



P022006.00

January 14, 2022

Ms. Joy Hall & Mr. Jason Ledbetter
 Siskiyou County Department of General Services
 190 Greenhorn Road
 Yreka, CA 96097

Dear Joy and Jason:

SUBJECT: RFP # 22-01 PROPOSAL FOR LANDFILL GAS AND GROUNDWATER MONITORING AND REPORTING, AND REGULATORY ASSISTANCE FOR VARIOUS SISKIYOU COUNTY LANDFILLS FROM FISCAL YEARS 2022/2023 THROUGH 2024/2025 (JULY 1, 2022 THROUGH JUNE 30, 2025), SISKIYOU COUNTY, CALIFORNIA

Lawrence & Associates (L&A) is pleased to present this proposal per RFP # 22-01 to perform landfill-gas and groundwater-monitoring and reporting for Black Butte, McCloud, Yreka, Tulelake, and Happy Camp Landfills, Siskiyou County, California. **ATTACHMENT A** presents L&A's Statement of Qualifications; **ATTACHMENT B** presents L&A's Company Profile, including a Staff Organizational Chart; **ATTACHMENT C** presents our Approach to performing the requested scope of work; **ATTACHMENT D** presents our List of References; **ATTACHMENT E** presents our Price Proposal and Schedule of Fees.

The cost of the work to be conducted by L&A is estimated to be \$84,998 per fiscal year (**ATTACHMENT E**), which will be billed on a time and expense basis, as shown on the Schedule of Fees (**Attachment E**). L&A understands Siskiyou County General Services will continue to sample surface water and storm water at all landfill sites, and will continue paying all laboratory costs directly.

If you would like us to perform the work, please incorporate the attached proposal into your contract and provide us copies for signature. Please call me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads 'Karl Swanson'.

Karl Swanson
 Senior Engineering Geologist

Enclosures: **ATTACHMENT A** – STATEMENT OF QUALIFICATIONS
ATTACHMENT B – COMPANY PROFILE
ATTACHMENT C – APPROACH
ATTACHMENT D – REFERENCES
ATTACHMENT E – PRICE PROPOSAL

ATTACHMENT A
STATEMENT OF QUALIFICATIONS



STATEMENT OF QUALIFICATIONS

INTRODUCTION

Lawrence & Associates (L&A) is an environmental engineering firm specializing in hydrogeology, engineering geology, and civil engineering. L&A has been in business since 1976. L&A has developed a range of expertise that includes regulatory and environmental compliance for industrial and public facilities, and design of infrastructure for those facilities.

Principals of L&A include Ms. Bonnie Lampley, President; Mr. Clayton Coles, Vice President and General Manager; Mr. Bryan Gartner; Mr. David Kirk; and Mr. Dan Jensen. Mr. Jensen is a licensed well driller in California and Oregon; the other principals are professional geologists with multiple other certifications. A description of the key professionals at L&A, including their qualifications, is presented in **ATTACHMENT B**.

L&A is located in the Gateway Business Park in the City of Shasta Lake, Shasta County, California. Our core client groups are primarily County and municipal government, energy utilities, manufacturing industries, and various other private companies. Our primary geographical area of operation includes northern California, southern Oregon, and western Nevada.

The following services are briefly summarized in this Statement of Qualifications:

- Regulatory Compliance
- Civil Engineering
- Waste Management
- Surface-Water Engineering & Water Rights
- Groundwater Investigations and Engineering
- Environmental Services
- Geology & Engineering Geology
- Environmental and Geotechnical Drilling

REGULATORY COMPLIANCE

L&A provides regulatory compliance for industrial sites such as power generating facilities, lumber mills, landfills, transfer stations, fueling facilities and truck stops, equipment maintenance facilities, and other industrial facilities. Services related to regulatory compliance include, but are not limited to:

- Spill Prevention Control & Countermeasure (SPCC) plans, general industrial and construction Stormwater Pollution Prevention Plans (SWPPP), Hazardous Materials Business Plans (HMBP) and SB 14 Hazardous Waste Reduction Plans and reporting;
- Best Practicable Treatment and Control Plans (BPTC); and
- Environmental Audits, Environmental Site Management reports, and other compliance documents.
- Mandatory Greenhouse Gas (GHG) Reporting.
- Toxicity Release Inventory (TRI) Reporting.
- Regional Water Quality Control Board (RWQCB) permitting, reporting, and consulting, including: National Pollution Discharge Elimination System (NPDES) permitting (Waste Discharge Requirements, General Industrial Storm Water, and Construction related); Report of Waste Discharge (ROWD), Joint Technical Reports, Salinity Studies, Toxicity Reduction Evaluations (TRE), sampling work plans, water-balance modeling and calculations, monitoring/sampling/reporting, both groundwater and surface-water assessments, antidegradation studies, and client advocacy in working with a complex regulatory community.
- Air permitting support, including Permits to Operate, Title V Operating Permits, source test review, and emissions estimates.
- Land development and CEQA support, including site assessment, planning agency coordination, land use and building permitting support.
- Facility operations support, including site-specific training, permit navigation, semi-annual compliance observations, annual refresher training, reporting and monitoring quality assurance review, and on-call support (as needed).



Examples of recent key projects include:

- NPDES Permitting, SWPPPs and SPCCs for industries, including Humboldt Waste Management Authority, Covanta Energy Company, Waste Management, Sierra Pacific Industries, Humboldt Redwood Company, Papé Machinery and Material Handling, and government entities, including the City of Redding, Glenn County, Trinity County, Siskiyou County, and others;
- HMBPs for at least 30 industrial facilities located in California. HMBPs were prepared for the French Gulch Nevada Mining Corporation (Washington Mine), Papé Kenworth and Papé



Machinery facilities, Shasta Wheelabrator Energy Company, and others; and

- BPTCs were prepared for several cogeneration facilities throughout northern California, for Covanta, Shasta and Lassen Wheelabrator Energy Company, Sierra Pacific Industries, and others.

CIVIL ENGINEERING

The core of our civil engineering services is extensive experience in public and industrial infrastructure, including specific experience in the wood-products and timber industry.

L&A has considerable experience in several specialties:

- Spill Prevention Control & Countermeasures (SPCC) plans and SWPPPs for municipal and industrial facilities;
- Design of stormwater containment or detention ponds and structures;
- Design of industrial and community water wells;
- Design of small community water-supply systems, including distribution and storage;
- Flood plain and hydrologic modeling analysis;
- Design of small community and decentralized wastewater systems including pond and liner designs;
- Underground and aboveground fueling facility design, permitting and compliance;
- Solid waste design (landfills, transfer stations, recycling facilities);
- Designs, specifications, and bids for parks, resorts, and golf courses; and
- Cost estimating and project management.



Examples of civil engineering projects include designs for the following projects:

- Glenn County Transfer Station;
- Siskiyou County Oberlin Road Transfer Station tipping pad canopy.
- Potrero Hills Landfill office complex.
- Tehama/Red Bluff Landfill entrance booth and scales.
- Benton Airpark runway overrun project, including construction management;
- Reservoir design, City of Fort Bragg;
- Reservoir liner design, City of Ukiah;



- Juvenile detention facilities in Trinity and Siskiyou County (and feasibility studies, grant writing, and project management for the Trinity facility);
- Sewer line extension for the Weaverville Transfer Station;
- Community water system for the Sierra Pacific Industries residential development in Shingletown;
- Mount Lassen Power (Lake Almanor) steel building and heavy-equipment wash facility; and
- Community wastewater treatment systems for multiple developments and resorts on Lake Almanor and Shasta Lake.



WASTE MANAGEMENT

L&A has over 30 years of experience in regulatory compliance and design for solid waste facilities, including landfills, recycling facilities, composting facilities, transfer stations and material recovery facilities (MRF). Our experience includes:

- Master planning, siting, permitting, and compliance documents, including Reports of Waste Discharge (ROWD), Joint Technical Documents (JTD), Closure Plans, groundwater/landfill-gas monitoring, air-quality monitoring, and other documents, permits, and plans;
- Designs for landfill liners, leachate and wastewater ponds, infrastructure, transfer stations, picking and sorting lines, monitoring systems, landfill-gas extraction systems;
- Hazardous-waste generation, handling and disposal permitting for industrial facilities;
- Permitting and compliance for composting and recycling facilities;
- Construction services including phasing, budgeting, planning, special inspection, and construction management; and
- Operation support, including fill sequencing, budgeting, on-call regulatory and permitting assistance, and operation of landfill-gas extraction systems.



We currently provide services to over 20 landfill sites in California, plus related transfer stations, MRF, composting, recycling, maintenance, and hauling facilities.

GROUNDWATER INVESTIGATIONS & ENGINEERING

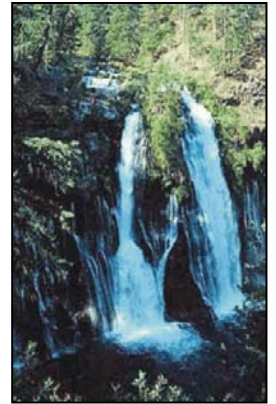
L&A conducts groundwater investigations and engineering for public, private, and industrial clients. Most of our work falls into the following categories:

- Community or Industrial Well Design – In most groundwater basins, the construction methods of community or industrial wells is critical to ensure proper performance and water quality and minimize water treatment costs. L&A provides services from siting to minimizing interference through design, bidding, logging,



inspection and testing of these wells, including modeling to evaluate interference, logging, water testing to identify strata with undesirable water quality (commonly high arsenic) and then determining the screened intervals and performing step and continuous-discharge aquifer tests;

- Proof of Water and Well Interference Analysis – When groundwater is used as a source of water for a development or industrial project, the entitlement process, specifically, the California Environmental Quality Act (CEQA), requires that project proponent demonstrate availability of water without significant impacts to the aquifer and excessive drawdown on neighboring wells. L&A has extensive experience in installing, testing, and analyzing wells for this purpose. We have coordinated installation and testing for wells ranging from less than 100 gpm to well over 2,000 gpm for this purpose and then preparing an accurate, defensible analysis of aquifer impacts and well interference; and
- Contaminant Fate, Transport, and Remediation – L&A performs evaluation of groundwater contaminant plumes from a wide variety of sources, evaluates the cost- effectiveness and various remediation strategies and then implements a remediation strategy. Technologies we use for groundwater remediation have included pump and treat, in-situ remediation using air sparging, oxygen diffusion, peroxide injection, ozone diffusion, and other methods. Ex-situ treatment methods have included carbon filtration, ozone/peroxide destruction, air stripping, aeration and other methods.



Examples of recent groundwater-supply projects in northern California include the following:

- Siting, design, and construction oversight for new production well, City of Weed.
- Analysis of pumping impacts for several projects in the City of Mendocino, per the City's Groundwater Ordinance.
- Production-well installation and testing, impacts analyses, SB 610/221 analyses, and/or groundwater modeling for multiple developments of various sizes (4 to 3,000+ homes, sometimes with commercial development) in Shasta and Tehama Counties. L&A's work typically includes development of water budgets, analysis of water availability, data analyses and interpretation, assessing pumping impacts, and reporting for Environmental Impact Reports;
- Drilling oversight and aquifer testing for the City of Redding municipal wells (Wells 12 through 25). L&A's work consisted of test-well design, logging, construction oversight, and water-quality sampling, and/or aquifer testing. L&A continues to provide technical services for municipal well development for the City;
- Impacts analysis for development of bottled-water source in Shasta County. L&A's work included aquifer testing of an existing shallow extraction well, stream gauging, water-quality evaluation, water-budget analysis, and reporting for inclusion in CEQA document;

- Evaluation of pumping impacts and permitting support for development of a State Small Water System in coastal Mendocino County;
- Evaluation of pumping and water-quality impacts and groundwater modeling for development of a regional park and golf course near Fort Bragg, Mendocino County. L&A's work included pumping- and observation-well installation in the regional aquifer, aquifer testing, piezometer installations in the shallow aquifer, water-quality monitoring, reporting, and technical contributions during public meetings; and
- Detailed analysis of the Burney Basin aquifer in support of an application for certification of a 500-megawatt gas-fired turbine power plant. L&A's work was conducted for the proposed Three Mountain Power Plant, in support of California Energy Commission (CEC) permitting. L&A's primary focus was to examine potential impacts of groundwater pumping on wells and stream flow in the basin.

SURFACE-WATER ENGINEERING & WATER RIGHTS

L&A performs surface water investigations, analysis and engineering for a wide variety of purposes, including the following:

- Flood plain analysis using HEC-RAS, HEC-1, Hydromet, WMS, and other modeling, erosion control planning, and Fish & Game (1602), Army Corps of Engineers (401), and other permitting;
- Stream and spring hydrology and geomorphology assessments including methods such as depth estimation, stream bank reinforcement, and determination of bank-full flood levels for wetlands delineation;
- Peak storm-flow and stormwater detention analyses and design resulting in creative designs, such as porous pavement design, check dam detainment, subpavement culvert storage, and other systems, to manage flow;
- Water rights assessments, including development of conceptual models of springs and ditches, and stream gaging to evaluate water availability and use, to project water needs or provide expert testimony regarding water rights; and
- Erosion control plans and Storm Water Pollution Prevention Plans (SWPPP).



Examples of recent surface-water projects in northern California include the following:

- Analysis of hydrologic characteristics for the Benton Airpark Safety Overrun Project for the City of Redding;
- Hydrology and stormwater analyses for commercial and residential developments;
- Hydrology analyses for a new reservoir in Ukiah;
- Hydrologic and hydrogeologic analysis for a wetlands restoration project in Shingletown and a hydrologic analysis for a proposed feedlot in Tehama County;

- Analysis of a channel-scour for a bridge site in Trinity County and development of an erosion and sediment control plan for a 1,100-acre ranch in western Shasta County;
- Site survey and hydrology calculations for the expansion of a cogeneration facility in Anderson;
- Stream gauging to characterize and quantify flows related to water-rights issues in eastern Shasta County; and

ENVIRONMENTAL SERVICES

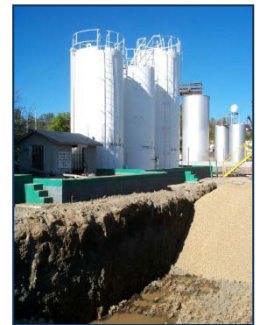
L&A provides a variety of services, including environmental investigations, contaminant evaluations, corrective or remedial action planning, monitoring, and implementing corrective action on contaminated parcels.



L&A has performed hundreds of soil, surface water, and groundwater investigations at petroleum and other chemical leak/spill sites throughout northern California. Our clients include nation-wide as well as local truck stop and service-station chains, bulk plants, utilities, City and County agencies, and private landowners. L&A has experience at well over 300 contaminated sites in northern California, and currently provides investigation, monitoring, and/or corrective action at more than 40 underground storage tank sites and more than 25 municipal landfills.

Some of the projects conducted by L&A in the past five years include:

- Environmental investigations for the City of Shasta Lake, Shasta-Trinity-Tehama College District, City of Redding, and other entities;
- *In situ* corrective action utilizing bioventing for enhanced natural attenuation and ozone/peroxide injections at fuel facilities and contaminated sites in Tehama, Siskiyou, Shasta, and other northern California counties; and
- *Ex situ* corrective action at various northern California locations, such as a groundwater treatment and extraction systems for TravelCenters of America and excavation projects at bulk facilities in Shasta County.



GEOLOGY & ENGINEERING GEOLOGY

Our mining experience includes providing geologic and hydrologic evaluation for a wide variety of both sand and gravel and hard-rock mining clients. Projects included production feasibility and aggregate-quality studies, ground- and surface-water evaluations for hard-rock and gravel mines, mineral surveys, evaluations for asbestos and mercury in gravel, erosion-control plans for aggregate plants, designs for sedimentation ponds, evaluation of reclamation plans and costs, 1603 Permits, 404 Permits, and State Waste Discharge Requirements.

Our engineering geology capabilities include extensive experience in landfill design and inspection, as well as slope-stability analysis and seismic evaluation, geologic reports for timber harvest plans, Alquist Priolo studies, erosion-control planning, and geologic consulting on various aspects, such as geology, soils, hazardous materials, surface-water hydrology, and groundwater impacts for environmental review reports (both CEQA and NEPA), including Environmental Impact Reports (EIR) and Environmental Impact Statements (EIS), and timber harvest plans.



Examples of recent key projects include the following:

- Geologic reports for timber harvest plans for various timber companies in Cascade, Klamath, and Sierra Nevada ranges of northern California;
- Landfill evaluations for litigation support at various locations;
- Geotechnical investigations for fiber optic sites in Tulelake and Tehama;
- Slope-stability and hydrogeologic evaluations of the Big Valley Quarry, Lassen County, for Hat Creek Construction;
- Design of waste rock storage, Report of Waste Discharge (ROWD), closure plan, and water-treatment system Initial Study for the Washington Mine, Shasta County;
- Development of a phased-closure plans for corrective action of municipal landfills for Siskiyou, Glenn, Shasta, Trinity, and Tehama Counties;
- Design of liner systems and gas-extraction systems for the Tehama, Shasta, and other municipal landfills; and
- Hydraulic and geologic analysis for an EIR for a proposed gravel-plant expansion in Glenn County.



ENVIRONMENTAL AND GEOTECHNICAL DRILLING

L&A is a licensed drilling contractor (C57-539447) and owns and operates a 4-wheel drive CME-55 drill rig equipped with hollow-stem auger (HSA), air- and mud-rotary, and rock coring capabilities and an all-terrain 6-wheel ATV capable of drilling HSA and rock coring in less-consolidated or shallower holes. Both rigs are equipped for SPT testing. We have a full-time drill crew trained in a full range of technical disciplines.



RELATED SERVICES

We possess drafting, surveying, and soil-testing capabilities to augment our work, providing high-quality in-house services to ensure that projects are completed in a timely and economical manner.

ATTACHMENT B
COMPANY PROFILE



COMPANY PROFILE

Lawrence and Associates (L&A) is a private consulting firm located in Shasta Lake, California. L&A provides civil engineering, hydrogeology, and engineering geology services. Our geographical service area includes all of California, Southern Oregon, and Northern Nevada. We have been in business since 1976, and our client base includes both municipal and private entities. L&A currently has a staff of 15 and maintains a network of professionals that provide on-call support services. Most members of L&A's professional staff possess multiple certifications in geology, hydrogeology, engineering geology, and/or environmental assessment, providing an informed and technically-oriented approach to all projects.

KEY PERSONNEL

Mr. Clayton Coles: *CA Professional Geologist (PG) 5007, CA Certified Engineering Geologist (CEG) 1730, and Certified Professional Soil Erosion and Sediment Control Specialist 826 (inactive). CA Qualified Stormwater Pollution Prevention Plan Developer (QSD) No. 00182.* General Manager and Principal Engineering Geologist of L&A. Mr. Coles is responsible for technical management and oversight of all engineering, geotechnical, environmental, and construction-management projects. He also provides expert testimony and technical support during litigation. Mr. Coles has over 30 years of experience in solid-waste facility design, permitting, construction management, and operation, and is an expert on new waste management units, liners, covers, monitoring networks, and landfill-gas monitoring and control systems. He has assisted clients with project-scoping, conceptual planning, grant proposals, CEQA compliance, permitting, project and construction management, and cost estimating for projects valued over several million dollars. Mr. Coles provided these services for the Trinity and Siskiyou Counties during construction of office/shop complexes, juvenile detention facilities, and senior housing projects; and he has been the project manager for design, bidding, and construction; designer, and/or contract administrator for the Black Butte Transfer Station and landfill closure (Siskiyou), and the Tehama County/City of Red Bluff Landfill, Phase 2, Cells 1 and 1A liner systems, Avenal Landfill Phase 3A, Liner System, John Smith Road Landfill, Modules 3b through 8, Cold Canyon Landfill Module 11A, and other projects. Mr. Coles also specializes in design implementation of storm-water best management practices (BMPs) for industrial sites including transfer stations and landfills, including sedimentation basin storm-water conveyance design. Mr. Coles has also developed numerous geologic reports for timber harvest plan in northern California.

Mr. Karl Swanson: *CA Professional Geologist (PG) 8969 and CA Certified Engineering Geologist (CEG) 2689.* Mr. Swanson is a Senior Engineering Geologist at L&A with an emphasis on Engineering Geology. His work includes geologic reports for timber harvest plans, design of landfill liner systems and closure caps, monitoring and reporting for environmental compliance, landfill-extraction system design. Mr. Swanson also has extensive experience in hydrologic (wetlands) evaluation of irrigation effects, preliminary

investigations for decentralized wastewater treatments for proposed developments, aquifer test setup and data evaluations for water supply studies, project management of a non-stormwater discharge treatment system, and groundwater monitoring, reporting, and remediation project management for several leaking UST sites. Mr. Swanson was recently the project manager for the Weaverville Landfill closure cap construction project, Tehama/Red Bluff Landfill Phase 1 closure cap, and the Tehama County/Red Bluff Landfill Phase 2, Cell 2A, 2B and 2C liner projects. Mr. Swanson has also developed multiple geologic reports for timber companies in northern California.

Mr. Dave Brown: *CA Professional Engineer (PE) 69135, CA Qualified Stormwater Practitioner (QSP) California Qualified Stormwater Pollution Prevention Plan Developer (QSD) No. 00342.* Mr. Brown is Senior Civil Engineer at L&A and manages civil and environmental engineering projects within our Engineering division. Mr. Brown specializes in environmental and storm water compliance and associated civil design. While at L&A, Mr. Brown has acted as project manager for civil engineering projects ranging from design of the Glenn County Transfer Station, Potrero Hills Landfill Office Complex, Tehama County/City of Red Bluff Landfill storm-water improvements, design of a storm-water storage and pumping system for the Sierra Pacific Windows Plant in Red Bluff, updates to SPCC and SWPPPs and overall storm water consulting for the Humboldt Redwood Company, and stormwater improvement preparation and master planning for the Humboldt Waste Management Authority in Eureka, California. Mr. Brown has recently acted as a technical expert in litigation of regarding the California Industrial General Storm-Water Permit and has reviewed/designed (BMPs) and provided SWPPP training for several sites in northern California in addition to conducting assessments and preparing technical reports related to industrial storm water. He has most recently updated the SWPPPs for the Humboldt Waste Management Authority and Humboldt Redwood Companies and assisting with compliance through Level 1 and Level 2 ERA's at multiple facilities. Mr. Brown is currently the engineer in charge of design of a new transfer station, in Glenn County, new transfer station canopy structure in Siskiyou County, high strength floor repair in Humboldt County, new construction and demolition sort line installation in El Dorado Hills, Master Plan Amendment in Amador County, and ongoing consultant for environmental compliance at several facilities. Prior to joining L&A, Mr. Brown brings 24 years of experience in engineering, consulting, and project management related to site development and redevelopment, permitting, regulatory navigation, and the most recent 16 years related to the wood-products and timber industry, including clients such as Sierra Pacific Industries, California Redwood Company, and both Humboldt Redwood Company and Mendocino Forest Products. Specific to the Collins Companies, Mr. Brown is familiar with the Chester and Klamath Falls locations.

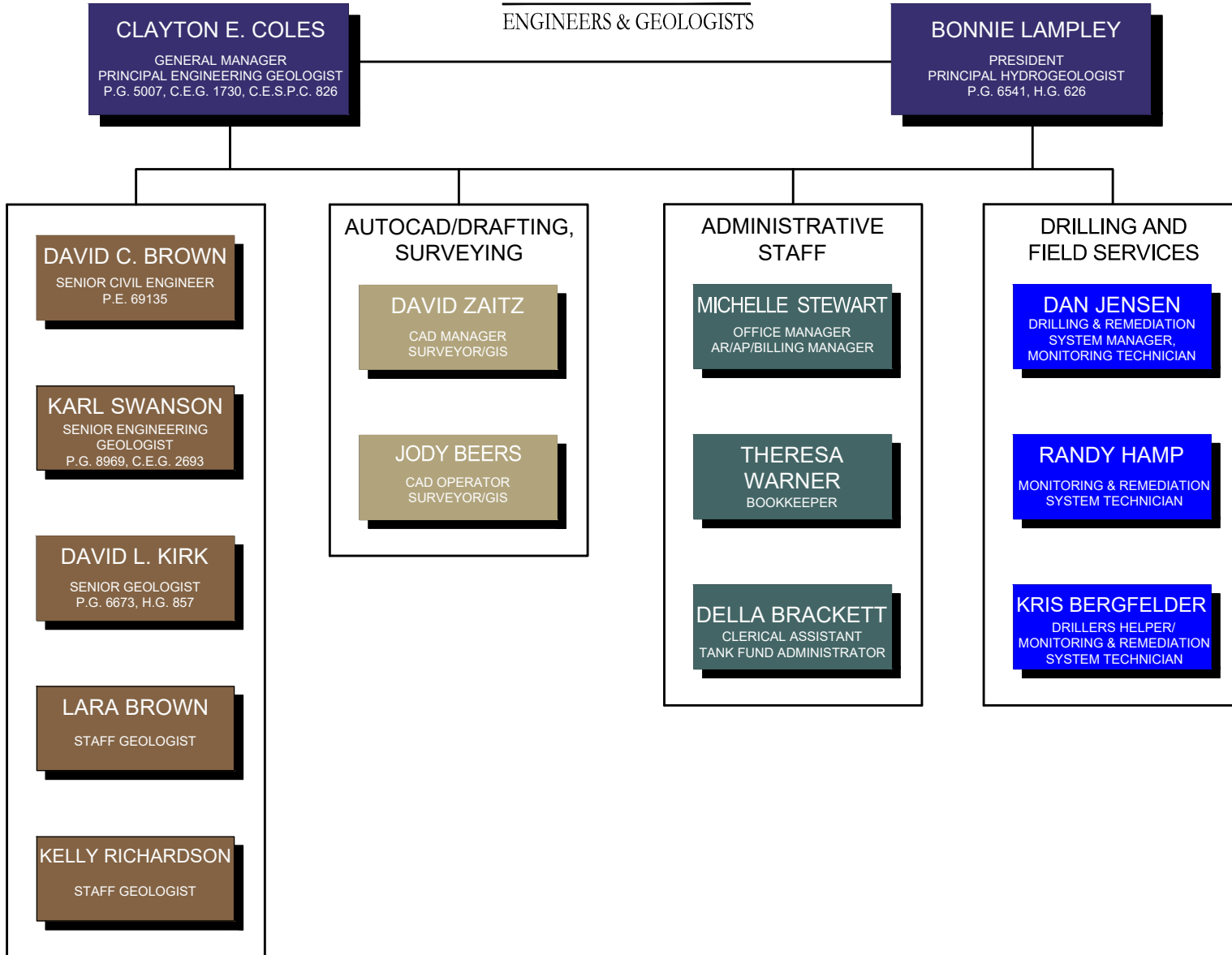
Ms. Bonnie Lampley: *CA Professional Geologist (PG) 6541 and CA Certified Hydrogeologist (CHG) 626.* President, Chief Financial Officer, and Principal Hydrogeologist of L&A. Ms. Lampley is responsible for management of all ground- and surface-water projects, statistical and water-chemistry applications, and technical review of all reports. Ms. Lampley is the head of our Groundwater division and is an authority on local and basin-wide hydrologic conditions throughout northern California. She conducts aquifer testing, groundwater/surface water resources assessments, groundwater modeling, and provides analysis of air-quality data and health-risk assessments in accordance with state regulations and hydrogeologic technical

support during litigation. Ms. Lampley also prepares statistical analysis of water-quality data and documents relating to environmental compliance.

Mr. Bryan Gartner: *CA Professional Geologist (PG) 5634, CA Certified Engineering Geologist (CEG) 1756, CA Certified Hydrogeologist (HG) 57, Oregon Certified Engineering Geologist (EG) 1431, QSD 21966, and QISP PG5634.* Vice President and Principal Engineering Geologist of L&A. Mr. Gartner is the head of our Stormwater and Environmental Site Assessment divisions. He has over 20 years of experience conducting: Phase I ESAs for residential, commercial, industrial, and forestland transactions; underground petroleum storage tank and other contaminated-site investigations; groundwater evaluations and groundwater monitoring-system designs; and preparing environmental documentation and permitting for existing and new landfills. Mr. Gartner also prepares General Industrial SWPPPs and Annual Reports, Landfill Closure Plans, and other documents relating to environmental compliance. Recent projects include site evaluations and technical support at a site with Department of Toxic Substances Control (DTSC) oversight; design of corrective action strategies utilizing ozone injection, oxygen diffusion, sparging, soil-vapor extraction, ORC™ and other methods at several petroleum-contaminated sites throughout northern California; Phase I and II ESAs for public works projects such as roadway realignments and expansion; and stormwater permitting, monitoring, and reporting at landfills and industrial sites.

Mr. David Kirk: *CA Professional Geologist (PG) 6673 and CA Certified Hydrogeologist (CHG) 897.* Vice President and Principle Hydrogeologist of L&A. Mr. Kirk has extensive experience with investigation, monitoring, and reporting at over 100 underground storage and spill-related sites. He is responsible for managing periodic sampling work for clients; developing and implementing corrective action strategies at leaking underground storage tank and other contaminated sites; and preparing mine reclamation plans and mineral assessments. Mr. Kirk's recent projects include development and construction management of remediation equipment, and project management for development of the corporate headquarters in Shasta Lake City.

Mr. Daniel Jensen: *CA Drilling Contractor's License C57-539447 and Oregon Monitoring-Well Driller's License MWC 10405.* Vice President and Manager of Drilling Services for L&A. Mr. Jensen is responsible for estimating and scheduling drilling, well installation, and treatment-system installation for site remediation, and provides sampling and other technical services.



CLAYTON E. COLES

GENERAL MANAGER
PRINCIPAL ENGINEERING GEOLOGIST
P.G. 5007, C.E.G. 1730, C.E.S.P.C. 826

BONNIE LAMPLEY

PRESIDENT
PRINCIPAL HYDROGEOLOGIST
P.G. 6541, H.G. 626

DAVID C. BROWN

SENIOR CIVIL ENGINEER
P.E. 69135

KARL SWANSON

SENIOR ENGINEERING
GEOLOGIST
P.G. 8969, C.E.G. 2693

DAVID L. KIRK

SENIOR GEOLOGIST
P.G. 6673, H.G. 857

LARA BROWN

STAFF GEOLOGIST

KELLY RICHARDSON

STAFF GEOLOGIST

**AUTOCAD/DRAFTING,
SURVEYING**

DAVID ZAITZ

CAD MANAGER
SURVEYOR/GIS

JODY BEERS

CAD OPERATOR
SURVEYOR/GIS

**ADMINISTRATIVE
STAFF**

MICHELLE STEWART

OFFICE MANAGER
AR/AP/BILLING MANAGER

**THERESA
WARNER**

BOOKKEEPER

DELLA BRACKETT

CLERICAL ASSISTANT
TANK FUND ADMINISTRATOR

**DRILLING AND
FIELD SERVICES**

DAN JENSEN

DRILLING & REMEDIATION
SYSTEM MANAGER,
MONITORING TECHNICIAN

RANDY HAMP

MONITORING & REMEDIATION
SYSTEM TECHNICIAN

KRIS BERGFELDER

DRILLERS HELPER/
MONITORING & REMEDIATION
SYSTEM TECHNICIAN

ATTACHMENT C
APPROACH

INTRODUCTION

The following section presents Lawrence & Associates' (L&A's) approach and scope of work for conducting and preparing quarterly, semiannual, and/or annual groundwater-monitoring reports, annual storm water reports, quarterly landfill-gas monitoring reports, and providing miscellaneous regulatory assistance for the Black Butte, McCloud, Tulelake, Yreka, and Happy Camp Landfills. The groundwater, gas, and storm-water monitoring and preparation of the related reports will be conducted from third-quarter 2022 through the end of second-quarter 2025.

GROUNDWATER MONITORING

GENERAL

L&A personnel will measure groundwater levels and field parameters (temperature, electrical conductivity, pH, and turbidity), and sample groundwater-monitoring wells at the Black Butte, McCloud, Tulelake, Yreka, and Happy Camp Landfills. All samples will be shipped directly to Pace Laboratories (formerly BC Laboratories) in Bakersfield, California. L&A understands Siskiyou County has an existing contract with Pace Laboratories and will pay for all laboratory analyses directly.

L&A will compile monitoring data and produce quarterly or semiannual-monitoring reports for each of these five landfill sites. Included with the fourth-quarter or second-half reports will be the required annual reports. Also, L&A will prepare the groundwater-monitoring reports that include the results for the five-year constituents-of-concern (COC) sampling (see schedule below).

MONITORED PARAMETERS

Groundwater monitoring will conform to each landfill's current Waste Discharge Requirements (WDRs). Laboratory analysis will be conducted by Pace Analytical Laboratory of Bakersfield, California, or other laboratories selected by Siskiyou County. All labs will invoice Siskiyou County directly for laboratory services.

BLACK BUTTE LANDFILL, WDR No. R5-2019-0032

L&A will sample the Black Butte Landfill groundwater wells on a semi-annual basis, as required under WDR No. R5-2019-0032. The groundwater samples will be analyzed for the following parameters:

1. *Semiannual Groundwater Parameters*
 - a) Groundwater Elevations
 - b) Temperature
 - c) Electrical Conductivity
 - d) pH
 - e) Turbidity
 - f) Total Dissolved Solids (TDS)
 - g) Chloride
 - h) Bicarbonate
 - i) Nitrate (as nitrogen)

- j) Sulfate
 - k) Calcium
 - l) Magnesium
 - m) Potassium
 - n) Sodium
 - o) Volatile Organics (EPA method 8260B, “short list”)
2. *Five-Year Constituents of Concern (COCs) Parameters– Due first-half 2026.*
- a) Dissolved Inorganics (aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, tin, vanadium, and zinc; cyanide and sulfide)
 - b) Volatile Organics (EPA method 8260B, “extended list”)
 - c) Semi-volatile Organic Compounds (EPA Method 8270C)

Five-Year Constituents of Concern (COCs) were last collected and analyzed in the first half of 2021, and will not need to be analyzed again until 2026.

McCLOUD LANDFILL, WDR No. R5-2003-0082

L&A will sample the McCloud Landfill groundwater wells on a semi-annual basis, as required under WDR No. R5-2003-0082, or in accordance with the revised WDR. The groundwater samples will be analyzed for the following parameters:

- 1. *Quarterly Parameters*
 - a) Groundwater elevations
- 2. *Semiannual Parameters*
 - a) pH
 - b) EC
 - c) Temperature
 - d) Turbidity
 - e) Total Dissolved Solids
 - f) Alkalinity (bicarbonate and carbonate)
 - g) Chloride
 - h) Sulfate
 - i) Nitrate (as nitrogen)
 - j) Calcium
 - k) Magnesium
 - l) Sodium
 - m) Potassium
 - n) Tannins & Lignins
 - o) Volatile Organics (EPA method 8260B, “short list”)

Five-year COCs were last analyzed for McCloud Landfill during first-half 2021 and will not be due again until 2026. The Central Valley Regional Water Quality Control Board (CVRWQCB) is planning to issue revised WDRs in 2022, therefore, the list of groundwater-monitoring parameters may change.

Based on the draft version of the revised WDR, the CVRWQCB will require submittal of a work plan for installing of an additional groundwater-monitoring well. The groundwater-monitoring

well work plan will address insufficient groundwater monitoring points at the eastern, downgradient area of the Landfill, and a plan to investigate hydrogeology underlying the site. L&A will prepare the work plan to include an analysis of the existing monitoring-well network, drilling procedures for investigating the presence/absence of a shallow aquifer, provide justification for the proposed number of wells, well design, well installation procedures, and a proposed implementation schedule. L&A's scope of work does not include drilling and installation additional monitoring wells, documenting the well installation, nor preparation of bidding and contract documents for well drilling. L&A will submit a separate proposal for this scope of work, as determined by the approved well-installation work plan.

As part of the revision to McCloud Landfill's WDRs, L&A understands the CVRWQCB also will require submittal of a landfill-gas evaluation work plan to assess the presence and potential hazards posed by landfill-gas migration. L&A will prepare a gas-sampling work plan that includes sampling the single passive gas vent to determine if perimeter gas-monitoring wells are needed. L&A will then sample the landfill's passive gas vent and prepare a summary report providing recommendations for installation of gas-monitoring wells (if needed). L&A's scope of work does include drilling and installation of any additional wells, documenting the well installation, or preparation of bidding and contract documents for well drilling. L&A will submit a separate proposal for perimeter gas-monitoring well installation and testing, if needed.

YREKA LANDFILL, WDR NOS. 93-83 AND 89-68

L&A will collect groundwater samples at Yreka Landfill on a quarterly basis, as required under WDR Nos. 93-83 and 89-68. The groundwater samples will be analyzed for the following parameters:

1. *Quarterly Parameters*
 - a) Groundwater Elevation
 - b) pH (field)
 - c) Electrical Conductivity (field)
 - d) Temperature (field)
 - e) Turbidity (field)
 - f) Total Dissolved Solids
 - g) Chloride
 - h) Sulfate
 - i) Nitrate (as nitrogen)
 - j) Calcium
 - k) Magnesium
 - l) Potassium
 - m) Sodium
 - n) Bicarbonate
 - o) Carbonate
 - p) Fluoride
 - q) Hardness
 - r) Chemical Oxygen Demand (COD)
 - s) Volatile Organic Compounds by EPA 8260B (per EMP)

2. *Annual Parameters – analyzed during 2nd quarter only*
 - a) Volatile Organic Compounds (EPA method 8260B)
 - b) Dissolved Inorganics (aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, tin, vanadium, and zinc; cyanide and sulfide)
3. *Five-Year COC Parameters – scheduled for 2nd quarter 2022*
 - a) Semi-volatile Organic Compounds
 - b) Organophosphorus Pesticides
 - c) Chlorinated Herbicides

The Yreka Transfer Station will continue to operate under the State General Industrial Storm Water Permit. County staff will perform four storm water sampling and observation events (as feasible), monthly non-storm-water observations, and an annual comprehensive inspection and review in June, and prepare the annual storm water report due July 15. Additional monitoring requirements in the Yreka Landfill WDRs include collecting surface-water samples during January and April of each year, and analyze for the same general mineral constituents listed under groundwater monitoring above. Results of surface-water sampling will be presented in the groundwater-monitoring reports.

TULELAKE LANDFILL, WDR No. R1-2004-0032

L&A will collect groundwater samples at Tulelake Landfill on a quarterly basis, as required under WDR No. R1-2004-0032. The groundwater samples will be analyzed for the following parameters:

1. *Quarterly Parameters*
 - a) Groundwater Elevations
 - b) Temperature (field)
 - c) pH (field or lab)
 - d) Electrical Conductivity (field or lab)
 - e) Turbidity (field or lab)
 - f) Total Dissolved Solids
 - g) Bicarbonate Alkalinity
 - h) Carbonate Alkalinity
 - i) Hydroxide Alkalinity
 - j) Hardness
 - k) Chemical Oxygen Demand
 - l) Nitrate (as nitrogen)
 - m) Chloride
 - n) Sulfate
 - o) Fluoride
 - p) Calcium
 - q) Magnesium
 - r) Potassium
 - s) Sodium

2. *Semiannual Parameters – 2nd (included under 5-year parameters) and 3rd quarters Volatile Organic Compounds*
3. *Annual Parameters – to be run during 2nd quarter*
 - a) Siltation check in well casings
 - b) Dissolved metals (antimony, arsenic, barium, beryllium, copper, iron, lead, manganese, nickel, silver, thallium, vanadium, and zinc); included under five-year dissolved inorganics, see below.
4. *Five-Year Parameters – to be performed once sufficient sample is available*
 - a) Carbonate (included under quarterly parameters)
 - b) Bicarbonate Alkalinity (included under quarterly parameters)
 - c) “Long list” volatile organics (EPA method 8260), including MTBE
 - d) Semi-volatile Organics (EPA method 8270)
 - e) Organochlorine Pesticide, PCBs (EPA 8080)
 - f) Chlorophenoxy Herbicides (EPA method 8150)
 - g) Organophosphorus Compounds (EPA method 8141)
 - h) Dissolved Inorganics (aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, tin, vanadium, zinc, cyanide, and sulfide)

Groundwater levels at Tulelake Landfill have been dropping over the last 20 years, and the groundwater-monitoring wells have been completely dry since 2014. Groundwater will be analyzed for all required monitoring parameters if sufficient sample volume is obtained from the groundwater-monitoring wells.

The North Coast Regional Water Quality Control Board (NCRWQCB) may require installation of additional groundwater wells at some time in the future. L&A’s scope of work does not include preparing a work plan for additional wells or drilling and installation of additional wells. If the NCRWQCB requires additional wells be installed in the future, L&A will submit a separate proposal for this work.

HAPPY CAMP LANDFILL WDR No. R1-2002-0055

L&A will collect groundwater samples at Happy Camp Landfill on a quarterly or semi-annual basis, as required under WDR No. R1-2002-0055. The groundwater samples will be analyzed for the following parameters:

1. *Quarterly Parameters*
 - a) Groundwater Elevations
2. *Semiannual Parameters-Groundwater*
 - a) pH (field)
 - b) Electrical Conductivity (field)
 - c) Temperature (field)
 - d) Turbidity (field)
 - e) Total Dissolved Solids (TDS)

- f) Bicarbonate Alkalinity
 - g) Carbonate Alkalinity
 - h) Hydroxide Alkalinity
 - i) Chemical Oxygen Demand
 - j) Hardness
 - k) Chloride
 - l) Ammonia (as nitrogen)
 - m) Nitrate (as nitrogen)
 - n) Nitrite
 - o) Total Kjeldahl Nitrogen (TKN)
 - p) Sulfate
 - q) Calcium
 - r) Magnesium
 - s) Potassium
 - t) Sodium
 - u) Manganese
 - v) Volatile organic compounds including MTBE (EPA Method 8260B); long list 2nd quarter and short list 4th quarter
3. *Five-Year Constituents of Concern (COCs)-Groundwater was analyzed during first-half 2022 and is not due again until 2027*
- a) Dissolved inorganics (aluminum, antimony, arsenic, barium, beryllium, cadmium, total chromium, cobalt, copper, iron, lead, manganese, mercury, nickel, selenium, silver, thallium, tin, vanadium, and zinc; cyanide and sulfide)
 - b) “Long list” volatile organics (EPA method 8260B)
 - c) Semivolatile organic compounds (EPA Method 8270C)
 - d) Organophosphorus compounds (EPA method 8141A)
 - e) Chlorophenoxy herbicides (EPA method 8151A)
 - f) Organochlorine pesticides, PCBs (EPA method 8080)
4. *Parameters for First Month of Runoff, January, and March-Surface Water*
- a) pH (field or lab)
 - b) Electrical Conductivity (field or lab)
 - c) Temperature (field)
 - d) Turbidity (field or lab)
 - e) Dissolved Oxygen (field or lab)
 - f) Total Dissolved Solids (TDS)
 - g) Total Settleable Solids (TSS)
 - h) Alkalinity
 - i) Bicarbonate
 - j) Carbonate
 - k) Hardness
 - l) Chloride
 - m) Ammonia (as nitrogen)
 - n) Nitrate (as nitrogen)
 - o) Nitrite (as nitrogen)
 - p) Total Kjeldahl Nitrogen
 - q) Sulfate

5. Annual Parameters-Surface Water

- a) Chemical Oxygen Demand (COD)
- b) Total Organic Carbon (TOC)
- c) Biological Oxygen Demand (BOD)
- d) CAM 17 Metals

Five-year COCs will be analyzed for Happy Camp Landfill during first-half 2022 and are due again in the first-half 2027. Additional monitoring requirements in the Happy Camp WDRs include surface-water monitoring to be conducted up to three times a year (during the first month of runoff, January, and March, as feasible) and leachate monitoring (monthly water-level measurements in the proposed leachate well for one year after installation; quarterly water levels thereafter). It is assumed that Siskiyou County will conduct all site visits/monitoring and report results to Lawrence & Associates. Surface-water/leachate data will be reported in the annual report. Typically, groundwater is available from only one of the monitoring wells twice per year; to date, no surface-water samples have been available.

The Happy Camp Transfer Station will operate under the State General Industrial Storm Water Permit, so County staff will perform four storm water sampling and observation events (as feasible), monthly non-storm-water observations, and an annual comprehensive inspection and review in June, and prepare the annual storm water report due July 15.

Groundwater-Monitoring Reporting

Lawrence & Associates will issue groundwater-monitoring reports before the date required in each site's WDRs. The annual groundwater reports will be combined with the fourth-quarter or second-half groundwater-monitoring reports.

Quarterly/Semiannual-monitoring reports will include:

1. Description of monitoring equipment and methods used, purging, and fate of purge water
2. Description of sampling procedures and times
3. Monitoring results in tabular form
4. Map showing sampling locations and direction/magnitude of groundwater gradient (only if water is measured in at least three wells per site)
5. Certified laboratory reports
6. Compliance summary
7. Types and quantities of waste disposed (if any)
8. Statistical analyses

The annual report will include tables and graphs of historical water-quality data. Extra hours have been included for the annual report for compilation and analysis of historical groundwater data. The State of California requires that all groundwater monitoring reports and data are submitted electronically in a specific format (electronic data format or EDF). Additional labor has been included in this estimate to fulfill these requirements.

LANDFILL-GAS MONITORING

GENERAL

This work is required as part of the landfill-monitoring requirements stated in the *California Code of Regulations, Title 27, Division 2, Subdivision 1, Chapter 3, Subchapter 4, Article 6, Sections 20920 through 20934*.

TASK DESCRIPTION

Lawrence & Associates will perform quarterly perimeter-gas monitoring and reporting as required under *Title 27*, for Black Butte, Tulelake, and Yreka Landfills. Additionally, all onsite structures will be monitored for the presence of methane.

Soil-vapor pressure will be measured in all wells using a manometer before sampling. All sampling will be done using vacuum pumps designed for gas monitoring, per CalRecycle guidelines. Probes over 20 feet in depth will be pumped of one well volume before sampling, or until field parameters stabilize for 30 seconds.

Direct field measurements will be made using a GEM 5000 gas-detector instrument. Methane (CH₄) and carbon dioxide (CO₂) are measured with a non-dispersive infrared analyzer, oxygen (O₂) is measured with a chemical cell sensor, and nitrogen (N₂) content is derived by subtraction. Gas measurements will be reported in tabular form. Sample locations will be shown on a site map.

L&A will issue landfill-gas monitoring reports by the last day of the month after each monitoring period. Weather conditions, barometric pressure, and temperature during the period of sampling will be included in each report.

GM-1D of the Tulelake Landfill has been sampled and tested for volatile organic compounds (VOCs) using USEPA test method TO-15 on a semiannual basis since the third quarter of 2006 because of the well's proximity to groundwater-monitoring well MW-5, which has had detections of volatile organic compounds (VOCs) in the past. GM-1D will continue to be semiannually monitored for VOCs beginning in the third quarter of 2021.

LANDFILL REGULATORY ASSISTANCE

General

At the request of Siskiyou County General Services personnel, L&A will provide regulatory assistance for the Siskiyou County landfills. This work includes preparing annual wet-weather preparedness reports; assistance with landfill permitting issues; assistance with gas, stormwater, and/or groundwater issues; preparation of cost estimates; and/or preparation of postclosure cost estimate revisions and certifications. L&A will obtain permission from Siskiyou County before proceeding with any regulatory assistance tasks.

ATTACHMENT D
REFERENCES

References

Firm Name:	City of Redding, Solid Waste Division
Contact Person:	Paul Clemens, Deputy Director of Public Works
Firm Address:	P.O. Box 496071 Redding, CA 96049
Contact Phone Number	(530) 224-6207
Email	pclemens@ci.redding.ca.us
Name of Project(s):	Benton Landfill

Firm Name:	Siskiyou County
Contact Person:	Tom Deany, Public Works Director
Firm Address:	1312 Fairlane Rd, Yreka, CA 96097
Contact Phone Number	(530) 842-8250
Email	tdeany@co.siskiyou.ca.us
Name of Project(s)::	Siskiyou County, Yreka Landfill, Black Butte landfill and other closed landfills

Firm Name:	Trinity County, Solid Waste Division
Contact Person:	Diane Rader, Deputy Director
Firm Address:	P.O. Box 2700, Weaverville, CA 96093
Contact Phone Number	(530) 623-1326 ext. 107
Email	drader@trinitycounty.org
Name of Project(s)::	Weaverville Landfill

Firm Name:	Waste Connections
Contact Person:	Thomas Reilly
Firm Address:	5873 Avila Loop, El Dorado Hills, CA 95762
Contact Phone Number	916-549-0443
Email	thomas.reilly@wasteconnections.com
Name of Project(s):	John Smith Road Landfill, Cold Canyon Landfill, Avenal Landfill, Tehama Landfill

Firm Name:	Shasta County, Public Works, Solid Waste Division
Contact Person:	Don Renz, Supervising Engineer
Firm Address:	1855 Placer Street, Redding, CA 96001
Contact Phone Number	(530) 245-6064
Email	jheath@co.shasta.ca.us
Name of Project(s)::	West Central Landfill, Buckeye Landfill

ATTACHMENT E
PRICE PROPOSAL



Price Proposal

Fiscal Year	Annual Cost (\$)
Fiscal Year 2022/2023	\$84,998
Fiscal Year 2023/2024	\$84,998
Fiscal Year 2024/2025	\$84,998

The cost of the work to be conducted by Lawrence & Associates is estimated at \$84,998 per fiscal year, as described in **Attachment C** (approach and scope of work). All work will be billed on a time and expense basis, as shown on the following Schedule of Fees (next page). Lawrence & Associates understands Siskiyou County's fiscal year runs from July 1st to June 30th.



SCHEDULE OF FEES

EFFECTIVE JULY 1, 2021

EXPIRES JUNE 30, 2025

Professional Services

Engineering Geologist/Hydrogeologist	
Principal	\$170/hour
Senior	\$150/hour
Associate	\$130/hour
Staff	\$115/hour
Assistant	\$110/hour
Engineer	
Principal Engineer	\$180/hour
Senior Registered Civil.....	\$165/hour
Associate Registered Civil	\$135/hour
Staff Civil	\$125/hour
Assistant Civil	\$115/hour
Engineering Technician.....	\$90/hour
Project Manager.....	\$130/hour
Environmental Assessor I	\$125/hour
Environmental Assessor II.....	\$115/hour
AutoCAD Operator (Level I).....	\$95/hour
AutoCAD Operator (Level II)	\$85/hour
Field Technician	\$90/hour
Laborer.....	\$70/hour
Tank Fund Administrator	\$70/hour
Clerical.....	\$70/hour

Deposition and Court Appearances

Minimum charge.....	\$1400 part or full day
Deposition or Court Appearance Rate	\$250/hour
Preparation at consulting-service rates	as listed above

Drilling Services (CME-55 drilling rig)

7-5/8 and 9-5/8-inch OD augers with operator and helper.....	(See drilling schedule of fees)
Mobilization.....	(See drilling schedule of fees)

Other In-House Equipment

Test pumps (submersible, through 5 HP).....	quoted/job
Campbell 21X data loggers w/ transducers (water and gas)	quoted/job
Conductivity, oxygen, temperature and dissolved oxygen probes.....	quoted/job
Meteorological station (wind direction and velocity)	quoted/job
Gas-extraction and air-monitoring pumps	quoted/job
Mileage	\$0.70
Mileage (drilling rig)	\$1.00
Per diem – Northern CA/Oregon (per person/day; may vary dep. upon location)	\$200/night
Per diem – Southern CA (per person/day; may vary dep. upon location).....	\$250/night
Level D protection (per person/day)	\$30/day
Survey equipment (per day).....	\$50/day
GPS Survey (per day)	\$150/day

Expenses, Materials, Outside Services

(All direct-job related expenses: reproduction, rental equipment, materials, subcontracted labor and equipment).....	at cost + 15%
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