both airport owned and FAA-owned NAVAIDs was added. See paragraph [2.13.5.3](#), NAVAIDs.

2. Guidance for the use of orange construction signs was added. See paragraph 2.18.4.2, Temporary Signs.
3. Open trenches or excavations may be permitted in the taxiway safety area while the taxiway is open to aircraft operations, subject to restrictions. See paragraph 2.22.3.4, Excavations.
4. Guidance for temporary shortened runways and displaced thresholds has been enhanced. See Figure 2-1 and Figure 2-2.
5. Figures have been improved and a new Appendix F on the placement of orange construction signs has been added.

Hyperlinks (allowing the reader to access documents located on the internet and to maneuver within this document) are provided throughout this document and are identified with underlined text. When navigating within this document, return to the previously viewed page by pressing the “ALT” and “ ← ” keys simultaneously.

Figures in this document are schematic representations and are not to scale.

6 **Use of Metrics.**

Throughout this AC, U.S. customary units are used followed with “soft” (rounded) conversion to metric units. The U.S. customary units govern.

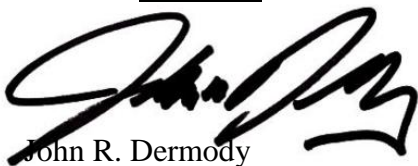
7 **Where to Find this AC.**

You can view a list of all ACs at

[http://www.faa.gov/regulations\\_policies/advisory\\_circulars/](http://www.faa.gov/regulations_policies/advisory_circulars/). You can view the Federal Aviation Regulations at [http://www.faa.gov/regulations\\_policies/faa\\_regulations/](http://www.faa.gov/regulations_policies/faa_regulations/).

8 **Feedback on this AC.**

If you have suggestions for improving this AC, you may use the Advisory Circular Feedback form at the end of this AC.



John R. Dermody

Director of Airport Safety and Standards

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## CHAPTER 1. PLANNING AN AIRFIELD CONSTRUCTION PROJECT

### 1.1 Overview.

Airports are complex environments, and procedures and conditions associated with construction activities often affect aircraft operations and can jeopardize operational safety. Safety considerations are paramount and may make operational impacts unavoidable. However, careful planning, scheduling, and coordination of construction activities can minimize disruption of normal aircraft operations and avoid situations that compromise the airport's operational safety. The airport operator must understand how construction activities and aircraft operations affect one another to be able to develop an effective plan to complete the project. While the guidance in this AC is primarily used for construction operations, the concepts, methods and procedures described may also enhance the day-to-day airport maintenance operations, such as lighting maintenance and snow removal operations.

### 1.2 Plan for Safety.

Safety, maintaining aircraft operations, and construction costs are all interrelated. Since safety must not be compromised, the airport operator must strike a balance between maintaining aircraft operations and construction costs. This balance will vary widely depending on the operational needs and resources of the airport and will require early coordination with airport users and the FAA. As the project design progresses, the necessary construction locations, activities, and associated costs will be identified and their impact to airport operations must be assessed. Adjustments are made to the proposed construction activities, often by phasing the project, and/or to airport operations to maintain operational safety. This planning effort will ultimately result in a project Construction Safety and Phasing Plan (CSPP). The development of the CSPP takes place through the following five steps:

#### 1.2.1 Identify Affected Areas.

The airport operator must determine the geographic areas on the airport affected by the construction project. Some, such as a runway extension, will be defined by the project. Others may be variable, such as the location of haul routes and material stockpiles.

#### 1.2.2 Describe Current Operations.

Identify the normal airport operations in each affected area for each phase of the project. This becomes the baseline from which the impact on operations by construction activities can be measured. This should include a narrative of the typical users and aircraft operating within the affected areas. It should also include information related to airport operations: the Aircraft Approach Category (AAC) and Airplane Design Group (ADG) of the airplanes that operate on each runway; the ADG and Taxiway Design Group (TDG)<sup>1</sup> for each affected taxiway; designated approach visibility minimums;

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<sup>1</sup> Find Taxiway Design Group information in [AC 150/5300-13, Airport Design](#).

available approach and departure procedures; most demanding aircraft; declared distances; available air traffic control services; airport Surface Movement Guidance and Control System (SMGCS) plan; and others. The applicable seasons, days and times for certain operations should also be identified as applicable.

#### 1.2.3 Allow for Temporary Changes to Operations.

To the extent practical, current airport operations should be maintained during the construction. In consultation with airport users, Aircraft Rescue and Fire Fighting (ARFF) personnel, and FAA Air Traffic Organization (ATO) personnel, the airport operator should identify and prioritize the airport's most important operations. The construction activities should be planned, through project phasing if necessary, to safely accommodate these operations. When the construction activities cannot be adjusted to safely maintain current operations, regardless of their importance, then the operations must be revised accordingly. Allowable changes include temporary revisions to approach procedures, restricting certain aircraft to specific runways and taxiways, suspension of certain operations, decreased weights for some aircraft due to shortened runways, and other changes. An example of a table showing temporary operations versus current operations is shown in Appendix E.

#### 1.2.4 Take Required Measures to Revise Operations.

Once the level and type of aircraft operations to be maintained are identified, the airport operator must determine the measures required to safely conduct the planned operations during the construction. These measures will result in associated costs, which can be broadly interpreted to include not only direct construction costs, but also loss of revenue from impacted operations. Analysis of costs may indicate a need to reevaluate allowable changes to operations. As aircraft operations and allowable changes will vary widely among airports, this AC presents general guidance on those subjects.

#### 1.2.5 Manage Safety Risk.

The FAA is committed to incorporating proactive safety risk management (SRM) tools into its decision-making processes. FAA Order 5200.11, *FAA Airports (ARP) Safety Management System (SMS)*, requires the FAA to conduct a Safety Assessment for certain triggering actions. Certain airport projects may require the airport operator to provide a Project Proposal Summary to help the FAA determine whether a Safety Assessment is required prior to FAA approval of the CSPP. The airport operator must coordinate with the appropriate FAA Airports Regional or District Office early in the development of the CSPP to determine the need for a Safety Risk Assessment. If the FAA requires an assessment, the airport operator must at a minimum:

1. Notify the appropriate FAA Airports Regional or District Office during the project "scope development" phase of any project requiring a CSPP.
2. Provide documents identified by the FAA as necessary to conduct SRM.
3. Participate in the SRM process for airport projects.
4. Provide a representative to participate on the SRM panel.

5. Ensure that all applicable SRM identified risks elements are recorded and mitigated within the CSPP.

### 1.3 **Develop a Construction Safety and Phasing Plan (CSPP).**

Development of an effective CSPP will require familiarity with many other documents referenced throughout this AC. See Appendix A for a list of related reading material.

#### 1.3.1 List Requirements.

A CSPP must be developed for each on-airfield construction project funded by the Airport Improvement Program (AIP) or located on an airport certificated under Part 139. For on-airfield construction projects at Part 139 airports funded without AIP funds, the preparation of a CSPP represents an acceptable method the certificate holder may use to meet Part 139 requirements during airfield construction activity. As per FAA Order 5200.11, projects that require Safety Assessments do not include construction, rehabilitation, or change of any facility that is entirely outside the air operations area, does not involve any expansion of the facility envelope and does not involve construction equipment, haul routes or placement of material in locations that require access to the air operations area, increase the facility envelope, or impact line-of-sight. Such facilities may include passenger terminals and parking or other structures. However, extraordinary circumstances may trigger the need for a Safety Assessment and a CSPP. The CSPP is subject to subsequent review and approval under the FAA's Safety Risk Management procedures (see paragraph 1.2.5).

#### 1.3.2 Prepare a Safety Plan Compliance Document (SPCD).

The Safety Plan Compliance Document (SPCD) details how the contractor will comply with the CSPP. Also, it will not be possible to determine all safety plan details (for example specific hazard equipment and lighting, contractor's points of contact, construction equipment heights) during the development of the CSPP. The successful contractor must define such details by preparing an SPCD that the airport operator reviews for approval prior to issuance of a notice-to-proceed. The SPCD is a subset of the CSPP, similar to how a shop drawing review is a subset to the technical specifications.

#### 1.3.3 Assume Responsibility for the CSPP.

The airport operator is responsible for establishing and enforcing the CSPP. The airport operator may use the services of an engineering consultant to help develop the CSPP. However, writing the CSPP cannot be delegated to the construction contractor. Only those details the airport operator determines cannot be addressed before contract award are developed by the contractor and submitted for approval as the SPCD. The SPCD does not restate nor propose differences to provisions already addressed in the CSPP.

## 1.4 **Who Is Responsible for Safety During Construction?**

### 1.4.1 Establish a Safety Culture.

Everyone has a role in operational safety on airports during construction: the airport operator, the airport's consultants, the construction contractor and subcontractors, airport users, airport tenants, ARFF personnel, Air Traffic personnel, including Technical Operations personnel, FAA Airports Division personnel, and others, such as military personnel at any airport supporting military operations (e.g. national guard or a joint use facility). Close communication and coordination between all affected parties is the key to maintaining safe operations. Such communication and coordination should start at the project scoping meeting and continue through the completion of the project. The airport operator and contractor should conduct onsite safety inspections throughout the project and immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

### 1.4.2 Assess Airport Operator's Responsibilities.

An airport operator has overall responsibility for all activities on an airport, including construction. This includes the predesign, design, preconstruction, construction, and inspection phases. Additional information on the responsibilities listed below can be found throughout this AC. The airport operator must:

- 1.4.2.1 Develop a CSPP that complies with the safety guidelines of Chapter 2, Construction Safety and Phasing Plans, and Chapter 3, Guidelines for Writing a CSPP. The airport operator may develop the CSPP internally or have a consultant develop the CSPP for approval by the airport operator. For tenant sponsored projects, approve a CSPP developed by the tenant or its consultant.
- 1.4.2.2 Require, review and approve the SPCD by the contractor that indicates how it will comply with the CSPP and provides details that cannot be determined before contract award.
- 1.4.2.3 Convene a preconstruction meeting with the construction contractor, consultant, airport employees and, if appropriate, tenant sponsor and other tenants to review and discuss project safety before beginning construction activity. The appropriate FAA representatives should be invited to attend the meeting. See AC 150/5370-12, Quality Management for Federally Funded Airport Construction Projects. (Note “FAA” refers to the Airports Regional or District Office, the Air Traffic Organization, Flight Standards Service, and other offices that support airport operations, flight regulations, and construction/environmental policies.)
- 1.4.2.4 Ensure contact information is accurate for each representative/point of contact identified in the CSPP and SPCD.
- 1.4.2.5 Hold weekly or, if necessary, daily safety meetings with all affected parties to coordinate activities.
- 1.4.2.6 Notify users, ARFF personnel, and FAA ATO personnel of construction and conditions that may adversely affect the operational safety of the airport via Notices to Airmen (NOTAM) and other methods, as appropriate. Convene a meeting for review and discussion if necessary.
- 1.4.2.7 Ensure construction personnel know applicable airport procedures and changes to those procedures that may affect their work.
- 1.4.2.8 Ensure that all temporary construction signs are located per the scheduled list for each phase of the project.
- 1.4.2.9 Ensure construction contractors and subcontractors undergo training required by the CSPP and SPCD.
- 1.4.2.10 Ensure vehicle and pedestrian operations addressed in the CSPP and SPCD are coordinated with airport tenants, the airport traffic control tower (ATCT), and construction contractors.
- 1.4.2.11 At certificated airports, ensure each CSPP and SPCD is consistent with Part 139.

- 1.4.2.12 Conduct inspections sufficiently frequently to ensure construction contractors and tenants comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.
- 1.4.2.13 Take immediate action to resolve safety deficiencies.
- 1.4.2.14 At airports subject to 49 CFR Part 1542, *Airport Security*, ensure construction access complies with the security requirements of that regulation.
- 1.4.2.15 Notify appropriate parties when conditions exist that invoke provisions of the CSPP and SPCD (for example, implementation of low-visibility operations).
- 1.4.2.16 Ensure prompt submittal of a Notice of Proposed Construction or Alteration (Form 7460-1) for conducting an aeronautical study of potential obstructions such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. A separate form may be filed for each potential obstruction, or one form may be filed describing the entire construction area and maximum equipment height. In the latter case, a separate form must be filed for any object beyond or higher than the originally evaluated area/height. The FAA encourages online submittal of forms for expediency at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>. The appropriate FAA Airports Regional or District Office can provide assistance in determining which objects require an aeronautical study.
- 1.4.2.17 Ensure prompt transmission of the Airport Sponsor Strategic Event Submission, FAA Form 6000-26, located at [https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT\\_SPONSOR\\_STRATEGIC\\_EVENT\\_SUBMISSION\\_FORM.pdf](https://oeaaa.faa.gov/oeaaa/external/content/AIRPORT_SPONSOR_STRATEGIC_EVENT_SUBMISSION_FORM.pdf), to assure proper coordination for NAS Strategic Interruption per Service Level Agreement with ATO.
- 1.4.2.18 Promptly notify the FAA Airports Regional or District Office of any proposed changes to the CSPP prior to implementation of the change. Changes to the CSPP require review and approval by the airport operator and the FAA. The FAA Airports Regional or District office will determine if further coordination within the FAA is needed. Coordinate with appropriate local and other federal government agencies, such as Environmental Protection Agency (EPA), Occupational Safety and Health Administration (OSHA), Transportation Security Administration (TSA), and the state environmental agency.
- 1.4.3 Define Construction Contractor's Responsibilities.  
The contractor is responsible for complying with the CSPP and SPCD. The contractor must:

- 1.4.3.1 Submit a Safety Plan Compliance Document (SPCD) to the airport operator describing how it will comply with the requirements of the CSPP and supply any details that could not be determined before contract award. The SPCD must include a certification statement by the contractor, indicating an understanding of the operational safety requirements of the CSPP and the assertion of compliance with the approved CSPP and SPCD unless written approval is granted by the airport operator. Any construction practice proposed by the contractor that does not conform to the CSPP and SPCD may impact the airport's operational safety and will require a revision to the CSPP and SPCD and re-coordination with the airport operator and the FAA in advance.
- 1.4.3.2 Have available at all times copies of the CSPP and SPCD for reference by the airport operator and its representatives, and by subcontractors and contractor employees.
- 1.4.3.3 Ensure that construction personnel are familiar with safety procedures and regulations on the airport. Provide a point of contact who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport. Many projects will require 24-hour coverage.
- 1.4.3.4 Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
- 1.4.3.5 Conduct sufficient inspections to ensure construction personnel comply with the CSPP and SPCD and that there are no altered construction activities that could create potential safety hazards.
- 1.4.3.6 Restrict movement of construction vehicles and personnel to permitted construction areas by flagging, barricading, erecting temporary fencing, or providing escorts, as appropriate, and as specified in the CSPP and SPCD.
- 1.4.3.7 Ensure that no contractor employees, employees of subcontractors or suppliers, or other persons enter any part of the air operations area (AOA) from the construction site unless authorized.
- 1.4.3.8 Ensure prompt submittal through the airport operator of Form 7460-1 for the purpose of conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, and other equipment), stock piles, and haul routes when different from cases previously filed by the airport operator. The FAA encourages online submittal of forms for expediency at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>.

- 1.4.3.9 Ensure that all necessary safety mitigations are understood by all parties involved, and any special requirements of each construction phase will be fulfilled per the approved timeframe.
- 1.4.3.10 Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.

#### 1.4.4 Define Tenant's Responsibilities.

If planning construction activities on leased property, Airport tenants, such as airline operators, fixed base operators, and FAA ATO/Technical Operations sponsoring construction are strongly encouraged to:

1. Develop, or have a consultant develop, a project specific CSPP and submit it to the airport operator. The airport operator may forgo a complete CSPP submittal and instead incorporate appropriate operational safety principles and measures addressed in the advisory circular within their tenant lease agreements.
2. In coordination with its contractor, develop an SPCD and submit it to the airport operator for approval issued prior to issuance of a Notice to Proceed.
3. Ensure that construction personnel are familiar with safety procedures and regulations on the airport during all phases of the construction.
4. Provide a point of contact of who will coordinate an immediate response to correct any construction-related activity that may adversely affect the operational safety of the airport.
5. Identify in the SPCD the contractor's on-site employees responsible for monitoring compliance with the CSPP and SPCD during construction. At least one of these employees must be on-site when active construction is taking place.
6. Ensure that no tenant or contractor employees, employees of subcontractors or suppliers, or any other persons enter any part of the AOA from the construction site unless authorized.
7. Restrict movement of construction vehicles to construction areas by flagging and barricading, erecting temporary fencing, or providing escorts, as appropriate, as specified in the CSPP and SPCD.
8. Ensure prompt submittal through the airport operator of Form 7460-1 for conducting an aeronautical study of contractor equipment such as tall equipment (cranes, concrete pumps, other), stock piles, and haul routes. The FAA encourages online submittal of forms for expediency at <https://oeaaa.faa.gov/oeaaa/external/portal.jsp>.
9. Participate in pre-construction meetings to review construction limits, safety mitigations, NOTAMs, and understand all special airport operational needs during each phase of the project.



## CHAPTER 2. CONSTRUCTION SAFETY AND PHASING PLANS

### 2.1 **Overview.**

Aviation safety is the primary consideration at airports, especially during construction. The airport operator's CSPP and the contractor's Safety Plan Compliance Document (SPCD) are the primary tools to ensure safety compliance when coordinating construction activities with airport operations. These documents identify all aspects of the construction project that pose a potential safety hazard to airport operations and outline respective mitigation procedures for each hazard. They must provide information necessary for the Airport Operations department to conduct airfield inspections and expeditiously identify and correct unsafe conditions during construction. All aviation safety provisions included within the project drawings, contract specifications, and other related documents must also be reflected in the CSPP and SPCD.

### 2.2 **Assume Responsibility.**

Operational safety on the airport remains the airport operator's responsibility at all times. The airport operator must develop, certify, and submit for FAA approval each CSPP. It is the airport operator's responsibility to apply the requirements of the FAA approved CSPP. The airport operator must revise the CSPP when conditions warrant changes and must submit the revised CSPP to the FAA for approval. The airport operator must also require and approve a SPCD from the project contractor.

### 2.3 **Submit the CSPP.**

Construction Safety and Phasing Plans should be developed concurrently with the project design. Milestone versions of the CSPP should be submitted for review and approval as follows. While these milestones are not mandatory, early submission will help to avoid delays. Submittals are preferred in 8.5 × 11 inch or 11 × 17 inch format for compatibility with the FAA's Obstruction Evaluation / Airport Airspace Analysis (OE / AAA) process.

#### 2.3.1 Submit an Outline/Draft.

By the time approximately 25% to 30% of the project design is completed, the principal elements of the CSPP should be established. Airport operators are encouraged to submit an outline or draft, detailing all CSPP provisions developed to date, to the FAA for review at this stage of the project design.

#### 2.3.2 Submit a CSPP.

The CSPP should be formally submitted for FAA approval when the project design is 80 percent to 90 percent complete. Since provisions in the CSPP will influence contract costs, it is important to obtain FAA approval in time to include all such provisions in the procurement contract.

### 2.3.3 Submit an SPCD.

The contractor should submit the SPCD to the airport operator for approval to be issued prior to the Notice to Proceed.

### 2.3.4 Submit CSPP Revisions.

All revisions to a previously approved CSPP must be re-submitted to the FAA for review and approval/disapproval action.

## 2.4 **Meet CSPP Requirements.**

2.4.1 To the extent possible, the CSPP should address the following as outlined in Chapter 3, Guidelines for Writing a CSPP. Details that cannot be determined at this stage are to be included in the SPCD.

1. Coordination.
  - a. Contractor progress meetings.
  - b. Scope or schedule changes.
  - c. FAA ATO coordination.
2. Phasing.
  - a. Phase elements.
  - b. Construction safety drawings.
3. Areas and operations affected by the construction activity.
  - a. Identification of affected areas.
  - b. Mitigation of effects.
4. Protection of navigation aids (NAVAIDs).
5. Contractor access.
  - a. Location of stockpiled construction materials.
  - b. Vehicle and pedestrian operations.
6. Wildlife management.
  - a. Trash.
  - b. Standing water.
  - c. Tall grass and seeds.
  - d. Poorly maintained fencing and gates.
  - e. Disruption of existing wildlife habitat.
7. Foreign Object Debris (FOD) management.
8. Hazardous materials (HAZMAT) management.
9. Notification of construction activities.

- a. Maintenance of a list of responsible representatives/ points of contact.
  - b. NOTAM.
  - c. Emergency notification procedures.
  - d. Coordination with ARFF Personnel.
  - e. Notification to the FAA.
10. Inspection requirements.
    - a. Daily (or more frequent) inspections.
    - b. Final inspections.
  11. Underground utilities.
  12. Penalties.
  13. Special conditions.
  14. Runway and taxiway visual aids. Marking, lighting, signs, and visual NAVAIDs.
    - a. General.
    - b. Markings.
    - c. Lighting and visual NAVAIDs.
    - d. Signs, temporary, including orange construction signs, and permanent signs.
  15. Marking and signs for access routes.
  16. Hazard marking and lighting.
    - a. Purpose.
    - b. Equipment.
  17. Work zone lighting for nighttime construction (if applicable).
  18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces.
    - a. Runway Safety Area (RSA).
    - b. Runway Object Free Area (ROFA).
    - c. Taxiway Safety Area (TSA). Provide details for any adjustments to Taxiway Safety Area width to allow continued operation of smaller aircraft. See paragraph 2.22.3.
    - d. Taxiway Object Free Area (TOFA). Provide details for any continued aircraft operations while construction occurs within the TOFA. See paragraph 2.22.4.
    - e. Obstacle Free Zone (OFZ).
    - f. Runway approach/departure surfaces.
  19. Other limitations on construction.
    - a. Prohibitions.

b. Restrictions.

2.4.2 The Safety Plan Compliance Document (SPCD) should include a general statement by the construction contractor that he/she has read and will abide by the CSPP. In addition, the SPCD must include all supplemental information that could not be included in the CSPP prior to the contract award. The contractor statement should include the name of the contractor, the title of the project CSPP, the approval date of the CSPP, and a reference to any supplemental information (that is, “I, (Name of Contractor), have read the (Title of Project) CSPP, approved on (Date), and will abide by it as written and with the following additions as noted:”). The supplemental information in the SPCD should be written to match the format of the CSPP indicating each subject by corresponding CSPP subject number and title. If no supplemental information is necessary for any specific subject, the statement, “No supplemental information,” should be written after the corresponding subject title. The SPCD should not duplicate information in the CSPP:

1. Coordination. Discuss details of proposed safety meetings with the airport operator and with contractor employees and subcontractors.
2. Phasing. Discuss proposed construction schedule elements, including:
  - a. Duration of each phase.
  - b. Daily start and finish of construction, including “night only” construction.
  - c. Duration of construction activities during:
    - i. Normal runway operations.
    - ii. Closed runway operations.
    - iii. Modified runway “Aircraft Reference Code” usage.
3. Areas and operations affected by the construction activity. These areas and operations should be identified in the CSPP and should not require an entry in the SPCD.
4. Protection of NAVAIDs. Discuss specific methods proposed to protect operating NAVAIDs.
5. Contractor access. Provide the following:
  - a. Details on how the contractor will maintain the integrity of the airport security fence (gate guards, daily log of construction personnel, and other).
  - b. Listing of individuals requiring driver training (for certificated airports and as requested).
  - c. Radio communications.
    - i. Types of radios and backup capabilities.
    - ii. Who will be monitoring radios.
    - iii. Who to contact if the ATCT cannot reach the contractor’s designated person by radio.

- d. Details on how the contractor will escort material delivery vehicles.
6. Wildlife management. Discuss the following:
  - a. Methods and procedures to prevent wildlife attraction.
  - b. Wildlife reporting procedures.
7. Foreign Object Debris (FOD) management. Discuss equipment and methods for control of FOD, including construction debris and dust.
8. Hazardous Materials (HAZMAT) management. Discuss equipment and methods for responding to hazardous spills.
9. Notification of construction activities. Provide the following:
  - a. Contractor points of contact.
  - b. Contractor emergency contact.
  - c. Listing of tall or other requested equipment proposed for use on the airport and the timeframe for submitting 7460-1 forms not previously submitted by the airport operator.
  - d. Batch plant details, including 7460-1 submittal.
10. Inspection requirements. Discuss daily (or more frequent) inspections and special inspection procedures.
11. Underground utilities. Discuss proposed methods of identifying and protecting underground utilities.
12. Penalties. Penalties should be identified in the CSPP and should not require an entry in the SPCD.
13. Special conditions. Discuss proposed actions for each special condition identified in the CSPP.
14. Runway and taxiway visual aids. Including marking, lighting, signs, and visual NAVAIDs. Discuss proposed visual aids including the following:
  - a. Equipment and methods for covering signage and airfield lights.
  - b. Equipment and methods for temporary closure markings (paint, fabric, other).
  - c. Temporary orange construction signs.
  - d. Types of temporary Visual Guidance Slope Indicators (VGSI).
15. Marking and signs for access routes. Discuss proposed methods of demarcating access routes for vehicle drivers.
16. Hazard marking and lighting. Discuss proposed equipment and methods for identifying excavation areas.
17. Work zone lighting for nighttime construction (if applicable). Discuss proposed equipment, locations, aiming, and shielding to prevent interference with air traffic control and aircraft operations.

18. Protection of runway and taxiway safety areas, object free areas, obstacle free zones, and approach/departure surfaces. Discuss proposed methods of identifying, demarcating, and protecting airport surfaces including:
  - a. Equipment and methods for maintaining Taxiway Safety Area standards.
  - b. Equipment and methods to ensure the safe passage of aircraft where Taxiway Safety Area or Taxiway Object Free Area standards cannot be maintained.
  - c. Equipment and methods for separation of construction operations from aircraft operations, including details of barricades.
19. Other limitations on construction should be identified in the CSPP and should not require an entry in the SPCD.

## 2.5 **Coordination.**

Airport operators, or tenants responsible for design, bidding and conducting construction on their leased properties, should ensure at all project developmental stages, such as predesign, prebid, and preconstruction conferences, they capture the subject of airport operational safety during construction (see [AC 150/5370-12, \*Quality Management for Federally Funded Airport Construction Projects\*](#)). In addition, the following should be coordinated as required:

### 2.5.1 Progress Meetings.

Operational safety should be a standing agenda item for discussion during progress meetings throughout the project developmental stages.

### 2.5.2 Scope or Schedule Changes.

Changes in the scope or duration at any of the project stages may require revisions to the CSPP and review and approval by the airport operator and the FAA (see paragraph [1.4.2.17](#)).

### 2.5.3 FAA ATO Coordination.

Early coordination with FAA ATO is highly recommended during the design phase and is required for scheduling Technical Operations shutdowns prior to construction. Coordination is critical to restarts of NAVAID services and to the establishment of any special procedures for the movement of aircraft. Formal agreements between the airport operator and appropriate FAA offices are recommended. All relocation or adjustments to NAVAIDs, or changes to final grades in critical areas, should be coordinated with FAA ATO and may require an FAA flight inspection prior to restarting the facility. Flight inspections must be coordinated and scheduled well in advance of the intended facility restart. Flight inspections may require a reimbursable agreement between the airport operator and FAA ATO. Reimbursable agreements should be coordinated a minimum of 12 months prior to the start of construction. (See paragraph [2.13.5.3.2](#) for required FAA notification regarding FAA-owned NAVAIDs.)

## 2.6 **Phasing.**

Once it has been determined what types and levels of airport operations will be maintained, the most efficient sequence of construction may not be feasible. In this case, the sequence of construction may be phased to gain maximum efficiency while allowing for the required operations. The development of the resulting construction phases should be coordinated with local Air Traffic personnel and airport users. The sequenced construction phases established in the CSPP must be incorporated into the project design and must be reflected in the contract drawings and specifications.

### 2.6.1 Phase Elements.

For each phase the CSPP should detail:

- Areas closed to aircraft operations.
- Duration of closures.
- Taxi routes and/or areas of reduced TSA and TOFA to reflect reduced ADG use.
- ARFF access routes.
- Construction staging, disposal, and cleanout areas.
- Construction access and haul routes.
- Impacts to NAVAIDs.
- Lighting, marking, and signing changes.
- Available runway length and/or reduced RSA and ROFA to reflect reduced ADG use.
- Declared distances (if applicable).
- Required hazard marking, lighting, and signing.
- Work zone lighting for nighttime construction (if applicable).
- Lead times for required notifications.

### 2.6.2 Construction Safety Drawings.

Drawings specifically indicating operational safety procedures and methods in affected areas (i.e., construction safety drawings) should be developed for each construction phase. Such drawings should be included in the CSPP as referenced attachments and should also be included in the contract drawing package.

## 2.7 **Areas and Operations Affected by Construction Activity.**

Runways and taxiways should remain in use by aircraft to the maximum extent possible without compromising safety. Pre-meetings with the FAA ATO will support operational simulations. See Appendix E for an example of a table showing temporary operations versus current operations. The tables in Appendix E can be useful for coordination among all interested parties, including FAA Lines of Business.

## 2.7.1 Identification of Affected Areas.

Identifying areas and operations affected by the construction helps to determine possible safety problems. The affected areas should be identified in the construction safety drawings for each construction phase. (See paragraph 2.6.2.) Of particular concern are:

### 2.7.1.1 **Closing, or Partial Closing, of Runways, Taxiways and Aprons, and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing, landing, or takeoff in either direction on that pavement is prohibited. A displaced threshold, by contrast, is established to ensure obstacle clearance and adequate safety area for landing aircraft. The pavement prior to the displaced threshold is normally available for take-off in the direction of the displacement and for landing and takeoff in the opposite direction. Misunderstanding this difference, may result in issuance of an inaccurate NOTAM, and can lead to a hazardous condition.

#### 2.7.1.1.1 Partially Closed Runways.

The temporarily closed portion of a partially closed runway will generally extend from the threshold to a taxiway that may be used for entering and exiting the runway. If the closed portion extends to a point between taxiways, pilots will have to back-taxi on the runway, which is an undesirable operation. See Figure 2-1 for a desirable configuration.

#### 2.7.1.1.2 Displaced Thresholds.

Since the portion of the runway pavement between the permanent threshold and a standard displaced threshold is available for takeoff and for landing in the opposite direction, the temporary displaced threshold need not be located at an entrance/exit taxiway. See Figure 2-2.

2.7.1.2 Closing of aircraft rescue and fire fighting access routes.

2.7.1.3 Closing of access routes used by airport and airline support vehicles.

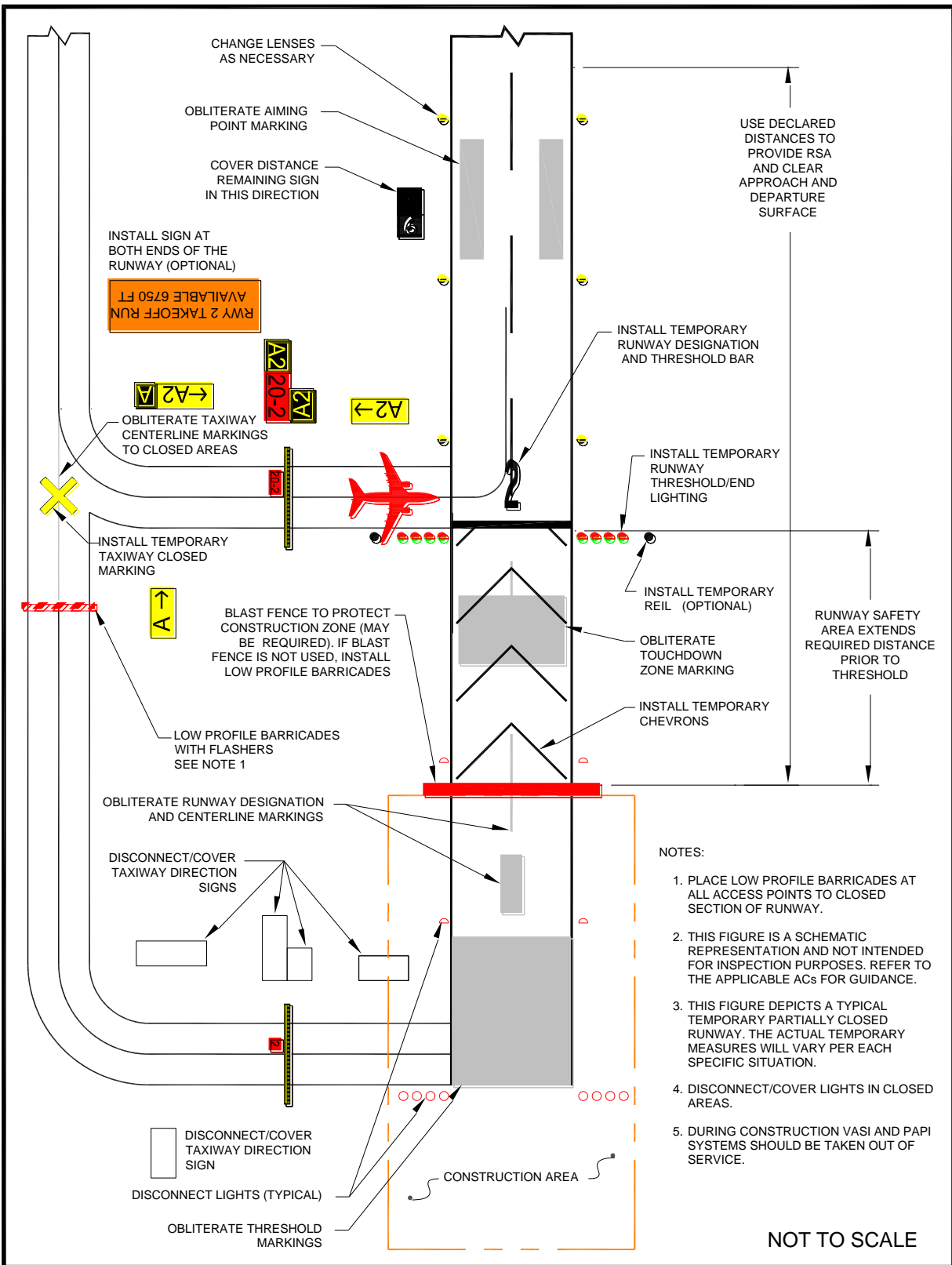
2.7.1.4 Interruption of utilities, including water supplies for fire fighting.

2.7.1.5 Approach/departure surfaces affected by heights of objects.

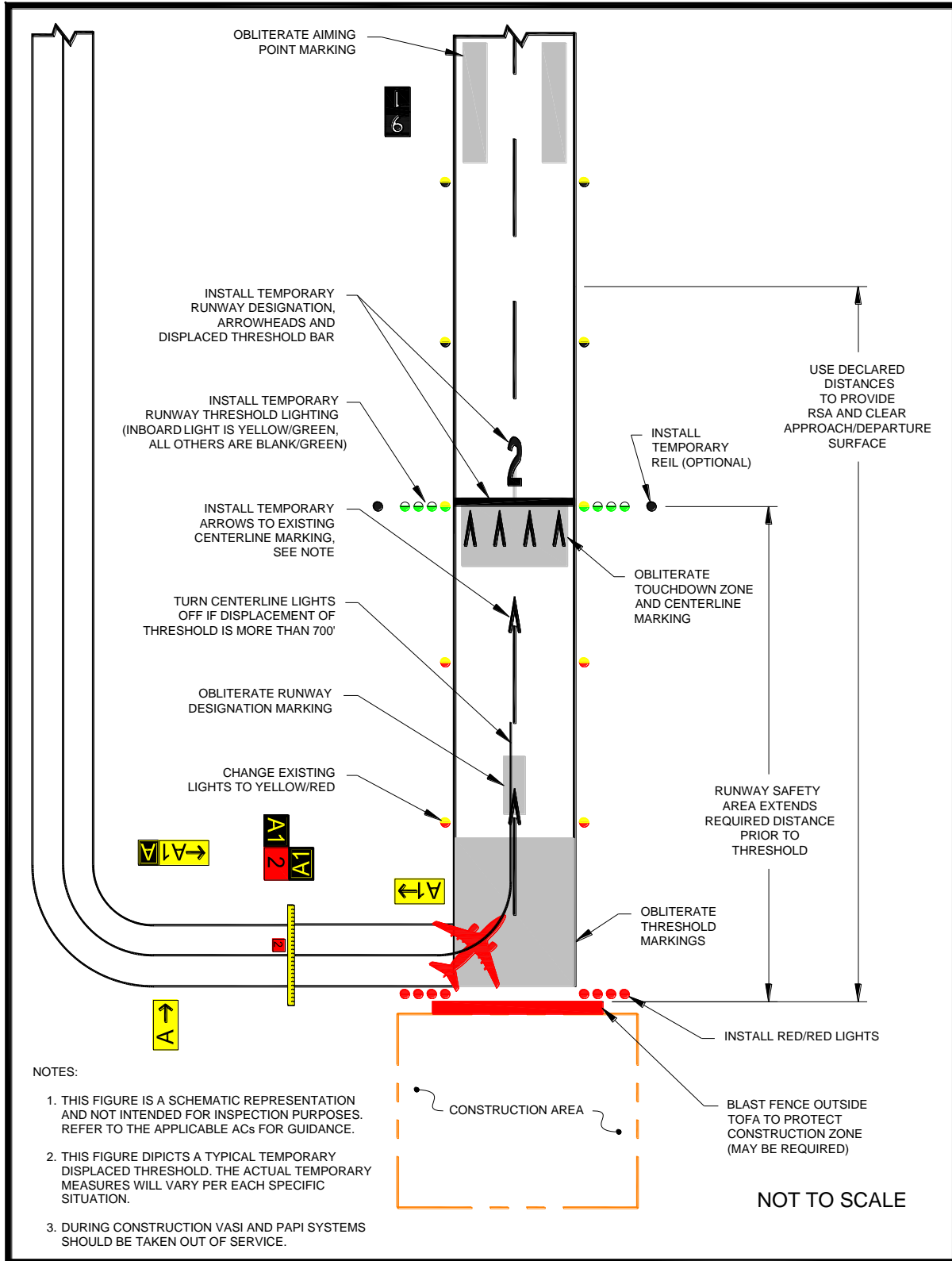
2.7.1.6 Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads.



**Figure 2-1. Temporary Partially Closed Runway**



**Figure 2-2. Temporary Displaced Threshold**



**Note:** See paragraph 2.18.2.5.

### 2.7.2 Mitigation of Effects.

Establishment of specific procedures is necessary to maintain the safety and efficiency of airport operations. The CSPP must address:

- 2.7.2.1 Temporary changes to runway and/or taxi operations.
- 2.7.2.2 Detours for ARFF and other airport vehicles.
- 2.7.2.3 Maintenance of essential utilities.
- 2.7.2.4 Temporary changes to air traffic control procedures. Such changes must be coordinated with the ATO.

### 2.8 **Navigation Aid (NAVAID) Protection.**

Before commencing construction activity, parking vehicles, or storing construction equipment and materials near a NAVAID, coordinate with the appropriate FAA ATO/Technical Operations office to evaluate the effect of construction activity and the required distance and direction from the NAVAID. (See paragraph 2.13.5.3.) Construction activities, materials/equipment storage, and vehicle parking near electronic NAVAIDs require special consideration since they may interfere with signals essential to air navigation. If any NAVAID may be affected, the CSPP and SPCD must show an understanding of the “critical area” associated with each NAVAID and describe how it will be protected. Where applicable, the operational critical areas of NAVAIDs should be graphically delineated on the project drawings. Pay particular attention to stockpiling material, as well as to movement and parking of equipment that may interfere with line of sight from the ATCT or with electronic emissions. Interference from construction equipment and activities may require NAVAID shutdown or adjustment of instrument approach minimums for low visibility operations. This condition requires that a NOTAM be filed (see paragraph 2.13.2.) Construction activities and materials/equipment storage near a NAVAID must not obstruct access to the equipment and instruments for maintenance. Submittal of a 7460-1 form is required for construction vehicles operating near FAA NAVAIDs. (See paragraph 2.13.5.3.)

### 2.9 **Contractor Access.**

The CSPP must detail the areas to which the contractor must have access, and explain how contractor personnel will access those areas. Specifically address:

#### 2.9.1 Location of Stockpiled Construction Materials.

Stockpiled materials and equipment storage are not permitted within the RSA and OFZ, and if possible should not be permitted within the Object Free Area (OFA) of an operational runway. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval. The airport operator must ensure that stockpiled materials and equipment adjacent to these areas are prominently marked and lighted during hours of restricted visibility or darkness. (See paragraph 2.18.2.) This includes determining and

verifying that materials are stabilized and stored at an approved location so as not to be a hazard to aircraft operations and to prevent attraction of wildlife and foreign object damage from blowing or tracked material. See paragraphs [2.10](#) and [2.11](#).

## 2.9.2 Vehicle and Pedestrian Operations.

The CSPP should include specific vehicle and pedestrian requirements. Vehicle and pedestrian access routes for airport construction projects must be controlled to prevent inadvertent or unauthorized entry of persons, vehicles, or animals onto the AOA. The airport operator should coordinate requirements for vehicle operations with airport tenants, contractors, and the FAA air traffic manager. In regard to vehicle and pedestrian operations, the CSPP should include the following, with associated training requirements:

### 2.9.2.1 **Construction Site Parking.**

Designate in advance vehicle parking areas for contractor employees to prevent any unauthorized entry of persons or vehicles onto the AOA. These areas should provide reasonable contractor employee access to the job site.

### 2.9.2.2 **Construction Equipment Parking.**

Contractor employees must park and service all construction vehicles in an area designated by the airport operator outside the OFZ and never in the safety area of an active runway or taxiway. Unless a complex setup procedure makes movement of specialized equipment infeasible, inactive equipment must not be parked on a closed taxiway or runway. If it is necessary to leave specialized equipment on a closed taxiway or runway at night, the equipment must be well lighted. Employees should also park construction vehicles outside the OFA when not in use by construction personnel (for example, overnight, on weekends, or during other periods when construction is not active). Parking areas must not obstruct the clear line of sight by the ATCT to any taxiways or runways under air traffic control nor obstruct any runway visual aids, signs, or navigation aids. The FAA must also study those areas to determine effects on airport design criteria, surfaces established by 14 CFR Part 77, Safe, Efficient Use, and Preservation of the Navigable Airspace (Part 77), and on NAVAIDs and Instrument Approach Procedures (IAP). See paragraph [2.13.1](#) for further information.

### 2.9.2.3 **Access and Haul Roads.**

Determine the construction contractor's access to the construction sites and haul roads. Do not permit the construction contractor to use any access or haul roads other than those approved. Access routes used by contractor vehicles must be clearly marked to prevent inadvertent entry to areas open to airport operations. Pay special attention to ensure that if construction traffic is to share or cross any ARFF routes that ARFF right of way is not impeded at any time, and that construction traffic on haul

roads does not interfere with NAVAIDs or approach surfaces of operational runways. Address whether access gates will be blocked or inoperative or if a rally point will be blocked or inaccessible.

- 2.9.2.4 Marking and lighting of vehicles in accordance with AC 150/5210-5, *Painting, Marking, and Lighting of Vehicles Used on an Airport*.
- 2.9.2.5 Description of proper vehicle operations on various areas under normal, lost communications, and emergency conditions.
- 2.9.2.6 Required escorts.
- 2.9.2.7 **Training Requirements for Vehicle Drivers to Ensure Compliance with the Airport Operator's Vehicle Rules and Regulations.**  
Specific training should be provided to vehicle operators, including those providing escorts. See AC 150/5210-20, *Ground Vehicle Operations on Airports*, for information on training and records maintenance requirements.
- 2.9.2.8 **Situational Awareness.**  
Vehicle drivers must confirm by personal observation that no aircraft is approaching their position (either in the air or on the ground) when given clearance to cross a runway, taxiway, or any other area open to airport operations. In addition, it is the responsibility of the escort vehicle driver to verify the movement/position of all escorted vehicles at any given time. At non-towered airports, all aircraft movements and flight operations rely on aircraft operators to self-report their positions and intentions. However, there is no requirement for an aircraft to have radio communications. Because aircraft do not always broadcast their positions or intentions, visual checking, radio monitoring, and situational awareness of the surroundings is critical to safety.
- 2.9.2.9 **Two-Way Radio Communication Procedures.**
- 2.9.2.9.1 General.  
The airport operator must ensure that tenant and construction contractor personnel engaged in activities involving unescorted operation on aircraft movement areas observe the proper procedures for communications, including using appropriate radio frequencies at airports with and without ATCT. When operating vehicles on or near open runways or taxiways, construction personnel must understand the critical importance of maintaining radio contact, as directed by the airport operator, with:
1. Airport operations
  2. ATCT

3. Common Traffic Advisory Frequency (CTAF), which may include UNICOM, MULTICOM.
4. Automatic Terminal Information Service (ATIS). This frequency is useful for monitoring conditions on the airport. Local air traffic will broadcast information regarding construction related runway closures and “shortened” runways on the ATIS frequency.

2.9.2.9.2 Areas Requiring Two-Way Radio Communication with the ATCT.

Vehicular traffic crossing active movement areas must be controlled either by two-way radio with the ATCT, escort, flagman, signal light, or other means appropriate for the particular airport.

2.9.2.9.3 Frequencies to be Used.

The airport operator will specify the frequencies to be used by the contractor, which may include the CTAF for monitoring of aircraft operations. Frequencies may also be assigned by the airport operator for other communications, including any radio frequency in compliance with Federal Communications Commission requirements. At airports with an ATCT, the airport operator will specify the frequency assigned by the ATCT to be used between contractor vehicles and the ATCT.

2.9.2.9.4 Proper radio usage, including read back requirements.

2.9.2.9.5 Proper phraseology, including the International Phonetic Alphabet.

2.9.2.9.6 Light Gun Signals.

Even though radio communication is maintained, escort vehicle drivers must also familiarize themselves with ATCT light gun signals in the event of radio failure. See the FAA safety placard “Ground Vehicle Guide to Airport Signs and Markings.” This safety placard may be downloaded through the Runway Safety Program Web site at [http://www.faa.gov/airports/runway\\_safety/publications/](http://www.faa.gov/airports/runway_safety/publications/) (see “Signs & Markings Vehicle Dashboard Sticker”) or obtained from the FAA Airports Regional Office.

2.9.2.10 **Maintenance of the secured area of the airport, including:**

2.9.2.10.1 Fencing and Gates.

Airport operators and contractors must take care to maintain security during construction when access points are created in the security fencing to permit the passage of construction vehicles or personnel. Temporary gates should be equipped so they can be securely closed and locked to prevent access by animals and unauthorized people. Procedures should be in place to ensure that only authorized persons and vehicles have access to the AOA and to prohibit “piggybacking” behind another person or vehicle. The Department of Transportation (DOT) document DOT/FAA/AR-

00/52, *Recommended Security Guidelines for Airport Planning and Construction*, provides more specific information on fencing. A copy of this document can be obtained from the Airport Consultants Council, Airports Council International, or American Association of Airport Executives.

2.9.2.10.2 Badging Requirements.

Airports subject to 49 CFR Part 1542, *Airport Security*, must meet standards for access control, movement of ground vehicles, and identification of construction contractor and tenant personnel.

2.10 **Wildlife Management.**

The CSPP and SPCD must be in accordance with the airport operator's wildlife hazard management plan, if applicable. See AC 150/5200-33, *Hazardous Wildlife Attractants On or Near Airports*, and CertAlert 98-05, *Grasses Attractive to Hazardous Wildlife*. Construction contractors must carefully control and continuously remove waste or loose materials that might attract wildlife. Contractor personnel must be aware of and avoid construction activities that can create wildlife hazards on airports, such as:

2.10.1 Trash.

Food scraps must be collected from construction personnel activity.

2.10.2 Standing Water.

2.10.3 Tall Grass and Seeds.

Requirements for turf establishment can be at odds with requirements for wildlife control. Grass seed is attractive to birds. Lower quality seed mixtures can contain seeds of plants (such as clover) that attract larger wildlife. Seeding should comply with the guidance in AC 150/5370-10, *Standards for Specifying Construction of Airports*, Item T-901, Seeding. Contact the local office of the United States Department of Agriculture Soil Conservation Service or the State University Agricultural Extension Service (County Agent or equivalent) for assistance and recommendations. These agencies can also provide liming and fertilizer recommendations.

2.10.4 Poorly Maintained Fencing and Gates.

See paragraph 2.9.2.10.1.

2.10.5 Disruption of Existing Wildlife Habitat.

While this will frequently be unavoidable due to the nature of the project, the CSPP should specify under what circumstances (location, wildlife type) contractor personnel should immediately notify the airport operator of wildlife sightings.

**2.11 Foreign Object Debris (FOD) Management.**

Waste and loose materials, commonly referred to as FOD, are capable of causing damage to aircraft landing gears, propellers, and jet engines. Construction contractors must not leave or place FOD on or near active aircraft movement areas. Materials capable of creating FOD must be continuously removed during the construction project. Fencing (other than security fencing) or covers may be necessary to contain material that can be carried by wind into areas where aircraft operate. See AC 150/5210-24, *Foreign Object Debris (FOD) Management*.

**2.12 Hazardous Materials (HAZMAT) Management.**

Contractors operating construction vehicles and equipment on the airport must be prepared to expeditiously contain and clean-up spills resulting from fuel or hydraulic fluid leaks. Transport and handling of other hazardous materials on an airport also requires special procedures. See AC 150/5320-15, *Management of Airport Industrial Waste*.

**2.13 Notification of Construction Activities.**

The CSPP and SPCD must detail procedures for the immediate notification of airport users and the FAA of any conditions adversely affecting the operational safety of the airport. It must address the notification actions described below, as applicable.

2.13.1 List of Responsible Representatives/points of contact for all involved parties, and procedures for contacting each of them, including after hours.

**2.13.2 NOTAMs.**

Only the airport operator may initiate or cancel NOTAMs on airport conditions, and is the only entity that can close or open a runway. The airport operator must coordinate the issuance, maintenance, and cancellation of NOTAMs about airport conditions resulting from construction activities with tenants and the local air traffic facility (control tower, approach control, or air traffic control center), and must either enter the NOTAM into NOTAM Manager, or provide information on closed or hazardous conditions on airport movement areas to the FAA Flight Service Station (FSS) so it can issue a NOTAM. The airport operator must file and maintain a list of authorized representatives with the FSS. Refer to AC 150/5200-28, *Notices to Airmen (NOTAMs) for Airport Operators*, for a sample NOTAM form. Only the FAA may issue or cancel NOTAMs on shutdown or irregular operation of FAA owned facilities. Any person having reason to believe that a NOTAM is missing, incomplete, or inaccurate must notify the airport operator. See paragraph 2.7.1.1 about issuing NOTAMs for partially closed runways versus runways with displaced thresholds.



2.13.3 Emergency notification procedures for medical, fire fighting, and police response.

2.13.4 Coordination with ARFF.

The CSPP must detail procedures for coordinating through the airport sponsor with ARFF personnel, mutual aid providers, and other emergency services if construction requires:

1. The deactivation and subsequent reactivation of water lines or fire hydrants, or
2. The rerouting, blocking and restoration of emergency access routes, or
3. The use of hazardous materials on the airfield.

2.13.5 Notification to the FAA.

2.13.5.1 **Part 77.**

Any person proposing construction or alteration of objects that affect navigable airspace, as defined in Part 77, must notify the FAA. This includes construction equipment and proposed parking areas for this equipment (i.e., cranes, graders, other equipment) on airports. FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, can be used for this purpose and submitted to the appropriate FAA Airports Regional or District Office. See Appendix A to download the form. Further guidance is available on the FAA web site at [oeaaa.faa.gov](http://oeaaa.faa.gov).

2.13.5.2 **Part 157.**

With some exceptions, Title 14 CFR Part 157, *Notice of Construction, Alteration, Activation, and Deactivation of Airports*, requires that the airport operator notify the FAA in writing whenever a non-Federally funded project involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport. Notification involves submitting FAA Form 7480-1, *Notice of Landing Area Proposal*, to the nearest FAA Airports Regional or District Office. See Appendix A to download the form.

2.13.5.3 **NAVAIDs.**

For emergency (short-notice) notification about impacts to both airport owned and FAA owned NAVAIDs, contact: 866-432-2622.

2.13.5.3.1 Airport Owned/FAA Maintained.

If construction operations require a shutdown of 24 hours or greater in duration, or more than 4 hours daily on consecutive days, of a NAVAID owned by the airport but maintained by the FAA, provide a 45-day minimum notice to FAA ATO/Technical Operations prior to facility shutdown, using Strategic Event Coordination (SEC) Form 6000.26 contained within FAA Order 6000.15, *General Maintenance Handbook for National Airspace System (NAS) Facilities*.

#### 2.13.5.3.2 FAA Owned.

1. The airport operator must notify the appropriate FAA ATO Service Area Planning and Requirements (P&R) Group a minimum of 45 days prior to implementing an event that causes impacts to NAVAIDs, using SEC Form 6000.26.
2. Coordinate work for an FAA owned NAVAID shutdown with the local FAA ATO/Technical Operations office, including any necessary reimbursable agreements and flight checks. Detail procedures that address unanticipated utility outages and cable cuts that could impact FAA NAVAIDs. Refer to active Service Level Agreement with ATO for specifics.

### 2.14 **Inspection Requirements.**

#### 2.14.1 Daily Inspections.

Inspections should be conducted at least daily, but more frequently if necessary to ensure conformance with the CSPP. A sample checklist is provided in Appendix D, Construction Project Daily Safety Inspection Checklist. See also AC 150/5200-18, Airport Safety Self-Inspection. Airport operators holding a Part 139 certificate are required to conduct self-inspections during unusual conditions, such as construction activities, that may affect safe air carrier operations.

#### 2.14.2 Interim Inspections.

Inspections should be conducted of all areas to be (re)opened to aircraft traffic to ensure the proper operation of lights and signs, for correct markings, and absence of FOD. The contractor should conduct an inspection of the work area with airport operations personnel. The contractor should ensure that all construction materials have been secured, all pavement surfaces have been swept clean, all transition ramps have been properly constructed, and that surfaces have been appropriately marked for aircraft to operate safely. Only if all items on the list meet with the airport operator's approval should the air traffic control tower be notified to open the area to aircraft operations. The contractor should be required to retain a suitable workforce and the necessary equipment at the work area for any last minute cleanup that may be requested by the airport operator prior to opening the area.

#### 2.14.3 Final Inspections.

New runways and extended runway closures may require safety inspections at certificated airports prior to allowing air carrier service. Coordinate with the FAA Airport Certification Safety Inspector (ACSI) to determine if a final inspection will be necessary.

**2.15 Underground Utilities.**

The CSPP and/or SPCD must include procedures for locating and protecting existing underground utilities, cables, wires, pipelines, and other underground facilities in excavation areas. This may involve coordinating with public utilities and FAA ATO/Technical Operations. Note that “One Call” or “Miss Utility” services do not include FAA ATO/Technical Operations.

**2.16 Penalties.**

The CSPP should detail penalty provisions for noncompliance with airport rules and regulations and the safety plans (for example, if a vehicle is involved in a runway incursion). Such penalties typically include rescission of driving privileges or access to the AOA.

**2.17 Special Conditions.**

The CSPP must detail any special conditions that affect the operation of the airport and will require the activation of any special procedures (for example, low-visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, Vehicle / Pedestrian Deviation (VPD) and other activities requiring construction suspension/resumption).

**2.18 Runway and Taxiway Visual Aids.**

This includes marking, lighting, signs, and visual NAVAIDs. The CSPP must ensure that areas where aircraft will be operating are clearly and visibly separated from construction areas, including closed runways. Throughout the duration of the construction project, verify that these areas remain clearly marked and visible at all times and that marking, lighting, signs, and visual NAVAIDs that are to continue to perform their functions during construction remain in place and operational. Visual NAVAIDs that are not serving their intended function during construction must be temporarily disabled, covered, or modified as necessary. The CSPP must address the following, as appropriate:

**2.18.1 General.**

Airport markings, lighting, signs, and visual NAVAIDs must be clearly visible to pilots, not misleading, confusing, or deceptive. All must be secured in place to prevent movement by prop wash, jet blast, wing vortices, and other wind currents and constructed of materials that will minimize damage to an aircraft in the event of inadvertent contact. Items used to secure such markings must be of a color similar to the marking.

**2.18.2 Markings.**

During the course of construction projects, temporary pavement markings are often required to allow for aircraft operations during or between work periods. During the design phase of the project, the designer should coordinate with the project manager,

airport operations, airport users, the FAA Airports project manager, and Airport Certification Safety Inspector for Part 139 airports to determine minimum temporary markings. The FAA Airports project manager will, wherever a runway is closed, coordinate with the appropriate FAA Flight Standards Office and disseminate findings to all parties. Where possible, the temporary markings on finish grade pavements should be placed to mirror the dimensions of the final markings. Markings must be in compliance with the standards of AC 150/5340-1, *Standards for Airport Markings*, except as noted herein. Runways and runway exit taxiways closed to aircraft operations are marked with a yellow X. The preferred visual aid to depict temporary runway closure is the lighted X signal placed on or near the runway designation numbers. (See paragraph 2.18.2.1.2.)

#### 2.18.2.1 **Closed Runways and Taxiways.**

##### 2.18.2.1.1 Permanently Closed Runways.

For runways, obliterate the threshold marking, runway designation marking, and touchdown zone markings, and place an X at each end and at 1,000-foot (300 m) intervals. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X.

##### 2.18.2.1.2 Temporarily Closed Runways.

For runways that have been temporarily closed, place an X at each end of the runway directly on or as near as practicable to the runway designation numbers. For a multiple runway environment, if the lighted X on a designated number will be located in the RSA of an adjacent active runway, locate the lighted X farther down the closed runway to clear the RSA of the active runway. In addition, the closed runway numbers located in the RSA of an active runway must be marked with a flat yellow X. See Figure 2-3. See also paragraph 2.18.3.3.

##### 2.18.2.1.3 Partially Closed Runways and Displaced Thresholds.

When threshold markings are needed to identify the temporary beginning of the runway that is available for landing, the markings must comply with AC 150/5340-1. An X is not used on a partially closed runway or a runway with a displaced threshold. See paragraph 2.7.1.1 for the difference between partially closed runways and runways with displaced thresholds. Because of the temporary nature of threshold displacement due to construction, it is not necessary to re-adjust the existing runway centerline markings to meet standard spacing for a runway with a visual approach. Some of the requirements below may be waived in the cases of low-activity airports and/or short duration changes that are measured in days rather than weeks. Consider whether the presence of an airport traffic

control tower allows for the development of special procedures. Contact the appropriate FAA Airports Regional or District Office for assistance.

**Figure 2-3. Markings for a Temporarily Closed Runway**

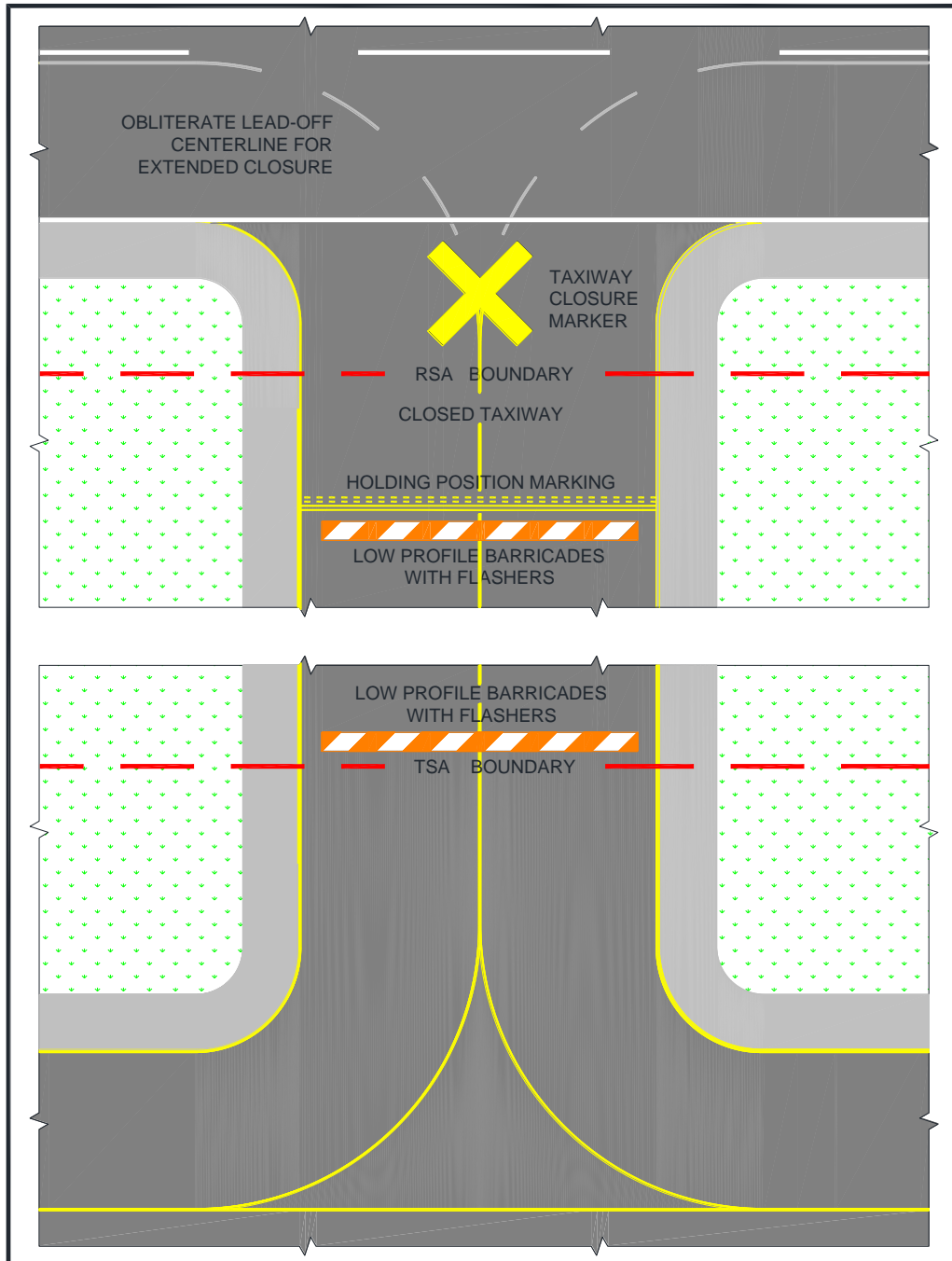


1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see [AC 150/5340-1](#)). Obliterate or cover markings prior to the moved threshold. Existing touchdown zone markings beyond the moved threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See [Figure 2-4](#).
2. **Displaced Thresholds.** Pavement markings for a displaced threshold consist of a runway threshold bar, runway designation, and white arrowheads with and without arrow shafts. These markings are required to identify the portion of the runway before the displaced threshold to provide centerline guidance for pilots during approaches, takeoffs, and landing rollouts from the opposite direction. See [AC 150/5340-1](#). Obliterate markings prior to the displaced threshold. Existing touchdown zone markings beyond the displaced threshold may remain in place. Obliterate aiming point markings. Issue appropriate NOTAMs regarding any nonstandard markings. See [Figure 2-2](#).

2.18.2.1.4 Taxiways.

1. **Permanently Closed Taxiways.** *AC 150/5300-13 Airport Design*, notes that it is preferable to remove the pavement, but for pavement that is to remain, place an X at the entrance to both ends of the closed section. Obliterate taxiway centerline markings, including runway leadoff lines, leading to the closed taxiway. See [Figure 2-4](#).

**Figure 2-4. Temporary Taxiway Closure**



2. **Temporarily Closed Taxiways.** Place barricades outside the safety area of intersecting taxiways. For runway/taxiway intersections, place an X at the entrance to the closed taxiway from the runway. If the taxiway will be closed for an extended period, obliterate taxiway centerline markings, including runway leadoff lines and taxiway to taxiway turns, leading to the closed section. Always obliterate runway lead-off lines for high speed exits, regardless of the duration of the closure. If the centerline markings will be reused upon reopening the taxiway, it is preferable to paint over the marking. This will result in less damage to the pavement when the upper layer of paint is ultimately removed. See Figure 2-4.

2.18.2.1.5 Temporarily Closed Airport.

When the airport is closed temporarily, mark all the runways as closed.

- 2.18.2.2 If unable to paint temporary markings on the pavement, construct them from any of the following materials: fabric, colored plastic, painted sheets of plywood, or similar materials. They must be properly configured and appropriately secured to prevent movement by prop wash, jet blast, or other wind currents. Items used to secure such markings must be of a color similar to the marking.

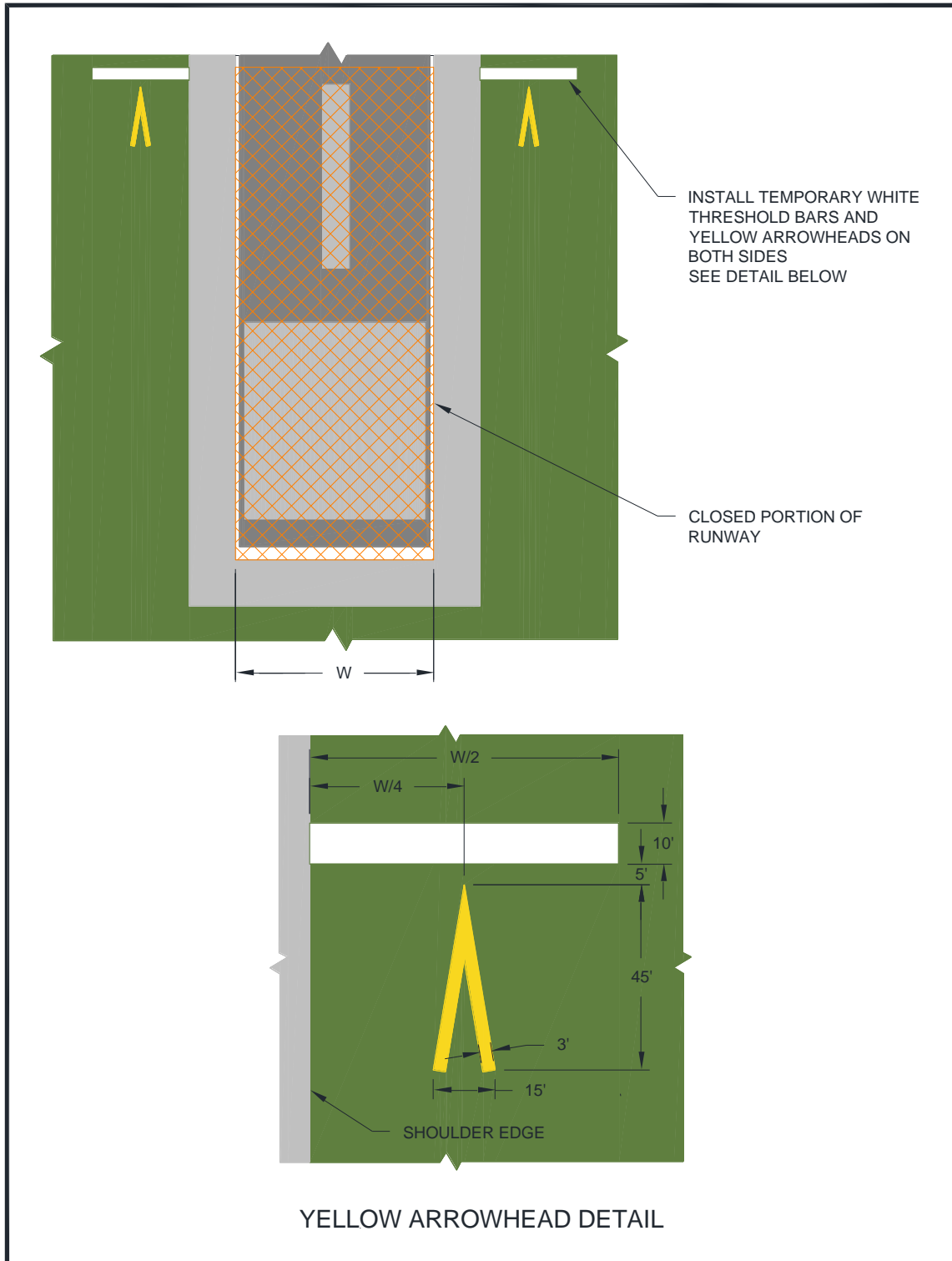
- 2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. When removing runway markings, apply the same treatment to areas between stripes or numbers, as the cleaned area will appear to pilots as a marking in the shape of the treated area.

- 2.18.2.4 If it is not possible to install threshold bars, chevrons, and arrows on the pavement, “temporary outboard white threshold bars and yellow arrowheads”, see Figure 2-5, may be used. Locate them outside of the runway pavement surface on both sides of the runway. The dimensions must be as shown in Figure 2-5. If the markings are not discernible on grass or snow, apply a black background with appropriate material over the ground to ensure they are clearly visible.

- 2.18.2.5 The application rate of paint to mark a short-term temporary runway and taxiway markings may deviate from the standard (see Item P-620, “Runway and Taxiway Painting,” in AC 150/5370-10), but the dimensions must meet the existing standards. When applying temporary markings at night, it is recommended that the fast curing, Type II paint be used to help offset the higher humidity and cooler temperatures often experienced at night. Diluting the paint will substantially increase cure time and is not recommended. Glass beads are not recommended for temporary markings. Striated markings may also be used for certain temporary markings. AC

150/5340-1, *Standards for Airport Markings*, has additional guidance on temporary markings.

**Figure 2-5. Temporary Outboard White Threshold Bars and Yellow Arrowheads**





### 2.18.3 Lighting and Visual NAVAIDs.

This paragraph refers to standard runway and taxiway lighting systems. See below for hazard lighting. Lighting installation must be in conformance with AC 150/5340-30, *Design and Installation Details for Airport Visual Aids*, and fixture design in conformance with AC 150/5345-50, *Specification for Portable Runway and Taxiway Lights*. When disconnecting runway and taxiway lighting fixtures, disconnect the associated isolation transformers. See AC 150/5340-26, *Maintenance of Airport Visual Aid Facilities*, for disconnect procedures and safety precautions. Alternately, cover the light fixture in such a way as to prevent light leakage. Avoid removing the lamp from energized fixtures because an excessive number of isolation transformers with open secondaries may damage the regulators and/or increase the current above its normal value. Secure, identify, and place any above ground temporary wiring in conduit to prevent electrocution and fire ignition sources. Maintain mandatory hold signs to operate normally in any situation where pilots or vehicle drivers could mistakenly be in that location. At towered airports certificated under Part 139, holding position signs are required to be illuminated on open taxiways crossing to closed or inactive runways. If the holding position sign is installed on the runway circuit for the closed runway, install a jumper to the taxiway circuit to provide power to the holding position sign for nighttime operations. Where it is not possible to maintain power to signs that would normally be operational, install barricades to exclude aircraft. Figure 2-1, Figure 2-2, Figure 2-3, and Figure 2-4 illustrate temporary changes to lighting and visual NAVAIDs.

#### 2.18.3.1 **Permanently Closed Runways and Taxiways.**

For runways and taxiways that have been permanently closed, disconnect the lighting circuits.

#### 2.18.3.2 **Temporarily Closed Runways and New Runways Not Yet Open to Air Traffic.**

If available, use a lighted X, both at night and during the day, placed at each end of the runway on or near the runway designation numbers facing the approach. (Note that the lighted X must be illuminated at all times that it is on a runway.) The use of a lighted X is required if night work requires runway lighting to be on. See AC 150/5345-55, *Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure*. For runways that have been temporarily closed, but for an extended period, and for those with pilot controlled lighting, disconnect the lighting circuits or secure switches to prevent inadvertent activation. For runways that will be opened periodically, coordinate procedures with the FAA air traffic manager or, at airports without an ATCT, the airport operator. Activate stop bars if available. Figure 2-6 shows a lighted X by day. Figure 2-7 shows a lighted X at night.

**Figure 2-6. Lighted X in Daytime****Figure 2-7. Lighted X at Night**

### 2.18.3.3 **Partially Closed Runways and Displaced Thresholds.**

When a runway is partially closed, a portion of the pavement is unavailable for any aircraft operation, meaning taxiing and landing or taking off in either direction. A displaced threshold, by contrast, is put in place to ensure obstacle clearance by landing aircraft. The pavement prior to the displaced threshold is available for takeoff in the direction of the displacement, and for landing and takeoff in the opposite direction. Misunderstanding this difference and issuance of a subsequently inaccurate NOTAM can result in a hazardous situation. For both partially

closed runways and displaced thresholds, approach lighting systems at the affected end must be placed out of service.

- 2.18.3.3.1 Partially Closed Runways.  
Disconnect edge and threshold lights on that part of the runway at and behind the threshold (that is, the portion of the runway that is closed). Alternately, cover the light fixtures in such a way as to prevent light leakage. See Figure 2-1.
- 2.18.3.3.2 Temporary Displaced Thresholds.  
Edge lighting in the area of the displacement emits red light in the direction of approach and yellow light (white for visual runways) in the opposite direction. If the displacement is 700 feet or less, blank out centerline lights in the direction of approach or place the centerline lights out of service. If the displacement is over 700 feet, place the centerline lights out of service. See AC 150/5340-30 for details on lighting displaced thresholds. See Figure 2-2.
- 2.18.3.3.3 Temporary runway thresholds and runway ends must be lighted if the runway is lighted and it is the intended threshold for night landings or instrument meteorological conditions.
- 2.18.3.3.4 A temporary threshold on an unlighted runway may be marked by retroreflective, elevated markers in addition to markings noted in paragraph 2.18.2.1.3. Markers seen by aircraft on approach are green. Markers at the rollout end of the runway are red. At certificated airports, temporary elevated threshold markers must be mounted with a frangible fitting (see 14 CFR Part 139.309). At non-certificated airports, the temporary elevated threshold markings may either be mounted with a frangible fitting or be flexible. See AC 150/5345-39, *Specification for L-853, Runway and Taxiway Retroreflective Markers*.
- 2.18.3.3.5 Temporary threshold lights and runway end lights and related visual NAVAIDs are installed outboard of the edges of the full-strength pavement only when they cannot be installed on the pavement. They are installed with bases at grade level or as low as possible, but not more than 3 inch (7.6 cm) above ground. (The standard above ground height for airport lighting fixtures is 14 inches (35 cm)). When any portion of a base is above grade, place properly compacted fill around the base to minimize the rate of gradient change so aircraft can, in an emergency, cross at normal landing or takeoff speeds without incurring significant damage. See AC 150/5370-10.
- 2.18.3.3.6 Maintain threshold and edge lighting color and spacing standards as described in AC 150/5340-30. Battery powered, solar, or portable lights that meet the criteria in AC 150/5345-50 may be used. These systems are intended primarily for visual flight rules (VFR) aircraft operations but may

be used for instrument flight rules (IFR) aircraft operations, upon individual approval from the Flight Standards Division of the applicable FAA Regional Office.

- 2.18.3.3.7 When runway thresholds are temporarily displaced, reconfigure yellow lenses (caution zone), as necessary, and place the centerline lights out of service.
- 2.18.3.3.8 Relocate the Visual Glide Slope Indicator (VGSI), such as Visual Approach Slope Indicator (VASI) and Precision Approach Path Indicator (PAPI); other airport lights, such as Runway End Identifier Lights (REIL); and approach lights to identify the temporary threshold. Another option is to disable the VGSI or any equipment that would give misleading indications to pilots as to the new threshold location. Installation of temporary visual aids may be necessary to provide adequate guidance to pilots on approach to the affected runway. If the FAA owns and operates the VGSI, coordinate its installation or disabling with the local ATO/Technical Operations Office. Relocation of such visual aids will depend on the duration of the project and the benefits gained from the relocation, as this can result in great expense. See FAA JO 6850.2, *Visual Guidance Lighting Systems*, for installation criteria for FAA owned and operated NAVAIDs.
- 2.18.3.3.9 Issue a NOTAM to inform pilots of temporary lighting conditions.

2.18.3.4 **Temporarily Closed Taxiways.**

If possible, deactivate the taxiway lighting circuits. When deactivation is not possible (for example other taxiways on the same circuit are to remain open), cover the light fixture in a way as to prevent light leakage.

2.18.4 Signs.

To the extent possible, signs must be in conformance with AC 150/5345-44, *Specification for Runway and Taxiway Signs*, and AC 150/5340-18, *Standard for Airport Sign Systems*.

2.18.4.1 **Existing Signs.**

Runway exit signs are to be covered for closed runway exits. Outbound destination signs are to be covered for closed runways. Any time a sign does not serve its normal function or would provide conflicting information, it must be covered or removed to prevent misdirecting pilots. Note that information signs identifying a crossing taxiway continue to perform their normal function even if the crossing taxiway is closed. For long term construction projects, consider relocating signs, especially runway distance remaining signs.

#### 2.18.4.2 **Temporary Signs.**

Orange construction signs comprise a message in black on an orange background. Orange construction signs may help pilots be aware of changed conditions. The airport operator may choose to introduce these signs as part of a movement area construction project to increase situational awareness when needed. Locate signs outside the taxiway safety limits and ahead of construction areas so pilots can take timely action. Use temporary signs judiciously, striking a balance between the need for information and the increase in pilot workload. When there is a concern of pilot “information overload,” the applicability of mandatory hold signs must take precedence over orange construction signs recommended during construction. Temporary signs must meet the standards for such signs in Engineering Brief 93, *Guidance for the Assembly and Installation of Temporary Orange Construction Signs*. Many criteria in AC 150/5345-44, *Specification for Runway and Taxiway Signs*, are referenced in the Engineering Brief. Permissible sign legends are:

1. CONSTRUCTION AHEAD,
2. CONSTRUCTION ON RAMP, and
3. RWY XX TAKEOFF RUN AVAILABLE XXX FT.

Phasing, supported by drawings and sign schedule, for the installation of orange construction signs must be included in the CSPP or SPCD.

##### 2.18.4.2.1 Takeoff Run Available (TORA) signs.

**Recommended:** Where a runway has been shortened for takeoff, install orange TORA signs well before the hold lines, such as on a parallel taxiway prior to a turn to a runway hold position. See EB 93 for sign size and location.

##### 2.18.4.2.2 Sign legends are shown in Figure F-1.

**Note:** See Figure E-1, Figure E-2, Figure E-3, Figure F-2, and Figure F-3 for examples of orange construction sign locations.

#### 2.19 **Marking and Signs for Access Routes.**

The CSPP should indicate that pavement markings and signs for construction personnel will conform to AC 150/5340-18 and, to the extent practicable, with the Federal Highway Administration Manual on Uniform Traffic Control Devices (MUTCD) and/or State highway specifications. Signs adjacent to areas used by aircraft must comply with the frangibility requirements of AC 150/5220-23, *Frangible Connections*, which may require modification to size and height guidance in the MUTCD.

## 2.20 **Hazard Marking, Lighting and Signing.**

2.20.1 Hazard marking, lighting, and signing prevent pilots from entering areas closed to aircraft, and prevent construction personnel from entering areas open to aircraft. The CSPP must specify prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles. Hazard marking and lighting must also be specified to identify open manholes, small areas under repair, stockpiled material, waste areas, and areas subject to jet blast. Also consider less obvious construction-related hazards and include markings to identify FAA, airport, and National Weather Service facilities cables and power lines; instrument landing system (ILS) critical areas; airport surfaces, such as RSA, OFA, and OFZ; and other sensitive areas to make it easier for contractor personnel to avoid these areas.

### 2.20.2 Equipment.

#### 2.20.2.1 **Barricades.**

Low profile barricades, including traffic cones, (weighted or sturdily attached to the surface) are acceptable methods used to identify and define the limits of construction and hazardous areas on airports. Careful consideration must be given to selecting equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast. The spacing of barricades must be such that a breach is physically prevented barring a deliberate act. For example, if barricades are intended to exclude aircraft, gaps between barricades must be smaller than the wingspan of the smallest aircraft to be excluded; if barricades are intended to exclude vehicles, gaps between barricades must be smaller than the width of the excluded vehicles, generally 4 feet (1.2 meters). Provision must be made for ARFF access if necessary. If barricades are intended to exclude pedestrians, they must be continuously linked. Continuous linking may be accomplished through the use of ropes, securely attached to prevent FOD.

#### 2.20.2.2 **Lights.**

Lights must be red, either steady burning or flashing, and must meet the luminance requirements of the State Highway Department. Batteries powering lights will last longer if lights flash. Lights must be mounted on barricades and spaced at no more than 10 feet (3 meters). Lights must be operated between sunset and sunrise and during periods of low visibility whenever the airport is open for operations. They may be operated by photocell, but this may require that the contractor turn them on manually during periods of low visibility during daytime hours.

#### 2.20.2.3 **Supplement Barricades with Signs (for example) As Necessary.**

Examples are “No Entry” and “No Vehicles.” Be aware of the increased effects of wind and jet blast on barricades with attached signs.

#### 2.20.2.4 **Air Operations Area – General.**

Barricades are not permitted in any active safety area or on the runway side of a runway hold line. Within a runway or taxiway object free area, and on aprons, use orange traffic cones, flashing or steady burning red lights as noted above, highly reflective collapsible barricades marked with diagonal, alternating orange and white stripes; and/or signs to separate all construction/maintenance areas from the movement area. Barricades may be supplemented with alternating orange and white flags at least 20 by 20 inch (50 by 50 cm) square and securely fastened to eliminate FOD. All barricades adjacent to any open runway or taxiway / taxilane safety area, or apron must be as low as possible to the ground, and no more than 18 inches high, exclusive of supplementary lights and flags. Barricades must be of low mass; easily collapsible upon contact with an aircraft or any of its components; and weighted or sturdily attached to the surface to prevent displacement from prop wash, jet blast, wing vortex, and other surface wind currents. If affixed to the surface, they must be frangible at grade level or as low as possible, but not to exceed 3 inch (7.6 cm) above the ground. [Figure 2-8](#) and [Figure 2-9](#) show sample barricades with proper coloring and flags.

**Figure 2-8. Interlocking Barricades**



**Figure 2-9. Low Profile Barricades****2.20.2.5 Air Operations Area – Runway/Taxiway Intersections.**

Use highly reflective barricades with lights to close taxiways leading to closed runways. Evaluate all operating factors when determining how to mark temporary closures that can last from 10 to 15 minutes to a much longer period of time. However, even for closures of relatively short duration, close all taxiway/runway intersections with barricades. The use of traffic cones is appropriate for short duration closures.

**2.20.2.6 Air Operations Area – Other.**

Beyond runway and taxiway object free areas and aprons, barricades intended for construction vehicles and personnel may be many different shapes and made from various materials, including railroad ties, sawhorses, jersey barriers, or barrels.

**2.20.2.7 Maintenance.**

The construction specifications must include a provision requiring the contractor to have a person on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades. The contractor must file the contact person's information with the airport operator. Lighting should be checked for proper operation at least once per day, preferably at dusk.

**2.21 Work Zone Lighting for Nighttime Construction.**

Lighting equipment must adequately illuminate the work area if the construction is to be performed during nighttime hours. Refer to [AC 150/5370-10](#) for minimum illumination levels for nighttime paving projects. Additionally, it is recommended that all support equipment, except haul trucks, be equipped with artificial illumination to safely



illuminate the area immediately surrounding their work areas. The lights should be positioned to provide the most natural color illumination and contrast with a minimum of shadows. The spacing must be determined by trial. Light towers should be positioned and adjusted to aim away from ATCT cabs and active runways to prevent blinding effects. Shielding may be necessary. Light towers should be removed from the construction site when the area is reopened to aircraft operations. Construction lighting units should be identified and generally located on the construction phasing plans in relationship to the ATCT and active runways and taxiways.

## 2.22 **Protection of Runway and Taxiway Safety Areas.**

Runway and taxiway safety areas, OFZs, OFAs, and approach surfaces are described in AC 150/5300-13. Protection of these areas includes limitations on the location and height of equipment and stockpiled material. An FAA airspace study may be required. Coordinate with the appropriate FAA Airports Regional or District Office if there is any doubt as to requirements or dimensions (see paragraph 2.13.5) as soon as the location and height of materials or equipment are known. The CSPP should include drawings showing all safety areas, object free areas, obstacle free zones and approach departure surfaces affected by construction.

### 2.22.1 Runway Safety Area (RSA).

A runway safety area is the defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway (see AC 150/5300-13). Construction activities within the existing RSA are subject to the following conditions:

- 2.22.1.1 No construction may occur within the existing RSA while the runway is open for aircraft operations. The RSA dimensions may be temporarily adjusted if the runway is restricted to aircraft operations requiring an RSA that is equal to the RSA width and length beyond the runway ends available during construction. (See AC 150/5300-13). The temporary use of declared distances and/or partial runway closures may provide the necessary RSA under certain circumstances. Coordinate with the appropriate FAA Airports Regional or District Office to have declared distances information published, and appropriate NOTAMs issued. See AC 150/5300-13 for guidance on the use of declared distances.
- 2.22.1.2 The airport operator must coordinate the adjustment of RSA dimensions as permitted above with the appropriate FAA Airports Regional or District Office and the local FAA air traffic manager and issue a NOTAM.
- 2.22.1.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations.

#### 2.22.1.4 **Excavations.**

2.22.1.4.1 Open trenches or excavations are not permitted within the RSA while the runway is open. Backfill trenches before the runway is opened. If backfilling excavations before the runway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the runway across the trench without damage to the aircraft.

2.22.1.4.2 Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

#### 2.22.1.5 **Erosion Control.**

Soil erosion must be controlled to maintain RSA standards, that is, the RSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and fire fighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

#### 2.22.2 Runway Object Free Area (ROFA).

Construction, including excavations, may be permitted in the ROFA. However, equipment must be removed from the ROFA when not in use, and material should not be stockpiled in the ROFA if not necessary. Stockpiling material in the OFA requires submittal of a 7460-1 form and justification provided to the appropriate FAA Airports Regional or District Office for approval.

#### 2.22.3 Taxiway Safety Area (TSA).

2.22.3.1 A taxiway safety area is a defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway. (See AC 150/5300-13.) Since the width of the TSA is equal to the wingspan of the design aircraft, no construction may occur within the TSA while the taxiway is open for aircraft operations. The TSA dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a TSA that is equal to the TSA width available during construction. Give special consideration to TSA dimensions at taxiway turns and intersections. (see AC 150/5300-13).

2.22.3.2 The airport operator must coordinate the adjustment of the TSA width as permitted above with the appropriate FAA Airports Regional or District Office and the FAA air traffic manager and issue a NOTAM.

2.22.3.3 The CSPP and SPCD must provide procedures for ensuring adequate distance for protection from blasting operations.

2.22.3.4 **Excavations.**

1. Curves. Open trenches or excavations are not permitted within the TSA while the taxiway is open. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations appropriately. Covering for open trenches must be designed to allow the safe operation of the heaviest aircraft operating on the taxiway across the trench without damage to the aircraft.
2. Straight Sections. Open trenches or excavations are not permitted within the TSA while the taxiway is open for unrestricted aircraft operations. Trenches should be backfilled before the taxiway is opened. If backfilling excavations before the taxiway must be opened is impracticable, cover the excavations to allow the safe passage of ARFF equipment and of the heaviest aircraft operating on the taxiway across the trench without causing damage to the equipment or aircraft. In rare circumstances where the section of taxiway is indispensable for aircraft movement, open trenches or excavations may be permitted in the TSA while the taxiway is open to aircraft operations, subject to the following restrictions:
  - a. Taxiing speed is limited to 10 mph.
  - b. Appropriate NOTAMs are issued.
  - c. Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
  - d. Low mass, low-profile lighted barricades are installed.
  - e. Appropriate temporary orange construction signs are installed.
3. Construction contractors must prominently mark open trenches and excavations at the construction site with red or orange flags, as approved by the airport operator, and light them with red lights during hours of restricted visibility or darkness.

2.22.3.5 **Erosion control.**

Soil erosion must be controlled to maintain TSA standards, that is, the TSA must be cleared and graded and have no potentially hazardous ruts, humps, depressions, or other surface variations, and capable, under dry conditions, of supporting snow removal equipment, aircraft rescue and firefighting equipment, and the occasional passage of aircraft without causing structural damage to the aircraft.

#### 2.22.4 Taxiway Object Free Area (TOFA).

Unlike the Runway Object Free Area, aircraft wings regularly penetrate the taxiway object free area during normal operations. Thus, the restrictions are more stringent. Except as provided below, no construction may occur within the taxiway object free area while the taxiway is open for aircraft operations.

- 2.22.4.1 The taxiway object free area dimensions may be temporarily adjusted if the taxiway is restricted to aircraft operations requiring a taxiway object free area that is equal to the taxiway object free area width available. Give special consideration to TOFA dimensions at taxiway turns and intersections.
- 2.22.4.2 Offset taxiway centerline and edge pavement markings (do not use glass beads) may be used as a temporary measure to provide the required taxiway object free area. Where offset taxiway pavement markings are provided, centerline lighting, centerline reflectors, or taxiway edge reflectors are required. Existing lighting that does not coincide with the temporary markings must be taken out of service.
- 2.22.4.3 Construction activity, including open excavations, may be accomplished without adjusting the width of the taxiway object free area, subject to the following restrictions:
  - 2.22.4.3.1 Taxiing speed is limited to 10 mph.
  - 2.22.4.3.2 NOTAMs issued advising taxiing pilots of hazard and recommending reduced taxiing speeds on the taxiway.
  - 2.22.4.3.3 Marking and lighting meeting the provisions of paragraphs 2.18 and 2.20 are implemented.
  - 2.22.4.3.4 If desired, appropriate orange construction signs are installed. See paragraph 2.18.4.2 and Appendix F.
  - 2.22.4.3.5 Five-foot clearance is maintained between equipment and materials and any part of an aircraft (includes wingtip overhang). If such clearance can only be maintained if an aircraft does not have full use of the entire taxiway width (with its main landing gear at the edge of the usable pavement), then it will be necessary to move personnel and equipment for the passage of that aircraft.
  - 2.22.4.3.6 Flaggers furnished by the contractor must be used to direct and control construction equipment and personnel to a pre-established setback distance for safe passage of aircraft, and airline and/or airport personnel. Flaggers must also be used to direct taxiing aircraft. Due to liability issues, the airport operator should require airlines to provide flaggers for directing taxiing aircraft.

### 2.22.5 Obstacle Free Zone (OFZ).

In general, personnel, material, and/or equipment may not penetrate the OFZ while the runway is open for aircraft operations. If a penetration to the OFZ is necessary, it may be possible to continue aircraft operations through operational restrictions. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

### 2.22.6 Runway Approach/Departure Areas and Clearways.

All personnel, materials, and/or equipment must remain clear of the applicable threshold siting surfaces, as defined in AC 150/5300-13. Objects that do not penetrate these surfaces may still be obstructions to air navigation and may affect standard instrument approach procedures. Coordinate with the FAA through the appropriate FAA Airports Regional or District Office.

2.22.6.1 Construction activity in a runway approach/departure area may result in the need to partially close a runway or displace the existing runway threshold. Partial runway closure, displacement of the runway threshold, as well as closure of the complete runway and other portions of the movement area also require coordination through the airport operator with the appropriate FAA air traffic manager (FSS if non-towered) and ATO/Technical Operations (for affected NAVAIDS) and airport users.

#### 2.22.6.2 **Caution About Partial Runway Closures.**

When filing a NOTAM for a partial runway closure, clearly state that the portion of pavement located prior to the threshold is not available for landing and departing traffic. In this case, the threshold has been moved for both landing and takeoff purposes (this is different than a displaced threshold). There may be situations where the portion of closed runway is available for taxiing only. If so, the NOTAM must reflect this condition).

#### 2.22.6.3 **Caution About Displaced Thresholds.**

Implementation of a displaced threshold affects runway length available for aircraft landing over the displacement. Depending on the reason for the displacement (to provide obstruction clearance or RSA), such a displacement may also require an adjustment in the landing distance available and accelerate-stop distance available in the opposite direction. If project scope includes personnel, equipment, excavation, or other work within the existing RSA of any usable runway end, do not implement a displaced threshold unless arrivals and departures toward the construction activity are prohibited. Instead, implement a partial closure.

### 2.23 **Other Limitations on Construction.**

The CSPP must specify any other limitations on construction, including but not limited to:

### 2.23.1 Prohibitions.

- 2.23.1.1 No use of tall equipment (cranes, concrete pumps, and so on) unless a 7460-1 determination letter is issued for such equipment.
- 2.23.1.2 No use of open flame welding or torches unless fire safety precautions are provided and the airport operator has approved their use.
- 2.23.1.3 No use of electrical blasting caps on or within 1,000 feet (300 meters) of the airport property. See AC 150/5370-10.

### 2.23.2 Restrictions.

- 2.23.2.1 Construction suspension required during specific airport operations.
- 2.23.2.2 Areas that cannot be worked on simultaneously.
- 2.23.2.3 Day or night construction restrictions.
- 2.23.2.4 Seasonal construction restrictions.
- 2.23.2.5 Temporary signs not approved by the airport operator.
- 2.23.2.6 Grades changes that could result in unplanned effects on NAVAIDs.

## CHAPTER 3. GUIDELINES FOR WRITING A CSPP

### 3.1 **General Requirements.**

The CSPP is a standalone document written to correspond with the subjects outlined in paragraph 2.4. The CSPP is organized by numbered sections corresponding to each subject listed in paragraph 2.4, and described in detail in paragraphs 2.5 - 2.23. Each section number and title in the CSPP matches the corresponding subject outlined in paragraph 2.4 (for example, 1. Coordination, 2. Phasing, 3. Areas and Operations Affected by the Construction Activity, and so on). With the exception of the project scope of work outlined in Section 2. Phasing, only subjects specific to operational safety during construction should be addressed.

### 3.2 **Applicability of Subjects.**

Each section should, to the extent practical, focus on the specific subject. Where an overlapping requirement spans several sections, the requirement should be explained in detail in the most applicable section. A reference to that section should be included in all other sections where the requirement may apply. For example, the requirement to protect existing underground FAA ILS cables during trenching operations could be considered FAA ATO coordination (Coordination, paragraph 2.5.3), an area and operation affected by the construction activity (Areas and Operations Affected by the Construction Activity, paragraph 2.7.1.4), a protection of a NAVAID (Protection of Navigational Aids (NAVAIDs), paragraph 2.8), or a notification to the FAA of construction activities (Notification of Construction Activities, paragraph 2.13.5.3.2). However, it is more specifically an underground utility requirement (Underground Utilities, paragraph 2.15). The procedure for protecting underground ILS cables during trenching operations should therefore be described in 2.4.2.11: “The contractor must coordinate with the local FAA System Support Center (SSC) to mark existing ILS cable routes along Runway 17-35. The ILS cables will be located by hand digging whenever the trenching operation moves within 10 feet of the cable markings.” All other applicable sections should include a reference to 2.4.2.11: “ILS cables shall be identified and protected as described in 2.4.2.11” or “See 2.4.2.11 for ILS cable identification and protection requirements.” Thus, the CSPP should be considered as a whole, with no need to duplicate responses to related issues.

### 3.3 **Graphical Representations.**

Construction safety drawings should be included in the CSPP as attachments. When other graphical representations will aid in supporting written statements, the drawings, diagrams, and/or photographs should also be attached to the CSPP. References should be made in the CSPP to each graphical attachment and may be made in multiple sections.

### 3.4 **Reference Documents.**

The CSPP must not incorporate a document by reference unless reproduction of the material in that document is prohibited. In that case, either copies of or a source for the referenced document must be provided to the contractor. Where this AC recommends references (e.g. as in paragraph 3.9) the intent is to include a reference to the corresponding section in the CSPP, not to this Advisory Circular.

### 3.5 **Restrictions.**

The CSPP should not be considered as a project design review document. The CSPP should also avoid mention of permanent (“as-built”) features such as pavements, markings, signs, and lighting, except when such features are intended to aid in maintaining operational safety during the construction.

### 3.6 **Coordination.**

Include in this section a detailed description of conferences and meetings to be held both before and during the project. Include appropriate information from AC 150/5370-12. Discuss coordination procedures and schedules for each required FAA ATO Technical Operations shutdown and restart and all required flight inspections.

### 3.7 **Phasing.**

Include in this section a detailed scope of work description for the project as a whole and each phase of work covered by the CSPP. This includes all locations and durations of the work proposed. Attach drawings to graphically support the written scope of work. Detail in this section the sequenced phases of the proposed construction. Include a reference to paragraph 3.8, as appropriate.

### 3.8 **Areas and Operations Affected by Construction.**

Focus in this section on identifying the areas and operations affected by the construction. Describe corresponding mitigation that is not covered in detail elsewhere in the CSPP. Include references to paragraphs below as appropriate. Attach drawings as necessary to graphically describe affected areas and mechanisms proposed. See Appendix F for sample operational effects tables and figures.

### 3.9 **NAVAID Protection.**

List in this section all NAVAID facilities that will be affected by the construction. Identify NAVAID facilities that will be placed out of service at any time prior to or during construction activities. Identify individuals responsible for coordinating each shutdown and when each facility will be out of service. Include a reference to paragraph 3.6 for FAA ATO NAVAID shutdown, restart, and flight inspection coordination. Outline in detail procedures to protect each NAVAID facility remaining in service from interference by construction activities. Include a reference to paragraph 3.14 for the



issuance of NOTAMs as required. Include a reference to paragraph 3.16 for the protection of underground cables and piping serving NAVAIDs. If temporary visual aids are proposed to replace or supplement existing facilities, include a reference to paragraph 3.19. Attach drawings to graphically indicate the affected NAVAIDs and the corresponding critical areas.

### 3.10 **Contractor Access.**

This will necessarily be the most extensive section of the CSPP. Provide sufficient detail so that a contractor not experienced in working on airports will understand the unique restrictions such work will require. Due to this extent, it should be broken down into subsections as described below:

#### 3.10.1 Location of Stockpiled Construction Materials.

Describe in this section specific locations for stockpiling material. Note any height restrictions on stockpiles. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify stockpiles. Include a reference to paragraph 3.11 for provisions to prevent stockpile material from becoming wildlife attractants. Include a reference to paragraph 3.12 for provisions to prevent stockpile material from becoming FOD. Attach drawings to graphically indicate the stockpile locations.

#### 3.10.2 Vehicle and Pedestrian Operations.

While there are many items to be addressed in this major subsection of the CSPP, all are concerned with one main issue: keeping people and vehicles from areas of the airport where they don't belong. This includes preventing unauthorized entry to the AOA and preventing the improper movement of pedestrians or vehicles on the airport. In this section, focus on mechanisms to prevent construction vehicles and workers traveling to and from the worksite from unauthorized entry into movement areas. Specify locations of parking for both employee vehicles and construction equipment, and routes for access and haul roads. In most cases, this will best be accomplished by attaching a drawing. Quote from AC 150/5210-5 specific requirements for contractor vehicles rather than referring to the AC as a whole, and include special requirements for identifying HAZMAT vehicles. Quote from, rather than incorporate by reference, AC 150/5210-20 as appropriate to address the airport's rules for ground vehicle operations, including its training program. Discuss the airport's recordkeeping system listing authorized vehicle operators.

#### 3.10.3 Two-Way Radio Communications.

Include a special section to identify all individuals who are required to maintain communications with Air Traffic (AT) at airports with active towers, or monitor CTAF at airports without or with closed ATCT. Include training requirements for all individuals required to communicate with AT. Individuals required to monitor AT frequencies should also be identified. If construction employees are also required to communicate by radio with Airport Operations, this procedure should be described in detail. Usage of vehicle mounted radios and/or portable radios should be addressed. Communication procedures for the event of disabled radio communication (that is, light

signals, telephone numbers, others) must be included. All radio frequencies should be identified (Tower, Ground Control, CTAF, UNICOM, ATIS, and so on).

#### 3.10.4 Airport Security.

Address security as it applies to vehicle and pedestrian operations. Discuss TSA requirements, security badging requirements, perimeter fence integrity, gate security, and other needs. Attach drawings to graphically indicate secured and/or Security Identification Display Areas (SIDA), perimeter fencing, and available access points.

#### 3.11 **Wildlife Management.**

Discuss in this section wildlife management procedures. Describe the maintenance of existing wildlife mitigation devices, such as perimeter fences, and procedures to limit wildlife attractants. Include procedures to notify Airport Operations of wildlife encounters. Include a reference to paragraph 3.10 for security (wildlife) fence integrity maintenance as required.

#### 3.12 **FOD Management.**

In this section, discuss methods to control and monitor FOD: worksite housekeeping, ground vehicle tire inspections, runway sweeps, and so on. Include a reference to paragraph 3.15 for inspection requirements as required.

#### 3.13 **HAZMAT Management.**

Describe in this section HAZMAT management procedures: fuel deliveries, spill recovery procedures, Safety Data Sheet (SDS), Material Safety Data Sheet (MSDS) or Product Safety Data Sheet (PSDS) availability, and other considerations. Any specific airport HAZMAT restrictions should also be identified. Include a reference to paragraph 3.10 for HAZMAT vehicle identification requirements. Quote from, rather than incorporate by reference, AC 150/5320-15.

#### 3.14 **Notification of Construction Activities.**

List in this section the names and telephone numbers of points of contact for all parties affected by the construction project. We recommend a single list that includes all telephone numbers required under this section. Include emergency notification procedures for all representatives of all parties potentially impacted by the construction. Identify individual representatives – and at least one alternate – for each party. List both on-duty and off-duty contact information for each individual, including individuals responsible for emergency maintenance of airport construction hazard lighting and barricades. Describe procedures to coordinate immediate response to events that might adversely affect the operational safety of the airport (such as interrupted NAVAID service). Explain requirements for and the procedures for the issuance of Notices to Airmen (NOTAMs), notification to FAA required by 14 CFR Part 77 and Part 157 and in the event of affected NAVAIDs. For NOTAMs, identify an individual, and at least one alternate, responsible for issuing and cancelling each specific type of Notice to

Airmen (NOTAM) required. Detail notification methods for police, fire fighting, and medical emergencies. This may include 911, but should also include direct phone numbers of local police departments and nearby hospitals. Identify the E911 address of the airport and the emergency access route via haul roads to the construction site. Require the contractor to have this information available to all workers. The local Poison Control number should be listed. Procedures regarding notification of Airport Operations and/or the ARFF Department of such emergencies should be identified, as applicable. If airport radio communications are identified as a means of emergency notification, include a reference to paragraph [3.10](#). Differentiate between emergency and nonemergency notification of ARFF personnel, the latter including activities that affect ARFF water supplies and access roads. Identify the primary ARFF contact person and at least one alternate. If notification is to be made through Airport Operations, then detail this procedure. Include a method of confirmation from the ARFF department.

**3.15 Inspection Requirements.**

Describe in this section inspection requirements to ensure airfield safety compliance. Include a requirement for routine inspections by the resident engineer (RE) or other airport operator's representative and the construction contractors. If the engineering consultants and/or contractors have a Safety Officer who will conduct such inspections, identify this individual. Describe procedures for special inspections, such as those required to reopen areas for aircraft operations. Part 139 requires daily airfield inspections at certificated airports, but these may need to be more frequent when construction is in progress. Discuss the role of such inspections on areas under construction. Include a requirement to immediately remedy any deficiencies, whether caused by negligence, oversight, or project scope change.

**3.16 Underground Utilities.**

Explain how existing underground utilities will be located and protected. Identify each utility owner and include contact information for each company/agency in the master list. Address emergency response procedures for damaged or disrupted utilities. Include a reference to paragraph [3.14](#) for notification of utility owners of accidental utility disruption as required.

**3.17 Penalties.**

Describe in this section specific penalties imposed for noncompliance with airport rules and regulations, including the CSPP: SIDA violations, VPD, and others.

**3.18 Special Conditions.**

Identify any special conditions that may trigger specific safety mitigation actions outlined in this CSPP: low visibility operations, snow removal, aircraft in distress, aircraft accident, security breach, VPD, and other activities requiring construction suspension/resumption. Include a reference to paragraph [3.10](#) for compliance with airport safety and security measures and for radio communications as required. Include

a reference to paragraph 3.14 for emergency notification of all involved parties, including police/security, ARFF, and medical services.

**3.19 Runway and Taxiway Visual Aids.**

Include marking, lighting, signs, and visual NAVAIDS. Detail temporary runway and taxiway marking, lighting, signs, and visual NAVAIDS required for the construction. Discuss existing marking, lighting, signs, and visual NAVAIDS that are temporarily, altered, obliterated, or shut down. Consider non-federal facilities and address requirements for reimbursable agreements necessary for alteration of FAA facilities and for necessary flight checks. Identify temporary TORA signs or runway distance remaining signs if appropriate. Identify required temporary visual NAVAIDS such as REIL or PAPI. Quote from, rather than incorporate by reference, AC 150/5340-1, Standards for Airport Markings; AC 150/5340-18, Standards for Airport Sign Systems; and AC 150/5340-30, as required. Attach drawings to graphically indicate proposed marking, lighting, signs, and visual NAVAIDS.

**3.20 Marking and Signs for Access Routes.**

Detail plans for marking and signs for vehicle access routes. To the extent possible, signs should be in conformance with the Federal Highway Administration MUTCD and/or State highway specifications, not hand lettered. Detail any modifications to the guidance in the MUTCD necessary to meet frangibility/height requirements.

**3.21 Hazard Marking and Lighting.**

Specify all marking and lighting equipment, including when and where each type of device is to be used. Specify maximum gaps between barricades and the maximum spacing of hazard lighting. Identify one individual and at least one alternate responsible for maintenance of hazard marking and lighting equipment in the master telephone list. Include a reference to paragraph 3.14. Attach drawings to graphically indicate the placement of hazard marking and lighting equipment.

**3.22 Work Zone Lighting for Nighttime Construction.**

If work is to be conducted at night, specify all lighting equipment, including when and where each type of device is to be used. Indicate the direction lights are to be aimed and any directions that aiming of lights is prohibited. Specify any shielding necessary in instances where aiming is not sufficient to prevent interference with air traffic control and aircraft operations. Attach drawings to graphically indicate the placement and aiming of lighting equipment. Where the plan only indicates directions that aiming of lights is prohibited, the placement and positioning of portable lights must be proposed by the Contractor and approved by the airport operator's representative each time lights are relocated or repositioned.

**3.23 Protection of Runway and Taxiway Safety Areas.**

This section should focus exclusively on procedures for protecting all safety areas, including those altered by the construction: methods of demarcation, limit of access, movement within safety areas, stockpiling and trenching restrictions, and so on. Reference AC 150/5300-13, as required. Include a reference to paragraph 3.10 for procedures regarding vehicle and personnel movement within safety areas. Include a reference to paragraph 3.10 for material stockpile restrictions as required. Detail requirements for trenching, excavations, and backfill. Include a reference to paragraph 3.21 for hazard marking and lighting devices used to identify open excavations as required. If runway and taxiway closures are proposed to protect safety areas, or if temporary displaced thresholds and/or revised declared distances are used to provide the required Runway Safety Area, include a reference to paragraphs 3.14 and 3.19. Detail procedures for protecting the runway OFZ, runway OFA, taxiway OFA and runway approach surfaces including those altered by the construction: methods of demarcation, limit of cranes, storage of equipment, and so on. Quote from, rather than incorporate by reference, AC 150/5300-13, as required. Include a reference to paragraph 3.24 for height (i.e., crane) restrictions as required. One way to address the height of equipment that will move during the project is to establish a three-dimensional “box” within which equipment will be confined that can be studied as a single object. Attach drawings to graphically indicate the safety area, OFZ, and OFA boundaries.

**3.24 Other Limitations on Construction.**

This section should describe what limitations must be applied to each area of work and when each limitation will be applied: limitations due to airport operations, height (i.e., crane) restrictions, areas which cannot be worked at simultaneously, day/night work restrictions, winter construction, and other limitations. Include a reference to paragraph 3.7 for project phasing requirements based on construction limitations as required.

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**APPENDIX A. RELATED READING MATERIAL**

Obtain the latest version of the following free publications from the FAA on its Web site at <http://www.faa.gov/airports/>.

**Table A-1. FAA Publications**

| <b>Number</b>         | <b>Title and Description</b>   |
|-----------------------|--|
| <u>AC 150/5200-28</u> | <i>Notices to Airmen (NOTAMs) for Airport Operators</i><br>Guidance for using the NOTAM System in airport reporting.   |
| <u>AC 150/5200-30</u> | <i>Airport Field Condition Assessments and Winter Operations Safety</i><br>Guidance for airport owners/operators on the development of an acceptable airport snow and ice control program and on appropriate field condition reporting procedures. |
| <u>AC 150/5200-33</u> | <i>Hazardous Wildlife Attractants On or Near Airports</i><br>Guidance on locating certain land uses that might attract hazardous wildlife to public-use airports.  |
| <u>AC 150/5210-5</u>  | <i>Painting, Marking, and Lighting of Vehicles Used on an Airport</i><br>Guidance, specifications, and standards for painting, marking, and lighting vehicles operating in the airport air operations areas.                                       |
| <u>AC 150/5210-20</u> | <i>Ground Vehicle Operations to include Taxiing or Towing an Aircraft on Airports</i><br>Guidance to airport operators on developing ground vehicle operation training programs.   |
| <u>AC 150/5300-13</u> | <i>Airport Design</i><br>FAA standards and recommendations for airport design. Establishes approach visibility minimums as an airport design parameter, and contains the Object Free area and the obstacle free-zone criteria.                     |
| <u>AC 150/5210-24</u> | <i>Airport Foreign Object Debris (FOD) Management</i><br>Guidance for developing and managing an airport foreign object debris (FOD) program   |

| <b>Number</b>         | <b>Title and Description</b>   |
|-----------------------|--|
| <u>AC 150/5320-15</u> | <i>Management of Airport Industrial Waste</i><br>Basic information on the characteristics, management, and regulations of industrial wastes generated at airports. Guidance for developing a Storm Water Pollution Prevention Plan (SWPPP) that applies best management practices to eliminate, prevent, or reduce pollutants in storm water runoff with particular airport industrial activities. |
| <u>AC 150/5340-1</u>  | <i>Standards for Airport Markings</i><br>FAA standards for the siting and installation of signs on airport runways and taxiways.   |
| <u>AC 150/5340-18</u> | <i>Standards for Airport Sign Systems</i><br>FAA standards for the siting and installation of signs on airport runways and taxiways.   |
| <u>AC 150/5345-28</u> | <i>Precision Approach Path Indicator (PAPI) Systems</i><br>FAA standards for PAPI systems, which provide pilots with visual glide slope guidance during approach for landing.  |
| <u>AC 150/5340-30</u> | <i>Design and Installation Details for Airport Visual Aids</i><br>Guidance and recommendations on the installation of airport visual aids.   |
| <u>AC 150/5345-39</u> | <i>Specification for L-853, Runway and Taxiway Retroreflective Markers</i>   |
| <u>AC 150/5345-44</u> | <i>Specification for Runway and Taxiway Signs</i><br>FAA specifications for unlighted and lighted signs for taxiways and runways.  |
| <u>AC 150/5345-53</u> | <i>Airport Lighting Equipment Certification Program</i><br>Details on the Airport Lighting Equipment Certification Program (ALECP).  |
| <u>AC 150/5345-50</u> | <i>Specification for Portable Runway and Taxiway Lights</i><br>FAA standards for portable runway and taxiway lights and runway end identifier lights for temporary use to permit continued aircraft operations while all or part of a runway lighting system is inoperative.   |
| <u>AC 150/5345-55</u> | <i>Specification for L-893, Lighted Visual Aid to Indicate Temporary Runway Closure</i>  |



| <b>Number</b>         | <b>Title and Description</b>   |
|-----------------------|--|
| <u>AC 150/5370-10</u> | <i>Standards for Specifying Construction of Airports</i><br>Standards for construction of airports, including earthwork, drainage, paving, turfing, lighting, and incidental construction.   |
| <u>AC 150/5370-12</u> | <i>Quality Management for Federally Funded Airport Construction Projects</i>   |
| EB 93                 | <i>Guidance for the Assembly and Installation of Temporary Orange Construction Signs</i>   |
| FAA Order 5200.11     | <u>FAA Airports (ARP) Safety Management System (SMS)</u><br>Basics for implementing SMS within ARP. Includes roles and responsibilities of ARP management and staff as well as other FAA lines of business that contribute to the ARP SMS. |
| FAA Certalert 98-05   | <i>Grasses Attractive to Hazardous Wildlife</i><br>Guidance on grass management and seed selection.  |
| FAA Form 7460-1       | <u>Notice of Proposed Construction or Alteration</u>   |
| FAA Form 7480-1       | <u>Notice of Landing Area Proposal</u>   |
| FAA Form 6000.26      | National NAS Strategic Interruption Service Level Agreement, Strategic Events Coordination, Airport Sponsor Form   |

Obtain the latest version of the following free publications from the Electronic Code of Federal Regulations at <http://www.ecfr.gov/>.

**Table A-2. Code of Federal Regulation**

| <b>Number</b>          | <b>Title</b>   |
|------------------------|--|
| Title 14 CFR Part 77   | Safe, Efficient Use and Preservation of the Navigable Airspace |
| Title 14 CFR Part 139  | Certification of Airports                                      |
| Title 49 CFR Part 1542 | Airport Security   |

Obtain the latest version of the Manual on Uniform Traffic Control Devices from the Federal Highway Administration at <http://mutcd.fhwa.dot.gov/>.

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**APPENDIX B. TERMS AND ACRONYMS****Table B-1. Terms and Acronyms**

| <b>Term</b>          | <b>Definition</b>   |
|----------------------|---|
| Form 7460-1          | Notice of Proposed Construction or Alteration. For on-airport projects, the form submitted to the FAA regional or airports division office as formal written notification of any kind of construction or alteration of objects that affect navigable airspace, as defined in 14 CFR Part 77, <i>Safe, Efficient Use, and Preservation of the Navigable Airspace</i> . (See guidance available on the FAA web site at <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a> .) The form may be downloaded at <a href="http://www.faa.gov/airports/resources/forms/">http://www.faa.gov/airports/resources/forms/</a> , or filed electronically at: <a href="https://oeaaa.faa.gov">https://oeaaa.faa.gov</a> . |
| Form 7480-1          | Notice of Landing Area Proposal. Form submitted to the FAA Airports Regional Division Office or Airports District Office as formal written notification whenever a project without an airport layout plan on file with the FAA involves the construction of a new airport; the construction, realigning, altering, activating, or abandoning of a runway, landing strip, or associated taxiway; or the deactivation or abandoning of an entire airport The form may be downloaded at <a href="http://www.faa.gov/airports/resources/forms/">http://www.faa.gov/airports/resources/forms/</a> .  |
| Form 6000-26         | Airport Sponsor Strategic Event Submission Form   |
| AC                   | Advisory Circular   |
| ACSI                 | Airport Certification Safety Inspector  |
| ADG                  | Airplane Design Group   |
| AIP                  | Airport Improvement Program   |
| ALECP                | Airport Lighting Equipment Certification Program  |
| ANG                  | Air National Guard  |
| AOA                  | Air Operations Area, as defined in 14 CFR Part 107. Means a portion of an airport, specified in the airport security program, in which security measures are carried out. This area includes aircraft movement areas, aircraft parking areas, loading ramps, and safety areas, and any adjacent areas (such as general aviation areas) that are not separated by adequate security systems, measures, or procedures. This area does not include the secured area of the airport terminal building.  |
| ARFF                 | Aircraft Rescue and Fire Fighting   |
| ARP                  | FAA Office of Airports  |
| ASDA                 | Accelerate-Stop Distance Available  |
| AT                   | Air Traffic   |
| ATCT                 | Airport Traffic Control Tower   |
| ATIS                 | Automatic Terminal Information Service  |
| ATO                  | Air Traffic Organization  |
| Certificated Airport | An airport that has been issued an Airport Operating Certificate by the FAA under   |

| <b>Term</b>          | <b>Definition</b>  |
|----------------------|--|
|                      | the authority of 14 CFR Part 139, <i>Certification of Airports</i> .   |
| CFR                  | Code of Federal Regulations  |
| Construction         | The presence of construction-related personnel, equipment, and materials in any location that could infringe upon the movement of aircraft.  |
| CSPP                 | Construction Safety and Phasing Plan. The overall plan for safety and phasing of a construction project developed by the airport operator, or developed by the airport operator's consultant and approved by the airport operator. It is included in the invitation for bids and becomes part of the project specifications. |
| CTAF                 | Common Traffic Advisory Frequency  |
| Displaced Threshold  | A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold is available for takeoffs in either direction or landing from the opposite direction.   |
| DOT                  | Department of Transportation   |
| EPA                  | Environmental Protection Agency  |
| FAA                  | Federal Aviation Administration  |
| FOD                  | Foreign Object Debris/Damage   |
| FSS                  | Flight Service Station   |
| GA                   | General Aviation   |
| HAZMAT               | Hazardous Materials  |
| HMA                  | Hot Mix Asphalt  |
| IAP                  | Instrument Approach Procedures   |
| IFR                  | Instrument Flight Rules  |
| ILS                  | Instrument Landing System  |
| LDA                  | Landing Distance Available   |
| LOC                  | Localizer antenna array  |
| Movement Area        | The runways, taxiways, and other areas of an airport that are used for taxiing or hover taxiing, air taxiing, takeoff, and landing of aircraft, exclusive of loading aprons and aircraft parking areas (reference 14 CFR Part 139).  |
| MSDS                 | Material Safety Data Sheet   |
| MUTCD                | Manual on Uniform Traffic Control Devices  |
| NAVAID               | Navigation Aid   |
| NAVAID Critical Area | An area of defined shape and size associated with a NAVAID that must remain clear and graded to avoid interference with the electronic signal.   |
| Non-Movement Area    | The area inside the airport security fence exclusive of the Movement Area. It is important to note that the non-movement area includes pavement traversed by aircraft.   |

| <b>Term</b>              | <b>Definition</b>  |
|--------------------------|--|
| NOTAM                    | Notices to Airmen  |
| Obstruction              | Any object/obstacle exceeding the obstruction standards specified by 14 CFR Part 77, subpart C.  |
| OCC                      | Operations Control Center  |
| OE / AAA                 | Obstruction Evaluation / Airport Airspace Analysis   |
| OFA                      | Object Free Area. An area on the ground centered on the runway, taxiway, or taxi lane centerline provided to enhance safety of aircraft operations by having the area free of objects except for those objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes. (See <a href="#">AC 150/5300-13</a> for additional guidance on OFA standards and wingtip clearance criteria.)  |
| OFZ                      | Obstacle Free Zone. The airspace below 150 ft (45 m) above the established airport elevation and along the runway and extended runway centerline that is required to be clear of all objects, except for frangible visual NAVAIDs that need to be located in the OFZ because of their function, in order to provide clearance protection for aircraft landing or taking off from the runway and for missed approaches. The OFZ is subdivided as follows: Runway OFZ, Inner Approach OFZ, Inner Transitional OFZ, and Precision OFZ. Refer to <a href="#">AC 150/5300-13</a> for guidance on OFZ. |
| OSHA                     | Occupational Safety and Health Administration  |
| OTS                      | Out of Service   |
| P&R                      | Planning and Requirements Group  |
| NPI                      | NAS Planning & Integration   |
| PAPI                     | Precision Approach Path Indicator  |
| PFC                      | Passenger Facility Charge  |
| PLASI                    | Pulse Light Approach Slope Indicator   |
| Project Proposal Summary | A clear and concise description of the proposed project or change that is the object of Safety Risk Management.  |
| RA                       | Reimbursable Agreement   |
| RE                       | Resident Engineer  |
| REIL                     | Runway End Identifier Lights   |
| RNAV                     | Area Navigation  |
| ROFA                     | Runway Object Free Area  |
| RSA                      | Runway Safety Area. A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway, in accordance with <a href="#">AC 150/5300-13</a> .   |
| SDS                      | Safety Data Sheet  |
| SIDA                     | Security Identification Display Area   |
| SMS                      | Safety Management System   |

| <b>Term</b>          | <b>Definition</b>  |
|----------------------|--|
| SPCD                 | Safety Plan Compliance Document. Details developed and submitted by a contractor to the airport operator for approval providing details on how the performance of a construction project will comply with the CSPP.  |
| SRM                  | Safety Risk Management   |
| SSC                  | System Support Center  |
| Taxiway Safety Area  | A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an airplane unintentionally departing the taxiway, in accordance with <a href="#">AC 150/5300-13</a> .   |
| TDG                  | Taxiway Design Group   |
| Temporary            | Any condition that is not intended to be permanent.  |
| Temporary Runway End | The beginning of that portion of the runway available for landing and taking off in one direction, and for landing in the other direction. Note the difference from a displaced threshold.   |
| Threshold            | The beginning of that portion of the runway available for landing. In some instances, the landing threshold may be displaced.  |
| TODA                 | Takeoff Distance Available   |
| TOFA                 | Taxiway Object Free Area   |
| TORA                 | Takeoff Run Available. The length of the runway less any length of runway unavailable and/or unsuitable for takeoff run computations. See <a href="#">AC 150/5300-13</a> for guidance on declared distances.   |
| TSA                  | Taxiway Safety Area, or<br>Transportation Security Administration  |
| UNICOM               | A radio communications system of a type used at small airports.  |
| VASI                 | Visual Approach Slope Indicator  |
| VGSI                 | Visual Glide Slope Indicator. A device that provides a visual glide slope indicator to landing pilots. These systems include precision approach path indicator (PAPI), visual approach slope indicator (VASI), and pulse light approach slope indicator (PLASI). |
| VFR                  | Visual Flight Rules  |
| VOR                  | Very High Frequency Omnidirectional Radio Range  |
| VPD                  | Vehicle / Pedestrian Deviation   |

**APPENDIX C. SAFETY AND PHASING PLAN CHECKLIST**

This appendix is keyed to Chapter 2. In the electronic version of this AC, clicking on the paragraph designation in the Reference column will access the applicable paragraph. There may be instances where the CSPP requires provisions that are not covered by the list in this appendix.

This checklist is intended as an aid, not a required submittal.

**Table C-1. CSPP Checklist**

| Coordination  | Reference      | Addressed? |    |    | Remarks |
|---|----------------|------------|----|----|---------|
|   |                | Yes        | No | NA |         |
| <b>General Considerations</b>   |                |            |    |    |         |
| Requirements for predesign, prebid, and preconstruction conferences to introduce the subject of airport operational safety during construction are specified. | <u>2.5</u>     |            |    |    |         |
| Operational safety is a standing agenda item for construction progress meetings.  | <u>2.5</u>     |            |    |    |         |
| Scheduling of the construction phases is properly addressed.  | <u>2.6</u>     |            |    |    |         |
| Any formal agreements are established.  | <u>2.5.3</u>   |            |    |    |         |
| <b>Areas and Operations Affected by Construction Activity</b>   |                |            |    |    |         |
| Drawings showing affected areas are included.   | <u>2.7.1</u>   |            |    |    |         |
| Closed or partially closed runways, taxiways, and aprons are depicted on drawings.  | <u>2.7.1.1</u> |            |    |    |         |
| Access routes used by ARFF vehicles affected by the project are addressed.  | <u>2.7.1.2</u> |            |    |    |         |
| Access routes used by airport and airline support vehicles affected by the project are addressed.   | <u>2.7.1.3</u> |            |    |    |         |
| Underground utilities, including water supplies for firefighting and drainage.  | <u>2.7.1.4</u> |            |    |    |         |

| Coordination  | Reference                              | Addressed? |    |    | Remarks |
|---|--|------------|----|----|---------|
|   |  | Yes        | No | NA |         |
| Approach/departure surfaces affected by heights of temporary objects are addressed.   | <u>2.7.1.5</u>                         |            |    |    |         |
| Construction areas, storage areas, and access routes near runways, taxiways, aprons, or helipads are properly depicted on drawings. | <u>2.7.1</u>                           |            |    |    |         |
| Temporary changes to taxi operations are addressed.   | <u>2.7.2.1</u>                         |            |    |    |         |
| Detours for ARFF and other airport vehicles are identified.   | <u>2.7.2.2</u>                         |            |    |    |         |
| Maintenance of essential utilities and underground infrastructure is addressed.   | <u>2.7.2.3</u>                         |            |    |    |         |
| Temporary changes to air traffic control procedures are addressed.  | <u>2.7.2.4</u>                         |            |    |    |         |
| <b>NAVAIDs</b>  |  |            |    |    |         |
| Critical areas for NAVAIDs are depicted on drawings.  | <u>2.8</u>                             |            |    |    |         |
| Effects of construction activity on the performance of NAVAIDs, including unanticipated power outages, are addressed.               | <u>2.8</u>                             |            |    |    |         |
| Protection of NAVAID facilities is addressed.   | <u>2.8</u>                             |            |    |    |         |
| The required distance and direction from each NAVAID to any construction activity is depicted on drawings.                          | <u>2.8</u>                             |            |    |    |         |
| Procedures for coordination with FAA ATO/Technical Operations, including identification of points of contact, are included.         | <u>2.8, 2.13.1, 2.13.5.3.1, 2.18.1</u> |            |    |    |         |
| <b>Contractor Access</b>  |  |            |    |    |         |
| The CSPP addresses areas to which contractor will have access and how   | <u>2.9</u>                             |            |    |    |         |



| Coordination   | Reference               | Addressed? |    |    | Remarks |
|--|-------------------------|------------|----|----|---------|
|  |                         | Yes        | No | NA |         |
| the areas will be accessed.  |                         |            |    |    |         |
| The application of 49 CFR Part 1542 Airport Security, where appropriate, is addressed.   | <u>2.9</u>              |            |    |    |         |
| The location of stockpiled construction materials is depicted on drawings.   | <u>2.9.1</u>            |            |    |    |         |
| The requirement for stockpiles in the ROFA to be approved by FAA is included.  | <u>2.9.1</u>            |            |    |    |         |
| Requirements for proper stockpiling of materials are included.   | <u>2.9.1</u>            |            |    |    |         |
| Construction site parking is addressed.  | <u>2.9.2.1</u>          |            |    |    |         |
| Construction equipment parking is addressed.   | <u>2.9.2.2</u>          |            |    |    |         |
| Access and haul roads are addressed.   | <u>2.9.2.3</u>          |            |    |    |         |
| A requirement for marking and lighting of vehicles to comply with <i>AC 150/5210-5, Painting, Marking and Lighting of Vehicles Used on an Airport</i> , is included. | <u>2.9.2.4</u>          |            |    |    |         |
| Proper vehicle operations, including requirements for escorts, are described.  | <u>2.9.2.5, 2.9.2.6</u> |            |    |    |         |
| Training requirements for vehicle drivers are addressed.   | <u>2.9.2.7</u>          |            |    |    |         |
| Two-way radio communications procedures are described.   | <u>2.9.2.9</u>          |            |    |    |         |
| Maintenance of the secured area of the airport is addressed.   | <u>2.9.2.10</u>         |            |    |    |         |
| <b>Wildlife Management</b>   |                         |            |    |    |         |
| The airport operator's wildlife management procedures are addressed.   | <u>2.10</u>             |            |    |    |         |

| Coordination   | Reference                      | Addressed? |    |    | Remarks |
|--|--------------------------------|------------|----|----|---------|
|  |                                | Yes        | No | NA |         |
| <b>Foreign Object Debris Management</b>  |                                |            |    |    |         |
| The airport operator's FOD management procedures are addressed.  | <u>2.11</u>                    |            |    |    |         |
| <b>Hazardous Materials Management</b>  |                                |            |    |    |         |
| The airport operator's hazardous materials management procedures are addressed.  | <u>2.12</u>                    |            |    |    |         |
| <b>Notification of Construction Activities</b>   |                                |            |    |    |         |
| Procedures for the immediate notification of airport user and local FAA of any conditions adversely affecting the operational safety of the airport are detailed.  | <u>2.13</u>                    |            |    |    |         |
| Maintenance of a list by the airport operator of the responsible representatives/points of contact for all involved parties and procedures for contacting them 24 hours a day, seven days a week is specified. | <u>2.13.1</u>                  |            |    |    |         |
| A list of local ATO/Technical Operations personnel is included.  | <u>2.13.1</u>                  |            |    |    |         |
| A list of ATCT managers on duty is included.   | <u>2.13.1</u>                  |            |    |    |         |
| A list of authorized representatives to the OCC is included.   | <u>2.13.2</u>                  |            |    |    |         |
| Procedures for coordinating, issuing, maintaining and cancelling by the airport operator of NOTAMS about airport conditions resulting from construction are included.  | <u>2.8, 2.13.2, 2.18.3.3.9</u> |            |    |    |         |
| Provision of information on closed or hazardous conditions on airport movement areas by the airport operator to the OCC is specified.  | <u>2.13.2</u>                  |            |    |    |         |
| Emergency notification procedures for medical, fire fighting, and police   | <u>2.13.3</u>                  |            |    |    |         |

| Coordination   | Reference                                 | Addressed? |    |    | Remarks |
|--|---|------------|----|----|---------|
|  |   | Yes        | No | NA |         |
| response are addressed.  |   |            |    |    |         |
| Coordination with ARFF personnel for non-emergency issues is addressed.  | <u>2.13.4</u>                             |            |    |    |         |
| Notification to the FAA under 14 CFR parts 77 and 157 is addressed.  | <u>2.13.5</u>                             |            |    |    |         |
| Reimbursable agreements for flight checks and/or design and construction for FAA owned NAVAIDs are addressed.                      | <u>2.13.5.3.2</u>                         |            |    |    |         |
| <b>Inspection Requirements</b>   |   |            |    |    |         |
| Daily and interim inspections by both the airport operator and contractor are specified.   | <u>2.14.1, 2.14.2</u>                     |            |    |    |         |
| Final inspections at certificated airports are specified when required.  | <u>2.14.3</u>                             |            |    |    |         |
| <b>Underground Utilities</b>   |   |            |    |    |         |
| Procedures for protecting existing underground facilities in excavation areas are described.                                       | <u>2.15</u>                               |            |    |    |         |
| <b>Penalties</b>   |   |            |    |    |         |
| Penalty provisions for noncompliance with airport rules and regulations and the safety plans are detailed.                         | <u>2.16</u>                               |            |    |    |         |
| <b>Special Conditions</b>  |   |            |    |    |         |
| Any special conditions that affect the operation of the airport or require the activation of any special procedures are addressed. | <u>2.17</u>                               |            |    |    |         |
| <b>Runway and Taxiway Visual Aids - Marking, Lighting, Signs, and Visual NAVAIDs</b>   |   |            |    |    |         |
| The proper securing of temporary airport markings, lighting, signs, and visual NAVAIDs is addressed.                               | <u>2.18.1</u>                             |            |    |    |         |
| Frangibility of airport markings, lighting, signs, and visual NAVAIDs is specified.  | <u>2.18.1, 2.18.3, 2.18.4.2, 2.20.2.4</u> |            |    |    |         |

| Coordination  | Reference                              | Addressed? |    |    | Remarks |
|---|--|------------|----|----|---------|
|   |  | Yes        | No | NA |         |
| The requirement for markings to be in compliance with <u>AC 150/5340-1</u> , <i>Standards for Airport Markings</i> , is specified.  | <u>2.18.2</u>                          |            |    |    |         |
| Detailed specifications for materials and methods for temporary markings are provided.  | <u>2.18.2</u>                          |            |    |    |         |
| The requirement for lighting to conform to <u>AC 150/5340-30</u> , <i>Design and Installation Details for Airport Visual Aids</i> ; <u>AC 150/5345-50</u> , <i>Specification for Portable Runway and Taxiway Lights</i> ; and <u>AC 150/5345-53</u> , <i>Airport Lighting Certification Program</i> , is specified. | <u>2.18.3</u>                          |            |    |    |         |
| The use of a lighted X is specified where appropriate.  | <u>2.18.2.1.2</u> ,<br><u>2.18.3.2</u> |            |    |    |         |
| The requirement for signs to conform to <u>AC 150/5345-44</u> , <i>Specification for Runway and Taxiway Signs</i> ; <u>AC 150/5340-18</u> , <i>Standards for Airport Sign Systems</i> ; and <u>AC 150/5345-53</u> , <i>Airport Lighting Certification Program</i> , is specified.                                   | <u>2.18.4</u>                          |            |    |    |         |
| <b>Marking and Signs For Access Routes</b>  |  |            |    |    |         |
| The CSPP specifies that pavement markings and signs intended for construction personnel should conform to <u>AC 150/5340-18</u> and, to the extent practicable, with the MUTCD and/or State highway specifications.   | <u>2.18.4.2</u>                        |            |    |    |         |
| <b>Hazard Marking and Lighting</b>  |  |            |    |    |         |
| Prominent, comprehensible warning indicators for any area affected by construction that is normally accessible to aircraft, personnel, or vehicles are specified.   | <u>2.20.1</u>                          |            |    |    |         |

| Coordination   | Reference       | Addressed? |    |    | Remarks |
|--|-----------------|------------|----|----|---------|
|  |                 | Yes        | No | NA |         |
| Hazard marking and lighting are specified to identify open manholes, small areas under repair, stockpiled material, and waste areas.   | <u>2.20.1</u>   |            |    |    |         |
| The CSPP considers less obvious construction-related hazards.  | <u>2.20.1</u>   |            |    |    |         |
| Equipment that poses the least danger to aircraft but is sturdy enough to remain in place when subjected to typical winds, prop wash and jet blast is specified.   | <u>2.20.2.1</u> |            |    |    |         |
| The spacing of barricades is specified such that a breach is physically prevented barring a deliberate act.  | <u>2.20.2.1</u> |            |    |    |         |
| Red lights meeting the luminance requirements of the State Highway Department are specified.   | <u>2.20.2.2</u> |            |    |    |         |
| Barricades, temporary markers, and other objects placed and left in areas adjacent to any open runway, taxiway, taxi lane, or apron are specified to be as low as possible to the ground, and no more than 18 inch high. | <u>2.20.2.3</u> |            |    |    |         |
| Barricades are specified to indicate construction locations in which no part of an aircraft may enter.   | <u>2.20.2.3</u> |            |    |    |         |
| Highly reflective barriers with lights are specified to barricade taxiways leading to closed runways.  | <u>2.20.2.5</u> |            |    |    |         |
| Markings for temporary closures are specified.   | <u>2.20.2.5</u> |            |    |    |         |
| The provision of a contractor's representative on call 24 hours a day for emergency maintenance of airport hazard lighting and barricades is specified.  | <u>2.20.2.7</u> |            |    |    |         |

| Coordination  | Reference                           | Addressed? |    |    | Remarks |
|---|-------------------------------------|------------|----|----|---------|
|   |                                     | Yes        | No | NA |         |
| <b>Work Zone Lighting for Nighttime Construction</b>  |                                     |            |    |    |         |
| If work is to be conducted at night, the CSPP identifies construction lighting units and their general locations and aiming in relationship to the ATCT and active runways and taxiways.              | <u>2.21</u>                         |            |    |    |         |
| <b>Protection of Runway and Taxiway Safety Areas</b>  |                                     |            |    |    |         |
| The CSPP clearly states that no construction may occur within a safety area while the associated runway or taxiway is open for aircraft operations.   | <u>2.22.1.1,</u><br><u>2.22.3.1</u> |            |    |    |         |
| The CSPP specifies that the airport operator coordinates the adjustment of RSA or TSA dimensions with the ATCT and the appropriate FAA Airports Regional or District Office and issues a local NOTAM. | <u>2.22.1.2,</u><br><u>2.22.3.2</u> |            |    |    |         |
| Procedures for ensuring adequate distance for protection from blasting operations, if required by operational considerations, are detailed.   | <u>2.22.3.3</u>                     |            |    |    |         |
| The CSPP specifies that open trenches or excavations are not permitted within a safety area while the associated runway or taxiway is open, subject to approved exceptions.                           | <u>2.22.1.4</u>                     |            |    |    |         |
| Appropriate covering of excavations in the RSA or TSA that cannot be backfilled before the associated runway or taxiway is open is detailed.  | <u>2.22.1.4</u>                     |            |    |    |         |
| The CSPP includes provisions for prominent marking of open trenches and excavations at the construction site.   | <u>2.22.1.4</u>                     |            |    |    |         |
| Grading and soil erosion control to maintain RSA/TSA standards are  | <u>2.22.3.5</u>                     |            |    |    |         |

| Coordination   | Reference         | Addressed? |    |    | Remarks |
|--|-------------------|------------|----|----|---------|
|  |                   | Yes        | No | NA |         |
| addressed.   |                   |            |    |    |         |
| The CSPP specifies that equipment is to be removed from the ROFA when not in use.  | <u>2.22.2</u>     |            |    |    |         |
| The CSPP clearly states that no construction may occur within a taxiway safety area while the taxiway is open for aircraft operations.   | <u>2.22.3</u>     |            |    |    |         |
| Appropriate details are specified for any construction work to be accomplished in a taxiway object free area.  | <u>2.22.4</u>     |            |    |    |         |
| Measures to ensure that personnel, material, and/or equipment do not penetrate the OFZ or threshold siting surfaces while the runway is open for aircraft operations are included. | <u>2.22.4.3.6</u> |            |    |    |         |
| Provisions for protection of runway approach/departure areas and clearways are included.   | <u>2.22.6</u>     |            |    |    |         |
| <b>Other Limitations on Construction</b>   |                   |            |    |    |         |
| The CSPP prohibits the use of open flame welding or torches unless adequate fire safety precautions are provided and the airport operator has approved their use.                  | <u>2.23.1.2</u>   |            |    |    |         |
| The CSPP prohibits the use of electrical blasting caps on or within 1,000 ft (300 m) of the airport property.  | <u>2.23.1.3</u>   |            |    |    |         |

**APPENDIX D. CONSTRUCTION PROJECT DAILY SAFETY INSPECTION CHECKLIST**

The situations identified below are potentially hazardous conditions that may occur during airport construction projects. Safety area encroachments, unauthorized and improper ground vehicle operations, and unmarked or uncovered holes and trenches near aircraft operating surfaces pose the most prevalent threats to airport operational safety during airport construction projects. The list below is one tool that the airport operator or contractor may use to aid in identifying and correcting potentially hazardous conditions. It should be customized as appropriate for each project including information such as the date, time and name of the person conducting the inspection.

**Table D-1. Potentially Hazardous Conditions**

| <b>Item</b>  | <b>Action Required (Describe)</b> | <b>No Action Required (Check)</b> |
|--|-----------------------------------|-----------------------------------|
| Excavation adjacent to runways, taxiways, and aprons improperly backfilled.  |                                   |                                   |
| Mounds of earth, construction materials, temporary structures, and other obstacles near any open runway, taxiway, or taxi lane; in the related Object Free area and aircraft approach or departure areas/zones; or obstructing any sign or marking.  |                                   |                                   |
| Runway resurfacing projects resulting in lips exceeding 3 inch (7.6 cm) from pavement edges and ends.  |                                   |                                   |
| Heavy equipment (stationary or mobile) operating or idle near AOA, in runway approaches and departures areas, or in OFZ.   |                                   |                                   |
| Equipment or material near NAVAIDs that may degrade or impair radiated signals and/or the monitoring of navigation and visual aids. Unauthorized or improper vehicle operations in localizer or glide slope critical areas, resulting in electronic interference and/or facility shutdown. |                                   |                                   |
| Tall and especially relatively low visibility units (that is, equipment with slim profiles) — cranes, drills, and similar objects — located in critical areas, such as OFZ and   |                                   |                                   |



| <b>Item</b>   | <b>Action Required (Describe)</b> | <b>No Action Required (Check)</b> |
|---|-----------------------------------|-----------------------------------|
| approach zones.   |                                   |                                   |
| Improperly positioned or malfunctioning lights or unlighted airport hazards, such as holes or excavations, on any apron, open taxiway, or open taxi lane or in a related safety, approach, or departure area.   |                                   |                                   |
| Obstacles, loose pavement, trash, and other debris on or near AOA. Construction debris (gravel, sand, mud, paving materials) on airport pavements may result in aircraft propeller, turbine engine, or tire damage. Also, loose materials may blow about, potentially causing personal injury or equipment damage.  |                                   |                                   |
| Inappropriate or poorly maintained fencing during construction intended to deter human and animal intrusions into the AOA. Fencing and other markings that are inadequate to separate construction areas from open AOA create aviation hazards.   |                                   |                                   |
| Improper or inadequate marking or lighting of runways (especially thresholds that have been displaced or runways that have been closed) and taxiways that could cause pilot confusion and provide a potential for a runway incursion. Inadequate or improper methods of marking, barricading, and lighting of temporarily closed portions of AOA create aviation hazards. |                                   |                                   |
| Wildlife attractants — such as trash (food scraps not collected from construction personnel activity), grass seeds, tall grass, or standing water — on or near airports.  |                                   |                                   |
| Obliterated or faded temporary markings on active operational areas.  |                                   |                                   |
| Misleading or malfunctioning obstruction lights. Unlighted or unmarked obstructions in the approach to any open runway pose aviation hazards.   |                                   |                                   |

| <b>Item</b>   | <b>Action Required (Describe)</b> | <b>No Action Required (Check)</b> |
|---|-----------------------------------|-----------------------------------|
| Failure to issue, update, or cancel NOTAMs about airport or runway closures or other construction related airport conditions.   |                                   |                                   |
| Failure to mark and identify utilities or power cables. Damage to utilities and power cables during construction activity can result in the loss of runway / taxiway lighting; loss of navigation, visual, or approach aids; disruption of weather reporting services; and/or loss of communications. |                                   |                                   |
| Restrictions on ARFF access from fire stations to the runway / taxiway system or airport buildings.   |                                   |                                   |
| Lack of radio communications with construction vehicles in airport movement areas.  |                                   |                                   |
| Objects, regardless of whether they are marked or flagged, or activities anywhere on or near an airport that could be distracting, confusing, or alarming to pilots during aircraft operations.   |                                   |                                   |
| Water, snow, dirt, debris, or other contaminants that temporarily obscure or derogate the visibility of runway/taxiway marking, lighting, and pavement edges. Any condition or factor that obscures or diminishes the visibility of areas under construction.   |                                   |                                   |
| Spillage from vehicles (gasoline, diesel fuel, oil) on active pavement areas, such as runways, taxiways, aprons, and airport roadways.  |                                   |                                   |
| Failure to maintain drainage system integrity during construction (for example, no temporary drainage provided when working on a drainage system).  |                                   |                                   |

| <b>Item</b>  | <b>Action Required (Describe)</b> | <b>No Action Required (Check)</b> |
|--|-----------------------------------|-----------------------------------|
| Failure to provide for proper electrical lockout and tagging procedures. At larger airports with multiple maintenance shifts/workers, construction contractors should make provisions for coordinating work on circuits. |                                   |                                   |
| Failure to control dust. Consider limiting the amount of area from which the contractor is allowed to strip turf.  |                                   |                                   |
| Exposed wiring that creates an electrocution or fire ignition hazard. Identify and secure wiring, and place it in conduit or bury it.  |                                   |                                   |
| Site burning, which can cause possible obscuration.  |                                   |                                   |
| Construction work taking place outside of designated work areas and out of phase.  |                                   |                                   |

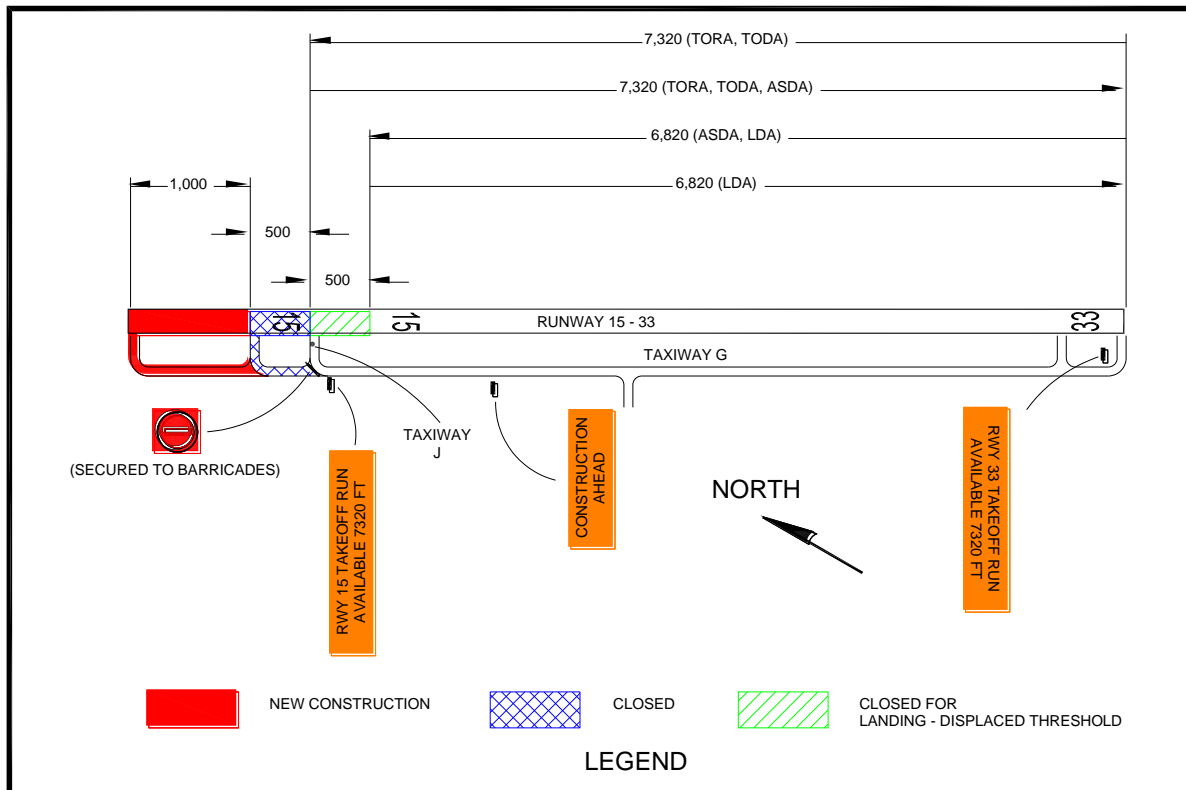
**APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE**

**E.1 Project Description.**

Runway 15-33 is currently 7820 feet long, with a 500 foot stopway on the north end. This project will remove the stopway and extend the runway 1000 feet to the north and 500 feet to the south. Finally, the existing portion of the runway will be repaved. The runway 33 glide slope will be relocated. The new runway 33 localizer has already been installed by FAA Technical Operations and only needs to be switched on. Runway 15 is currently served only by a localizer, which will remain in operation as it will be beyond the future RSA. Appropriate NOTAMS will be issued throughout the project.

E.1.1 During Phase I, the runway 15 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 15 takeoff and the departure end of runway 33 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 33 will be adjusted to provide the required RSA and applicable departure surface. Excavation near Taxiway G will require its ADG to be reduced from IV to III. See Figure E-1.

**Figure E-1. Phase I Example**

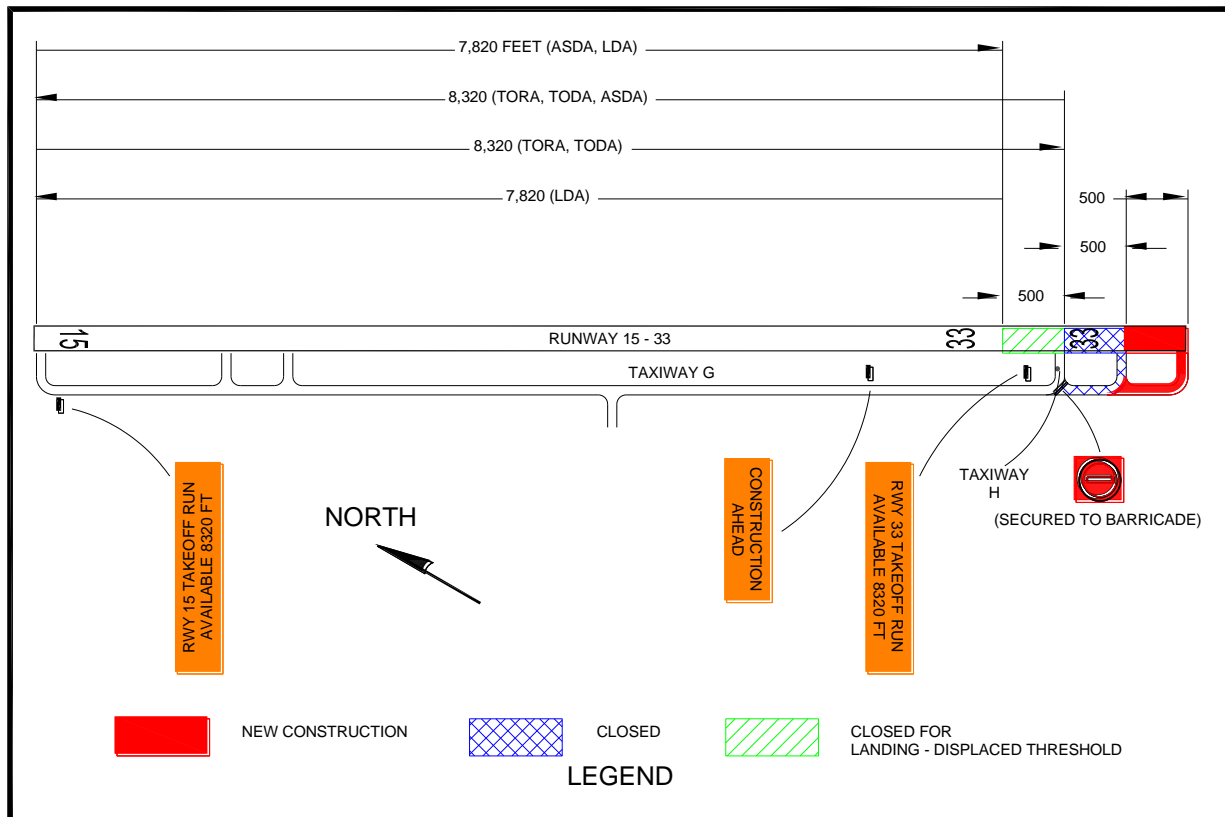


**Note 1:** Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

**Note 2:** Based on the declared distances for Runway 33 departures, the maximum equipment height in the construction area is 12.5 feet ( $500/40 = 12.5$ ).

E.2 During Phase II, the runway 33 threshold will be displaced 1000 feet to keep construction equipment below the approach surface. The start of runway 33 takeoff and the departure end of runway 15 will also be moved 500 feet to protect workers from jet blast. Declared distances for runway 15 will be adjusted to provide the required RSA and applicable departure surface. See Figure E-2.

**Figure E-2. Phase II Example**

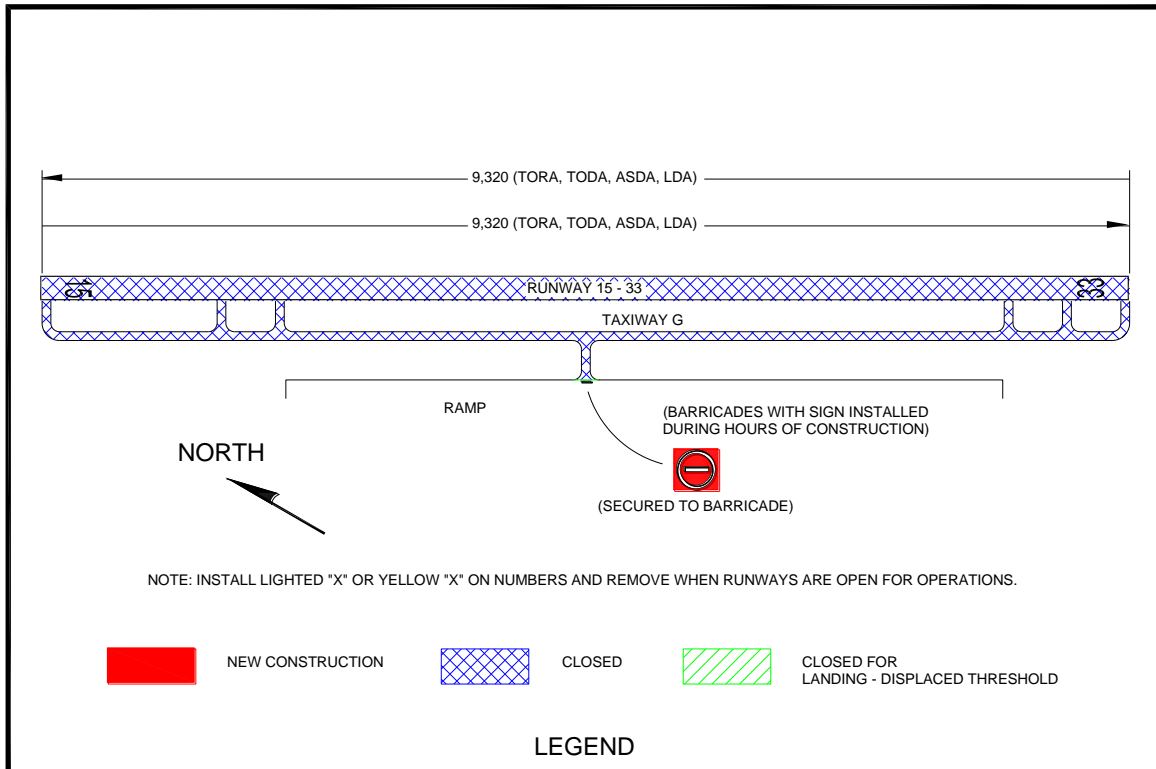


**Note 1:** Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

**Note 2:** Based on the declared distances for Runway 15 departures, the maximum equipment height in the construction area is 12.5 feet ( $500/40 = 12.5$ ).

- E.3 During Phase III, the existing portion of the runway will be repaved with Hot Mix Asphalt (HMA) and the runway 33 glide slope will be relocated. Construction will be accomplished between the hours of 8:00 pm and 5:00 am, during which the runway will be closed to operations.

**Figure E-3. Phase III Example**



**Table E-1. Operational Effects Table**

| <b>Project</b>                                | <b>Runway 15-33 Extension and Repaving</b>           |  |  |   |
|---|--|--|--|---|
| <b>Phase</b>                                  | <b>Normal (Existing)</b>                             | <b>Phase I: Extend Runway 15 End</b>   | <b>Phase II: Extend Runway 33 End</b>  | <b>Phase III: Repave Runway</b>   |
| <b>Scope of Work</b>                          | N/A  | Extend Runway 15-33 1,000 ft on north end with Hot Mix Asphaltic Concrete (HMA). | Extend Runway 15-33 500 ft on south end with Hot Mix Asphaltic Concrete (HMA). | Repave existing runway with HMA<br>Relocate Runway 33 Glide Slope         |
| <b>Effects of Construction Operations</b>     | N/A  | Existing North 500 ft closed   | Existing South 500 ft closed   | Runway closed between 8:00 pm and 5:00 am<br>Edge lighting out of service |
| <b>Construction Phase</b>                     | N/A  | Phase I (Anticipated)  | Phase II (Anticipated)   | Phase III (Anticipated)   |
| <b>Runway 15 Average Aircraft Operations</b>  | Carrier: 52 /day<br>GA: 26 /day<br>Military: 11 /day | Carrier: 40 /day<br>GA: 26 /day<br>Military: 0 /day                              | Carrier: 45 /day<br>GA: 26 /day<br>Military: 5 /day                            | Carrier: 45 / day<br>GA: 20 / day<br>Military: 0 /day                     |
| <b>Runway 33 Average Aircraft Operations</b>  | Carrier: 40 /day<br>GA: 18 /day<br>Military: 10 /day | Carrier: 30 /day<br>GA: 18 /day<br>Military: 0 /day                              | Carrier: 25 /day<br>GA: 18 /day<br>Military: 5 /day                            | Carrier: 20 /day<br>GA: 5 /day<br>Military: 0 /day                        |
| <b>Runway 15-33 Aircraft Category</b>         | C-IV   | C-IV   | C-IV   | C-IV  |
| <b>Runway 15 Approach Visibility Minimums</b> | 1 mile   | 1 mile   | 1 mile   | 1 mile  |
| <b>Runway 33 Approach Visibility Minimums</b> | ¾ mile   | ¾ mile   | ¾ mile   | 1 mile  |

**Note:** Proper coordination with Flight Procedures group is necessary to maintain instrument approach procedures during construction.

| <b>Project</b>                       |             | <b>Runway 15-33 Extension and Repaving</b> |                                      |                                       |                                 |
|--------------------------------------|-------------|--|--------------------------------------|---------------------------------------|---------------------------------|
| <b>Phase</b>                         |             | <b>Normal (Existing)</b>                   | <b>Phase I: Extend Runway 15 End</b> | <b>Phase II: Extend Runway 33 End</b> | <b>Phase III: Repave Runway</b> |
| <b>Runway 15 Declared Distances</b>  | <b>TORA</b> | 7,820                                      | 7,320                                | 8,320                                 | 9,320                           |
|                                      | <b>TODA</b> | 7,820                                      | 7,320                                | 8,320                                 | 9,320                           |
|                                      | <b>ASDA</b> | 7,820                                      | 7,320                                | 7,820                                 | 9,320                           |
|                                      | <b>LDA</b>  | 7,820                                      | 6,820                                | 7,820                                 | 9,320                           |
| <b>Runway 33 Declared Distances</b>  | <b>TORA</b> | 7,820                                      | 7,320                                | 8,320                                 | 9,320                           |
|                                      | <b>TODA</b> | 7,820                                      | 7,320                                | 8,320                                 | 9,320                           |
|                                      | <b>ASDA</b> | 8,320                                      | 6,820                                | 8,320                                 | 9,320                           |
|                                      | <b>LDA</b>  | 7,820                                      | 6,820                                | 7,820                                 | 9,320                           |
| <b>Runway 15 Approach Procedures</b> | LOC only    | LOC only                                   | LOC only                             | LOC only                              | LOC only                        |
|                                      | RNAV        | RNAV                                       | RNAV                                 | RNAV                                  | RNAV                            |
|                                      | VOR         | VOR  | VOR                                  | VOR                                   | VOR                             |
| <b>Runway 33 Approach Procedures</b> | ILS         | ILS  | ILS                                  | ILS                                   | LOC only                        |
|                                      | RNAV        | RNAV                                       | RNAV                                 | RNAV                                  | RNAV                            |
|                                      | VOR         | VOR  | VOR                                  | VOR                                   | VOR                             |
| <b>Runway 15 NAVAIDs</b>             | LOC         | LOC  | LOC                                  | LOC                                   |                                 |
| <b>Runway 33 NAVAIDs</b>             | ILS, MALSR  | ILS, MALSR                                 | ILS, MALSR                           | LOC, MALSR                            |                                 |
| <b>Taxiway G ADG</b>                 | IV          | III  | IV                                   | IV                                    |                                 |
| <b>Taxiway G TDG</b>                 | 4           | 4  | 4                                    | 4                                     |                                 |
| <b>ATCT (hours open)</b>             | 24 hours    | 24 hours                                   | 24 hours                             | 0500 - 2000                           |                                 |
| <b>ARFF Index</b>                    | D           | D  | D                                    | D                                     |                                 |



| <b>Project</b>                | <b>Runway 15-33 Extension and Repaving</b>   |  |  |   |
|-------------------------------|--|--|--|---|
| <b>Phase</b>                  | <b>Normal (Existing)</b>                     | <b>Phase I: Extend Runway 15 End</b>   | <b>Phase II: Extend Runway 33 End</b>                        | <b>Phase III: Repave Runway</b>   |
| <b>Special Conditions</b>     | Air National Guard (ANG) military operations | All military aircraft relocated to alternate ANG Base                                  | Some large military aircraft relocated to alternate ANG Base | All military aircraft relocated to alternate ANG Base   |
| <b>Information for NOTAMs</b> |  | Refer above for applicable declared distances.<br>Taxiway G limited to 118 ft wingspan | Refer above for applicable declared distances.               | Refer above for applicable declared distances.<br>Airport closed 2000 – 0500.<br>Runway 15 glide slope OTS. |

**Note:** This table is one example. It may be advantageous to develop a separate table for each project phase and/or to address the operational status of the associated NAVAIDs per construction phase.

Complete the following chart for each phase to determine the area that must be protected along the runway and taxiway edges:

**Table E-2. Runway and Taxiway Edge Protection**

| <b>Runway/Taxiway</b> | <b>Aircraft Approach Category*<br/>A, B, C, or D</b> | <b>Airplane Design Group*<br/>I, II, III, or IV</b> | <b>Safety Area Width in Feet Divided by 2*</b> |
|-----------------------|--|---|--|
|                       |  |   |  |
|                       |  |   |  |
|                       |  |   |  |
|                       |  |   |  |

\*See AC 150/5300-13 to complete the chart for a specific runway/taxiway.

Complete the following chart for each phase to determine the area that must be protected before the runway threshold:

**Table E-3. Protection Prior to Runway Threshold**

| Runway End Number | Airplane Design Group*<br>I, II, III, or IV | Aircraft Approach Category*<br>A, B, C, or D | Minimum Safety Area Prior to the Threshold* | Minimum Distance to Threshold Based on Required Approach Slope* |     |
|-------------------|---|--|---|---|-----|
|                   |   |  |   | ft  | : 1 |
|                   |   |  | ft  | ft  | : 1 |
|                   |   |  | ft  | ft  | : 1 |
|                   |   |  | ft  | ft  | : 1 |
|                   |   |  | ft  | ft  | : 1 |

\*See AC 150/5300-13 to complete the chart for a specific runway.

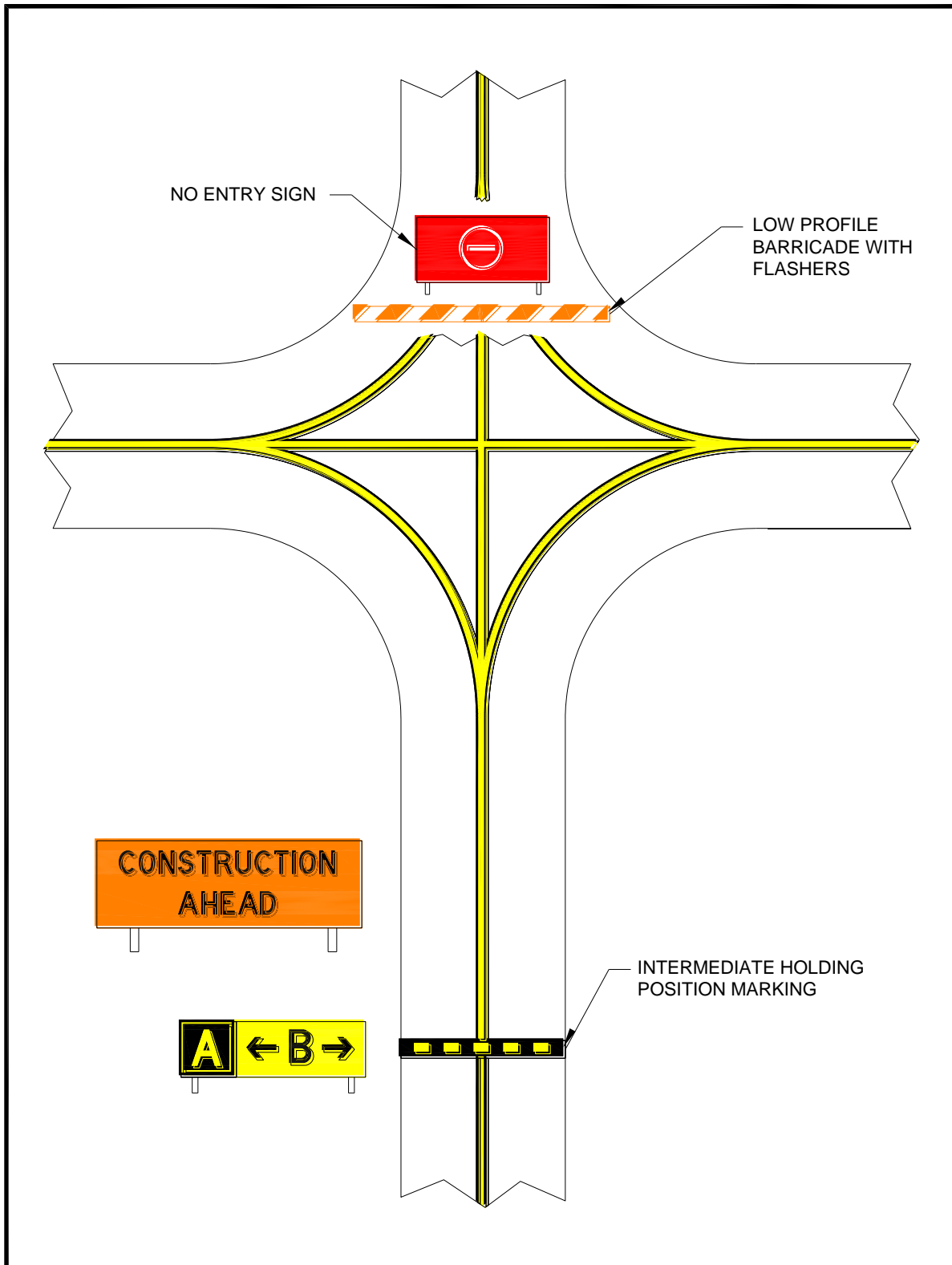
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**APPENDIX F. ORANGE CONSTRUCTION SIGNS**

**Figure F-1. Approved Sign Legends**

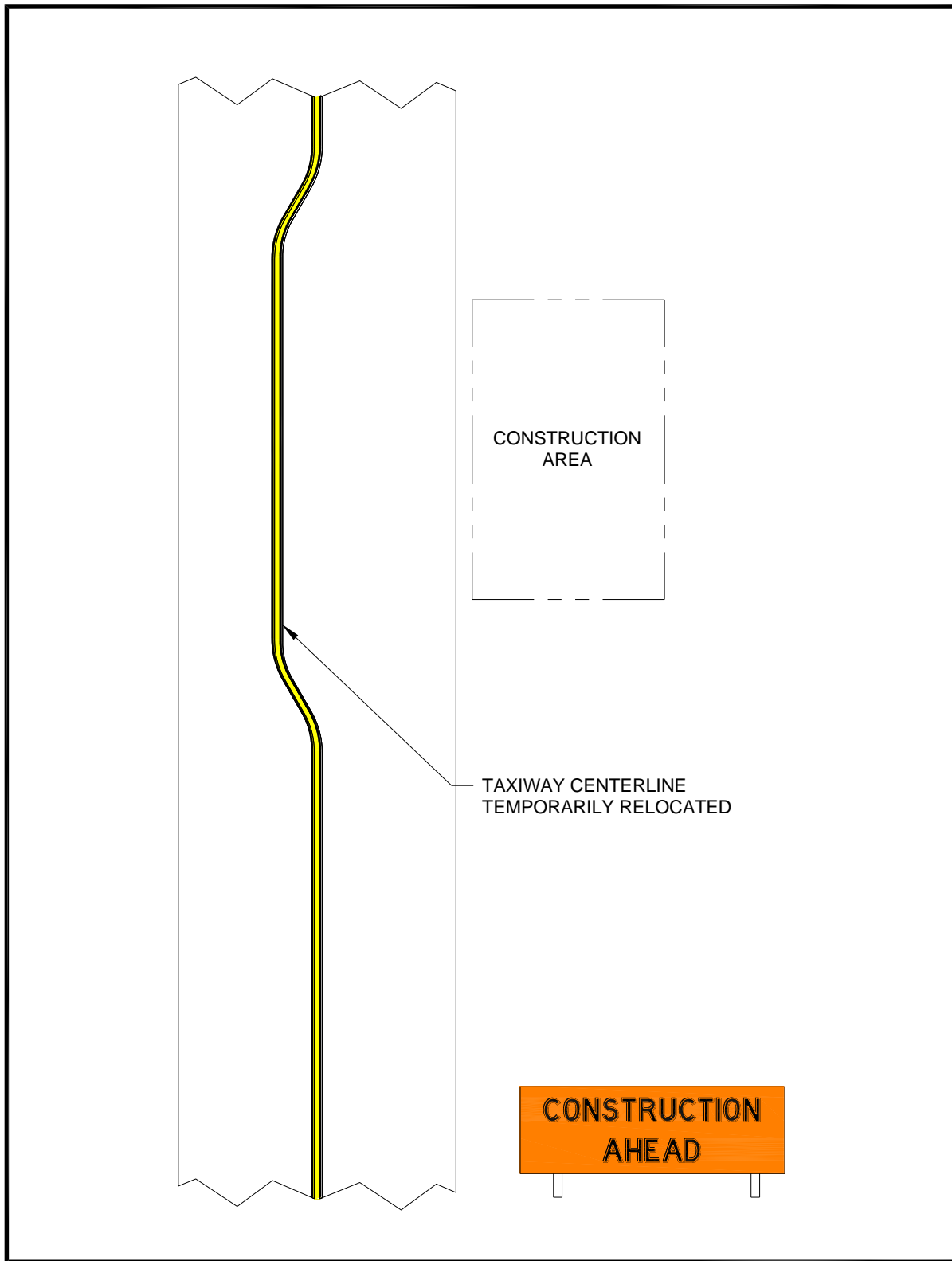


**Figure F-2. Orange Construction Sign Example 1**



**Note:** For proper placement of signs, refer to EB 93.

**Figure F-3. Orange Construction Sign Example 2**



**Note:** For proper placement of signs, refer to EB 93.

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## Advisory Circular Feedback

If you find an error in this AC, have recommendations for improving it, or have suggestions for new items/subjects to be added, you may let us know by (1) mailing this form to Manager, Airport Engineering Division, Federal Aviation Administration ATTN: AAS-100, 800 Independence Avenue SW, Washington DC 20591 or (2) faxing it to the attention of the Office of Airport Safety and Standards at (202) 267-5383.

Subject: AC 150/5370-2G

Date: \_\_\_\_\_

*Please check all appropriate line items:*

An error (procedural or typographical) has been noted in paragraph \_\_\_\_\_ on page \_\_\_\_\_.

Recommend paragraph \_\_\_\_\_ on page \_\_\_\_\_ be changed as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

In a future change to this AC, please cover the following subject:  
*(Briefly describe what you want added.)*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other comments:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

I would like to discuss the above. Please contact me at (phone number, email address).

\_\_\_\_\_

Submitted by: \_\_\_\_\_

Date: \_\_\_\_\_



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Attachment B – Project Construction Phasing Drawings

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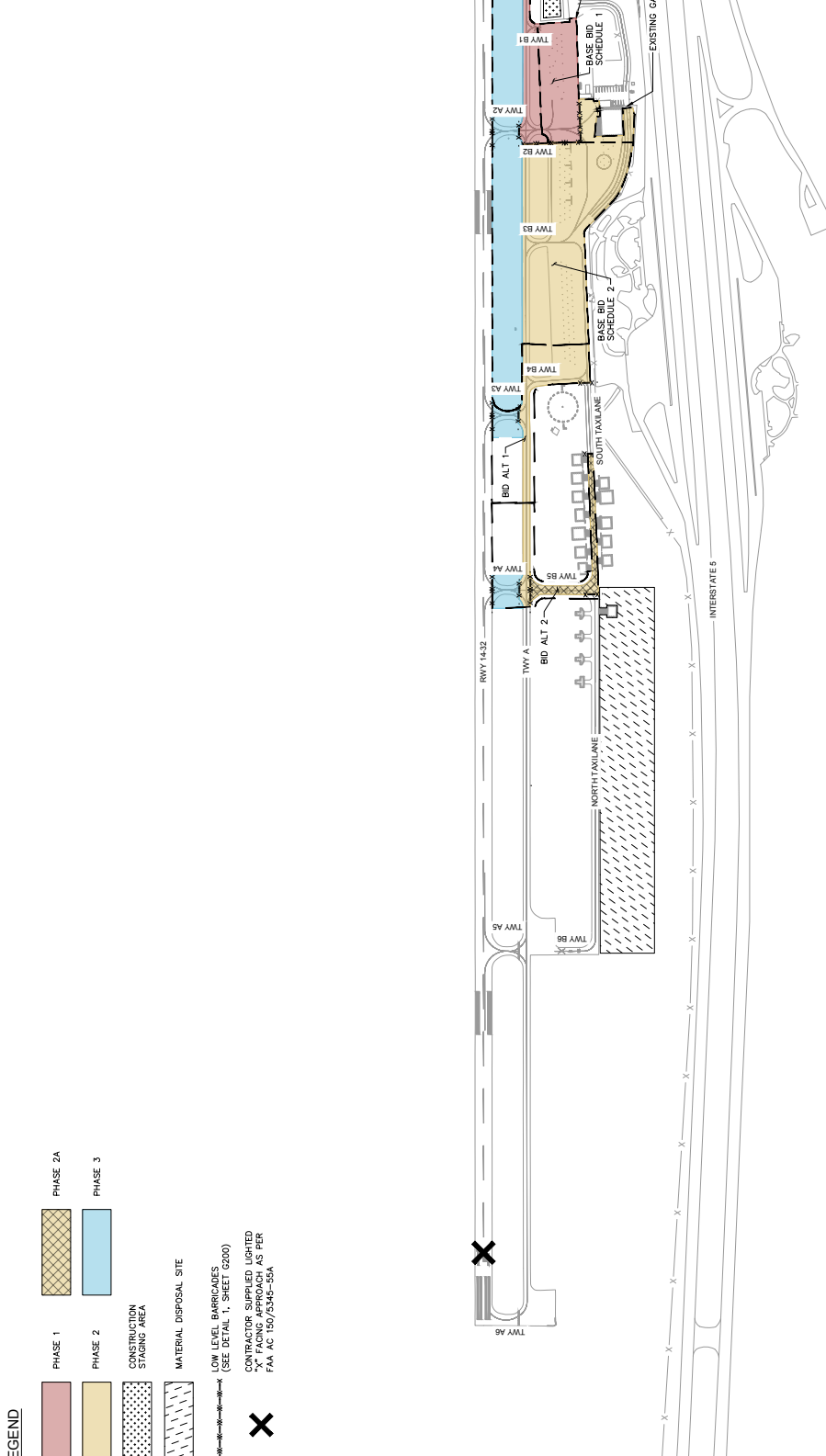
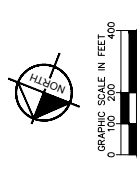
7900 KIMBLEY PARKWAY, SUITE 100, RENO, NV 89511  
 WWW.KIMBLEY-HORN.COM  
**Kimley-Horn**



KHA PROJECT  
 191396004  
 DATE 03/24/2023  
 SCALE  
 DESIGNED BY JC  
 DRAWN BY JMH  
 CHECKED BY THH

**CONSTRUCTION SAFETY & PHASING PLAN**

SISKIYOU COUNTY  
 WEED AIRPORT  
 TAXIWAY AND AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA  
 SHEET NUMBER  
**G100**  
 SHEET 6 OF 54



- LEGEND**
- PHASE 1
  - PHASE 2
  - PHASE 2A
  - PHASE 3
  - CONSTRUCTION STAGING AREA
  - MATERIAL DISPOSAL SITE
  - LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET G200)
  - CONTRACTOR SUPPLIED LIGHTED 'X' FADING APPROACH AS PER FAA AC 150/5345-55A

- MATERIAL DISPOSAL NOTES:**
- THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
  - CONTRACTOR AHEAD ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
  - THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
  - ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
  - THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MOIST TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, TWO TRUCKING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
  - ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
  - THE CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKING PASSES PER DAY. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
  - AT THE COMPLETION OF THE DEPOTING MATERIAL, THE FINISHED MOUND SHALL BE WATERED, THE MOUND SHALL BE COVERED WITH TERA-CORB OR APPROVED EQUAL WATER ABSORBING BINDER, AND TREATED WITH TERA-CORB OR APPROVED EQUAL WATER ABSORBING BINDER.
  - ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
  - PULVERIZED AC/AB SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
  - THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELLED BY THE END OF EACH WORK DAY.
  - THE CONTRACTOR SHALL CONTACT THE RRR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RRR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
  - FAILING TO FOLLOW THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR BRINGING UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RRR.
  - PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.
  - THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL AREA BY AN RRR OFFICER. THE RRR OFFICER WILL RECORD THE DEPOSIT LOCATION AND ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
  - THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
  - THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
  - ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT, CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AB MATERIAL ONLY.
  - THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
  - THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
  - THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
  - THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
  - WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. THE CONTRACTOR SHALL PROVIDE A WRITTEN NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.

ISSUED FOR BID

This document, together with the contract and signed prepared remarks, on an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of any portion hereof for any other purpose without the written authorization and approval of Kimley-Horn and Associates, Inc. is strictly prohibited.

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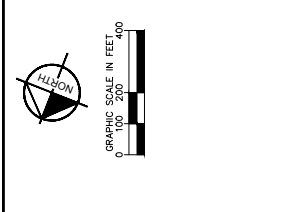
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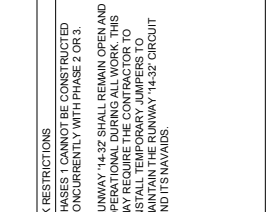
**CONSTRUCTION SAFETY & PHASING PLAN (PHASE 1)**

SISKIYOU COUNTY  
 WEED AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA



**PHASE 1 NOTES:**

| PHASE | DURATION | AIRFIELD CLOSURES  | WORK ELEMENTS   | WORK RESTRICTIONS   |
|-------|----------|--|---|---|
| 1     | 30 DAYS  | PARTIAL CLOSURE TO TAXIWAYS 'A', 'A2', 'B1', AND 'B2' FOR RECONSTRUCTION OR DEMOLITION | PHASE 1 IS COMPRISED OF THE FOLLOWING WORK ELEMENTS:<br>ELECTRICAL IMPROVEMENTS ALONG TAXIWAYS 'A', SOUTH OF TAXIWAY 'A1' AND OUTSIDE OF THE RSA.<br>IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A', 'A1', 'A2', 'B1', AND 'B2', NEW EDGE INSTALLATION TO EXISTING NAVAIDS. | PHASES CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 2 OR 3.<br>RUNWAY 14-32 SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. THIS INCLUDES THE INSTALLATION OF TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY 14-32 CIRCUIT AND ITS NAVAIDS. |



- MATERIAL DISPOSAL NOTES:**
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  - THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
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  - THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MOIST. WATER TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, FREQUENT PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
  - ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
  - THE CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS IN-ADVANCE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKS PER DAY. THE CONTRACTOR SHALL ADVISE THE RRR OF ANY CHANGES IN NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
  - AT THE COMPLETION OF THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL LOCATION AND ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
  - THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
  - THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
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  - THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
  - THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
  - THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
  - THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
  - WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. WHEEL ROLLING USING THE PILE OF EQUIPMENT AS A BRISSET COMPACTED MOUND AT COMPLETION, COMPACTION TEST ARE NOT REQUIRED.
  - PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

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 MARCH 2023  
 SHEET NUMBER G101  
 SHEET 7 OF 54

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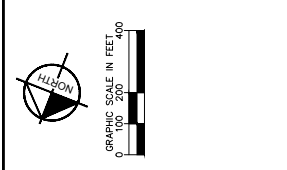
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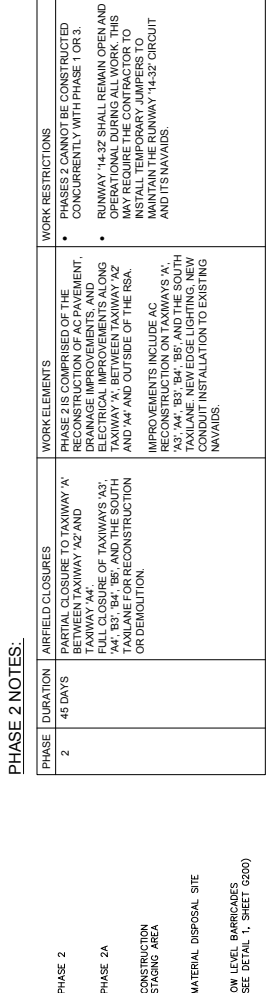
**CONSTRUCTION SAFETY & PHASING PLAN (PHASE 2)**

SISKIYOU COUNTY  
 WEED AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA



**PHASE 2 NOTES:**

| PHASE | DURATION | AIRFIELD CLOSURES   | WORK ELEMENTS  | WORK RESTRICTIONS   |
|-------|----------|---|--|---|
| 2     | 45 DAYS  | PARTIAL CLOSURE TO TAXIWAY 'A' BETWEEN TAXIWAY 'A2' AND TAXIWAY 'A4'.<br>FULL CLOSURE OF TAXIWAYS 'A3', 'A4', 'B3', 'B4', 'B5', AND THE SOUTH SIDE OF THE APRON RECONSTRUCTION OR DEMOLITION. | PHASE 2 IS COMPRISED OF THE FOLLOWING WORK ELEMENTS:<br>• ELECTRICAL IMPROVEMENTS AND DRAINAGE IMPROVEMENTS ALONG TAXIWAY 'A' BETWEEN TAXIWAY 'A2' AND 'A4' AND OUTSIDE OF THE RSA.<br>• IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A3', 'A4', 'B3', 'B4', 'B5', AND THE SOUTH SIDE OF THE APRON RECONSTRUCTION AND CONDUIT INSTALLATION TO EXISTING NAVIGAIDS. | • PHASES CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 1 OR 3.<br>• RUNWAY 14-32 SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. THIS INCLUDES THE INSTALLATION AND MAINTENANCE OF TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY 14-32 CIRCUIT AND ITS NAVIGAIDS. |



- THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
- CONTRACTOR AHEAD ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
- CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
- ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
- CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MOIST. TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, TWO TRUCKING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
- ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
- CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKING PASSES PER DAY. THE CONTRACTOR SHALL PROVIDE A 72 HOUR NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
- AT THE COMPLETION OF THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL LOCATION BY THE RRR. THE RRR SHALL ATTEND THE MEETING LOCATING THE DEPOSIT LOCATION.
- THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
- THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
- ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT, CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AS MATERIAL ONLY.
- THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
- THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
- THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
- CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
- WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE MOUND AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.
- PULVERIZED AC/AS SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
- CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
- CONTRACTOR SHALL CONTACT THE RRR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RRR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
- FALLING DEBRIS FROM THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE OPERATION OF THE ABOVE RULES UNLESS ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RRR.
- PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

**MATERIAL DISPOSAL NOTES:**

- CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
- CONTRACTOR AHEAD ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
- CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
- ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
- CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MOIST. TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, TWO TRUCKING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
- ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AREA.
- CONTRACTOR SHALL PROVIDE THE RRR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKING PASSES PER DAY. THE CONTRACTOR SHALL PROVIDE A 72 HOUR NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
- AT THE COMPLETION OF THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL LOCATION BY THE RRR. THE RRR SHALL ATTEND THE MEETING LOCATING THE DEPOSIT LOCATION.
- THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
- THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
- ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT, CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AS MATERIAL ONLY.
- THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
- THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
- THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
- CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
- WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE. WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE MOUND AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.
- PULVERIZED AC/AS SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
- CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
- CONTRACTOR SHALL CONTACT THE RRR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RRR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
- FALLING DEBRIS FROM THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE OPERATION OF THE ABOVE RULES UNLESS ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RRR.
- PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

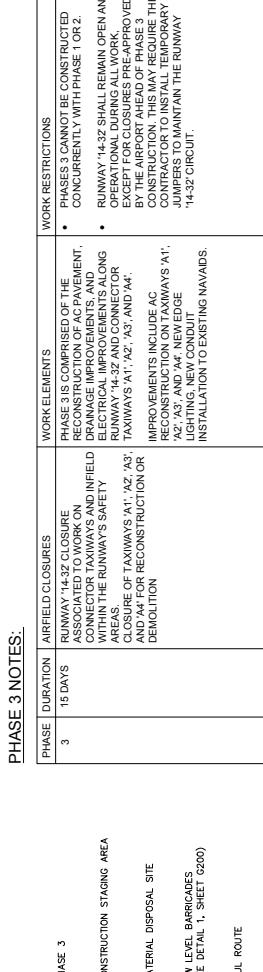
ISSUED FOR BID

PROJECT NUMBER  
**G102**  
 SHEET 8 OF 54

This document, together with the contract and specified standards, is intended only for the specific purpose and client for which it was prepared. Review of this document without written authorization and adoption by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

**PHASE 3 NOTES:**

| PHASE | DURATION | AIRFIELD CLOSURES  | WORK ELEMENTS  | WORK RESTRICTIONS  |
|-------|----------|--|--|--|
| 3     | 15 DAYS  | RUNWAY 14-32 CLOSURE<br>CONNECTOR TAXIWAYS AND INFIELD<br>WITHIN THE RUNWAY'S SAFETY<br>AREAS OF TAXIWAYS 'A1', 'A2', 'A3',<br>'A4' AND 'A5' FOR RECONSTRUCTION OR<br>DEMOLITION | PHASE 3 IS COMPRSED OF THE<br>FOLLOWING ELEMENTS:<br>• DRAINAGE IMPROVEMENTS AND<br>ELECTRICAL IMPROVEMENTS ALONG<br>RUNWAY 14-32 AND CONNECTOR<br>TAXIWAYS 'A1', 'A2', 'A3', AND 'A4'.<br>• IMPROVEMENTS INCLUDE AC<br>RECONSTRUCTION ON TAXIWAYS 'A1',<br>'A2', 'A3', AND 'A4', NEW EDGE<br>INSTALLATION TO EXISTING NAVADS. | • PHASES CANNOT BE CONSTRUCTED<br>CONCURRENTLY WITH PHASE 1 OR 2.<br>• RUNWAY 14-32 SHALL REMAIN OPEN AND<br>OPERATIONAL DURING ALL WORK.<br>• CONSTRUCTION SHALL BE COMPLETED<br>BY THE AIRPORT AHEAD OF PHASE 3<br>CONTRACTOR TO INSTALL TEMPORARY<br>JUMPERS TO MAINTAIN THE RUNWAY<br>14-32 CIRCUIT. |



**LEGEND:**  
 PHASE 3  
 CONSTRUCTION STAGING AREA  
 MATERIAL DISPOSAL SITE  
 LOW LEVEL BARRICADES  
 (SEE DETAIL 1, SHEET 0200)  
 HAUL ROUTE  
 BID SCHEDULE LIMITS  
 CONTRACTOR SUPPLIED LIGHTED  
 "X" FACING APPROACH AS PER  
 FAA AC 150/5345-55A

**CONTRACTOR SUPPLIED LIGHTED  
 "X" FACING APPROACH AS PER  
 FAA AC 150/5345-55A**

**PHASE 3 NOTES:**

1. THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL LOCATION BY THE RRR. THE RRR SHALL BE AT THE MEETING LOCATION THE DEPOSIT LOCATION AND ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.  
 2. THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.  
 3. THE RRR WILL LOCATE THE SPECIFIC DISPOSAL SITE.  
 4. THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.  
 5. THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.  
 6. THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.  
 7. THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.  
 8. WHEEL ROLLING USING THE PILE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE FOR ALL REMAINING DELIVERIES IF ANY GAPE IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.

**MATERIAL DISPOSAL NOTES:**

1. THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
2. CONTRACTOR AHEADSIDE ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
3. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
4. ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITE.
5. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, TWO TRUCKING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY WET AND CONDITIONED PRIOR TO DELIVERIES.
6. ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE MANNER THAT PREVENTS THE RRR 48 HOURS NOTICE PROBS TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RRR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION, AND THE NUMBER OF TRUCKING PASSES PER DAY. THE CONTRACTOR SHALL PROVIDE A 48 HOUR NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPE IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.

**CONSTRUCTION SAFETY & PHASING PLAN (PHASE 3)**

**CONSTRUCTION SAFETY & PHASING PLAN (PHASE 3)**

**APRON RECONSTRUCTION PROJECT PHASE 1**

**APRON RECONSTRUCTION PROJECT PHASE 1**

**ISSUED FOR BID**

**ISSUED FOR BID**

**7900 KIMLEY-HORN PARKWAY, SUITE 100, RENO, NV 89511**  
**WWW.KIMLEY-HORN.COM**  
 PHONE: 775-782-7252 FAX: 775-782-7253

**Kimley-Horn**

**AMERICAN PROFESSIONAL ENGINEERS & ARCHITECTS**  
 LICENSE NO. 137976  
 EXPIRES 12/31/23

**191396004**  
 DATE 03/24/2023  
 SCALE  
 DESIGNED BY JCS  
 DRAWN BY JMH  
 CHECKED BY THH  
 KHA PROJECT

**SISKIYOU COUNTY**  
**TAXIWAY AND AIRCRAFT PARKING**  
**APRON RECONSTRUCTION**  
**PROJECT PHASE 1**  
**CALIFORNIA**

**SHEET NUMBER**  
**G103**

**ISSUED FOR BID**

**DATE: 03/24/2023**

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**ISSUED FOR BID**

**ISSUED FOR BID**

**ISSUED FOR BID**



# PLANS FOR THE CONSTRUCTION OF WEED AIRPORT TAXIWAY AND AIRCRAFT PARKING APRON RECONSTRUCTION PROJECT

## PHASE 1

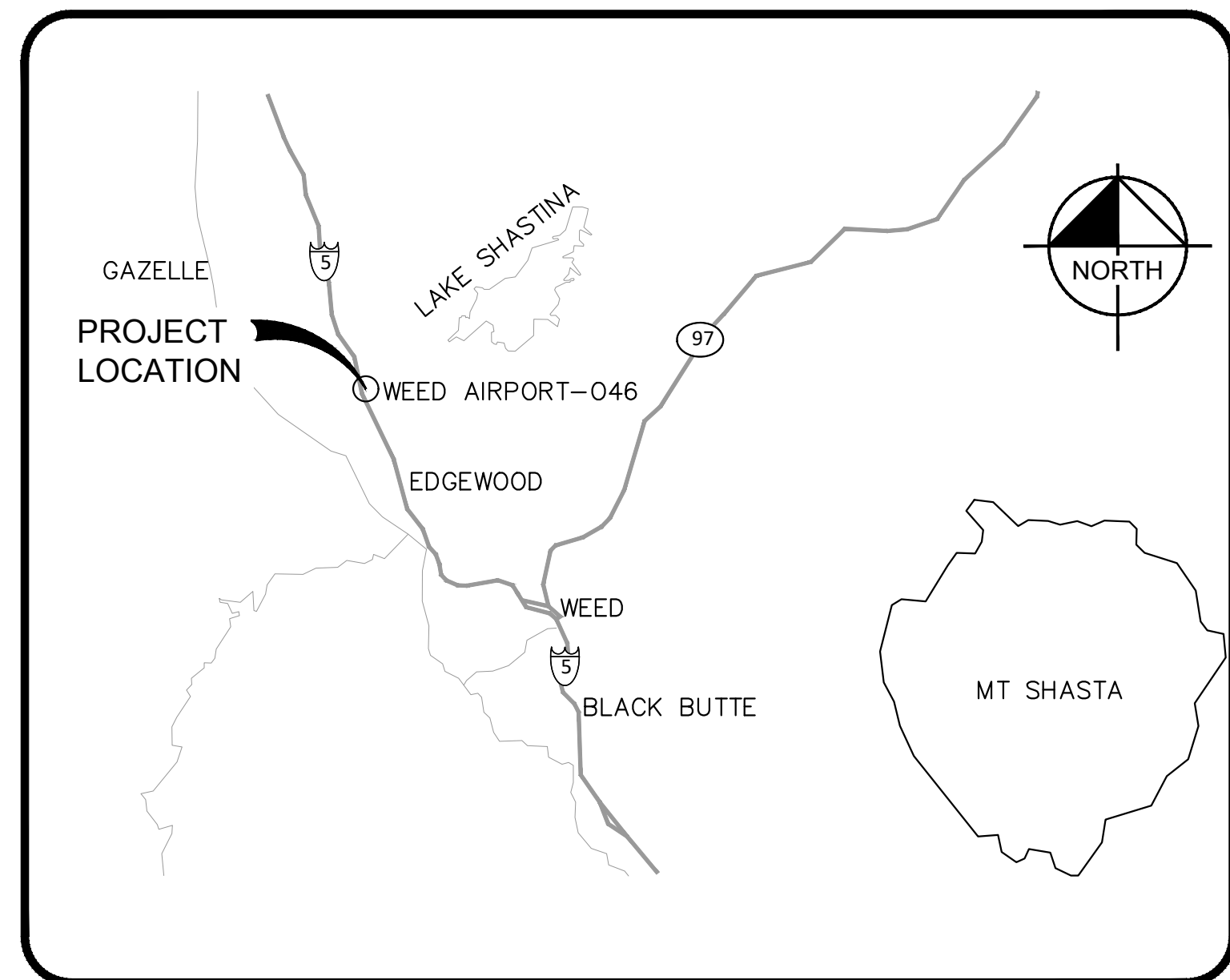
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AIP PROJECT NO. 3-06-0274-018-2023  
AIG PROJECT NO. 3-06-0274-017-2023

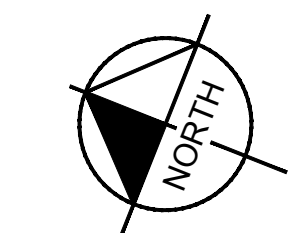
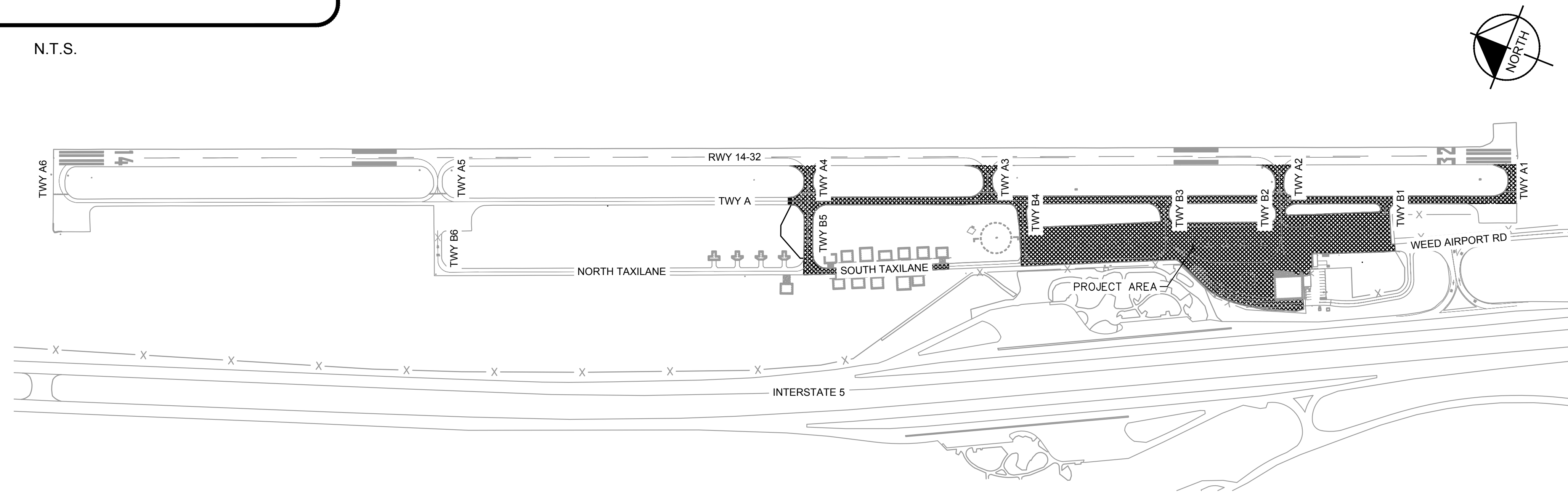
PREPARED FOR:  
SISKIYOU COUNTY



LOCATION MAP



N.T.S.

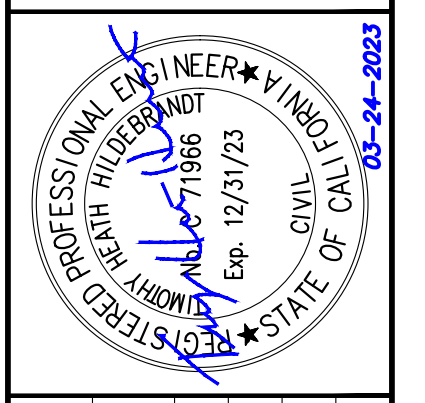


PREPARED BY:  
**Kimley»Horn**  
7900 RANCHARRAH PARKWAY  
SUITE 100  
RENO, NV 89511  
PHONE: 775-787-7552  
WWW.KIMLEY-HORN.COM

MARCH 2023  
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| No. | REVISIONS | DATE | BY |
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

COVER SHEET

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
WEED CALIFORNIA

SHEET NUMBER  
**G001**  
SHEET 1 OF 54

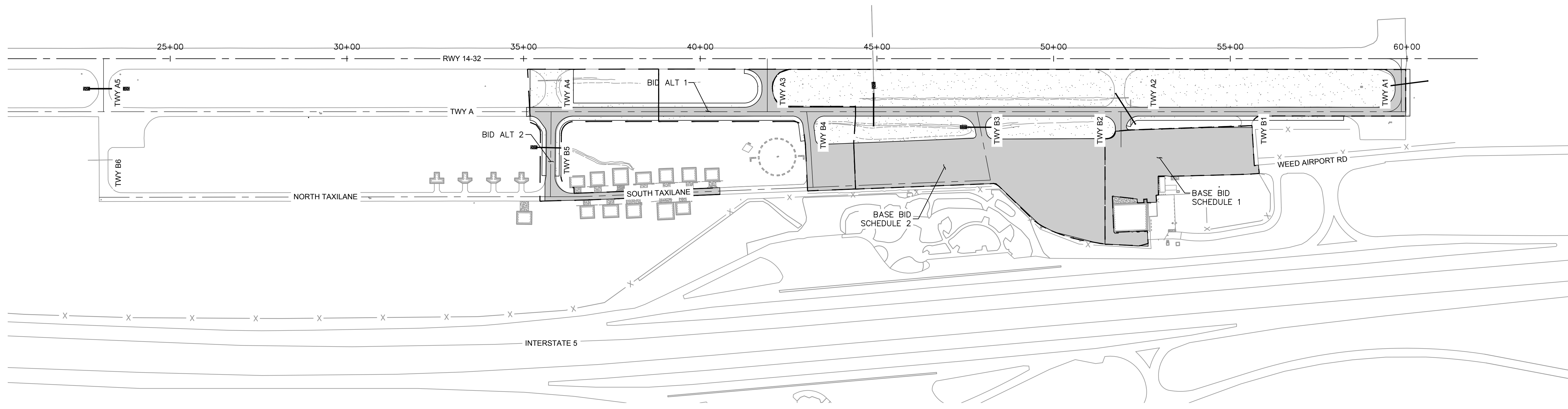
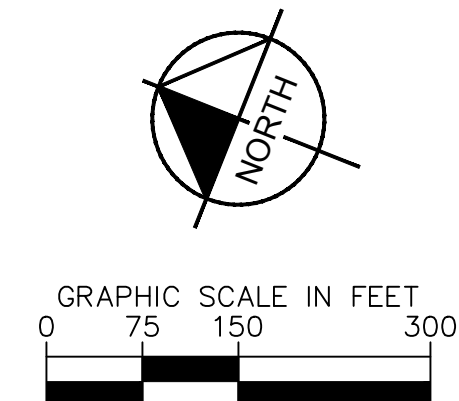
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**LEGEND:**

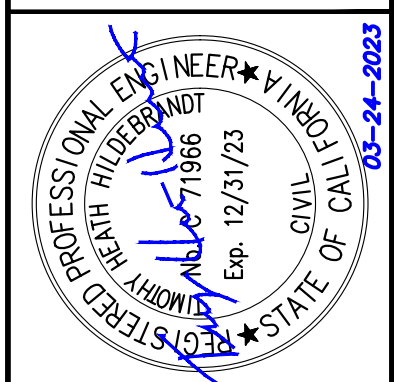
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-403, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)

MARCH 2023  
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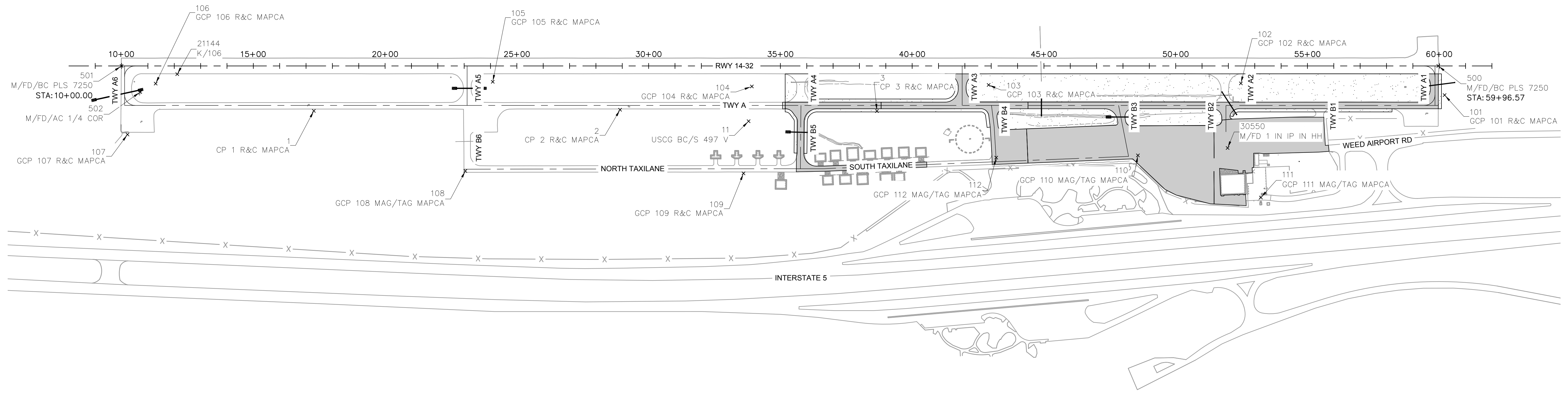
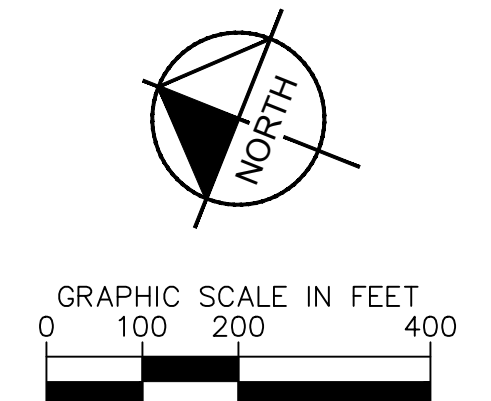
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

PROJECT LAYOUT

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
WEED CALIFORNIA

SHEET NUMBER  
**G004**  
SHEET 4 OF 54

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**SURVEY CONTROL**

**HORIZONTAL DATUM:**  
CALIFORNIA STATE PLANE COORDINATE SYSTEM,  
ZONE 1  
NAD83 (2011)

**VERTICAL DATUM:**  
NAVD88 HPGN D CA02 EL=3568.20

**NOTES**

1. SURVEY PROVIDED BY MAPCA SURVEYS, INC., SEPTEMBER 2021.
2. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY ANY CONTROL POINTS TO BE USED FOR CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY.
3. CONTRACTOR SHALL PROTECT EXISTING CONTROL MONUMENTS (AIRPORT CONTROL POINTS) FROM DAMAGE. ANY DAMAGE TO CONTROL MONUMENTS SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.

Point Table

| Point # | Elevation | Northing   | Easting    | Description       |
|---------|-----------|------------|------------|-------------------|
| 1       | 2913.71   | 2424649.25 | 6436309.15 | CP 1 R&C MAPCA    |
| 105     | 2920.02   | 2424059.77 | 6436663.48 | GCP 105 R&C MAPCA |
| 2       | 2925.73   | 2423571.78 | 6436744.04 | CP 2 R&C MAPCA    |
| 11      | 2933.09   | 2423102.68 | 6436884.54 | USCG BC/S 497 V   |
| 3       | 2931.85   | 2422664.64 | 6437100.95 | CP 3 R&C MAPCA    |
| 101     | 2944.02   | 2420686.55 | 6437956.07 | GCP 101 R&C MAPCA |
| 102     | 2938.07   | 2421421.13 | 6437710.72 | GCP 102 R&C MAPCA |
| 103     | 2933.98   | 2422307.76 | 6437350.16 | GCP 103 R&C MAPCA |
| 104     | 2929.70   | 2423140.04 | 6437011.72 | GCP 104 R&C MAPCA |
| 106     | 2906.17   | 2425245.17 | 6436182.72 | GCP 106 R&C MAPCA |
| 107     | 2904.64   | 2425272.64 | 6435963.67 | GCP 107 R&C MAPCA |

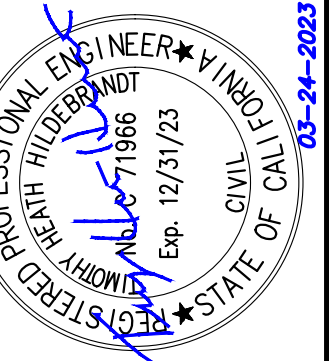
Point Table

| Point # | Elevation | Northing   | Easting    | Description           |
|---------|-----------|------------|------------|-----------------------|
| 108     | 2922.08   | 2424030.72 | 6436310.48 | GCP 108 MAG/TAG MAPCA |
| 109     | 2930.62   | 2423047.13 | 6436693.49 | GCP 109 R&C MAPCA     |
| 110     | 2940.26   | 2421682.49 | 6437312.04 | GCP 110 MAG/TAG MAPCA |
| 111     | 2944.41   | 2421189.81 | 6437336.42 | GCP 111 MAG/TAG MAPCA |
| 112     | 2935.88   | 2422178.71 | 6437104.64 | GCP 112 MAG/TAG MAPCA |
| 500     | N/A       | 2420749.86 | 6438050.01 | M/FD/BC PLS 7250      |
| 501     | N/A       | 2425390.16 | 6436197.08 | M/FD/BC PLS 7250      |
| 502     | N/A       | 2425287.77 | 6436131.30 | M/FD/AC 1/4 COR       |
| 21144   | 2906.18   | 2425182.40 | 6436246.43 | K/106                 |
| 30550   | 2942.40   | 2421376.80 | 6437464.16 | M/FD 1 IN IP IN HH    |

MARCH 2023  
**ISSUED FOR BID**

| No. | REVISIONS | DATE | BY |
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|-------------|------------|
| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**SURVEY CONTROL**

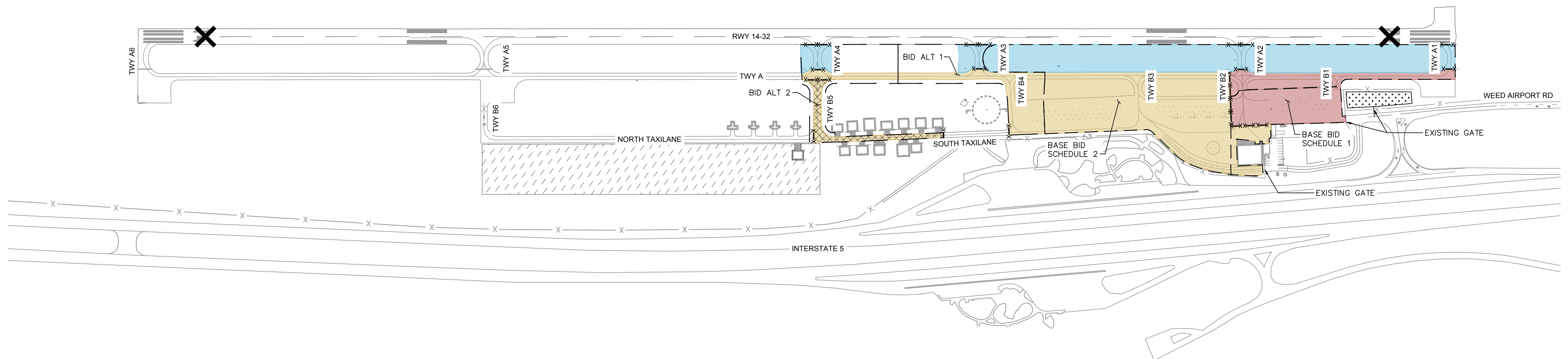
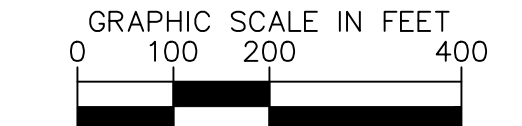
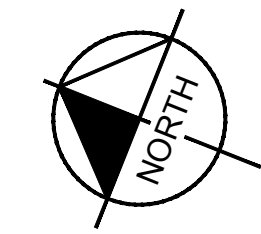
SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

SHEET NUMBER  
**G005**  
SHEET 5 OF 54

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**LEGEND**

- PHASE 1
- PHASE 2
- PHASE 2A
- PHASE 3
- CONSTRUCTION STAGING AREA
- MATERIAL DISPOSAL SITE
- LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET G200)
- X CONTRACTOR SUPPLIED LIGHTED "X" FACING APPROACH AS PER FAA AC 150/5345-55A



**MATERIAL DISPOSAL NOTES:**

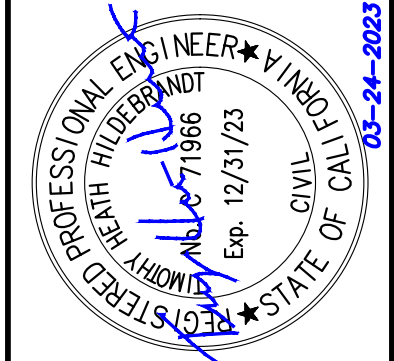
1. THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
2. CONTRACTOR AIRSIDE ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
3. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
4. ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITES.
5. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP DUST ON THE ACCESS ROAD AND AT THE SITE TO AN ABSOLUTE MINIMUM. MULTIPLE WATER TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, MULTIPLE WATERING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
6. ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AOA.
7. THE CONTRACTOR SHALL PROVIDE THE RPR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RPR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION AND THE APPROXIMATE LENGTH OF HAULING. CONTRACTOR SHALL PROVIDE TO THE RPR 24 HOURS NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
8. THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL SITE LOCATION TO MAKE SURE THEY ARE IN THE PROPER LOCATION. ESCORT MAY BE WITH ANYONE WHO ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
9. THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
10. THE RPR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
11. ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AB MATERIAL ONLY.
12. THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
13. THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
14. THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
15. THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
16. WHEEL ROLLING USING THE PIECE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE FOR COMPACTION OF THE MATERIAL. THE INTENT IS NOT TO HAVE A DENSELY COMPACTED MOUND AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.
17. AT THE COMPLETION OF THE DEPOSITING MATERIAL, THE FINISHED MOUND SHALL BE WATERED, THE STRIPPING MATERIAL SHALL BE SPREAD OVER THE STOCKPILE, WHEEL ROLLED, WATERED AND TREATED WITH TERRA-SORB OR APPROVED EQUAL WATER ABSORBING BINDER.
18. ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
19. PULVERIZED AC/AB SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
20. THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
21. THE CONTRACTOR SHALL CONTACT THE RPR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RPR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
22. FAILURE TO FOLLOW THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE HAULING OPERATIONS UNTIL SUCH DEFICIENCIES ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RPR.
23. PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

MARCH 2023  
**ISSUED FOR BID**

| No. | REVISIONS | DATE | BY |
|-----|-----------|------|----|
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|     |           |      |    |

**Kimley-Horn**

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PHONE: 775-787-7552  
WWW.KIMLEY-HORN.COM



|                          |                    |                       |                   |
|--------------------------|--------------------|-----------------------|-------------------|
| KHA PROJECT<br>191396004 | DATE<br>03/24/2023 | DESIGNED BY<br>JC     | CHECKED BY<br>THH |
| SCALE                    | DRAWN BY<br>JWF    | PROJECT<br>03-24-2023 |                   |

**CONSTRUCTION  
SAFETY & PHASING  
PLAN**


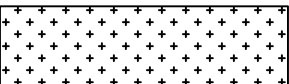
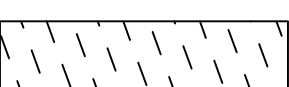
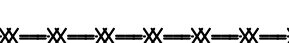


SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1

WEED CALIFORNIA

SHEET NUMBER  
**G100**  
SHEET 6 OF 54

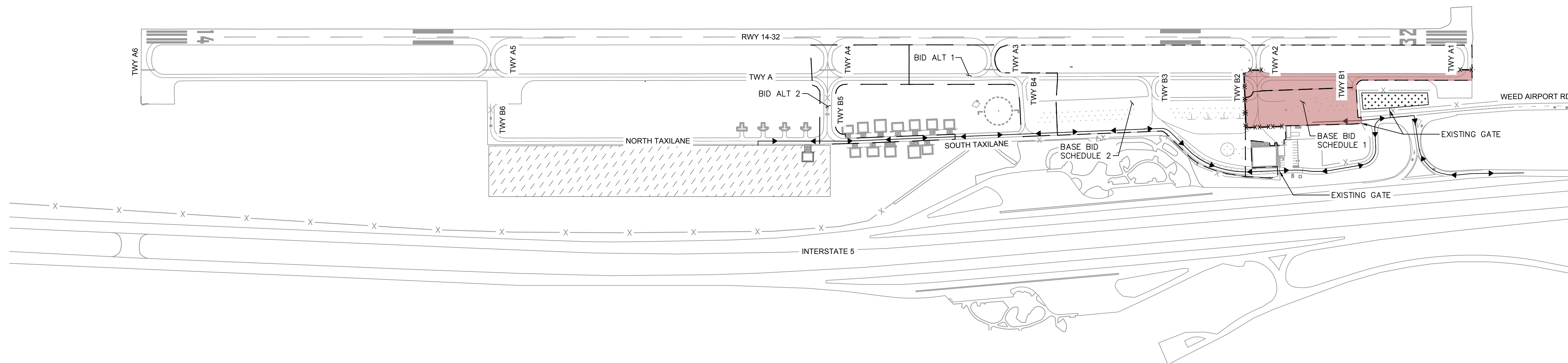
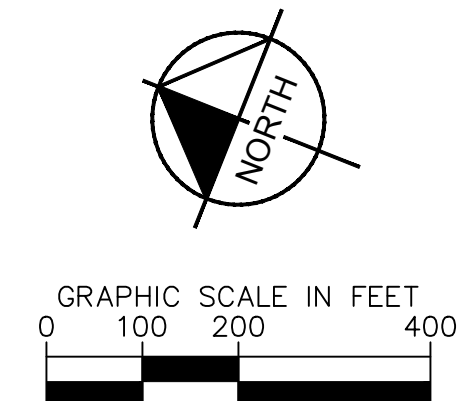
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**LEGEND**

-  PHASE 1
-  CONSTRUCTION STAGING AREA
-  MATERIAL DISPOSAL SITE
-  LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET G200)
-  HAUL ROUTE
-  BID SCHEDULE LIMITS

**PHASE 1 NOTES:**

| PHASE | DURATION | AIRFIELD CLOSURES  | WORK ELEMENTS  | WORK RESTRICTIONS  |
|-------|----------|--|--|--|
| 1     | 30 DAYS  | PARTIAL CLOSURE TO TAXIWAY 'A' SOUTH OF TAXIWAY 'A2'. FULL CLOSURE OF TAXIWAYS 'A1', 'A2', 'B1', AND 'B2' FOR RECONSTRUCTION OR DEMOLITION | PHASE 1 IS COMPRISED OF THE RECONSTRUCTION OF AC PAVEMENT, DRAINAGE IMPROVEMENTS, AND ELECTRICAL IMPROVEMENTS ALONG TAXIWAY 'A', SOUTH OF TAXIWAY 'A1' AND OUTSIDE OF THE RSA.<br><br>IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A', 'A1', 'A2', 'B1', AND 'B2'. NEW EDGE LIGHTING, NEW CONDUIT INSTALLATION TO EXISTING NAVAIDS. | <ul style="list-style-type: none"> <li>PHASES 1 CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 2 OR 3.</li> <li>RUNWAY '14-32' SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. THIS MAY REQUIRE THE CONTRACTOR TO INSTALL TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY '14-32' CIRCUIT AND ITS NAVAIDS.</li> </ul> |

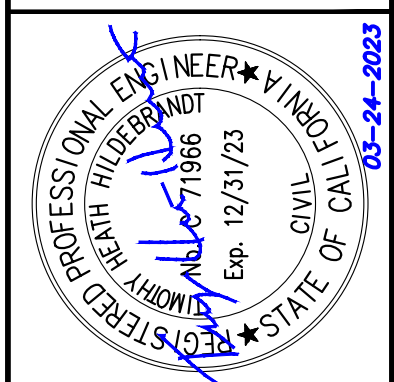


**MATERIAL DISPOSAL NOTES:**

1. THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
2. CONTRACTOR AIRSIDE ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
3. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
4. ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITES.
5. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP DUST ON THE ACCESS ROAD AND AT THE SITE TO AN ABSOLUTE MINIMUM. MULTIPLE WATER TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, MULTIPLE WATERING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
6. ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AOA.
7. THE CONTRACTOR SHALL PROVIDE THE RPR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RPR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION AND THE APPROXIMATE LENGTH OF HAULING. CONTRACTOR SHALL PROVIDE TO THE RPR 24 HOURS NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
8. THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL SITE LOCATION TO MAKE SURE THEY ARE IN THE PROPER LOCATION. ESCORT MAY BE WITH ANYONE WHO ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
9. THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
10. THE RPR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
11. ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AB MATERIAL ONLY.
12. THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
13. THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
14. THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
15. THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
16. WHEEL ROLLING USING THE PIECE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE FOR COMPACTION OF THE MATERIAL. THE INTENT IS NOT TO HAVE A DENSELY COMPACTED MOUND AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.
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22. FAILURE TO FOLLOW THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE HAULING OPERATIONS UNTIL SUCH DEFICIENCIES ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RPR.
23. PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

| NO. | REVISIONS | DATE | BY |
|-----|-----------|------|----|
|     |           |      |    |
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|             |            |
|-------------|------------|
| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**CONSTRUCTION SAFETY & PHASING PLAN (PHASE 1)**

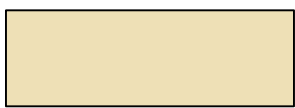

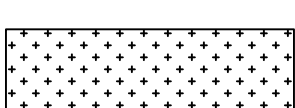

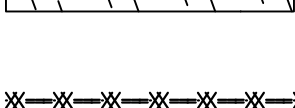

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING APRON RECONSTRUCTION PROJECT PHASE 1  
CALIFORNIA  
WEED

MARCH 2023  
**ISSUED FOR BID**

SHEET NUMBER  
**G101**  
SHEET 7 OF 54

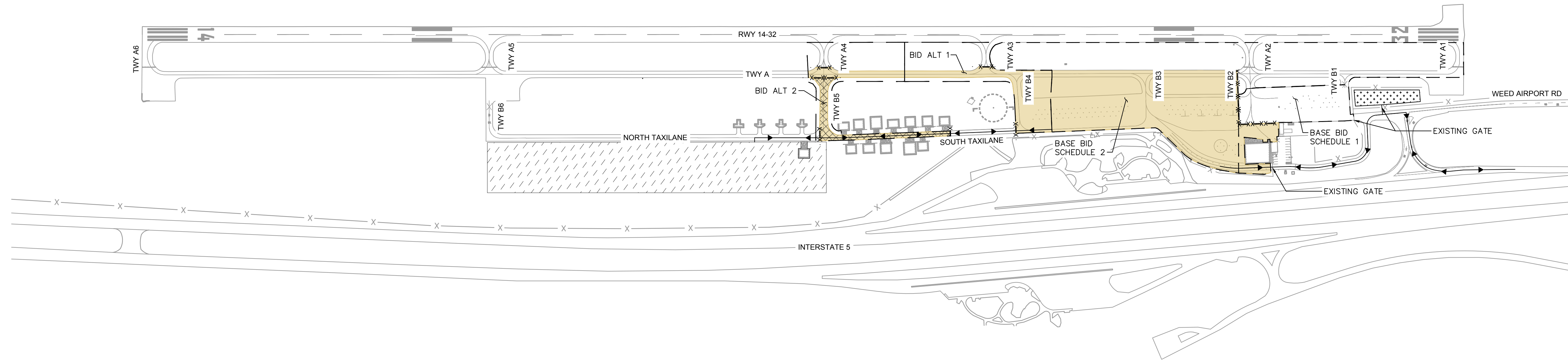
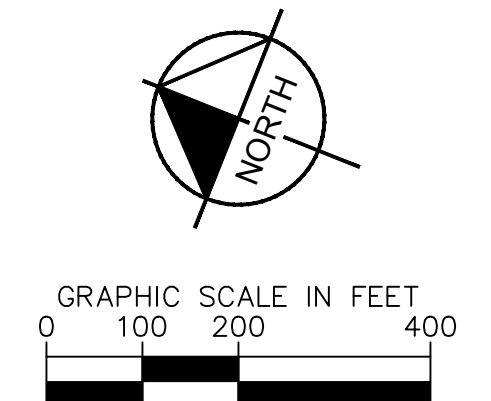
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**LEGEND**

-  PHASE 2
-  PHASE 2A
-  CONSTRUCTION STAGING AREA
-  MATERIAL DISPOSAL SITE
-  LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET G200)
-  BID SCHEDULE LIMITS

**PHASE 2 NOTES:**

| PHASE | DURATION | AIRFIELD CLOSURES   | WORK ELEMENTS  | WORK RESTRICTIONS  |
|-------|----------|---|--|--|
| 2     | 45 DAYS  | PARTIAL CLOSURE TO TAXIWAY 'A' BETWEEN TAXIWAY 'A2' AND TAXIWAY 'A4'. FULL CLOSURE OF TAXIWAYS 'A3', 'A4', 'B3', 'B4', 'B5', AND THE SOUTH TAXILANE FOR RECONSTRUCTION OR DEMOLITION. | PHASE 2 IS COMPRISED OF THE RECONSTRUCTION OF AC PAVEMENT, DRAINAGE IMPROVEMENTS, AND ELECTRICAL IMPROVEMENTS ALONG TAXIWAY 'A', BETWEEN TAXIWAY 'A2' AND 'A4' AND OUTSIDE OF THE RSA.<br><br>IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A', 'A3', 'A4', 'B3', 'B4', 'B5', AND THE SOUTH TAXILANE. NEW EDGE LIGHTING, NEW CONDUIT INSTALLATION TO EXISTING NAVAIDS. | <ul style="list-style-type: none"> <li>PHASES 2 CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 1 OR 3.</li> <li>RUNWAY '14-32' SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK. THIS MAY REQUIRE THE CONTRACTOR TO INSTALL TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY '14-32' CIRCUIT AND ITS NAVAIDS.</li> </ul> |



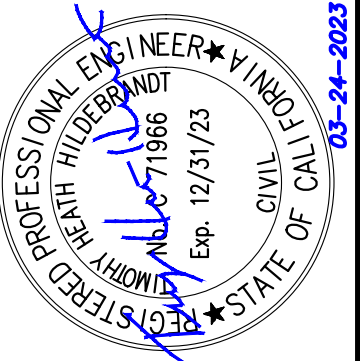
**MATERIAL DISPOSAL NOTES:**

1. THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
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3. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
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5. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP DUST ON THE ACCESS ROAD AND AT THE SITE TO AN ABSOLUTE MINIMUM. MULTIPLE WATER TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, MULTIPLE WATERING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
6. ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AOA.
7. THE CONTRACTOR SHALL PROVIDE THE RPR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RPR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION AND THE APPROXIMATE LENGTH OF HAULING. CONTRACTOR SHALL PROVIDE TO THE RPR 24 HOURS NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
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12. THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
13. THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
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21. THE CONTRACTOR SHALL CONTACT THE RPR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RPR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
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23. PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

| NO. | REVISIONS | DATE | BY |
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|     |           |      |    |

**Kimley >>> Horn**

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|             |            |
|-------------|------------|
| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**CONSTRUCTION  
SAFETY & PHASING  
PLAN (PHASE 2)**


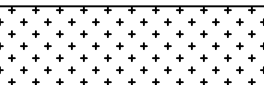

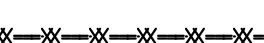
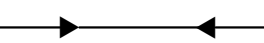


SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
WEED CALIFORNIA

MARCH 2023  
**ISSUED FOR BID**

SHEET NUMBER  
**G102**  
SHEET 8 OF 54

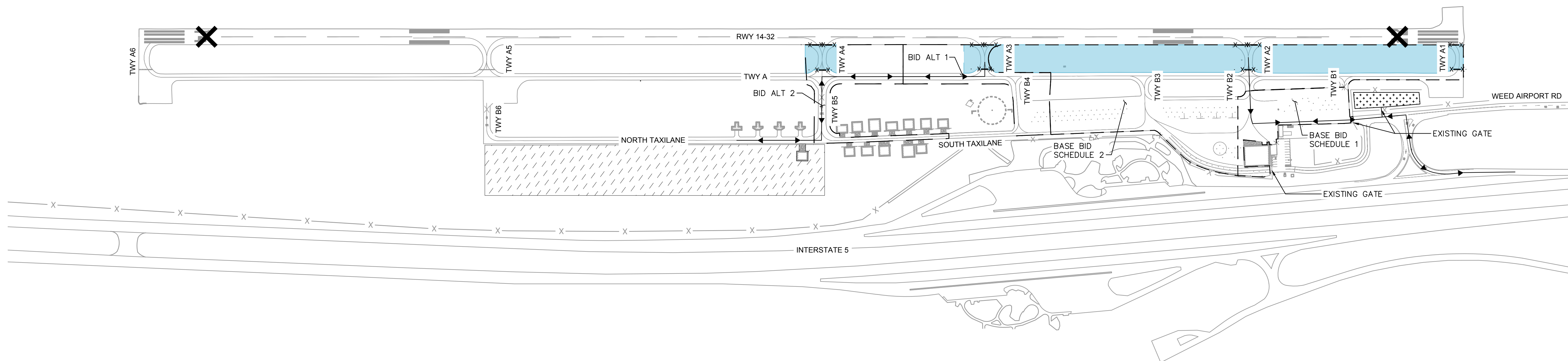
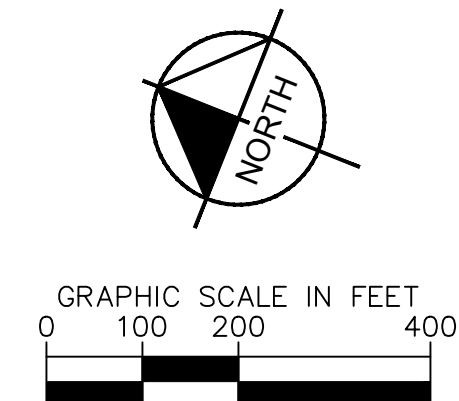
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**LEGEND**

-  PHASE 3
-  CONSTRUCTION STAGING AREA
-  MATERIAL DISPOSAL SITE
-  LOW LEVEL BARRICADES (SEE DETAIL 1, SHEET G200)
-  HAUL ROUTE
-  BID SCHEDULE LIMITS
-  CONTRACTOR SUPPLIED LIGHTED "X" FACING APPROACH AS PER FAA AC 150/5345-55A

**PHASE 3 NOTES:**


| PHASE | DURATION | AIRFIELD CLOSURES   | WORK ELEMENTS  | WORK RESTRICTIONS   |
|-------|----------|---|--|---|
| 3     | 15 DAYS  | RUNWAY '14-32' CLOSURE ASSOCIATED TO WORK ON CONNECTOR TAXIWAYS AND INFIELD WITHIN THE RUNWAY'S SAFETY AREAS. CLOSURE OF TAXIWAYS 'A1', 'A2', 'A3', AND 'A4' FOR RECONSTRUCTION OR DEMOLITION | PHASE 3 IS COMPRISED OF THE RECONSTRUCTION OF AC PAVEMENT, DRAINAGE IMPROVEMENTS, AND ELECTRICAL IMPROVEMENTS ALONG RUNWAY '14-32' AND CONNECTOR TAXIWAYS 'A1', 'A2', 'A3', AND 'A4'.<br><br>IMPROVEMENTS INCLUDE AC RECONSTRUCTION ON TAXIWAYS 'A1', 'A2', 'A3', AND 'A4'. NEW EDGE LIGHTING, NEW CONDUIT INSTALLATION TO EXISTING NAVAIDS. | <ul style="list-style-type: none"> <li>PHASES 3 CANNOT BE CONSTRUCTED CONCURRENTLY WITH PHASE 1 OR 2.</li> <li>RUNWAY '14-32' SHALL REMAIN OPEN AND OPERATIONAL DURING ALL WORK, EXCEPT FOR CLOSURES PRE-APPROVED BY THE AIRPORT AHEAD OF PHASE 3 CONSTRUCTION. THIS MAY REQUIRE THE CONTRACTOR TO INSTALL TEMPORARY JUMPERS TO MAINTAIN THE RUNWAY '14-32' CIRCUIT.</li> </ul> |



**MATERIAL DISPOSAL NOTES:**

1. THE CONTRACTOR SHALL KEEP AT LEAST ONE OPERATIONAL VACUUM SWEEPER TRUCK ON SITE AND OPERATIONAL AT ALL TIMES DURING WORKING AND NON-WORKING HOURS.
2. CONTRACTOR AIRSIDE ACCESS IS LIMITED TO THE GATE SHOWN HEREIN.
3. THE CONTRACTOR SHALL PROVIDE CONSTRUCTION AREA GENERATED DUST CONTROL ON A 24-HOUR BASIS.
4. ALL SURPLUS PAVEMENT MATERIALS DESIGNATED FOR REMOVAL SUCH AS ASPHALT, AGGREGATE, AND SOIL SHALL BE HAULED TO THE CONTRACTOR'S STAGING AREA OR DESIGNATED DISPOSAL SITES.
5. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF WATER TRUCKS TO KEEP DUST ON THE ACCESS ROAD AND AT THE SITE TO AN ABSOLUTE MINIMUM. MULTIPLE WATER TRUCKS MAY BE REQUIRED TO PREP THE ROAD PRIOR TO DELIVERIES. IF USING A SINGLE WATER TRUCK, MULTIPLE WATERING PASSES MAY BE REQUIRED TO GET THE ROAD PROPERLY MOISTURE CONDITIONED PRIOR TO DELIVERIES.
6. ALL MATERIALS WITHIN TRUCKS SHALL BE SECURED AND COVERED DURING HAULING IN THE AOA.
7. THE CONTRACTOR SHALL PROVIDE THE RPR 48 HOURS NOTICE PRIOR TO HAULING. THE CONTRACTOR SHALL DISCUSS WITH THE RPR THE APPROXIMATE NUMBER OF TOTAL YARDS BEING MOVED, NUMBER OF TRUCKS HAULING PER DAY, HOURS OF OPERATION AND THE APPROXIMATE LENGTH OF HAULING. CONTRACTOR SHALL PROVIDE TO THE RPR 24 HOURS NOTICE FOR ALL REMAINING DELIVERIES IF ANY GAPS IN CONSECUTIVE DELIVERY DAYS OCCUR OR IF ADDITIONAL HAULING IS REQUIRED AT A LATER DATE.
8. THE FIRST TRUCK STARTING THE HAULING PROCESS SHALL BE ESCORTED TO THE DISPOSAL SITE LOCATION TO MAKE SURE THEY ARE IN THE PROPER LOCATION. ESCORT MAY BE WITH ANYONE WHO ATTENDED THE MEETING LOCATING THE DEPOSIT LOCATION.
9. THE SPEED LIMIT IS THE SPEED REQUIRED TO PREVENT THE FORMATION OF DUST, AND IN NO CASE GREATER THAN 25 MPH.
10. THE RPR WILL LOCATE THE SPECIFIC DISPOSAL SITE.
11. ALL FILL MATERIAL SHALL BE FREE FROM TRASH, ASPHALT CEMENT, CONCRETE, STEEL, ETC. THE MATERIAL SHALL CONSIST OF SOIL AND PULVERIZED AC/AB MATERIAL ONLY.
12. THE TOP 6"-8" OF THE NATIVE SOILS AND VEGETATION AT THE DISPOSAL SITE SHALL BE STRIPPED AND STOCKPILED.
13. THE AREA TO BE STRIPPED SHALL INCLUDE THE DISPOSAL LOCATION AND ANY AREA REQUIRED FOR TRUCK CIRCULATION.
14. THE MATERIAL BEING DEPOSITED SHALL BE PLACED WITH A MAXIMUM HEIGHT OF APPROXIMATELY THREE FEET.
15. THE CONTRACTOR SHALL KEEP THE SURFACE OF THE FILL RELATIVELY FLAT (NOT ROUNDED PILES). THE FINISHED SURFACE SHALL HAVE A SLIGHT SLOPE TO DRAIN.
16. WHEEL ROLLING USING THE PIECE OF EQUIPMENT SPREADING THE MATERIAL IS ACCEPTABLE FOR COMPACTION OF THE MATERIAL. THE INTENT IS NOT TO HAVE A DENSELY COMPACTED MOUND AT COMPLETION. COMPACTION TEST ARE NOT REQUIRED.
17. AT THE COMPLETION OF THE DEPOSITING MATERIAL, THE FINISHED MOUND SHALL BE WATERED, THE STRIPPING MATERIAL SHALL BE SPREAD OVER THE STOCKPILE, WHEEL ROLLED, WATERED AND TREATED WITH TERRA-SORB OR APPROVED EQUAL WATER ABSORBING BINDER.
18. ALL DISTURBED AREAS SHALL RECEIVE A FINAL WATERING FOR DUST CONTROL.
19. PULVERIZED AC/AB SHALL BE PLACED IN LOCATIONS SEPARATE FROM THE SOIL.
20. THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE SITE IN A NEAT AND ORDERLY MANNER. ALL MATERIAL EXPORTED SHALL BE LEVELED BY THE END OF EACH WORK DAY.
21. THE CONTRACTOR SHALL CONTACT THE RPR WHEN THE EXPORTING OF MATERIAL IS COMPLETED. THE RPR SHALL PERFORM AN INSPECTION TO DETERMINE ACCEPTANCE. IF ADDITIONAL WORK IS REQUIRED, THE CONTRACTOR WILL BE NOTIFIED.
22. FAILURE TO FOLLOW THE ABOVE RULES SHALL BE CAUSE TO IMMEDIATELY SHUT DOWN THE HAULING OPERATIONS UNTIL SUCH DEFICIENCIES ARE BROUGHT UP TO STANDARDS AND RECEIPT OF WRITTEN APPROVAL BY THE RPR.
23. PROPER STORM WATER CONTAINMENT (SWPPP) MEASURES SHALL BE PROVIDED FOR THE DISPOSAL AREA.

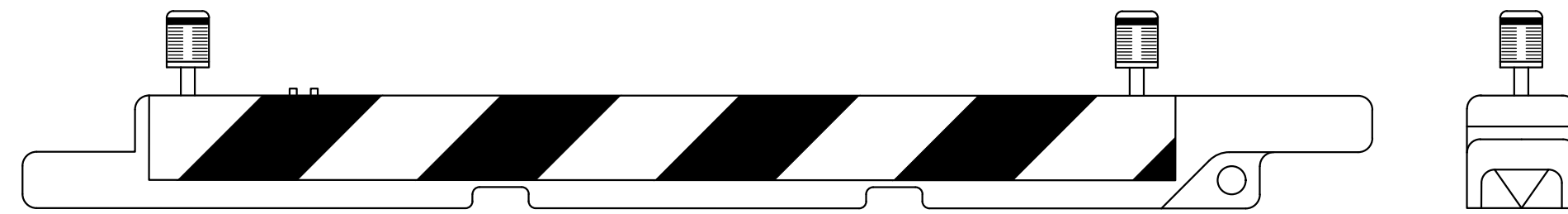
MARCH 2023  
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|                           |  |   |  | KHA PROJECT   | DATE       | SCALE      | DESIGNED BY |
| <b>CONSTRUCTION SAFETY &amp; PHASING PLAN (PHASE 3)</b>   |  |   |  | 191396004     | 03/24/2023 | JWF        | JWF         |
| <b>SISKIYOU COUNTY WEED AIRPORT - 046 TAXIWAY &amp; AIRCRAFT PARKING APRON RECONSTRUCTION PROJECT PHASE 1</b> |  |   |  | DRAWN BY      | CHECKED BY | CALIFORNIA | WEED        |
| SHEET NUMBER<br><b>G103</b>   |  |   |  | SHEET 9 OF 54 |            |            |             |

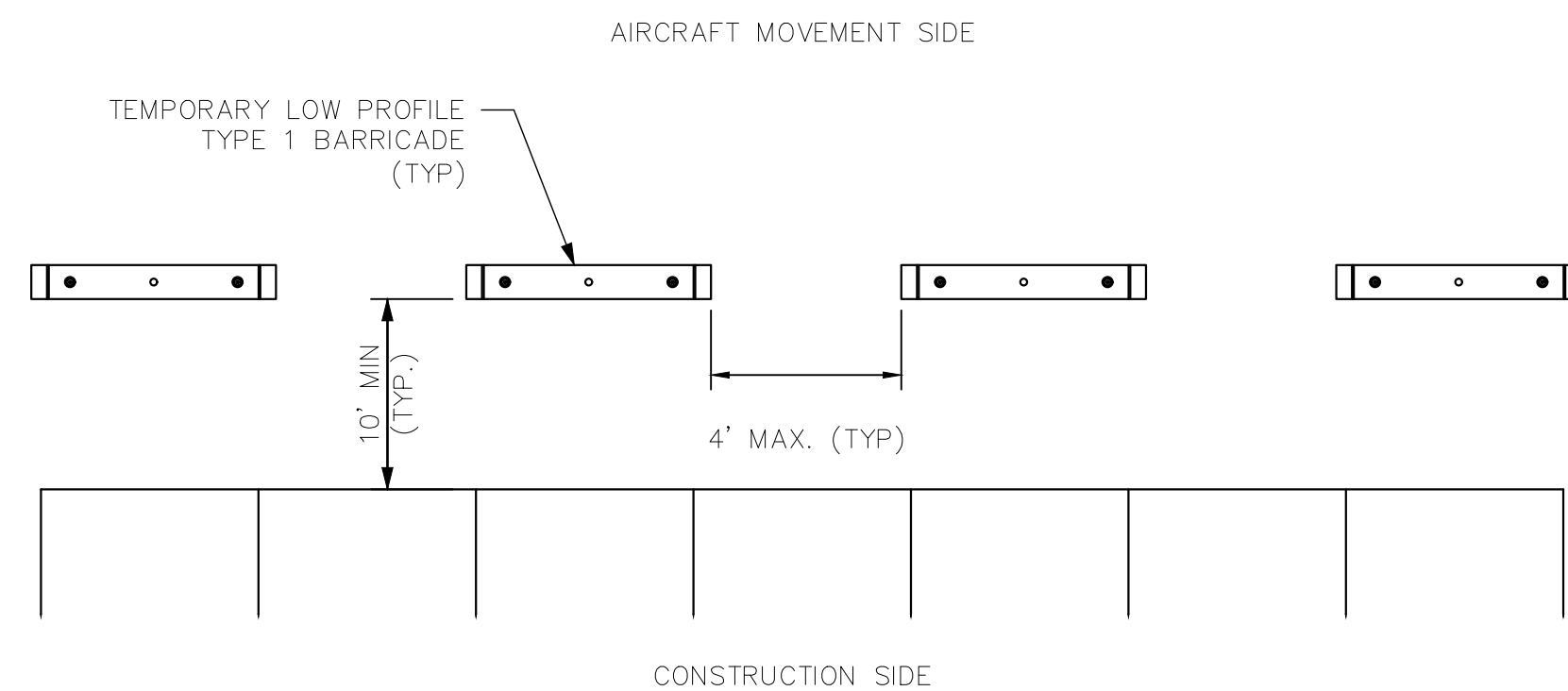


**GENERAL NOTES:**

- BARRICADES SHALL CONFORM TO FAA AC 150/5370-2G AND MEET THE FOLLOWING CRITERIA. IF A CONFLICT OCCURS BETWEEN THESE PLANS AND THE ADVISORY CIRCULAR, THE ADVISORY CIRCULAR SHALL TAKE PRECEDENCE.
- COLORS SHALL BE ORANGE AND WHITE.
- STEADY-BURNING OR FLASHING RED LIGHTS ARE TO BE BATTERY POWER OPERATED AND BE ABLE TO MANUALLY ROTATE 90°. LIGHTS TO BE OMNI-DIRECTIONAL.
- ALL LOW LEVEL BARRICADE LIGHTS ON THE PROJECT SHALL BE OF THE SAME MAKE AND MODEL TO ENSURE CONSISTENT LIGHTING INTENSITY. CONTRACTOR SHALL BE RESPONSIBLE FOR INSPECTION AND MAINTENANCE OF LIGHTS.
- BARRICADES TO BE PLACED END TO END W/OUT GAPS CONTINUOUS ACROSS TAXIWAYS TO BE CLOSED. WITH AIRPORT DIRECTION BARRICADES MAY BE PLACED PER DETAIL 2 ON THIS SHEET G201 WHEN CLOSING APRON AREAS.
- BARRICADES TO REMAIN IN-PLACE FOR DURATION OF CONSTRUCTION ACTIVITIES.
- BARRICADES SHALL BE WEIGHTED SUFFICIENTLY WITH SANDBAGS TO PREVENT MOVEMENT FROM WIND AND JET BLAST. TWO (2) SANDBAGS MUST BE PLACED INSIDE THE LIGHTS FOR VISIBILITY REASONS.
- BARRICADES SHALL BE IN GOOD CONDITION, WITH ALL COLOR STRIPING INTACT AND WITH FUNCTIONAL LIGHTS.
- CONTRACTOR SHALL PROVIDE AND MAINTAIN BARRICADES.



**1**  
G101 **LOW LEVEL BARRICADE**  
N.T.S.



**2**  
G101 **BARRICADE PLACEMENT PLAN**  
N.T.S.

**CONSTRUCTION PHASING GENERAL NOTES**

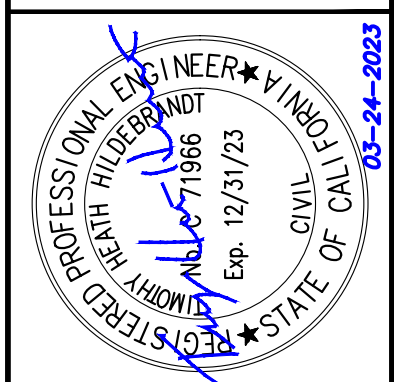
- THE CONTRACTOR SHALL COMPLETE THE PHASES IN THE GENERAL SEQUENCE AS OUTLINED IN THESE PLANS. THE CONTRACTOR SHALL SUBMIT FOR REVIEW TO THE ENGINEER AND OWNER ANY REQUESTED DEVIATIONS TO THE CONSTRUCTION PHASING AS SHOWN ON THE PLANS. ACCEPTANCE OF REQUESTED DEVIATIONS TO THE CONSTRUCTION PHASING IS AT THE OWNER'S SOLE DISCRETION, AND SUCH CHANGES SHALL BE AT NO ADDITIONAL COST TO THE OWNERS.
- THE AIRPORT RESERVES THE RIGHT TO CHANGE THE LIMITS AND SEQUENCE OF ANY CONSTRUCTION PHASE DURING THE PROJECT FOR AIRPORT OPERATIONAL PURPOSES. THE CONTRACTOR SHALL COOPERATE AND FULLY COMPLY WITH ANY AIRPORT PHASING MODIFICATIONS.
- THE CONTRACTOR SHALL DEVELOP AND SUBMIT A CONSTRUCTION OPERATIONAL SAFETY PLAN TO THE OWNER AND ENGINEER FOR APPROVAL PRIOR TO COMMENCING WORK. THIS SAFETY PLAN SHALL INCORPORATE THE REQUIREMENTS AND CRITERIA AS IDENTIFIED IN THE CONTRACT DOCUMENTS AND SHALL COMPLY WITH THE REQUIREMENTS OF AC 150/5370-2G.
- ALL AOA PAVEMENT SURFACES SHALL BE OPEN FOR AIRCRAFT OPERATIONS AT ALL TIMES OTHER THAN THE DESIGNATED CLOSURES.
- ALL CONSTRUCTION TRAFFIC SHALL YIELD TO AIRCRAFT AT ALL TIMES. THE CONTRACTOR SHALL NOT MOVE EQUIPMENT ONTO THE ACTIVE AOA WITHOUT AIRPORT APPROVAL. DELAYS RESULTING FROM AIRCRAFT MOVEMENTS SHOULD BE EXPECTED, EXPENSES OR COSTS RESULTING FROM SUCH DELAYS ARE INCIDENTAL TO THE PROJECT. ADJUSTMENTS FOR ADDITIONAL COMPENSATION AND TIME WILL NOT BE MADE FOR TIME LOST IN WORK AREAS CONTIGUOUS TO TAXIWAYS AND RUNWAYS DUE TO AIRCRAFT TRAFFIC.
- THE CONTRACTOR SHALL NOT CROSS AN ACTIVE RUNWAY OR TAXIWAY AND SHALL NOT ENCRUCH INTO AN ACTIVE RSA OR TSA AT ANY TIME, UNLESS UNDER ESCORT AS DEFINED IN THE SPECIFICATIONS. VIOLATION COULD RESULT IN PERMANENT EJECTION FROM THE AIRPORT PROPERTY AND/OR AN ASSESSMENT OF FINES.
- THE CONTRACTOR SHALL COORDINATE WITH THE AIRPORT OWNER PER THE FOLLOWING LIST:
  - PRIOR TO THE START OF DAILY OR NIGHT TIME CONSTRUCTION ACTIVITIES - A MINIMUM OF 1-HOUR PRIOR TO THE CLOSURE TIME.
  - FOR ALL ACTIVE RUNWAY AND TAXIWAY CLOSURES - A MINIMUM OF 72-HOURS PRIOR TO THE REQUESTED CLOSURE TIME
  - FOR ALL WORK REQUIRING ISSUANCE OF A 'NOTAM' - A MINIMUM 72-HOURS NOTAM START TIME.
- LOW LEVEL BARRICADES, AS SHOWN ON THE PLANS, SHALL BE USED IN THE DELINEATION OF THE CONSTRUCTION AREAS OR CLOSED AIRFIELD PAVEMENT WITHIN THE AOA.
- THE CONTRACTOR SHALL PROVIDE AND MAINTAIN BARRICADES FOR ALL RUNWAY/TAXIWAY CLOSURES AS INDICATED ON THE PHASING PLANS AND DETAILS. UPON COMPLETION OF EACH PHASE, THE CONTRACTOR SHALL REMOVE THE ASSOCIATED BARRICADES.
- ALL AIRPORT PROPERTY, INCLUDING REFLECTORS AND NAVAID EQUIPMENT, SHALL BE PROTECTED AND REMAIN IN PLACE UNLESS OTHERWISE NOTED ON THE PLANS. DAMAGE TO SIGNS, REFLECTORS, NAVAIDS OR OTHER AIRPORT PROPERTY AS A RESULT OF CONTRACTOR'S ACTIVITIES SHALL BE REPAIRED AT THE CONTRACTOR'S SOLE EXPENSE AND TO THE SATISFACTION OF THE ENGINEER.
- THE CONTRACTOR SHALL MAINTAIN ALL PAVEMENTS AND HAUL ROUTES IN A CLEAN AND SUITABLE CONDITION FOR AIRCRAFT MOVEMENT. THE CONTRACTOR SHALL HAVE AN OPERATIONAL VACUUM SWEEPER PRIOR TO REOPENING ANY ADJACENT PAVEMENTS TO THE CONSTRUCTION AREA TO REMOVE ANY FOREIGN OBJECT DEBRIS, (FOD).
- THE ROUTES AND AOA ACCESS LOCATIONS MAY NEED TO CHANGE DUE TO OPERATIONAL NEEDS, THE CONTRACTOR SHALL ADJUST AS REQUIRED OR REQUESTED BY AIRPORT. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO COORDINATE OFF SITE HAUL ROUTES WITH THE JURISDICTIONAL AGENCY AND OBTAIN ANY REQUIRED PERMITS.
- THE CONTRACTOR SHALL COMPLY WITH ALL CITY, COUNTY AND STATE TRAFFIC REGULATIONS CONCERNING THE USE OF STREETS AND ROADWAYS FOR HAULING. THE CONTRACTOR SHALL MAKE EVERY ATTEMPT POSSIBLE TO LIMIT ANY DAMAGE TO THE ROADWAYS DUE TO THE CONTRACTOR EQUIPMENT OR HAULING OPERATIONS.
- THE CONTRACTOR SHALL MAINTAIN 2-WAY TRAFFIC ON ALL EXISTING PUBLIC AND PERIMETER ROADS AT ALL TIMES DURING THE CONSTRUCTION. PUBLIC ROADS USED AS CONTRACTOR ROUTES WILL BE USED BY OTHER VEHICLES. THE CONTRACTOR SHALL NOT INTERFERE WITH OR IMPEDE VEHICLE TRAFFIC AND SHALL YIELD TO EMERGENCY VEHICLES AND VEHICLES ALONG ALL PUBLIC ROADS.
- THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF THE CONTRACTOR'S ACTIVITIES TO THE AIR SIDE HAUL ROUTES AND/OR AIRFIELD PAVEMENT AND EXISTING IMPROVEMENTS ADJACENT TO THE CONSTRUCTION LIMITS. REPAIRS OR ANY REQUIRED REPLACEMENTS SHALL BE CARRIED OUT PRIOR TO SUBSTANTIAL COMPLETION OF THIS PROJECT AND/OR DURING THE PROJECT WHEN DEEMED NECESSARY BY THE AIRPORT, TO THE SATISFACTION OF THE ENGINEER AND AT THE SOLE EXPENSE OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL CONSTRUCTION TRAFFIC WITHIN THE SPECIFIED HAUL ROUTES AS SHOWN ON THE CONSTRUCTION PHASING PLAN OR AS DIRECTED BY THE ENGINEER.
- THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE REQUIRED DURING THE CONSTRUCTION PERIOD OF THE TWO (2) 'X' RUNWAY CLOSURE SIGNALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND SUBSEQUENT REMOVAL OF THE 'X' RUNWAY CLOSURE SIGNALS FOR ALL RUNWAY 14-32 CLOSURES. PLACEMENT AND REMOVAL OF THE 'X'S FOR THE RUNWAY CLOSURES SHALL BE COORDINATED WITH THE AIRPORT AND SHALL BE IN ACCORDANCE WITH THE CONSTRUCTION PHASING PLAN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION OF ANY TEMPORARY DRAINAGE SYSTEMS WITHIN EACH PHASE WORK LIMITS AS NECESSARY TO MAINTAIN THE EXISTING DRAINAGE PATTERNS. ANY SUCH TEMPORARY MEASURES SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION AND SHALL NOT IMPACT AOA OPERATIONS.
- AT THE PRE-CONSTRUCTION MEETING THE CONTRACTOR SHALL SUBMIT A DETAILED CONSTRUCTION SCHEDULE FOR REVIEW AND APPROVAL BY THE ENGINEER. THE CONTRACTOR SHALL REVIEW THIS SCHEDULE ON A WEEKLY BASIS DURING THE PROJECT IF THE ENGINEER DEEMS THE PROGRESS OF THE WORK NOT TO BE IN ACCORDANCE WITH THE APPROVED SCHEDULE.
- CONSTRUCTION PERSONNEL, EQUIPMENT AND MATERIALS SHALL NOT PENETRATE THE RUNWAY OFZ AS DEFINED IN AC 150/5300-13B FOR AN OPERATIONAL RUNWAY. THE CONTRACTOR SHALL COMPLY WITH ANY HEIGHT LIMITS SHOWN ON THE PLANS OR IDENTIFIED IN FAA PART 77.
- ALL CONTRACTOR VEHICLES, INCLUDING HAULING VEHICLES, CONSTRUCTION EQUIPMENT (ROLLERS, BACK HOES, SCRAPERS, ETC.) THAT ARE AUTHORIZED TO OPERATE ON THE AIRPORT WITHIN THE DESIGNATED LIMITS OF CONSTRUCTION OR HAUL ROUTES AS DEFINED HEREIN, SHALL DISPLAY A 3'X3' OR LARGER ORANGE AND WHITE CHECKERBOARD FLAG IN FULL VIEW ABOVE THE VEHICLE, EACH CHECKERBOARD COLOR SHALL BE ONE-FOOT (1') SQUARE. OPERATIONS DURING PERIODS OF DARKNESS OR LIMITED VISIBILITY SHALL REQUIRE THE CONTRACTOR'S VEHICLES TO BE EQUIPPED WITH ROTATING FLASHING AMBER LIGHTS. DURING SUCH PERIODS, HAULING VEHICLES NOT EQUIPPED WITH ROTATING OR FLASHING LIGHTS SHALL BE ESCORTED BY A VEHICLE SO EQUIPPED.
- ANY WORK WITHIN THE RUNWAY SAFETY AREA (RSA) AND RUNWAY OBSTACLE FREE ZONE (ROFZ) REQUIRES A TEMPORARY CLOSURE OF THE RUNWAY. ANY WORK WITHIN THE TAXIWAY SAFETY AREA (TSA) REQUIRES A TEMPORARY CLOSURE OF THE RUNWAY. THE CONTRACTOR SHALL SUBMIT WRITTEN NOTICE IN THE FORM OF A WEEKLY SCHEDULE OF CLOSURES, 72-HOURS PRIOR TO THE ANTICIPATED START OF WORK, WITHIN THE AOA.
- PRIOR TO RE-OPENING A TEMPORARILY CLOSED RUNWAY, THE RUNWAY OFZ AND RSA MUST BE RETURNED TO THE FAA STANDARDS CRITERIA OUTLINED IN ADVISORY CIRCULAR 150/5370-2G. THE CRITERIA PROHIBITS LEAVING ANY OPEN EXCAVATIONS, ANY PAVEMENT EDGE DROP OFF GREATER THAN THREE (3) INCHES, AND ANY GRADES STEEPER THAN FIVE (5) PERCENT WITHIN TWO-HUNDRED (200) FEET OF THE RUNWAY CENTERLINE. THE CONTRACTOR SHALL CARRY OUT AND SCHEDULE THE WORK ACCORDINGLY.
- PRIOR TO RE-OPENING A TEMPORARY CLOSED RUNWAY OR TAXIWAY, THE PAVEMENT MUST BE THOROUGHLY CLEANED OF ALL FOD. THE CONTRACTOR SHALL ARRANGE TO HAVE THE ENGINEER AND THE AIRPORT INSPECT THE SITE TO CONFIRM THAT THE PAVEMENT IS BEING LEFT IN A SATISFACTORY AND CLEAN CONDITION. THE CONTRACTOR SHALL ALLOW SUFFICIENT TIME TO MAKE ANY CORRECTIONS TO PAVEMENT FOUND TO BE DEFICIENT BEFORE OPENING THE PAVEMENT TO AIRCRAFT MOVEMENT. ANY PAVEMENT THAT DOES NOT PASS THE ENGINEER'S AND THE AIRPORT'S INSPECTION SHALL REMAIN CLOSED UNTIL CORRECTIVE MEASURES ARE COMPLETED BY THE CONTRACTOR AND APPROVED BY THE AIRPORT. THE CONTRACTOR SHALL BE SUBJECT TO DAMAGES PER THE SPECIFICATIONS FOR LATE RE-OPENING OF PAVEMENTS TO AIR TRAFFIC.
- EXISTING PAVEMENT MARKINGS THAT HAVE BEEN OBLITERATED, DISTURBED OR REMOVED DURING THE CONSTRUCTION PROCESS, MUST BE REINSTATED TO PREVIOUSLY EXISTING CONDITION PRIOR TO OPENING PAVEMENT TO AIRCRAFT TRAFFIC. SUFFICIENT TIME BETWEEN PAVEMENT MARKING APPLICATION AND THE OPENING TO AIRCRAFT TRAFFIC SHALL BE PROVIDED FOR THE MARKINGS TO THOROUGHLY DRY.
- CONSTRUCTION MATERIAL STOCKPILING SHALL NOT BE ALLOWED WITHIN THE ROFZ, RSA, OR TSA. WHEN SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER THE PLACEMENT, SPREADING, AND COMPACTION OF MILLINGS AND/OR UNCLASSIFIED EXCAVATION MATERIAL WITHIN THE DESIGNATED AREAS CAN PROCEED DURING THE DAY ONLY IN THE AREAS OUTSIDE THE AIRPORT APPROACH SURFACES, THE ROFZ, RSA, AND TSA
- PRIOR TO SUBSTANTIAL COMPLETION THE CONTRACTOR SHALL RESTORE THE STAGING AREAS TO THE CONDITION PRIOR TO MOBILIZATION AND TO THE SATISFACTION OF THE ENGINEER.
- UPON APPROVAL OF THE SUBSTANTIAL COMPLETION, THE CONTRACTOR SHALL BE PERMITTED ONE WORKING DAY OUTSIDE OF THE SPECIFIED CONTRACT TIME TO INSTALL THE FINAL COAT OF AIRPORT MARKINGS (IN ACCORDANCE WITH SPECIFICATION P-620), WITHOUT ACCRUING LIQUIDATED DAMAGES.

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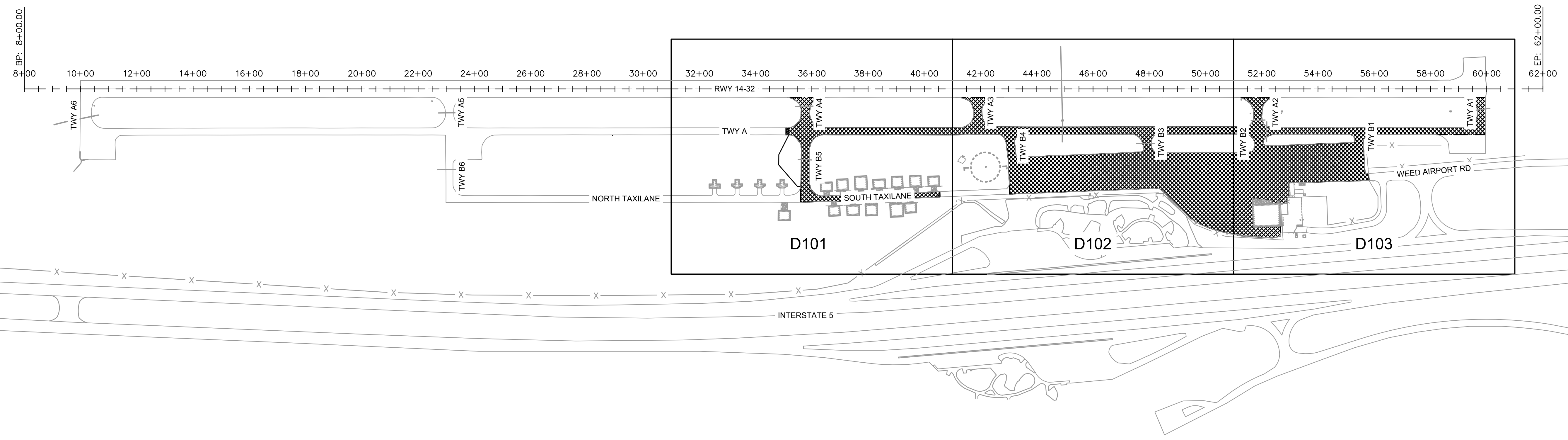
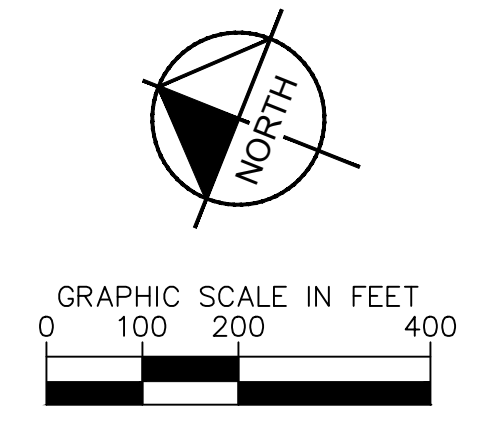
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| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
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**CONSTRUCTION PHASING DETAILS**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

MARCH 2023  
**ISSUED FOR BID**  
SHEET NUMBER  
**G200**  
SHEET 10 OF 54

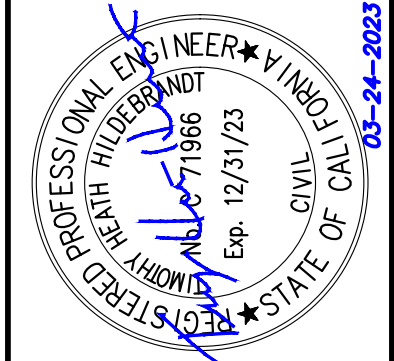
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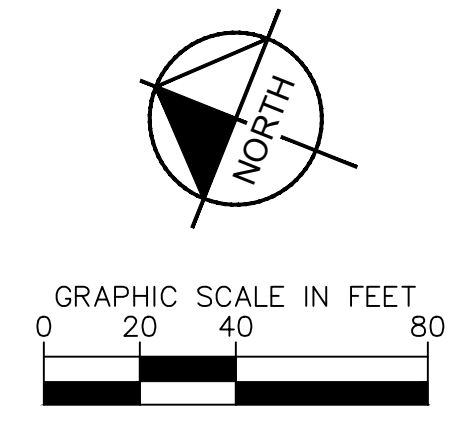
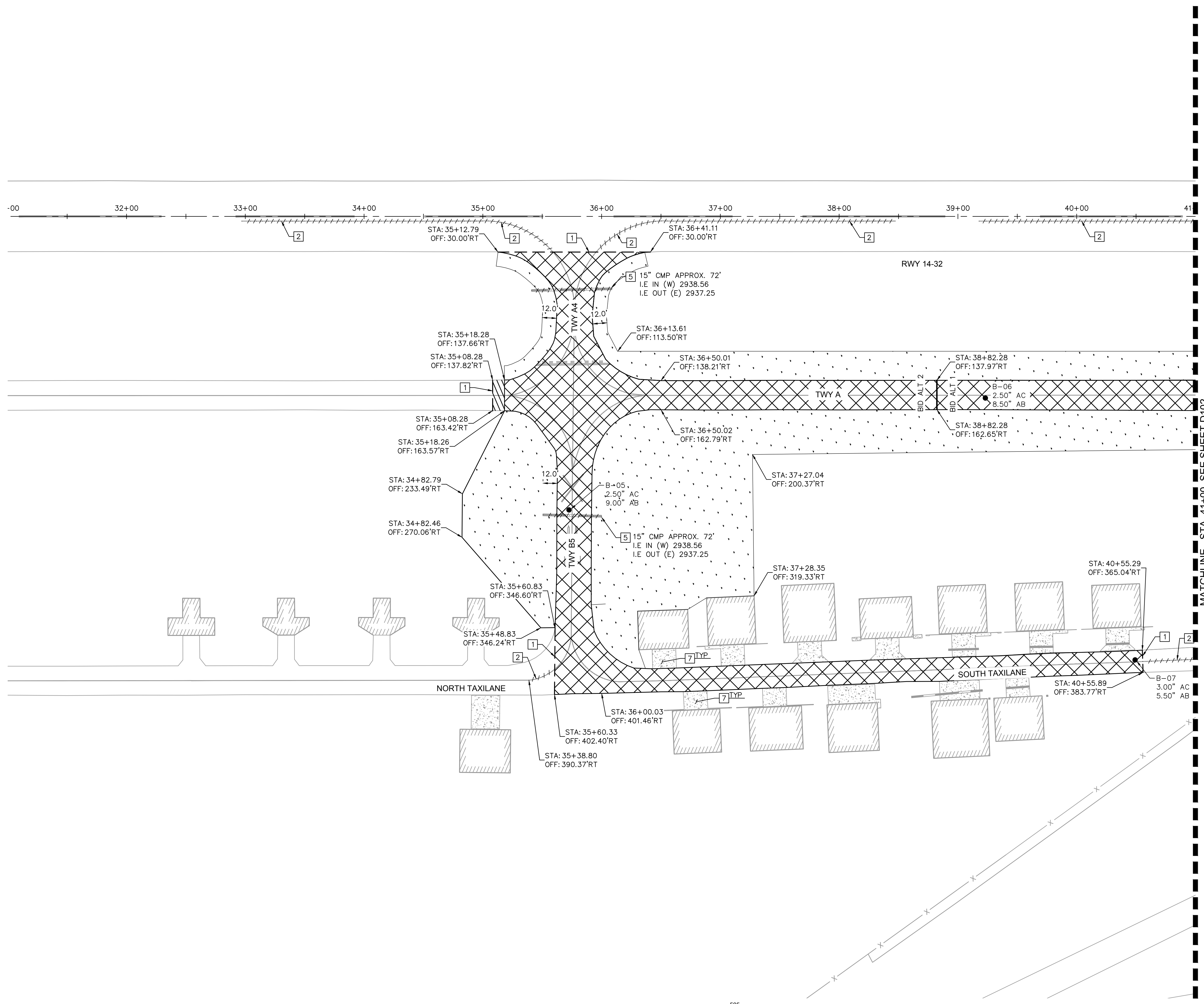
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| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**DEMOLITION PLAN  
SHEET INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**D100**  
 SHEET 11 OF 54

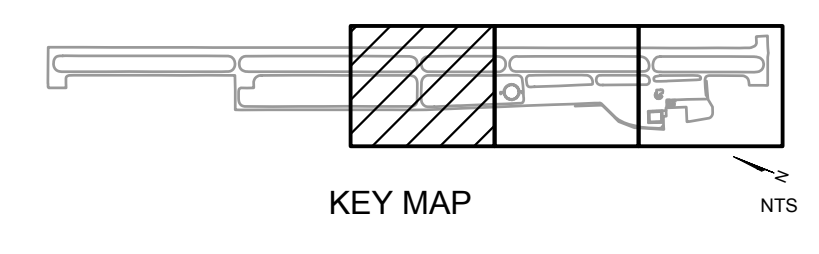
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- NOTES:**
- LIMITS OF ASPHALT DEMOLITION IS THE EDGE OF THE EXISTING AC PAVEMENT.
  - CARE SHALL BE TAKEN WHEN REMOVING PAVEMENT ADJACENT TO AC PAVEMENT THAT IS TO REMAIN. ANY AC PAVEMENT DAMAGED DURING AC DEMOLITION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
  - CONTRACTOR SHALL MAINTAIN A SECURE AOA FENCE AT ALL TIMES.
  - SEE E100 SERIES FOR ELECTRICAL DEMOLITION.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT, UNLESS OTHERWISE LABELED.

- LEGEND:**
- PULVERIZE EXISTING AC PAVEMENT AND AGGREGATE BASE (10" DEPTH) REFER TO SHEET D200 FOR EXISTING PAVEMENT SECTION
  - MILL EXISTING AC PAVEMENT (3" DEPTH) AND RECOMPACT BASE FOR TRANSITION AC PAVEMENT
  - EXISTING PORTLAND CEMENT CONCRETE PAVEMENT TO REMAIN
  - CLEAR AND GRUB
  - PAVEMENT CORE THICKNESS RESULTS
  - REMOVE EXISTING PAVEMENT MARKING OR UTILITY
  - SAWCUT ASPHALT PAVEMENT

- DEMOLITION NOTES**
- SAWCUT ASPHALT PAVEMENT
  - REMOVE EXISTING PAVEMENT MARKING
  - REMOVE EXISTING CMP CULVERT
  - EXISTING PCC, PROTECT IN PLACE



MATCHLINE - STA. 41+00. SEE SHEET D102

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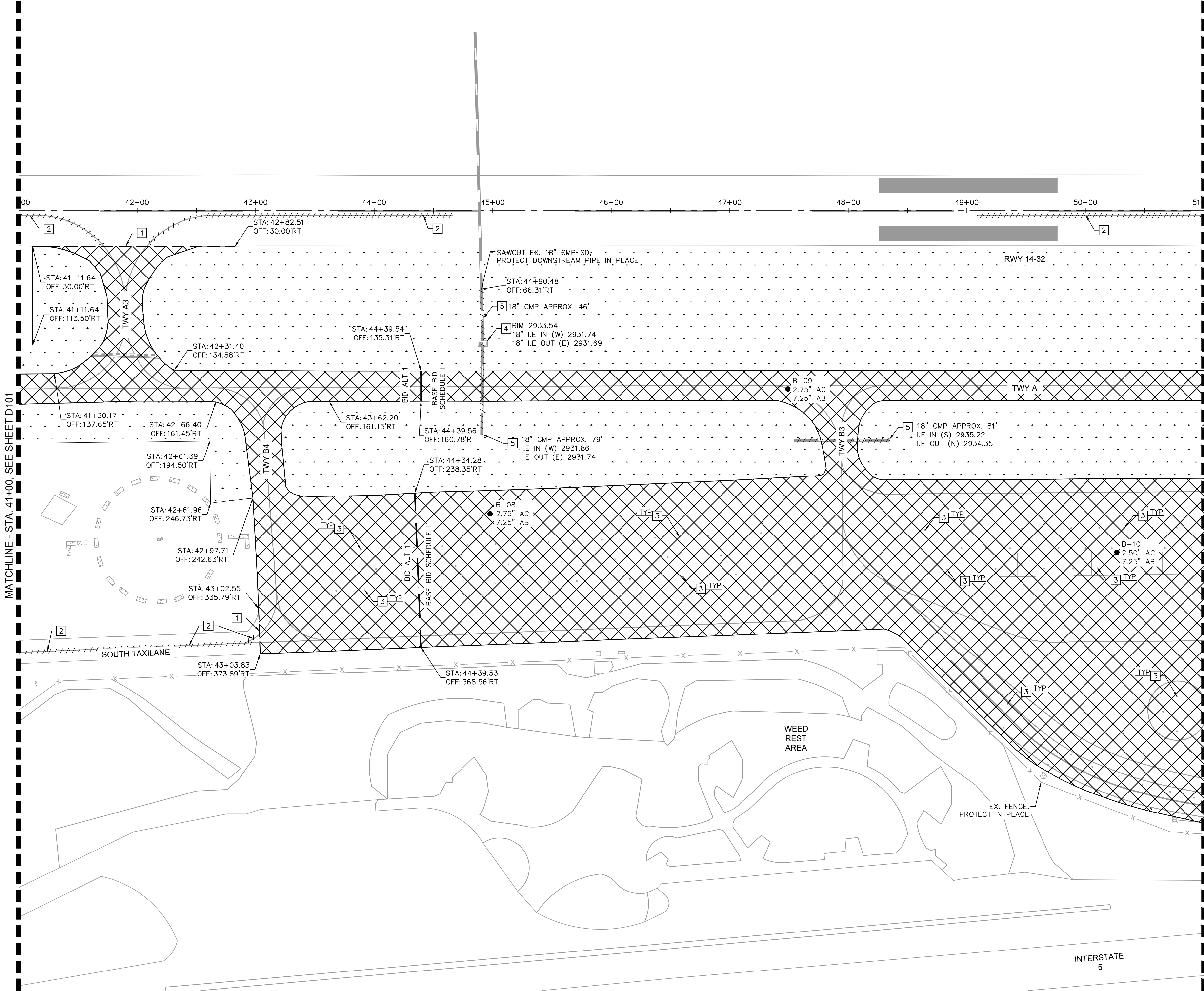
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**DEMOLITION PLAN**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA

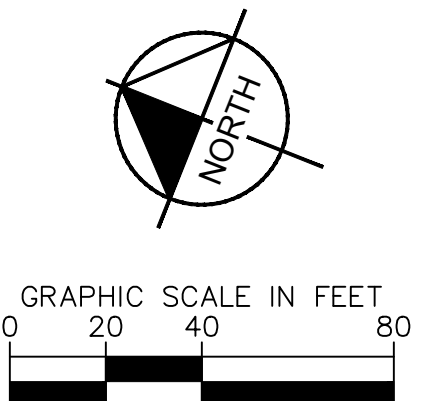
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SHEET 12 OF 54

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MATCHLINE - STA. 41+00. SEE SHEET D101

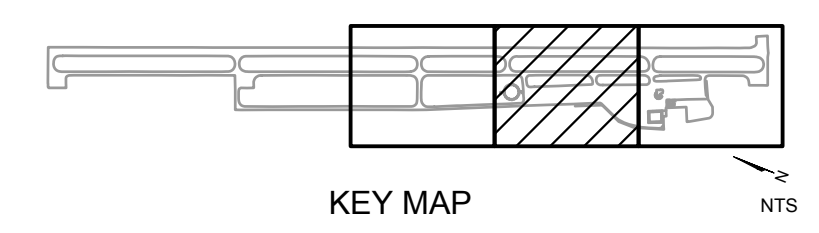
MATCHLINE - STA. 51+00. SEE SHEET D103



- NOTES:**
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  - CONTRACTOR SHALL MAINTAIN A SECURE AOA FENCE AT ALL TIMES.
  - SEE E100 SERIES FOR ELECTRICAL DEMOLITION.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT, UNLESS OTHERWISE LABELED.

- LEGEND:**
- PULVERIZE EXISTING AC PAVEMENT AND AGGREGATE BASE (10" DEPTH) REFER TO SHEET D200 FOR EXISTING PAVEMENT SECTION
  - MILL EXISTING AC PAVEMENT (3" DEPTH) AND RECOMPACT BASE FOR TRANSITION AC PAVEMENT
  - EXISTING PORTLAND CEMENT CONCRETE PAVEMENT TO REMAIN
  - CLEAR AND GRUB
  - PAVEMENT CORE THICKNESS RESULTS
  - REMOVE EXISTING PAVEMENT MARKING OR UTILITY
  - SAWCUT ASPHALT PAVEMENT

- DEMOLITION NOTES**
- SAWCUT ASPHALT PAVEMENT
  - REMOVE EXISTING PAVEMENT MARKING
  - REMOVE EXISTING CONCRETE TIE-DOWN ANCHOR
  - REMOVE EXISTING CATCH BASIN
  - REMOVE EXISTING CMP CULVERT



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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

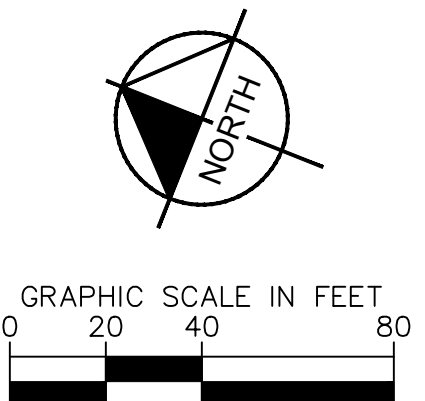
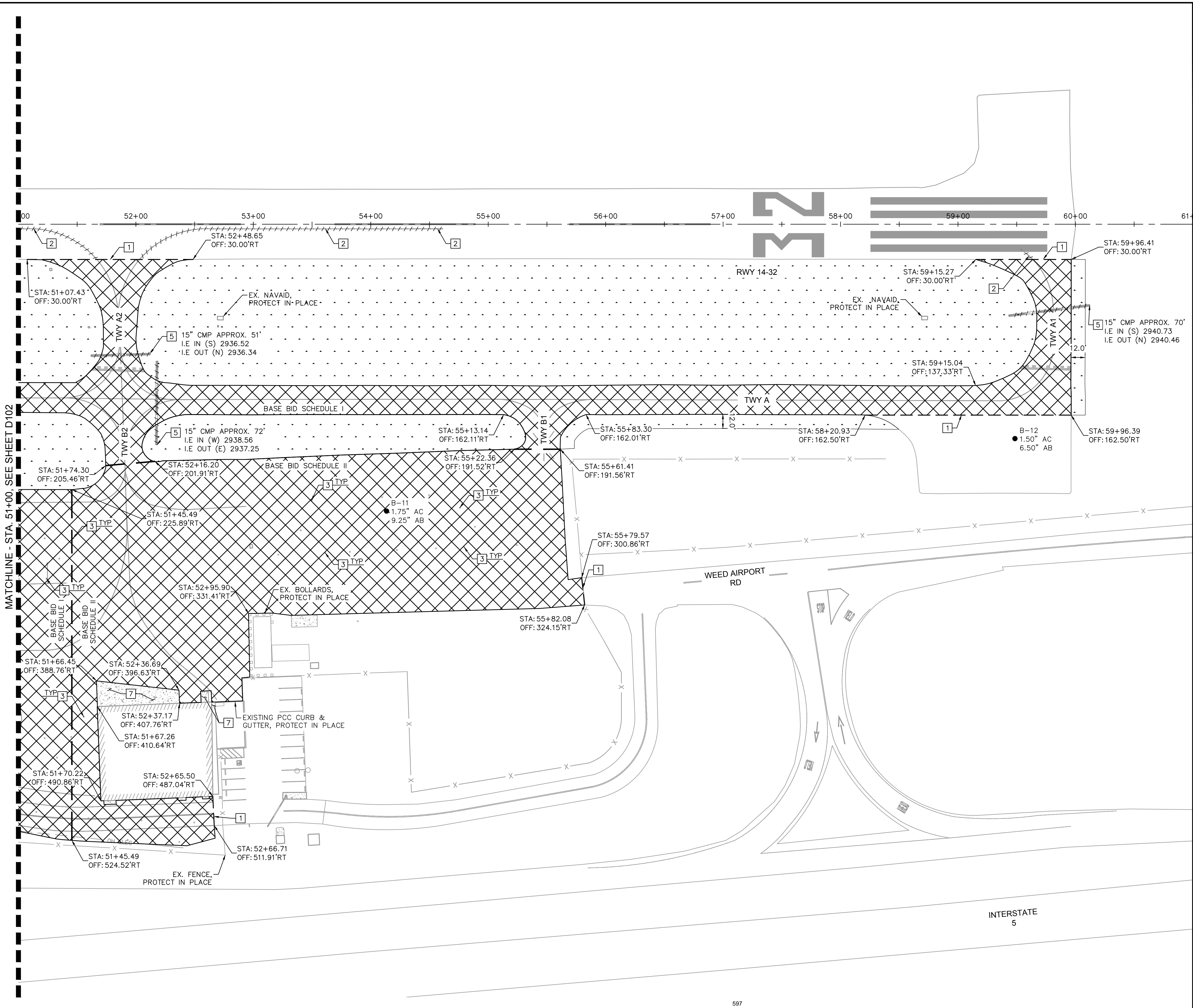
## DEMOLITION PLAN

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA

SHEET NUMBER  
**D102**  
 SHEET 13 OF 54

MARCH 2023  
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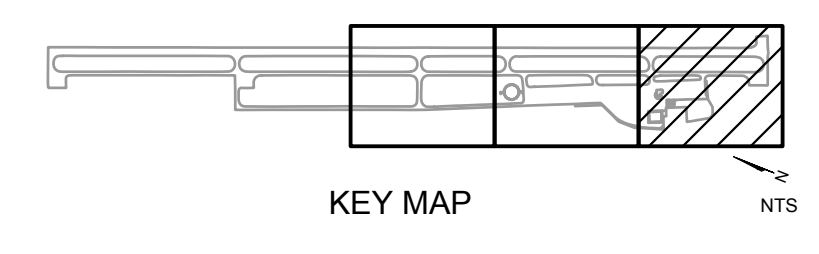
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- NOTES:**
- LIMITS OF ASPHALT DEMOLITION IS THE EDGE OF THE EXISTING AC PAVEMENT.
  - CARE SHALL BE TAKEN WHEN REMOVING PAVEMENT ADJACENT TO AC PAVEMENT THAT IS TO REMAIN. ANY AC PAVEMENT DAMAGED DURING AC DEMOLITION SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.
  - CONTRACTOR SHALL MAINTAIN A SECURE AOA FENCE AT ALL TIMES.
  - SEE E100 SERIES FOR ELECTRICAL DEMOLITION.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT, UNLESS OTHERWISE LABELED.

- LEGEND:**
- PULVERIZE EXISTING AC PAVEMENT AND AGGREGATE BASE (10" DEPTH) REFER TO SHEET D200 FOR EXISTING PAVEMENT SECTION
  - MILL EXISTING AC PAVEMENT (3" DEPTH) AND RECOMPACT BASE FOR TRANSITION AC PAVEMENT
  - EXISTING PORTLAND CEMENT CONCRETE PAVEMENT TO REMAIN
  - CLEAR AND GRUB
  - PAVEMENT CORE THICKNESS RESULTS
  - REMOVE EXISTING PAVEMENT MARKING OR UTILITY
  - SAWCUT ASPHALT PAVEMENT

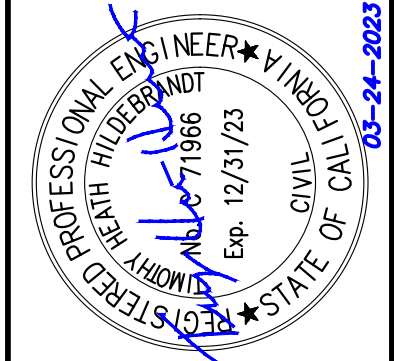
- DEMOLITION NOTES**
- SAWCUT ASPHALT PAVEMENT
  - REMOVE EXISTING PAVEMENT MARKING
  - REMOVE EXISTING CONCRETE TIE-DOWN ANCHOR
  - REMOVE EXISTING CMP CULVERT
  - EXISTING PCC, PROTECT IN PLACE



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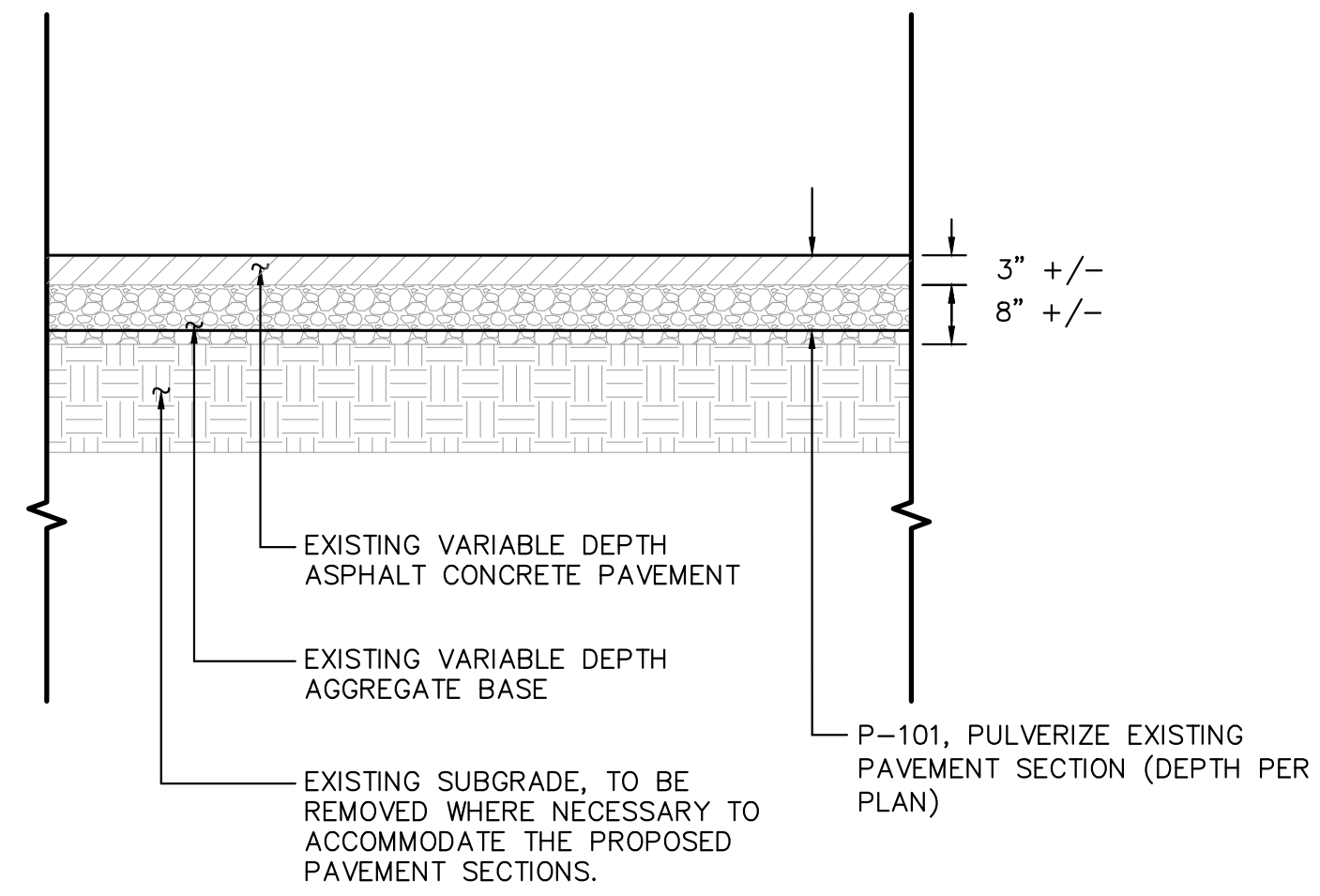
DEMOLITION PLAN

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

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**D103**  
SHEET 14 OF 54

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**EXISTING PAVEMENT SECTION**  
 N.T.S.  
 PD6  
 D101  
 D102

**GENERAL NOTES**

1. ALL EXISTING THICKNESSES SHOWN ARE FROM RECORD DRAWINGS AND/OR BORING LOGS. ACTUAL THICKNESS OF ANY EXISTING LAYER MAY BE MORE OR LESS THAN THOSE SHOWN. DEMOLITION WILL BE PAID FOR BY THE SQUARE YARD FOR PAVEMENT REMOVAL REGARDLESS OF ACTUAL THICKNESS ENCOUNTERED PER SPECIFICATION P-101. PAYMENT FOR REMOVAL OF EXISTING SUBGRADE, AND GRANULAR BASE WILL BE PER SPECIFICATION P-152.
2. ALL EXISTING CONCRETE MAY CONTAIN STEEL REINFORCEMENT AND LOAD TRANSFER DEVICES; THERE SHALL BE NO SEPARATE MEASUREMENT OR PAYMENT FOR THE REMOVAL OF THESE ITEMS AND THEY SHALL BE CONSIDERED INCIDENTAL TO THE PAVEMENT REMOVAL.
3. THE CONTRACTOR IS ADVISED THAT THERE ARE NUMEROUS EXISTING TIE-DOWN ANCHORS, GROUNDING RODS AND FENCE POSTS SLEEVES LOCATED WITHIN THE EXISTING PAVEMENT. THESE ITEMS CONSIST OF CONCRETE AND STEEL AND SOME OF THEM MAY BE BURIED AND NOT BE VISIBLE ON THE SURFACE. ALL OF THESE ITEMS SHALL BE REMOVED AS A PART OF THE PAVEMENT DEMOLITION; THERE SHALL BE NO SEPARATE MEASUREMENT OR PAYMENT FOR THE REMOVAL OF THESE ITEMS AND THEY SHALL BE CONSIDERED INCIDENTAL TO THE PAVEMENT REMOVAL.
4. ALL EXISTING ASPHALT PAVEMENT MATERIAL INDICATED FOR REMOVAL SHALL BE COLD-MILLED AND PROCESSED FOR INSTALLATION IN INFIELD AREAS, OR PLACEMENT AS A CAP IN THE SUITABLE DISPOSAL SITE AS INDICATED ON THE PLANS.
5. THE EXISTING TYPICAL SECTIONS ARE BASED ON AVAILABLE DATA AND ACTUAL CONDITIONS MAY VARY. THE EXISTING TYPICAL SECTIONS PRESENTED HEREIN ARE INTENDED TO BE USED ONLY FOR APPROXIMATE LOCATION AND COMPOSITION OF PAVEMENT SECTIONS.

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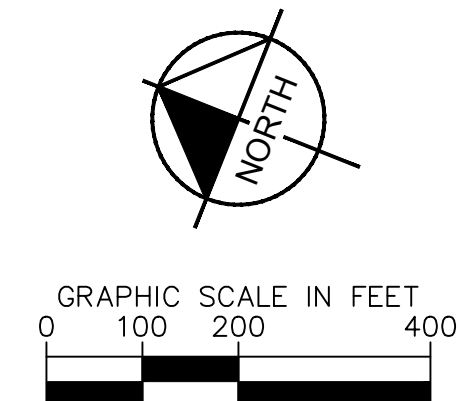
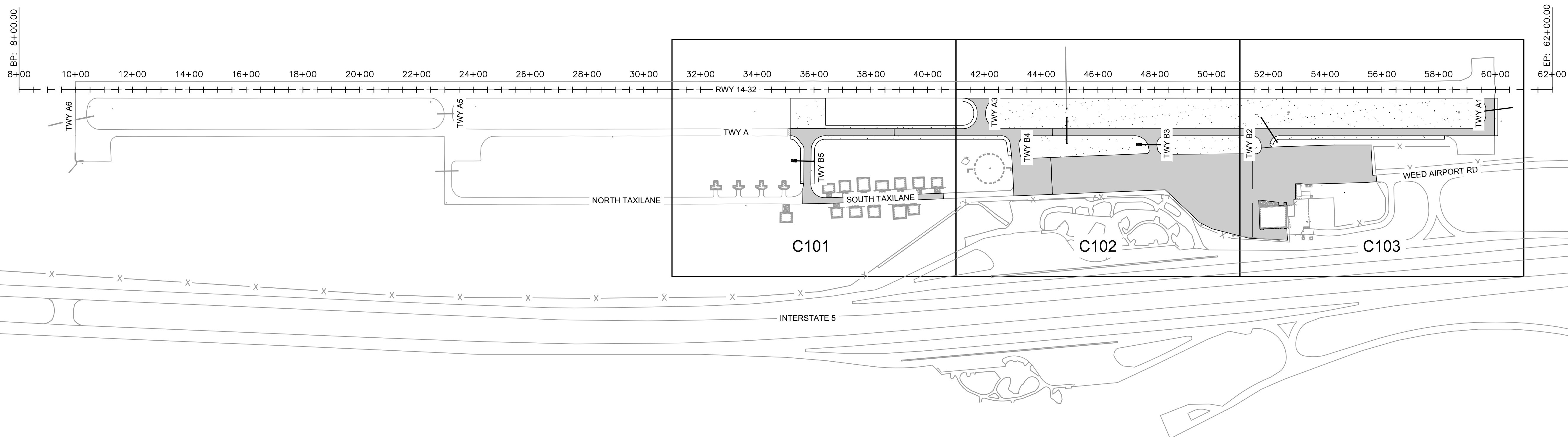
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| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**EXISTING PAVEMENT SECTION**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**D200**  
 SHEET 15 OF 54

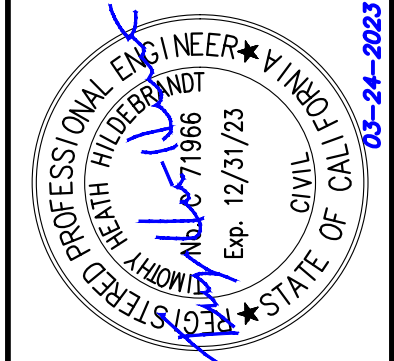
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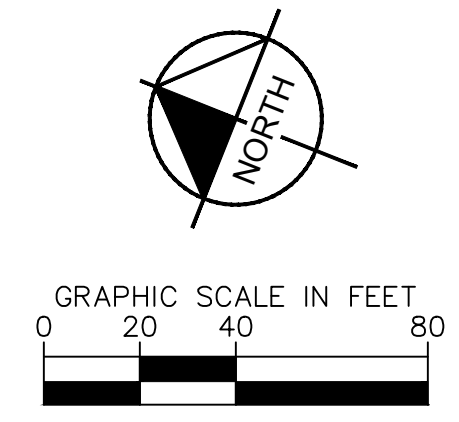
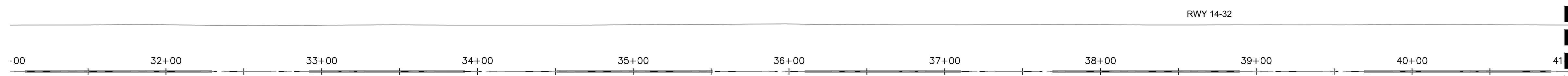
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**GEOMETRIC LAYOUT  
PLAN INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**C100**  
 SHEET 16 OF 54

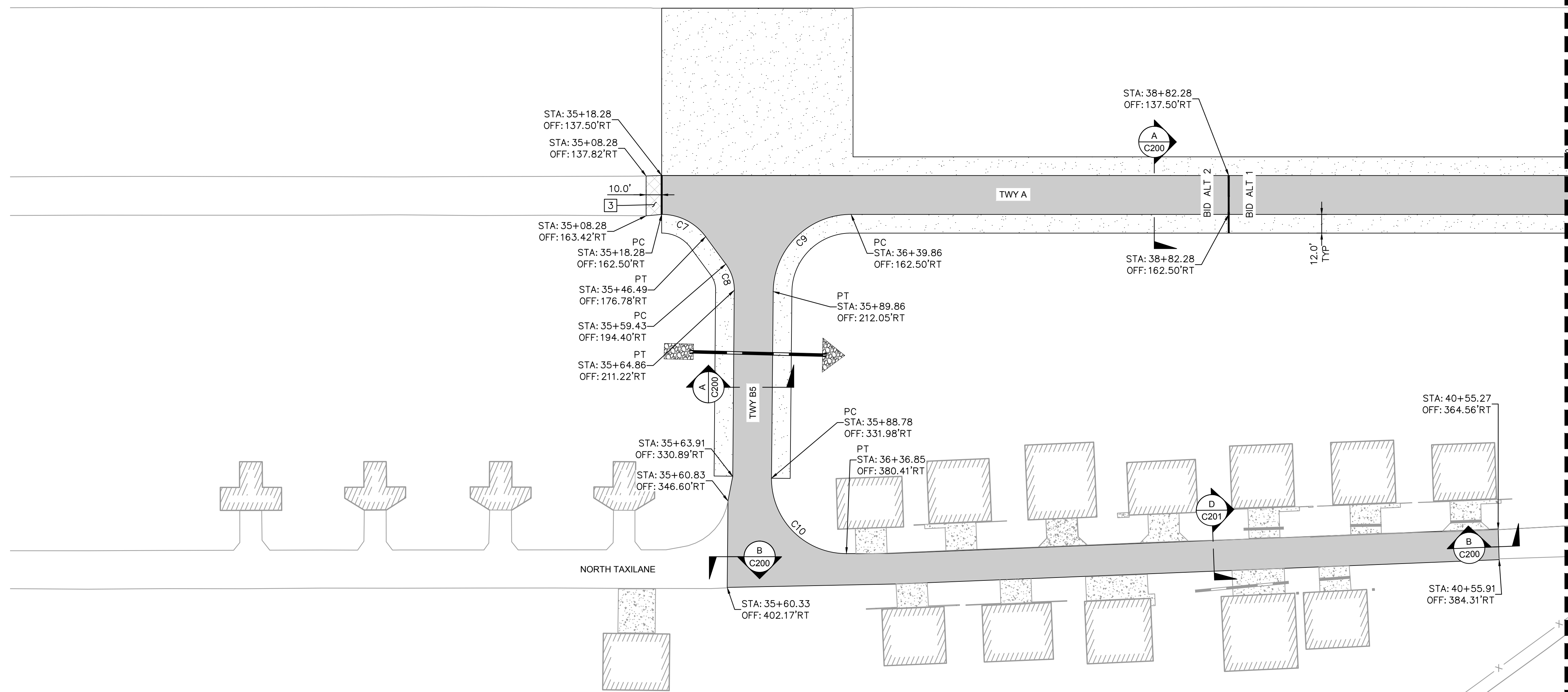
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- NOTES:**
1. MATCH EXISTING AC PAVEMENT.
  2. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT UNLESS OTHERWISE NOTED.
  3. SEE E200 SERIES FOR ELECTRICAL LAYOUT.

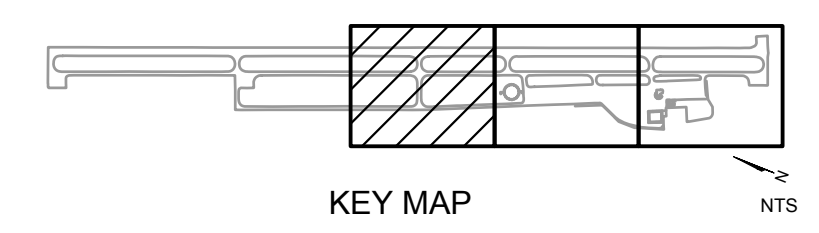
- LEGEND:**
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
  - PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
  - PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
  - TRANSITION ASPHALT PAVEMENT
  - EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
  - C10 CURVE DATA, SEE TABLE

- CONSTRUCTION NOTES**
- 2 PROPOSED DRAINAGE IMPROVEMENTS REFER TO C500 SERIES
  - 3 CONSTRUCT TRANSITION ASPHALT PAVEMENT (SEE SECTION E, SHEET C200)



MATCHLINE - STA. 41+00. SEE SHEET C102

| CURVE TABLE |        |        |               |        |           |         |
|-------------|--------|--------|---------------|--------|-----------|---------|
| CURVE       | RADIUS | LENGTH | CHORD BEARING | CHORD  | DELTA     | TANGENT |
| C7          | 35.00' | 32.80' | N5°04'57"E    | 31.62' | 53°42'00" | 17.72'  |
| C8          | 28.00' | 17.99' | S50°20'23"W   | 17.68' | 36°48'53" | 9.32'   |
| C9          | 50.00' | 78.09' | N66°30'37"W   | 70.39' | 89°29'07" | 49.55'  |
| C10         | 48.00' | 75.90' | S23°26'44"W   | 68.24' | 90°36'11" | 48.51'  |



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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**GEOMETRIC LAYOUT PLAN**

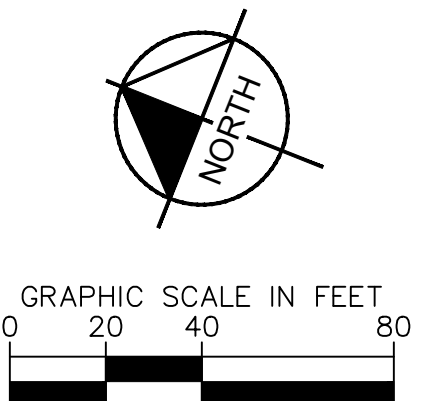
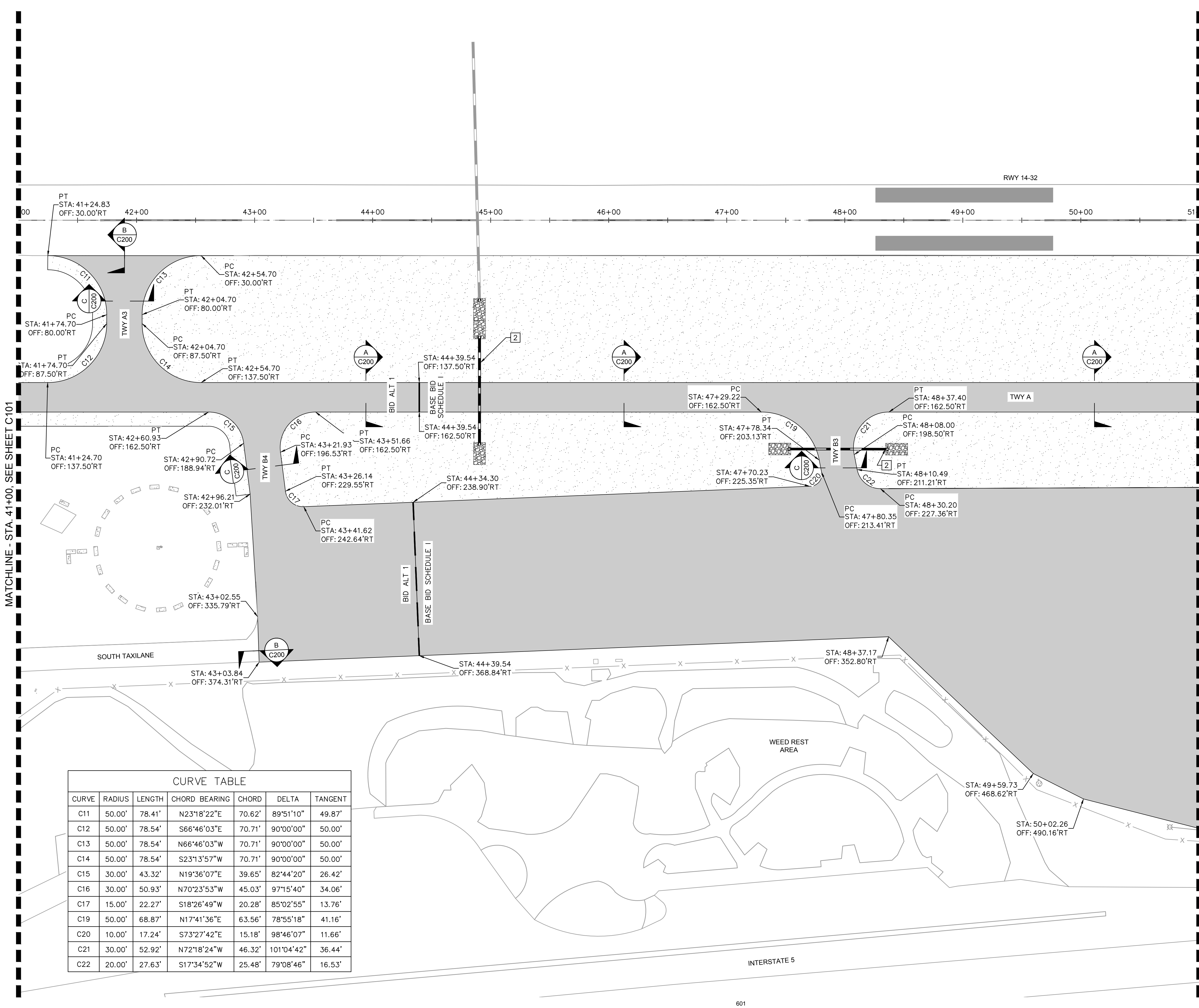
SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
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PROJECT PHASE 1  
CALIFORNIA

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**C101**  
SHEET 17 OF 54



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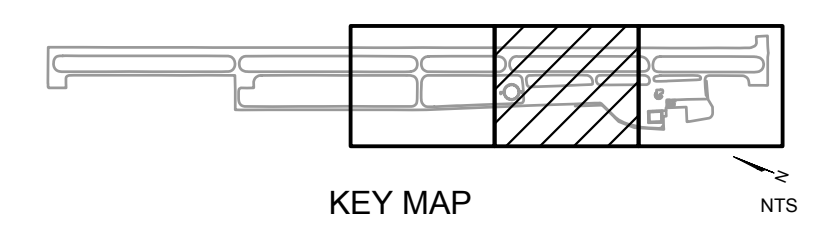


- NOTES:**
- MATCH EXISTING AC PAVEMENT.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT UNLESS OTHERWISE NOTED.
  - SEE E200 SERIES FOR ELECTRICAL LAYOUT.

- LEGEND:**
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
  - PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
  - PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
  - TRANSITION ASPHALT PAVEMENT
  - EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
  - C10 CURVE DATA, SEE TABLE

- CONSTRUCTION NOTES**
- PROPOSED DRAINAGE IMPROVEMENTS REFER TO C500 SERIES
  - CONSTRUCT TRANSITION ASPHALT PAVEMENT (SEE SECTION E, SHEET C200)

| CURVE TABLE |        |        |               |        |            |         |
|-------------|--------|--------|---------------|--------|------------|---------|
| CURVE       | RADIUS | LENGTH | CHORD BEARING | CHORD  | DELTA      | TANGENT |
| C11         | 50.00' | 78.41' | N23°18'22"E   | 70.62' | 89°51'10"  | 49.87'  |
| C12         | 50.00' | 78.54' | S66°46'03"E   | 70.71' | 90°00'00"  | 50.00'  |
| C13         | 50.00' | 78.54' | N66°46'03"W   | 70.71' | 90°00'00"  | 50.00'  |
| C14         | 50.00' | 78.54' | S23°13'57"W   | 70.71' | 90°00'00"  | 50.00'  |
| C15         | 30.00' | 43.32' | N19°36'07"E   | 39.65' | 82°44'20"  | 26.42'  |
| C16         | 30.00' | 50.93' | N70°23'53"W   | 45.03' | 97°15'40"  | 34.06'  |
| C17         | 15.00' | 22.27' | S18°26'49"W   | 20.28' | 85°02'55"  | 13.76'  |
| C19         | 50.00' | 68.87' | N17°41'36"E   | 63.56' | 78°55'18"  | 41.16'  |
| C20         | 10.00' | 17.24' | S73°27'42"E   | 15.18' | 98°46'07"  | 11.66'  |
| C21         | 30.00' | 52.92' | N72°18'24"W   | 46.32' | 101°04'42" | 36.44'  |
| C22         | 20.00' | 27.63' | S17°34'52"W   | 25.48' | 79°08'46"  | 16.53'  |

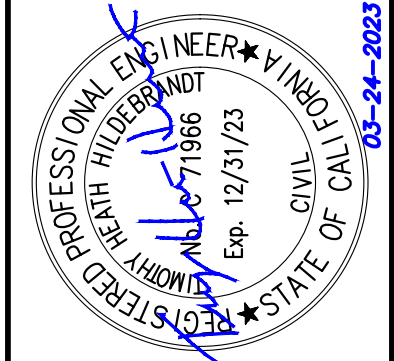


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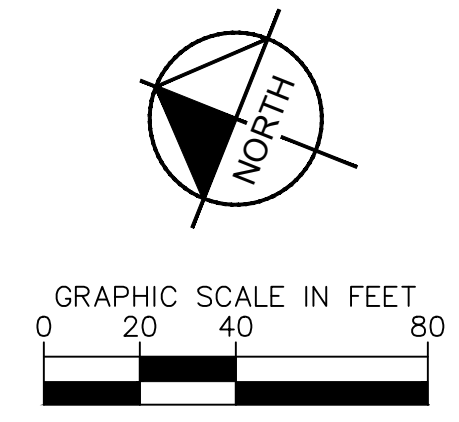
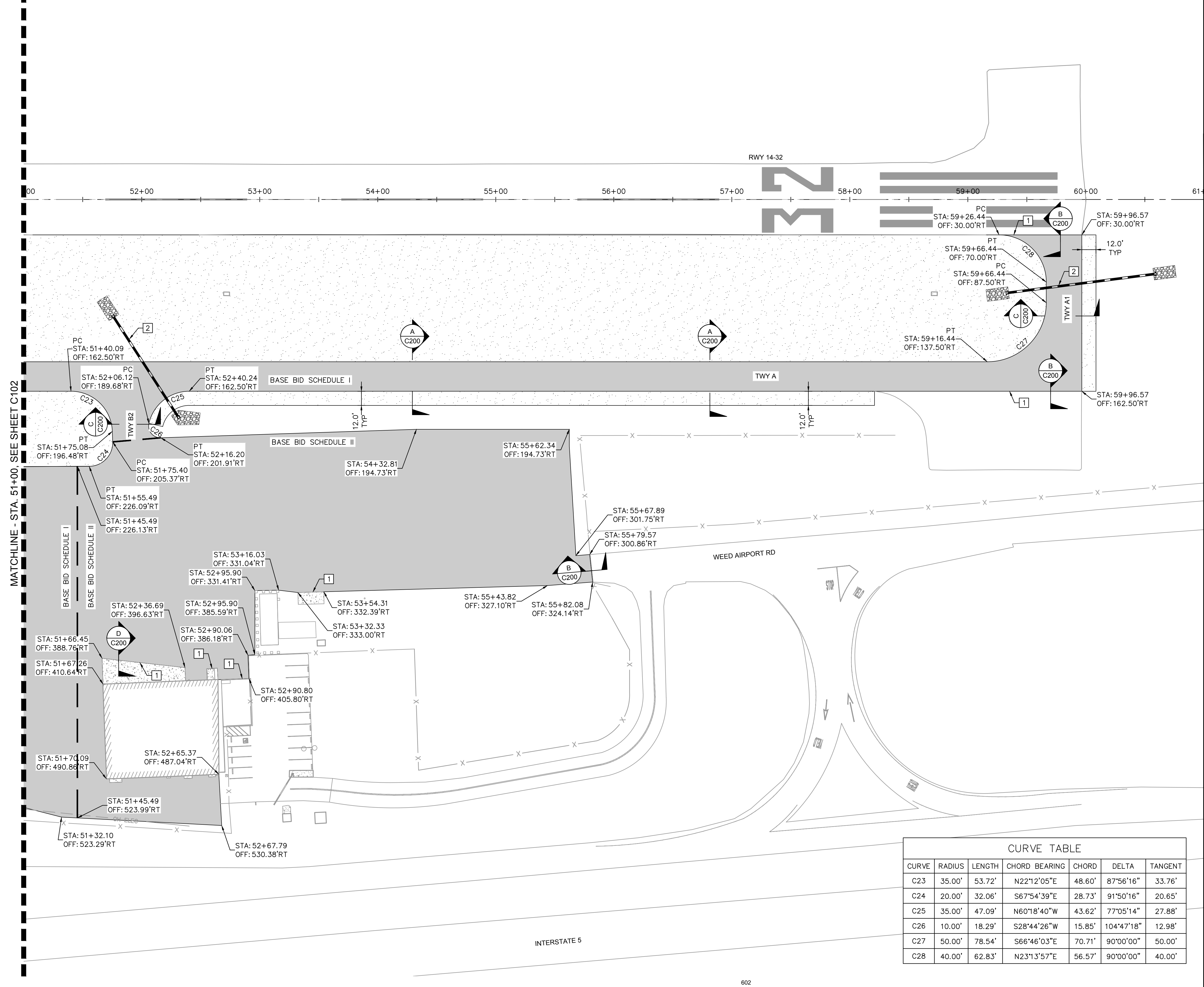
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**GEOMETRIC LAYOUT PLAN**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

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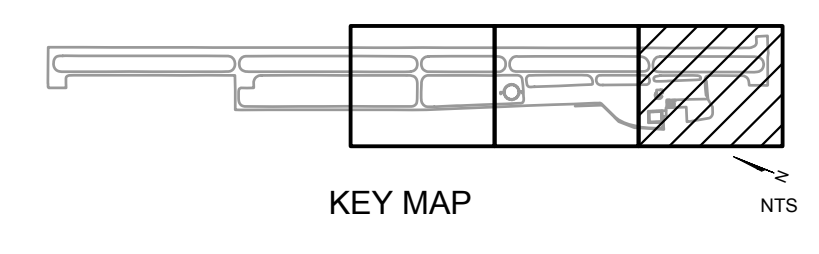


- NOTES:**
- MATCH EXISTING AC PAVEMENT.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT UNLESS OTHERWISE NOTED.
  - SEE E200 SERIES FOR ELECTRICAL LAYOUT.

- LEGEND:**
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
  - PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
  - PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
  - TRANSITION ASPHALT PAVEMENT
  - EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
- C10 CURVE DATA, SEE TABLE

- CONSTRUCTION NOTES**
- MATCH EXISTING
  - PROPOSED DRAINAGE IMPROVEMENTS REFER TO C500 SERIES
  - CONSTRUCT TRANSITION ASPHALT PAVEMENT (SEE SECTION E, SHEET C200)

| CURVE TABLE |        |        |               |        |            |         |
|-------------|--------|--------|---------------|--------|------------|---------|
| CURVE       | RADIUS | LENGTH | CHORD BEARING | CHORD  | DELTA      | TANGENT |
| C23         | 35.00' | 53.72' | N22°12'05"E   | 48.60' | 87°56'16"  | 33.76'  |
| C24         | 20.00' | 32.06' | S67°54'39"E   | 28.73' | 91°50'16"  | 20.65'  |
| C25         | 35.00' | 47.09' | N60°18'40"W   | 43.62' | 77°05'14"  | 27.88'  |
| C26         | 10.00' | 18.29' | S28°44'26"W   | 15.85' | 104°47'18" | 12.98'  |
| C27         | 50.00' | 78.54' | S66°46'03"E   | 70.71' | 90°00'00"  | 50.00'  |
| C28         | 40.00' | 62.83' | N23°13'57"E   | 56.57' | 90°00'00"  | 40.00'  |



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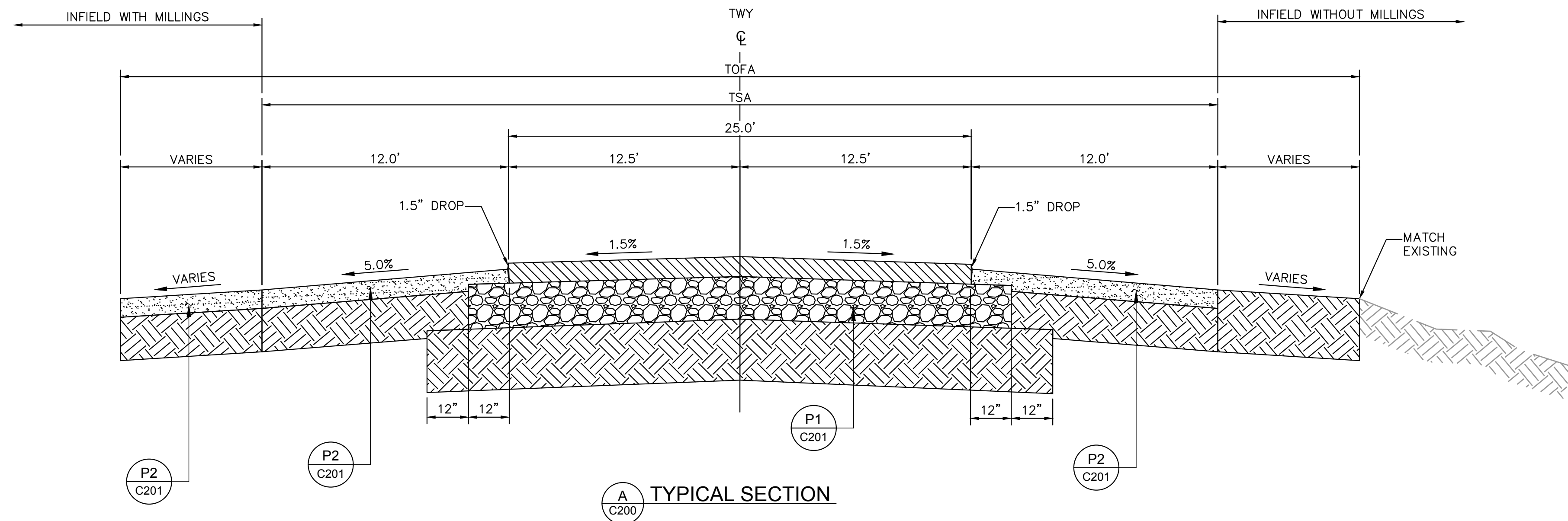
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**GEOMETRIC LAYOUT PLAN**

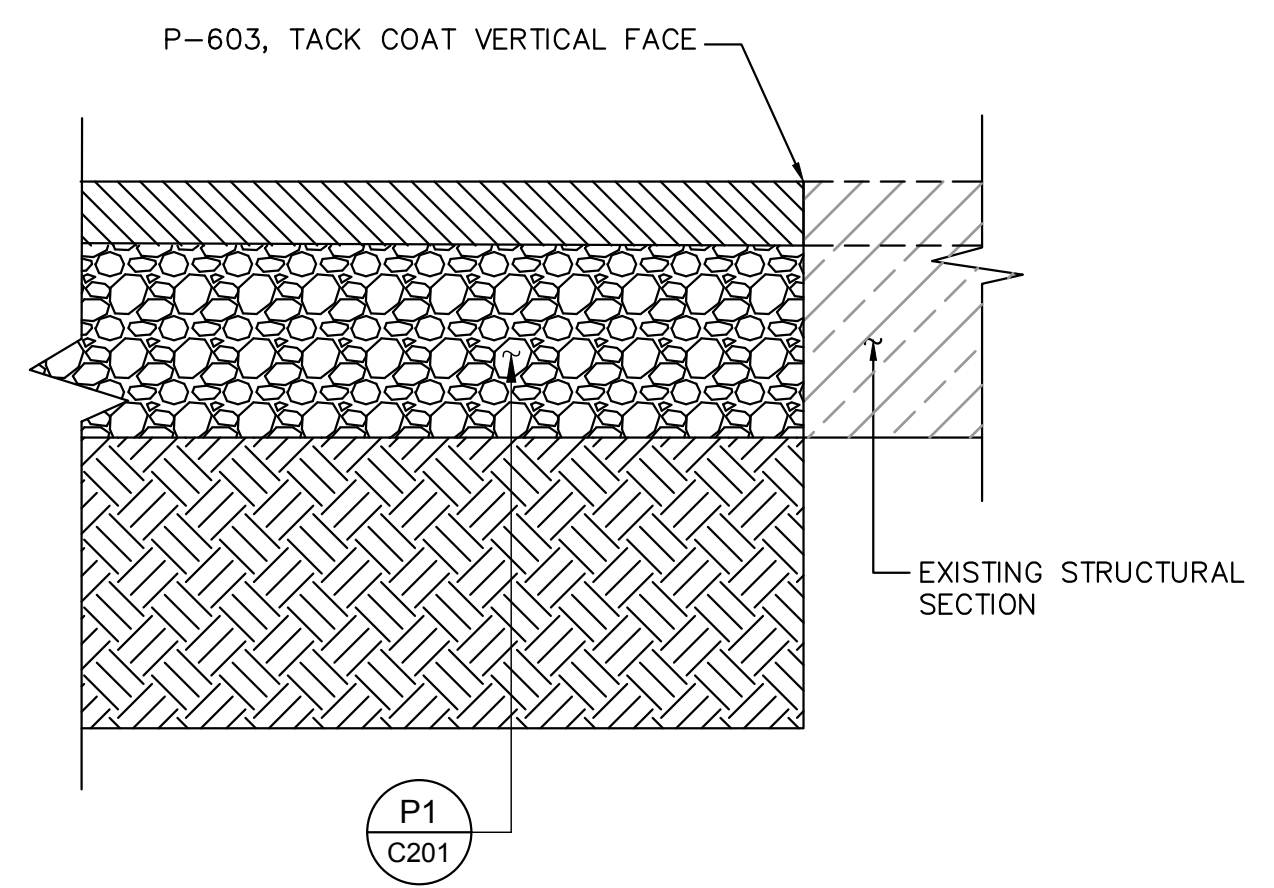
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**C103**  
SHEET 19 OF 54

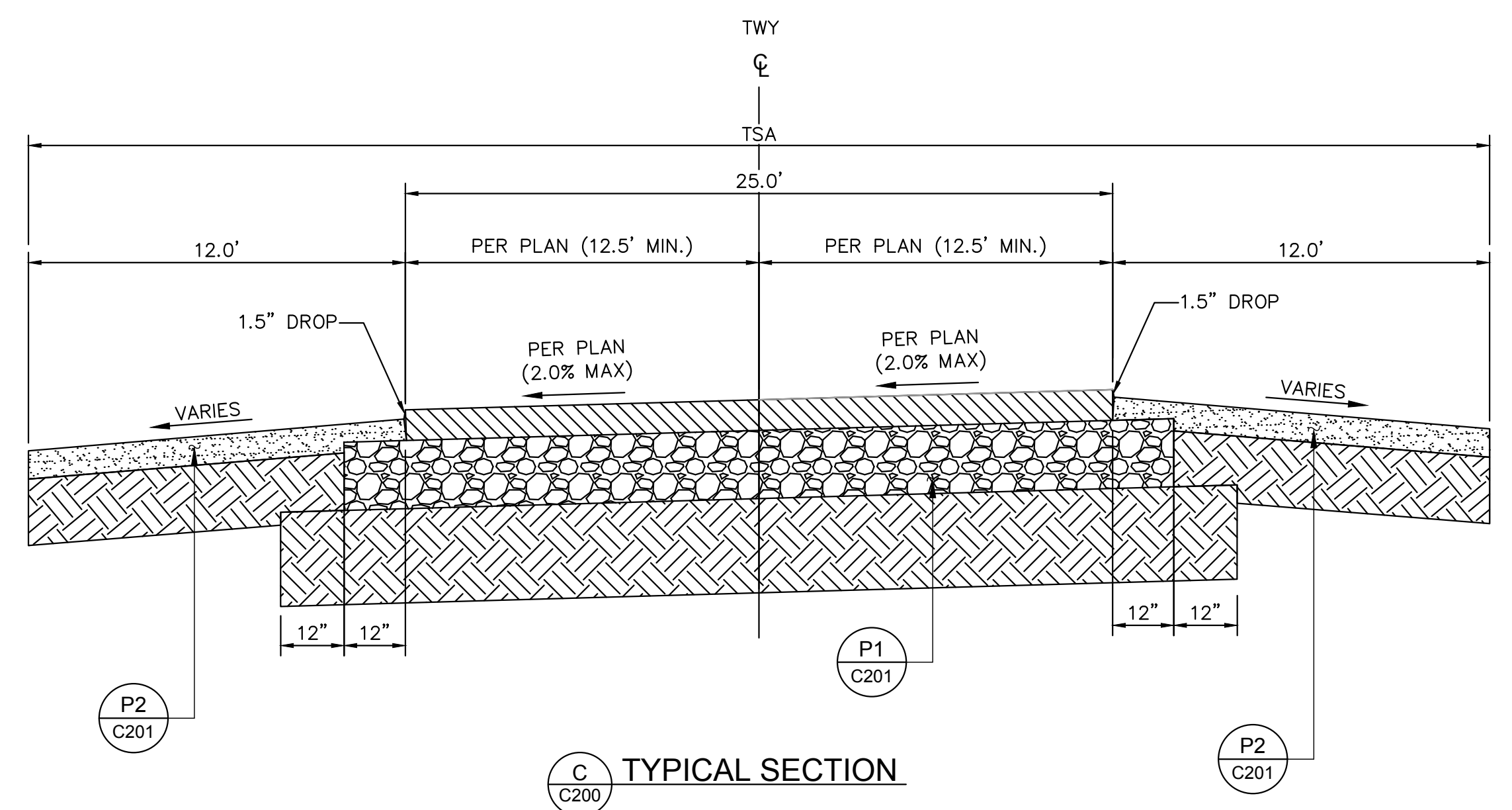
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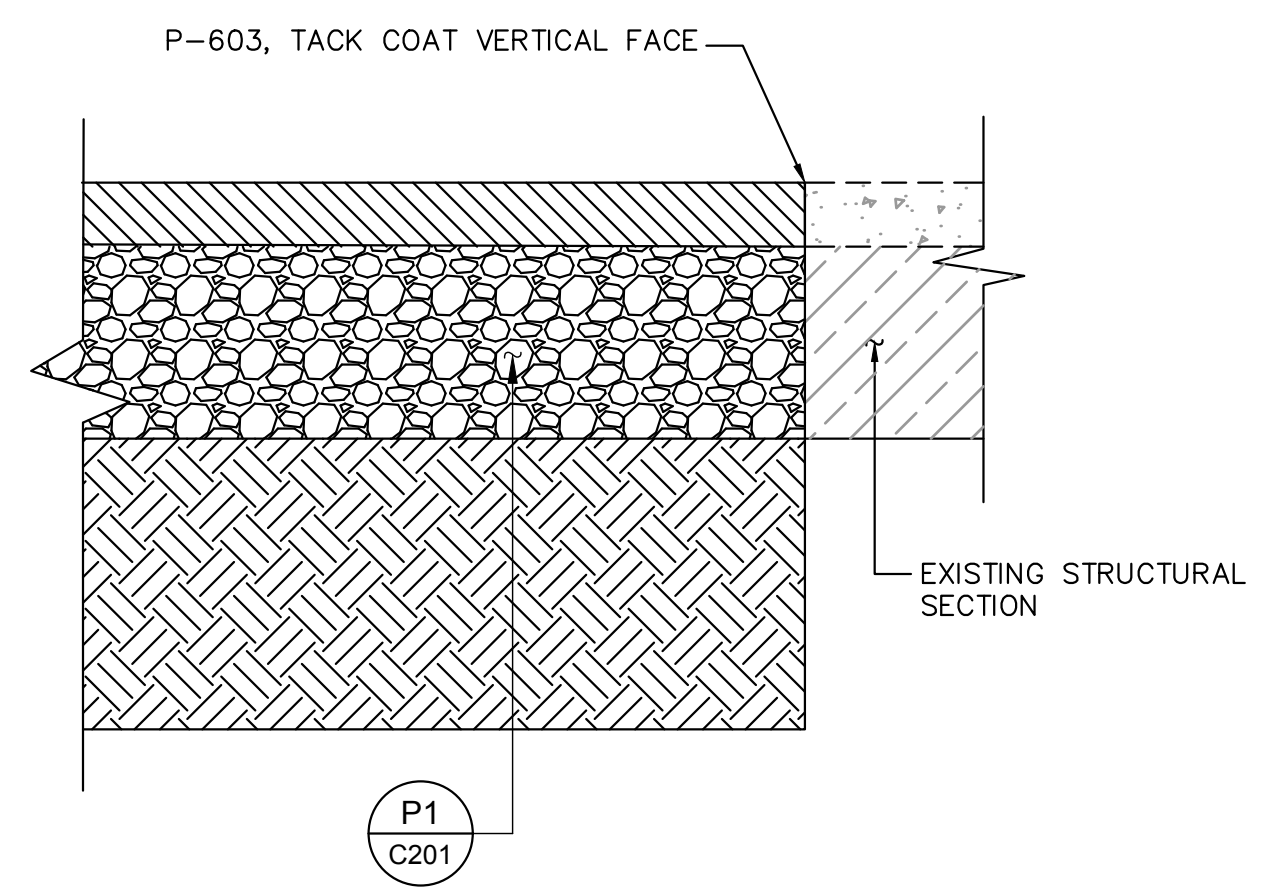
**A**  
C200 TYPICAL SECTION



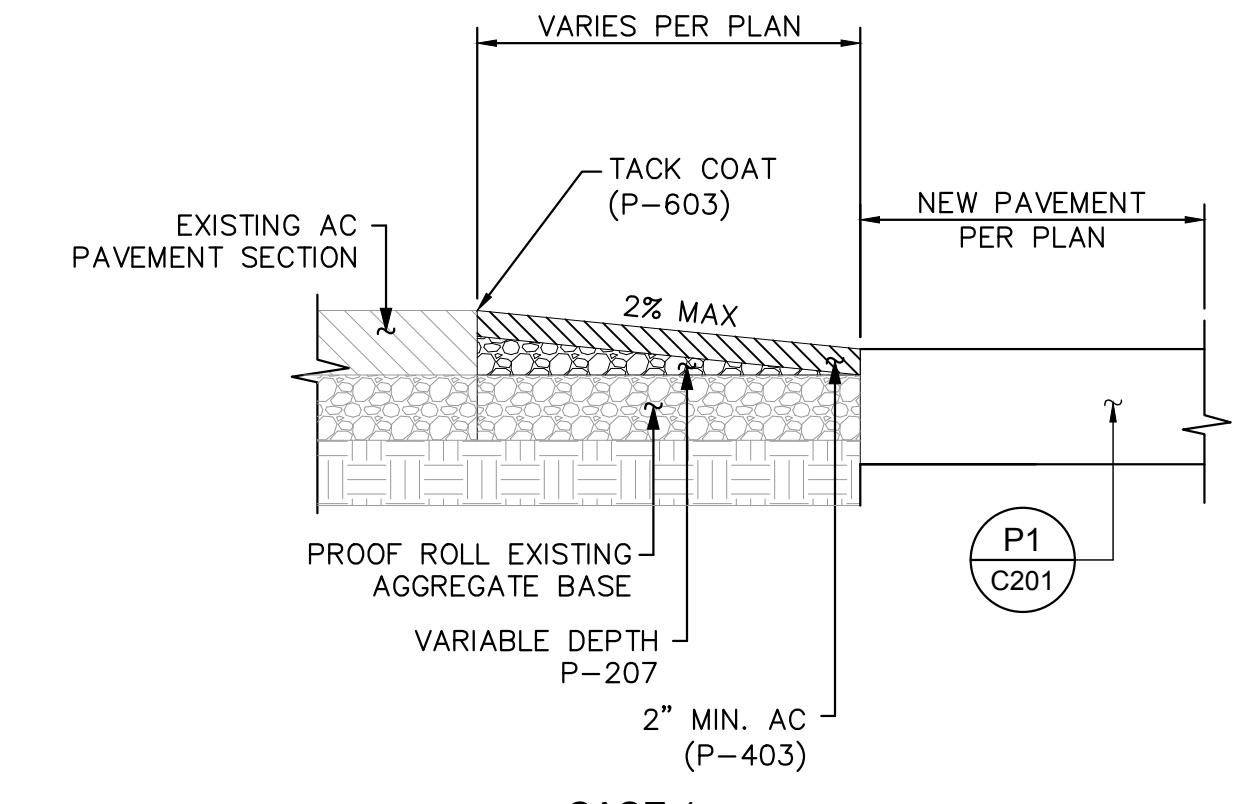
**B**  
C200 TRANSITION - NEW AC PAVEMENT TO EXISTING AC PAVEMENT



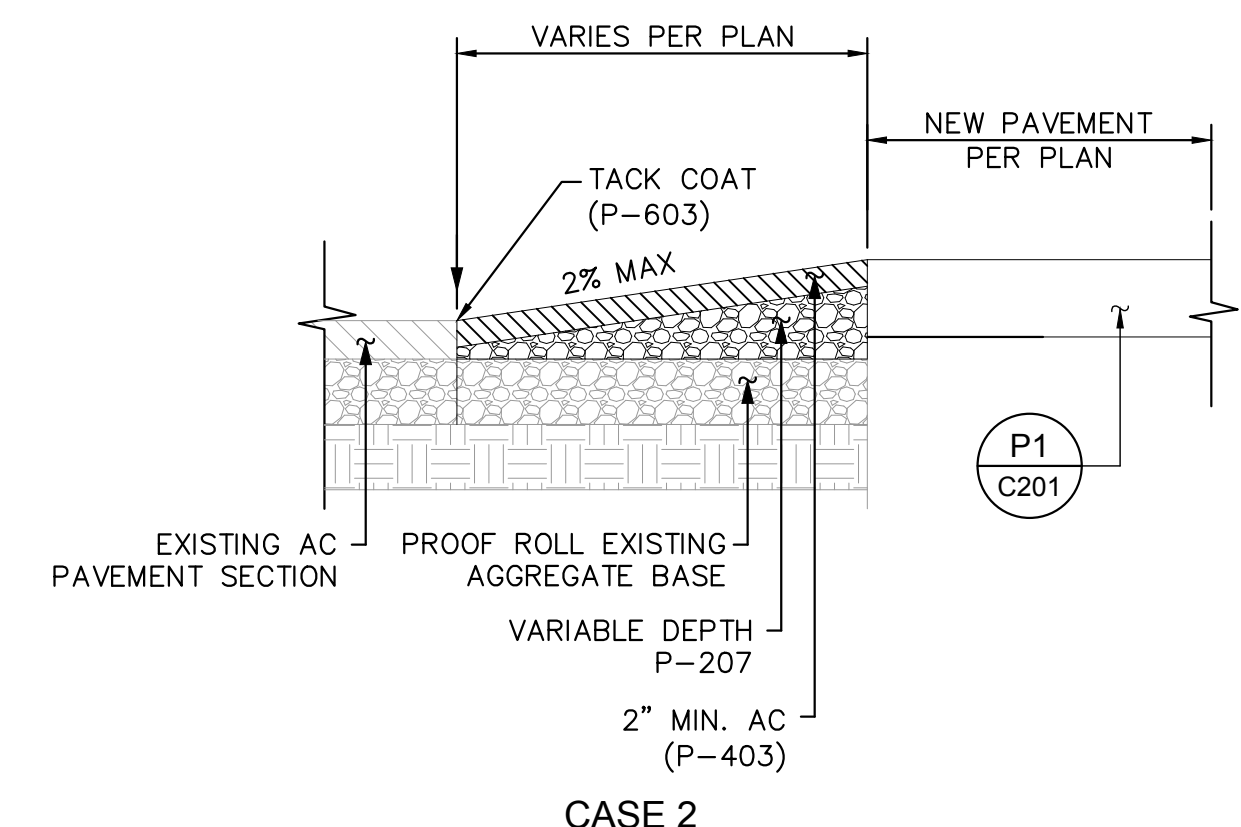
**C**  
C200 TYPICAL SECTION



**D**  
C200 TRANSITION - NEW AC PAVEMENT TO EXISTING PCC PAVEMENT



CASE 1

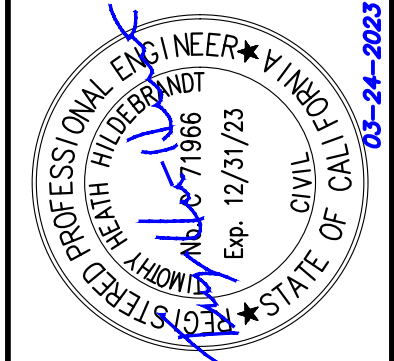


CASE 2

**E**  
C200 VARIABLE DEPTH PAVEMENT TRANSITION N.T.S.

| NO. | REVISIONS | DATE | BY |
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|-------------|------------|
| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

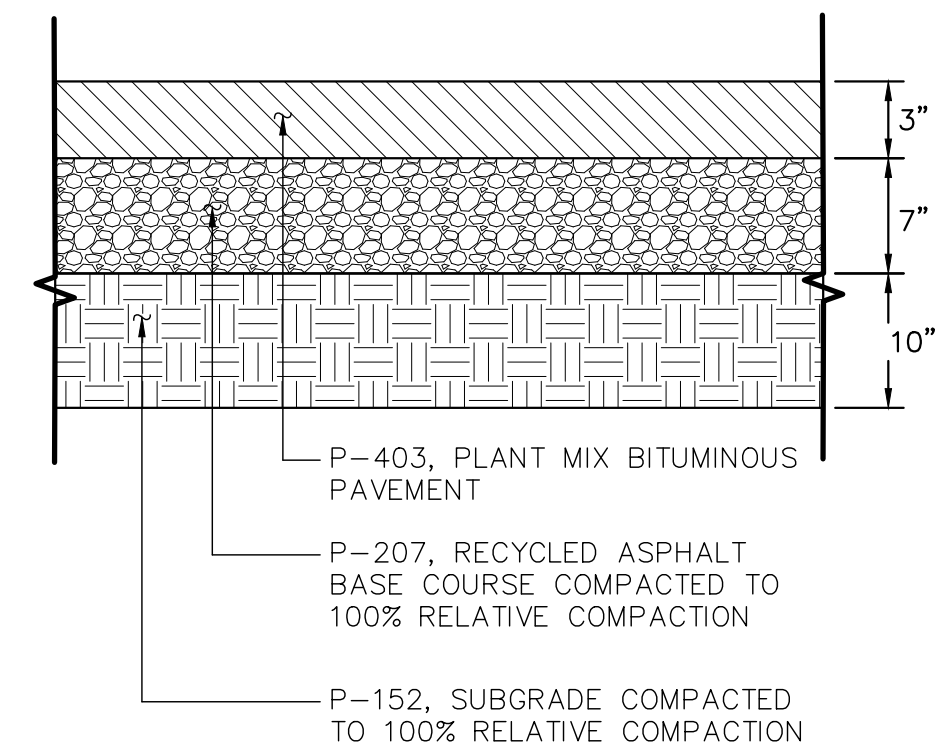
**TYPICAL SECTIONS**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA  
 WEED

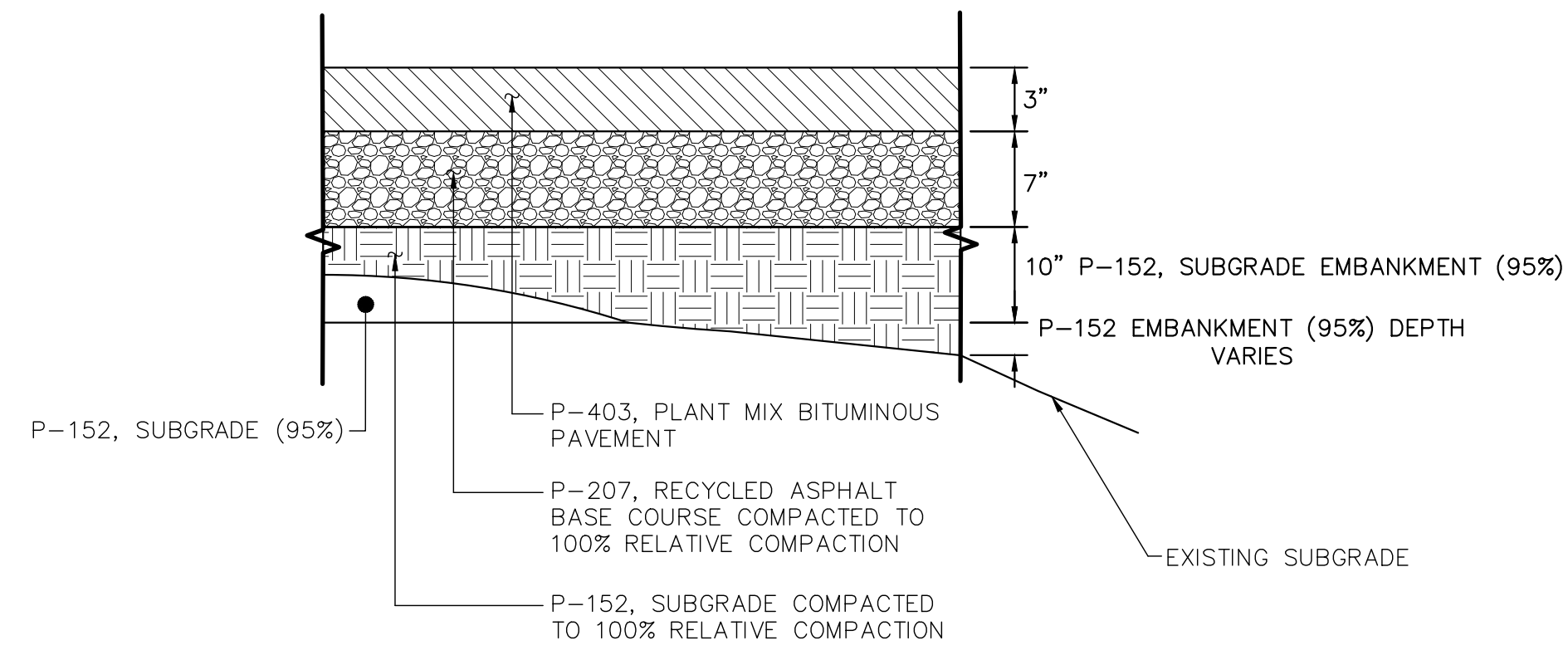
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**C200**  
 SHEET 20 OF 54

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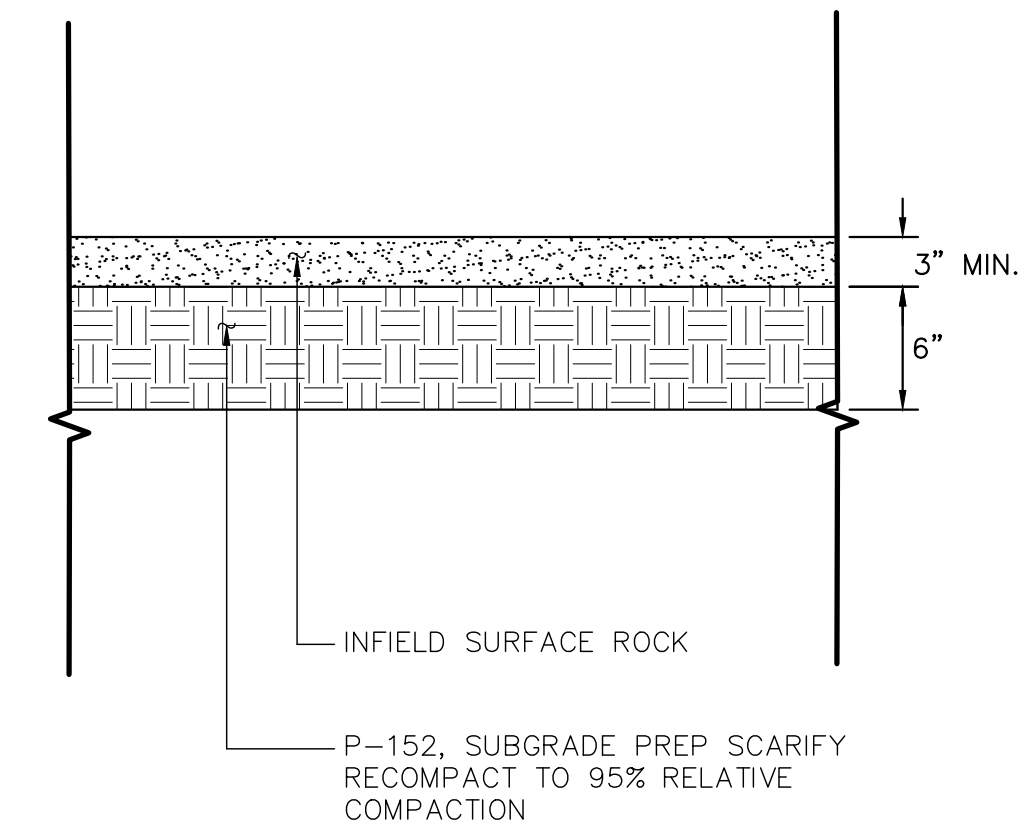


TYPICAL CUT SECTION



TYPICAL FILL SECTION

AC  
PAVEMENT SECTION  
P1  
C201  
N.T.S.



INFIELD  
SURFACE ROCK  
P2  
C201  
N.T.S.

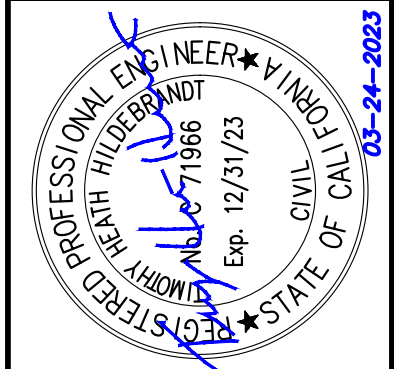
NOTES

1. RELATIVE DENSITIES FOR ALL PAVEMENT SECTIONS INDICATED ARE BASED ON ASTM D-698.

| No. | REVISIONS | DATE | BY |
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| KHA PROJECT<br>191396004 | DESIGNED BY<br>JC | CHECKED BY<br>THH |
| DATE<br>03/24/2023       | DRAWN BY<br>JWF   |                   |
| SCALE                    |                   |                   |

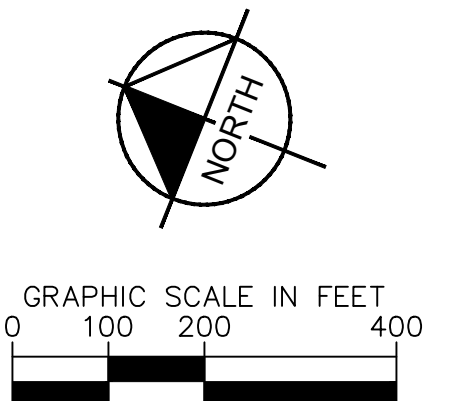
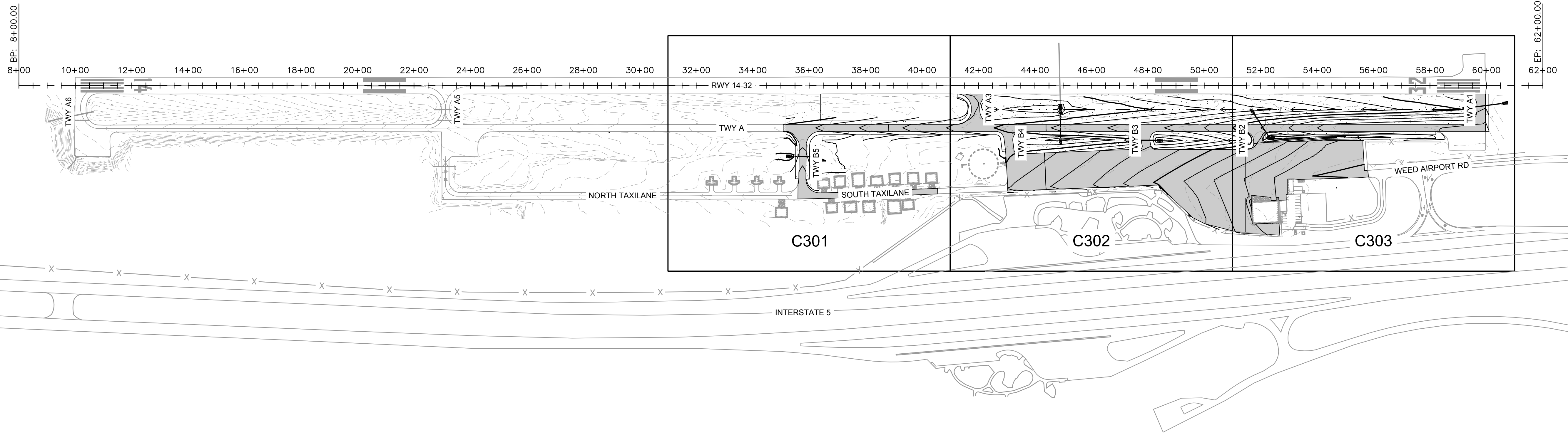
TYPICAL SECTIONS

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
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PROJECT PHASE 1  
WEED CALIFORNIA

MARCH 2023  
ISSUED FOR BID

SHEET NUMBER  
**C201**  
SHEET 21 OF 54

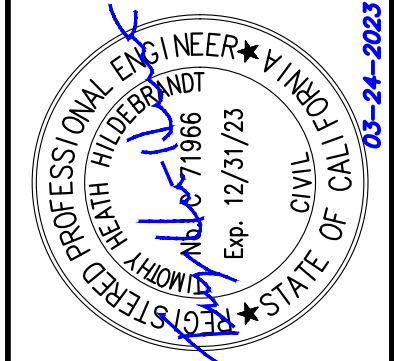
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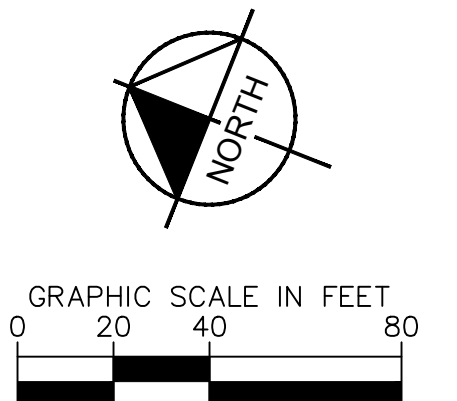
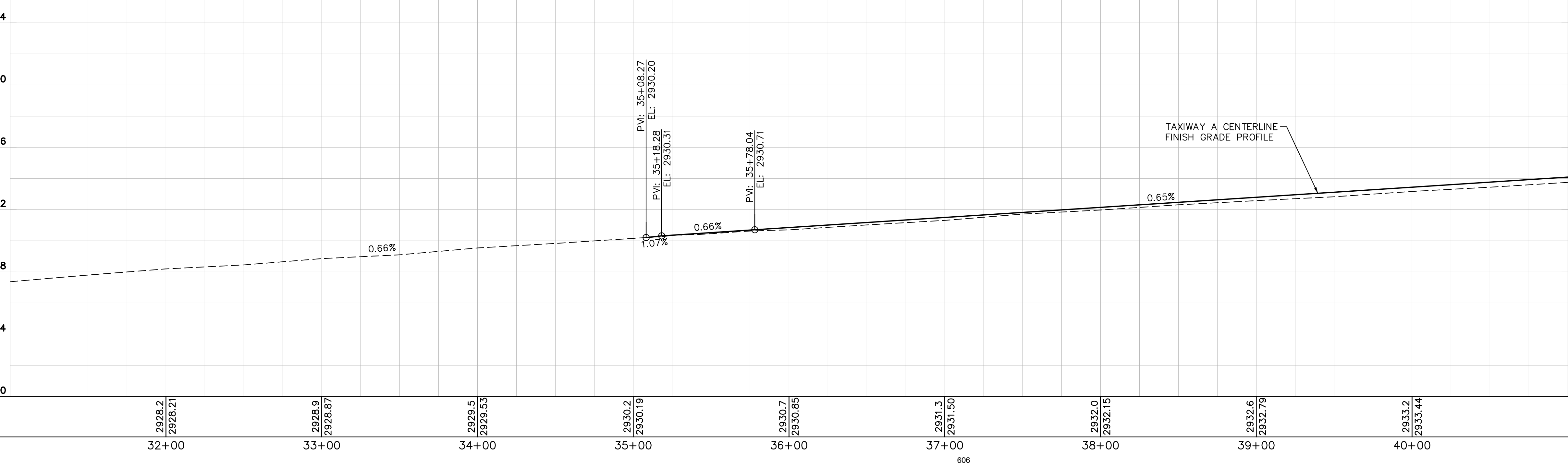
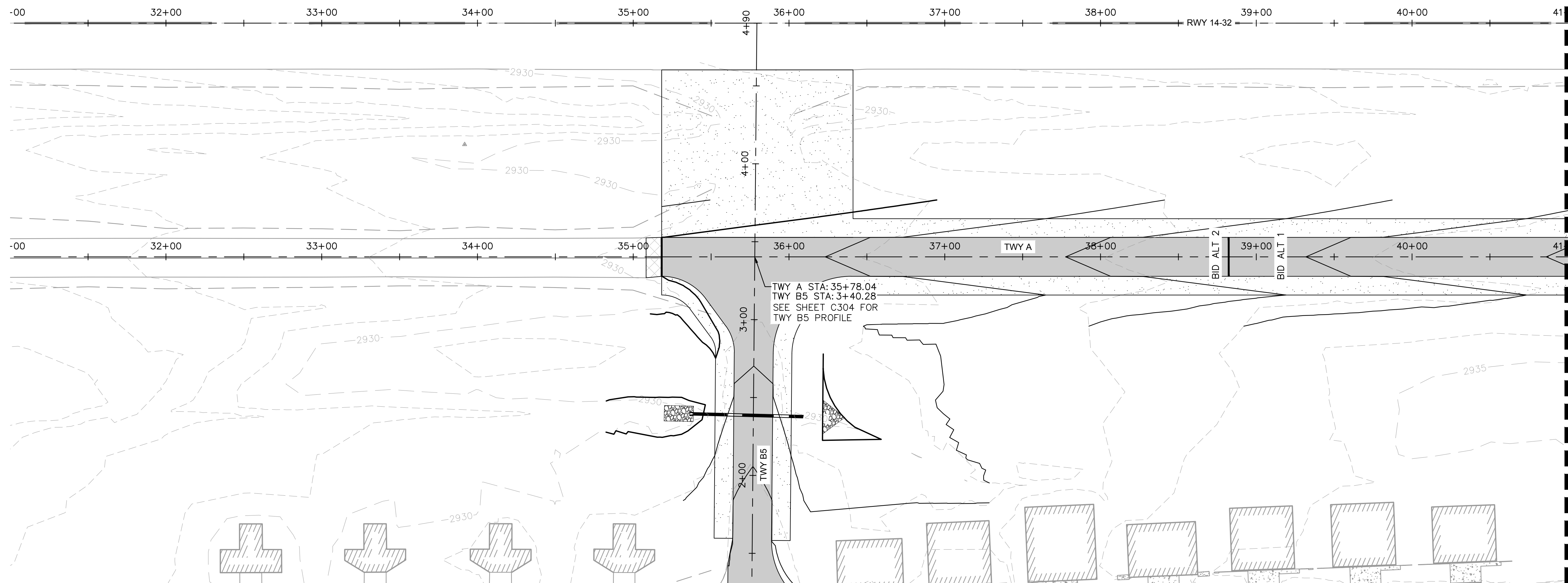
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**PLAN & PROFILE  
SHEET INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
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 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**C300**  
 SHEET 22 OF 54

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**NOTES**

- PROPOSED CONTOURS REPRESENT FINISHED GRADE.

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOWLINE
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
- TRANSITION ASPHALT PAVEMENT
- EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
- C10 CURVE DATA, SEE TABLE

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PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA  
 No. 71966  
 Exp. 12/31/23  
 03-24-2023

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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

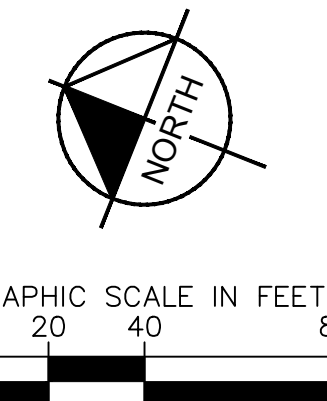
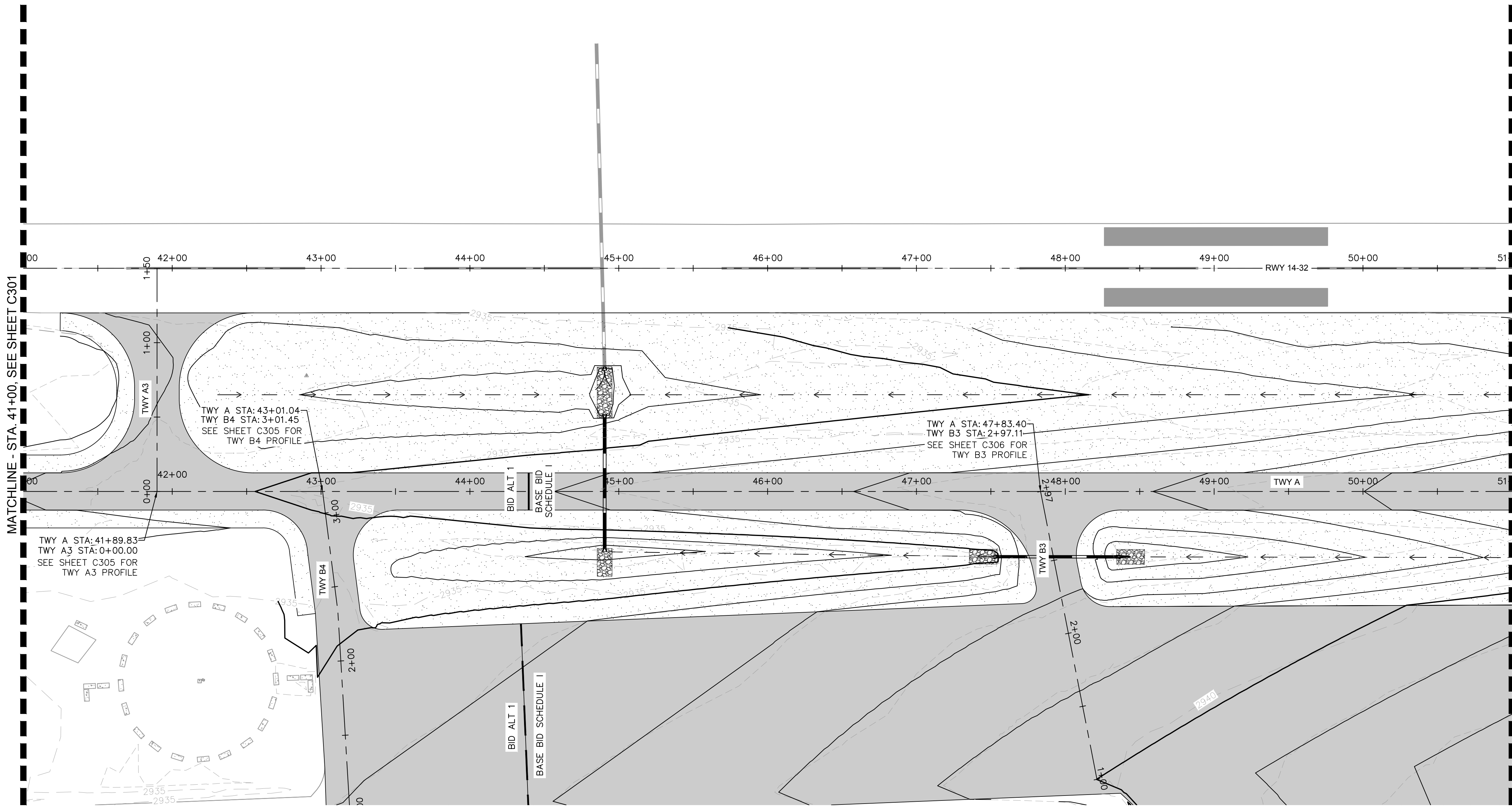
**TAXIWAY A PLAN & PROFILE**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
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**C301**  
 SHEET 23 OF 54

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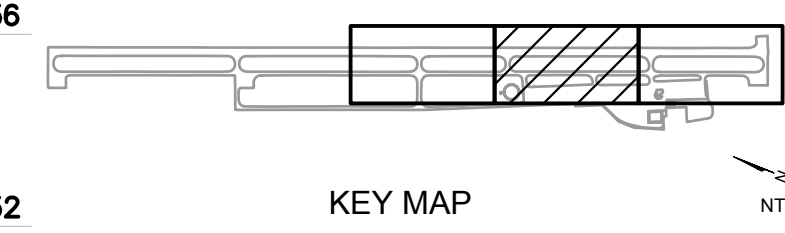
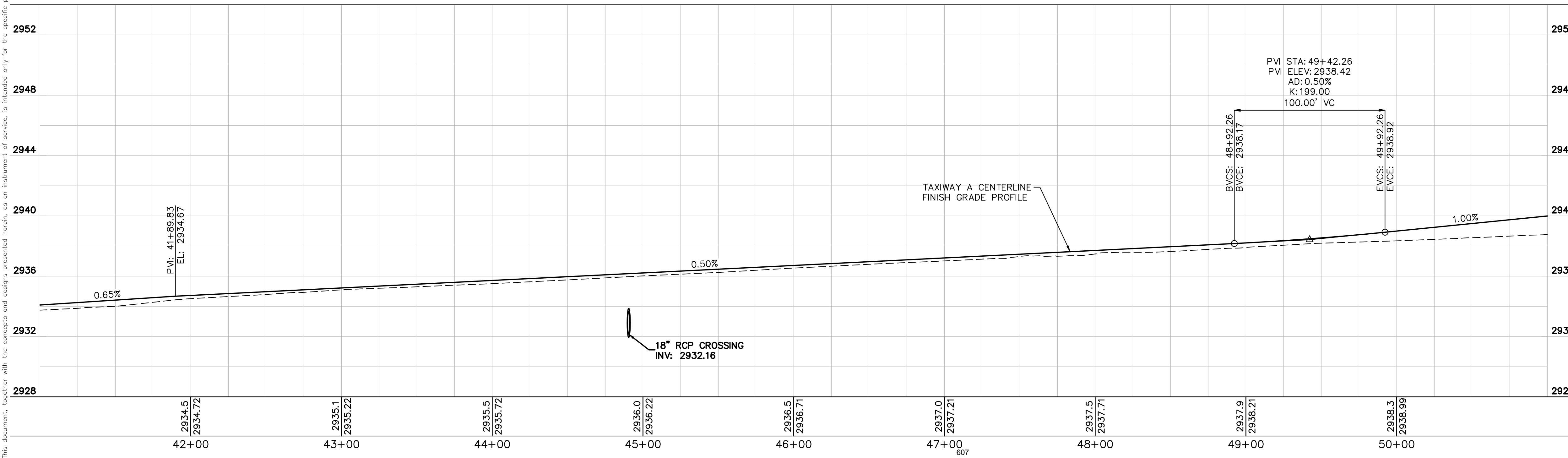


**NOTES**

- PROPOSED CONTOURS REPRESENT FINISHED GRADE.

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOWLINE
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
- TRANSITION ASPHALT PAVEMENT
- EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
- C10 CURVE DATA, SEE TABLE



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REGISTERED PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA  
 No. 71966  
 Exp. 12/31/23  
 CIVIL  
 03-24-2023

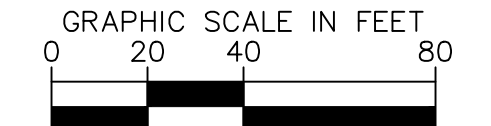
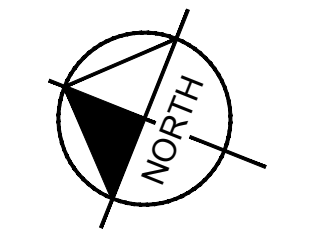
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**TAXIWAY A PLAN & PROFILE**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA

WEED  
 SHEET NUMBER  
**C302**  
 SHEET 24 OF 54

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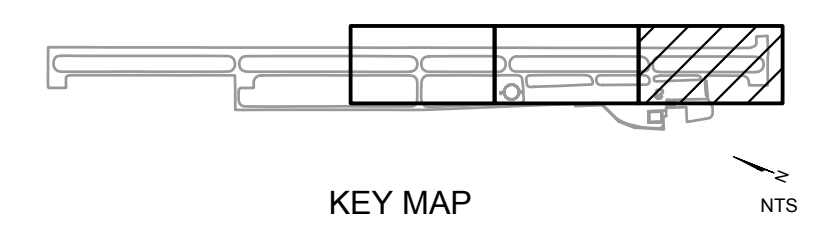
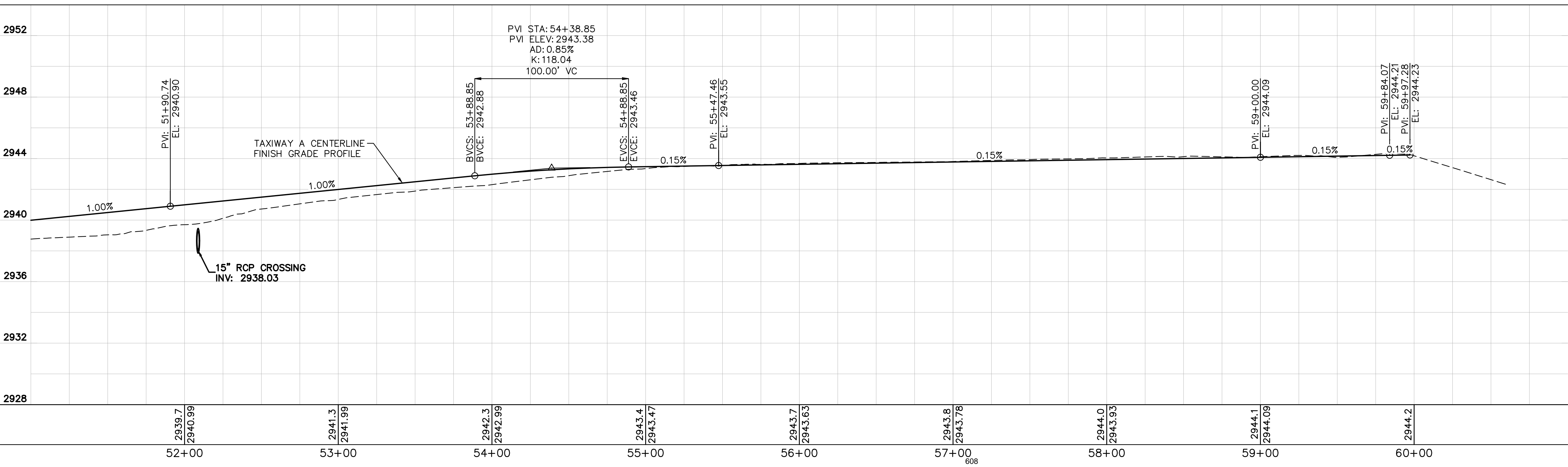
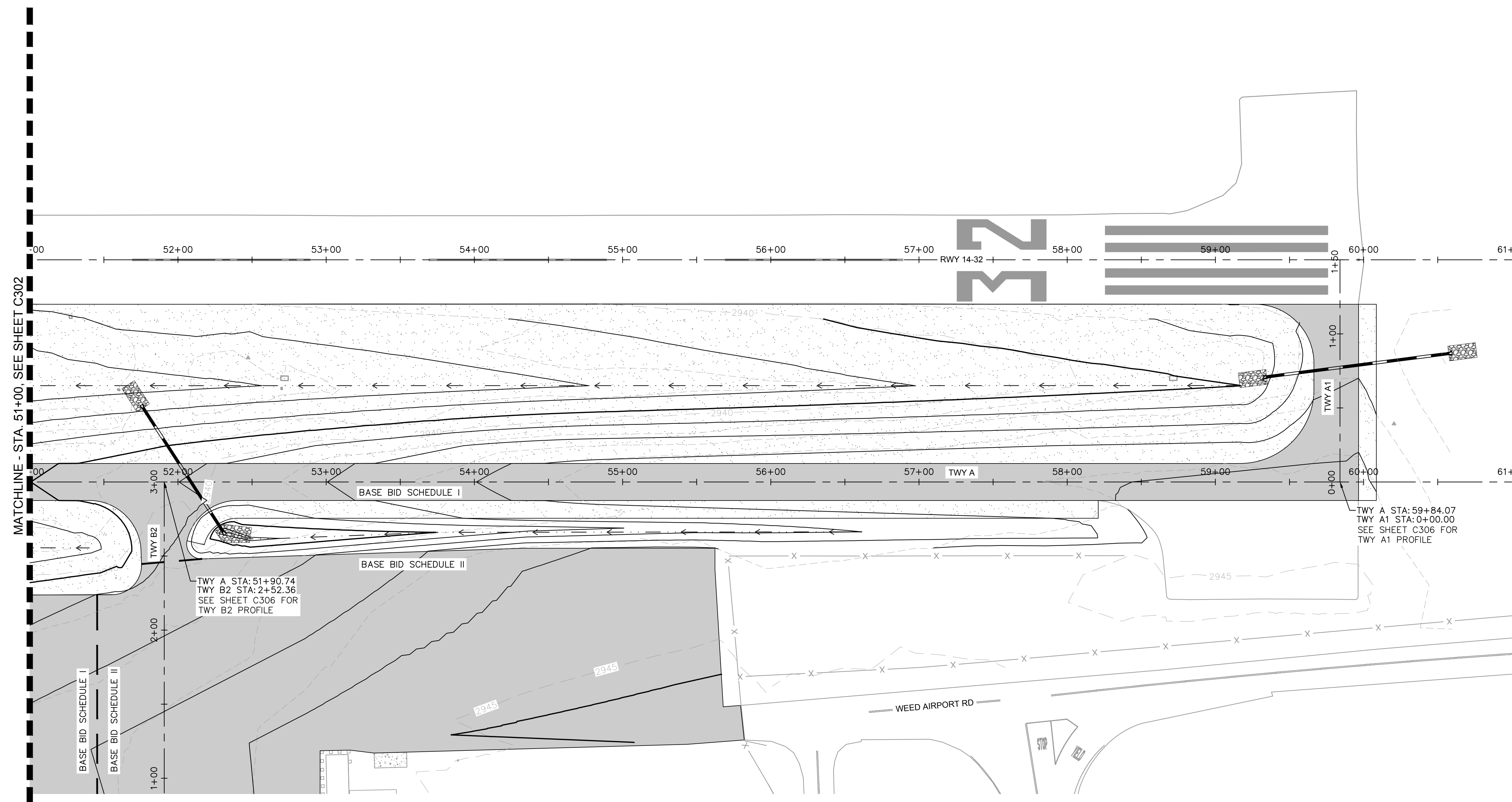


**NOTES**

- 1. PROPOSED CONTOURS REPRESENT FINISHED GRADE.

**LEGEND**

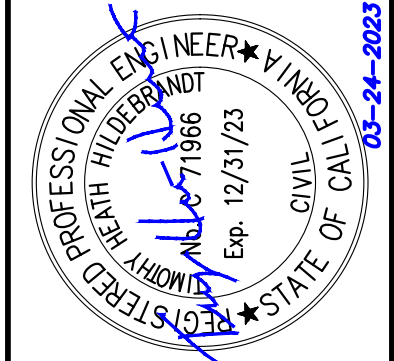
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOWLINE
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
- TRANSITION ASPHALT PAVEMENT
- EXISTING PORTLAND CEMENT CONCRETE PAVEMENT
- C10 CURVE DATA, SEE TABLE



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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

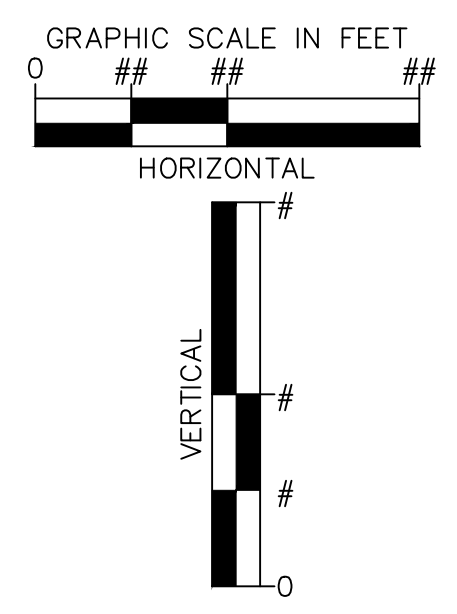
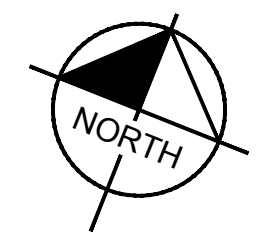
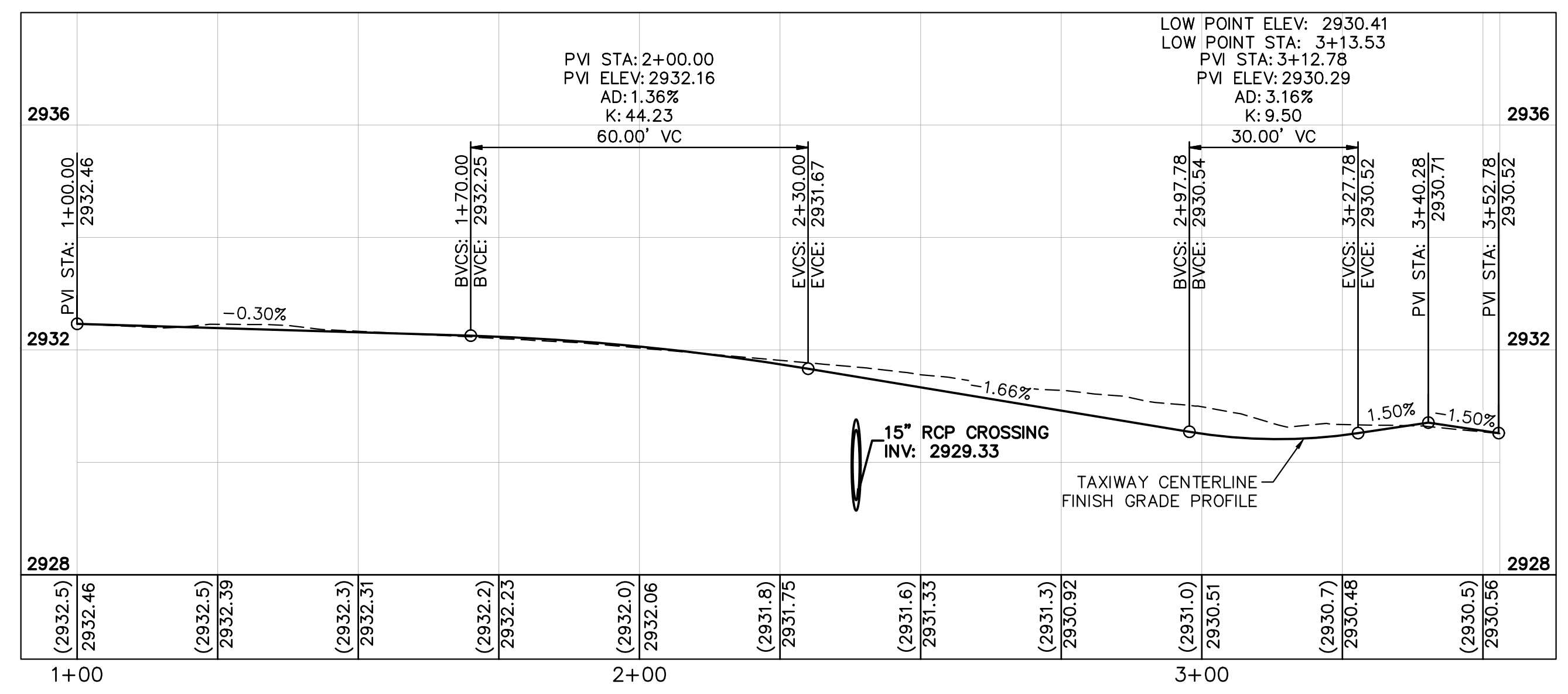
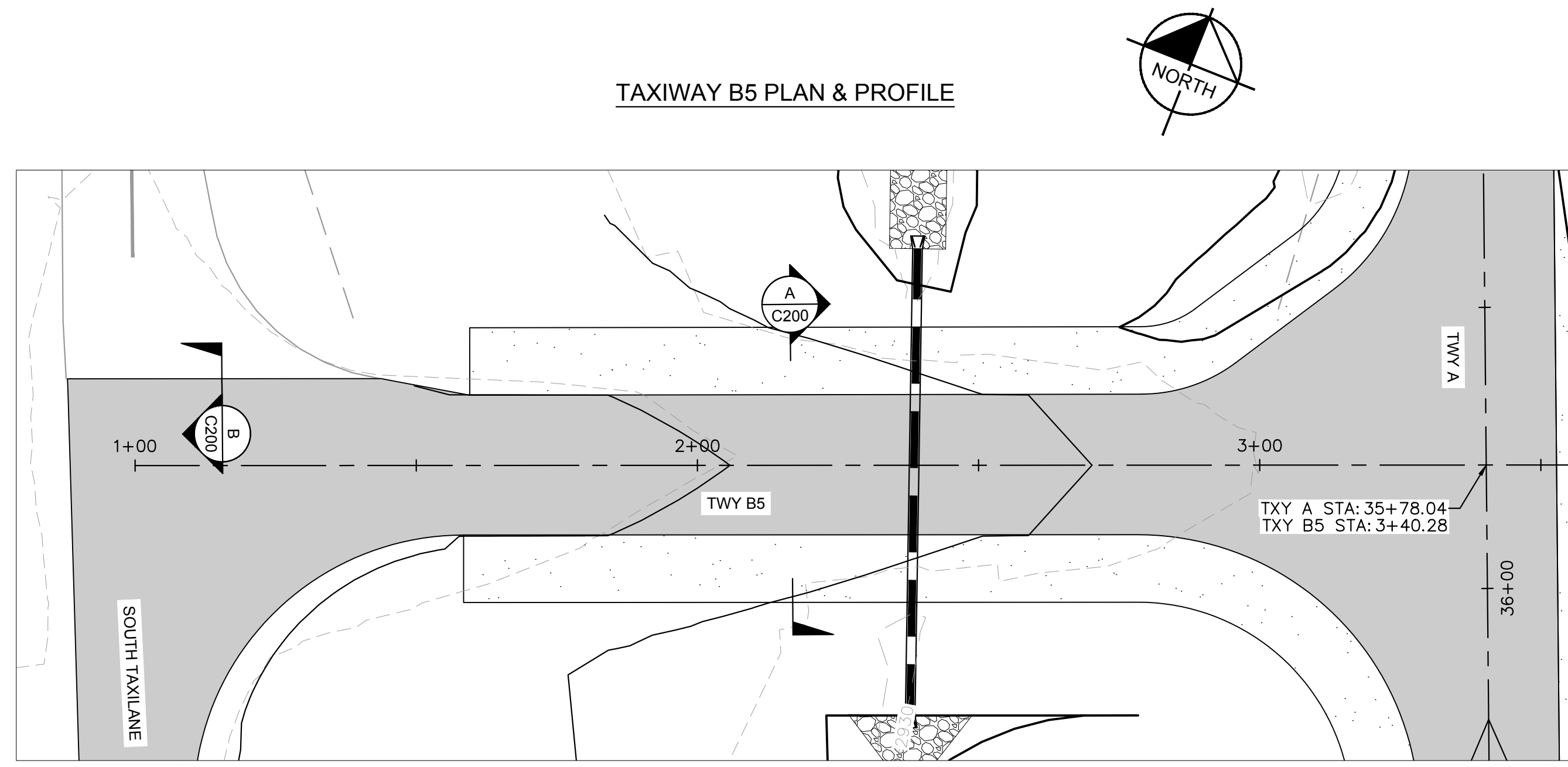
**TAXIWAY A PLAN & PROFILE**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
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**C303**  
SHEET 25 OF 54



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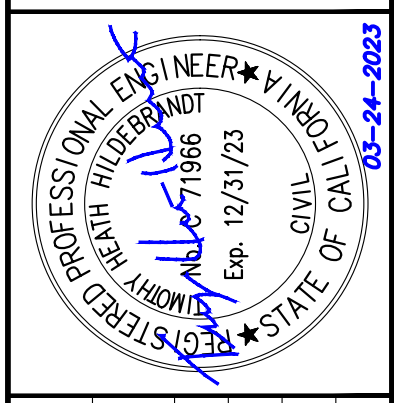
- 1. PROPOSED CONTOURS REPRESENT FINISHED GRADE.

**LEGEND**

- 3959 EXISTING MAJOR CONTOUR
- 3959 EXISTING MINOR CONTOUR
- 3959 PROPOSED MAJOR CONTOUR
- 3959 PROPOSED MINOR CONTOUR
- PROPOSED STORM DRAIN PIPE
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
- TRANSITION ASPHALT PAVEMENT
- EXISTING PORTLAND CEMENT CONCRETE PAVEMENT

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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**TAXIWAY A PLAN & PROFILE**

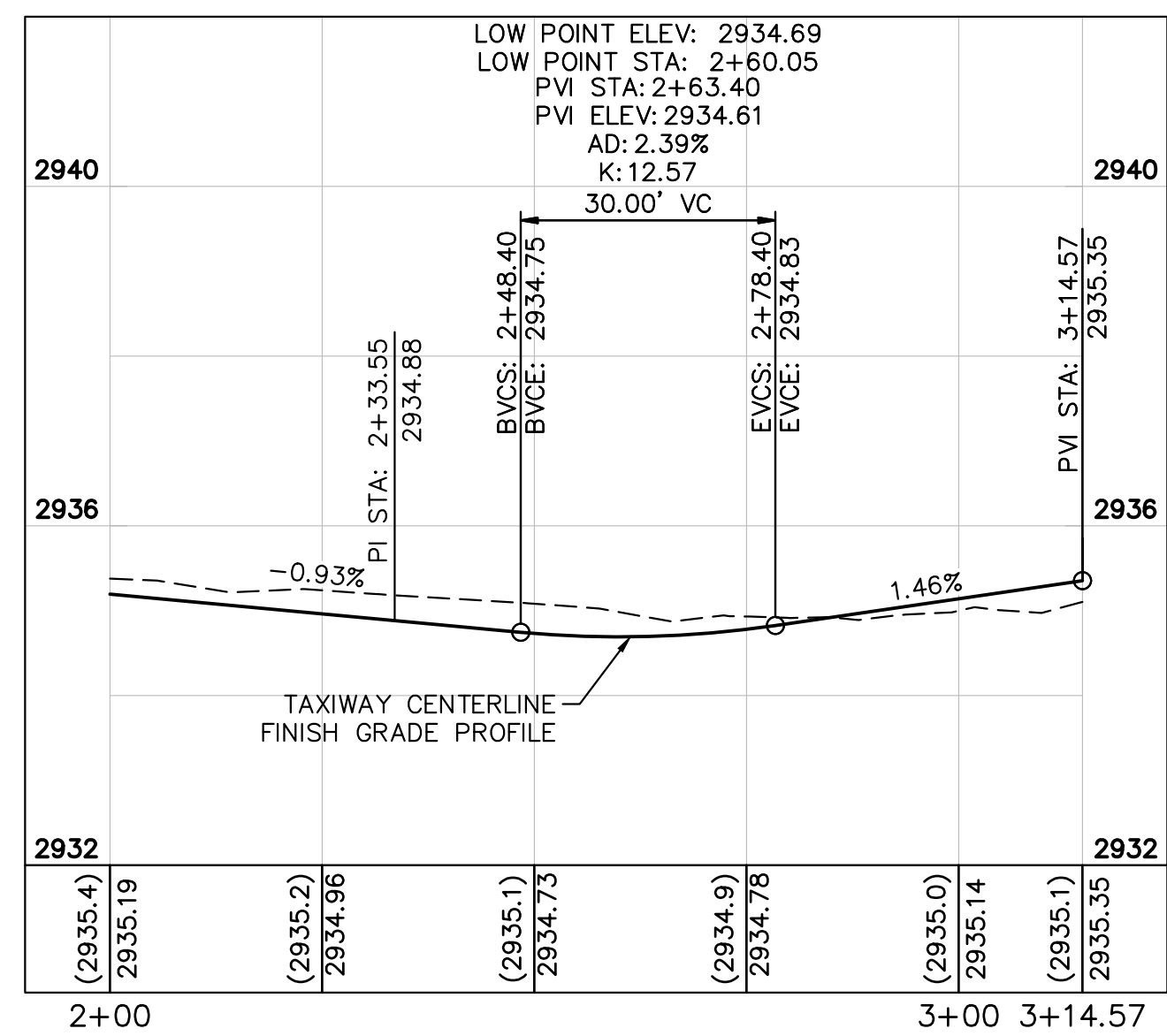
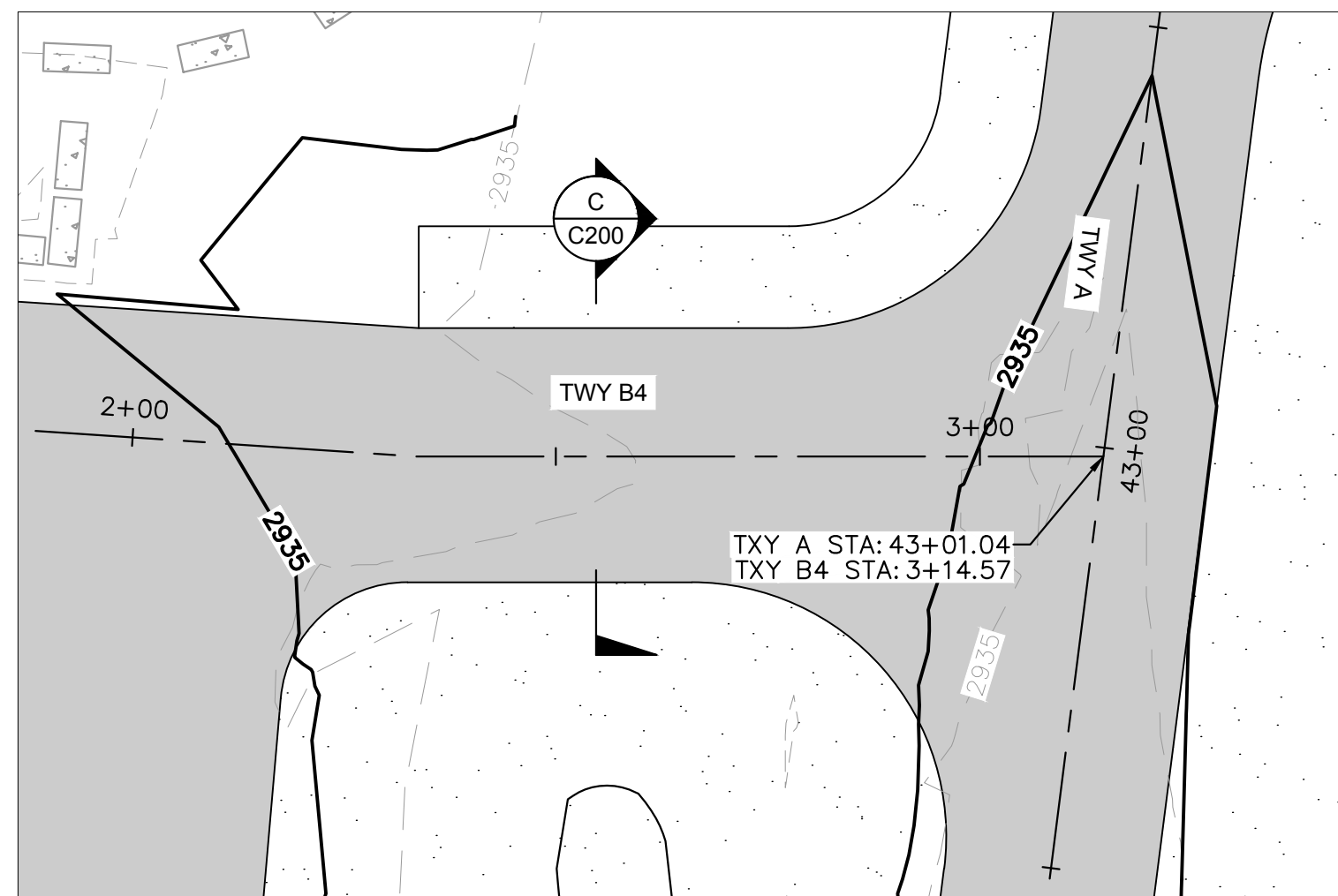
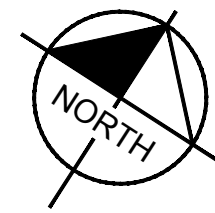
SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

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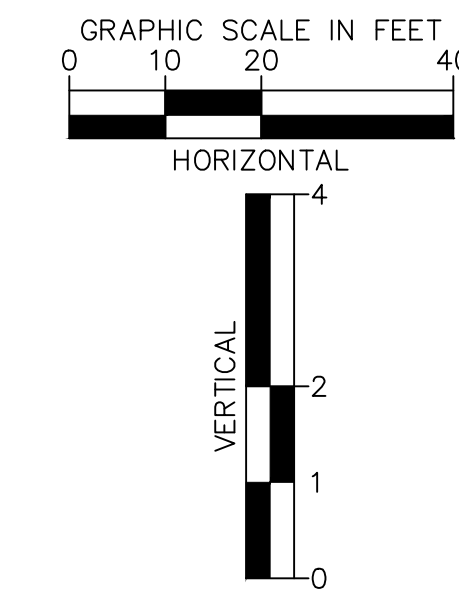
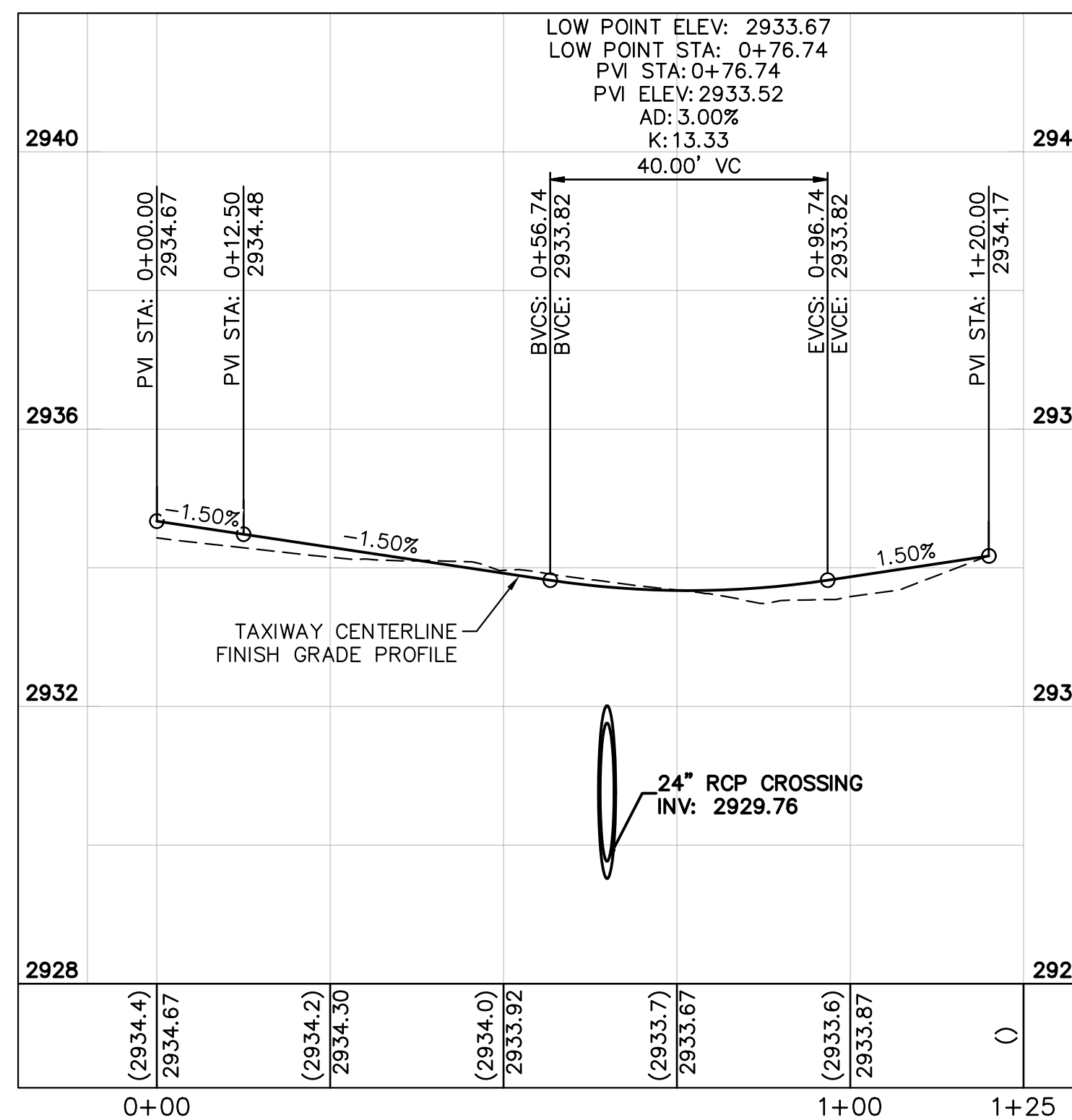
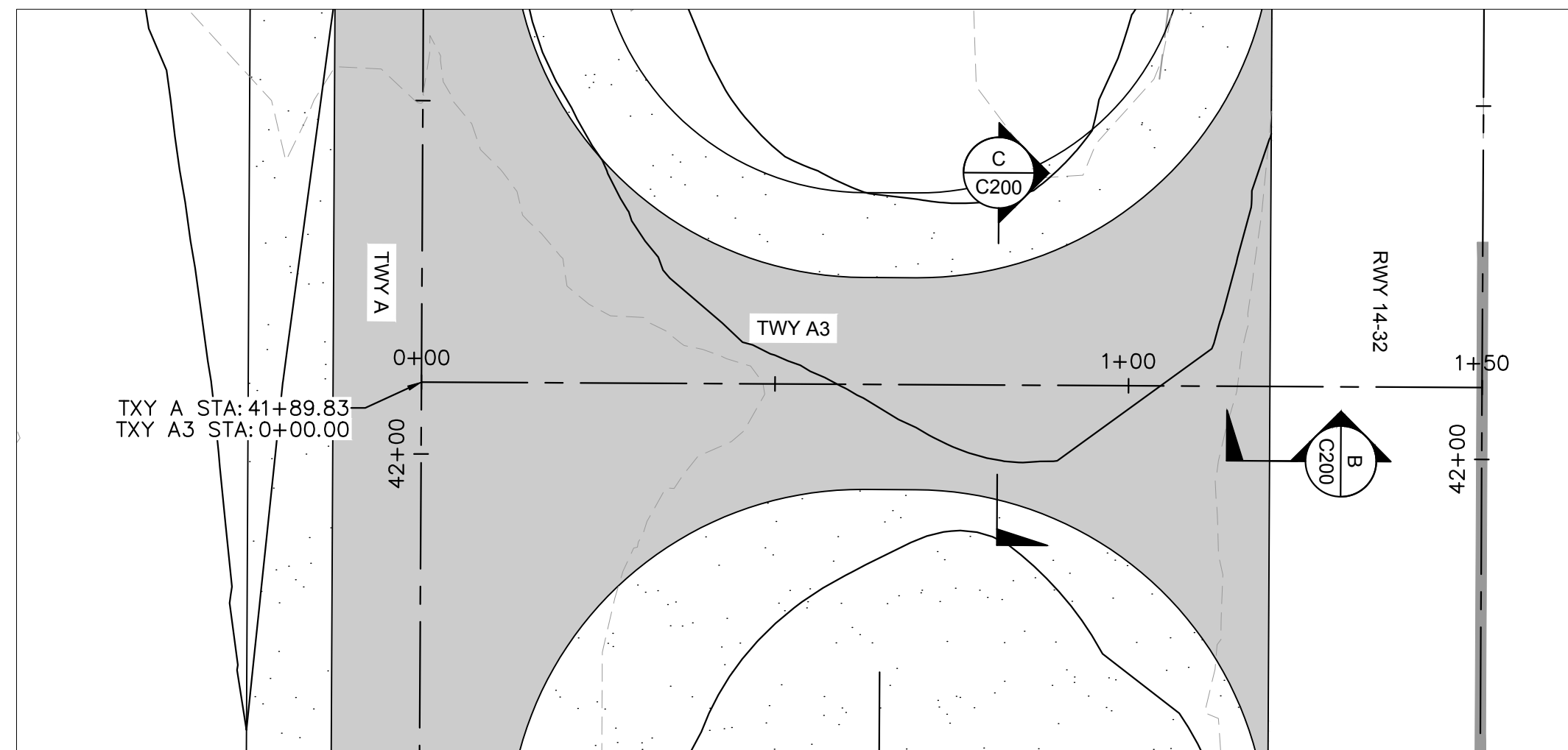
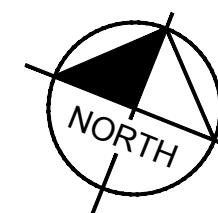
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**C304**  
 SHEET 26 OF 54

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TAXIWAY B4 PLAN & PROFILE



TAXIWAY A3 PLAN & PROFILE



NOTES

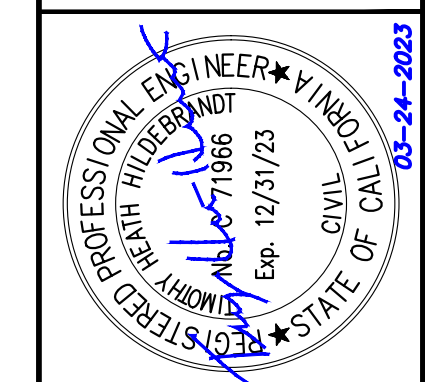
- PROPOSED CONTOURS REPRESENT FINISHED GRADE.

LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED STORM DRAIN PIPE
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
- TRANSITION ASPHALT PAVEMENT
- EXISTING PORTLAND CEMENT CONCRETE PAVEMENT

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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

TAXIWAY A PLAN & PROFILE

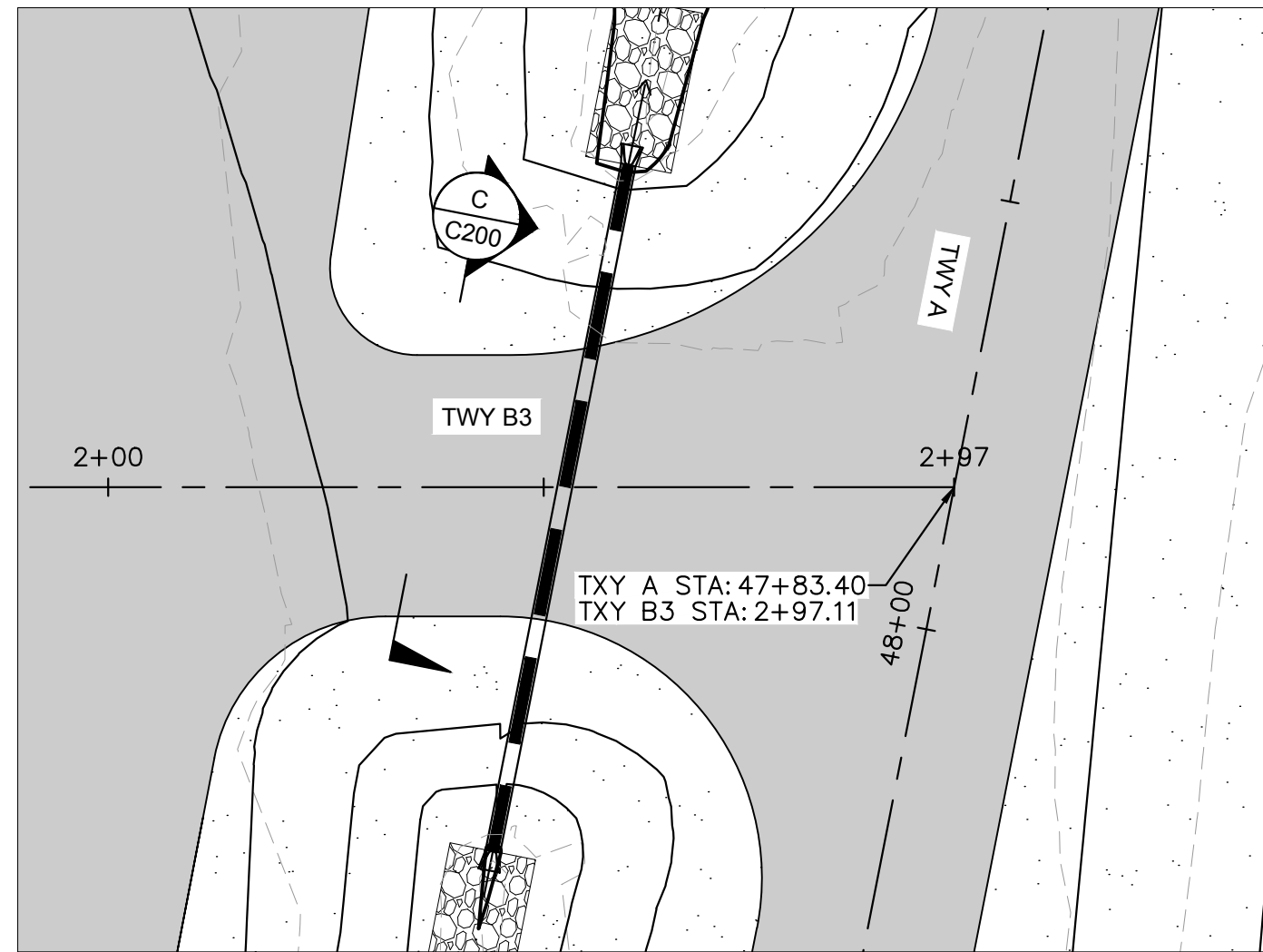
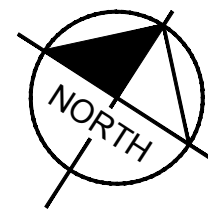
SISKIYOU COUNTY  
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 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA

MARCH 2023  
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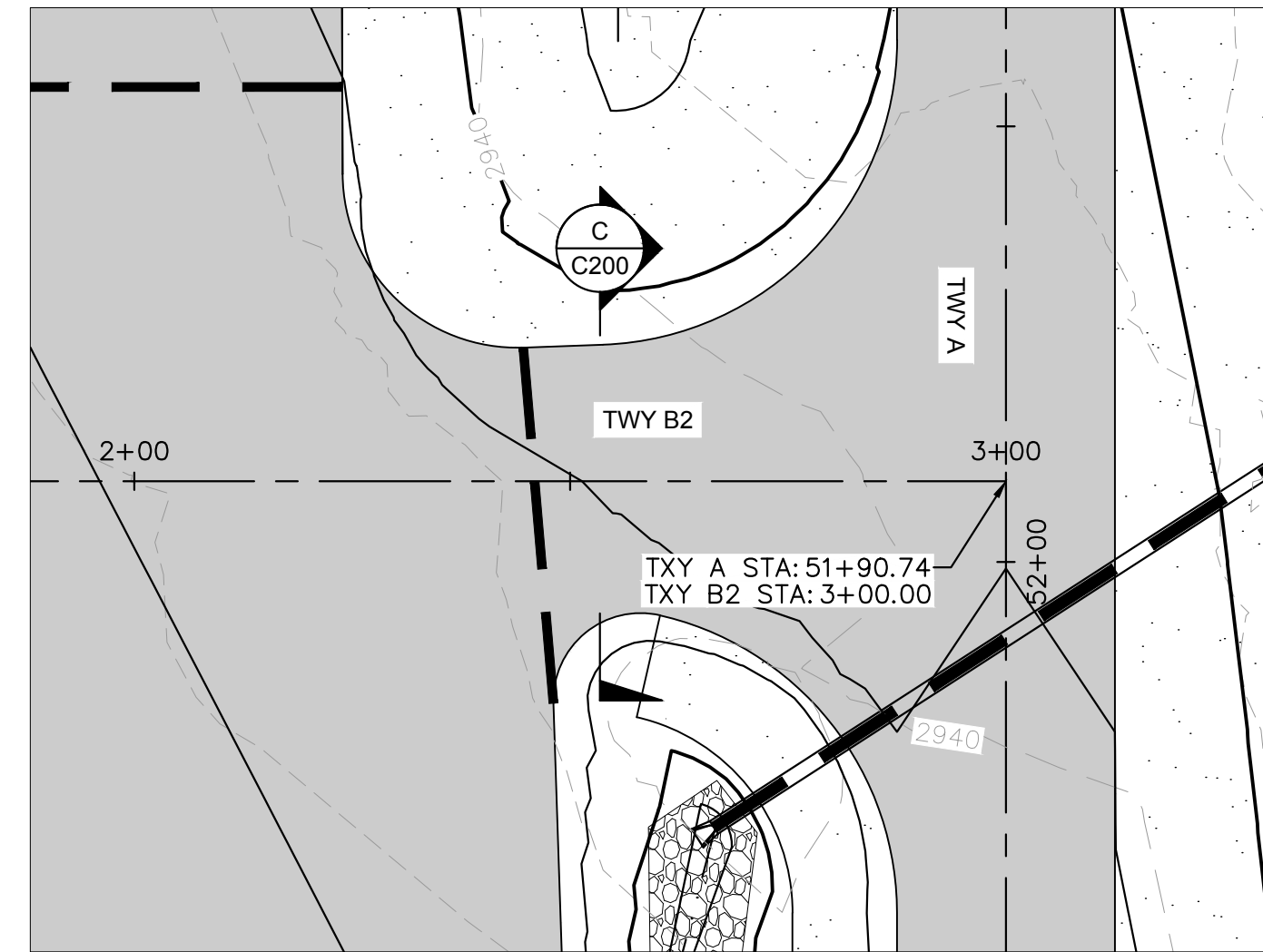
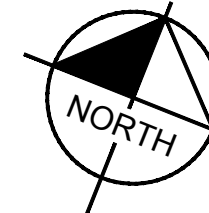
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**C305**  
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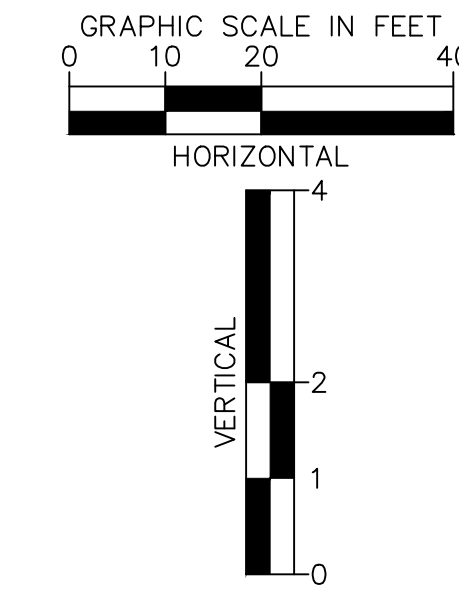
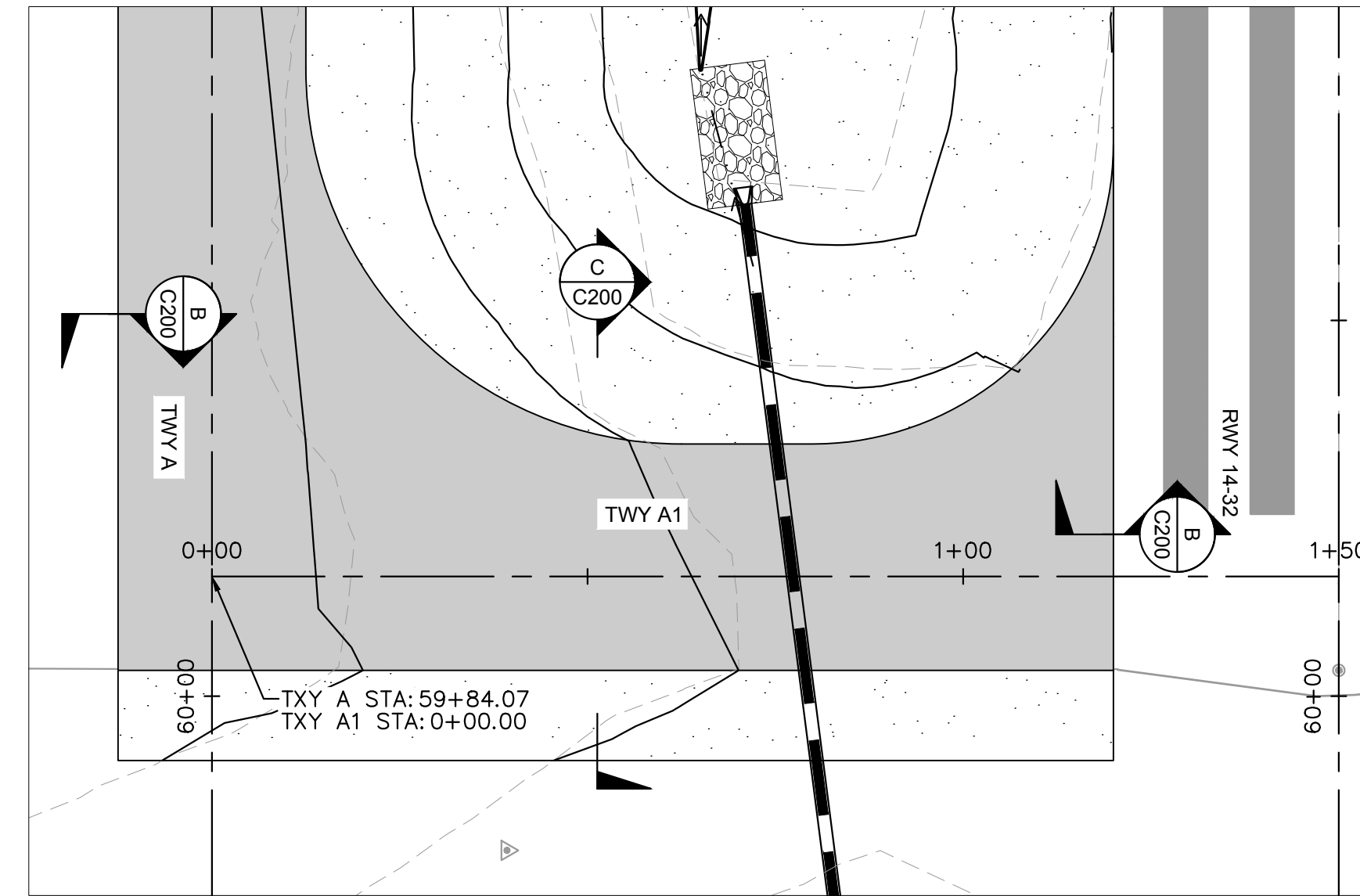
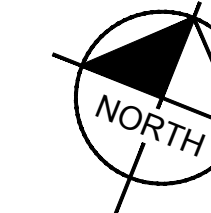
TAXIWAY B3 PLAN & PROFILE



TAXIWAY B2 PLAN & PROFILE



TAXIWAY A1 PLAN & PROFILE

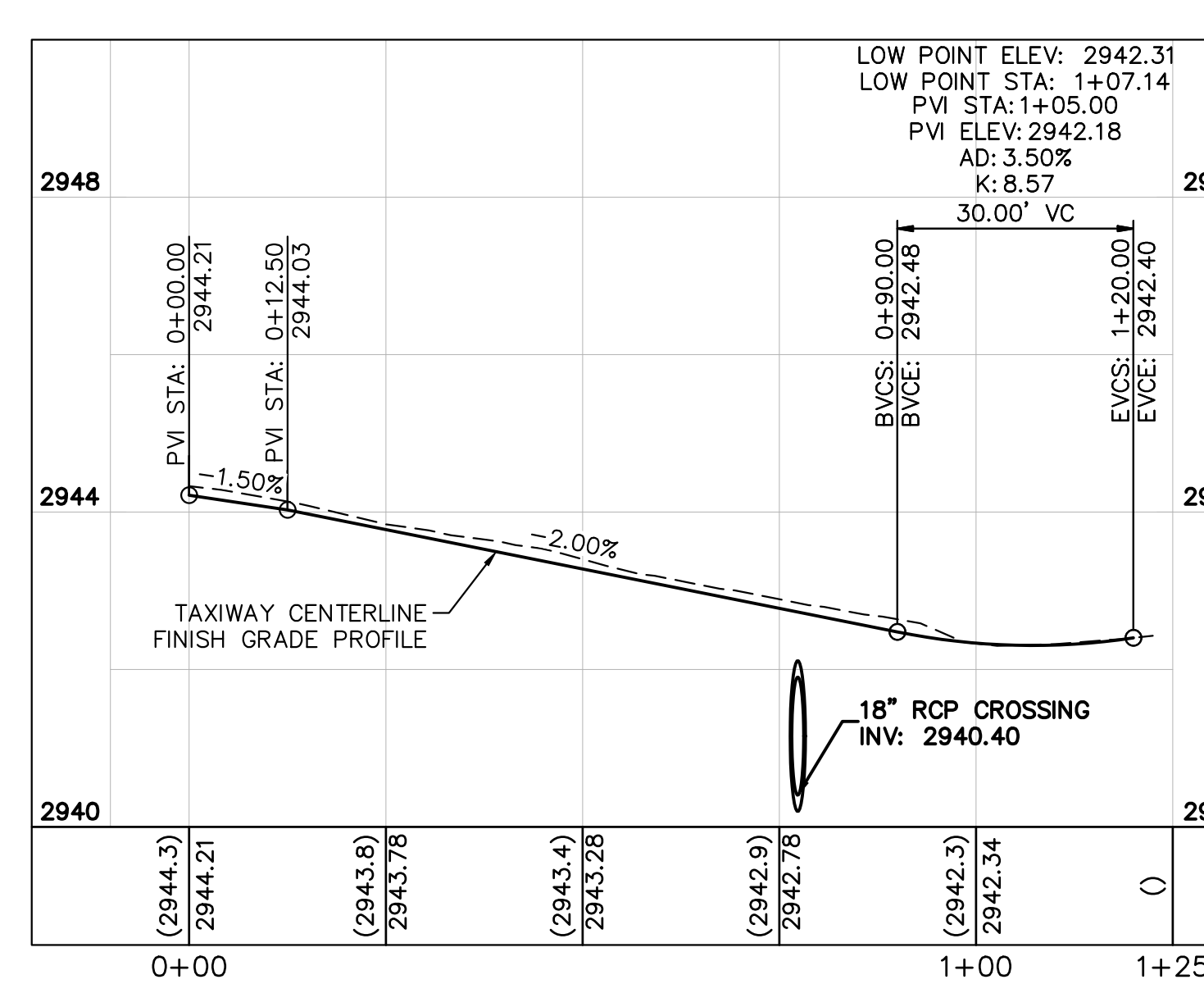
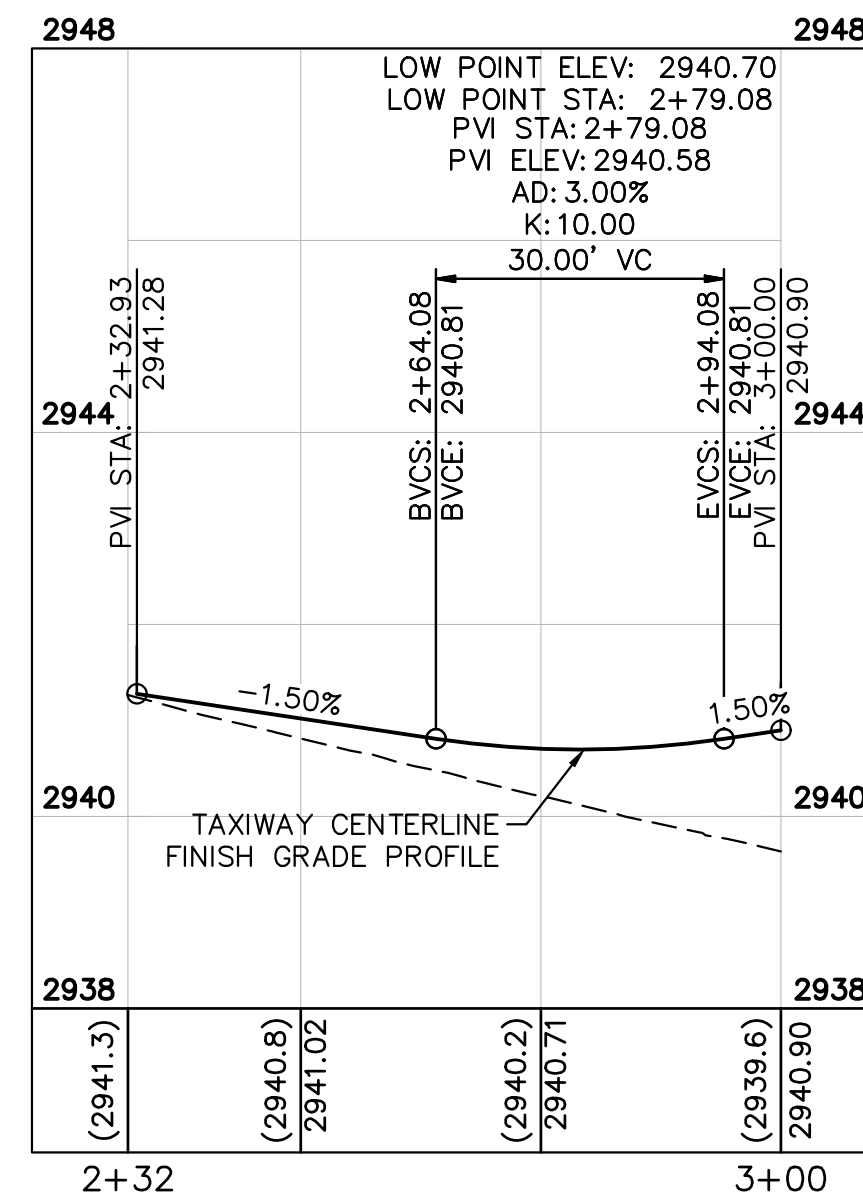
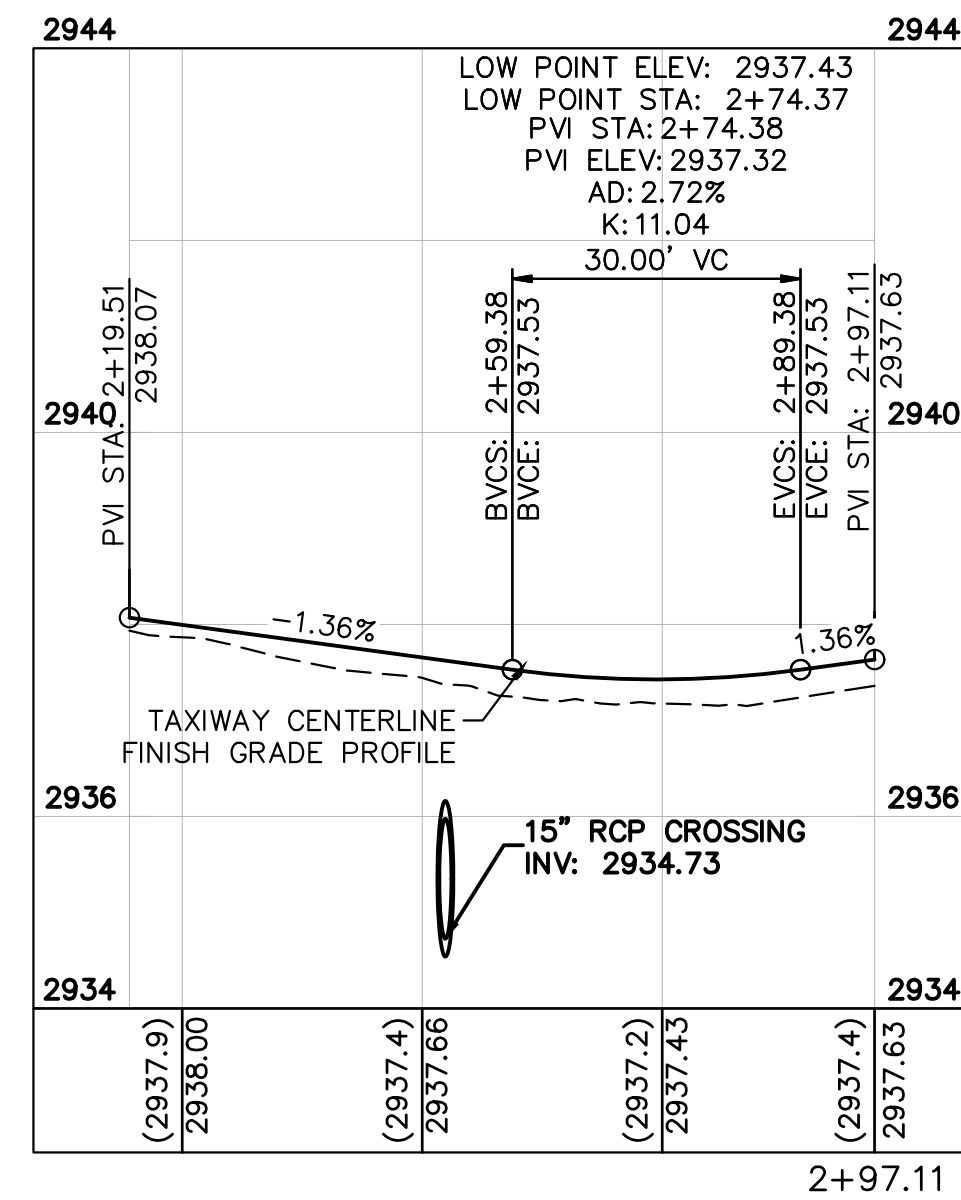


NOTES

- PROPOSED CONTOURS REPRESENT FINISHED GRADE.

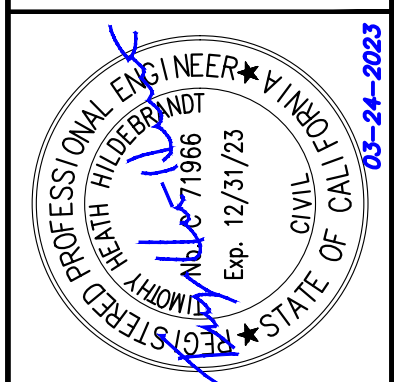
LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED STORM DRAIN PIPE
- NEW FULL-STRENGTH ASPHALT PAVEMENT (P-401, SEE PAVEMENT SECTION P1, SHEET C201)
- PLACE AND COMPACT 3" RECYCLED ASPHALT MILLINGS (SEE PAVEMENT SECTION P2, SHEET C201)
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600
- TRANSITION ASPHALT PAVEMENT
- EXISTING PORTLAND CEMENT CONCRETE PAVEMENT



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| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

TAXIWAY A PLAN & PROFILE

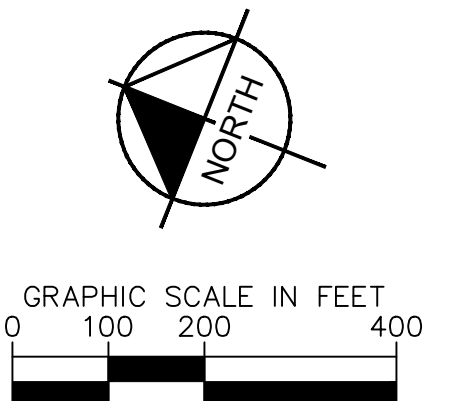
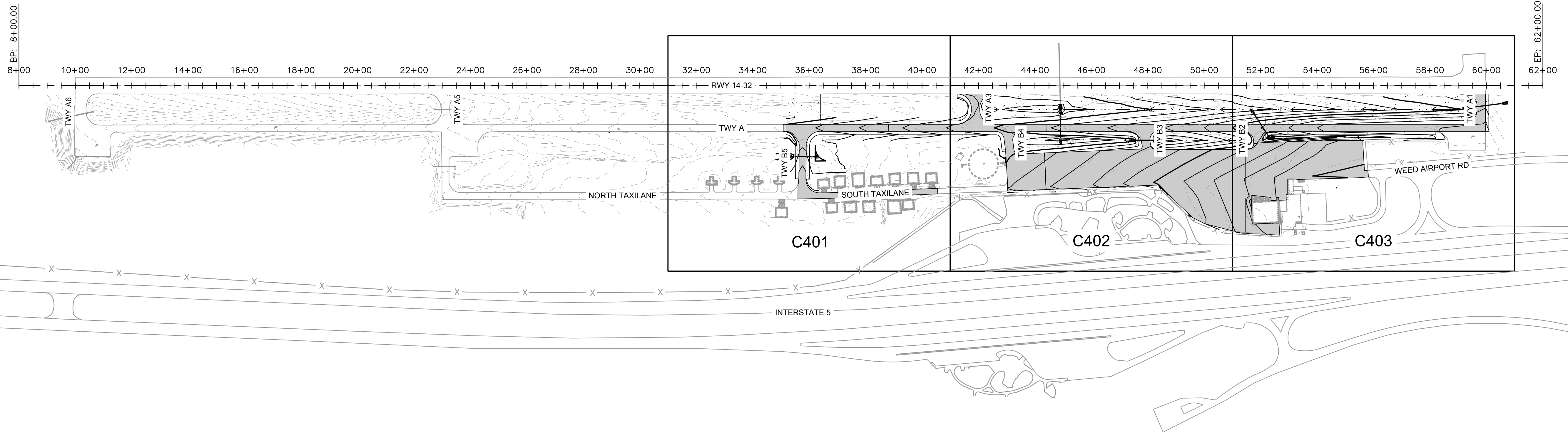
SISKIYOU COUNTY  
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 PROJECT PHASE 1

CALIFORNIA  
 WEED

SHEET NUMBER  
**C306**  
 SHEET 28 OF 54

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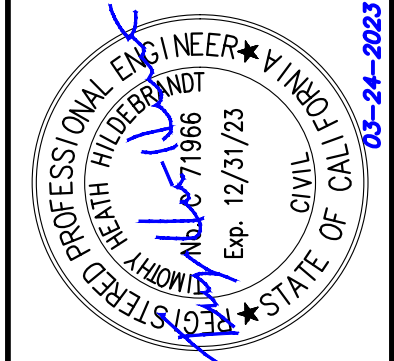
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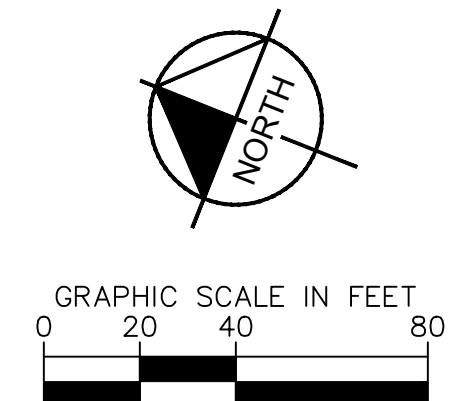
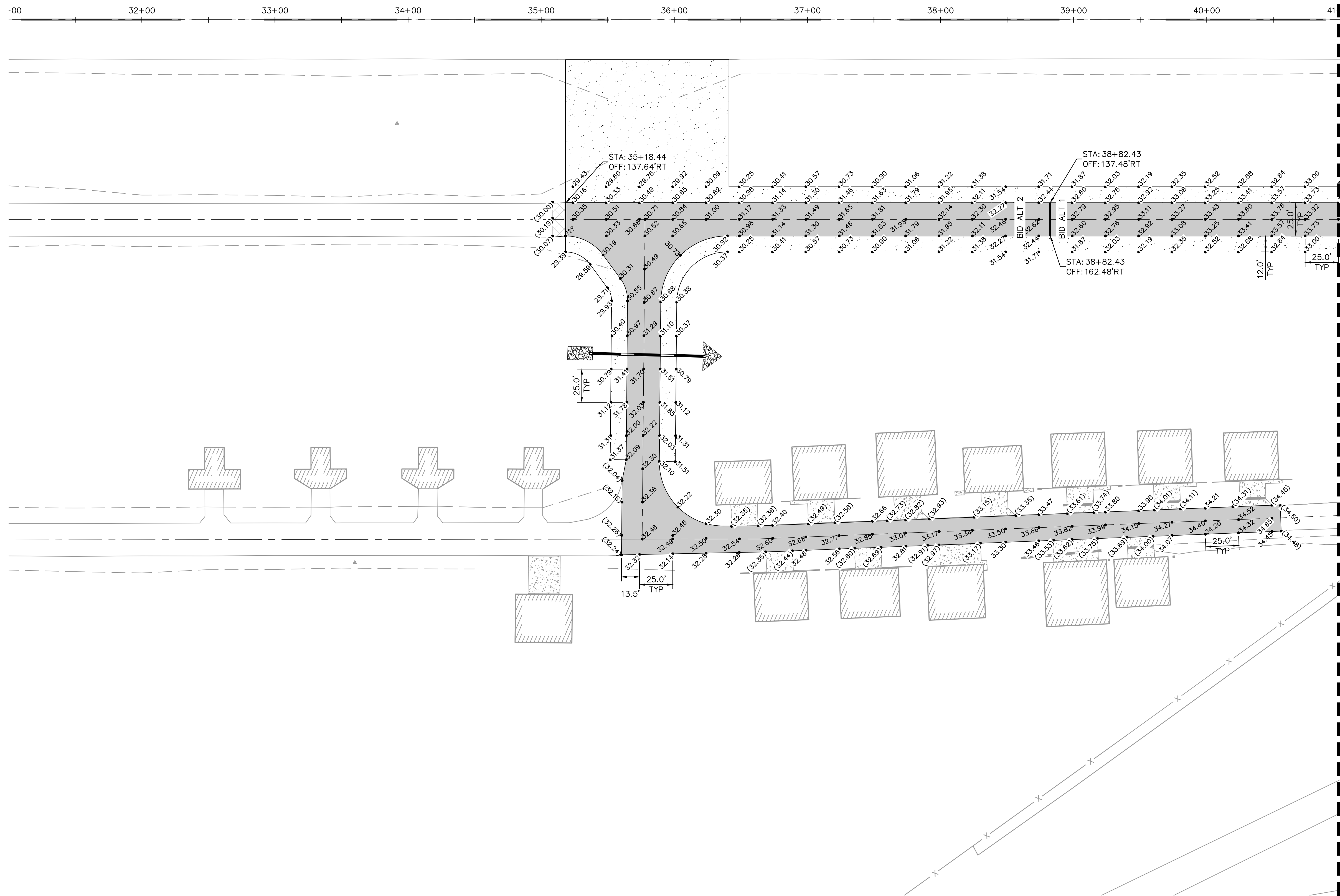
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| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**PAVEMENT  
ELEVATIONS PLAN  
SHEET INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
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SHEET NUMBER  
**C400**  
 SHEET 29 OF 54

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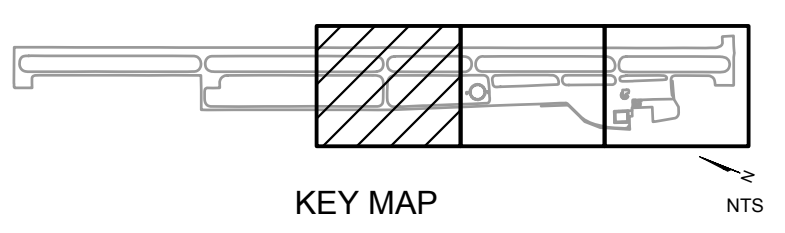
**NOTES**

1. ADD 2900 TO ALL SPOT ELEVATIONS.
2. ELEVATIONS SHOWN AT EDGE OF PAVEMENT ARE TO THE FINISHED GRADE OF THE PAVEMENT.

**LEGEND**

- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOWLINE
- PROPOSED ELEVATION
- EXISTING ELEVATION

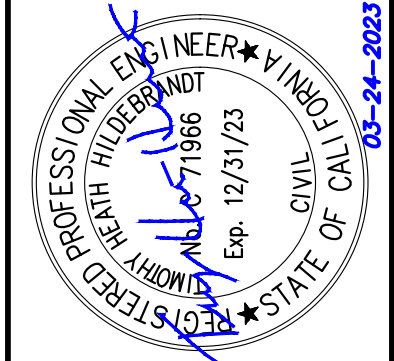
MATCHLINE - STA. 41+00. SEE SHEET C402



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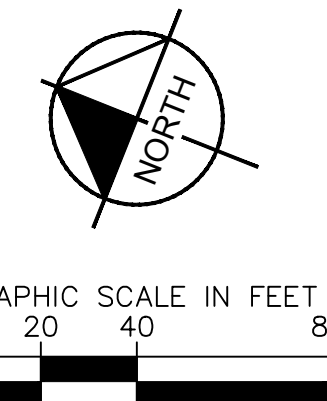
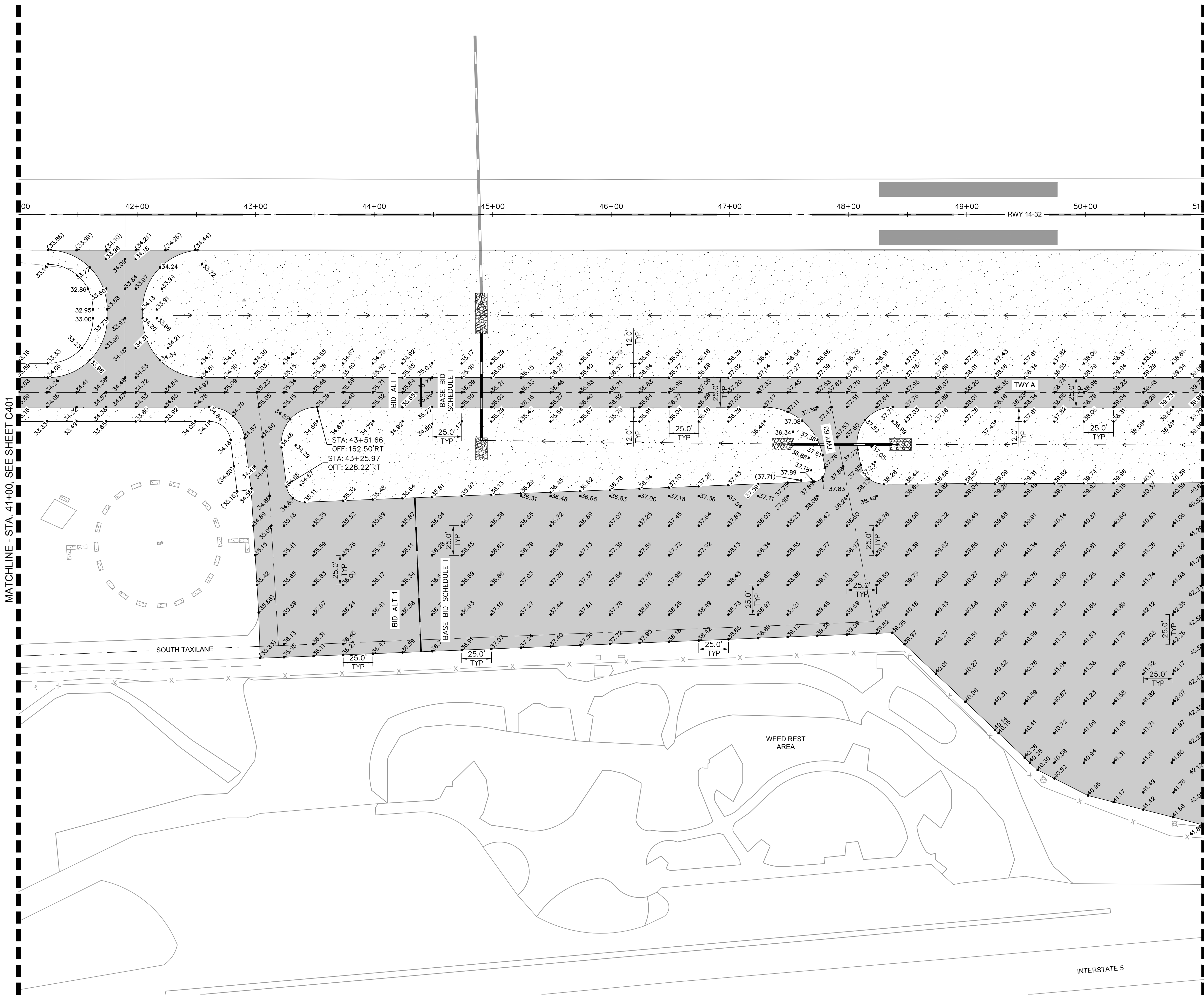
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**PAVEMENT  
ELEVATIONS PLAN**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
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SHEET NUMBER  
**C401**  
SHEET 30 OF 54

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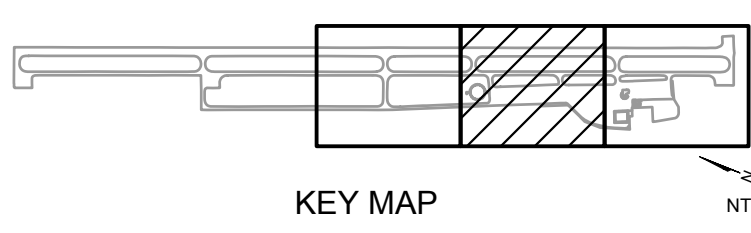


**NOTES**

- ADD 2900 TO ALL SPOT ELEVATIONS.
- ELEVATIONS SHOWN AT EDGE OF PAVEMENT ARE TO THE FINISHED GRADE OF THE PAVEMENT.

**LEGEND**

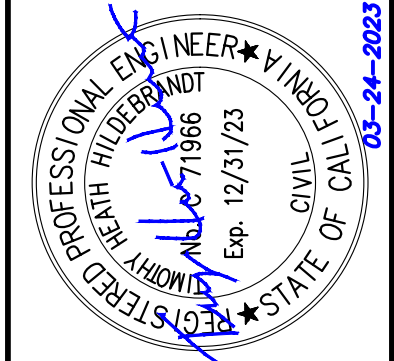
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- PROPOSED FLOWLINE
- PROPOSED ELEVATION
- EXISTING ELEVATION



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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

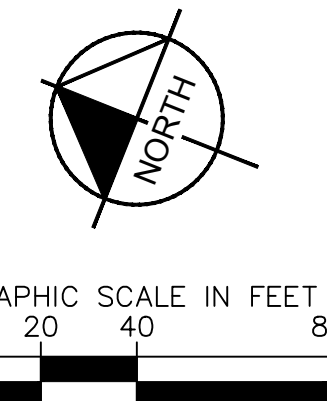
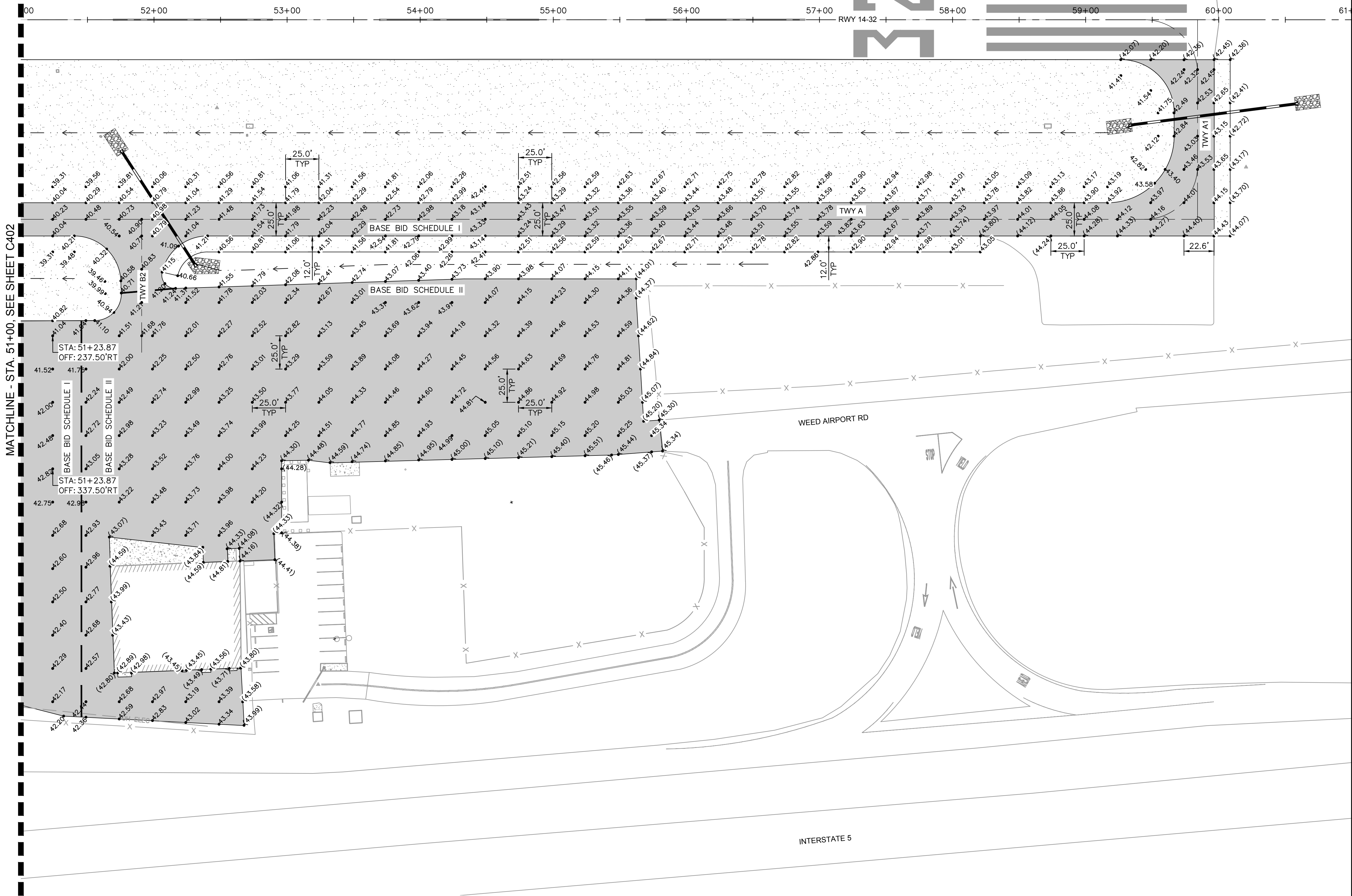
**PAVEMENT  
ELEVATIONS PLAN**

SISKIYOU COUNTY  
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APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

SHEET NUMBER  
**C402**  
SHEET 31 OF 54

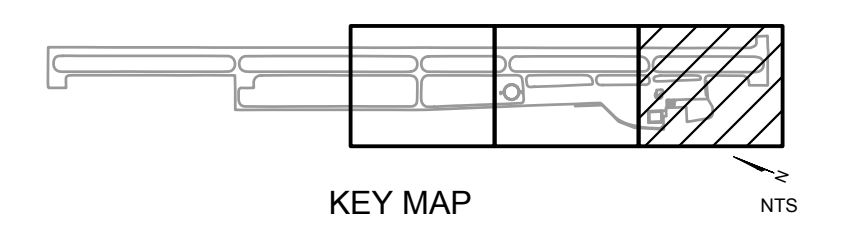
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- NOTES**
- ADD 2900 TO ALL SPOT ELEVATIONS.
  - ELEVATIONS SHOWN AT EDGE OF PAVEMENT ARE TO THE FINISHED GRADE OF THE PAVEMENT.

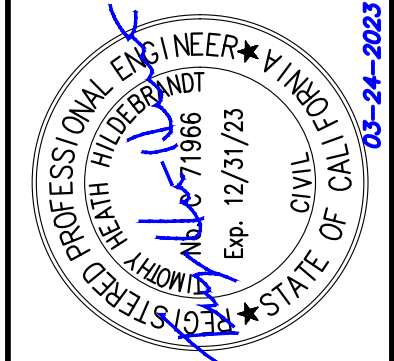
- LEGEND**
- EXISTING STORM DRAIN PIPE
  - PROPOSED STORM DRAIN PIPE
  - PROPOSED FLOWLINE
  - PROPOSED ELEVATION
  - EXISTING ELEVATION



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| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
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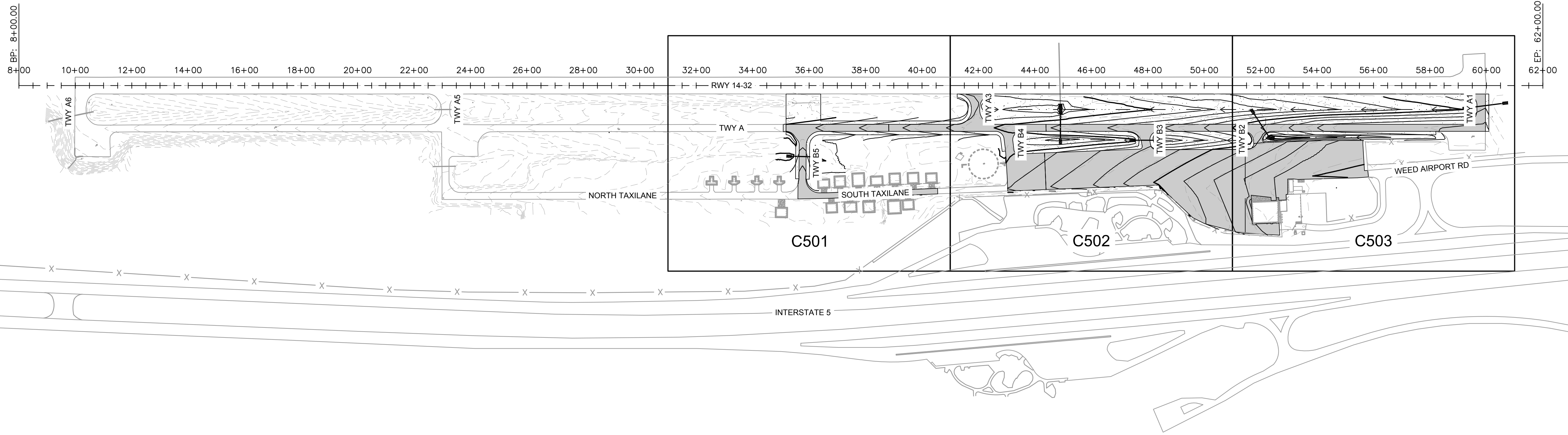
**PAVEMENT ELEVATIONS PLAN**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

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SHEET NUMBER  
**C403**  
 SHEET 32 OF 54

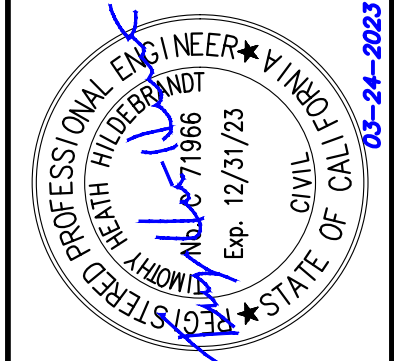
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| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

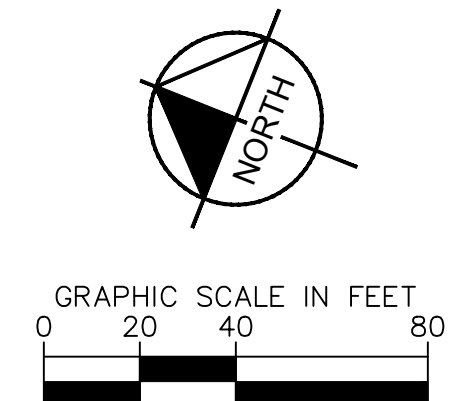
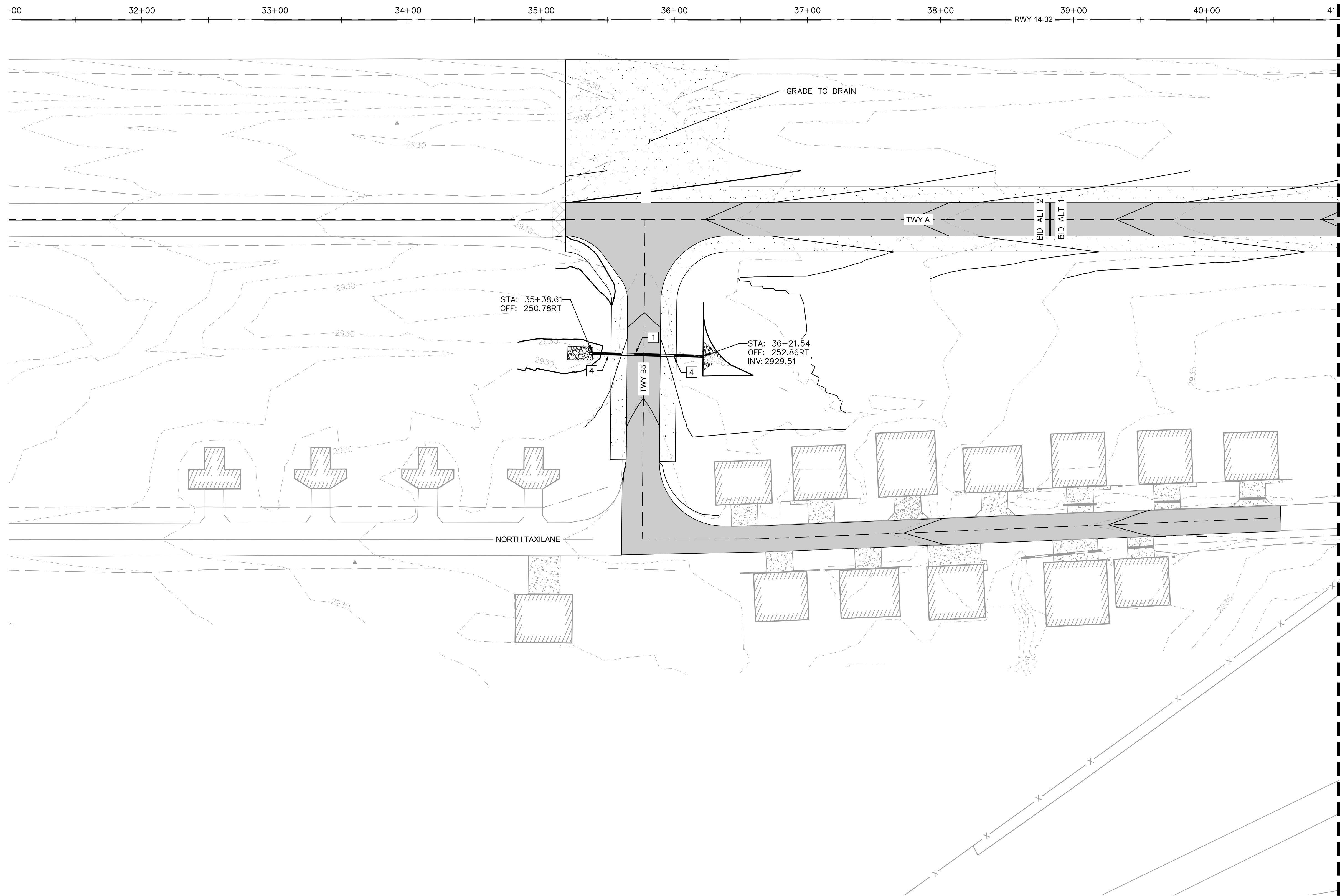
**GRADING & DRAINAGE  
 PLAN SHEET INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**C500**  
 SHEET 33 OF 54



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**NOTES**

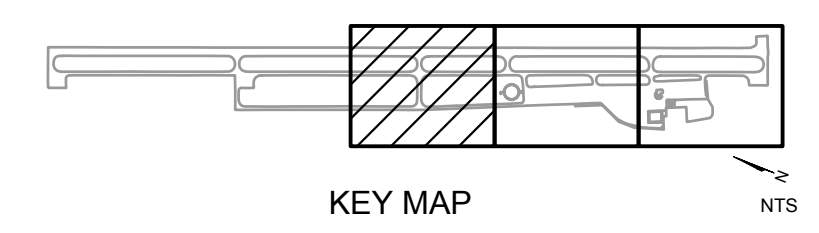
- 1. PROPOSED CONTOURS REPRESENT FINISHED GRADE.

**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- DRAINAGE ARROW
- PROPOSED GRADE BREAK
- PROPOSED FLOWLINE
- PROPOSED FLOWLINE ELEVATION
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600

**CONSTRUCTION NOTES**

- 1 INSTALL 15" CLASS IV RCP PER DETAIL 1, SHEET C400
- 4 INSTALL FLARED END SECTION WITH RIP RAP APRON PER DETAIL 2, SHEET C400

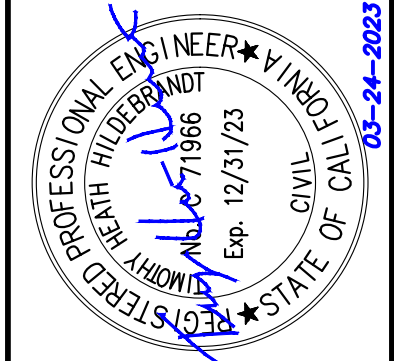


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| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**GRADING & DRAINAGE  
PLAN**

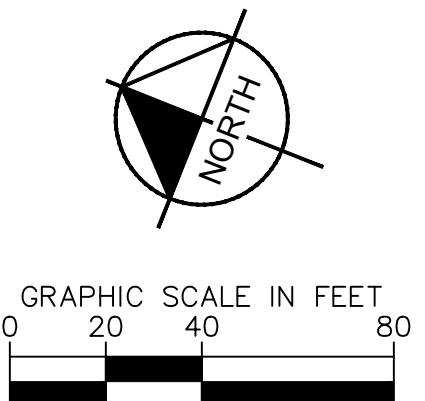
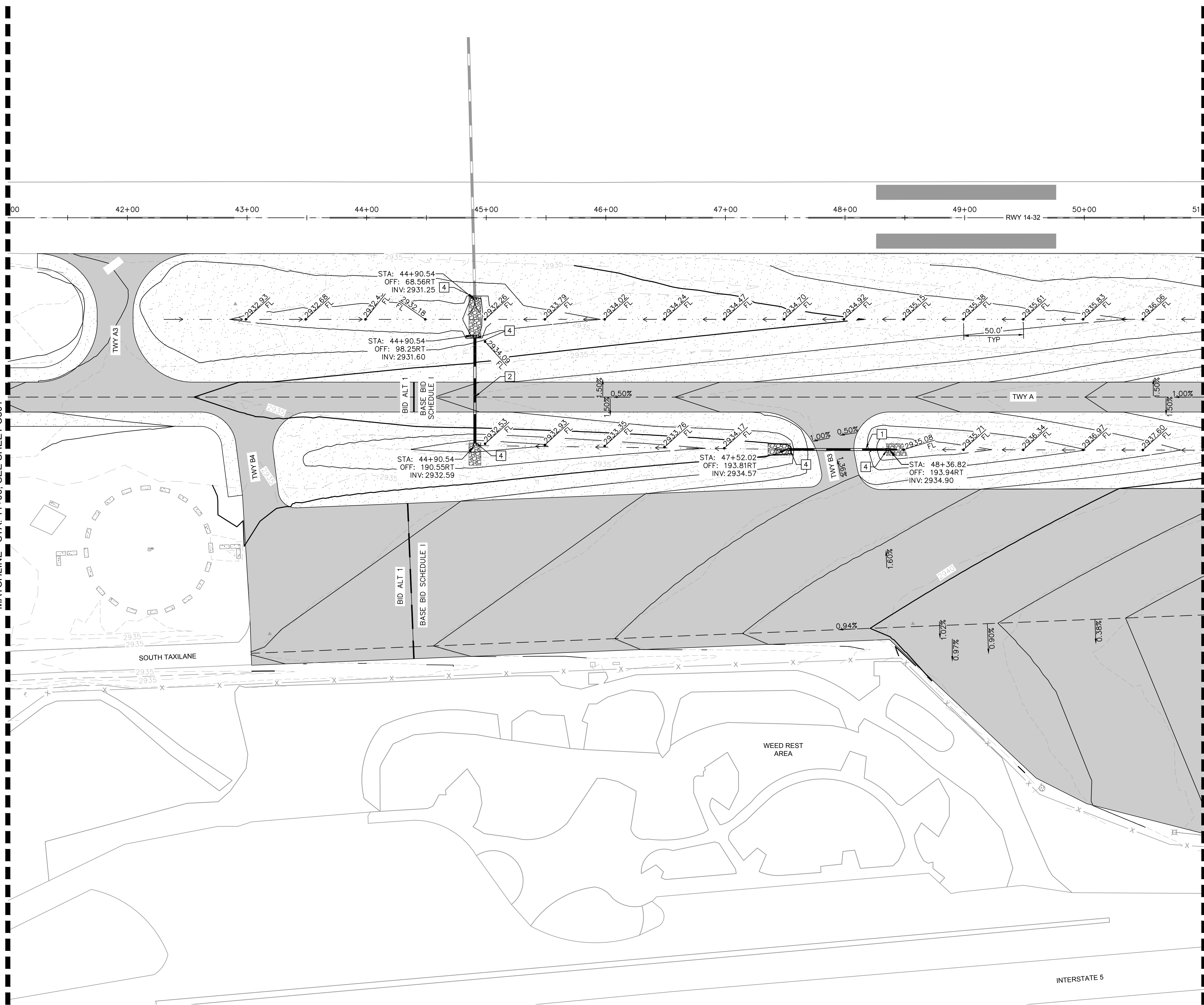
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**C501**  
SHEET 34 OF 54

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MATCHLINE - STA. 41+00. SEE SHEET C501

MATCHLINE - STA. 51+00. SEE SHEET C503



**NOTES**

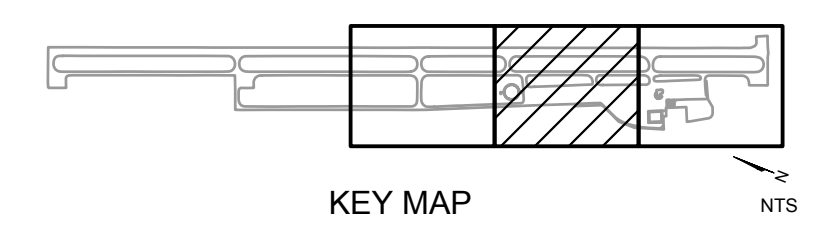
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**LEGEND**

- 3959 EXISTING MAJOR CONTOUR
- 3959 EXISTING MINOR CONTOUR
- 3959 PROPOSED MAJOR CONTOUR
- 3959 PROPOSED MINOR CONTOUR
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- 1.03% DRAINAGE ARROW
- PROPOSED GRADE BREAK
- PROPOSED FLOWLINE
- PROPOSED FLOWLINE ELEVATION
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600

**CONSTRUCTION NOTES**

- 1 INSTALL 15" CLASS IV RCP PER DETAIL 1, SHEET C400
- 2 INSTALL 18" CLASS IV RCP PER DETAIL 1, SHEET C400
- 4 INSTALL FLARED END SECTION WITH RIP RAP APRON PER DETAIL 2, SHEET C400



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PROFESSIONAL ENGINEER  
 STATE OF CALIFORNIA  
 No. 1986  
 Exp. 12/31/23  
 JWF

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| KHA PROJECT | 191396004  |
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| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

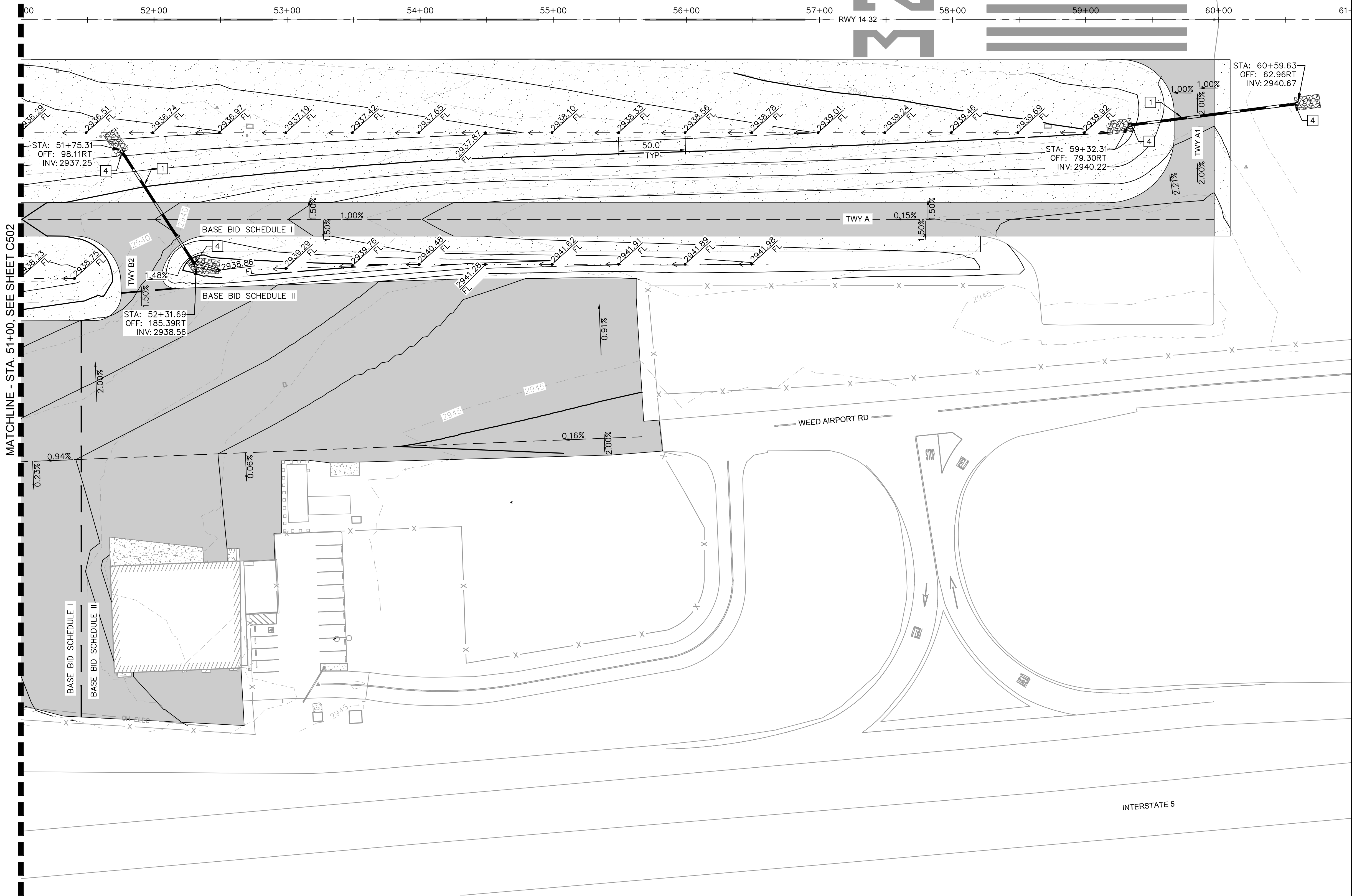
**GRADING & DRAINAGE PLAN**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA

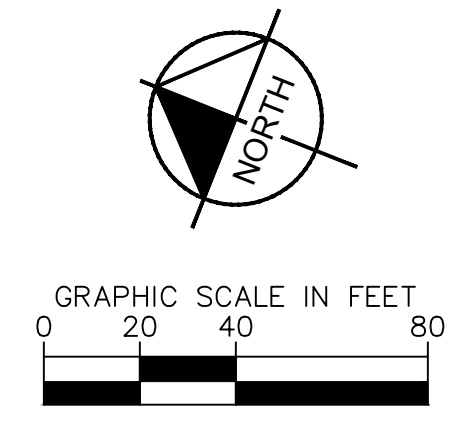
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**C502**  
 SHEET 35 OF 54

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MATCHLINE - STA. 51+00 - SEE SHEET C502



**NOTES**

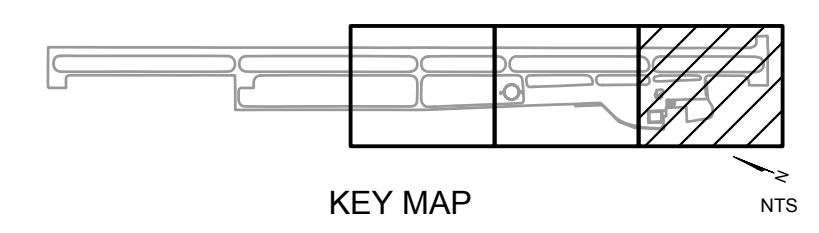
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**LEGEND**

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING STORM DRAIN PIPE
- PROPOSED STORM DRAIN PIPE
- DRAINAGE ARROW
- PROPOSED GRADE BREAK
- PROPOSED FLOWLINE
- PROPOSED FLOWLINE ELEVATION
- PLACE RIPRAP DRAINAGE ARMORING, SEE DETAIL 2, SHEET C600

**CONSTRUCTION NOTES**

- INSTALL 15" CLASS IV RCP PER DETAIL 1, SHEET C400
- INSTALL FLARED END SECTION WITH RIP RAP APRON PER DETAIL 2, SHEET C400

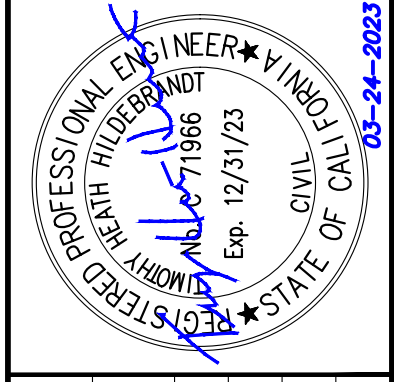


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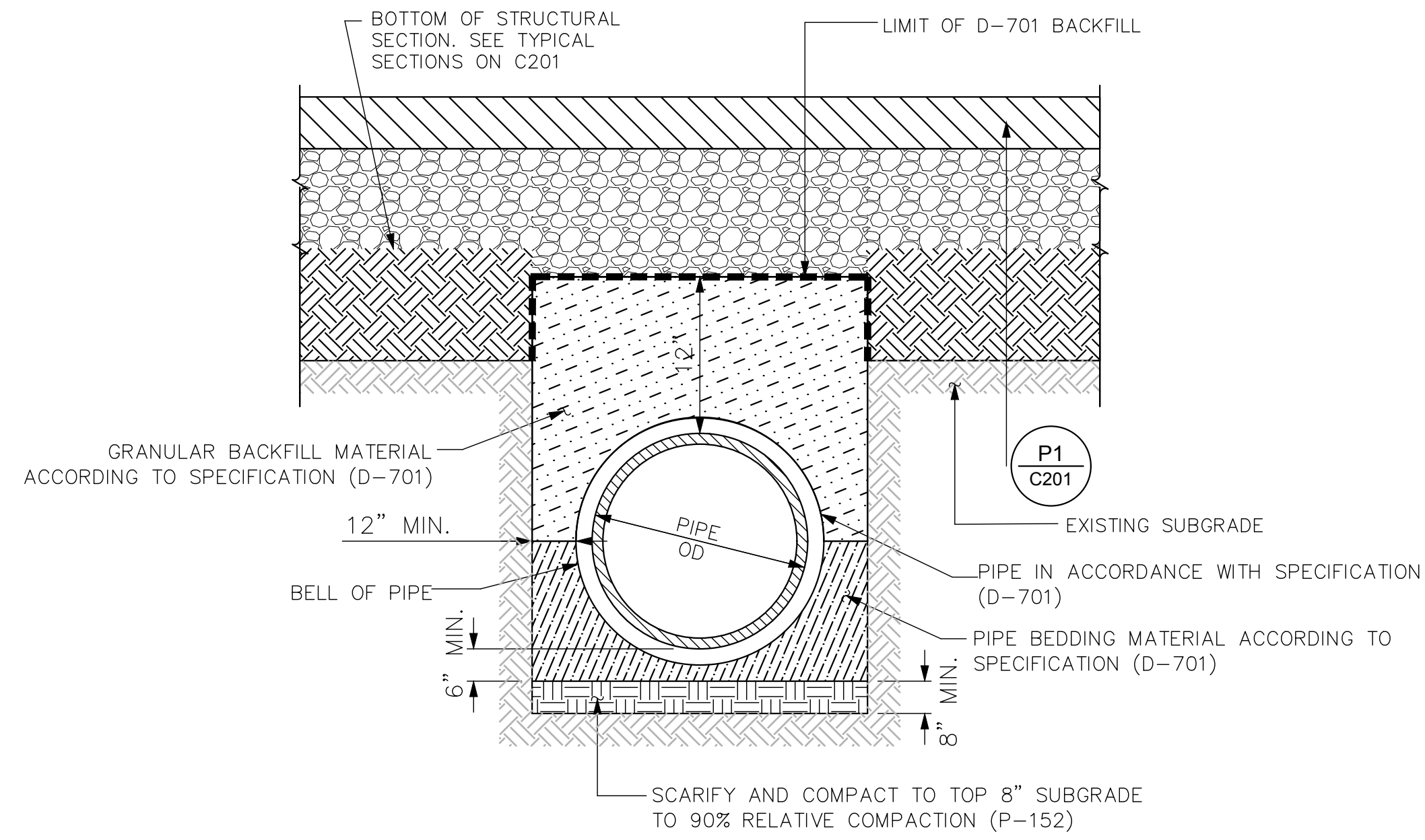
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| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**GRADING & DRAINAGE  
PLAN**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

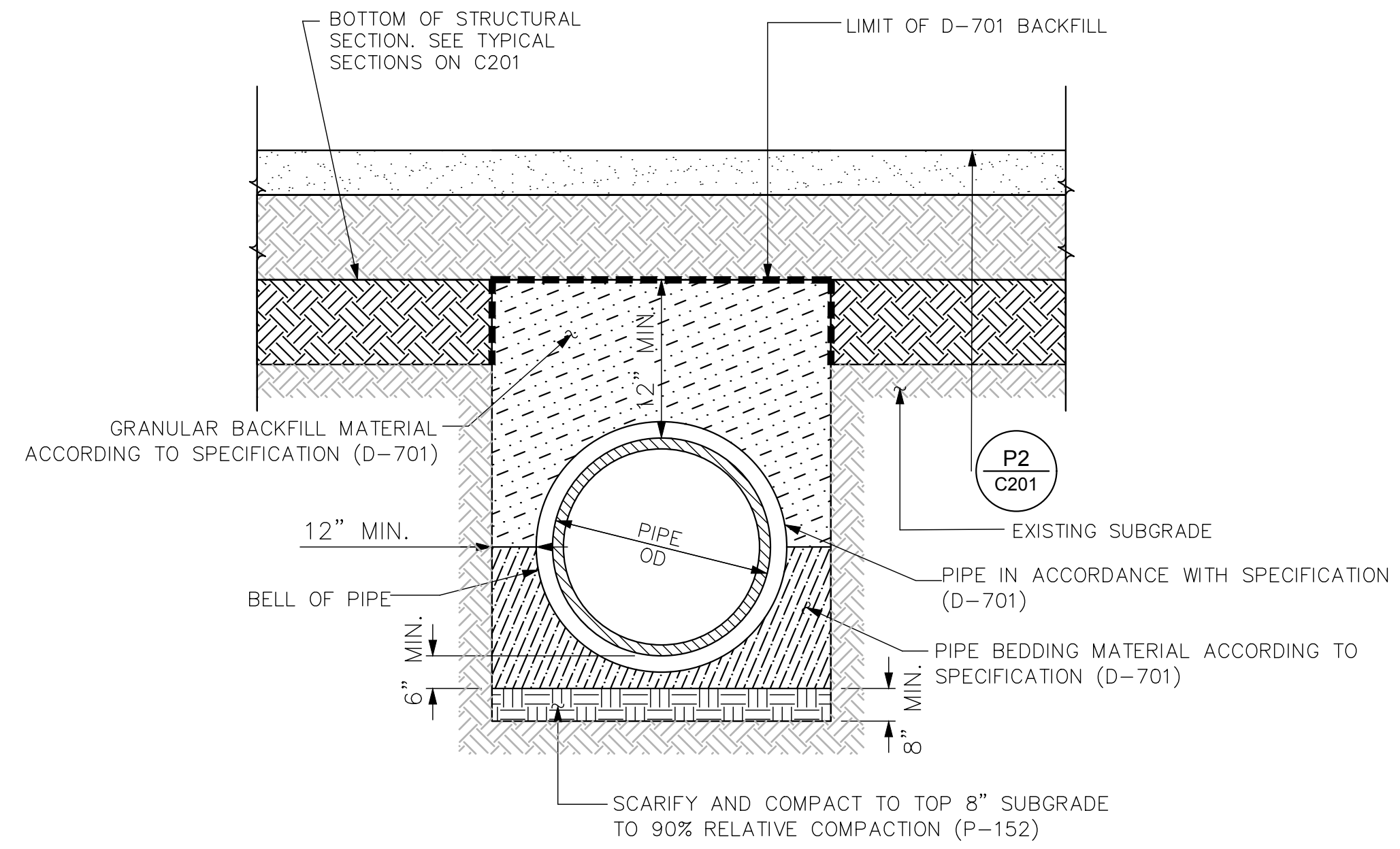
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**C503**  
SHEET 36 OF 54

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NOTE: CONTRACTOR SHALL COMFORM TO OSHA SLOPING AND BENCHING REGULATONS.

**FOR AC PAVEMENT CONSTRUCTION**



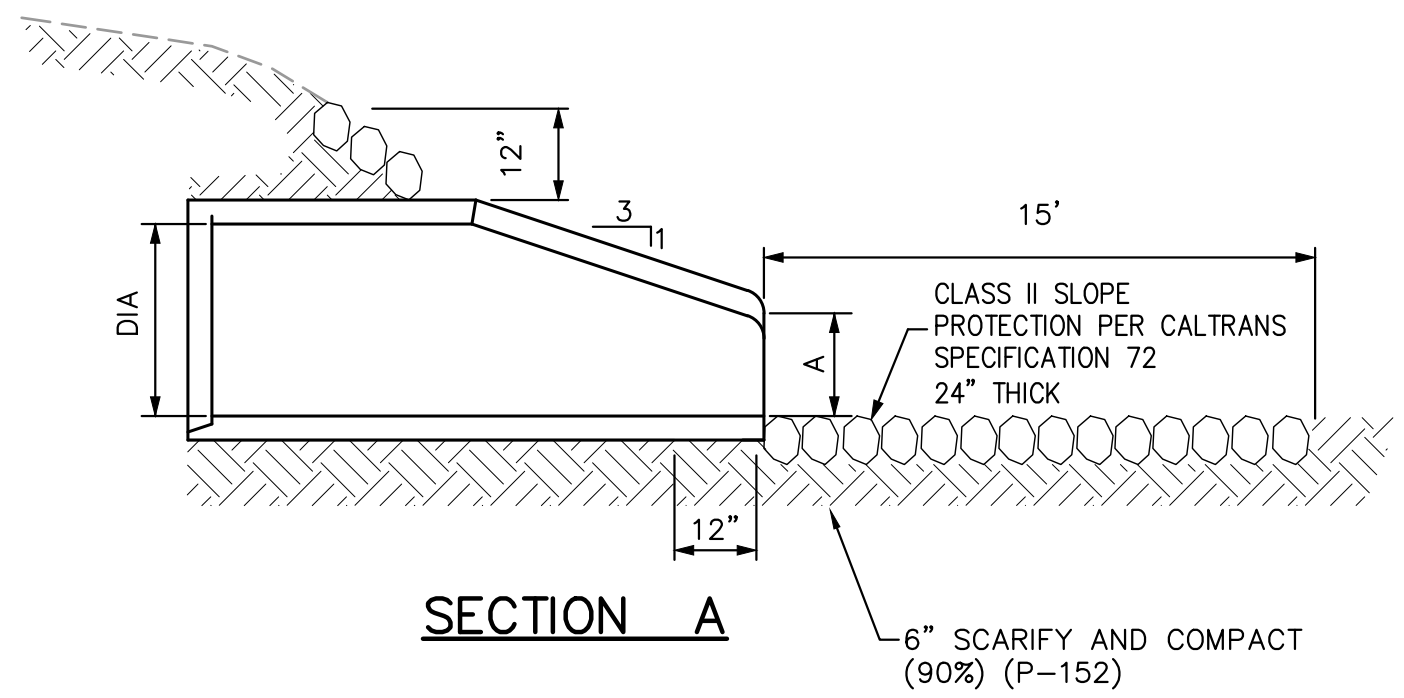
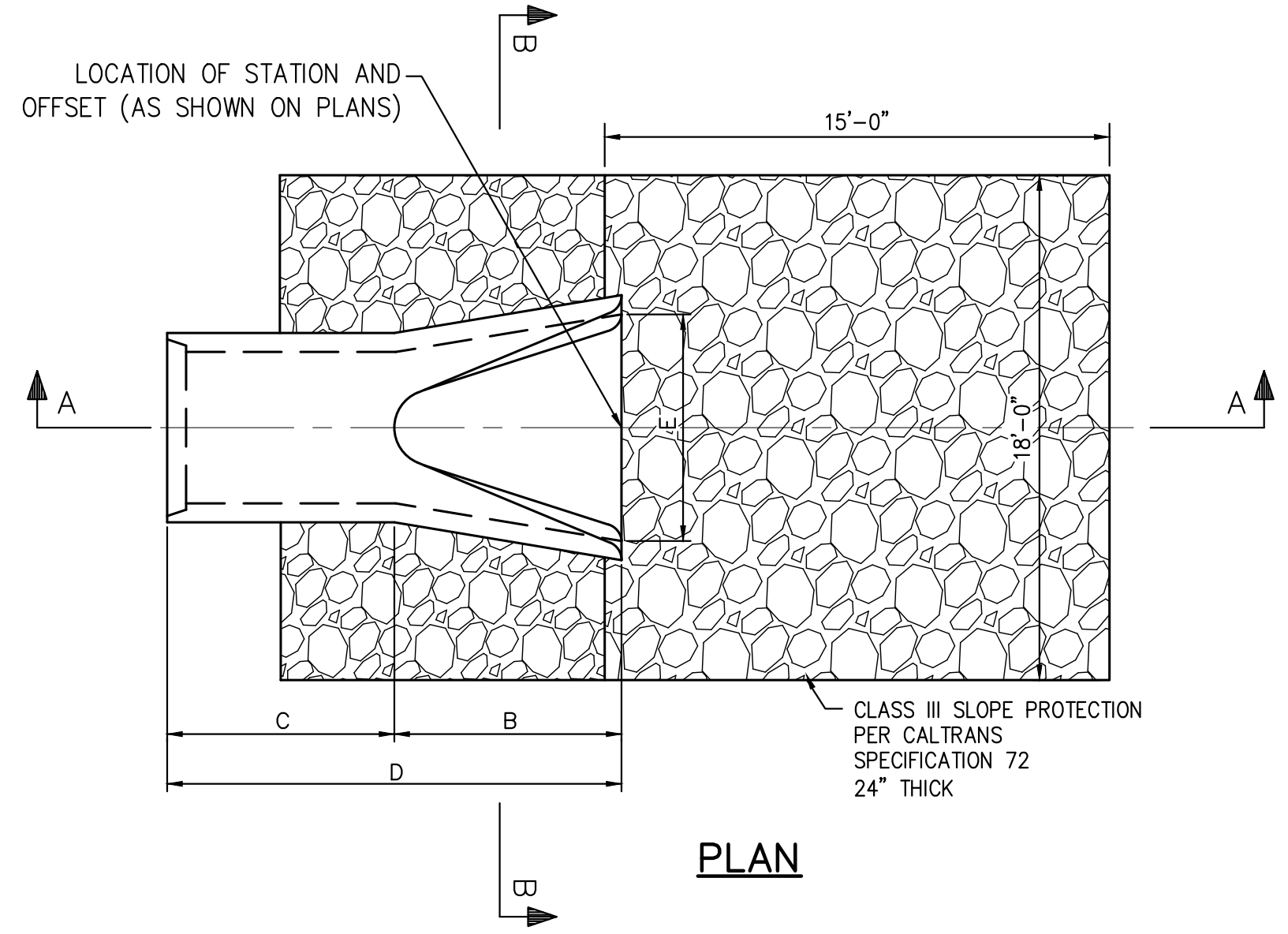
NOTE: CONTRACTOR SHALL COMFORM TO OSHA SLOPING AND BENCHING REGULATONS.

**FOR INFIELD AREA CONSTRUCTION**

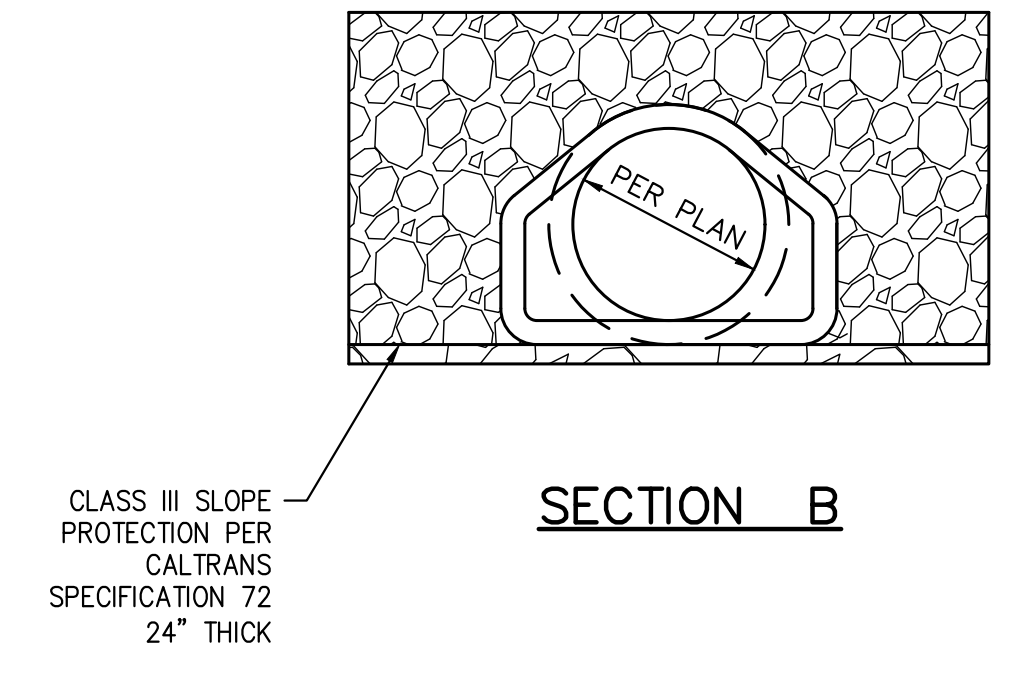
- NOTES:
- CONTRACTOR SHALL COMFORM TO OSHA SLOPING AND BENCHING REGULATONS.
  - IN AREAS WHERE 6" MINIMUM COVER OF CLSM CANNOT BE OBTAINED WITHOUT PENETRATING THE P-207 LAYER, CLSM MAY BE EXTENDED TO THE BOTTOM OF P-403.

**1 PIPE TRENCH DETAIL  
N.T.S.**

| TABLE OF DIMENSIONS |    |     |     |     |     |
|---------------------|----|-----|-----|-----|-----|
| INSIDE DIA          | A  | B   | C   | D   | E   |
| 15"                 | 6" | 27" | 46" | 73" | 30" |
| 18"                 | 9" | 27" | 46" | 73" | 36" |



NOTE: STRUCTURAL DESIGN OF END SECTION SHALL CONFORM WITH THAT OF CLASS IV REINFORCED CONCRETE CULVERT PIPE.



**2 FLARED END SECTION  
WITH RIP RAP  
N.T.S.**

| No. | REVISIONS | DATE | BY |
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|--------------------------|--------------------|---|-------------------|
| KHA PROJECT<br>191396004 | DATE<br>03/24/2023 | DESIGNED BY<br>JC   | CHECKED BY<br>THH |
| SCALE                    | DRAWN BY<br>JWF    | PROJECT<br>SISKIYOU COUNTY<br>WEED AIRPORT - 046<br>TAXIWAY & AIRCRAFT PARKING<br>APRON RECONSTRUCTION<br>PROJECT PHASE 1 |                   |

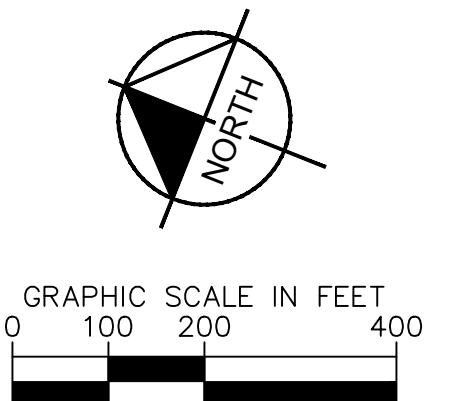
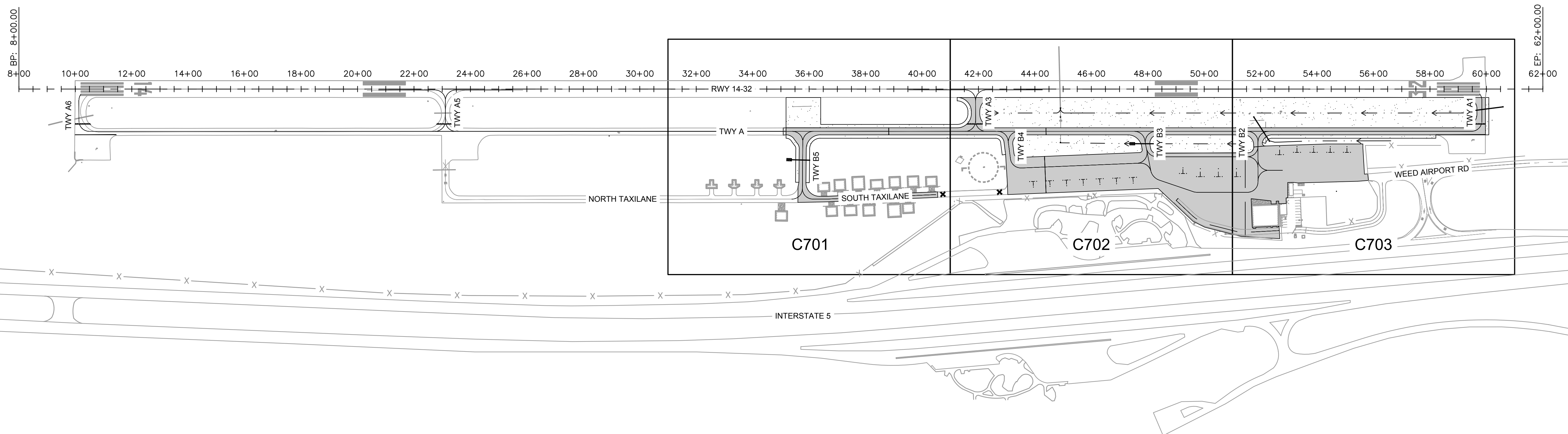
**DRAINAGE DETAILS**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 CALIFORNIA

MARCH 2023  
**ISSUED FOR BID**

SHEET NUMBER  
**C600**  
 SHEET 37 OF 54

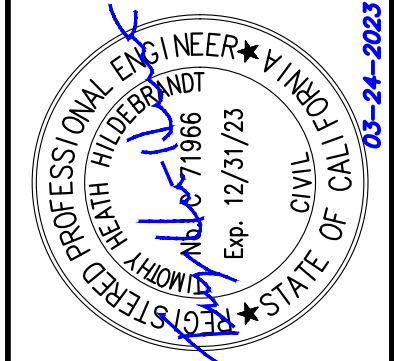
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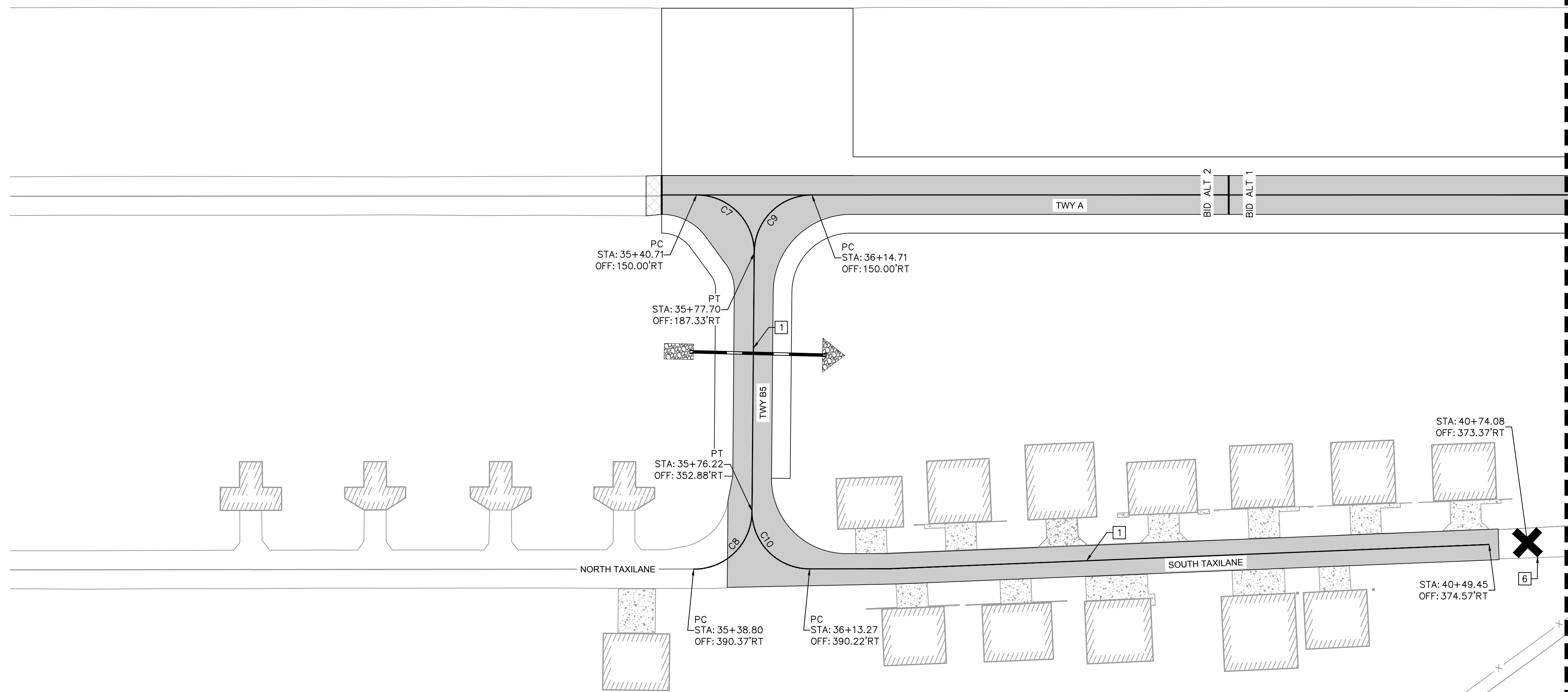
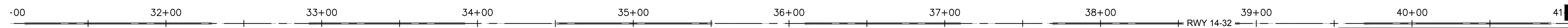
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**MARKING PLAN  
SHEET INDEX**

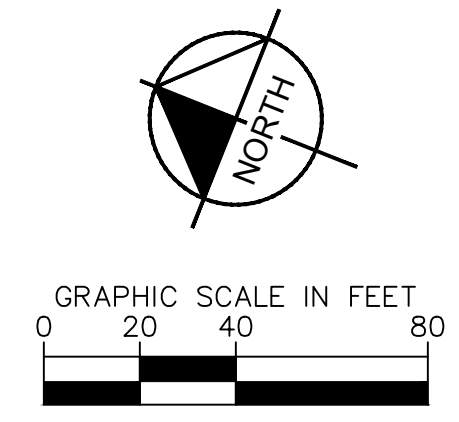
SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**C700**  
 SHEET 38 OF 54

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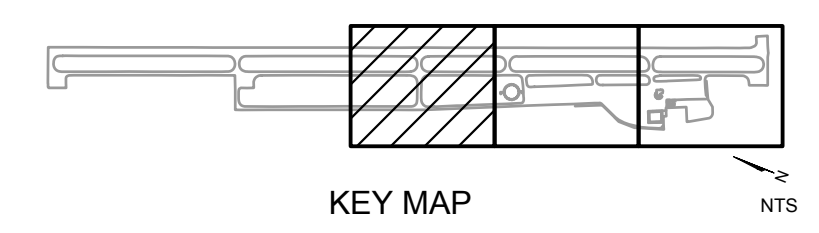
| CURVE TABLE |        |        |               |        |           |         |
|-------------|--------|--------|---------------|--------|-----------|---------|
| CURVE       | RADIUS | LENGTH | CHORD BEARING | CHORD  | DELTA     | TANGENT |
| C7          | 37.00' | 58.45' | N23°29'23"E   | 52.56' | 90°30'53" | 37.33'  |
| C8          | 37.02' | 59.02' | S66°48'57"E   | 52.97' | 91°20'47" | 37.90'  |
| C9          | 37.00' | 57.79' | N66°30'37"W   | 52.09' | 89°29'07" | 36.67'  |
| C10         | 37.00' | 58.51' | S23°26'44"W   | 52.60' | 90°36'11" | 37.39'  |



- NOTES:**
- REFLECTORIZED PAINT WITH GLASS BEADS SHALL BE USED FOR ALL PERMANENT PAVEMENT MARKINGS EXCEPT BLACK.
  - PAVEMENT MARKING DETAILS SHALL CONFORM TO THE LATEST EDITION OF THE FEDERAL AVIATION ADMINISTRATIONS ADVISORY CIRCULAR AC150/5340-1M OR CURRENT EDITION. IF A CONFLICT OCCURS BETWEEN THESE PLANS AND THE ADVISORY CIRCULAR, THE ADVISORY CIRCULAR SHALL TAKE PRECEDENCE.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- MARKING NOTES**
- INSTALL 6" WIDE SOLID YELLOW TAXIWAY CENTERLINE PAVEMENT MARKING PER DETAIL 1, SHEET C800
  - INSTALL CLOSED TAXIWAY MARKING PER DETAIL 7, SHEET C800

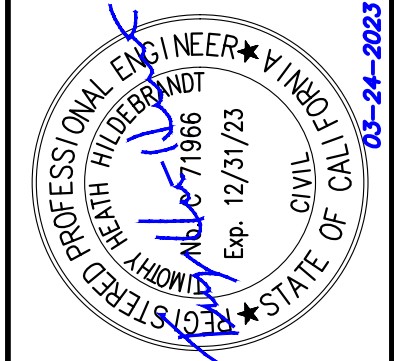
MATCHLINE - STA. 41+00. SEE SHEET C702



| NO. | REVISIONS | DATE | BY |
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|-------------|------------|
| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

## MARKING PLAN

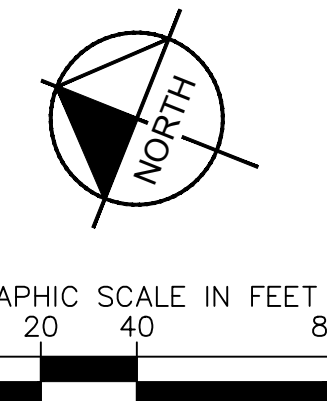
SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1

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**C701**  
 SHEET 39 OF 54

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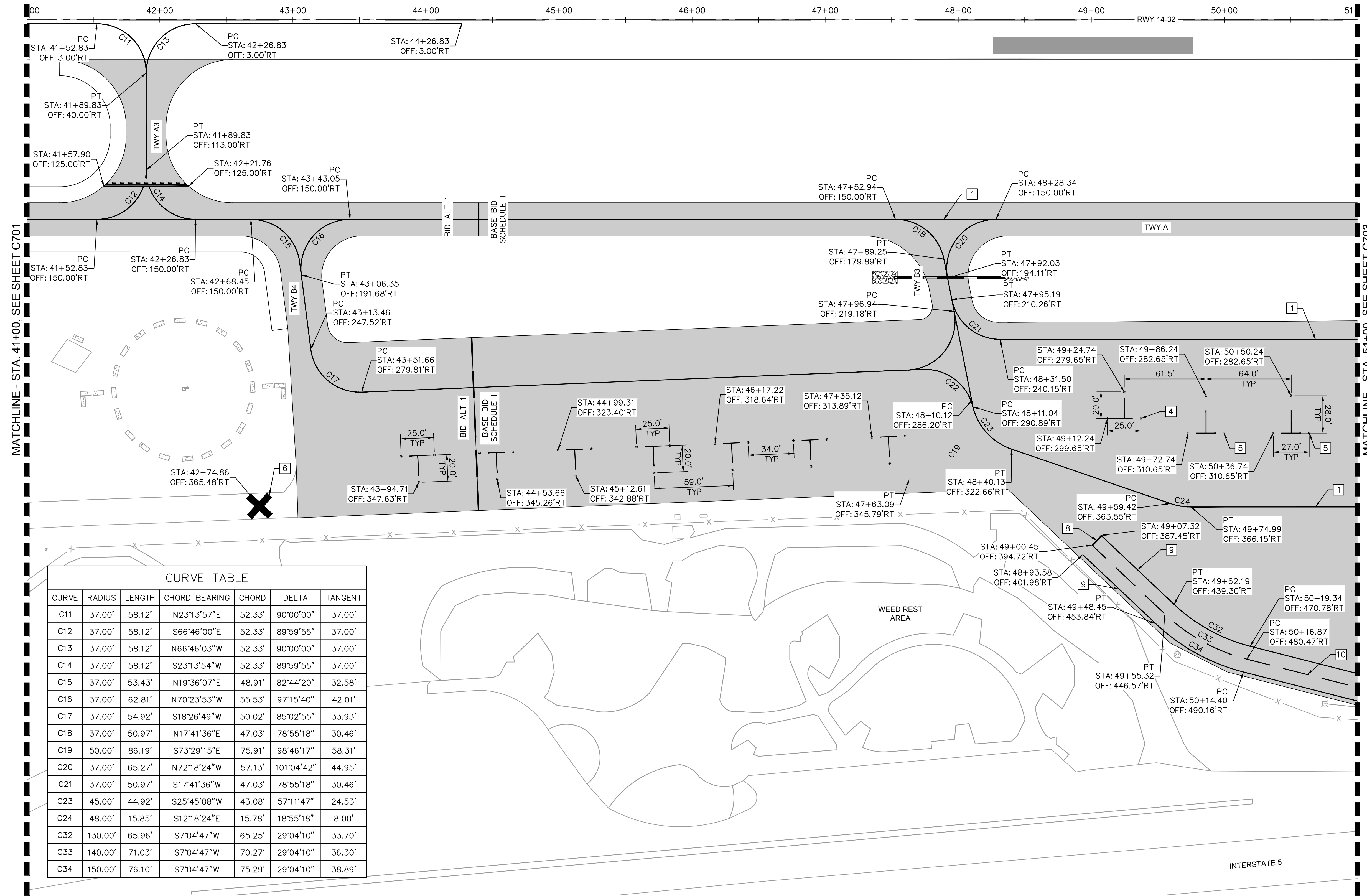


**NOTES:**

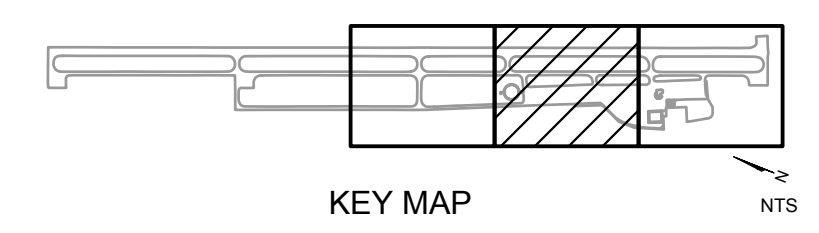
1. REFLECTORIZED PAINT WITH GLASS BEADS SHALL BE USED FOR ALL PERMANENT PAVEMENT MARKINGS EXCEPT BLACK.
2. PAVEMENT MARKING DETAILS SHALL CONFORM TO THE LATEST EDITION OF THE FEDERAL AVIATION ADMINISTRATIONS ADVISORY CIRCULAR AC150/5340-1M OR CURRENT EDITION. IF A CONFLICT OCCURS BETWEEN THESE PLANS AND THE ADVISORY CIRCULAR, THE ADVISORY CIRCULAR SHALL TAKE PRECEDENCE.
3. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

**MARKING NOTES**

1. INSTALL 6" WIDE SOLID YELLOW TAXIWAY CENTERLINE PAVEMENT MARKING PER DETAIL 1, SHEET C800
4. INSTALL 25'X20' TIE-DOWN ANCHORS PER DETAILS 3-5, SHEET C800
5. INSTALL 27'X28' TIE-DOWN ANCHORS PER DETAILS 3-5, SHEET C800
6. INSTALL CLOSED TAXIWAY MARKING PER DETAIL 7, SHEET C800
8. INSTALL 2' WIDE SOLID WHITE VEHICLE SERVICE ROAD STOP LINE
9. INSTALL 6" WIDE SOLID WHITE VSR EDGE PAVEMENT MARKING PER DETAIL 7, SHEET C800
10. INSTALL 6" WIDE SOLID WHITE VSR CENTERLINE PAVEMENT MARKING PER DETAIL 8, SHEET C800



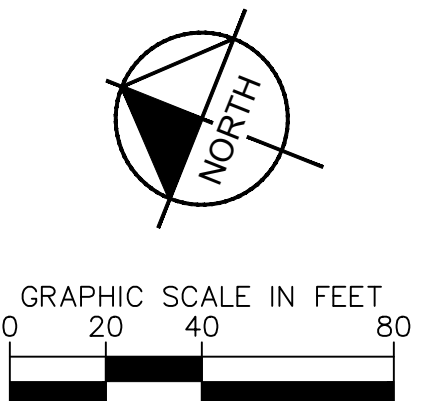
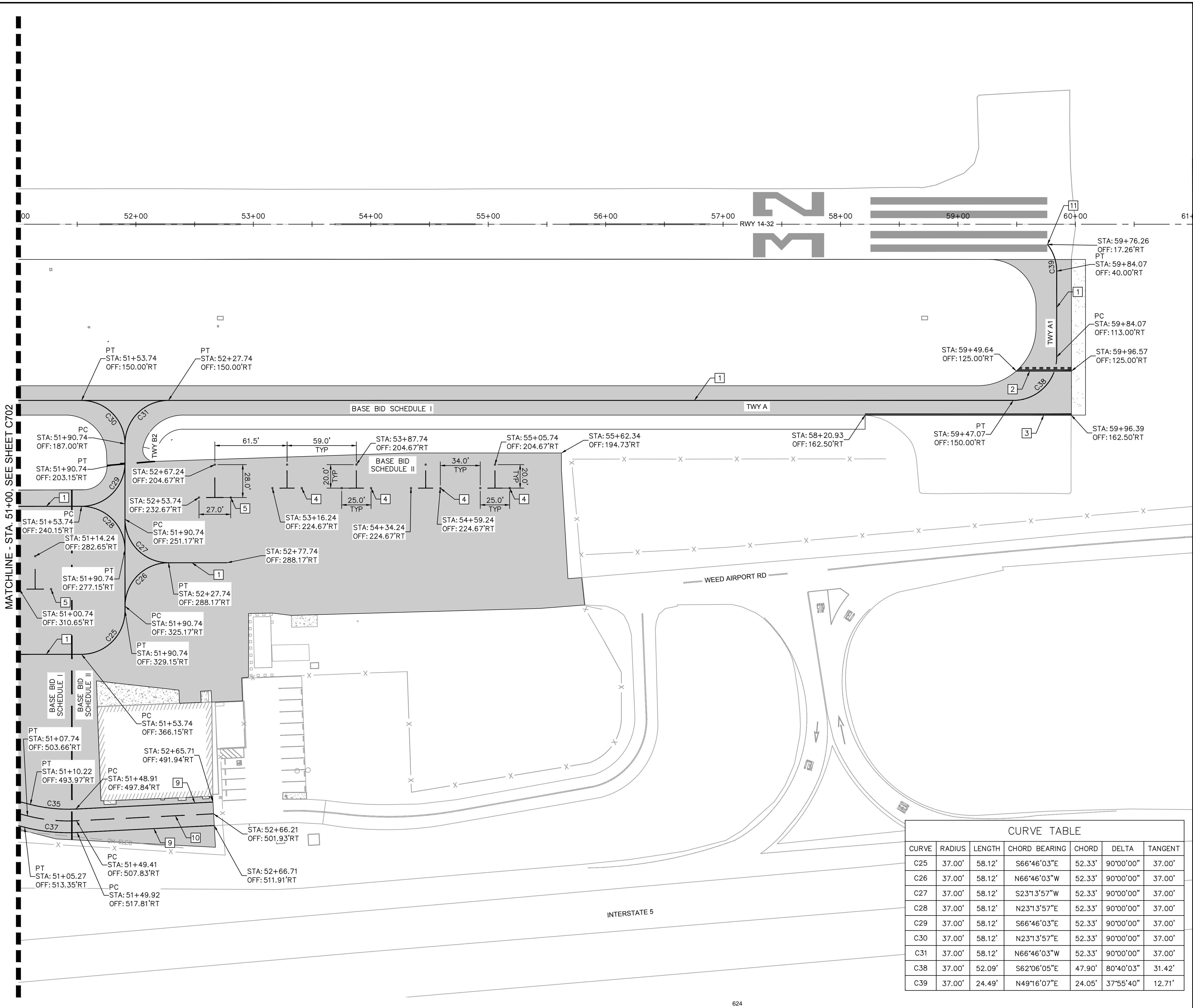
| CURVE TABLE |         |        |               |        |            |         |
|-------------|---------|--------|---------------|--------|------------|---------|
| CURVE       | RADIUS  | LENGTH | CHORD BEARING | CHORD  | DELTA      | TANGENT |
| C11         | 37.00'  | 58.12' | N23°13'57"E   | 52.33' | 90°00'00"  | 37.00'  |
| C12         | 37.00'  | 58.12' | S66°46'00"E   | 52.33' | 89°59'55"  | 37.00'  |
| C13         | 37.00'  | 58.12' | N66°46'03"W   | 52.33' | 90°00'00"  | 37.00'  |
| C14         | 37.00'  | 58.12' | S23°13'54"W   | 52.33' | 89°59'55"  | 37.00'  |
| C15         | 37.00'  | 53.43' | N19°36'07"E   | 48.91' | 82°44'20"  | 32.58'  |
| C16         | 37.00'  | 62.81' | N70°23'53"W   | 55.53' | 97°15'40"  | 42.01'  |
| C17         | 37.00'  | 54.92' | S18°26'49"W   | 50.02' | 85°02'55"  | 33.93'  |
| C18         | 37.00'  | 50.97' | N17°41'36"E   | 47.03' | 78°55'18"  | 30.46'  |
| C19         | 50.00'  | 86.19' | S73°29'15"E   | 75.91' | 98°46'17"  | 58.31'  |
| C20         | 37.00'  | 65.27' | N72°18'24"W   | 57.13' | 101°04'42" | 44.95'  |
| C21         | 37.00'  | 50.97' | S17°41'36"W   | 47.03' | 78°55'18"  | 30.46'  |
| C23         | 45.00'  | 44.92' | S25°45'08"W   | 43.08' | 57°11'47"  | 24.53'  |
| C24         | 48.00'  | 15.85' | S12°18'24"E   | 15.78' | 18°55'18"  | 8.00'   |
| C32         | 130.00' | 65.96' | S7°04'47"W    | 65.25' | 29°04'10"  | 33.70'  |
| C33         | 140.00' | 71.03' | S7°04'47"W    | 70.27' | 29°04'10"  | 36.30'  |
| C34         | 150.00' | 76.10' | S7°04'47"W    | 75.29' | 29°04'10"  | 38.89'  |



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| <p><b>MARKING PLAN</b></p>   | <p><b>PROJECT</b><br/>SISKIYOU COUNTY<br/>WEED AIRPORT - 046<br/>TAXIWAY &amp; AIRCRAFT PARKING<br/>APRON RECONSTRUCTION<br/>PROJECT PHASE 1</p> |      |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |
| <p>191396004<br/>03/24/2023<br/>SCALE<br/>DESIGNED BY JC<br/>DRAWN BY JWF<br/>CHECKED BY THH</p>   | <p>CALIFORNIA<br/>SHEET NUMBER<br/><b>C702</b><br/>SHEET 40 OF 54</p>  |      |    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |             |
| <p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td></tr> </tbody> </table> | NO.  | DATE | BY |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | <p>WEED</p> |
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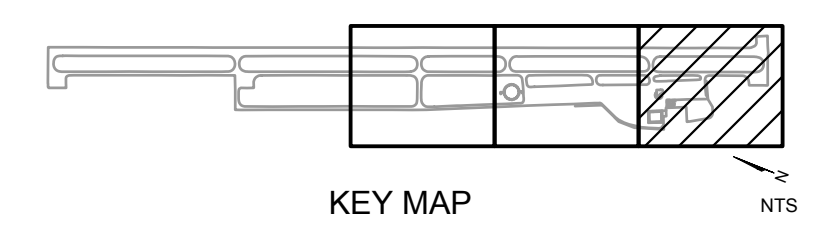


- NOTES:**
- REFLECTORIZED PAINT WITH GLASS BEADS SHALL BE USED FOR ALL PERMANENT PAVEMENT MARKINGS EXCEPT BLACK.
  - PAVEMENT MARKING DETAILS SHALL CONFORM TO THE LATEST EDITION OF THE FEDERAL AVIATION ADMINISTRATIONS ADVISORY CIRCULAR AC150/5340-1M OR CURRENT EDITION. IF A CONFLICT OCCURS BETWEEN THESE PLANS AND THE ADVISORY CIRCULAR, THE ADVISORY CIRCULAR SHALL TAKE PRECEDENCE.
  - ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- MARKING NOTES**
- INSTALL 6" WIDE SOLID YELLOW TAXIWAY CENTERLINE PAVEMENT MARKING PER DETAIL 1, SHEET C800
  - RUNWAY HOLDING POSITION MARKING PER DETAIL 6, SHEET C800
  - INSTALL DOUBLE 6" SOLID YELLOW TAXIWAY EDGE PAVEMENT MARKING PER DETAIL 2, SHEET C800
  - INSTALL 25'X20" TIE-DOWN ANCHORS PER DETAILS 3-5, SHEET C800
  - INSTALL 27'X28" TIE-DOWN ANCHORS PER DETAILS 3-5, SHEET C800
  - INSTALL 6" WIDE SOLID WHITE VSR EDGE PAVEMENT MARKING PER DETAIL 7, SHEET C800
  - INSTALL 6" WIDE SOLID WHITE VSR CENTERLINE PAVEMENT MARKING PER DETAIL 8, SHEET C800
  - TAXIWAY-RUNWAY PAVEMENT MARKING PER DETAIL 9, SHEET C801

**CURVE TABLE**

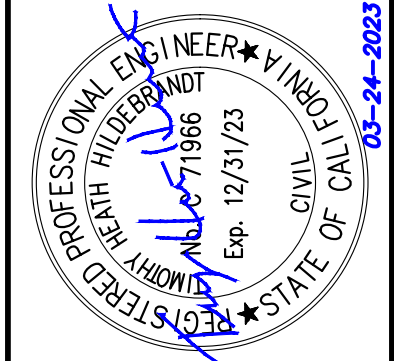
| CURVE | RADIUS | LENGTH | CHORD BEARING | CHORD  | DELTA     | TANGENT |
|-------|--------|--------|---------------|--------|-----------|---------|
| C25   | 37.00' | 58.12' | S66°46'03"E   | 52.33' | 90°00'00" | 37.00'  |
| C26   | 37.00' | 58.12' | N66°46'03"W   | 52.33' | 90°00'00" | 37.00'  |
| C27   | 37.00' | 58.12' | S23°13'57"W   | 52.33' | 90°00'00" | 37.00'  |
| C28   | 37.00' | 58.12' | N23°13'57"E   | 52.33' | 90°00'00" | 37.00'  |
| C29   | 37.00' | 58.12' | S66°46'03"E   | 52.33' | 90°00'00" | 37.00'  |
| C30   | 37.00' | 58.12' | N23°13'57"E   | 52.33' | 90°00'00" | 37.00'  |
| C31   | 37.00' | 58.12' | N66°46'03"W   | 52.33' | 90°00'00" | 37.00'  |
| C38   | 37.00' | 52.09' | S62°06'05"E   | 47.90' | 80°40'03" | 31.42'  |
| C39   | 37.00' | 24.49' | N49°16'07"E   | 24.05' | 37°55'40" | 12.71'  |



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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**MARKING PLAN**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA

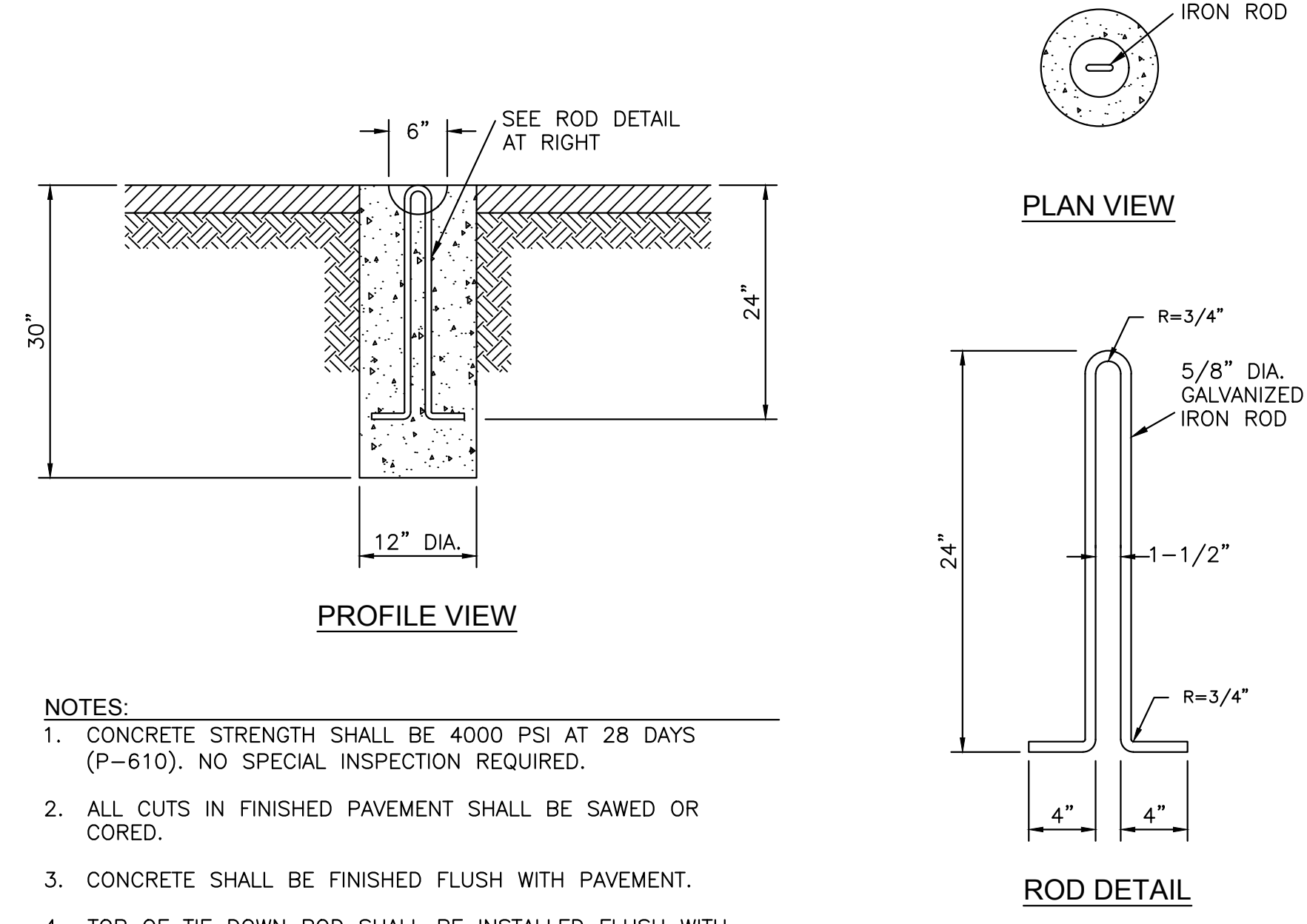
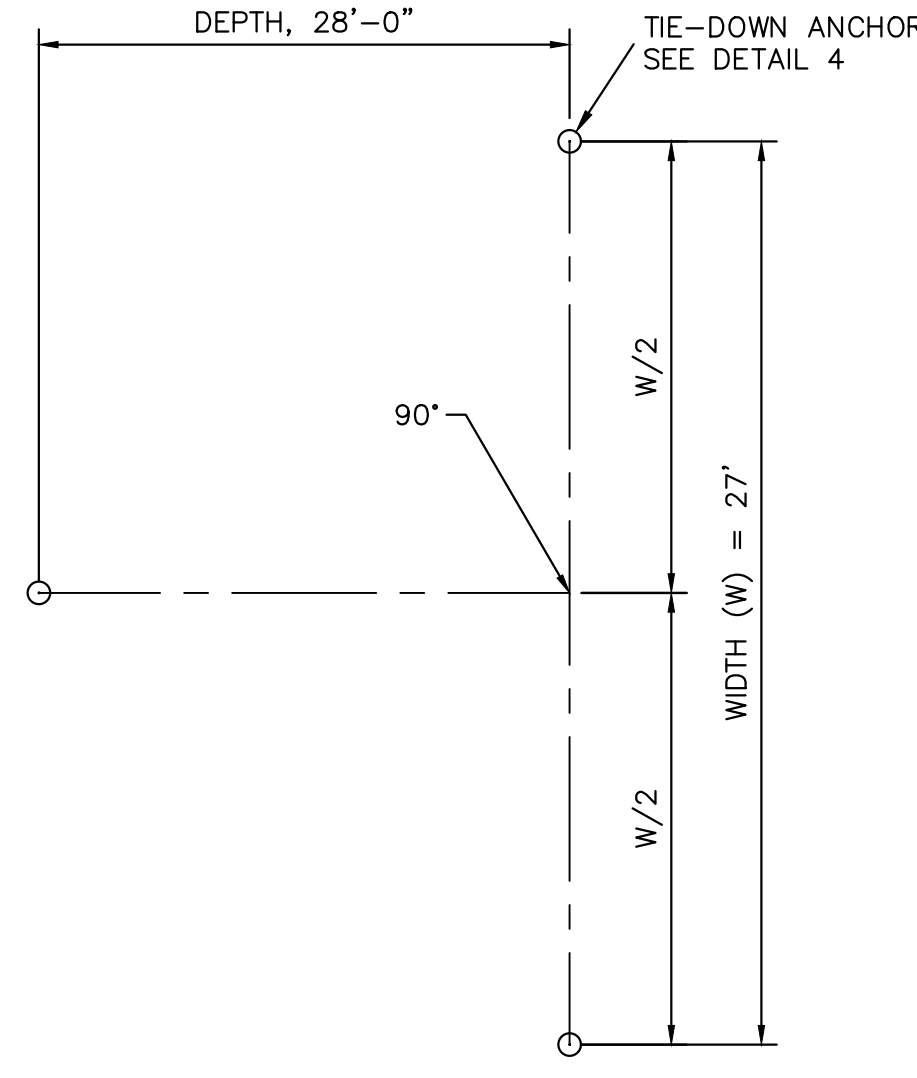
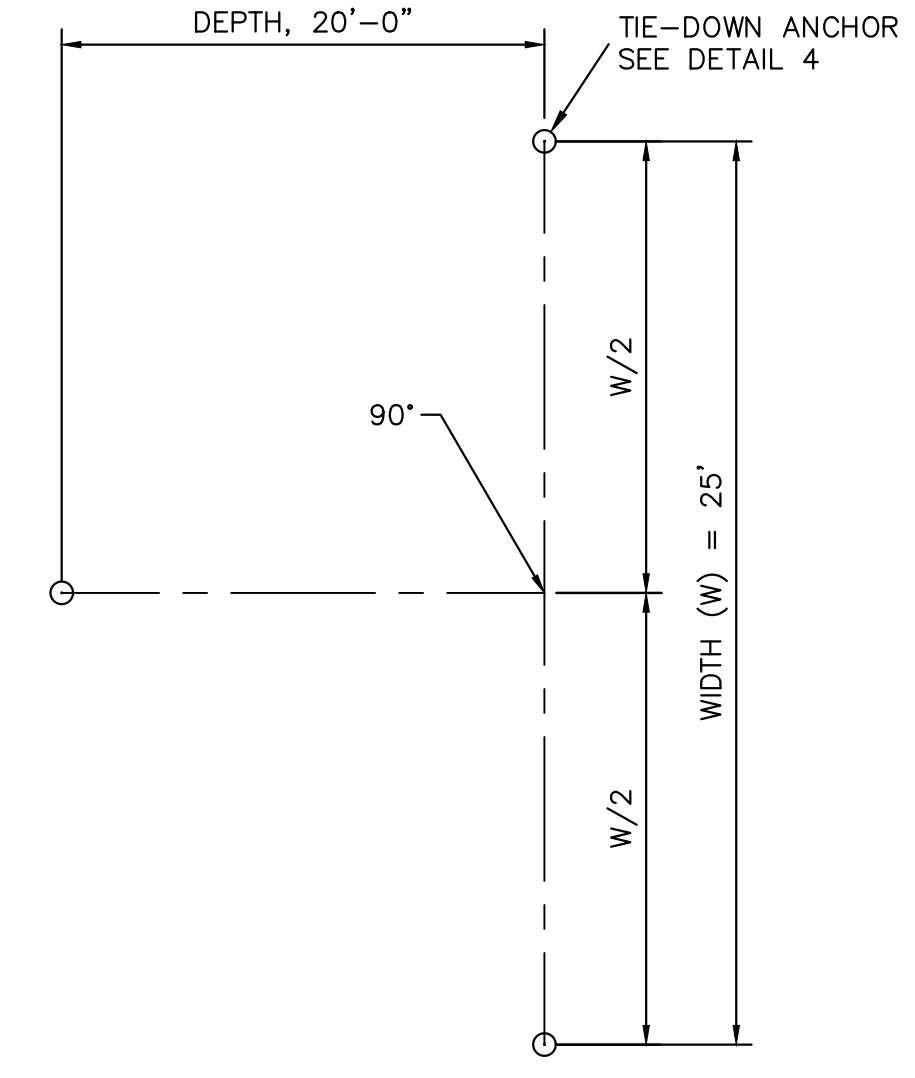
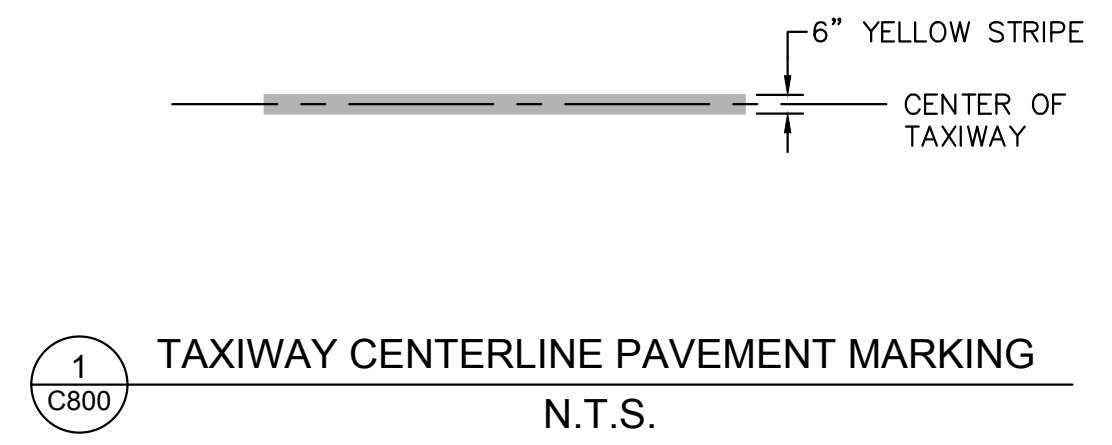
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SHEET NUMBER  
**C703**  
SHEET 41 OF 54



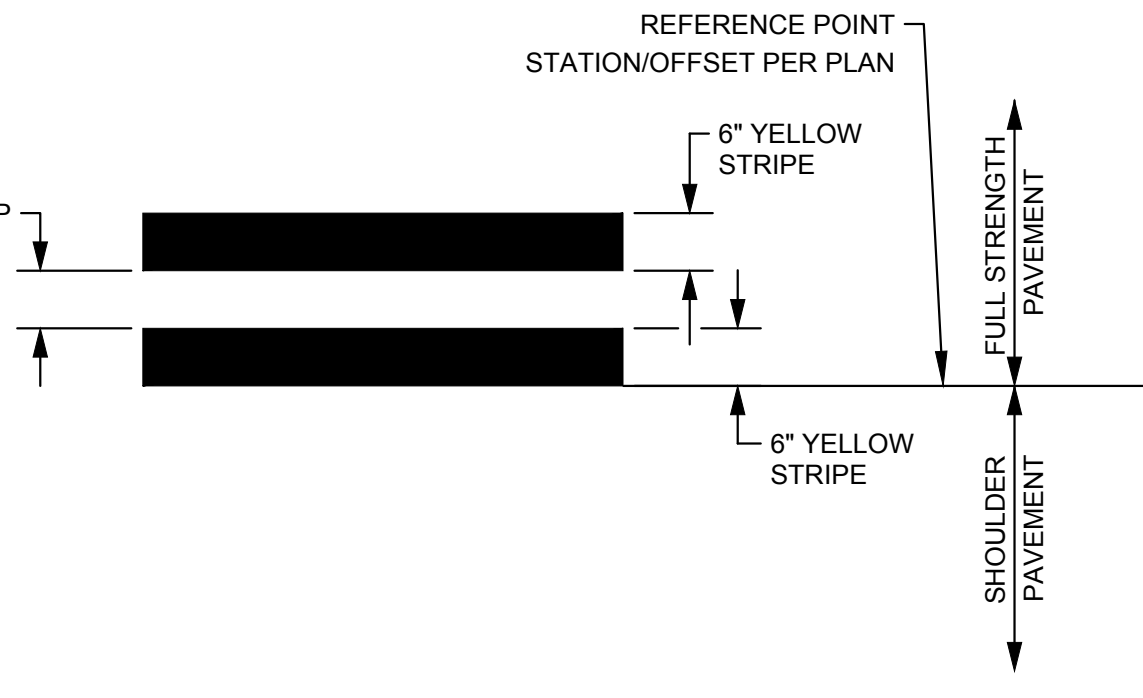
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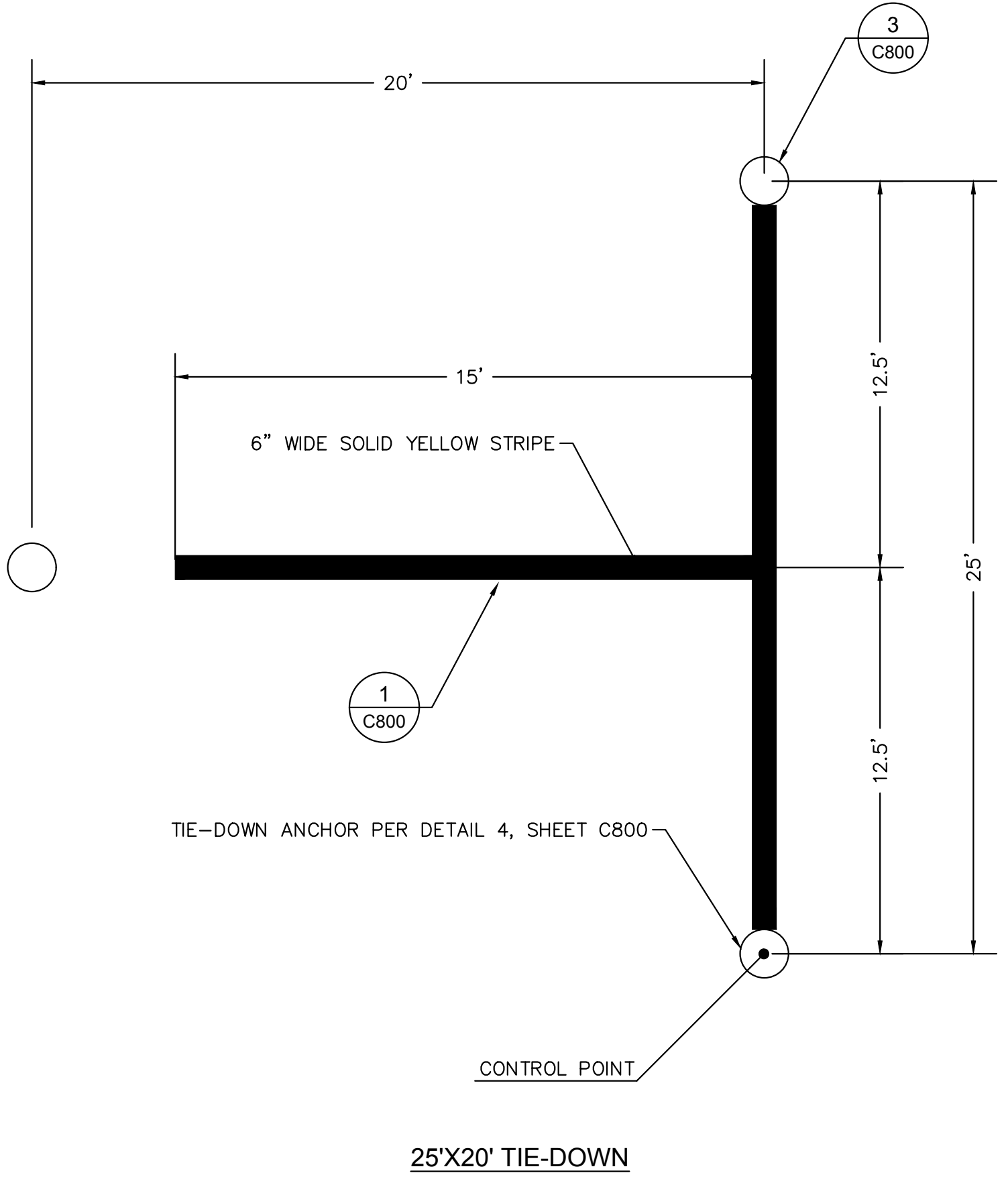
- NOTES:
1. CONCRETE STRENGTH SHALL BE 4000 PSI AT 28 DAYS (P-610). NO SPECIAL INSPECTION REQUIRED.
  2. ALL CUTS IN FINISHED PAVEMENT SHALL BE SAWED OR CORED.
  3. CONCRETE SHALL BE FINISHED FLUSH WITH PAVEMENT.
  4. TOP OF TIE DOWN ROD SHALL BE INSTALLED FLUSH WITH TOP OF FINISHED PAVEMENT.

3  
C800  
TIE-DOWN LAYOUT  
N.T.S.

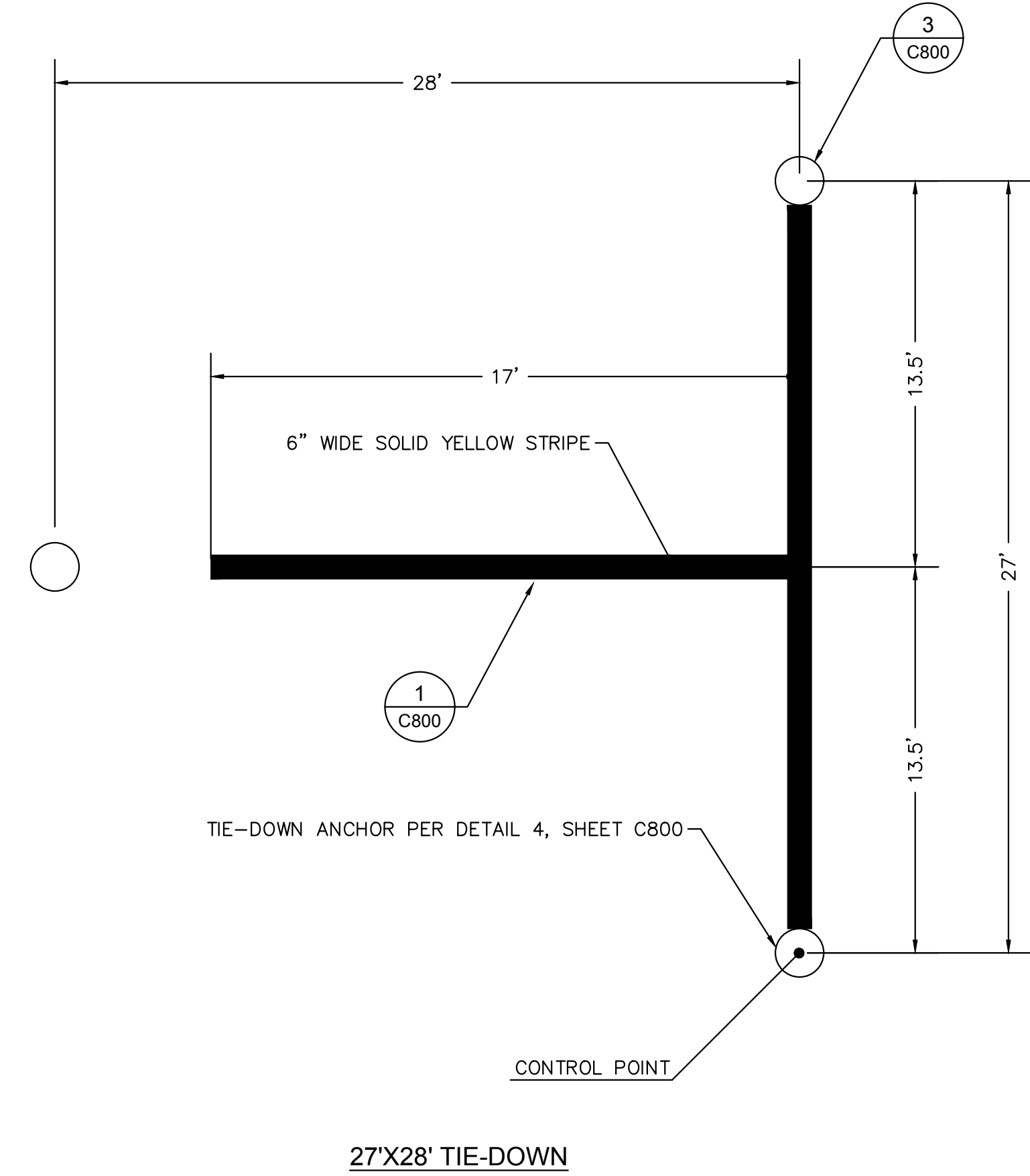
4  
C800  
TIE-DOWN DETAIL  
N.T.S.



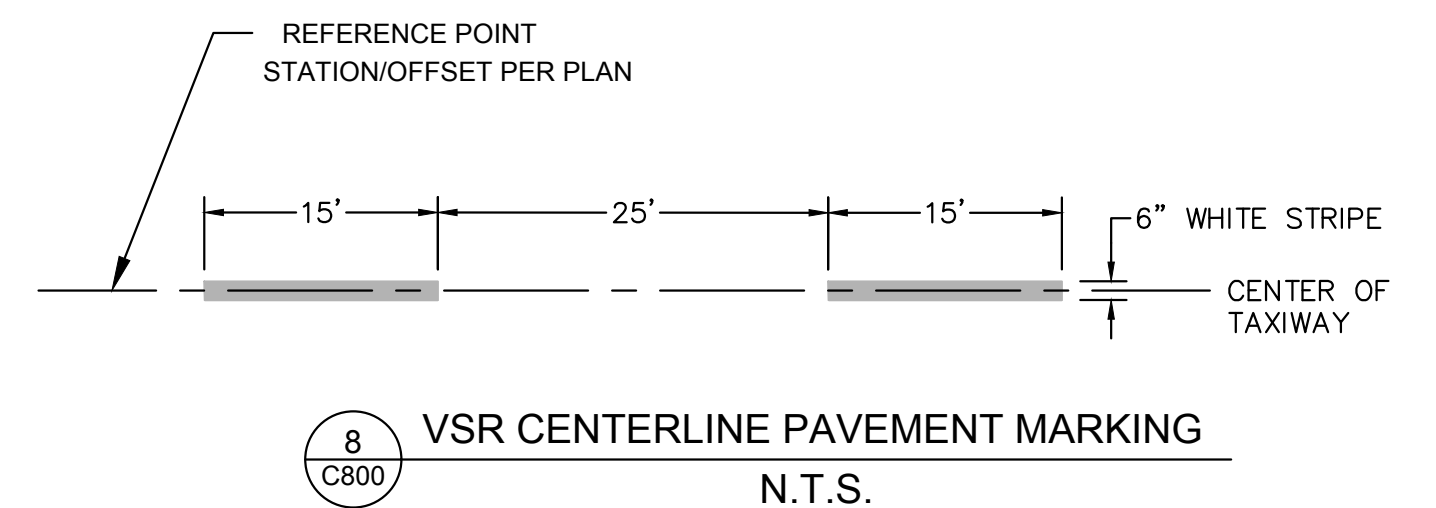
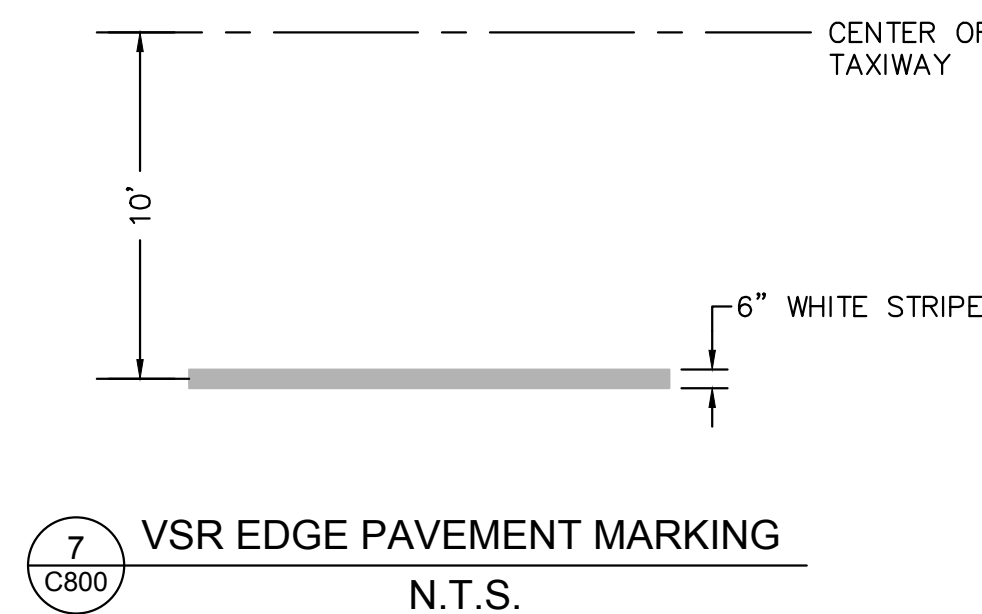
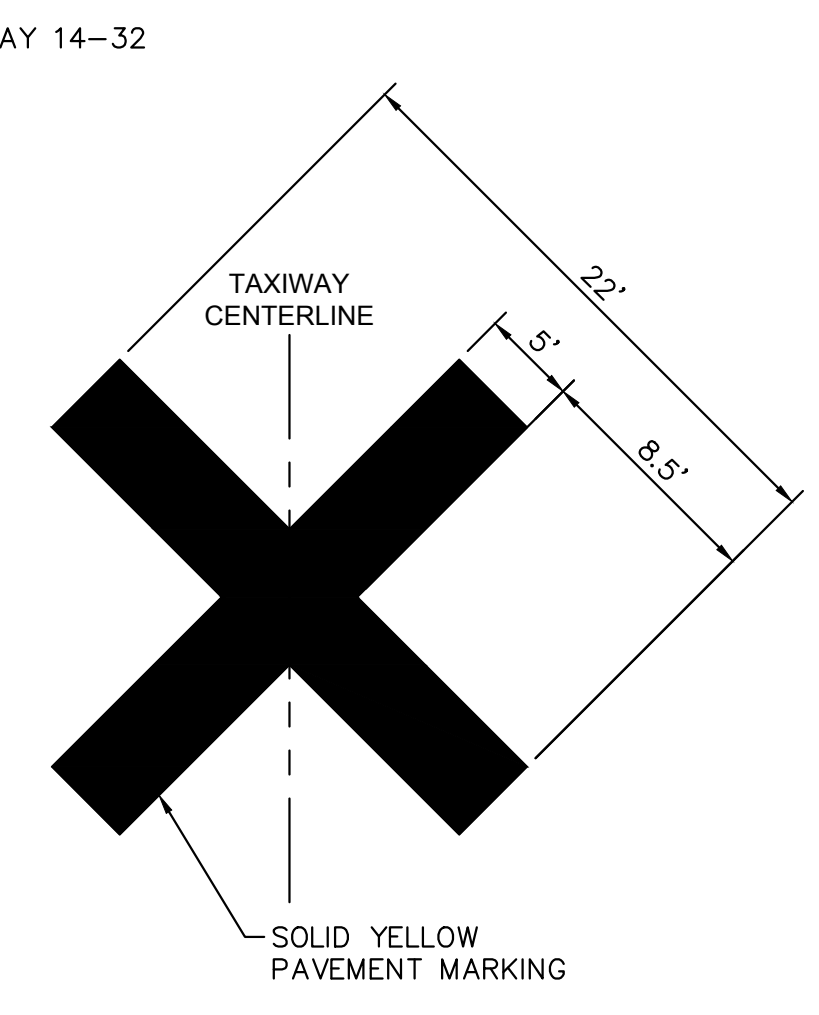
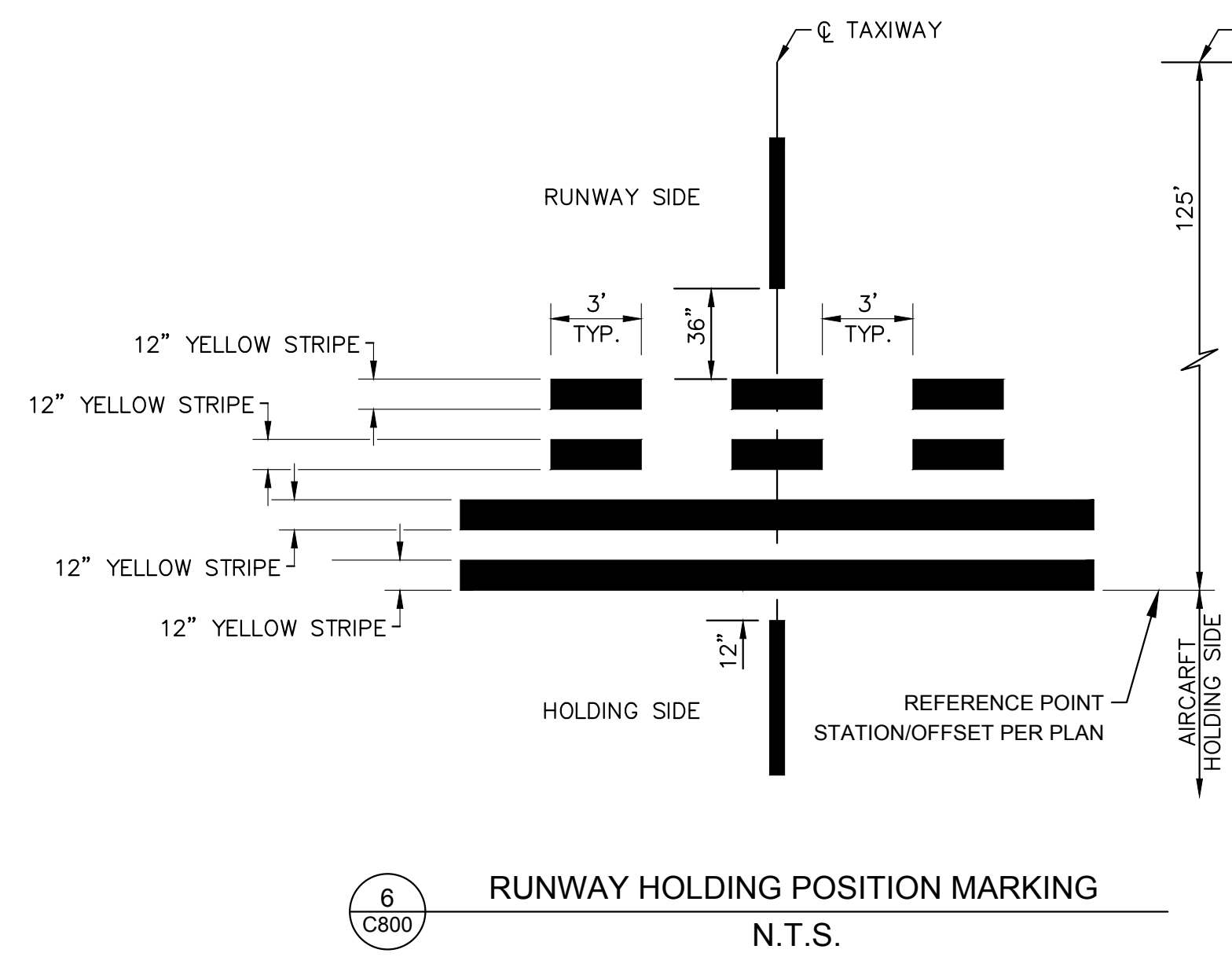
2  
C800  
SOLID TAXIWAY EDGE PAVEMENT MARKING  
N.T.S.



25'X20' TIE-DOWN



27'X28' TIE-DOWN



5  
C800  
SMALL AIRCRAFT TIE-DOWN MARKING  
N.T.S.

| NO. | REVISIONS | DATE | BY |
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PROFESSIONAL ENGINEER  
KIMLEY-HORN  
STATE OF CALIFORNIA  
Exp. 12/31/23  
03-24-2023

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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

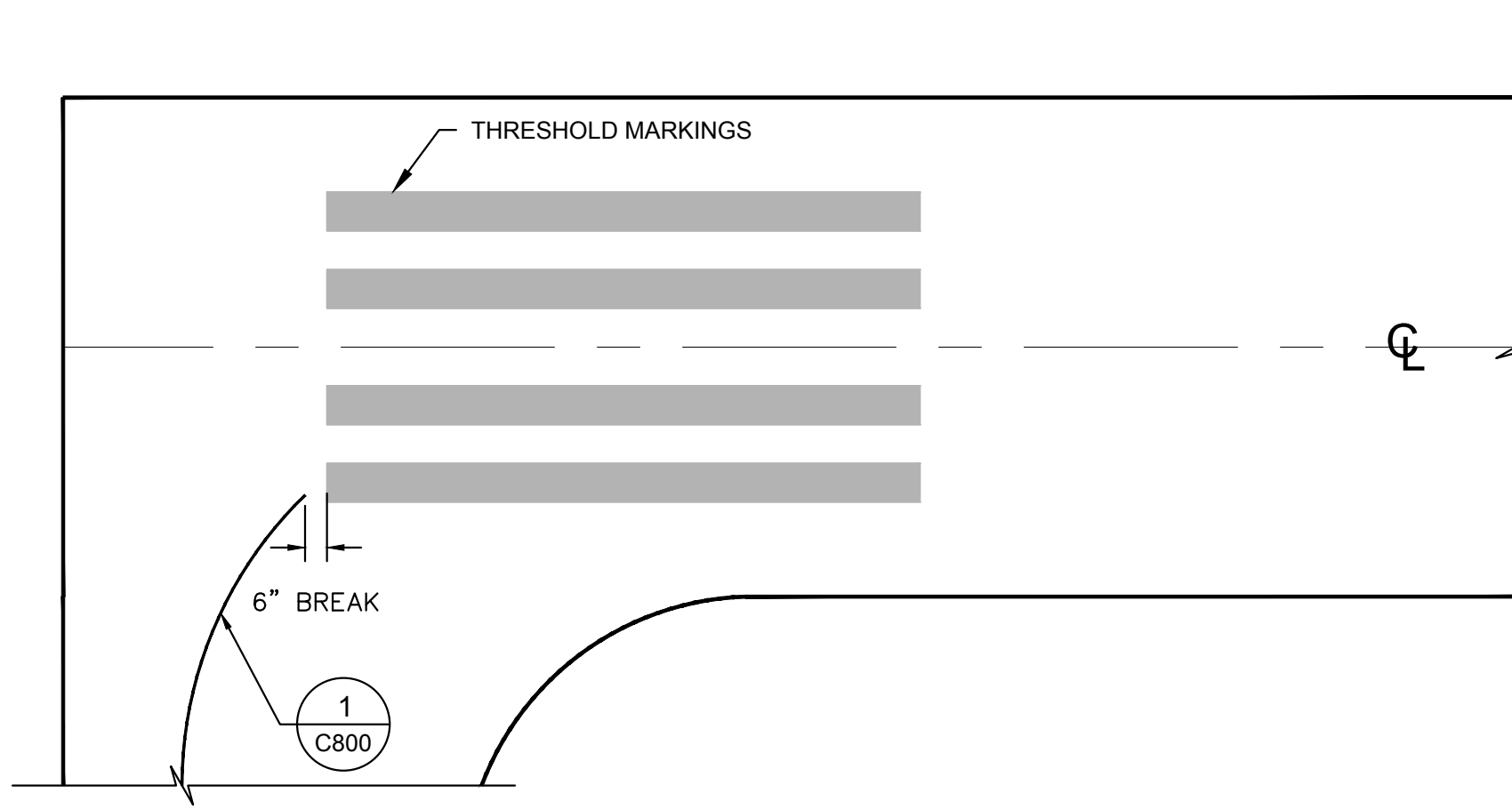
**MARKING DETAILS**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA  
WEED

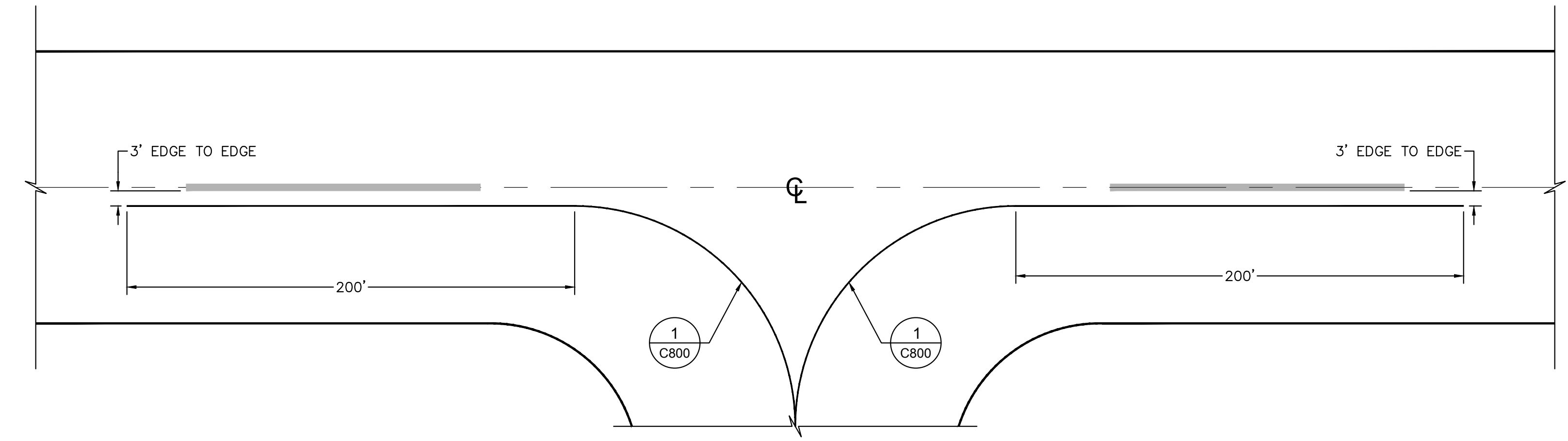
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**C800**  
SHEET 42 OF 54

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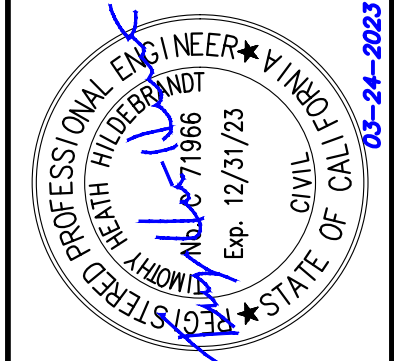
9  
C801 TAXIWAY-RUNWAY PAVEMENT MARKING  
N.T.S.



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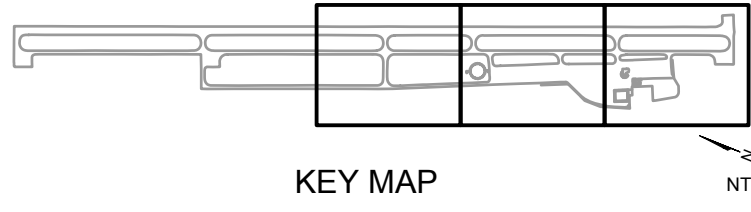
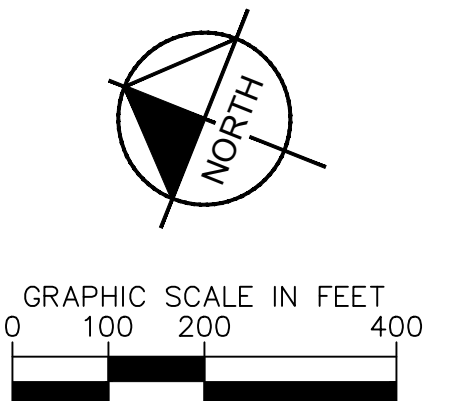
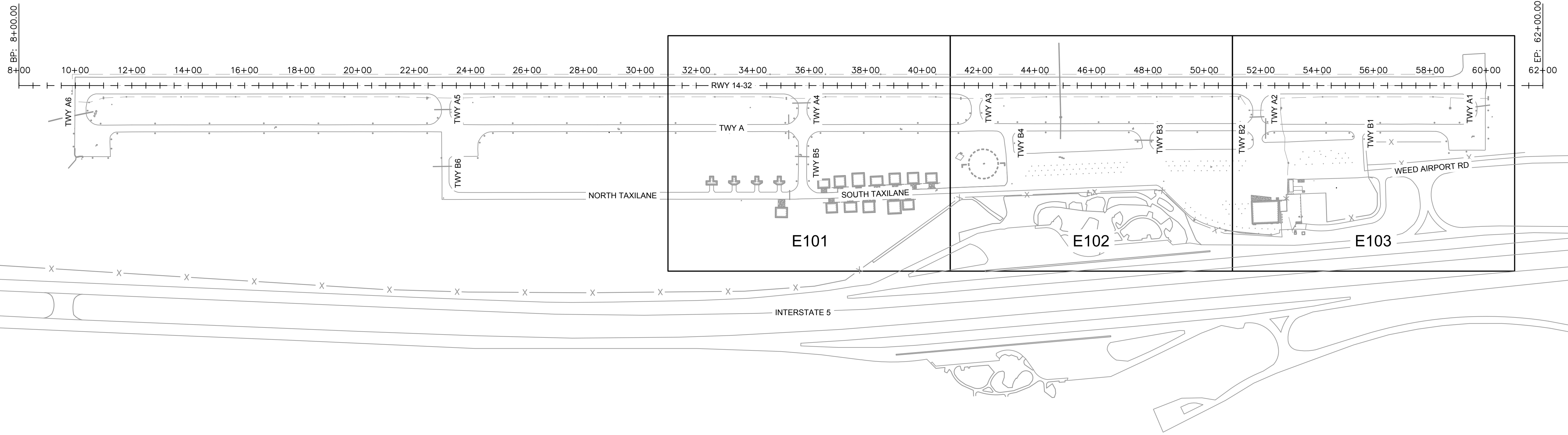
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| DATE<br>03/24/2023       |
| SCALE                    |
| DESIGNED BY JC           |
| DRAWN BY JWF             |
| CHECKED BY THH           |

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**C801**  
 SHEET 43 OF 54

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PROFESSIONAL ENGINEER  
 JOSEPH D. BRADSHAW  
 No. 67366  
 ELEC. 9/9/03  
 ELECTIONAL  
 STATE OF CALIF.

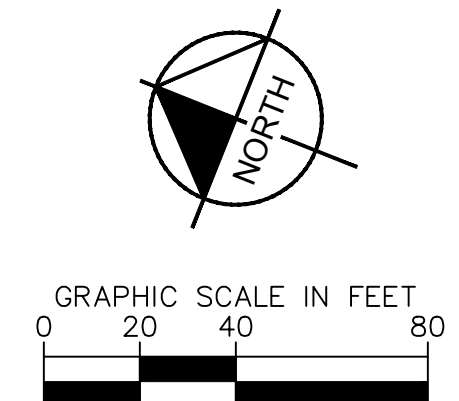
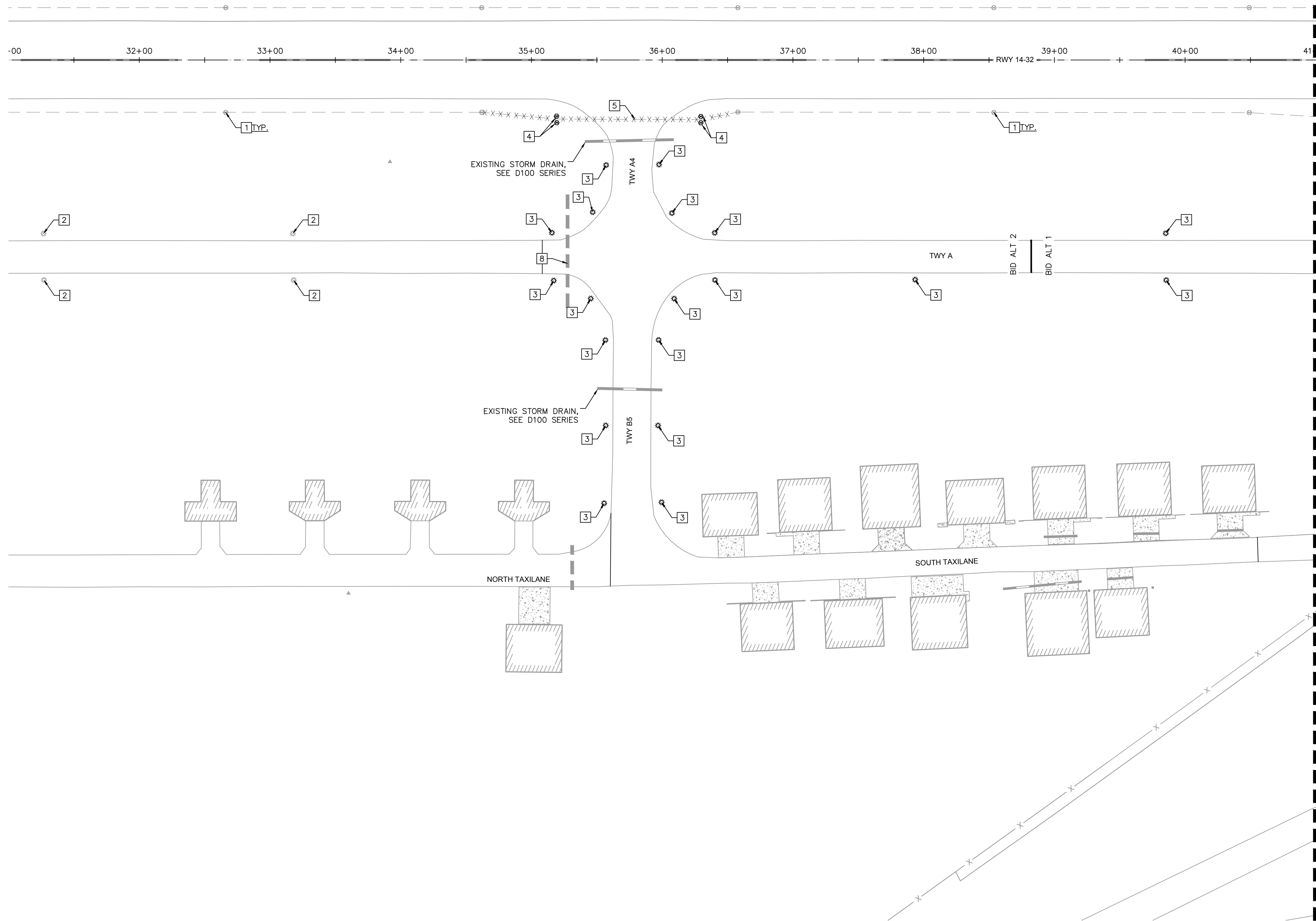
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

**ELECTRICAL  
DEMOLITION PLAN  
SHEET INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
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 APRON RECONSTRUCTION  
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**E100**  
 SHEET 44 OF 54

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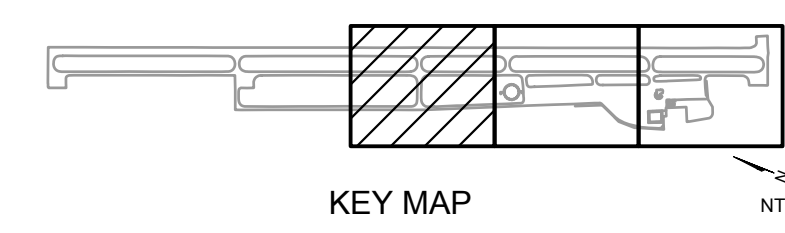


**NOTES:**  
 1. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- LEGEND:**
- EXISTING RUNWAY EDGE LIGHT
  - EXISTING CONDUIT
  - ⊛ EXISTING RETROREFLECTIVE MARKER
  - - - - PROTECT IN PLACE EXISTING DUCTBANK
  - X X X X X REMOVE EXISTING CONDUIT AND CABLING

- ELECTRICAL DEMOLITION NOTES**
- 1 PROTECT IN PLACE EXISTING RUNWAY EDGE LIGHTS, VAULTS, OR NAVAIDS
  - 2 PROTECT IN PLACE EXISTING RETROREFLECTIVE MARKER
  - 3 REMOVE EXISTING RETROREFLECTIVE MARKER
  - 4 REMOVE EXISTING TAXIWAY EDGE LIGHT, ISOLATION TRANSFORMER, CABLING, AND BASECAN
  - 5 REMOVE EXISTING CONDUIT AND AIRFIELD CABLING
  - 8 REMOVE EXISTING DUCTBANK

MATCHLINE - STA. 41+00. SEE SHEET E102



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| DATE        | 03/24/2023 |
| SCALE       |            |
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| DRAWN BY    | JWF        |
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**ELECTRICAL  
 DEMOLITION PLAN**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1

CALIFORNIA

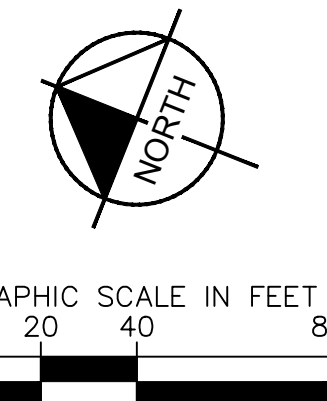
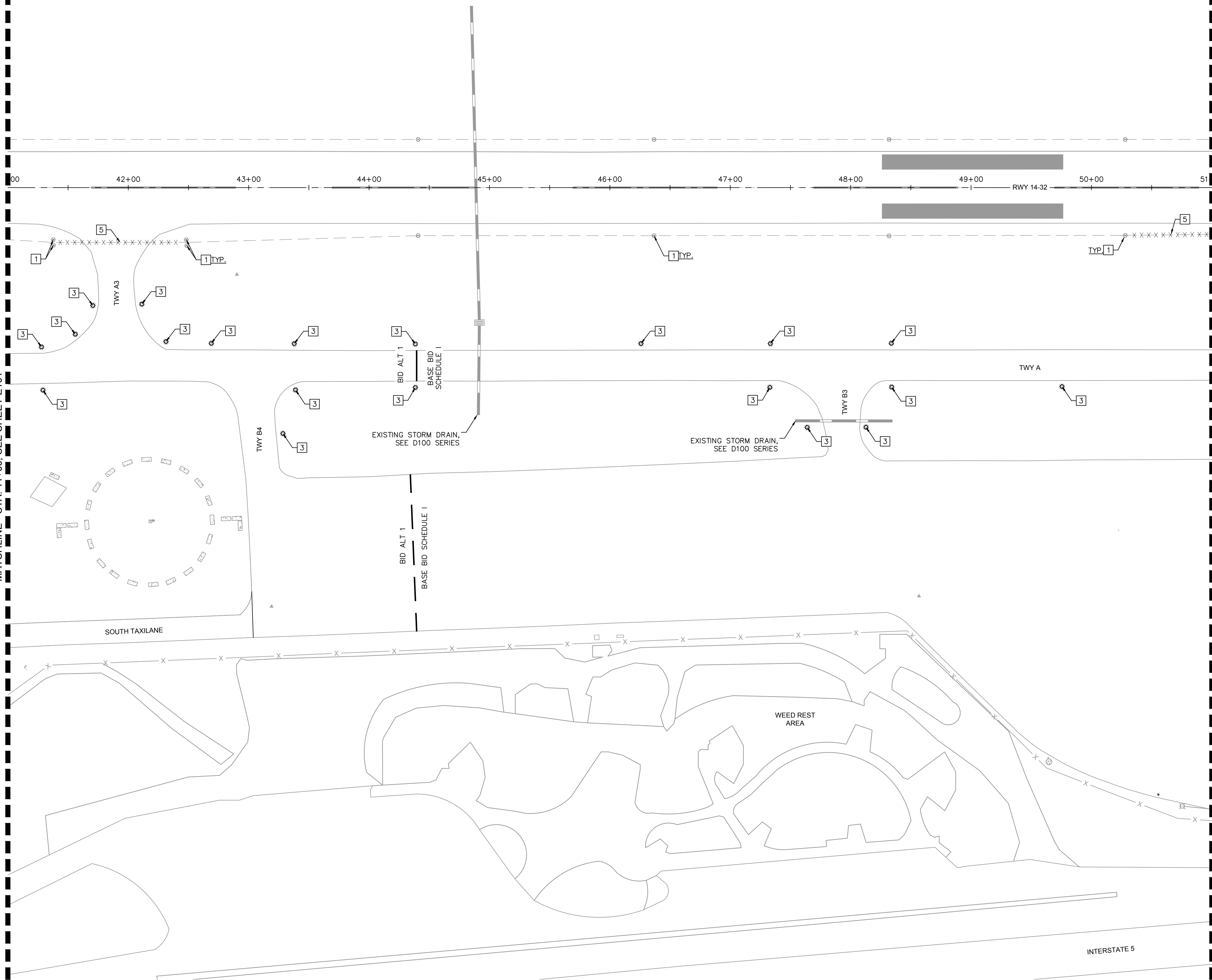
WEED

SHEET NUMBER  
**E101**  
 SHEET 45 OF 54

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MATCHLINE - STA. 41+00, SEE SHEET E101

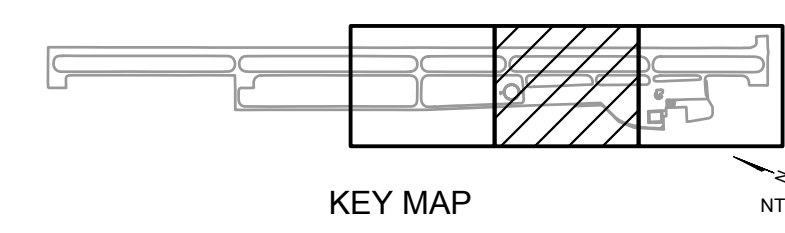
MATCHLINE - STA. 51+00, SEE SHEET E103



**NOTES:**  
 1. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- LEGEND:**
- ⊙ EXISTING RUNWAY EDGE LIGHT
  - EXISTING CONDUIT
  - ⊛ EXISTING RETROREFLECTIVE MARKER
  - - - - PROTECT IN PLACE EXISTING DUCTBANK
  - X X X X X REMOVE EXISTING CONDUIT AND CABLING

- ELECTRICAL DEMOLITION NOTES**
- 1 PROTECT IN PLACE EXISTING RUNWAY EDGE LIGHTS, VAULTS, OR NAVAIDS
  - 3 REMOVE EXISTING RETROREFLECTIVE MARKER
  - 5 REMOVE EXISTING CONDUIT AND AIRFIELD CABLING



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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

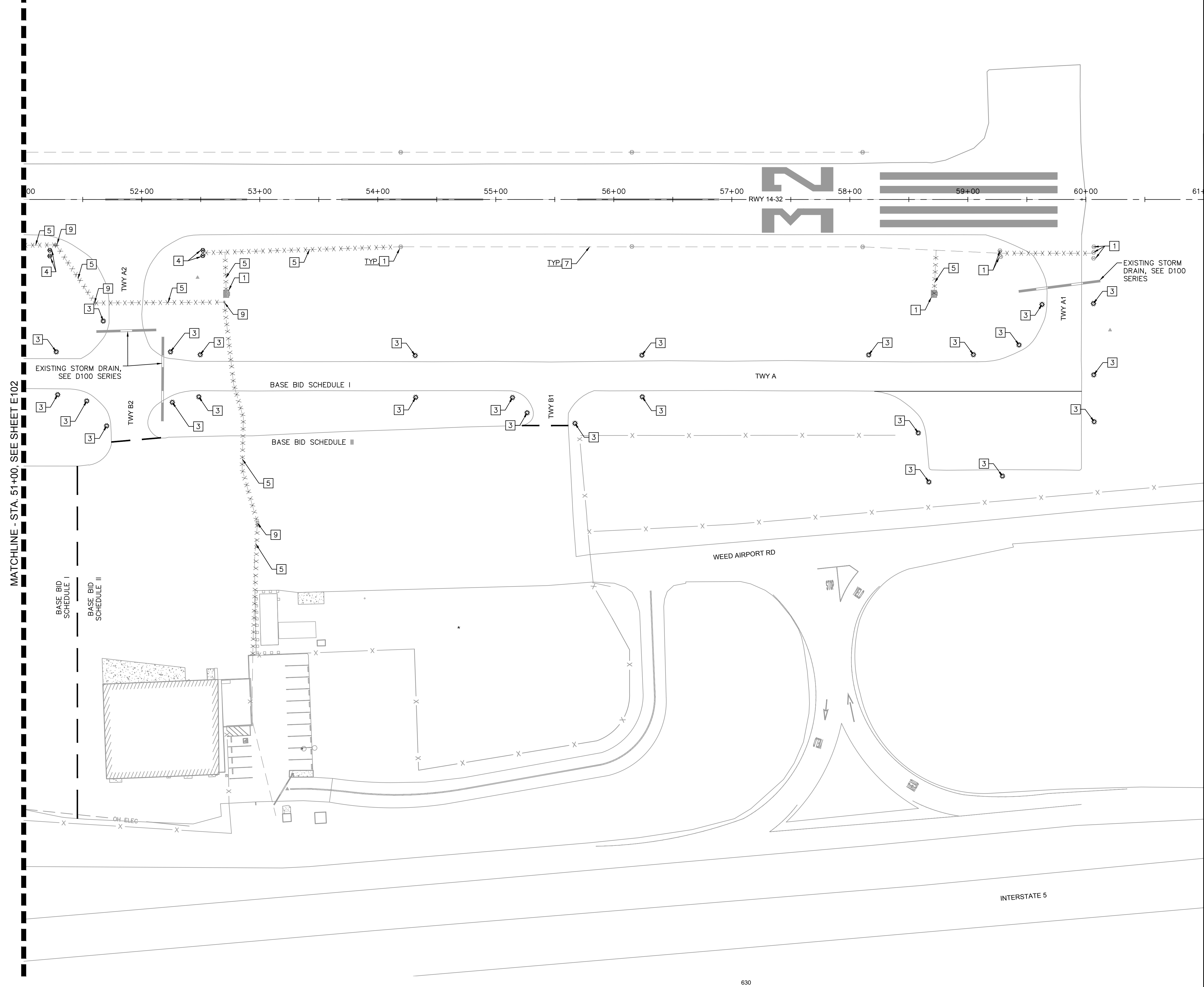
**ELECTRICAL DEMOLITION PLAN**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

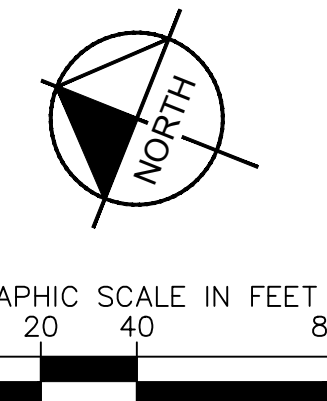
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SHEET NUMBER  
**E102**  
 SHEET 46 OF 54

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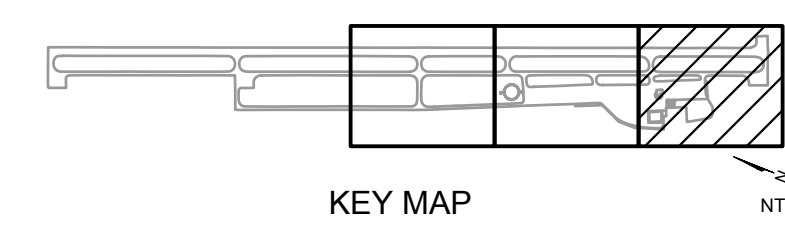
MATCHLINE - STA. 51+00 SEE SHEET E102



**NOTES:**  
 1. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- LEGEND:**
- EXISTING RUNWAY EDGE LIGHT
  - EXISTING CONDUIT
  - ⊛ EXISTING RETROREFLECTIVE MARKER
  - PROTECT IN PLACE EXISTING DUCTBANK
  - XXXXX REMOVE EXISTING CONDUIT AND CABLING

- ELECTRICAL DEMOLITION NOTES**
- 1 PROTECT IN PLACE EXISTING RUNWAY EDGE LIGHTS, VAULTS, OR NAVAIDS
  - 3 REMOVE EXISTING RETROREFLECTIVE MARKER
  - 4 REMOVE EXISTING TAXIWAY EDGE LIGHT, ISOLATION TRANSFORMER, CABLING, AND BASECAN
  - 5 REMOVE EXISTING CONDUIT AND AIRFIELD CABLING
  - 7 PROTECT IN PLACE EXISTING CONDUIT
  - 9 REMOVE EXISTING PULLBOX



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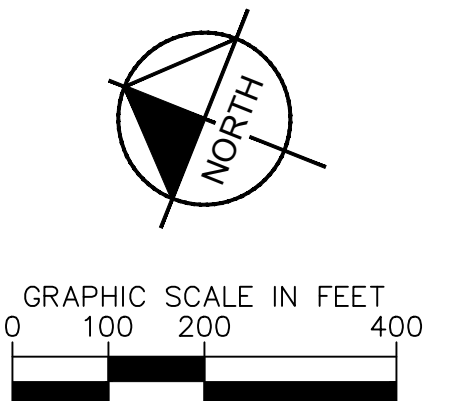
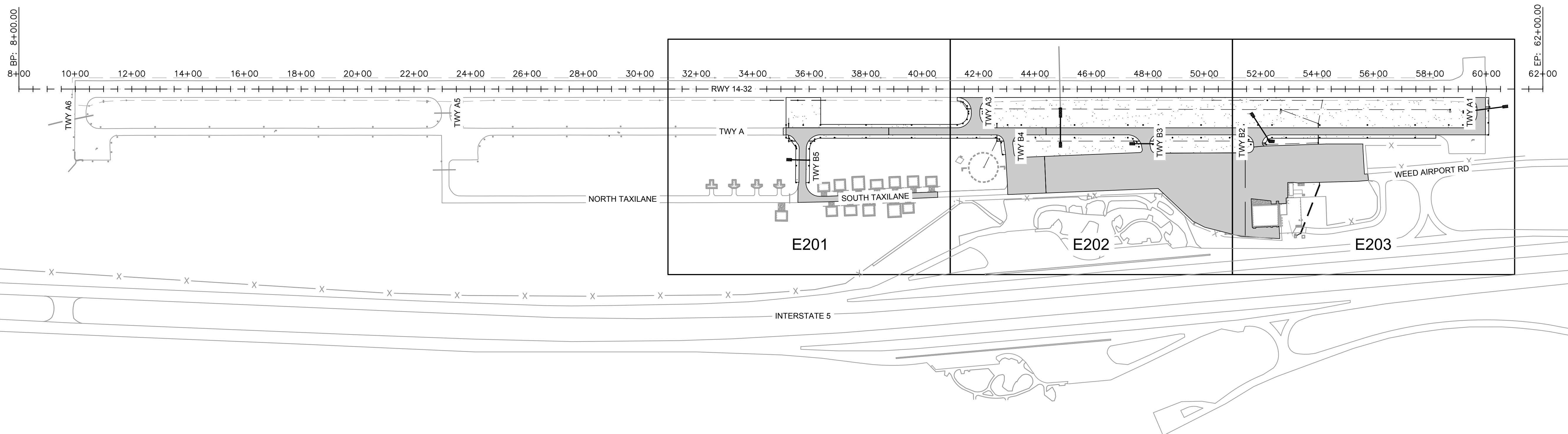
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

## ELECTRICAL DEMOLITION PLAN

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
 WEED CALIFORNIA

SHEET NUMBER  
**E103**  
 SHEET 47 OF 54

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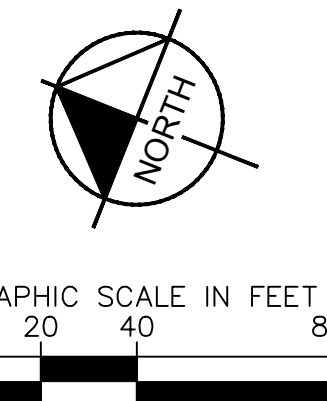
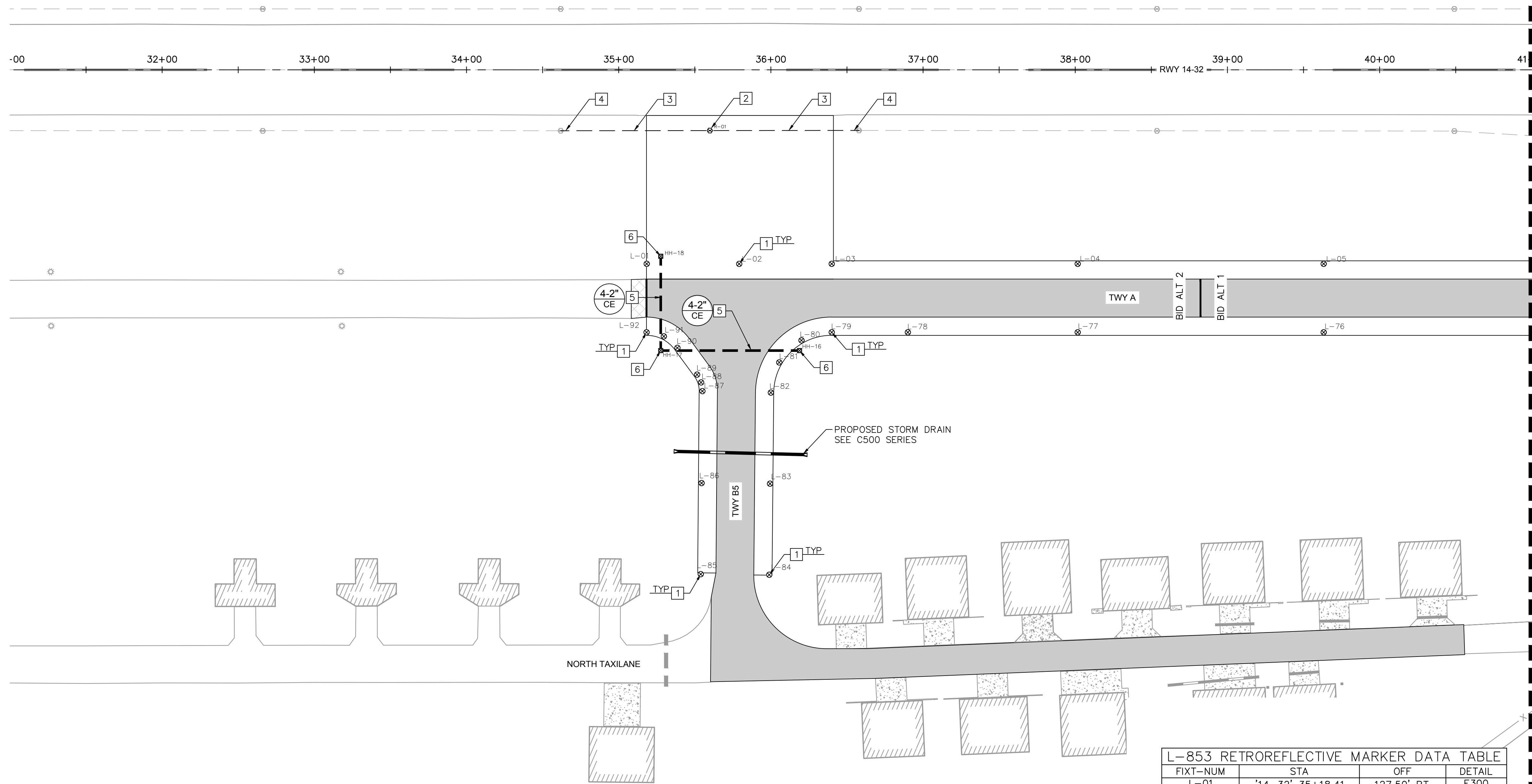
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| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       | AS SHOWN   |
| DESIGNED BY | JC         |
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**ELECTRICAL LAYOUT  
PLAN SHEET INDEX**

SISKIYOU COUNTY  
 WEED AIRPORT - 046  
 TAXIWAY & AIRCRAFT PARKING  
 APRON RECONSTRUCTION  
 PROJECT PHASE 1  
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SHEET NUMBER  
**E200**  
 SHEET 48 OF 54

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**NOTES:**  
 1. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- LEGEND:**
- ⊙ EXISTING RUNWAY EDGE LIGHT
  - ⊙ PROPOSED RUNWAY EDGE LIGHT
  - EXISTING CONDUIT
  - PROPOSED CONDUIT
  - ⊙ EXISTING RETROREFLECTIVE MARKER
  - ⊙ PROPOSED RETROREFLECTIVE MARKER
  - EXISTING DUCTBANK
  - PROPOSED STORM DRAIN PIPE, SEE C500 SERIES FOR LAYOUT

- ELECTRICAL NOTES**
1. INSTALL NEW L-853 RETROREFLECTIVE MARKER ON NEW L-867 BASECAN SEE DETAIL 1, SHEET E300
  2. INSTALL NEW L-861 RUNWAY EDGE LIGHT AND CABLING ON NEW L-867 BASE CAN WITH NEW ISOLATION TRANSFORMER. SEE DETAIL 2, SHEET E300
  3. INSTALL NEW 1-2" SCH. 40 PVC DIRECT BURIED CONDUIT AND L-824 5KV CABLING. SEE DETAIL 2, SHEET E301 FOR TRENCH DETAIL
  4. INTERCEPT EXISTING RUNWAY EDGE LIGHT BASE CAN WITH NEW 1-2" SCH. 40 PVC CONDUIT, SPLICE TO EXISTING RUNWAY LIGHTING CIRCUIT
  5. INSTALL NEW SCH. 40 CONCRETE ENCASED DUCTBANK. SEE DETAIL 3, SHEET E301. SEE ADJACENT TAG FOR DUCT CONFIGURATION
  6. INSTALL NEW CONCRETE H-20 LOAD RATED HANDHOLE. SEE DETAIL 1, SHEET E301

MATCHLINE - STA. 41+00. SEE SHEET E202

**L-861T DATA TABLE**

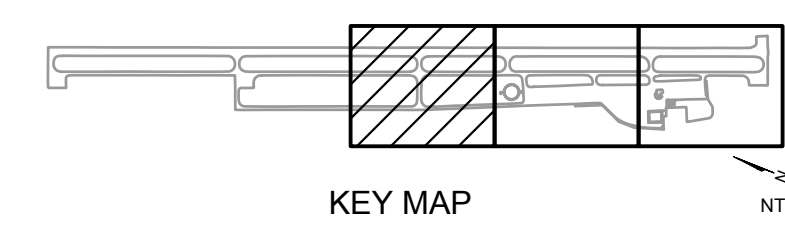
| FIXT-NUM | STA              | OFF        | BASE  | CIRCUIT | Lens | DETAIL |
|----------|------------------|------------|-------|---------|------|--------|
| R-01     | '14-32' 35+59.91 | 39.94' RT. | L-867 | RWY     | WHT  | E300   |

**HANDHOLE DATA TABLE**

| HH-NUM | STA              | OFF         | DETAIL |
|--------|------------------|-------------|--------|
| HH-16  | '14-32' 36+18.85 | 184.50' RT. | E3.xx  |
| HH-17  | '14-32' 35+27.63 | 184.50' RT. | E3.xx  |
| HH-18  | '14-32' 35+27.63 | 122.50' RT. | E3.xx  |

**L-853 RETROREFLECTIVE MARKER DATA TABLE**

| FIXT-NUM | STA              | OFF         | DETAIL |
|----------|------------------|-------------|--------|
| L-01     | '14-32' 35+18.41 | 127.50' RT. | E300   |
| L-02     | '14-32' 35+79.16 | 127.54' RT. | E300   |
| L-03     | '14-32' 36+39.98 | 127.50' RT. | E300   |
| L-05     | '14-32' 39+63.22 | 127.50' RT. | E300   |
| L-76     | '14-32' 39+63.22 | 172.50' RT. | E300   |
| L-77     | '14-32' 38+01.60 | 172.50' RT. | E300   |
| L-78     | '14-32' 36+89.98 | 172.50' RT. | E300   |
| L-79     | '14-32' 36+39.98 | 172.50' RT. | E300   |
| L-80     | '14-32' 36+20.09 | 177.80' RT. | E300   |
| L-81     | '14-32' 36+05.46 | 192.29' RT. | E300   |
| L-82     | '14-32' 35+99.98 | 212.14' RT. | E300   |
| L-83     | '14-32' 35+99.45 | 271.99' RT. | E300   |
| L-84     | '14-32' 35+98.91 | 331.84' RT. | E300   |
| L-85     | '14-32' 35+53.91 | 331.43' RT. | E300   |
| L-86     | '14-32' 35+54.45 | 271.58' RT. | E300   |
| L-87     | '14-32' 35+54.99 | 211.13' RT. | E300   |
| L-88     | '14-32' 35+54.12 | 205.44' RT. | E300   |
| L-89     | '14-32' 35+51.50 | 200.32' RT. | E300   |
| L-90     | '14-32' 35+38.56 | 182.70' RT. | E300   |
| L-91     | '14-32' 35+29.66 | 175.17' RT. | E300   |
| L-92     | '14-32' 35+18.32 | 172.50' RT. | E300   |



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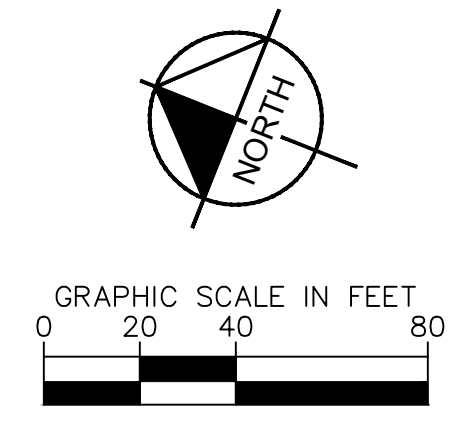
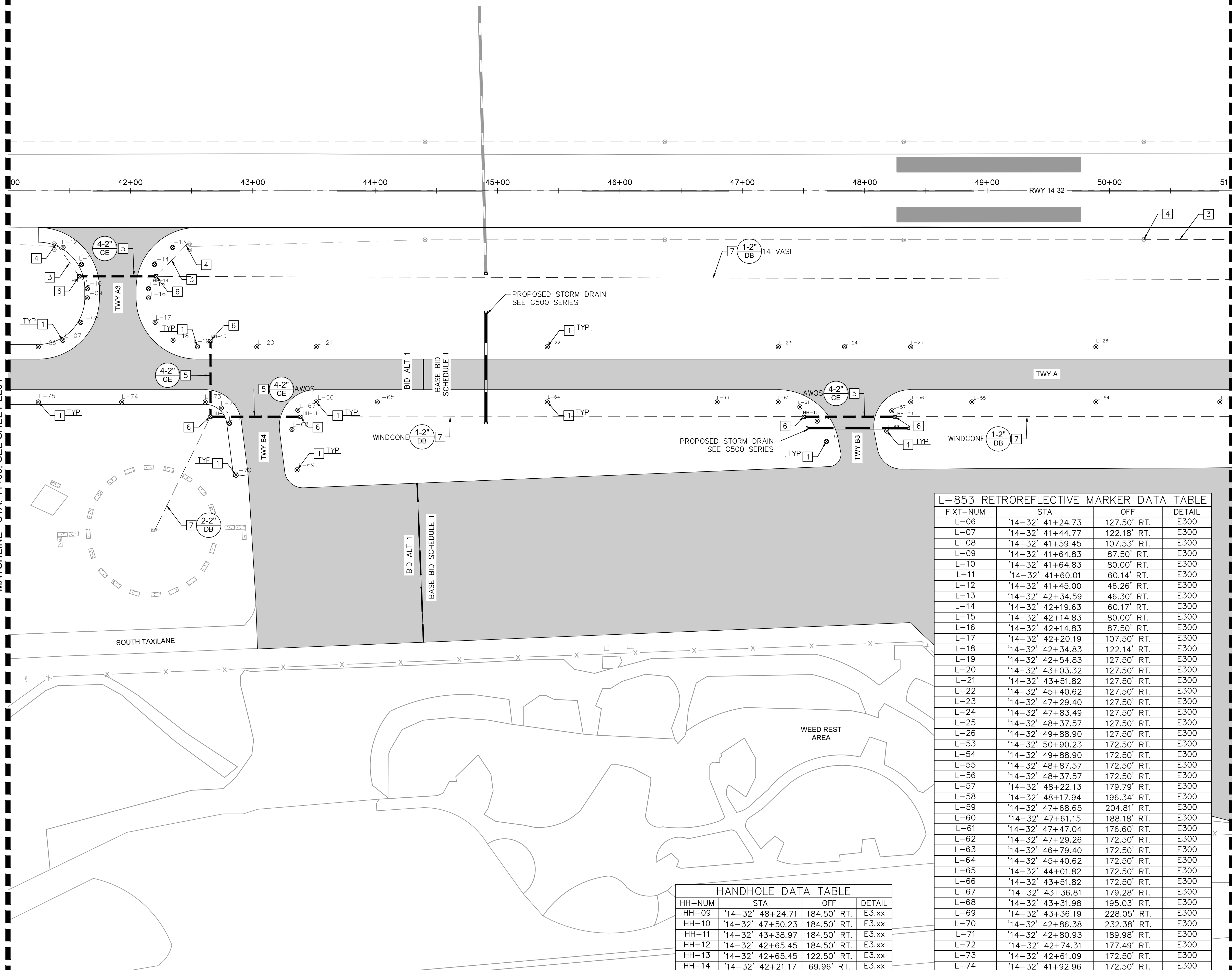
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| <b>Kimley &gt;&gt;&gt; Horn</b>  |                    |       |                   |                 |                   |           |      |
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| KHA PROJECT<br>191396004   | DATE<br>03/24/2023 | SCALE | DESIGNED BY<br>JC | DRAWN BY<br>JWF | CHECKED BY<br>THH | REVISIONS | DATE |
| <b>ELECTRICAL LAYOUT PLAN</b>  |                    |       |                   |                 |                   |           |      |
| SISKIYOU COUNTY<br>WEED AIRPORT - 046<br>TAXIWAY & AIRCRAFT PARKING<br>APRON RECONSTRUCTION<br>PROJECT PHASE 1<br>CALIFORNIA |                    |       |                   |                 |                   |           |      |
| SHEET NUMBER<br><b>E201</b>  |                    |       |                   |                 |                   |           |      |
| SHEET 49 OF 54   |                    |       |                   |                 |                   |           |      |



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MATCHLINE - STA. 41+00, SEE SHEET E201

MATCHLINE - STA. 51+00, SEE SHEET E202



**NOTES:**  
 1. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- LEGEND:**
- ⊙ EXISTING RUNWAY EDGE LIGHT
  - ⊙ PROPOSED RUNWAY EDGE LIGHT
  - EXISTING CONDUIT
  - PROPOSED CONDUIT
  - ⊙ EXISTING RETROREFLECTIVE MARKER
  - ⊙ PROPOSED RETROREFLECTIVE MARKER
  - EXISTING DUCTBANK
  - PROPOSED STORM DRAIN PIPE, SEE C500 SERIES FOR LAYOUT

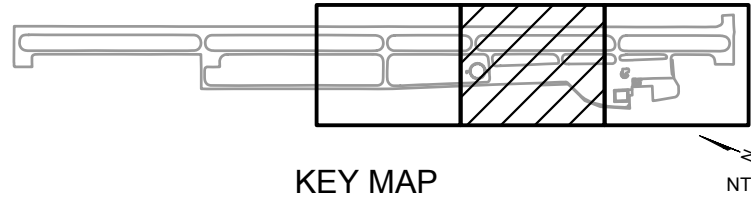
- ELECTRICAL NOTES**
1. INSTALL NEW L-853 RETROREFLECTIVE MARKER ON NEW L-867 BASECAN SEE DETAIL 1, SHEET E300
  3. INSTALL NEW 1-2" SCH. 40 PVC DIRECT BURIED CONDUIT AND L-824 5KV CABLING. SEE DETAIL 2, SHEET E301 FOR TRENCH DETAIL
  4. INTERCEPT EXISTING RUNWAY EDGE LIGHT BASE CAN WITH NEW 1-2" SCH. 40 PVC CONDUIT. SPLICE TO EXISTING RUNWAY LIGHTING CIRCUIT
  5. INSTALL NEW SCH. 40 CONCRETE ENCASED DUCTBANK. SEE DETAIL 3, SHEET E301. SEE ADJACENT TAG FOR DUCT CONFIGURATION
  6. INSTALL NEW CONCRETE H-20 LOAD RATED HANDHOLE. SEE DETAIL 1, SHEET E301
  7. INSTALL NEW SCH. 40 PVC DIRECT BURIED CONDUIT/ DUCTBANK. SEE DETAIL 2, SHEET E301. SEE ADJACENT TAG FOR DUCT CONFIGURATION

L-853 RETROREFLECTIVE MARKER DATA TABLE

| FIXT-NUM | STA              | OFF         | DETAIL |
|----------|------------------|-------------|--------|
| L-06     | '14-32' 41+24.73 | 127.50' RT. | E300   |
| L-07     | '14-32' 41+44.77 | 122.18' RT. | E300   |
| L-08     | '14-32' 41+59.45 | 107.53' RT. | E300   |
| L-09     | '14-32' 41+64.83 | 87.50' RT.  | E300   |
| L-10     | '14-32' 41+64.83 | 80.00' RT.  | E300   |
| L-11     | '14-32' 41+60.01 | 60.14' RT.  | E300   |
| L-12     | '14-32' 41+45.00 | 46.26' RT.  | E300   |
| L-13     | '14-32' 42+34.59 | 46.30' RT.  | E300   |
| L-14     | '14-32' 42+19.63 | 60.17' RT.  | E300   |
| L-15     | '14-32' 42+14.83 | 80.00' RT.  | E300   |
| L-16     | '14-32' 42+14.83 | 87.50' RT.  | E300   |
| L-17     | '14-32' 42+20.19 | 107.50' RT. | E300   |
| L-18     | '14-32' 42+34.83 | 122.14' RT. | E300   |
| L-19     | '14-32' 42+54.83 | 127.50' RT. | E300   |
| L-20     | '14-32' 43+03.32 | 127.50' RT. | E300   |
| L-21     | '14-32' 43+51.82 | 127.50' RT. | E300   |
| L-22     | '14-32' 45+40.62 | 127.50' RT. | E300   |
| L-23     | '14-32' 47+29.40 | 127.50' RT. | E300   |
| L-24     | '14-32' 47+83.49 | 127.50' RT. | E300   |
| L-25     | '14-32' 48+37.57 | 127.50' RT. | E300   |
| L-26     | '14-32' 49+88.90 | 127.50' RT. | E300   |
| L-53     | '14-32' 50+90.23 | 172.50' RT. | E300   |
| L-54     | '14-32' 49+88.90 | 172.50' RT. | E300   |
| L-55     | '14-32' 48+87.57 | 172.50' RT. | E300   |
| L-56     | '14-32' 48+37.57 | 172.50' RT. | E300   |
| L-57     | '14-32' 48+22.13 | 179.79' RT. | E300   |
| L-58     | '14-32' 48+17.94 | 196.34' RT. | E300   |
| L-59     | '14-32' 47+68.65 | 204.81' RT. | E300   |
| L-60     | '14-32' 47+61.15 | 188.18' RT. | E300   |
| L-61     | '14-32' 47+47.04 | 176.60' RT. | E300   |
| L-62     | '14-32' 47+29.26 | 172.50' RT. | E300   |
| L-63     | '14-32' 46+79.40 | 172.50' RT. | E300   |
| L-64     | '14-32' 45+40.62 | 172.50' RT. | E300   |
| L-65     | '14-32' 44+01.82 | 172.50' RT. | E300   |
| L-66     | '14-32' 43+51.82 | 172.50' RT. | E300   |
| L-67     | '14-32' 43+36.81 | 179.28' RT. | E300   |
| L-68     | '14-32' 43+31.98 | 195.03' RT. | E300   |
| L-69     | '14-32' 43+36.19 | 228.05' RT. | E300   |
| L-70     | '14-32' 42+86.38 | 232.38' RT. | E300   |
| L-71     | '14-32' 42+80.93 | 189.98' RT. | E300   |
| L-72     | '14-32' 42+74.31 | 177.49' RT. | E300   |
| L-73     | '14-32' 42+61.09 | 172.50' RT. | E300   |
| L-74     | '14-32' 41+92.96 | 172.50' RT. | E300   |
| L-75     | '14-32' 41+24.83 | 172.50' RT. | E300   |

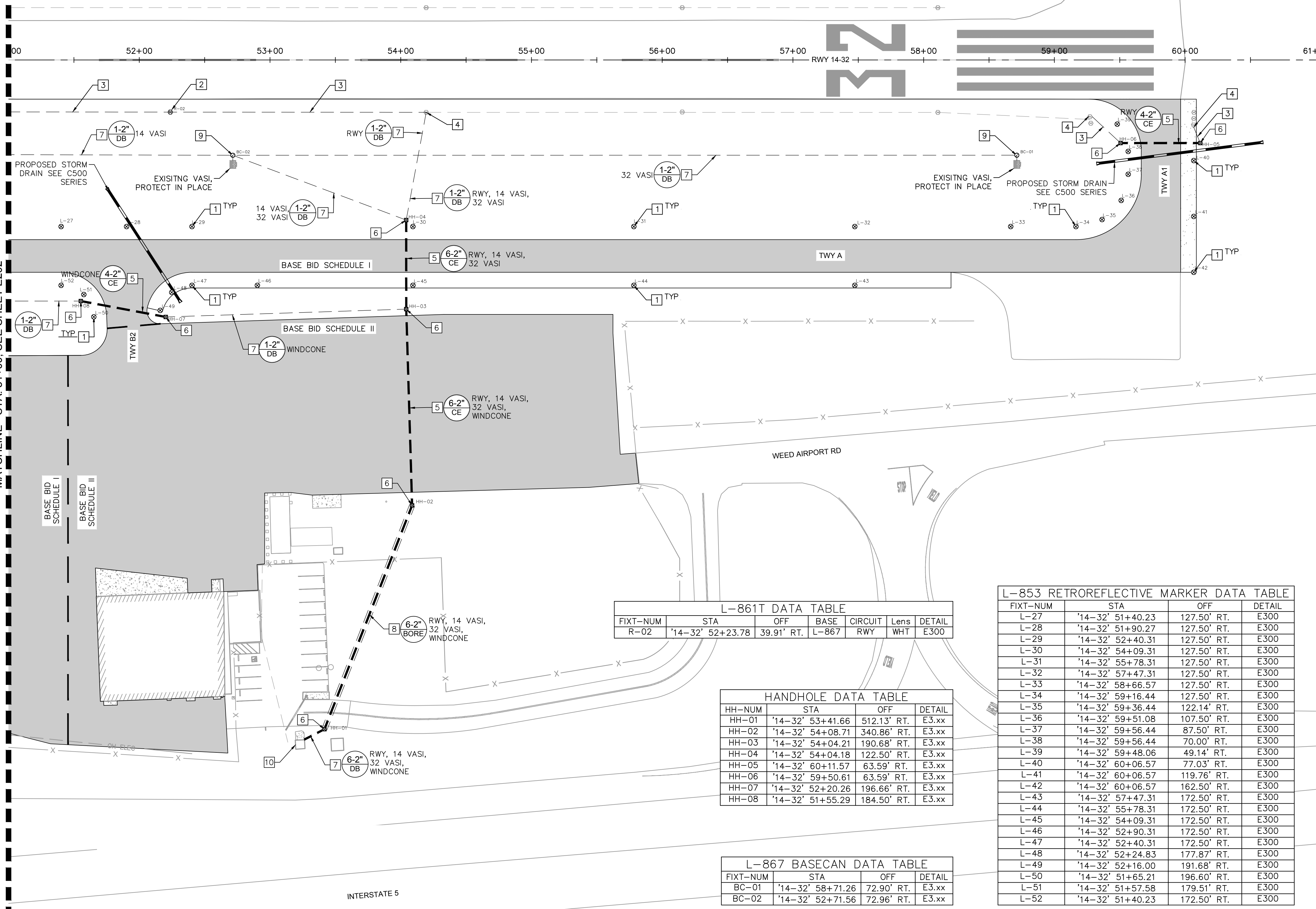
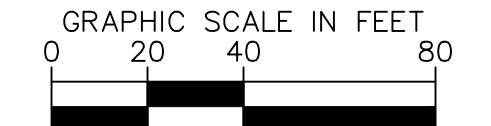
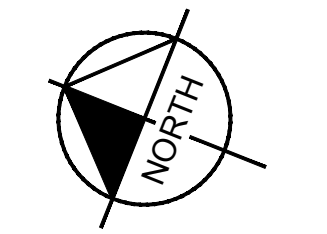
HANDHOLE DATA TABLE

| HH-NUM | STA              | OFF         | DETAIL |
|--------|------------------|-------------|--------|
| HH-09  | '14-32' 48+24.71 | 184.50' RT. | E3.xx  |
| HH-10  | '14-32' 47+50.23 | 184.50' RT. | E3.xx  |
| HH-11  | '14-32' 43+38.97 | 184.50' RT. | E3.xx  |
| HH-12  | '14-32' 42+65.45 | 184.50' RT. | E3.xx  |
| HH-13  | '14-32' 42+65.45 | 122.50' RT. | E3.xx  |
| HH-14  | '14-32' 42+21.17 | 69.96' RT.  | E3.xx  |
| HH-15  | '14-32' 41+58.23 | 69.96' RT.  | E3.xx  |



|  |                    |       |                   |                 |                   |           |      |
|--|--------------------|-------|-------------------|-----------------|-------------------|-----------|------|
|  |                    |       |                   |                 |                   |           |      |
| <b>Kimley &gt;&gt;&gt; Horn</b>  |                    |       |                   |                 |                   |           |      |
| 7900 RANCHHARRAH PARKWAY, SUITE 100, RENO, NV 89511<br>PHONE: 775-787-7552<br>WWW.KIMLEY-HORN.COM                            |                    |       |                   |                 |                   |           |      |
|  |                    |       |                   |                 |                   |           |      |
| KHA PROJECT<br>191396004   | DATE<br>03/24/2023 | SCALE | DESIGNED BY<br>JC | DRAWN BY<br>JWF | CHECKED BY<br>THH | REVISIONS | DATE |
| <b>ELECTRICAL LAYOUT PLAN</b>  |                    |       |                   |                 |                   |           |      |
| SISKIYOU COUNTY<br>WEED AIRPORT - 046<br>TAXIWAY & AIRCRAFT PARKING<br>APRON RECONSTRUCTION<br>PROJECT PHASE 1<br>CALIFORNIA |                    |       |                   |                 |                   |           |      |
| ISSUED FOR BID   |                    |       |                   |                 |                   |           |      |
| SHEET NUMBER<br><b>E202</b><br>SHEET 50 OF 54  |                    |       |                   |                 |                   |           |      |

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MATCHLINE - STA. 51+00 - SEE SHEET E202

**NOTES:**  
 1. ALL STATION AND OFFSETS INFORMATION REFERENCES RUNWAY '14-32' ALIGNMENT.

- LEGEND:**
- ⊙ EXISTING RUNWAY EDGE LIGHT
  - ⊙ PROPOSED RUNWAY EDGE LIGHT
  - EXISTING CONDUIT
  - PROPOSED CONDUIT
  - ⊙ EXISTING RETROREFLECTIVE MARKER
  - ⊙ PROPOSED RETROREFLECTIVE MARKER
  - EXISTING DUCTBANK
  - PROPOSED STORM DRAIN PIPE, SEE C500 SERIES FOR LAYOUT

- ELECTRICAL NOTES**
1. INSTALL NEW L-853 RETROREFLECTIVE MARKER ON NEW L-867 BASECAN SEE DETAIL 1, SHEET E300
  2. INSTALL NEW L-861 RUNWAY EDGE LIGHT AND CABLING ON NEW L-867 BASE CAN WITH NEW ISOLATION TRANSFORMER. SEE DETAIL 2, SHEET E300
  3. INSTALL NEW 1-2" SCH. 40 PVC DIRECT BURIED CONDUIT AND L-824 5KV CABLING. SEE DETAIL 2, SHEET E300
  4. INTERCEPT EXISTING RUNWAY EDGE LIGHT BASE CAN WITH NEW 1-2" SCH. 40 PVC CONDUIT. SPLICE TO EXISTING RUNWAY LIGHTING CIRCUIT
  5. INSTALL NEW SCH. 40 CONCRETE ENCASED DUCTBANK. SEE DETAIL 3, SHEET E301. SEE ADJACENT TAG FOR DUCT CONFIGURATION
  6. INSTALL NEW CONCRETE H-20 LOAD RATED HANDHOLE. SEE DETAIL 1, SHEET E301
  7. INSTALL NEW SCH. 40 PVC DIRECT BURIED CONDUIT/ DUCTBANK. SEE DETAIL 2, SHEET E301. SEE ADJACENT TAG FOR DUCT CONFIGURATION
  8. INSTALL NEW SCH. 80 HDPE CONDUIT IN DIRECTIONAL BORE. SEE DETAIL 4, SHEET E301. SEE ADJACENT TAG FOR DUCT CONFIGURATION
  9. INSTALL NEW L-867 BASE CAN WITH 4 HUBS WITH BLANK STEEL COVER. SEE DETAIL 2, SHEET E300
  10. INSTALL DUCTBANK PENETRATIONS INTO LIGHTING VALUT INCLUDING ANY NECESSARY WALL MOUNTED JUNCTION BOXES OR WIREWAYS AND INSTALL ANY AIRFIELD CIRCUIT CONNECTION TO PANEL OR REGULATOR AS REQUIRED TO MAKE A COMPLETE AND OPERATIONAL AIRFIELD LIGHTING SYSTEM. SEE L-100 SPECIFICATION FOR BID ITEM.

**L-861T DATA TABLE**

| FIXT-NUM | STA              | OFF        | BASE  | CIRCUIT | Lens | DETAIL |
|----------|------------------|------------|-------|---------|------|--------|
| R-02     | '14-32' 52+23.78 | 39.91' RT. | L-867 | RWY     | WHT  | E300   |

**HANDHOLE DATA TABLE**

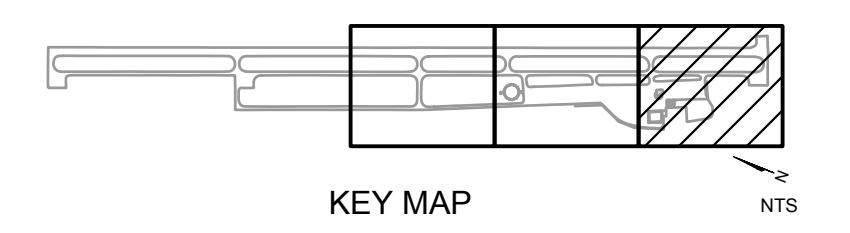
| HH-NUM | STA              | OFF         | DETAIL |
|--------|------------------|-------------|--------|
| HH-01  | '14-32' 53+41.66 | 512.13' RT. | E3.xx  |
| HH-02  | '14-32' 54+08.71 | 340.86' RT. | E3.xx  |
| HH-03  | '14-32' 54+04.21 | 190.68' RT. | E3.xx  |
| HH-04  | '14-32' 54+04.18 | 122.50' RT. | E3.xx  |
| HH-05  | '14-32' 60+11.57 | 63.59' RT.  | E3.xx  |
| HH-06  | '14-32' 59+50.61 | 63.59' RT.  | E3.xx  |
| HH-07  | '14-32' 52+20.26 | 196.66' RT. | E3.xx  |
| HH-08  | '14-32' 51+55.29 | 184.50' RT. | E3.xx  |

**L-867 BASECAN DATA TABLE**

| FIXT-NUM | STA              | OFF        | DETAIL |
|----------|------------------|------------|--------|
| BC-01    | '14-32' 58+71.26 | 72.90' RT. | E3.xx  |
| BC-02    | '14-32' 52+71.56 | 72.96' RT. | E3.xx  |

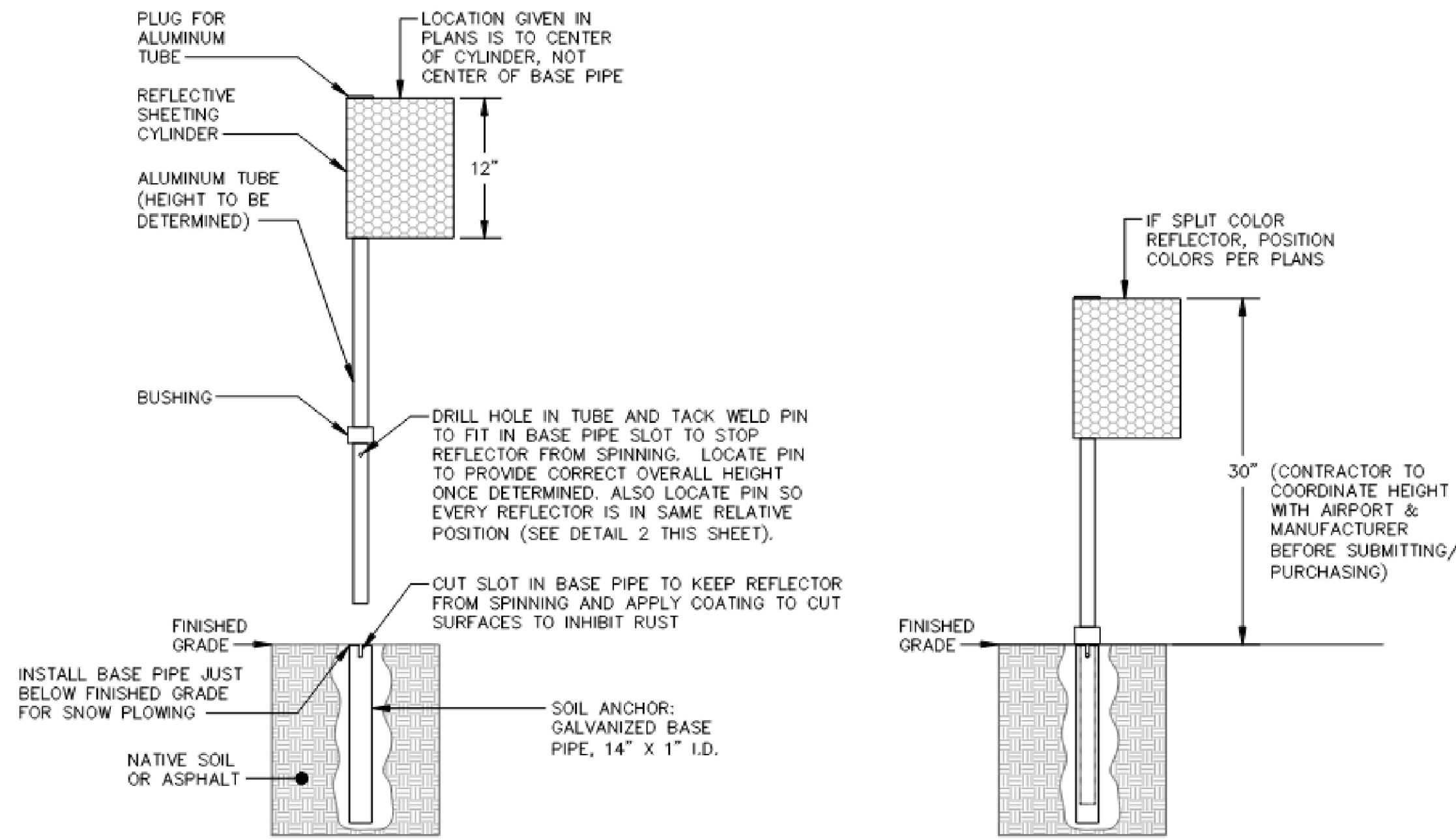
**L-853 RETROREFLECTIVE MARKER DATA TABLE**

| FIXT-NUM | STA              | OFF         | DETAIL |
|----------|------------------|-------------|--------|
| L-27     | '14-32' 51+40.23 | 127.50' RT. | E300   |
| L-28     | '14-32' 51+90.27 | 127.50' RT. | E300   |
| L-29     | '14-32' 52+40.31 | 127.50' RT. | E300   |
| L-30     | '14-32' 54+09.31 | 127.50' RT. | E300   |
| L-31     | '14-32' 55+78.31 | 127.50' RT. | E300   |
| L-32     | '14-32' 57+47.31 | 127.50' RT. | E300   |
| L-33     | '14-32' 58+66.57 | 127.50' RT. | E300   |
| L-34     | '14-32' 59+16.44 | 127.50' RT. | E300   |
| L-35     | '14-32' 59+36.44 | 122.14' RT. | E300   |
| L-36     | '14-32' 59+51.08 | 107.50' RT. | E300   |
| L-37     | '14-32' 59+56.44 | 87.50' RT.  | E300   |
| L-38     | '14-32' 59+56.44 | 70.00' RT.  | E300   |
| L-39     | '14-32' 59+48.06 | 49.14' RT.  | E300   |
| L-40     | '14-32' 60+06.57 | 77.03' RT.  | E300   |
| L-41     | '14-32' 60+06.57 | 119.76' RT. | E300   |
| L-42     | '14-32' 60+06.57 | 162.50' RT. | E300   |
| L-43     | '14-32' 57+47.31 | 172.50' RT. | E300   |
| L-44     | '14-32' 55+78.31 | 172.50' RT. | E300   |
| L-45     | '14-32' 54+09.31 | 172.50' RT. | E300   |
| L-46     | '14-32' 52+90.31 | 172.50' RT. | E300   |
| L-47     | '14-32' 52+40.31 | 172.50' RT. | E300   |
| L-48     | '14-32' 52+24.83 | 177.87' RT. | E300   |
| L-49     | '14-32' 52+16.00 | 191.68' RT. | E300   |
| L-50     | '14-32' 51+65.21 | 196.60' RT. | E300   |
| L-51     | '14-32' 51+57.58 | 179.51' RT. | E300   |
| L-52     | '14-32' 51+40.23 | 172.50' RT. | E300   |



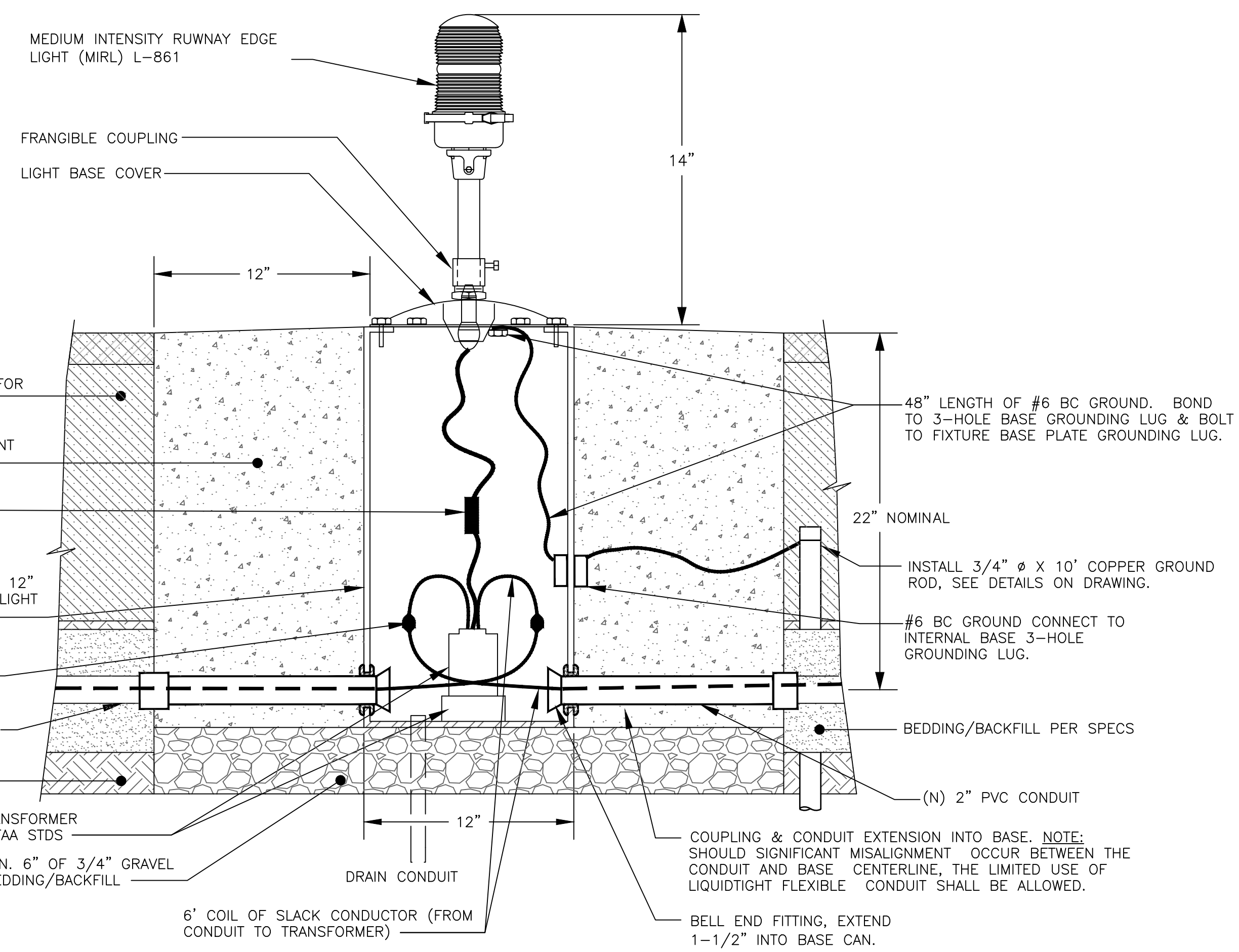
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|---|--|-------|-------------------|-----------------|-------------------|-----------|------|
|   |  |       |                   |                 |                   |           |      |
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|   |  |       |                   |                 |                   |           |      |
| KHA PROJECT<br>191396004  | DATE<br>03/24/2023   | SCALE | DESIGNED BY<br>JC | DRAWN BY<br>JWF | CHECKED BY<br>THH | REVISIONS | DATE |
| <b>ELECTRICAL LAYOUT PLAN</b>   |  |       |                   |                 |                   |           |      |
| <b>SISKIYOU COUNTY<br/>WEED AIRPORT - 046<br/>TAXIWAY &amp; AIRCRAFT PARKING<br/>APRON RECONSTRUCTION<br/>PROJECT PHASE 1</b> |  |       |                   |                 |                   |           |      |
| CALIFORNIA  |  |       |                   |                 |                   |           |      |
| ISSUED FOR BID  |  |       |                   |                 |                   |           |      |
| SHEET NUMBER<br><b>E203</b>   |  |       |                   |                 |                   |           |      |
| SHEET 51 OF 54  |  |       |                   |                 |                   |           |      |

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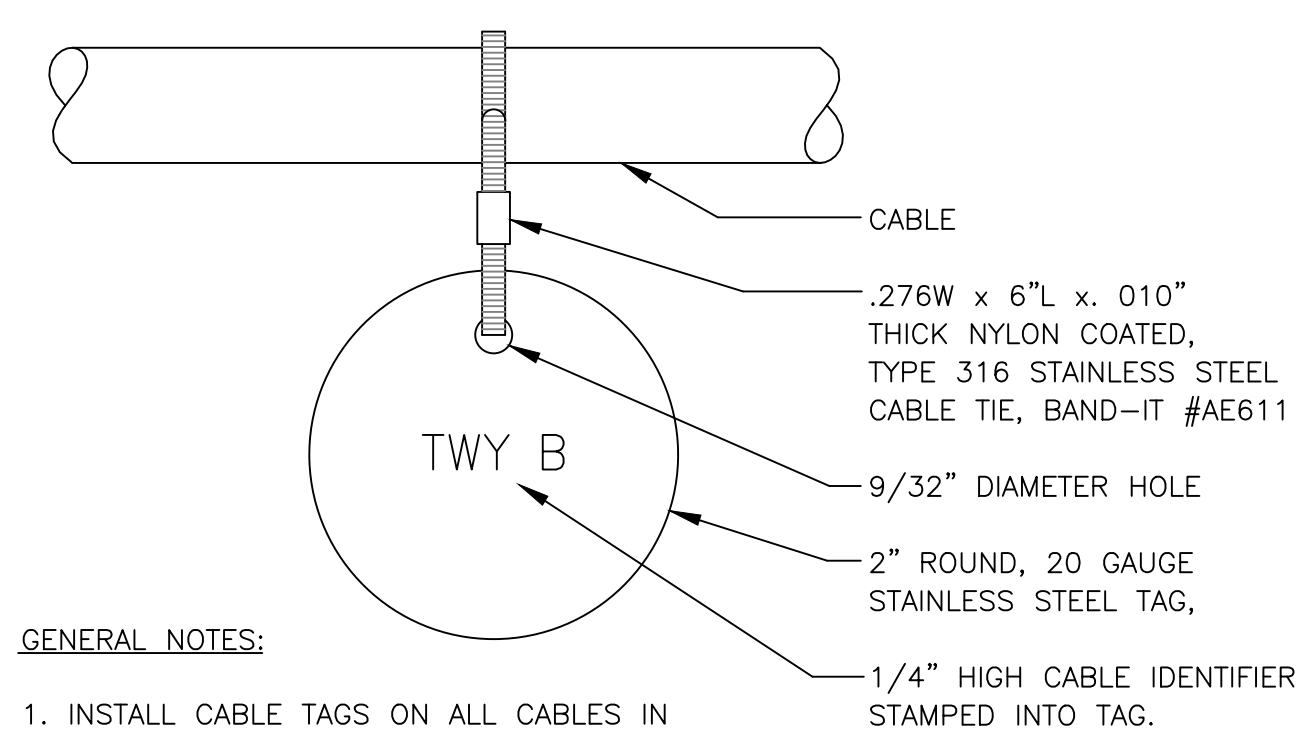


- NOTES:**
1. MARKER SHALL BE FAA AC 150/5345-39 AND AC 150/5345-53 (CURRENT CONDITIONS) AND CERTIFIED FAA SPEC L-853, TYPE II CYLINDRICAL.
  2. PROVIDE BASE PIPE PLUG FOR WHEN REFLECTOR REMOVED AND SNOW PLOWING OCCURS.

**1 RETROREFLECTIVE MARKER DETAIL**  
SCALE: NTS

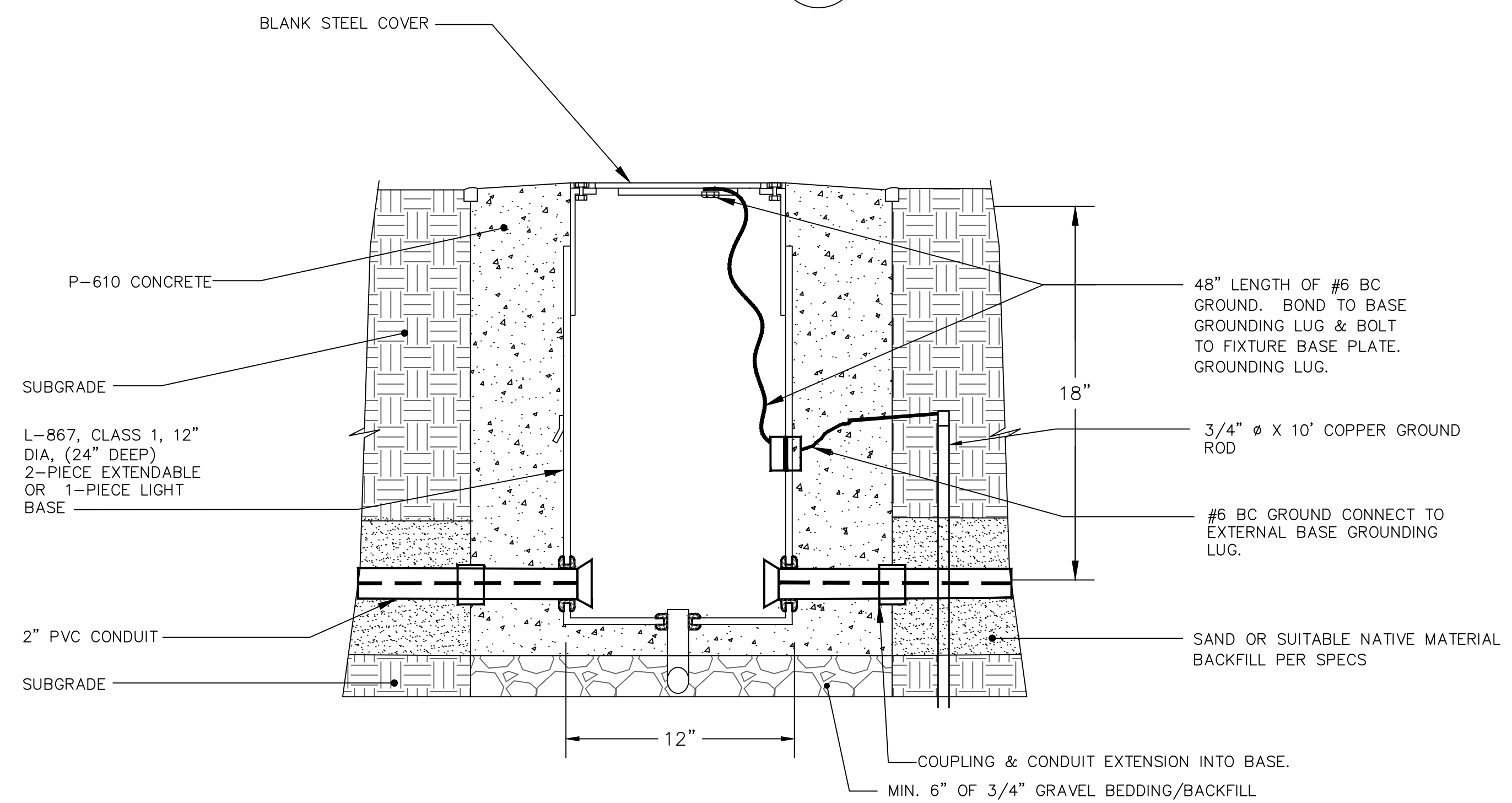


**2 ELEVATED RUNWAY EDGE LIGHT DETAIL**  
SCALE: NTS



- GENERAL NOTES:**
1. INSTALL CABLE TAGS ON ALL CABLES IN MANHOLES, PULLBOXES AND HANDHOLES.

**3 CABLE TAG DETAIL**  
SCALE: NTS



**4 NEW L867 BASE CAN WITH BLANK STEEL COVER**  
SCALE: NTS

- NOTE:**
1. IF 5 kV CABLE IS PULLED INTO BASECAN LEAVE 6' OF SLACK CABLE COILED IN BASECAN.

|     |           |      |    |
|-----|-----------|------|----|
| NO. | REVISIONS | DATE | BY |
|     |           |      |    |

**Kimley-Horn**

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PROFESSIONAL ENGINEER  
JOSEPH D. BRADSHAW  
No. 6786  
ELECTRICAL  
STATE OF CALIFORNIA  
03-24-2023

|             |            |
|-------------|------------|
| KHA PROJECT | 191396004  |
| DATE        | 03/24/2023 |
| SCALE       |            |
| DESIGNED BY | JC         |
| DRAWN BY    | JWF        |
| CHECKED BY  | THH        |

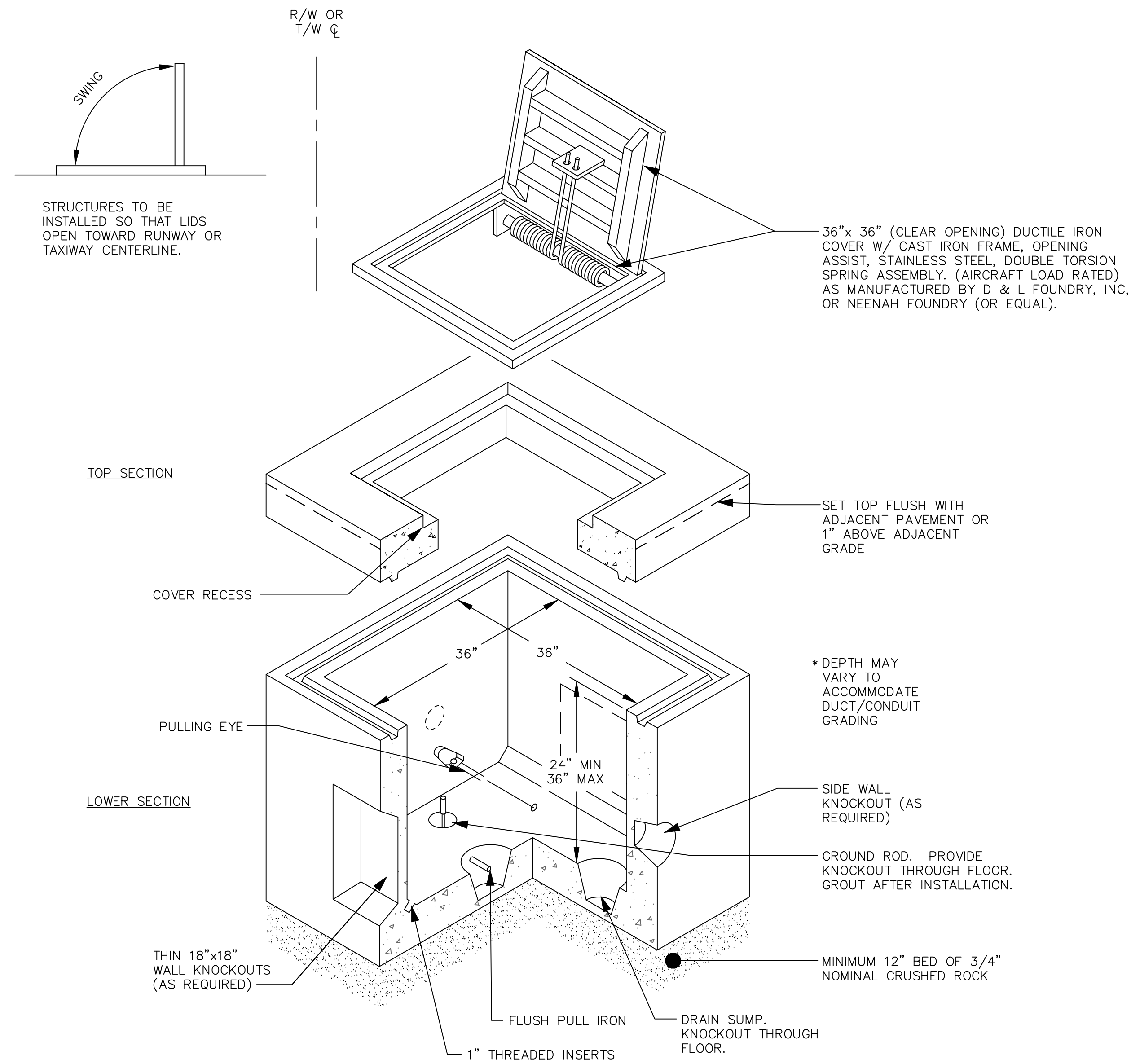
**ELECTRICAL DETAILS**

SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
CALIFORNIA  
WEED

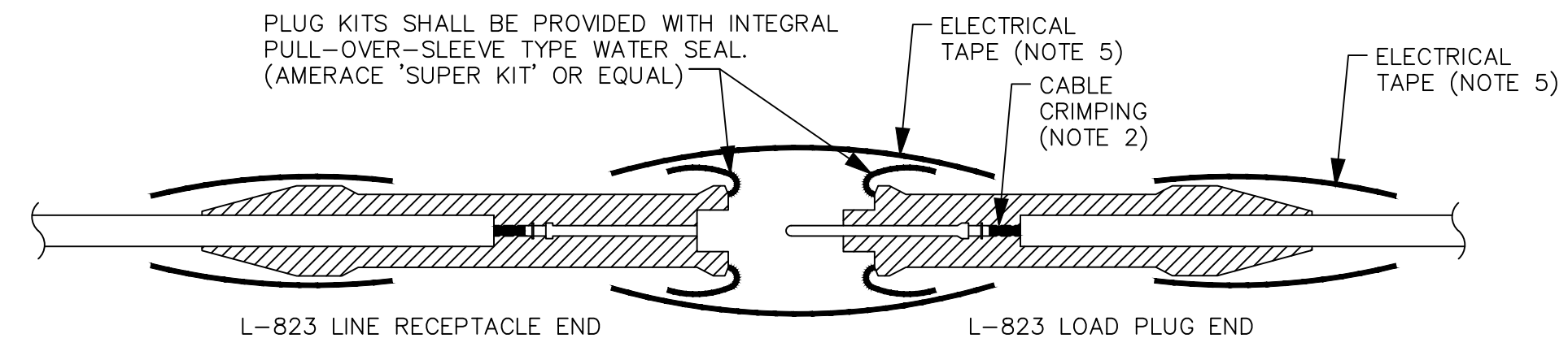
MARCH 2023  
ISSUED FOR BID

SHEET NUMBER  
**E300**  
SHEET 52 OF 54

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1 H-20 HANDHOLE  
SCALE: NTS

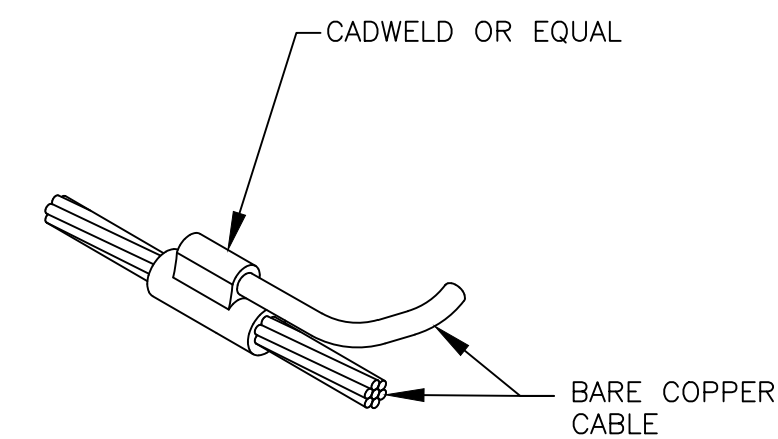


FOR SPLICES INSIDE CAN, JUNCTION BOXES AND HANDHOLES

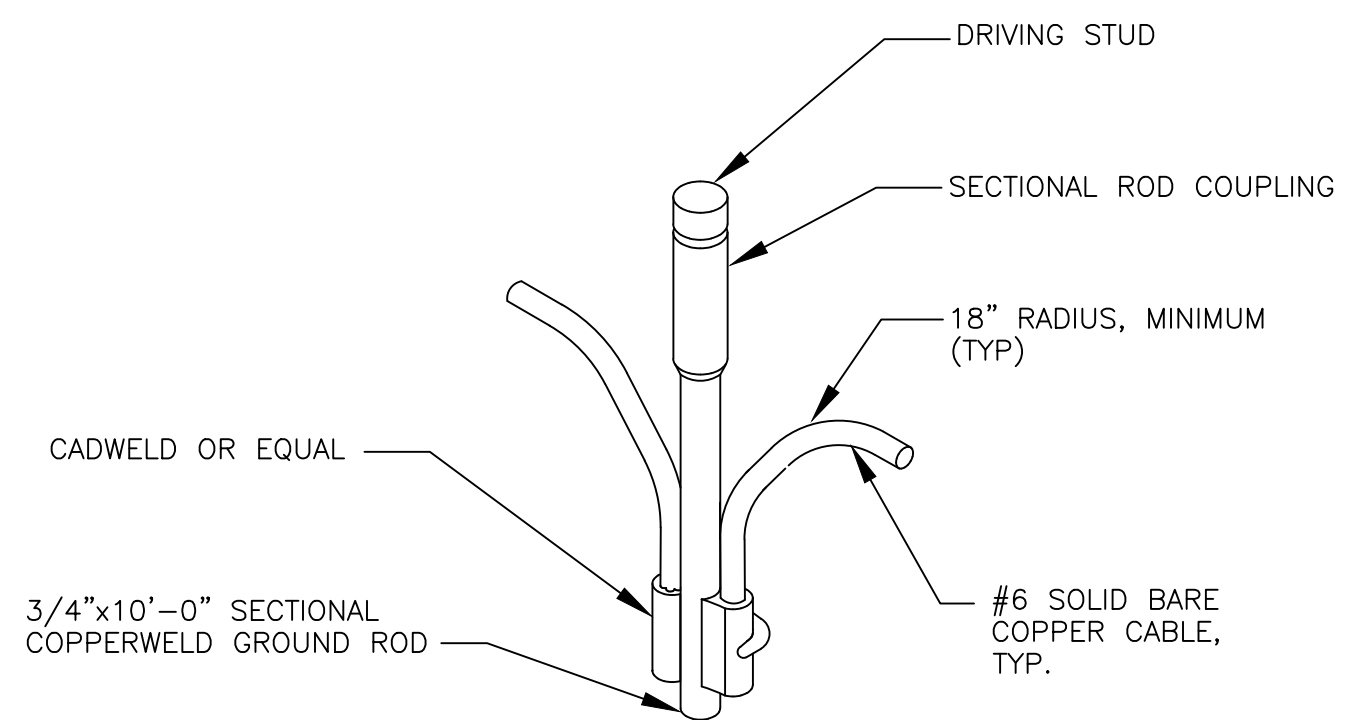
NOTES:

1. PROVIDE MALE AND FEMALE L-823 CONNECTORS AS REQUIRED ON EACH CONDUCTOR IN EACH BASE, HANDHOLE OR MANHOLE IN THE FIELD CIRCUIT. SPLICES SHALL NEVER BE INSTALLED IN CONDUITS.
2. PLUG AND RECEPTACLE END FITTINGS SHALL BE CRIMPED ONTO THE CONDUCTOR BY USE OF AN AIRPORT PERSONNEL ACCEPTED HANDHELD RATCHETING TYPE CRIMPING TOOL. EACH CABLE TERMINATION SHALL BE SECURED BY TWO CRIMPS, 90 DEGREES APART.
3. ALL L-824 CABLE CONNECTIONS SHALL BE MADE WITH L-823 CONNECTOR KITS.
4. AT THE POINT OF CONNECTION WITH THE EXISTING FIELD CIRCUITS, INSTALL NEW L-823 PLUGS ON BOTH THE NEW AND EXISTING CABLES. VERIFY INSULATION TYPES OF BOTH NEW AND EXISTING CABLES AND COORDINATE WITH TERMINATION KITS TO ASSURE PROPER AND WATER TIGHT FIT.
5. SECURE THE PULL-OVER FLAP AND SPLICE ENDS WITH A LAYER OF SCOTCH 33 (OR EQUIVALENT) ELECTRICAL TAPE EXTENDING 2-INCHES BOTH SIDES OF THE OPEN END OF THE FLAP.

2 "SUPER KIT" TYPICAL 5KV CABLE SPLICE  
SCALE: NTS



3 COUNTERPOISE SYSTEM GROUNDING DETAIL  
SCALE: NTS



4 COUNTERPOISE SYSTEM GROUND ROD DETAIL  
SCALE: NTS

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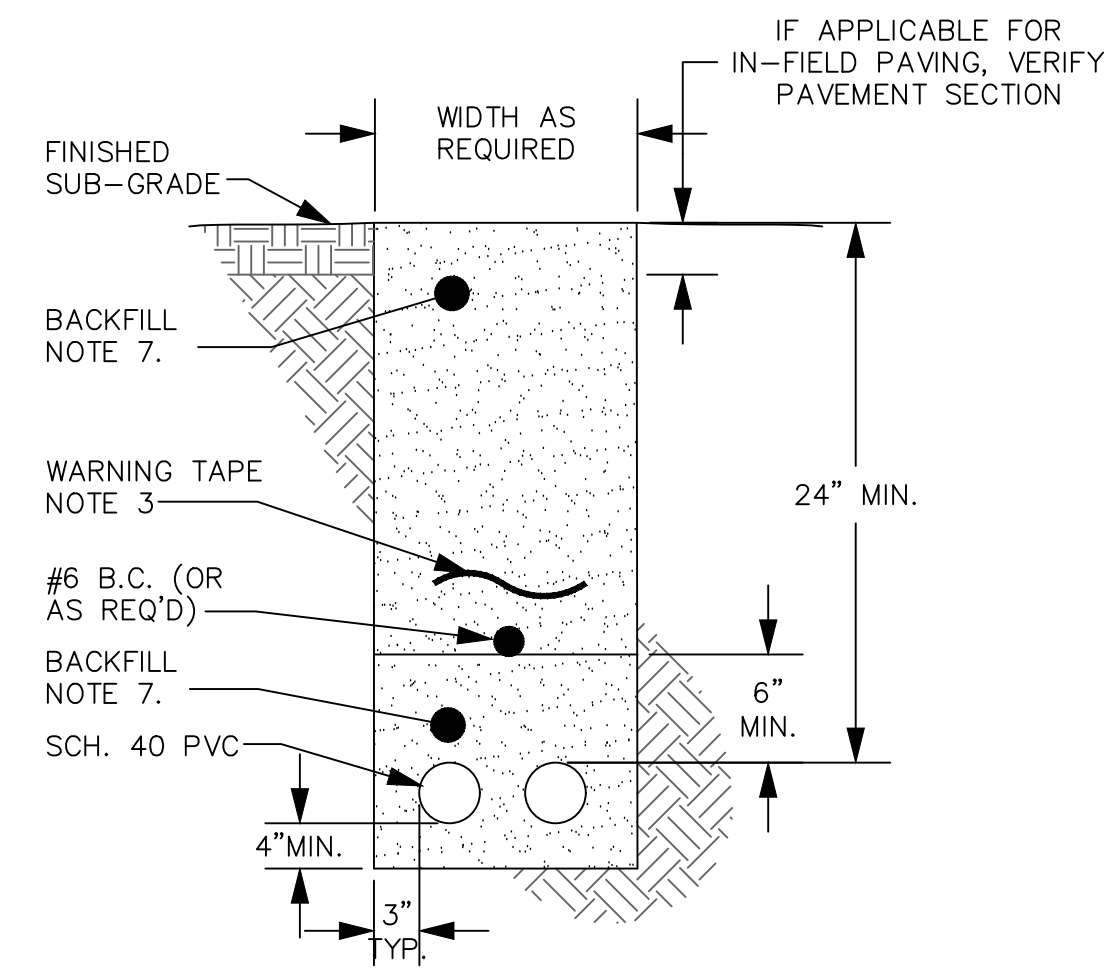
KHA PROJECT  
191396004  
DATE  
03/24/2023  
SCALE  
DESIGNED BY JC  
DRAWN BY JWF  
CHECKED BY THH

ELECTRICAL DETAILS

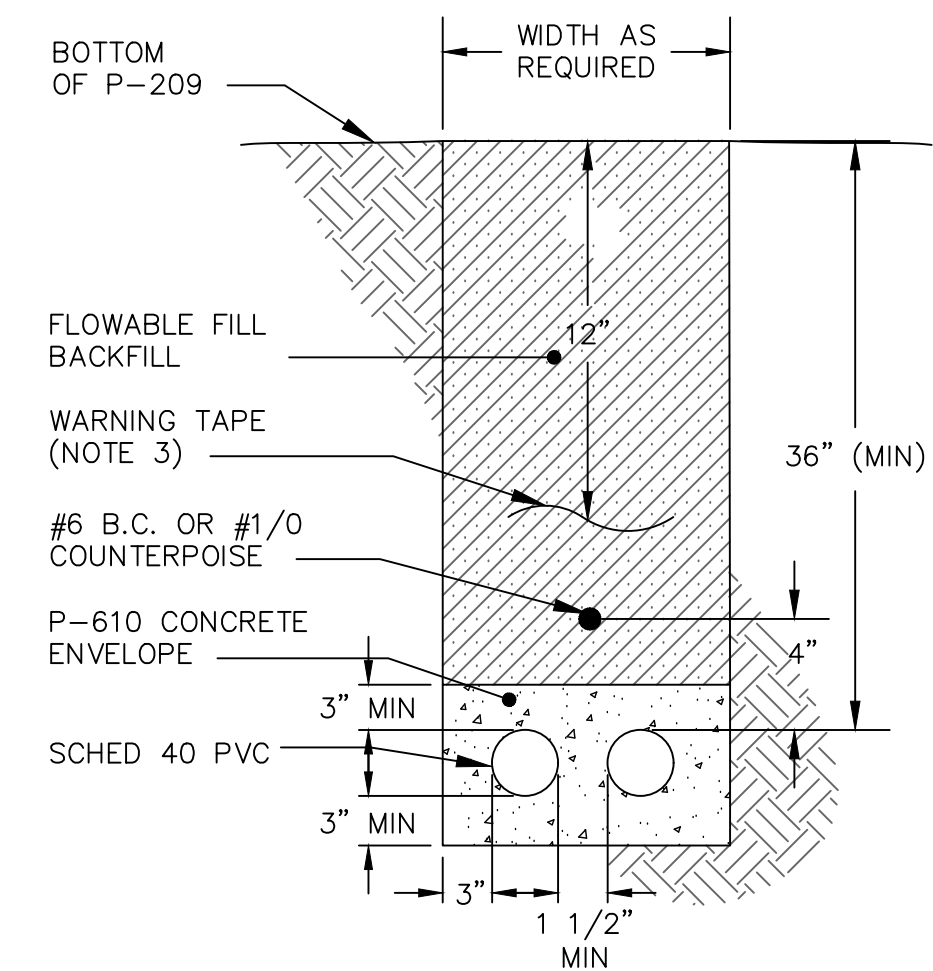
SISKIYOU COUNTY  
WEED AIRPORT - 046  
TAXIWAY & AIRCRAFT PARKING  
APRON RECONSTRUCTION  
PROJECT PHASE 1  
WEED CALIFORNIA

MARCH 2023  
ISSUED FOR BID

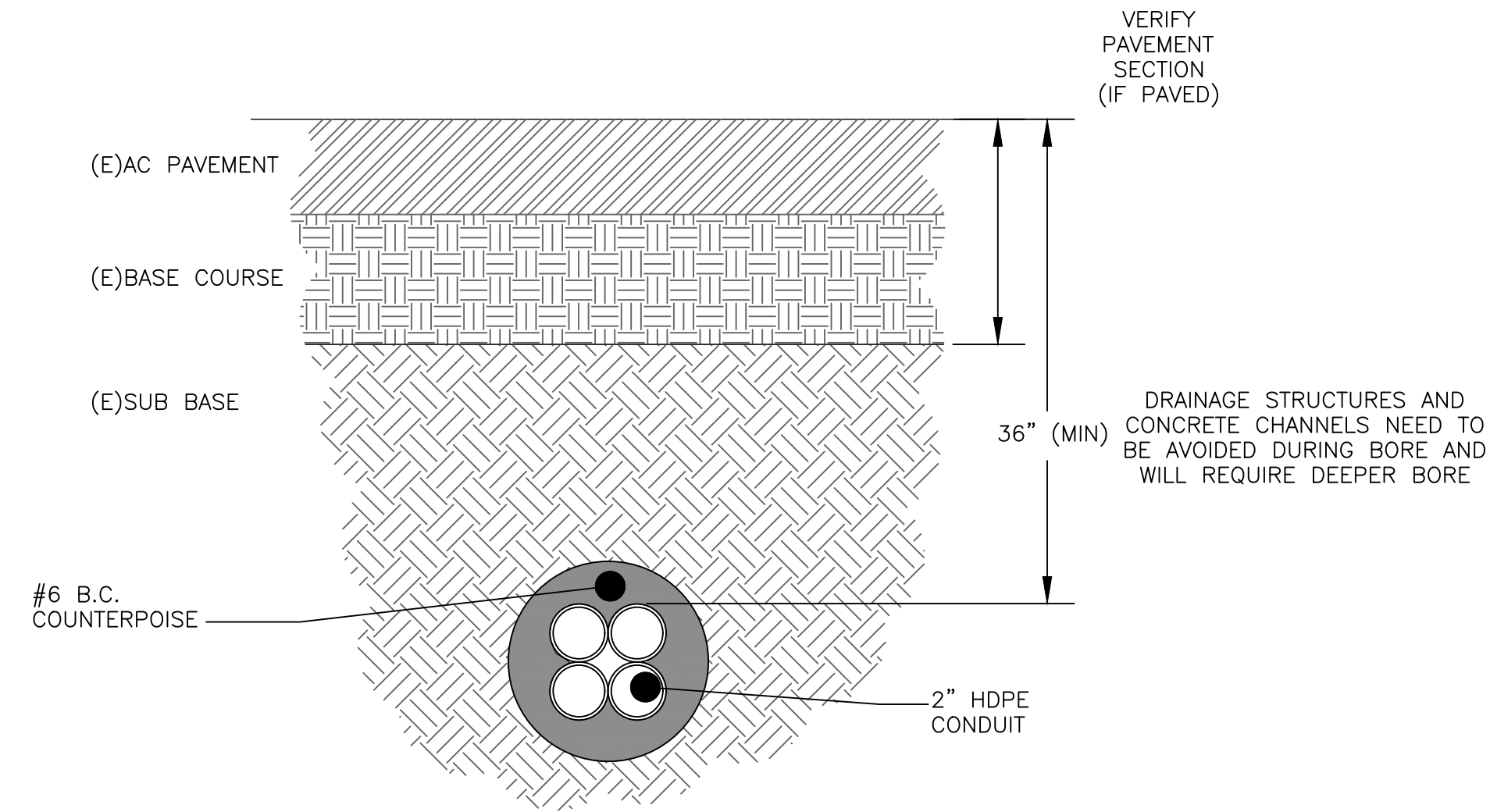
SHEET NUMBER  
**E301**  
SHEET 53 OF 54



2 TYPICAL SECTION - DIRECT BURY  
SCALE: NTS



3 TYPICAL SECTION - CONCRETE ENCASED  
SCALE: NTS



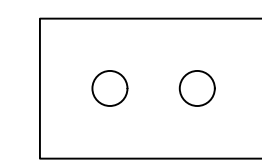
4 TYPICAL SECTION - DIRECTIONAL BORE  
SCALE: NTS N.T.S.

**CONDUIT/DUCT & CABLE INSTALLATION NOTES:**

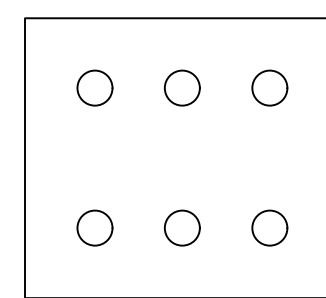
- SEE PLANS FOR REQUIRED DUCT SECTIONS. ALL OF THE SECTIONS SHOWN ON THIS DRAWING MAY NOT BE USED ON THIS PROJECT.
- PROVIDE PULL WIRES IN ALL (NEW) UNUSED CONDUITS. PLUG UNUSED CONDUIT ENDS IN HANDHOLES OR MANHOLES.
- WARNING TAPE IS REQUIRED IN ALL AREAS OF THE AIRPORT.
- 4000 PSI CONCRETE ENCASE UNDER FULL STRENGTH PAVEMENT AND AS OTHERWISE INDICATED ON THE PLANS.
- UNLESS OTHERWISE NOTED, INSTALL A BARE COPPER (BC) COUNTERPOISE CONDUCTOR #6 WITH EACH DUCT ASSEMBLY AND EACH SINGLE CONDUIT. EXOTHERMICALLY WELD TO GROUND RODS PER SPECIFICATIONS L-108 AND L-110. CONNECT TO GROUNDING SYSTEM PER DETAILS ON DRAWINGS E2.04.
- UNLESS OTHERWISE NOTED, INSTALL LIGHTING SERIES CIRCUITS AS FOLLOWS:
  - ONE CIRCUIT (1 OR 2 CONDUCTORS) PER 2\"C. LIMIT 4\"C TO NO MORE THAN 8 CONDUCTORS.
  - START INSTALLATION IN BOTTOM CONDUITS OF DUCT ARRAY, LEAVING THE UPPER CONDUITS EMPTY.
- BACKFILL NOTES:
  - DIRECT BURIED (D.B.) APPLICATION: ENCASE CONDUITS IN BEDDING SAND OR SUITABLE NATIVE MATERIAL WITH A MINIMUM SURROUND AS SHOWN IN THE DETAIL. ABOVE COUNTERPOISE, FILL TO FINISHED GRADE WITH P-152 OR TO BOTTOM OF INFIELD PAVEMENT WITH TYPE II AGGREGATE OR OTHER AGGREGATE BASE MATERIAL PER CIVIL PAVEMENT SECTION.
- REFER TO SPECIFICATION ITEM L-110 FOR CONDUIT/DUCT SPACER SYSTEM.



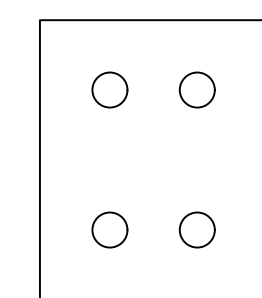
A: 1-2\"C  
(UNLESS OTHERWISE INDICATED ON PLANS UNDER PAVEMENTS)



B: 2-2\"C



C: 6-2\"C



D: 4-4\"C

DUCT CONFIGURATIONS  
SCALE: NTS