Exhibit G
Non-Industrial Timber Management Plan

STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY — *Edmund G. Brown Jr., Governor*

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
NORTHERN REGION HEADQUARTERS-REDDING
6105 Airport Road
Redding, CA 96002
(530) 224-2445
Website: www.fire.ca.gov

June 21, 2016

SCHROLL TIMBERLANDS LLC
C/O PACIFIC TRST 1001 OREILLY AVE STE A
SAN FRANCISCO, CA 94129

Re: NTMP Number : 2-15NTMP-003-SIS
County : Siskiyou
Location : Section 1, 12 and 13 Township39 N Range 3 W
: Section 6, 7 and 18 Township 39 N Range 2 W- 1394 Acres

Attached is a true copy of your Non-Industrial Timber Management Plan (NTMP) identified above. The Director of Forestry finds this Management Plan in conformance with the Rules and Regulations of the Board of Forestry. Approval is indicated by the signature of his duly constituted representative being shown on the attached copy of the Plan.

14 CCR 1090.6 Notice of Timber Operations: Following confirmation by the non-industrial tree farmer that all necessary field work is functional and useable (including flagging or marking), the non-industrial tree farmer who owns, leases, or otherwise controls or operates on all or any portion of any timberland within the boundaries of an approved Timber Management Plan shall submit a Notice of Timber Operations including the certification required by **PRC §4594.6** to the appropriate office of the Department. Timber operations may commence immediately unless the notice has been filed by mailing, in which case operations may commence three days after the notice has been mailed.

Amendments to the original Plan must be submitted in writing to the Director by the person who submitted the original Plan, or the successor in interest. This NTMP is subject to cancellation at any time by the Director if it is determined that the objectives of un-even aged management and sustained yield are not being met or if there are persistent violations detected that are not being corrected.

Sincerely,

Jon Woessner, RPF #2571
Forester II, Review Team Chair

Attachment

cc: Unit - SKU
Inspector - Rosan
RPF
TO/TLO
LTO
Board of Equalization
FG
WQ
FILE

Exhibit G
Non-Industrial Timber Management Plan

MITIGATION MONITORING PLAN FOR NON-INDUSTRIAL TIMBER MANAGEMENT PLANS AND AMENDMENTS

Non-Industrial Timber Management Plan: 2-15NTMP-003-SIS

Pursuant to CEQA, the following has been adopted by the California Department of Forestry and Fire Protection (CAL FIRE) as a methodology to address monitoring of various mitigations and forest practice rule requirements that pertain to the Non-Industrial Timber Management Plan/Amendment that is the subject of this file.

Mitigations come in several forms in the NTMP/Amendment process and these include;

a) Rule requirements that individually may require certain treatments to be done following the timber harvest;

b) Requirements written into the NTMP/Amend by the RPF acting on behalf of the NTMP/Amend Submitter wherein certain treatments are proposed that address the potential for adverse environmental impacts and are designed and engineered to avoid or lessen such impacts;

c) Requirements adopted by CAL FIRE following review of the NTMP/Amend and/or following receipt of public or agency comments which have been incorporated into the NTMP/Amend prior to approval. These are usually referenced in "page two" of the NTMP/Amend.

Monitoring these mitigations takes place on one or more of several visits to the NTMP area by CAL FIRE Forest Practice Inspectors. The CAL FIRE Inspector is required to perform at least one inspection at the time of work completion. A work completion report must be submitted on each NTMP within thirty days of completion of the operation. Inspections are required by CAL FIRE within six months of the submittal of the work completion report. There is also the possibility of annual completion reports, in which case there may be more than one mandatory inspection of the NTMP. Additionally, there is the possibility of a stocking inspection. This could occur at the same time as the work completion inspection, but frequently due to the type of silvicultural system, the stocking inspection can take place up to five years following the completion of the NTMP.

Another check of the mitigations can take place at the time of the erosion control maintenance inspection. This period of time occurs at least one year from submittal of the work completion report and can occur up to three years from submittal of the work completion report. Erosion control maintenance inspections are required by the rules and take place after the project has overwintered. This is a good time to look at the mitigations and see if they were carried out as planned in the NTMP. If there are failures in the mitigations, CAL FIRE has the authority under the regulations to require the erosion control maintenance period to be extended for up to two additional years in order to have the mitigations repaired to insure that they work as planned.

Exhibit G
Non-Industrial Timber Management Plan

OFFICIAL NOTICE OF CONFORMANCE OF HARVEST PLANS OR AMENDMENTS TO HARVEST PLANS

DATE OF DECISION

6/21/2016

The harvesting plans listed below have been found by the Director of CAL FIRE to be in conformance with the Forest Practice Act and the regulations of the Board of Forestry

Plan Number	Plan Type	New Plan or Amendment	County	Timberland Owner Plan Submitter RPF	Acres	Cost for Copy	Legal Description Nearest Watercouse Landmark	Description
2-15NTMP-003SIS	NTMP	New Plan	Siskiyou	Schroll Timberlands LLC Scott P Carnegie	1,394	$60.68	Secs: 1,12,13 T39N R3W; Secs: 6,7,18 T39N R2W MDBM 1/2 mile S of McCloud. Squaw Valley Creek flows through plan area	Group Selection, Fuelbreak, Aspen, Meadow and Wet Area Restoration

Exhibit G
Non-Industrial Timber Management Plan

Copies of these plans are available for inspection at:
Cascade Area Office
Department of Forestry and Fire Protection
6105 Airport Road, Redding, CA 96002

These plans may also be viewed online at: ftp://thp.fire.ca.gov/THPLibrary/
If you have any other questions, please call (530) 224-2445.

Copies of the plan and related documents are available at the Cascade Area Office. Please enclose the amount shown for the plan you wish to obtain. Make all checks out to "Department of Forestry and Fire Protection". (Title 14 § CCR 1037.3(c))

This notice is posted in compliance with 14 CCR §1037.8, §1090.21, 1092.24.

TO POSTING AGENCY: Please post this notice at the place where official notices concerning environmental compliance are usually posted.
If there are questions concerning posting contact: Resource Management Office, CAL FIRE, (530) 224-2445
Posting period is 30 days

CC:
BB; BOE; UNIT-SKU; FG1; WQ5; PW-SIS; CP-SIS
Date Mailed: June 2

Exhibit G
Non-Industrial Timber Management Plan

Exhibit G
Non-Industrial Timber Management Plan

FOR ADMIN. USE ONLY Amendments-date & S or M			
1. SKU		7. CGS	
2. FGI		8. RT	
3. WQS		9. RoSan	
4. SHF		10. NSO	
5. CP-SIS		11.	
6. FW-SIS		12.	

NONINDUSTRIAL TIMBER MANAGEMENT PLAN

STATE OF CALIFORNIA
DEPARTMENT OF FORESTRY
AND FIRE PROTECTION
RM-68 (08-05)

NTMP Name:

McCloud-Soda Springs

(In the CDF FPS, this is "THP Description")

FOR ADMIN. USE ONLY
NTMP No. 2-15NTMP-003SI
Dates Rec'd OCT 14 2015
Date Filed OCT 23 2015
Date Approved JUN 21 2016

This Nonindustrial Timber Management Plan (NTMP) form, when properly completed, is designed to comply with the Forest Practice Act (FPA) and Board of Forestry and Fire Protection rules. If financial assistance is requested to cover some of the expenses of the NTMP, contact the local CDF Forestry Assistance Specialist prior to preparation of the NTMP. See separate instructions for information on completing this form. NOTE: The form must be printed legibly in ink, typewritten, or electronically printed. The NTMP is divided into six sections. If more space is necessary to answer a question, continue the answer at the end of the appropriate section of your NTMP. However, if writing an electronic version, insert additional space for your answer. Distinguish answers from questions by *font change*, **bold** or underline.

SECTION I: GENERAL INFORMATION

This NTMP conforms to my/our plan and upon approval, I/we agree to conduct harvesting in accordance therewith. Consent is hereby given to the Director of Forestry and Fire Protection, and his or her agents and employees, to enter the premises to inspect timber operations for compliance with the Forest Practice Act and Forest Practice Rules.

RECEIVED
OCT 14 2015
REDDING
FOREST PRACTICE

1. TIMBER OWNER(S) OF RECORD:

Name **Schroll Timberlands, LLC**

Address **c/o Pacific Forest Trust, 1001 O'Reilly Ave Ste A**

City **San Francisco** State **CA** Zip **94129-2726** Phone **(415) 561-0700**

Signature Benjamin C. Carpenter, President Date 9-11-15

NOTE: The timber owner is responsible for payment of a yield tax. Timber Yield Tax information may be obtained at the Timber Tax Section, MIC: 60, State Board of Equalization, P.O. Box 942879, Sacramento, California 94279-0060; phone 1-800-400-7115; BOE Web Page at http:// www.boe.ca.gov.

2. TIMBERLAND OWNER(S) OF RECORD:

Name **Schroll Timberlands, LLC**

Address **c/o Pacific Forest Trust, 1001 O'Reilly Ave Ste A**

City **San Francisco** State **CA** Zip **94129-2726** Phone **(415) 561-0700**

Signature Benjamin C. Carpenter, President Date 9-11-15

3. LICENSED TIMBER OPERATOR(S):

Name **Unknown** Lic. No. _____

Address _____

City _____ State _____ Zip _____ Phone _____

NOTE: If LTO is not known upon plan submission, submit information in a Notice of Timber Operations as per 14 CCR § 1090.7.

Signature _____ Date _____

4. PLAN SUBMITTER(S):

Name **Schroll Timberlands, LLC**

Address **c/o Pacific Forest Trust, 1001 O'Reilly Ave Ste A**

City **San Francisco** State **CA** Zip **94129-2726** Phone **(415) 561-0700**

(Submitter must be from 1, 2, or 3 above. He/she must sign below. Ref. Title 14 CCR § 1032.7(a))

Signature Benjamin C. Carpenter, President Date 9-11-15

RECEIVED
SEP 16 2015
REDDING
FOREST PRACTICE
W. M. BEATY & ASSOCIATES, INC.

PLAN SUBMITTER RESPONSIBILITY ACKNOWLEDGEMENT

(As per 14 CCR § 1035)

Plan Submitter

Name Schroll Timberlands, LLC

Address c/o Pacific Forest Trust, 1001 O'Reilly Ave Ste A

City San Francisco State CA Zip 94129-2726 Phone (415) 561-0700

I have read and understand my responsibilities as Plan Submitter as described under 14 CCR § 1035. I certify that I have fulfilled my legal obligation as stated in the forest practice rules and agree to fulfill my responsibility as the plan submitter as it pertains to this plan.

☒ Yes ☐ No I have retained the services of an RPF to provide professional advice to the LTO and timberland owner upon request throughout active timber operations regarding: (1) the plan, (2) the forest practice rules, (3) and other associated regulations pertaining to timber operations.

☐ Yes ☒ No I have authorized the timberland owner to perform the services of a professional forester, understanding that the services will be provided personally on lands owned by the timberland owner.

Plan Submitter Signature: Benjamin C. Carpenter, President

TIMBERLAND OWNER RESPONSIBILITY ACKNOWLEDGEMENT

(As 14 CCR § 1035(d)(2)(B))

Timberland Owner

Name Schroll Timberlands, LLC

Address c/o Pacific Forest Trust, 1001 O'Reilly Ave Ste A

City San Francisco State CA Zip 94129-2726 Phone (415) 561-0700

I have read and understand my responsibilities as timberland owner as described under 14 CCR § 1035(d)(2)(A)–(C). I certify that I have fulfilled my legal obligation as stated in the forest practice rules, and agree to fulfill my responsibilities as the timberland owner as it pertains to this plan.

I understand that I have been authorized by the plan submitter to perform the services of a professional forester pursuant to the Landowner exception in PRC § 757, and such services will be personally performed only on those lands that I own.

Timberland Owner's Signature: Benjamin C. Carpenter, President

State of California
Department of Forestry and Fire Protection

(Administrative Use Only-Area)
(Plan No._____)
(Date Received_____)
(Amendment Number_____)

LICENSED TIMBER OPERATOR (LTO) RESPONSIBILITY ACKNOWLEDGEMENT

(As per 14 CCR §§ 1035.3(a)(1)-(2), 1092.14(a)(1)-(2).)

Harvesting Plan Number: _____

Licensed Timber Operator Information

Name: Unknown

Address: _____ City: _____ State: _____ Zip: _____

Telephone Number: _____ LTO Number: _____

I hereby agree to abide by the terms and specifications of the plan. I have read and understand my responsibility as LTO, as described under 14 CCR §§ 1022.4, 1090.12 and 1092.14. I agree to fulfill my responsibilities as an LTO as they pertain to this plan.

LTO Signature: _____ Title: _____

Responsible On-Site Contact (if different)

Name: Unknown

Address: _____ City: _____ State: _____ Zip: _____

Telephone Number: _____

REGISTERED PROFESSIONAL FORESTER (RPF) RESPONSIBILITY ACKNOWLEDGEMENT

(As per 14 CCR § 1035.1)

RPF Certified to Provide Professional Advice:

Name: Scott P. Carnegie (c/o W. M. Beaty & Associates, Inc.)

Address: PO Box 990898 City: Redding State: CA Zip: 96099-0898

Telephone Number: (530) 524-9071 RPF Number: 2540

I have read and understand my responsibility as RPF, as described under 14 CCR § 1035.1(a)-(g). I agree to fulfill my responsibilities as an RPF as they pertain to this plan.

☒ Yes ☐ No I have been retained as the RPF available to provide professional advice to the licensed timber operator and timberland owner upon request throughout the active timber operations regarding: (1) the plan, (2) the forest practice rules, (3) and other associated regulations pertaining to timber operations.

RPF Signature: _____

5. a. If LTO is not present on-site, list person to contact on-site who is responsible for the conduct of the operation. If unknown, so state, but name must be included on each Notice of Timber Operations or amended into NTMP.

Name **Unknown**

Address _____

City _____ State _____ Zip _____ Phone _____

b. ☒ Yes ☐ No Will the timber operator be employed for the construction and maintenance of roads and landings during conduct of timber operations? If no, who is responsible?

c. Who is responsible for erosion control maintenance after timber operations have ceased and until certification of the Work Completion Report? If not the LTO, then a written agreement must be provided per 14 CCR § 1050 (c).

The Licensed Timber Operator (LTO) shall be responsible for the erosion control maintenance after timber operations have ceased and until certification of the Work Completion Report.

6. Expected date of commencement of timber operations, which in addition will require filing a Notice of Timber Operations:

☒ date of NTMP conformance, or ☐ _____ (date)

7. The timber operation will occur within the:

☐ COAST FOREST DISTRICT
☐ Southern Subdistrict of the Coast F. D.
☐ SOUTHERN FOREST DISTRICT
☐ High use subdistrict of the Southern F. D.
☒ NORTHERN FOREST DISTRICT
☐ The Tahoe Regional Planning Authority Jurisdiction
☐ A County with Special Regulations, identify: _____
☐ Coastal Zone, no Special Treatment Area
☐ Special Treatment Area(s), type and identify: _____
☐ Other _____

8. Location of the timber operation by legal description:

Base and Meridian: ☒ Mount Diablo ☐ Humboldt ☐ San Bernardino

LOCATION OF TIMBER OPERATION				
Section	*Township*	*Range*	*Acreage*	*County*
1	39 North	3 West	105	Siskiyou
12	39 North	3 West	330	Siskiyou
13	39 North	3 West	469	Siskiyou
6	39 North	2 West	64	Siskiyou
7	39 North	2 West	292	Siskiyou
18	39 North	2 West	134	Siskiyou
Total			**1,394**	*(Logging Area Only)*

Lake McCloud 1986, Girard Ridge 1986, and Elk Spring 1986 United States Geological Survey (USGS) 7.5' Quadrangles.

9. Planning Watershed: (CALWATER Version, Identification Number, and Name):

WATERSHED ASSESSMENT AREA CAL WATER PLANNING WATERSHEDS VERSION 2.2.1		
Number	***Name***	***Acres***
5505.230005	Lower Mud Creek	9,420
5505.220101	Lower Panther Creek	8,209
5505.220103	McCloud	1,340
5505.220104	Pig Creek	13,335
Total		**32,304**

10. ☐ Yes ☒ No Has a Timberland Conversion been submitted? If yes, list expected approval date or permit number and expiration date.

11. ☐ Yes ☒ No Is there a THP or NTMP on file with CDF for any portion of the plan area for which a Report of Satisfactory Stocking has not been issued by CDF? If yes, identify the THP or NTMP number(s):

12. ☒ Yes ☐ No Is a Notice of Preparation necessary for this NTMP?

☒ Yes ☐ No If yes, was the Notice of Preparation posted as required by 14 CCR § 1090.2(g)?

13. RPF preparing the NTMP: Name **Scott P Carnegie** RPF Number **2540**

Address **c/o W. M. Beaty & Associates, Inc., PO Box 990898**

City **Redding** State **CA** Zip **96099-0898** Phone **(530) 524-9071**

a. ☒ Yes ☐ No I have notified the plan submitter(s), in writing, of their responsibilities pursuant to Title 14 CCR § 1090.9 - 10 of the Forest Practice Rules, of their responsibilities for compliance with the Forest Practice Act and Board rules, and where applicable, Board rules regarding site preparation, stocking, and maintenance of roads, landings, and erosion control facilities.

Refer to the Plan Submitter Responsibility Acknowledgement under Item 4.

b. ☒ Yes ☐ No I or my supervised designee will meet with the LTO prior to commencement of operations to advise of sensitive conditions and provisions of the plan pursuant to 14 CCR § 1090.11.

The RPF filing the Notice of Timber Operations (NTO) shall be responsible for meeting with the LTO prior to the commencement of timber operations to advise of sensitive conditions and provisions of the plan.

c. ☒ Yes ☐ No I will provide the LTO with a copy of the approved NTMP and Notice of Timber Operations (NTO) as per 14 CCR § 1090.9(e) and (g). If no, who will provide the LTO a copy of the approved NTMP, subsequent amendments, and NTO?

The RPF submitting the NTO for each harvest shall provide the LTO with a copy of the approved NTMP and NTO as per 14 CCR § 1090.9(e)&(g).

d. I have the following authority and responsibilities for preparation and administration of the NTMP and timber operation. (Include both work completed and work remaining to be done):

Preparation of the plan, accuracy and completeness of the plan contents, sample marking and flagging for the pre-harvest inspection, preharvest inspection attendance (if requested by the Director), observation of the timber operation on the timber and timberland owner's behalf, and submittal of amendments. There are no known current or potential conflicts of interest with regard to the timber or land that is subject to timber operations under this plan. I am not the real party of interest for whom I am providing professional forestry services. Disclosure of newly discovered conflicts of interest I have with regard to the plan submitter, timberland owner, timber owner, the LTO, and timber purchaser, pertaining to the timber or timberland that is subject to timber operations under this plan as long as I have responsibilities relative to this plan. The disclosure shall include identification of the real party of interest for whom I am providing professional forestry services.

The RPF submitting the NTO shall be responsible for required timber marking, flagging, and wildlife surveys prior to timber operations and provide professional advice to the LTO and timberland owner upon request throughout the active timber operations regarding the plan, the Forest Practice Rules, and other associated regulations pertaining to timber operations. Be present, or ensure that my designee is present, on the logging area at a sufficient frequency to know the progress of timber operations and advise the LTO and timberland owner, but not less than once during the life of the NTO. Inform the LTO during timber operations of any mitigation measures incorporated into the plan that are intended to address timber operations that have a high likelihood of resulting in immediate, significant and long-term harm to the natural resources of the State if such mitigation measures are not strictly applied to minimize such impacts. Without delay, notify in writing the LTO, the plan submitter, and the Department of a decision to withdraw professional services from the plan.

e. Additional required work requiring an RPF, which I do not have the authority or responsibility to perform:

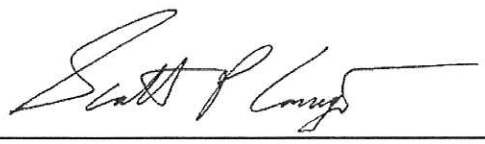
None.

f. After considering the rules of the Board of Forestry and Fire Protection and the mitigation measures incorporated in this NTMP, I have determined that the timber operation:

☐ will have a significant adverse impact on the environment. (Statement of reasons for overriding considerations contained in Section III).

☒ will not have a significant adverse impact on the environment.

Registered Professional Forester: I certify that I, or my supervised designee, personally inspected the NTMP area, and this plan complies with the Forest Practice Act, the Forest Practice Rules and the Professional Foresters Law.

Signature  Date 10/15/15

SECTION II: PLAN OF TIMBER OPERATIONS

NOTE: If a provision of this NTMP is proposed that is different than the standard rule, the explanation and justification required must be included in Section III of the NTMP.

SILVICULTURE

14. a. Check the Silvicultural methods or treatments allowed by the rules that are to be applied under this NTMP. Specify the option chosen to demonstrate Maximum Sustained Production (MSP) according to 14 CCR § 913 (933, 953) .11. If more than one method or treatment will be used show boundaries on map and list approximate acreage for each.

☐ Selection _____ ac. ☒ Group Selection **1,242** ac. ☐ Transition _____ ac.
☐ Commercial Thinning _____ ac. ☐ Road Right of Way _____ ac. ☐ Sanitation Salvage _____ ac.
☐ Special Treatment Area _____ ac. ☐ Rehab. of Understocked Area _____ ac. ☒ Fuelbreak **87** ac.
☐ Variable Retention _____ ac. ☒ Aspen, Meadow, and Wet Area Restoration **65** ac.
☐ Alternative _____ ac. ☐ Conversion _____ ac. ☐ Non-Timberland _____ ac.

Total acreage **1,394** ac.: Explain if total is different from that in 8. MSP option chosen: (b) ☒ (c) ☐

b. If Selection, Group Selection, Commercial Thinning, Sanitation Salvage, or Alternative methods are selected the post harvest stocking levels (differentiated by site if applicable) must be stated in the NTMP. Note mapping requirements of 14 CCR § 1090.5(w)(12).

Refer to the Silviculture Map at end of Section II for the location where the prescription will be applied. The plan area is Dunning site class II.

Group Selection

1. At least 80% of the stocked plots must meet the Basal Area stocking standards of 14 CCR § 933.2(a)(2)(A) which states that on Site II lands at least 75 square feet per acre of basal area shall be retained.
2. Not more than 20% of the stocked plots may meet stocking standards utilizing the 300 point count standard with trees that are at least 10 years old.
3. An RPF or supervised designee may offset up to eight plots per 40 plots where those plot centers are initially placed within small group clearings created during the current harvest. Unless substantially damaged by fire, the RPF or supervised designee shall not exclude small group clearings created by previous timber harvesting from the stocking survey.
4. The proposed harvest will achieve Maximum Sustained Production pursuant to 14 CCR § 933.11(b). Refer to the MSP Timber Assessment at the end of Section III for demonstration of how the proposed harvest will achieve MSP.

Fuelbreak

The purpose of the fuelbreak prescription is to maintain and extend the existing established fuelbreaks. The fuelbreaks are approximately 150 feet from each side of roads and property lines. Trees shall be thinned to separate the tree crowns. The vertical fuel continuity of ladder fuels (submerchantable trees and brush) shall be broken up by use of any or all of the following methods: biomass, mastication, herbicide, and/or manual. Ground fuels are not planned to be treated due to liability associated with prescribed burning. Herbicide shall not be applied within any WLPZ/ELZ/EEZ for Class I, II, and III watercourses. As per CCR 14 CCR § 937.2, the average residual basal area measured in stems one-inch or larger in diameter, shall be at least 50 square feet of basal area per acre upon completion of harvesting. The proposed fuelbreak shall be completed prior to filing of the completion report for any notice of operations that includes the fuelbreak prescription.

As per 14 CCR § 933(d), an assessment of maximum sustained production of high quality timber products is not required for a harvest designated as, and meeting the definition of

fuelbreak/defensible space under 14 CCR § 933.4, Special Prescriptions. Because these lands are designated as defensible space areas, the wood production potential of these lands is compatible with the lowest site classifications and they shall be considered site IV timberland for stocking purposes.

Aspen, Meadow, and Wet Area Restoration

As per 14 CCR § 933.4(e)(8)(A-B), the silvicultural standards for opening size, adjacency requirements, or conifer stocking standards do not apply to use of the Aspen, Meadow, and Wet Area Restoration prescription, nor do minimum resource conservation standards.

c. Trees to be harvested or retained must be marked by or marked under the supervision of the RPF. Specify how the trees will be marked/designated.

The RPF preparing the Notice of Timber Operations shall mark all trees (minimum of 8-inch diameter inside bark (dib) at 32 feet) to be harvested. Harvest trees shall be marked with a blue painted band around the circumference of the tree and a base mark below the cutline.

☐ Yes ☒ No Is a waiver of marking by the RPF requirement requested? If yes, how will LTO determine which trees will be harvested or retained? If more than one silvicultural method, or Group Selection is to be used, how will LTO determine boundaries of different methods or groups?

d. Forest products to be harvested:

Sawlogs, veneer logs, cull logs, hog fuel chips, and fuel wood.

e. ☐ Yes ☒ No Are group B species proposed for management?

☐ Yes ☒ No Are group B or non-indigenous A species to be used to meet stocking standards?

☐ Yes ☒ No Will group B species need to be reduced to maintain relative site occupancy of A species?

If any answer is yes, list the species, describe treatment, and provide the LTO with necessary felling and slash treatment guidance. Explain who is responsible and what additional follow-up measures of manual treatment or herbicide treatment are to be expected to maintain relative site occupancy of A species. Explain when a licensed Pest Control Advisor shall be involved in this process.

f. Other instructions to LTO concerning felling operations.

To the fullest extent possible and with due consideration given to topography, lean of trees, landings, utility lines, local obstructions, and safety factors, trees shall be felled to lead in a direction away from watercourses and lakes.

g. ☐ Yes ☒ No Will artificial regeneration be required to meet stocking standards?

h. ☐ Yes ☒ No Will site preparation be used to meet stocking standards? If yes, provide the information required for a site preparation addendum, as per 14 CCR § 915.4 (935.4, 955.4)

i. If the rehabilitation method is chosen, provide a regeneration plan as required by 14 CCR § 913 (933, 953) 4 (b).

N/A

PESTS

15. a. ☐ Yes ☒ No Is this NTMP within an area that the Board of Forestry and Fire Protection has declared a Zone of Infestation or Infection, pursuant to PRC 4716? If yes, identify feasible measures being taken to mitigate adverse infestation or infection impacts from the timber operation. See 14 CCR § 917 (937, 957) .9 (a).

b. ☐ Yes ☒ No If outside a declared zone, are there any insect, disease or pest problems of significance in the NTMP area? If yes, describe the proposed measures to improve the health, vigor, and productivity of the stand(s).

HARVESTING PRACTICES

16. Indicate type of yarding system and equipment to be used:

GROUND BASED*	CABLE	SPECIAL
a. ☒ Tractor, including end/long lining	d. ☐ Cable, ground lead	g. ☐ Animal
b. ☒ Rubber tired skidder, Forwarder	e. ☐ Cable, high lead	h. ☐ Helicopter
c. ☒ Feller buncher	f. ☐ Cable, Skyline	i. ☐ Other

All tractor operations restrictions apply to ground based equipment.

17. Erosion Hazard Rating: Indicate Erosion Hazard Ratings present on NTMP. (Must match EHR worksheets).

☒ Low ☐ Moderate ☐ High ☐ Extreme

If more than one rating is checked, areas must be delineated on map down to 20 acres in size (10 acres for high and Extreme EHRs in the Coast District).

18. Soil Stabilization: In addition to the standard waterbreak requirements describe soil stabilization measures or additional erosion control measures to be implemented and the location of their application. See requirements of 14 CCR § 916.7 (936.7, 956.7), and 923.2 (943.2, 963.2) (m), and 923.5 (943.5, 963.5) (f).

Installation of drainage facilities and structures is required from October 15 to November 15 and from April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours.

Erosion Control for Logging Roads and Landings

(Non-applicable Forest Practice Rues have been omitted from this section.)

(a) All logging road and landing surfaces shall be adequately drained through the use of logging road and landing surface shaping in combination with the installation of drainage structures or facilities and shall be hydrologically disconnected from watercourses and lakes to the extent feasible.

(b) Drainage facilities and structures shall be installed along all logging roads and all landings that are used for timber operations in sufficient number to minimize soil erosion and sediment transport and to prevent significant sediment discharge.

(c) Ditch drains, associated necessary protective structures, and other features associated with the ditch drain shall:

(1) Be adequately sized to convey runoff.

(2) Minimize erosion of logging road and landing surfaces.

(3) Avoid discharge onto unprotected fill.

(4) Discharge to erosion resistant material.

(5) Minimize potential adverse impacts to slope stability.

(d) Waterbreaks and rolling dips installed across logging roads and landings shall be of sufficient size and number and be located to avoid collecting and discharging concentrated runoff onto fills, erodible soils, unstable areas, and connected headwall swales.

(e) Where logging roads or landings do not have permanent and adequate drainage, and where waterbreaks are to be used to control surface runoff, the waterbreaks shall be cut diagonally a minimum of six inches into the firm roadbed and shall have a continuous firm embankment of at least six inches in height immediately adjacent to the lower edge of the waterbreak cut. On logging roads that have firmly compacted surfaces, waterbreaks may be installed by hand methods and need not provide the additional six-inch embankment provided the waterbreak ditch is constructed so that it is at least six inches deep and six inches wide on the bottom and provided there is ample evidence based on slope, material, amount of rainfall, and period of use that the waterbreaks so constructed will be effective in diverting water flow from the logging road surface without the embankment.

(f) Distances between waterbreaks shall not exceed the following standards and consider erosion hazard rating and road gradient:

MAXIMUM DISTANCE BETWEEN WATERBREAKS			
EHR	U. S. Equivalent Measure Road or Skid Trail Gradient (feet)		
	≤10%	11 – 25%	>25%
Low	300	200	150

(g) Where outsloping and rolling dips are used to control surface runoff, the dip in the logging road grade shall be sufficient to capture runoff from the logging road surface. The steepness of cross-slope gradient in conjunction with the logging road or landing gradient and the estimated soil erosion hazard rating shall be used to determine the rolling dip spacing in order to minimize soil erosion and sediment transport and to prevent significant sediment discharge.

(h) Drainage facilities and structures shall discharge into vegetation, woody debris, or rock wherever possible. Where erosion-resistant material is not present, slash, rock, or other energy dissipating material shall be installed below the drainage facility or drainage structure outlet as necessary to minimize soil erosion and sediment transport and to prevent significant sediment discharge.

(i) Logging road and landing surfaces, road approaches, inside ditches and drainage structures shall be hydrlogically disconnected to correct existing or potential sediment discharge. Refer to the Crossings Tables for a description of the work required by crossing to prevent discharge.

(j) All logging roads and landings used for timber operations shall have adequate drainage upon completion of use for the year or by October 15, whichever is earlier. An exception is that drainage facilities and drainage structures do not need to be constructed on logging roads and landings in use during the extended wet weather period provided that all such drainage facilities and drainage structures are installed prior to the start of rain that generates overland flow.

(l) Bare soil on logging road or landing cuts, fills, transported spoils, or sidecast that is created or exposed by timber operations shall be stabilized to the extent necessary to minimize soil erosion and sediment transport and to prevent significant sediment discharge. Sites to be stabilized include, but are not limited to:

(1) Sidecast or fill exceeding 20 feet in slope distance from the outside edge of a logging road or a landing that has access to a watercourse or lake.

(2) Cut and fills associated with approaches to logging road watercourse crossings of Class I or II waters or Class III waters where an ELZ, EEZ, or a WLPZ is required.

(3) Bare areas exceeding 800 continuous square feet within a WLPZ.

(m) Soil stabilization measures to be implemented by the LTO are as follows

1. A minimum 90 percent coverage of slash or straw mulch to a minimum two-inch applied depth (exclusive of the traveled surface of roads).
2. Treatment shall be done prior to October 15 except that such bare areas created after October 15 shall be so treated within 10 days, or as agreed to by the Director.

(o) Soil stabilization treatments shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first. An exception is that bare areas created during the extended wet weather period shall be treated prior to the start of rain that generates overland flow, or within 10 days of the creation of the bare area(s), whichever is sooner, or as agreed to by the Director. "Extended Wet Weather Period" means the period from October 15 to May 1.

(p) Overhanging or unstable concentrations of slash, woody debris or soil along the downslope edge or face of landings shall be removed or stabilized when it is located on slopes greater than 65 percent, within 100 feet of the boundary of a WLPZ on slopes greater than 50 percent that drain toward the zoned watercourse or lake, or when it may result in significant sediment discharge. Removed materials shall not be placed at disposal sites that could result in a significant sediment discharge.

Watercourse Crossings

The following stabilization standards shall apply to logging road watercourse crossings:

(Non-applicable Forest Practice Rules have been omitted from this section.)

(1) Bare soil on fills or sidecast associated with logging road watercourse crossings that are created or exposed by timber operations shall be stabilized to the extent necessary to minimize soil erosion and sediment transport and to prevent significant sediment discharge.

Refer to Item 18 for erosion control measures for the traveled surface of roads and landing surfaces. Sites to be stabilized include, but are not limited to, sidecast or fill exceeding 20 feet in slope distance from the outside edge of the road surface at the logging road watercourse crossing.

(2) Soil stabilization treatments shall be in place upon completion of operations for the year of use or prior to the extended wet weather period, whichever comes first. An exception is that bare areas created during the extended wet weather period shall be treated prior to the start of rain that generates overland flow, or within 10 days of the creation of the bare area(s), whichever is sooner, or as agreed to by the Director.

Existing and Potential Erosion Sites

All logging roads and landings in the logging area, including appurtenant roads, were evaluated for evidence of significant existing and potential erosion sites. No existing or potential erosion sites were identified.

19. ☐ Yes ☒ No Are tractor or skidder constructed layouts to be used? If yes, specify the location and extent of use:

20. ☐ Yes ☒ No Will ground based equipment be used within the area(s) designated for cable yarding? If yes, specify the location and for what purpose the equipment will be used. See 14 CCR § 914.3 (934.3, 954.3) (e).

21. Within the NTMP area will ground based equipment be used on:

a. ☐ Yes ☒ No Unstable soils or slide areas? Only allowed if unavoidable.
b. ☐ Yes ☒ No Slopes over 65%?
c. ☐ Yes ☒ No Slopes over 50% with high or extreme EHR?
d. ☐ Yes ☒ No Slopes between 50% and 65% with moderate EHR where heavy equipment use will not be restricted to the limits described in 14 CCR § 914 (934, 954) .2 (f) (2) (i) or (ii)?
e. ☐ Yes ☒ No Slopes over 50% which lead without flattening to sufficiently dissipate water flow and trap sediment before it reaches a watercourse or lake?

If a. is yes, provide site specific measures to minimize effect of operations on slope stability below. Provide explanation and justification in section III as required per 14 CCR § 914 (934, 954) .2 (d). CDF requests the RPF consider flagging tractor road locations if "a." is yes. If b., c., d. or e. is yes, 1) the location of tractor roads must be flagged on the ground prior to the PHI or start of operations if a PHI is not required, and 2) you must clearly explain the proposed exception and justify why the standard rule is not feasible or would not comply with 14 CCR § 914 (934, 954). The location of heavy equipment operation on unstable areas or any use beyond the limitations of the standard rules must be shown on the map. List specific instructions to the LTO below.

22. ☐ Yes ☒ No Are any alternative practices to the standard harvesting or erosion control rules proposed for this plan? If yes, provide all the information as required by 14 CCR § 914 (934, 954) .9 in Section III. List specific instructions to the LTO below.

WINTER OPERATIONS

23. a. ☒ Yes ☐ No Will timber operations occur during the winter period? If yes, complete "b, c, or d." State in space provided if exempt because yarding method will be cable, helicopter, or balloon.

b. ☐ Yes ☒ No Will mechanical site preparation be conducted during the winter period? If yes, complete "d".

c. ☐ I choose the in-lieu option as allowed in 14 CCR § 914 (934, 954) .7 I. Specify below the procedures listed in subsections (1) and (2), and list the site specific measures for operations in the WLPZ and unstable areas as required by subsection (3), if there will be no winter operations in these areas, so state.

d. ☒ I choose to prepare a winter operating plan per 14 CCR § 914 (934, 954) .7 (b).

NOTE: "Winter period" means the period between November 15 and April 1, except as noted under special County Rules at Title 14 CCR § 925.1, 926.18, 927.1, and 965.5... (a) except as otherwise provided in the rules: (1) All waterbreaks shall be installed no later than the beginning of the winter period of the current year of timber operations. (2) Installation of drainage facilities and structures is required from October 15 to November 15 and April 1 to May 1 on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours.

The entire plan area is proposed for winter operations.

1. Erosion Hazard Rating

   The area where winter operations are permitted has a low EHR.

2. Mechanical Site Prep Methods

   No mechanical site preparation is proposed for the plan.

3. Yarding System (constructed skid trails and tractor road watercourse crossings)

   Ground based yarding will be used on the entire THP and winter operations area. Slopes leading to watercourses are generally <10% and are well vegetated with both understory and overstory vegetation. The WLPZs and ELZs will provide adequate protection for water resources.

4. Operating Period

   November 15th through April 1st depending on snow depth. When snowpack exceeds 36" operations shall cease until appropriate conditions allow for continued operations.

5. Erosion Control Facilities Timing

   Installation of drainage facilities and structures is required from October 15th to May 1st on all constructed skid trails and tractor roads prior to sunset if the National Weather Service forecast is a "chance" (30% or more) of rain within the next 24 hours and prior to weekend or other shutdown periods. Waterbreaks shall be constructed immediately upon conclusion of use of skid trails, roads, and landings, which do not have permanent and adequate drainage facilities, or drainage structures. Waterbreaks do not need to be constructed on roads in use after October 15th provided that all such waterbreaks are installed prior to the start of rain that generates overland flow.

6. Consideration of Form of Precipitation – Rain or Snow

   During the winter period, the majority of precipitation comes in the form of snow. Snow often covers the ground from early December to early May across most of the THP area. Precipitation, in either form, which results in saturated soil conditions (see definition below) shall result in a shutdown of operations. Erosion control shall be installed and operations shall be suspended until the area has recovered from these conditions. Snow berms created from snow plowing shall be breached to allow proper road drainage.

7. Ground Conditions (soil moisture condition, frozen)

   The use of logging roads, tractor roads, or landings shall not take place at any location where saturated soil conditions exist, where a stable logging road or landing surface does not exist, or when visibly turbid water from the road, landing, or skid trail surface or inside ditch may reach a watercourse or lake. Grading to obtain a drier running surface more than one time before re-incorporation of any resulting berms back into the road surface is prohibited. Persistent isolated wet spots on haul roads and landings shall be stabilized with rock to maintain a stable road surface and to permit passage. Operations shall not continue following a precipitation event unless saturated soil conditions do not exist, stable operating surfaces exist, and the RPF or supervised designee has approved commencement of operations.

Saturated soil conditions means that soil and/or surface material pore spaces are filled with water to such an extent that runoff is likely to occur. Indicators of saturated soil conditions may include, but are not limited to: (1) areas of ponded water, (2) pumping of fines from the soil or road surfacing material during timber operations, (3) loss of bearing strength resulting in the deflection of soil or road surfaces under a load, such as the creation of wheel ruts, (4) spinning or churning of wheels or tracks that produces a wet slurry, or (5) inadequate traction without blading wet soil or surfacing materials.

Hard frozen conditions means those frozen soil conditions where loaded or unloaded vehicles can travel without sinking into the road surfaces to a depth of more than six inches over a distance of more than 25 feet.

Stable operating surface means a road or landing surface that can support vehicular traffic and has a structurally sound road base appropriate for the type, intensity and timing of intended use.

8. Silvicultural System - Ground Cover

   The silvicultural system may be operated during the winter period. The residual vegetation and logging debris will provide sufficient ground cover to protect the soil surface. Most of the area shall be harvested under partial cut systems. Soil disturbance will likely only affect <25% of the total area where partial cutting occurs. The group selection openings may experience up to 50% soil disturbance under unfrozen conditions, but are positioned as to not threaten any watercourses with sediment inputs. No ground based equipment shall operate within the WLPZ, except at existing road crossings.

9. Operations within the WLPZ

   Timber operations shall not occur within the WLPZ during the winter period.

10. Equipment Use Limitations

    Equipment use will be keyed to soil conditions as stated above. Use of equipment is prohibited if saturated soil conditions exist.

11. Known Unstable Areas

    No unstable areas exists within the plan area.

12. Logging Roads and Landings

    Logging roads and landings used for log hauling or other heavy equipment uses during the winter period shall occur on a stable operating surface and, where necessary, be surfaced with rock to a depth and quantity sufficient to maintain such a surface. Use is prohibited on roads that are not hydrologically disconnected and exhibit saturated soil conditions. Landings may be constructed during the winter period but shall not be constructed when saturated soil conditions exist.

ROADS AND LANDINGS

24. Will any roads be constructed? ☐ Yes ☒ No, or reconstructed? ☐ Yes ☒ No
    If yes, check items "a." through "g."
    Will any landings be constructed? ☒ Yes ☐ No, or reconstructed? ☐ Yes ☒ No
    If yes, check items "h." through "k."

    a. ☐ Yes ☒ No Will new or reconstructed roads be wider than single lane with turnouts?
    b. ☐ Yes ☒ No Are logging roads proposed in areas of unstable soils or known slide-prone areas?
    c. ☐ Yes ☒ No Will new roads exceed a grade of 15% or have pitches of up to 20% for distances greater than 500 feet? Map must identify any new or reconstructed road segments that exceed an average 5% grade for over 200 feet.
    d. ☐ Yes ☒ No Are roads to be constructed or reconstructed, other than crossings, within the WLPZ of a watercourse? If yes, completion of NTMP Item 27 a. will satisfy required documentation.
    e. ☐ Yes ☒ No Will roads be located across more than 100 feet of lineal distance on slopes over 65%, or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?

f. ☐ Yes ☒ No Will any roads or watercourse crossings be abandoned?

g. ☐ Yes ☒ No Are exceptions proposed for flagging or otherwise identifying the location or roads to be constructed?

h. ☐ Yes ☒ No Will any landings exceed one half acre in size? If any landing exceeds one quarter acre in size or requires substantial excavation the location must be shown on the map.

i. ☐ Yes ☒ No Are any landings proposed in areas of unstable soils or known slide prone areas?

j. ☐ Yes ☒ No Will any landings be located on slopes over 65% or on slopes over 50% which are within 100 feet of the boundary of a WLPZ?

k. ☐ Yes ☒ No Will any landings be abandoned?

Refer to the Operations Map at the end of Section II for landing locations.

Landings

The approximate location of all landings have been mapped. The actual location may vary to accommodate equipment limitations and LTO preferences.

Use of Logging Roads and Landings

(a) Logging roads and landings shall be used in a manner that is consistent with their design and construction specifications.

(b) Logging roads and landings shall not be used during any time of the year when operations may result in significant sediment discharge to watercourse or lakes, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs.

(c) During the extended wet weather period, log hauling or other heavy equipment uses shall be limited to logging roads and landings that exhibit a stable operating surface in conformance with (b) above. Routine use of logging roads and landings shall not occur when equipment cannot operate under its own power.

(d) When burning permits are required pursuant to PRC § 4423, logging roads and landings that are in use shall be kept in passable condition for fire trucks.

(e) Roadside berms that impede logging road drainage, concentrate logging road surface flow, or lead to hydrologic connection shall be removed or breached before the beginning of the winter period, with the exception of berms needed for erosion control.

(f) No temporary roads are associated with this plan.

(g) Logging roads and landings used for log hauling or other heavy equipment uses during the winter period shall occur on a stable operating surface and, where necessary, be surfaced with rock to a depth and quantity sufficient to maintain such a surface. Use is prohibited on roads that are not hydrologically disconnected and exhibit saturated soil conditions.

Maintenance and Monitoring of Logging Roads and Landings

The following maintenance and monitoring standards shall apply to logging roads and landings:

(a) Logging road and landing surfaces shall be monitored and maintained during timber operations and throughout the prescribed maintenance period to ensure hydrologic disconnection from watercourses and lakes to the extent feasible, minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(b) Logging roads that are used in connection with stocking activities shall be maintained throughout such use, even if this extends beyond the prescribed maintenance period.

(c) During timber operations, road running surfaces in the logging area shall be treated as necessary to prevent excessive loss of road surface materials by methods including, but not limited to, rocking, watering, paving, chemically treating, or installing commercial erosion control devices to manufacturer's specifications.

(d) Grading of logging roads or landings to obtain a drier running surface more than one time before reincorporation of any resulting berms back into the road surface is prohibited.

(e) Drainage facilities and drainage structures, including associated necessary protective structures, shall be maintained to allow free flow of water, and minimize soil erosion and slope instability. Drainage facilities and structures shall be repaired, replaced, or installed as needed to protect the quality and beneficial uses of water.

(f) Soil stabilization treatments on logging road or landing cuts, fills, and sidecast shall be maintained as needed to reduce the potential for slope instability, minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(g) Heavy equipment shall not be used in a WLPZ for maintenance during wet weather, except in emergencies to protect the road, to reduce erosion, to protect water quality, or in response to public safety needs.

(h) Where there is evidence of significant sediment discharge along a logging road or landing used for timber operations, additional measures shall be implemented to minimize soil erosion and sediment transport, and to prevent significant sediment discharge.

(i) The prescribed maintenance period for erosion controls on logging roads and associated landings and drainage structures, including appurtenant, abandoned, and deactivated logging roads and landings, shall be at least one year. The Director may prescribe a maintenance period extending up to three years in accordance with 14 CCR § 1050.

(j) This plan is not within watersheds with listed anadromous salmonids or in planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids.

(k) All logging roads, including abandoned, deactivated, and appurtenant roads, landings, and associated drainage structures used for timber operations shall be monitored as needed to comply with 14 CCR § 1050. Monitoring inspections shall be conducted, when access is feasible during the prescribed maintenance period, a sufficient number of times during the extended wet weather period, particularly after large winter storm events and at least once annually, to evaluate the function of drainage facilities and structures. The Department shall also conduct monitoring inspections at least once during the prescribed maintenance period to assess logging road and landing conditions.

(1) Inspections shall include checking drainage facilities and structures for evidence of downcutting, plugging, overtopping, loss of function, and sediment delivery to Class I, II, or III watercourses and lakes. If evidence of sediment delivery or potential sediment delivery is present, and the implementation of feasible corrective measures could reduce the potential for significant sediment discharge, such additional measures shall be implemented when feasible.

(2) Inspections conducted pursuant to California Regional Water Quality Control Board requirements may be used to satisfy the inspection requirements of this section.

25. If any section in "Item 24" above is answered yes, specify site-specific measures to reduce adverse impacts and list any additional or special information needed by the LTO concerning the construction, maintenance, and/or abandonment of roads or landings, as required by 14 CCR § Article 12. Include required explanation and justification in NTMP Section III.

WATERCOURSE & LAKE PROTECTION ZONE & DOMESTIC WATER SUPPLY PROTECTION MEASURES

26. a. ☒ Yes ☐ No Are there any watercourse or lakes which contain Class I through IV waters on or adjacent to the area? If yes, list the class, WLPZ or ELZ width, and protective measures determined from Table I and/or 14 CCR § 916 (936, 956) .4 I of the WLPZ rules for each watercourse. Specify if Class III or IV watercourses have WLPZ, ELZ, or both.

Refer to the Operations Map at the end of Section II for watercourse and crossing locations and classifications. Watercourse protection widths shall correspond to the following table.

WATERCOURSE PROTECTION			
Slope Class (%)	Watercourse Class & Minimum Zone Width(feet)		
	Class I	Class II	Class III
	WLPZ	WLPZ	ELZ
<30	≥75	50	25
30-50	≥100	75	50
>50	≥150	100	50

Class I Watercourses

- The WLPZ will be clearly identified on the ground by the RPF, or his designee, with red and/or blue and white stripe flagging prior to the start of timber operations. On slopes >50%, the WLPZ shall be flagged prior to the PHI by the RPF, or his designee. No slopes >50% exist within the plan area.
- To ensure retention of shade canopy, filter strip properties and the maintenance of a multi-storied stand for protection of values described in 14 CCR § 936.4(b), a sample area with a base mark below the cutline of harvest trees within the WLPZ shall be done in advance of the preharvest inspection by the RPF, or his designee. Trees designated for harvest within the remainder of the WLPZ shall be marked by the RPF or supervised designee, in advance of falling operations within the WLPZ.
- To protect water temperature, filter strip properties, upslope stability, and fish and wildlife values, at least 50% of the overstory and 50% of the understory canopy covering the ground in the WLPZ and adjacent waters shall be left in a well distributed multi-storied stand composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers. Species composition may be adjusted consistent with the above standard to meet on-site conditions when agreed to in the THP by the RPF and the Director.
- Recruitment of large woody debris for instream habitat shall be provided by retaining at least two living conifers per acre at least 16 inches diameter breast high and 50 feet tall within 50 feet of the watercourse (where they currently exist).
- Accidental depositions of soil or other debris in lakes or below the watercourse or lake transition line shall be removed immediately after the deposition or as approved by the Director.

Class II Watercourses

- The WLPZ will be clearly identified on the ground by the RPF, or his designee, with red and/or blue and white stripe flagging prior to the start of timber operations adjacent to the watercourse.
- To ensure retention of shade canopy filter strip properties and the maintenance of wildlife values described in 14 CCR 936.4(b), a base mark shall be placed below the cut line of the harvest trees within the WLPZ and shall be done by the RPF, or designee, in advance of timber operations.

- To protect water temperature, filter strip properties, upslope stability, and fish and wildlife values, at least 50% of the total canopy covering the ground in the WLPZ shall be left in a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers.
- Recruitment of large woody debris for instream habitat shall be provided by retaining at least two living conifers per acre at least 16 inches diameter breast high and 50 feet tall within 50 feet of the watercourse.

Class III Watercourses

- The ELZ shall be clearly identified on the ground by the RPF or supervised designee with red and/or blue/white stripe flagging prior to the start of timber operations.
- At least 50% of the understory vegetation present before timber operations shall be left living and well distributed within the ELZ to maintain soil stability. This percentage may be adjusted to meet on-site conditions when agreed to in the THP by the RPF and the Director. Unless required by the Director, this shall not be construed to prohibit broadcast burning with a project type burning permit for site preparation.
- Soil deposited during timber operations in a Class III watercourse other than at a temporary crossing shall be removed and debris deposited during timber operations shall be removed or stabilized before the conclusion of timber operations, or before October 15th. Temporary crossings shall be removed before the winter period, or as approved by the Director.
- Heavy equipment shall only be used within the ELZ on existing roads and at existing crossings.
- No group selection units shall be established in the ELZ.

Springs and Seeps

- Springs shall be protected with a Class I WLPZ identified by the RPF, or his designee, with blue and white stripe flagging prior to the start of timber operations adjacent to the spring.
- Seeps shall be protected with a perimeter EEZ identified by the RPF, or his designee, with blue and white stripe flagging prior to the start of timber operations adjacent to the seep.
- Harvest trees shall be felled away from all springs and seeps to the extent feasible.

Watercourse Classification

The watercourse classifications for this THP are based on the review of the following information by RPF, or his supervised designee: (1) Hancock Forest Management GIS database, (2) Previous THP classifications, (3) Field review of individual watercourses, and (4) Channel and Fish Habitat assessment of watercourses (See Section V). The Channel and Fish Habitat assessment is a methodology that developed with CDFW and CVRWQCB staff during the review of the HFM Dairy Cabin THP (2-12-081-SHA). This methodology was determined to be rigorous, repeatable, and was verified with presence/absence fish sampling. This same methodology was completed for this THP (See Section V) and watercourses were upgraded (i.e. Class II to Class I) based on observed fish and the assessment.

b. ☒ Yes ☐ No Are there any watercourse crossings that require mapping per 14 CCR § 1034(x)(7)?

Refer to the Operations Map at the end of Section II for crossing locations.

Road Crossings

Ford crossings are anticipated to be dry at the time of operations. Ford crossings may be used as tractor road crossings if no flowing water is present. If flowing water is present at ford crossings while the crossing is being used for operations, the following limitations shall apply.

- A temporary structure shall be used consisting of a culvert of sufficient capacity to accommodate flow with rock fill and running surface comprised of 4-inch fractured (or similar) rock.
- The road approaches shall be armored from the edge of the watercourse for a minimum of 25 feet, or to the nearest waterbreak or point where road drainage does not drain toward the crossing, with a minimum 4-inch compacted depth of 4-inch angular competent (or similar) rock.
- Rocking beyond 25 feet will occur where factors such as road gradient, soil types, time, duration, and frequency of use dictate the need.
- The crossing shall be kept to the minimum width to facilitate use.
- Refer to the Watercourse Crossings section for additional requirements.

Tractor Road Crossings

Tractor road crossings are anticipated to be dry at the time of operations. If flowing water is present at tractor road crossings while the crossing is being used for operations, the following limitations shall apply:

- A temporary structure shall be used consisting of a minimum 12-inch diameter, 20-foot length culvert (if necessary) with logs for fill.
- The logs and culvert shall be wrapped with chokers during construction to facilitate removal (unless a log loader will be used for removal of the structure).
- The logs shall be covered with a minimum 6-inch depth of straw bale flakes or geotextile fabric and a minimum 6-inch compacted depth of native soil.
- The crossing shall be kept to the minimum width to facilitate use.
- Tractor road watercourse crossing facilities shall be removed and stabilized before the beginning of the winter period to the standards described under Watercourse Crossings below.

Watercourse Crossings

(Non-applicable Forest Practice Rues have been omitted from this section.)

(a) All logging road watercourse crossings were evaluated for significant and potential erosion sites.

(b) The number of crossings has been kept to a feasible minimum. Existing logging road watercourse crossing locations are feasible and appropriate for use.

(h) Logging road watercourse crossings shall not discharge water onto erodible fill or other erodible material without the installation of energy dissipaters and other necessary protective structures.

(k) Watercourse crossings and associated fills and approaches shall be constructed and maintained to prevent diversion of stream overflow down the road, and to minimize fill erosion should the drainage structure become obstructed. Methods to mitigate or address diversion of stream overflow at logging road watercourse crossings shall be stated in the plan (refer to the Crossings Tables).

(l) Any necessary protective structures associated with logging road watercourse crossings such as wing walls, rock armored headwalls, and downspouts shall be adequately sized to transmit runoff, minimize erosion of crossing fills, and prevent significant sediment discharge. Rock used to stabilize the outlets of crossings shall be adequately sized to resist mobilization, with the range of required rock dimensions described in the plan (refer to the Crossings Tables).

(m) The following drainage standards shall apply to logging road watercourse crossings:

(1) Adequate surface drainage at logging road watercourse crossings shall be provided through the use of logging road surface shaping in combination with the installation of drainage facilities, ditch drains, or other necessary protective structures to hydrologically disconnect the road from the crossing to the extent feasible.

(2) Drainage facilities and ditch drains shall be installed adjacent to logging road watercourse crossings, as needed, to hydrologically disconnect to the extent feasible the logging road approach from the crossing, to minimize soil erosion and sediment transport, and to prevent significant sediment discharge during and upon completion of timber operations.

(3) Drainage structures and facilities installed adjacent to logging road watercourse crossings shall be located to avoid discharging concentrated runoff onto fills, erodible soils, unstable areas, and connected headwall swales to the extent feasible.

(o) No crossing fills over culverts are large, or where logging road watercourse crossing drainage structures and erosion control features historically have a high failure rate are located within the plan area.

(r) Temporary logging road watercourse crossings shall be removed and stabilized prior to the winter period or as specified in the plan.

(t) Refer to Item 18 for stabilization measures at watercourse crossings.

(u) Logging road watercourse crossings shall be monitored and maintained during timber operations and throughout the prescribed maintenance period as needed, to comply with 14 CCR § 1050. The prescribed maintenance period is specified in 14 CCR § 943.7(i)-(j). Monitoring inspections shall be conducted by the timber landowner, when access is feasible during the prescribed maintenance period, a sufficient number of times during the extended wet weather period, particularly after large winter storm events and at least once annually, to evaluate watercourse crossing function.

(1) Inspections shall include checking watercourse crossings for evidence of downcutting, plugging, overtopping, loss of function, and sediment delivery to Class I, II, or III watercourses and lakes. If evidence of sediment delivery or potential sediment delivery is present, and the implementation of feasible corrective measures could reduce the potential for significant sediment discharge, such additional measures shall be implemented by the landowner when feasible.

(2) Inspections conducted pursuant to California Regional Water Quality Control Board requirements may be used to satisfy the inspection requirements of this section.

(v) Logging road watercourse crossings shall be maintained as designed, constructed, and reconstructed during timber operations and throughout the prescribed maintenance period. Crossings used in connection with stocking activities shall be maintained throughout such use, even if this extends beyond the prescribed maintenance period.

Watercourse Crossings

All repair work shall be completed prior to the first winter period after operations at the crossing location.

Bridge Crossings

ID	Use	Class	1600	Type	Fish Passage	Hydro-logically connected	Evidence of diversion	Abutment type	Deck type	Surface width
C5698	Road	I	No	Steel structure	Yes	Yes	No	Fill	Wood	12
	No work required.									
C5700	not obs	I	No	Other	Yes	Yes	No	Concrete	Wood	4
	Foot bridge. No work required.									

Culvert Crossings

ID	Use	Class	1600	Size (inches)	Critical Dip	Fish Passage	Hydro-logically connected	Evidence of diversion	Inlet control	Inside ditch	Armored inlet	Armored outlet	Rocked surface	Shot-gunned
C5695	Road	II	No	24	Yes	--	Yes	No	No	No	No	No	No	No
	Minimal fill sloughing on downstream side at culvert outlet to be cleared with hand tools.													
C5696	Road	II	No	18	Yes	--	Yes	No	No	Dirt	Yes	No	Yes	No
	Partially crushed outlet to be repaired with hand tools.													
C5699	Road	No cls	No	18	No	--	Yes	No	Yes	Dirt	No	No	Yes	No
	No work required.													

Ford, Log, Fill, and Temp Crossings

ID	Use	Class	1600	Type	Fish Passage	Hydro-logically connected	Evidence of diversion	Rocked crossing	Rocked approaches	Rocked buttress
C5697	Road	II	No	Dry	--	Yes	No	No	No	No
	No work required.									
S5701	Skid	III	No	Dry	--	Yes	No	No	No	No
	No work required.									

c. ☒ Yes ☐ No Will tractor road watercourse crossings involve the use of a culvert? If yes, state minimum diameter and length for each culvert (may be shown on map).

A minimum 12-inch diameter, 20-foot length culvert shall be used if need.

d. ☐ Yes ☒ No Is this NTMP Review Process to be used to meet Department of Fish and Game CEQA review requirements? If yes, attach the 1603 Addendum below or at end of this Section II; provide the background information and analysis in Section III; list instructions for LTO below for the installation, protection measures, and mitigation measures; as per THP Form Instructions or CDF Mass Mailing, 07/02/1999, "Fish and Game Code 1603 Agreements and THP Documentation".

Although at this time the NTMP is not being used to meet the Department of Fish and Game CEQA review requirements, because the NTMP does not expire at some point in the future, the plan may be used to meet the Department of Fish and Game CEQA review requirements, at which time a 1603 addendum would be provided.

27. Are site specific practices proposed in-lieu of the following standard WLPZ practices?

a. ☐ Yes ☒ No Prohibition of the construction or reconstruction of roads, construction or use of tractor roads or landings in Class I, II, III, or IV watercourses, WLPZs, marshes, wet meadows, and other wet areas except as follows:

1. At prepared tractor road crossings.
2. Crossings of Class III watercourses which are dry at time of timber operations.
3. At existing road crossings.
4. At new tractor and road crossings approved by Department of Fish and Wildlife.

b. ☒ Yes ☐ No Retention of non-commercial vegetation bordering and covering meadows and wet areas?

c. ☐ Yes ☒ No Directional felling of trees within the WLPZ away from the watercourse or lake?

d. ☐ Yes ☒ No Decrease of width(s) of the WLPZ(s)?

e. ☐ Yes ☒ No Protection of watercourses which conduct class IV waters?

f. ☒ Yes ☐ No Exclusion of heavy equipment from the WLPZ except as follows:

1. At prepared tractor road crossings.
2. Crossings of Class III watercourses which are dry at time of timber operations.
3. At existing road crossings.
4. At new tractor and road crossings approved by Department of Fish and Wildlife.

g. ☐ Yes ☒ No Establishment of ELZ for Class III watercourses unless sideslopes are <30% and EHR is low?

h. ☒ Yes ☐ No Retention of at least 50% of the overstory canopy in the WLPZ?

i. ☒ Yes ☐ No Retention of at least 50% of the understory in the WLPZ?

j. ☐ Yes ☒ No Are any additional in-lieu or any alternative practices proposed for watercourse or lake protection?

NOTE: A yes answer to any of items "a." through "j." constitutes an in-lieu practice. If any item is answered yes, refer to 14 CCR § 916 (936, 956).1 and address the following for each item checked yes:

1. The RPF shall state the standard rule;
2. Explain and describe each proposed practice;
3. Explain how the proposed practice differs from the standard practice;
4. The specific location where it shall be applied, see map requirements of 14 CCR § 1034 (x) (15) and (16);
5. Provide in NTMP Section III an explanation and justification as to how the protection provided is equal to the standard rule and provides for the protection of the beneficial uses of water, as per 14 CCR § 916 (936, 956) .1 (a). Reference the in-lieu and location to the specific watercourse to which it will be applied.

The following in lieu practices only apply to the Aspen, Meadow, and Wet Area Restoration.

Meadow vegetation *(14 CCR § 936.3(d))*

Vegetation bordering and covering meadows and wet areas during timber operations may be impacted from harvesting and skidding. Disturbance of existing meadow, riparian, and upland vegetation shall be minimized. Only coniferous trees designated for harvest in accordance with Item 14 shall be removed.

Heavy equipment in WLPZs *(14 CCR § 936.3(c) & 14 CCR § 936.4(d))*

This in lieu practice shall only apply to the Aspen, Meadow, and Wet Area Restoration area. To the extent possible, trees shall be hand felled towards tractor roads and long-lines shall be used to minimize equipment movement in the WLPZ. However, it is anticipated that some trees will be designated for harvest which cannot be accessed by or felled towards tractor roads. Therefore, heavy equipment (feller buncher) may be used in the WLPZ. Feller bunchers shall operate at least 15 feet from the watercourse transition line, and shall not enter any wet areas, but may reach toward the watercourse/wet area with the cutting head to sever trees. Feller bunchers shall minimize the amount of maneuvering within the WLPZ to minimize soil disturbance. Feller bunchers shall enter the WLPZ as close to 90 degrees as feasible and entries into the WLPZ shall be spaced a minimum of 40 feet apart. If a feller buncher is not available, trees designated for harvest shall be hand felled and end-lined out of the WLPZ.

Canopy retention *(14 CCR § 936.4(b)(6) & 14 CCR § 936.5(e) "I"*

Total canopy covering the ground may be reduced below 50%, and may not have a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations, and it will likely not have a residual overstory canopy of at least 25% of existing overstory conifers.

Additional in-lieu or alternative practices *(14 CCR § 936.3(f)*

The silviculture will not be limited to sanitation salvage within the WLPZ through the Aspen, Meadow, and Wet Area Restoration area.

28. a. ☒ Yes ☐ No Are there any landowners within 1,000 feet downstream of the NTMP boundary whose ownership adjoins or includes a Class I, II, or IV watercourse(s) which receives surface drainage from the proposed timber operations? If yes, the requirements of 14 CCR § 1032.10 apply. Proof of notice by letter and newspaper should be included in NTMP Section V. If No, "28 b." need not be answered.

b. ☐ Yes ☒ No Is an exemption requested of the notification requirements of 14 CCR § 1032.10? If yes, an explanation and justification for the exemption must be included. Specify if requesting an exemption from the letter, the newspaper notice, or both.

c. ☐ Yes ☒ No Was any information received on domestic water supplies that required additional mitigation beyond that required by standard Watercourse and Lake Protection rules? If yes, list site specific measures to be implemented by the LTO.

Refer to Section V for a copy of the newspaper affidavit, example letter, and list of recipients.

29. ☐ Yes ☒ No Is any part of the NTMP area within a Sensitive Watershed as designated by the Board of Forestry and Fire Protection? If yes, identify the watershed and list any special rules, operating procedures or mitigation that will be used to protect the resources identified at risk?

HAZARD REDUCTION

30. a. ☒ Yes ☐ No Are there roads or improvements which require slash treatment adjacent to them? If yes, specify the type of improvement, treatment distance, and treatment method.

b. ☐ Yes ☒ No Are any alternatives to the rules for slash treatment along roads and within 200 feet of structures requested? If yes, RPF must explain and justify how alternative provides equal fire protection. Include a description of the alternative and where it will be utilized below.

Public Roads

Slash created and trees knocked down by timber operations within 100 feet of public roads within and adjacent to the plan area shall be treated by lopping so that no slash remains more than 30 inches above the ground.

Private Roads

Slash created and trees knocked down by timber operations within 50 feet of permanent private roads within and adjacent to the plan area shall be treated by lopping so that no slash remains more than 30 inches above the ground.

Landing Slash Piles

Landing slash created by timber operations shall be treated by spreading, chipping, grinding, or piling and burning.

Structures

All woody debris created by timber operations greater than one inch but less than eight inches in diameter within 100 feet of permanently located structures maintained for human habitation shall be removed or piled and burned; all slash created between 100 and 200 feet of permanently located structures maintained for human habitation shall be lopped for fire hazard reduction, removed, chipped or piled and burned; lopping for fire hazard reduction shall be required between 200 and 500 feet of permanently located structures maintained for human habitation.

31. ☒ Yes ☐ No Will piling and burning be used for hazard reduction? See 14 CCR § 917.2-7 and 9, 937.2-3, 5-7 and 9, or 957.2-7 and 9 for specific requirements. Note: LTO is responsible for slash disposal. This responsibility cannot be transferred.

If piles are designated for burning, the following restrictions shall apply:

- The LTO shall be responsible for piling and preparation of slash piles for burning and for any required burning notification, ignition, and monitoring of weather and burning conditions.
- Piles shall not be constructed or burned within the WLPZ or ELZ of a watercourse or within the aspen, meadow, and wet area restoration areas.
- Piles and concentrations shall be sufficiently free of soil and other noncombustible material for effective burning.

- Piles shall be constructed at or near their final location to minimize the amount of movement and subsequent soil deposition in the piles.
- Piles and concentrations shall be burned at a safe time during the wet fall or winter weather or other safe period following piling.
- Piles and concentrations that fail to burn sufficiently may be further treated.
- All necessary precautions shall be taken to confine such burning to the piled slash.
- The local representative of the Director shall be notified in advance of the time and place of any burning of logging slash. Any burning shall be done in the manner provided by Law.
- Slash burning shall be conducted in a manner which will not damage residual trees and reproduction to the extent that they will not qualify to meet the silvicultural and stocking requirements of the rules.

Slash to be treated by piling and burning shall be treated as follows:

(1) Piles created prior to September 1 shall be treated not later than April 1 of the year following its creation, or within 30 days following climatic access after April 1 of the year following its creation.

(2) Piles created on or after September 1 shall be treated not later than April 1 of the second year following its creation, or within 30 days following climatic access after April 1 of the second year following its creation.

BIOLOGICAL AND CULTURAL RESOURCES

32. a. ☒ Yes ☐ No **Are any plant or animal species, including their habitat, which are listed as rare, threatened or endangered under federal or state law, or a sensitive species by the Board, associated with the NTMP area? If yes, identify the species and the provisions to be taken for the protection of the species.**

Biological information sources reviewed (see Item 32, Section III) included the California Natural Diversity Database (CNDDB) database (July 2015 update) and previous THPs that include the plan area. Wildlife species that are known to occur or have potential suitable habitat within the plan area have been addressed below. During all phases of the preparation and implementation of this plan, all field personnel and the LTO shall be vigilant and report any observations of these species or other indications of the species presence within and adjacent to the plan area to the RPF. If any listed species is discovered in or immediately adjacent to the plan area and additional protection measures are deemed necessary by the RPF or supervised designee, after consultation with CDFW, the location and additional mitigation measures shall be amended into the plan. Refer to the Biological Resource Map at the end of Section II for the location of current known species occurrences within the plan area.

Wildlife Species

Fisher: The species is known to occur within the NW ¼ of Section 13 of the plan area. The species has been detected within the assessment area (Farber and Nicolls 2014), and there is suitable foraging habitat for fisher within the plan area. There are no currently known larger decayed or cull trees with large cavities suitable for potential fisher resting or denning trees within the plan area (see Section III, Item 32). In 2010 and again in 2015, the CDFW recommended the species is not warranted for listing within the plan area under the State Endangered Species Act. The critical period for fisher is March 1 through July 31, where reproduction and caring of young occurs and the highest potential for disturbance exists. The following are operational measures for fisher:

1 During timber operations between March 1 through May 15, if a natal or maternal den or a female with young is observed and verified by the RPF, his or her designee or a biologist, the tree shall not be disturbed or harvested and timber operations shall cease within 0.25 miles of den or observation and the LTO shall notify the RPF, Cal Fire, and CDFW shall be notified immediately so that additional measures, if needed, can be implemented and amended into the plan. During timber operations between May 16 to July 31, if a maternal den site is found, no timber operations shall occur with 375 feet of the den site and the RPF, Cal Fire, and CDFW shall be notified immediately so that additional measures, if needed, can be implemented and amended into the plan.

2 Any green culls, large snags, hardwoods, and large down wood will be retained where they exist to the degree that allows for operational safety under Section II, Item 33.

3 If a larger decayed or cull conifer (>22 inches dbh) or hardwood tree (>15 inches dbh) with a large cavity is found within the plan, that may be a suitable as a resting or denning location, the tree shall not be disturbed or harvested during the critical period of March 1 through July 31 (see Section III, Item 32 for more information). Also, all trees shall be directionally felled away from any potentially suitable resting or denning trees during the critical period of March 1 through July 31. If the California Fish and Game Commission determines the species is not a candidate under state ESA, or is not listed, measures described above under item (3) shall not be required.

4 Retention of cavity bearing oaks, where they exist, will be prioritized within the plan area.

Gray wolf: In 2011, a male gray wolf, designated OR7, entered California from Oregon. The species did not travel through the plan area, but did travel through the assessment area. In 2015, the CDFW reported the observation of the "Shasta" pack in the vicinity of Mount Shasta. On June 4, 2014 the California Fish and Game Commission listed the species under CESA. In the event that a gray wolf is discovered within or adjacent to the plan area, timber operations shall cease within 0.25 miles of the observation and the RPF, Cal Fire, and CDFW shall be notified so that mitigation measures can be implemented and amended into the plan.

Great gray owl: There are no known detections of the species within or immediately adjacent to the plan area. Currently, there is no potential suitable nesting habitat (WHR 4D or greater) located within or adjacent to the plan area. Based on potential changes in habitat condition due to forest growth, disease, insect damage, or wildfire, for each Notice of Timber Operations (Notice) that is filed five years following approval of the plan, the RPF shall include in the Notice a certification that the Notice complies with original scoping and habitat review for this species. If any potential suitable nesting (WHR 4D or greater) is discovered or suspected within the plan area, operations shall not occur within the potential suitable nesting habitat and the RPF, LTO, Cal Fire, and CDFW shall be notified so that mitigation measures can be implemented and amended into the plan.

Northern goshawk: There are no known detections within or immediately adjacent to the plan area or within the 1.3-mile assessment area. This species is a Board of Forestry Sensitive Species. Potential suitable nesting and foraging habitat exists within and immediately adjacent to the plan area. Any suspected species nests within 0.25 miles of the plan area shall be evaluated and/or monitored by the RPF, or his designee, to determine if the site is active and if the species may be using the plan area. In the event that nesting goshawks are discovered within or adjacent to the plan area, timber operations shall cease within 0.25 miles of the nest and the RPF, Cal Fire, and CDFW shall be notified so that mitigation measures can be implemented and amended into the plan.

Northern Spotted Owl: There are no known detections or Activity Center of Northern Spotted Owl within 1.3 miles of the plan. The species is listed as threatened under the federal Endangered Species Act. This proposed plan lies in the interior California Cascade province. Accordingly, measures described in this plan ensure that "take" of an individual NSO will not result from forest management activities proposed in the plan.

Habitat Maintenance: An assessment of suitable habitat, based on the USFWS 2008 guidance, within 1.3 miles of the plan boundary was completed (See section III, Item 32 and Section V). Based on this assessment, and standard protection measures under 14 CCR § 939.9(g), the following measures shall be implemented to ensure "take" of an individual Northern spotted owl will not result from proposed forest management activities:

1. The habitat protection zone for NSOs shall consist of the area within 1,000 feet radius of a tree, or trees, containing a nest supporting an activity center.
2. No timber operations will occur within a 500 feet radius of an activity center during the NSO breeding season unless explained, justified and approved by the director. Timber operations may be conducted

in this area outside the breeding season if appropriated measures are adopted to protect nesting habitat. The habitat qualities of functional nesting roosting habitat shall be maintained.

3. Within 500 to 1,000 feet of the activity center no timber operations will occur during the NSO breeding season unless explained, justified, and approved by the director. Habitat qualities will retain sufficient functional characteristics to support roosting habitat.
4. A minimum of 500 acres of suitable NSO habitat shall remain post-harvest within the area out to 0.7 miles surrounding a tree, or trees, containing a nest or supporting an activity center. Less than 50% of the retained area may be operated on in any given year, depending on the amount of pre harvest suitable habitat present within 0.7 miles of the tree, or trees, containing a nest or supporting an activity center.

5. A minimum of 1,336 acres of suitable NSO habitat shall remain post-harvest within the area out to 1.3 miles surrounding a tree, or trees containing a nest or activity center.
6. The critical period for NSO breeding is between February 1st and August 31st. During this period, no operations are permitted within 0.25 mile of a known activity center.

Surveys: Only suitable low-quality foraging habitat exists within the 1.3 miles of the plan boundary. No nesting and roosting habitat exists within 1.3 miles of the plan boundary.

A critical component of the USFWS (2008) guidance is proximity of one habitat type (nesting and roosting) to another (foraging or low-quality foraging) is important in determining habitat use. Recent scientific research efforts to predict the likelihood of a NSO inhabiting specific forest stands in northern California have used a model selection methodology (Zabel et al. 2003). This method uses statistical analytical procedures to identify precisely which forest attributes, in what types of spatial arrangement are common among many sites known to be used by NSOs. The final model indicated that a combination of nesting and roosting habitat and foraging habitat was a key predictor of occupancy by NSOs (Zabel et al. 2003). It has also been shown in other studies that NSO habitat is a combination of nesting and roosting areas interspersed and juxtaposed with foraging areas (Farber and Crans 2000, Franklin et al. 2000, Hunter et al. 1995, Irwin et al. 2000, Zabel et al. 2003). Zabel et al (2003) concluded that their results are a good predictor of NSO occupancy within a given 0.5 mile circle or 500 acre core area and that at the lower probability levels (i.e. areas that support only foraging or low-quality foraging habitat but do not support nesting and roosting habitats) NSO absence is predicted. Based on this best available information, the suitable habitat arrangement within 1.3 miles of the plan boundary of only foraging, low-quality foraging, and non-habitat and no nesting and roosting habitat indicating very low predicted presence.

Accordingly, the plan proposes to not conduct protocol surveys based on the USFWS protocol (2012) prior to operations for this plan. Based on the best available information including this assessment the plan ensures that "take" of an individual NSO will not result from forest management activities proposed in the plan. We request that Cal Fire review, and if necessary the USFWS review, the plan measures for NSO to ensure that "take" of an individual NSO will not result from forest management activities proposed in the plan (see Section V, Northern Spotted Owl Suitable Habitat and Survey Assessment, for additional information).

For each Notice of Timber Operations (Notice) that is filled five years following approval of the plan, the RPF shall include in the Notice a certification that the Notice complies with NSO measures in the plan ensuring "take" of NSOs will not result from forest management activities and that "take" has been avoided as per 14 CCR § 939.10. The RPF certification shall also include which Survey Category the RPF intends to implement to ensure that "take" of NSOs will not result from forest management activities and that "take" has been avoided as peer 14 CCR §939.10. In addition, if any of the following conditions have changed within the plan or assessment area, the RPF shall report the changes and propose measures, if necessary:

1 Based on significant changes in habitat condition due to forest growth, disease, insect damage or wildfire, the RPF shall update suitable habitat maps and propose changes in surveys, if appropriate, or,

2 If surveys are conducted, a summary of survey results including survey station, dates and times of surveys, and survey results including information on activity center status will be provided. Survey maps shall include survey station s with suitable habitat types to determine adequacy of survey or,

3 A summary of NSOs detected in locations not previously detected and a summary of measures, if any, associated with the new detection will be provided.

Osprey: This species is not known to occur within the plan area. Habitat for this species may occur within and adjacent to the plan area. Based on monitoring results of osprey nests during operations in cooperation with CDFW Region 1, osprey appear to tolerate operations closer to the nest tree and earlier in the breeding season than previously believed (Farber et al. 2003, Farber et al. 2004). Accordingly, if an active nest is discovered within 0.25 miles of operations, in any year, the following protection measures within 0.25 of a nest shall be implemented:

1 Prior to any year of operations within 0.25 miles of a known nest tree, a survey shall be conducted to determine if the nest is occupied.
2 No operations shall occur within 0.25 miles of a nest tree until after June 15, unless the nest fails prior to June 15.
3 For the period between June 15 and August 15th timber operations shall not occur within 200 feet of a nest tree, unless young have fledged or the nest fails prior to August 15.

Townsend's big-eared bat: On April 25, 2013, the CDFW determined that there is sufficient information that listing the species under state ESA may be warranted (Bonham 2013). There are no known detections of the species within or adjacent to the plan area, and there are no known detections within the biological assessment area. No indications of this species presence within the plan area have been observed despite repeated site visits by the RPF and forestry and wildlife staff. There are currently no known mine shafts or caves and no large hollow trees that are large enough to support maternal or hibernation colonies or roosting areas within the plan area, however, potential foraging habitat including riparian areas and conifer habitats do occur within the plan area. Also, there are no known trees within the THP area with the combination of tree dbh, basal hollow entrance area, or internal hollow volume to support maternal roosts or hibernacula of the species (see Section III, Item 32a for additional information). The following operational provisions in the plan shall maintain potential habitat for the species:

1 Snag retention as described in Item 33, retains potential breeding or roosting sites for this species.
2 The WLPZ for Class I and II watercourses retains potential riparian habitat used for foraging.
3 Proposed uneven-aged silviculture shall maintain potential foraging habitat (Item 14).
4 Based on potential changes in habitat condition due to forest growth, disease, insect damage, or wildfire, for each Notice of Timber Operations (Notice) that is filed five years following approval of the plan, the RPF shall include in the Notice a certification that the Notice complies with original scoping and habitat review for this species. If any potential suitable habitat large enough to support maternal or hibernation colonies is discovered or suspected within the plan area, operations shall not occur within 300 feet of the potential suitable habitat and the RPF, LTO, Cal Fire, and CDFW shall be notified so that mitigation measures can be implemented and amended into the plan.
5 During timber operations, if the species is discovered or suspected to be using breeding or roosting habitat within the plan area, operations shall cease within 300 feet of the observation. If a potential breeding or roosting site is discovered the RPF, LTO, Cal Fire, and CDFW shall be notified so that mitigation measures can be implemented and amended into the plan.

Willow flycatcher: This species is known to occur within the plan area. While no nest or fledglings were found, a pair of willow flycatchers were heard and seen at Soda Springs on July 15, 2105. Areas of suitable habitat occur within or immediately adjacent to the plan area (refer to the Biological Resources Map at the end of Section II). This species is State endangered. Operations shall not damage or destroy riparian vegetation in areas of potential suitable habitat, and as such, any trees harvested shall be directionally felled away from areas of potential suitable habitat and end lined out of these areas.

Prior to operations in any year that may occur within 300 feet of potential suitable habitat and would occur between May 1 and August 31, surveys shall be conducted to determine if this habitat is occupied by willow flycatchers. Surveys shall comply with CDFW's Willow Flycatcher Survey Protocol for California dated May 29, 2003. Refer to the Biological Resources Map at the end of Section II for the location in which surveys shall be conducted. The survey results shall be amended into the plan prior to any operations within 300 feet of the identified areas during the breeding season.

The following exceptions apply to operations conducted within 300 feet of occupied willow flycatcher habitat during the breeding season (May 1 through August 31). Permanent public roads may be used during the breeding season provided the level and duration of traffic, and load size will not substantially increase above what are the normal (ambient) traffic levels during the breeding season. Seasonal private roads which have a history of being well traveled during the willow flycatcher breeding season and pass no closer than 100 feet of occupied willow flycatcher habitat may be used provided they are routinely watered to minimize dust production. In addition, truck drivers shall not use engine compression brakes in these areas.

b. ☐ Yes ☒ No Are there any non-listed species which will be significantly impacted by the operation? If yes, identify the species and the provisions to be taken for the protection of the species.

NOTE: See THP Form Instructions or the CDF Mass Mailing, 07/02/1999, section on "CDF Guidelines for Species Surveys and Mitigations" to complete these questions.

During all phases of the preparation and implementation of this plan, all field personnel shall be vigilant and report any observations of the following species to the RPF. Any observations of these species shall be investigated to determine the likelihood of activity nearby.

Bats: These species are not known to occur within or adjacent to the plan area, potential suitable foraging habitat does exist within the plan area. Silver-haired bat, spotted bat and western mastiff bat are unlisted under the state and federal Endangered Species Acts (ESA), but are considered state DFW Species of Special Concern. No indications of any of these species presence within the plan area have been observed despite repeated site visits by WBA forestry and wildlife staff. Provisions in the plan that are important to the LTO to protect the species or its habitat include: (1) proposed silviculture will retain uneven-aged conifer forests which support the species, (2) retention of hollow trees, snags and wildlife trees, marked "W" as described in Section III of this THP, provide potential foraging and roosts for this species.

Beaver: This species is known to occur within the plan area (See Biological Resources map). The species has no state or federal status and can be harvested under permit. Habitat for the species, which includes streams, ponds and riparian habitats along streams, does exist at the known location and within other portions of the plan area. Provisions in the plan that are important to the LTO to protect the species or its

habitat include: (1) WLPZs for Class I and II watercourses, (2) ELZs for Class III and watercourses, and (3) erosion control measures on haul roads and skid trails.

Cascades frog: This species is not known to occur within the plan area. The species is a state species of special concern. Habitat for the species, which includes streams, ponds and riparian habitats along streams, does exist within the plan area. Provisions in the plan that are important to the LTO to protect the species or its habitat include: (1) WLPZs for Class I and II watercourses, (2) ELZs for Class III watercourses, and (3) erosion control measures on haul roads and skid trails.

Cooper's hawk: This species is not known to occur within the plan area. Habitat for this species may occur within and adjacent to the plan area. This species is a species of special concern – watch list. During timber operations, In the event that nesting Cooper's hawks are discovered within or adjacent to the plan area, timber operations shall cease within 0.25 miles of the nest and the RPF, Cal Fire, and CDFW shall be notified so that mitigations can be implemented and amended into the plan.

Foothill yellow-legged frog: This species is not known to occur within the plan area. The species is not listed under the state and federal Endangered Species Acts (ESA), but is a state species of special concern. Habitat for the species, which includes streams, ponds, and riparian habitats along streams, does exist within the plan area. Provisions in the plan that are important to the LTO to protect the species or its habitat include: (1) WLPZs for Class I and II watercourses, (2) ELZs for Class III watercourses, and (3) erosion control measures on haul roads and skid trails.

Red-tailed hawk: This species is not known to occur within the plan area. Habitat for this species may occur within and adjacent to the plan area. This species is a California Fish and Game Code species. During timber operations, In the event that nesting Red-tailed hawks are discovered within or adjacent to the plan area, timber operations shall cease within 0.25 miles of the nest and the RPF, Cal Fire, and CDFW shall be notified so that mitigations can be implemented and amended into the plan.

Sharp-shined hawk: This species is known to occur within the plan area. A 2015 nest tree was found in the NW ¼ of Section 18 (see Biological Resources Map). Habitat for this species may occur within and adjacent to the plan area. This species is a species of special concern – watch list. The white fir nest tree is approximately 14 inches dbh within a dense, over 60% canopy closure, portion of a stand. For the 2015 nest location the following measures shall be implemented:

1 The 2015 nest tree, screening trees surrounding the nest tree, as well as other potential alternate nest and roost trees shall be retained. No operations shall occur within a 75-foot radius buffer around the nest tree (See Biological Resources Map). The no operations buffer shall be identified with red flagging by the RPF, of supervised designee, prior to the start of timber operations in the vicinity.

2 No operations shall occur within the 28-acre nest stand between March 1st and June 30th or unless young have fledged the nest or the nest has failed, whichever is sooner (See Biological Resources Map). Nesting status shall be determined by RPF, or supervised designee, between March 1st and June 30th, by conducting a stand search of the 28-acre nest stand. The stand search shall include playing broadcast tapes and looking for sign of the species including feathers, accumulations of white wash, prey remains, and alternate nests. If a survey is conducted, the results shall be amended into the plan.

3 No group selection shall occur within or adjacent to the nest stand. Meadow restoration may occur within the southwest portion of the nest stand.

During timber operations, in the event that nesting sharp-shined hawks are discovered at a previously unknown nest location within or adjacent to the plan area, timber operations shall cease within 0.25 miles of the nest and the RPF, Cal Fire, and CDFW shall be notified so that mitigations can be implemented and amended into the plan.

Western pond turtle: This species is not known to occur within or adjacent to the plan area. The species is a state species of special concern. Habitat for the species, which includes streams, ponds and riparian habitats along streams, does exist within the plan area. Provisions in the plan that are important to the

LTO to protect the species or its habitat include: (1) WLPZs for Class I and II watercourses, (2) ELZs for Class III watercourses, and (3) erosion control measures on haul roads and skid trails.

Botanical Resources

Focused intuitive intensive controlled surveys shall be conducted by the RPF or supervised designee in all areas of suitable habitat for species that are state or federal listed, or California Native Plant Society, California Rare Plant Program, California Rare Plant Rank (CRPR) 1A, 1B, or 2, and identified during the scoping for this plan. Species to be searched for include the following:

Plant Species with Potential to Occur in the Plan Area			
Scientific Name	***Common Name***	***California Rare Plant Rank Status***	***Intensive or Extensive Survey***
Ageratina shastensis	Shasta ageratina	1B.2	Intensive
Asarum marmoratum	Marbled wild-ginger	2B.3	Intensive
Botrychium pinnatum	northwestern moonwort	2B.3	Extensive
Botrychium pumicola	pumice moonwort	2B.2	Extensive
Botrypus virginianus	rattlesnake fern	2B.2	Extensive
Campanula wilkinsiana	Wilkin's harebell	1B.2	Intensive
Cardamine angulate	Seaside bittercress	2B.1	Extensive
Carex comosa	Bristly sedge	2B.1	Extensive
Carex lasiocarpa	Woody-fruited sedge	2B.3	Extensive
Clarkia borealis ssp. arida	Shasta clarkia	1B.1	Intensive
Clarkia borealis ssp. borealis	northern clarkia	1B.3	Intensive
Cordylanthus tenuis pallescens	palid bird's-beak	1B.2	Intensive
Epilobium oreganum	Oregon fireweed	1B.2	Intensive
Erythronium klamathense	Klamath fawn lily	2B.2	Intensive
Geum aleppicum	Aleppo avens	2B.2	Intensive
Ivesia longibracteata	Castle Crag ivesia	1B.3	Intensive
Meesia uliginosa	broad-nerved hump moss	2B.2	Extensive
Moneses uniflora	Woodnymph	2B.2	Intensive
Ophioglossum pusillum	northern adder's-tongue	2B.2	Extensive
Orthocarpus pachystachyus	Shasta orthocarpus	1B.1	Extensive
Parnassia cirrata intermedia	Cascade grass-of-Parnassus	2B.2	Intensive
Scutellaria galericulata	marsh skullcap	2B.2	Extensive
Smilax jamesii	English Peak greenbrier	1B.3	Intensive

Some of these species are typically associated with bogs, fens, or riparian habitats where few if any timber operations will occur. As such, the potential for significant adverse impacts to these species is greatly reduced and extensive surveys are proposed. Field personnel, prior to conducting a focused intuitive search, shall review the potential suitable habitat for each species so they can recognize specific species listed as target species for this plan. If practicable, a known reference site will be visited where the target species is known to occur in representative habitat conditions and plant associations. Photographic references will also be provided to field personnel associated with this plan. In general, searches are conducted during the blooming period or other phenologically appropriate times when identification is possible. Searches are focused in areas of suitable habitat and intensified where significant ground disturbance may occur (i.e., new roads, landings, skid trails, etc.). During plan preparation and pre-operational field reconnaissance these species have not been located thus far.

If special status plant species are detected and the area(s) cannot be excluded from proposed timber operations, the sites shall be identified by the RPF or supervised designee flagging and avoided and the CDFW shall be notified. No timber operations shall occur within 50 feet of these flagged areas until a site specific evaluation can be conducted in consultation with the CDFW. The intent of the buffers is to protect the site in a way that prevents direct effects on individual plants and minimizes indirect effects on

site conditions (i.e., significant alteration of ground conditions, significant changes in shade canopy, or significant changes in microclimate). If timber operations are proposed to occur within the 50-foot zone, the location and mitigation measures (of equal or greater protection) developed as a result of consultation shall be amended into the plan.

In future harvest entries the following will occur:

1 If scoping has not been updated within the previous five years, the scoping will be updated for any species listed as threatened, endangered, rare, species of special concern, and species that meet the criterial of endangered or rare as provided in the CEQA Guidelines § 15380, Title 14 California Code of Regulations) prior to each Notice of Operations).

2 Subsequent surveys shall occur if indicated by the results of the scoping.

3 Scoping updates and survey results shall be submitted to Cal Fire and CDFW at least 10 days prior to harvest entries.

33. ☒ Yes ☐ No Are there any snags which must be felled for fire protection or safety reasons? If yes, describe which snags are going to be felled and why.

Snags >20 feet tall and >16 inches dbh that are within 100 feet of roads, or landings shall be felled if they lean towards the road or landing and present a safety hazard, or if they are a potential hindrance to future access for initial attack of wildfire as per 14 CCR § 939.1(a)(2).

34. ☐ Yes ☒ No Are any Late Succession Forest Stands proposed for harvest? If yes, describe the measures to be implemented by the LTO that avoid long-term significant adverse effects on fish, wildlife and listed species known to be primarily associated with late succession forests.

35. ☒ Yes ☐ No Are any other provisions for wildlife protection required by the rules? If yes, describe.

Trees containing nests will be examined and/or monitored by or under the supervision of the RPF, or his designee, to determine if they are occupied and to which species they likely belong. Occupied non-listed raptor nests will be provided buffer zones tailored to site and species specific circumstances. The buffer zones shall be designed by the RPF and/or wildlife biologist, so as to avoid or minimize effects of timber operations on the nest site or nesting raptors. Protection measures shall consider the specific habitat requirements of the bird species involved and measures shall be amended into the plan. Harvesting activities within the buffer zones may be limited during periods when nesting birds or young may be sensitive to disturbance. In no case shall trees containing raptor nests be harvested. If an occupied non-listed raptor nest is detected, vegetation disturbing operations shall be halted within 0.25 mile of the nest and CDFW shall be notified. Protection measures, including buffer zones, shall be designated by the RPF and/or wildlife biologist in consultation with CDFW and measures shall be amended into to the plan. All snags with visible nesting sites of eagles, hawks, owls, waterfowl, or any rare or endangered species shall be left standing as prescribed under 14 CCR § 939.1 and 939.2(d). Although merchantable snags may be harvested, un-merchantable snags ≥22 inches dbh will be left to provide wildlife habitat, where not required to be felled for safety or fire hazard mitigation.

36. a. ☒ Yes ☐ No Has an archaeological survey been made of the NTMP area?
b. ☒ Yes ☐ No Has a current archaeological records check been conducted for the NTMP area?
c. ☒ Yes ☐ No Are there any archaeological or historical sites located in the NTMP area? Specific site locations and protection measures are contained in the Confidential Archaeological Addendum in Section VI of the NTMP, which is not available for general public review.

37. ☐ Yes ☒ No Has any inventory or growth and yield information designated "trade secret" been submitted in a separate confidential envelope in Section VI of this NTMP?

38. Describe any special instructions or constraints that are not listed elsewhere in Section II, and specify their location in the NTMP if not listed immediately below:

Notification of Commencement

As per 14 CCR § 1035.4, each calendar year, within 15 days before, and not later than the day of the startup of a timber operation, the RPF or LTO, shall notify Cal Fire of the start of timber operations. The notification, by telephone or by mail, shall be directed to the Cal Fire Siskiyou Unit, Forest Practice Office Technician, at mail: P.O. Box 128, Yreka, CA 96097, phone: (530) 842-3516 Ext 250, or facsimile: (530) 842-7952.

Water Drafting

(A) General description of the conditions and proposed water drafting

Water may be drafted from Squaw Valley Creek or Soda Springs Creek for dust abatement using water trucks with on-board pumps.

(B) Map showing proposed water drafting locations

Refer to the Operations Map at the end of Section II.

C5698: Cemetery Road bridge crossing of Soda Springs Creek.

WD1: Former seasonal road crossing of Squaw Valley Creek.

WD2: Squaw Valley Road culvert crossing of Squaw Valley Creek.

WD3: Squaw Valley Road culvert crossing of Soda Springs Creek.

(C) Watercourse classification

All drafting locations are on Class I watercourses.

(D) Drafting parameters

Months the site is proposed for use

These drafting locations will generally be used during the months of June through November, but some drafting may occur during dry periods in November through May. The total estimated usage for each drafting location is approximately 500,000 gallons.

Estimated total volume needed per day

Water usage at each location is anticipated to be approximately 20,000 gallons per day of operations.

Estimated maximum instantaneous drafting rate and filling time

350 gallons per minute for 10 minutes.

Disclosure of other water drafting activities in the same watershed

Pig Creek Watershed: C5698, W1, W2, & W3 are the only known drafting activities.

(E) Estimated drainage area (acres) above the point of diversion

C5698: 10, **W1:** 26, **W2:** 31, **W3:** 158

(F) Estimated unimpeded streamflow

The unimpeded streamflow during the months the sites are proposed for use is estimated to be approximately 10 cubic feet per second at each site. Very little difference in flow occurs between Soda Springs Creek and Squaw Valley Creek. The watercourses exhibit perennial flow of abundant quantity. During drafting operations bypass flows shall be at least two cubic feet per second, pool volume shall not be reduced by >10%. Minimum water depth at the deepest part of the pool tail crest for Class I watercourses shall be at least 0.2 feet deep.

Estimated pumping rate

Diversion rates shall not exceed 10% of the surface flow and 300 gallons per minute.

Estimated drafting duration

The estimated filling time at each location is 15 minutes, five times per day.

(G) Discussion of the effects on aquatic habitat downstream from the drafting site(s):

Single pumping operations

Minimal effects are anticipated due to the minimal actual time and volume per day in which drafting will occur. It is estimated that drafting will only occur five times per day at 4,000 gallons and 15 minutes each time for a total of 20,000 gallons over one hour and 15 minutes per day.

Multiple pumping operations at the same location

No effect, drafting shall be limited to one truck at a time at each location (exclusive of water tank and well locations).

Other locations in the same watershed

Pig Creek Watershed: C5698, W1, W2, & W3. No effect. Due to the location of the distant location between the planned harvest units, it is unlikely that more than one of these drafting locations would be used in close timing to another.

(H) Discussion of proposed alternatives and measures to prevent adverse effects to fish and wildlife resources and other beneficial uses of water, such as reducing hose diameter; using gravity-fed tanks instead of truck pumping; reducing the instantaneous or daily intake at one location; describing allowances for recharge time; using other dust palliatives; and drafting water at alternative sites

Alternatives

Alternatives considered include drafting from standpipes in the town of McCloud and installation of a gravity-fed storage tank. However, because of the infrequent use of the drafting locations and the distance of the stand pipes from the plan area, there are no feasible alternatives to the use of the drafting locations.

Measures to Prevent Adverse Effects to Fish and Wildlife Resources and other Beneficial Uses of Water

Before commencing any water drafting operation, the RPF and the LTO shall conduct a pre-operations field review to discuss the water drafting measures in the plan.

Water Truck Operation: When diverting water from any Class I or II watercourse, bypass flows shall be maintained that ensure continuous surface flow in downstream reaches and keep fish and amphibians in downstream reaches in good condition. Water drafting equipment shall be screened with wire mesh, perforated plates, or other durable fabric with opening no larger than 3/32 inch (2.38 mm). Water moving through screens shall not exceed 0.33 feet per second. The screens shall be kept clean and free of accumulated algae, leaves, or other debris which could block portions of the screen surface and increase velocities in non-blocked portions. The LTO shall inspect all water trucks daily and repair as necessary to prevent leaks of deleterious materials from entering the watercourse. Water truck operators shall monitor their filling progress so that over-filling and spillage does not occur.

Petroleum Leaks: The LTO shall place drip pans, absorbent blankets, and sheet barriers beneath parked equipment at drafting sites that have small but chronic leaks. Drip pans shall be sufficient in size to capture at least two to three gallons of leaking fluids. Absorbent materials shall be replaced and disposed of by the LTO as needed to maintain effectiveness. Captured fluids in drip pans shall be properly disposed of by the LTO prior to reaching capacity and prior to weekends or shutdown periods.

Petroleum Spills: A supply of absorbent blankets and plastic trash bags shall be carried on water trucks. Any petroleum or chemical spill shall be removed by the LTO using absorbent blankets or by excavation of the contaminated soil. The absorbent blankets and contaminated soil shall be collected and properly disposed of by the LTO prior to end of the day that the spill occurs. The LTO shall notify the RPF of any spill prior to end of the day in which it occurs. The RPF shall notify Cal Fire,

CDFW, and CVRWQCB immediately of any spill and Cal Fire, CDFW, and CVRWQCB shall be consulted regarding cleanup procedures.

(l) Methods that will be used to measure source streamflow prior to the water drafting operation and the conditions that will trigger streamflow to be measured during the operation.

The streamflow will be visually assessed prior to the start of drafting operations in each year of use to determine if adequate flow exists for water drafting and other beneficial uses. Watercourses shall be re-assessed if a visible change of wetted bank width occurs during timber operations.

(l) Methods that will be used to measure source streamflow prior to the water drafting operation and the conditions that will trigger streamflow to be measured during the operation.

Visual monitoring is appropriate for these non-anadromous water sources.

39. Describe present and proposed plan area uses other than timber production, include in Section III, as per 14 CCR § 1090.5(f).

See Section III, Item 39.

40. Provide a description by management unit(s) of the timber stand characteristics including the items listed below, in Section III.

Such description shall provide the basis for the information provided in the NTMP, as per 14 CCR § 1090.5(g):

a. Species Composition
b. Age Classes
c. Projected Growth
d. Present Stocking Level
e. Present Volume per Acre
f. Size Class Distribution
g. Stand Management History
h. Potential Pest or Protection Problems

See Section III, Item 40.

41. Provide a description by management unit(s) of the proposed management objectives, including a discussion of projected timber volumes and sizes available for timber harvesting in Section III, as per 14 CCR § 1090.5(h).

See Section III, Item 41.

42. Provide a description by management unit(s) of proposed activities to achieve the management objectives, include in Section III, as per 14 CCR § 1090.5(i):

a. projected frequencies of harvest;
b. silvicultural prescriptions for harvesting;
c. type of yarding systems to be used for each area/unit;
d. anticipated interim management activities which may result in rule compliance questions (i.e., erosion control maintenance).

See Section III, Item 42.

43. Provide the period of time over which growth will be balanced with harvest in Section III, as per 14 CCR § 1090.5(j).

See Section III, Item 43. Prior to the second harvest under this plan, and each subsequent harvest thereafter, the plan area shall be re-inventoried to check the inventory level against this model. Such inventory shall be within 10% standard error for net volume of new plots. If the new inventory level is less than 90% of the model prediction for net volume, the harvest shall be delayed until such time the new inventory can be within 10% of the model prediction.

44. Provide a description of the cumulative effects analysis with supporting information, including impact of projected harvesting over the life of the NTMP, per 14 CCR § 1090.5(u).

See Section IV.

45. Maps and drawings. Include as per 14 CCR § 1090.5(w) and as needed; insert in Sections II and/or III, as appropriate.

See maps at the end of Section II.

46. ☐ Yes ☒ No A copy of the forest practice regulations in effect at the time of submission is enclosed, as per 14 CCR § 1090.5(v). If no, the plan is incomplete: an explanation of how a copy of the regulations will be maintained by the timberland owner must be included.

The RPF preparing the plan shall provide a copy of the 2015 California Forest Practice Rules to the timberland owner upon approval of the plan with instructions that a copy of the rules is part of the complete and approved plan.

47. a. ☐ Yes ☒ No This NTMP will be used for one or more of the forestry assistance programs for nonindustrial forest landowners. If yes, answer b., below.

b. ☐ Yes ☐ No If yes, this NTMP has the additional information as an Addendum in Section III. If no, the information will be amended into the plan at a later time.

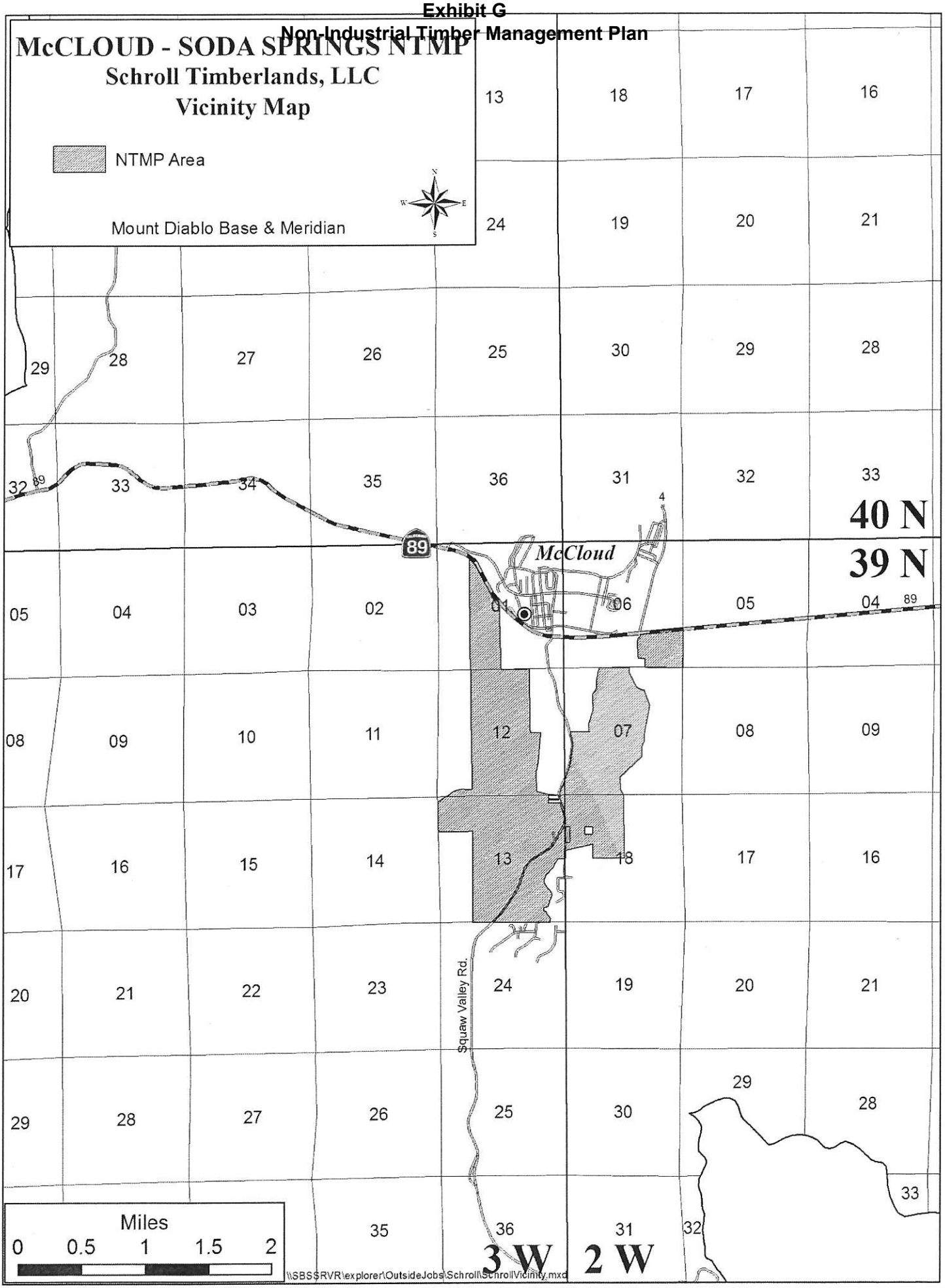
Note: The NTMP when expanded with additional information can meet the requirements to participate in state and federal cost-share programs. It is even possible for these programs to help offset the cost of preparing the NTMP. Contact your local Forestry Assistance Specialist (FAS) for further information concerning these programs; call toll free 1-800-783-TREE.

DIRECTOR OF FORESTRY AND FIRE PROTECTION

This Nonindustrial Timber Management Plan conforms to the rules and regulations of the Board of Forestry and Fire Protection and the Forest Practice Act:

By: J Woessner (Signature) — 6/21/16 (Date)

Jon Woessner (Printed Name) — Forester II (Title)


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Vicinity Map
NTMP Area
Mount Diablo Base & Meridian
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W
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McCloud
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Squaw Valley Rd.
40 N
39 N
3 W
2 W
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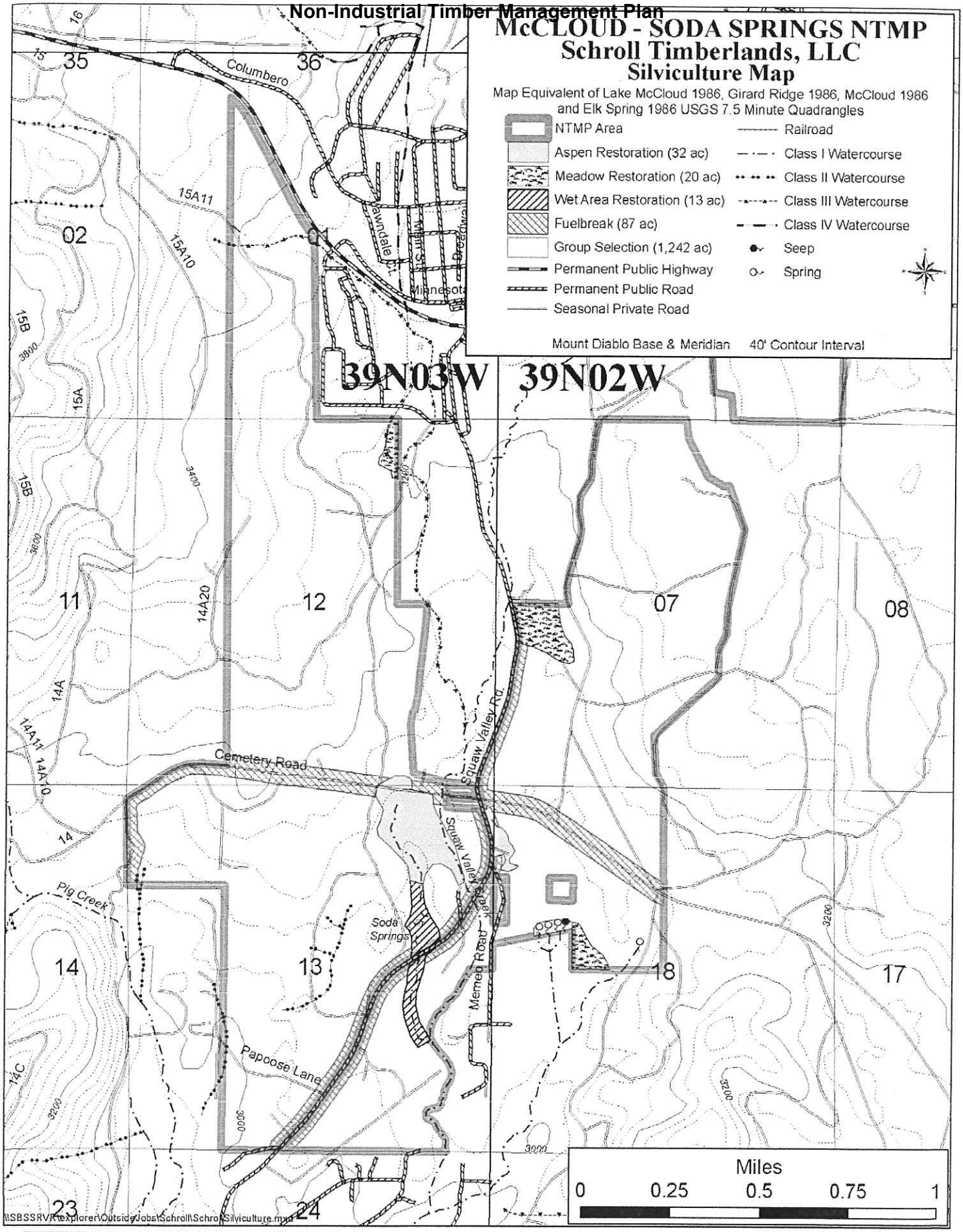
PART OF PLAN


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Silviculture Map
Map Equivalent of Lake McCloud 1986, Girard Ridge 1986, McCloud 1986 and Elk Spring 1986 USGS 7.5 Minute Quadrangles
NTMP Area
Aspen Restoration (32 ac)
Meadow Restoration (20 ac)
Wet Area Restoration (13 ac)
Fuelbreak (87 ac)
Group Selection (1,242 ac)
Permanent Public Highway
Permanent Public Road
Seasonal Private Road
Railroad
Class I Watercourse
Class II Watercourse
Class III Watercourse
Class IV Watercourse
Seep
Spring
Mount Diablo Base & Meridian
40' Contour Interval
39N03W
39N02W
Columbero
Cemetery Road
Squaw Valley Rd
Pig Creek
Soda Springs
Papoose Lane
Memea Road
Miles
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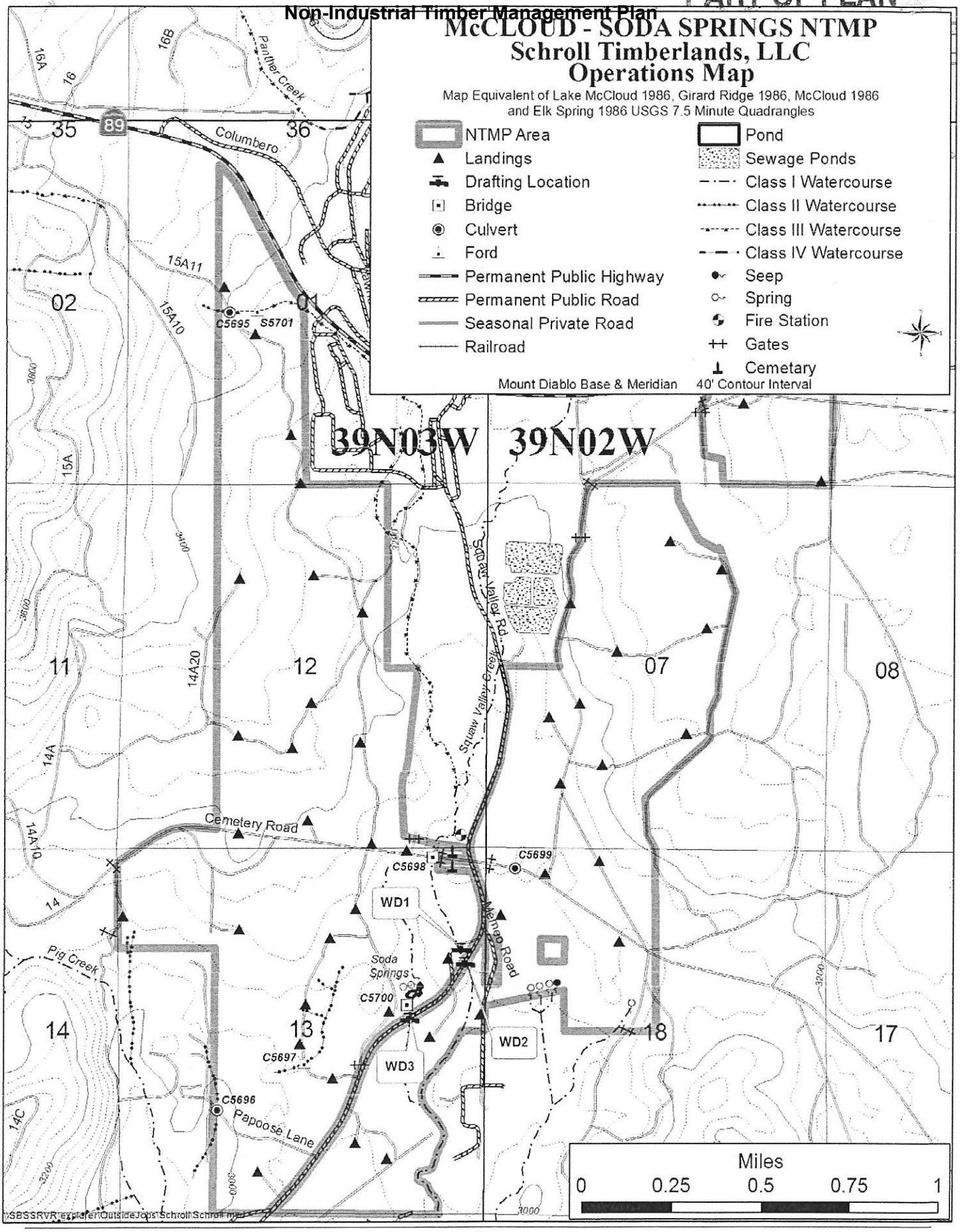
0.25
0.5
0.75
1

PART OF PLAN


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Operations Map
Map Equivalent of Lake McCloud 1986, Girard Ridge 1986, McCloud 1986 and Elk Spring 1986 USGS 7.5 Minute Quadrangles
NTMP Area
Landings
Drafting Location
Bridge
Culvert
Ford
Permanent Public Highway
Permanent Public Road
Seasonal Private Road
Railroad
Pond
Sewage Ponds
Class I Watercourse
Class II Watercourse
Class III Watercourse
Class IV Watercourse
Seep
Spring
Fire Station
Gates
Cemetary
Mount Diablo Base & Meridian
40' Contour Interval
39N03W
39N02W
Columbero
Panther Creek
Soda Valley Rd.
Squaw Valley Rd.
Cemetery Road
Meiggs Road
Pig Creek
Soda Springs
Papoose Lane
C5695
S5701
C5696
C5697
C5698
C5699
C5700
WD1
WD2
WD3
Miles
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0.25
0.5
0.75
1

PART OF PLAN

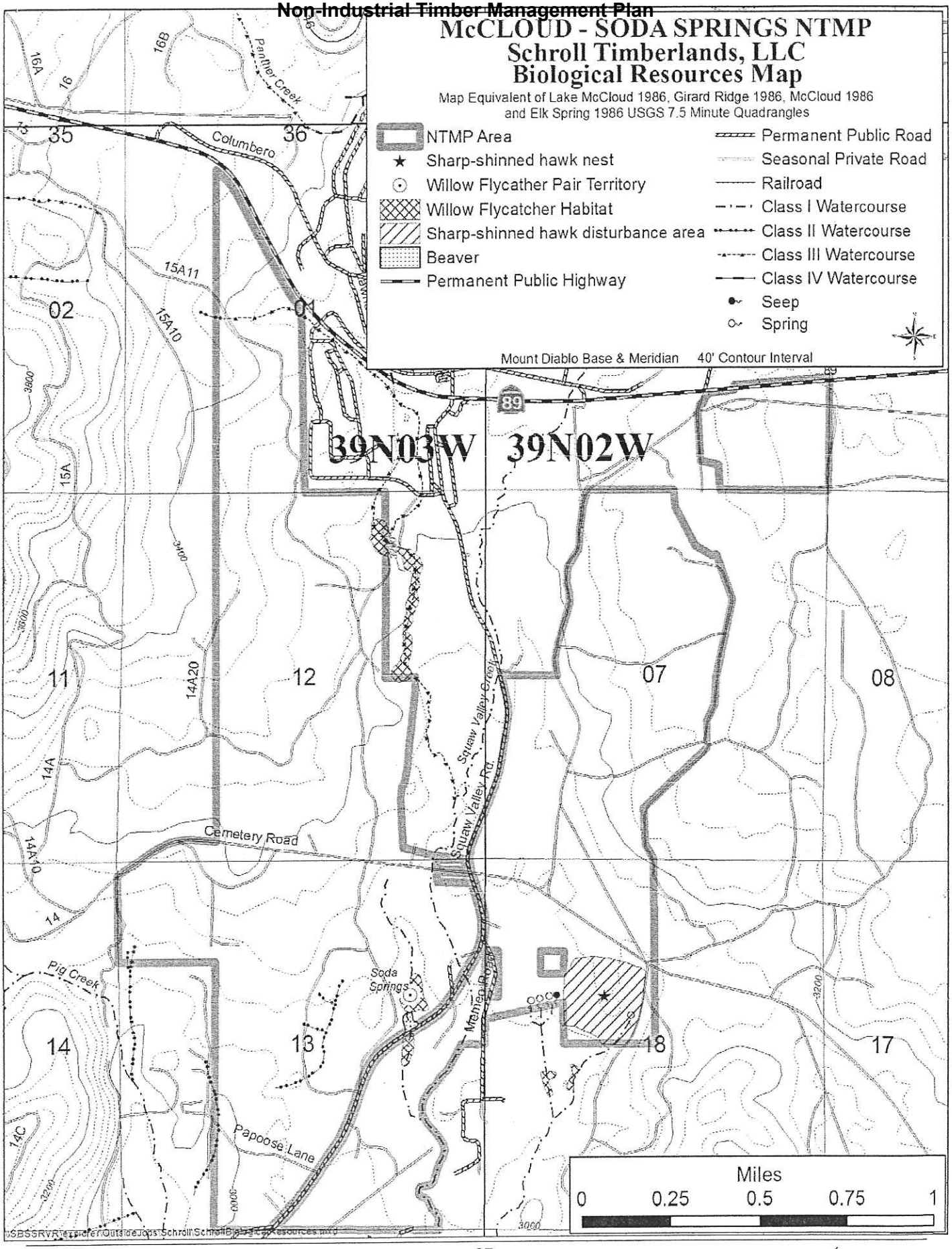
McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Biological Resources Map
Map Equivalent of Lake McCloud 1986, Girard Ridge 1986, McCloud 1986 and Elk Spring 1986 USGS 7.5 Minute Quadrangles
NTMP Area
Sharp-shinned hawk nest
Willow Flycather Pair Territory
Willow Flycatcher Habitat
Sharp-shinned hawk disturbance area
Beaver
Permanent Public Highway
Permanent Public Road
Seasonal Private Road
Railroad
Class I Watercourse
Class II Watercourse
Class III Watercourse
Class IV Watercourse
Seep
Spring
Mount Diablo Base & Meridian
40' Contour Interval
39N03W
39N02W
Columbero
Panther Creek
Squaw Valley Creek
Squaw Valley Rd.
Cemetery Road
Pig Creek
Soda Springs
Meiss Rd.
Papoose Lane
Miles
0
0.25
0.5
0.75
1

Exhibit G
Non-Industrial Timber Management Plan

SECTION III: SUPPORT DOCUMENTATION

SITE DESCRIPTION

In accordance with 14 CCR § 1034(gg), a general description of physical conditions at the plan site, including general soils and topography information, vegetation and stand conditions, and watershed and stream conditions is included below.

Location

The plan area is located in Siskiyou County, approximately 0.5 mile south of McCloud, California. The plan is located on the Girard Ridge 1986, McCloud 1986, and Elk Spring 1986 United States Geological Survey (USGS) 7.5 minute quadrangles. The plan area is located within the following Cal Water Planning Watersheds (version 2.2.1):

Planning Watersheds	
Number	***Name***
5505.230005	Lower Mud Creek
5505.220101	Lower Panther Creek
5505.220103	McCloud
5505.220104	Pig Creek

Topography

Elevations range from approximately 3,000 feet to 3,400 feet. The topography is gentle (0 to 30% slope). Mean annual precipitation within the plan area ranges is approximately 50 inches. Some of the precipitation occurs in the form of snow and often covers the ground from early December to March across much of the plan area. Summer rainfall seldom occurs, with the exception of infrequent but sometimes intense thunderstorms. The plan area is Dunning site class II.

Geology

The plan area located in the Cascade Range and is covered by the Weed Quadrangle. The plan area is comprised of volcanic basalt rock and alluvium from the Cenezoic (Quaternary/Pleistocene) period. No fault zones were noted within the plan area. The most recent and detailed geologic mapping covering the plan area was compiled by Wagner and Saucedo, 1987 for the Weed Quadrangle and Jennings, 2010 for California.

Soils

The THP area is covered by the Natural Resources Conservation Service (NRCS), Soil Survey Geographic Database for the Intermountain Area, Parts of Lassen, Modoc, Shasta, and Siskiyou Counties, California (CA604).

The plan area is comprised of seven soil types, however, the majority of the plan area is comprised on one major soil type (Ponto sandy loam). These soils were identified using the Natural Resources Conservation Service 2003 Soil Survey. These soils generally have a coarse texture and are well drained. The Natural Resource Conservation Service, 2003 soils covering the plan area are listed in the following table.

SOILS IN THE PLAN AREA		
Soil ID	***Soil Name***	***EHR***
223	Kindig-Neuns complex, 15 to 30 percent slopes	L
224	Kindig-Neuns complex, 30 to 50 percent slopes	L
259	Neer-Ponto complex, 2 to 30 percent slopes	L
269	Odas loam, 0 to 2 percent slopes	L
286	Ponto sandy loam, 2 to 15 percent slopes	L
309	Shasta loamy sand, o to 5 percent slopes	L
310	Shastina loam, 0 to 5 percent slopes	L

Vegetation and Stand Conditions

Vegetation consists mainly of ponderosa pine and mixed conifer forests. California black oak are scattered throughout portions of the area, and are also the dominant species in some of the drier microsites. Common brush species include dogwood, chinquapin, Himalaya berry, bracken fern, cherry, snowbrush, blackberry, deerbrush, and whitethorn. Understory broadleaf trees include alder, maple, and cottonwood primarily located along the watercourses. Where shrubs are not dominating the understory, ground cover is mostly grass and forbs.

Timber harvesting has been the dominant land use since the late 1800's. Most of the larger pine trees were harvested in the early 1900's, and the remaining large timber had been cut by the early 1970's. Since that time, most of the area has been harvested via thinning, selection, and sanitation-salvage, with smaller blocks being harvested utilizing evenaged systems. The majority of the ponderosa pine plantations were established in the 1970's and 1980's.

No old growth stands remain in the plan area but some large old trees and snags are present as well as culls that were left during the early logging. With very few exceptions, these culls and snags will not be harvested. There is currently no late seral habitat present within the plan area. There are no large old trees or stands within the plan area that have significant or unique characteristics as determined from an on the ground inspection by the RPF.

Based on field observations and aerial photo interpretation, the California Wildlife Habitat Relationships (CWHR) types for timber stands present within the plan area are Ponderosa Pine (PPN), Sierra mixed conifer (SMC), Montane Hardwood-Conifer (MHC), (Montane Hardwood (MHW), Annual Grass (AG), and Wet Meadow (WTM). In general, the timber stands are clumpy, with most trees in the size class 3 and 4 range, with scattered larger trees, and an understory of size class 2 to 3 trees.

There are low to moderate snag densities across the plan area. Large green culls are not intended for harvest. Although merchantable snags may be harvested, un-merchantable snags ≥22 inches dbh will be left to provide wildlife habitat, where not required to be felled for safety or fire hazard mitigation.

Watershed and Stream Conditions

Three Class I watercourses (Soda Creek, Squaw Valley Creek and an unnamed tributary to Squaw Valley Creek), seven short segments of Class II watercourses, and one segment of Class III watercourse flow through the plan area. Soda Spring and Boy Scout Spring are located within the plan area and are tributary to the Class I watercourses.

Conditions of the watercourses as observed throughout the plan area, generally range from good to moderate.

Squaw Valley Creek (Class I) is the main watercourse through the plan area. This watercourse flows in a southern direction through Section 13. The headwaters of this watercourse are on the southeast side of Mount Shasta and it flows throughout the year. Field observations of the watercourse indicate a healthy amount of riparian vegetation along the creek, and good overstory canopy cover along its banks.

The Class III watercourses within the plan area flow during snowmelt and generally dry before the beginning of summer.

ITEM 14: ASPEN, MEADOW, AND WET AREA RESTORATION

1. Aspen, Meadow, and Wet Area Restoration are proposed.
2. Refer to the Silviculture Map at the end of Section II.
3. The plan includes 65 acres of Aspen, Meadow, and Wet Area Restoration. Where aspen trees are present, and up to 100 feet beyond, all accessible merchantable overstory conifers may be removed, although the RPF or supervised designee may choose to leave large conifers (>30 inches dbh) and ponderosa pine deemed to be fire resistant. There are scattered small pockets (<3 acres) of conifers which are beyond 100 feet from existing aspens. In such pockets, the selection silviculture prescription will be used. This is appropriate as it will improve the health of the conifer stands adjacent to the aspen. At least two living conifers per acre at least 16 inches dbh and 50 feet tall within 50 feet of all Class I watercourses shall be retained. It will likely be necessary to cut a small number of aspens for skidding and harvesting of conifers. In-lieu WLPZ practices are proposed for the entire area, including the small intermixed conifer stands (see Item 27, Section II, and further explanation of in-lieu practices in Section III). The majority of the conifer trees that have encroached upon the former meadows may be removed.
4. The restoration areas are within upland and riparian areas that have been encroached by conifers. As with many aspen stands, the proportion of conifers is believed to be unnaturally high due to fire suppression and lack of disturbance. The aspens are primarily concentrated within the restoration areas, however aspens are also present in scattered pockets within the plan area. Aspen is also present, to a similar extent, within the ownerships adjacent to this plan area. Typical mixed conifer species are present throughout the aspen and meadow restoration areas, exclusive of the area in the northeast that is occupied primarily by ponderosa pine. These conifer species are present in various strata of the canopy, and the larger individuals have overtopped the existing aspen in some places. Aspen is present in the lower overstory strata, and as young understory trees of varying sizes.
5. The goal of the restoration treatment is to restore the mountain meadows and aspen stands to that of dominant aspen trees with ample aspen regeneration and open meadows. This treatment is necessary due to fire suppression and the lack of disturbance has reduced aspen reproduction and resulted in conifers overtopping existing aspen stands. Overtopping by conifers reduces the size and extent of the aspen in the stand, with the potential to reduce or eventually eliminate the overstory aspen component of the stand. By undertaking this restoration treatment, existing overstory aspen should exhibit improved health, and understory aspen will be released, and recruited into the overstory. In addition to the harvesting of sawlog merchantable trees, hand felling, removal, or other treatment of un-merchantable understory conifers may be utilized to fulfill the objective of the project. Follow-up treatments will likely be needed to maintain the aspen stands and open meadows in the absence of a natural fire regime. The monitoring and success of the project shall be determined by the following measureable standards.

Area	*Measurement*	*Current*	*Goal*
Aspen	Conifers >11 inches dbh and <24 inches dbh	21	≤10
	Aspen >3 inches dbh	61	≥75
Meadow	Conifers >11 inches dbh and <24 inches dbh	≈10	≤5
Wet	Conifers >11 inches dbh and <24 inches dbh within 50 feet of the watercourse transition line of the Class I watercourse	21	≤10

ITEM 27: IN-LIEU PRACTICES

The specific location where these in lieu practices may be applied is the Aspen, Meadow, and Wet Area Restoration Area as shown on the Silviculture Map at end of Section II.

Meadow Vegetation

14 CCR § 936.3 (d): Vegetation, other than commercial species, bordering and covering meadows and wet areas shall be retained and protected during timber operations unless explained and justified in the THP and approved by the Director. Soil within the meadows and wet areas shall be protected to the maximum extent possible.

Explanation: The proposed practice is to not retain and protect all vegetation bordering and covering wet areas during timber operations. The proposed practice differs from the standard practice in that vegetation bordering and covering wet areas will not be retained and protected during timber operations where it is not compatible with Aspen, Meadow, and Wet Area Restoration.

Justification: Meadow vegetation is not targeted for removal, however, retention and protection of all vegetation bordering and covering meadows and wet areas is not feasible where operations are planned. However, it is unlikely that restoration activities will substantially degrade meadow and wet area vegetation.

Heavy equipment in WLPZs

14 CCR § 936.4(d): Heavy equipment shall not be used in timber falling, yarding, or site preparation within the WLPZ unless such use is explained and justified in the THP and approved by the Director.

Explanation: The proposed practice is to use heavy equipment in the WLPZ and within wet areas for the purpose of Aspen and Meadow Restoration. The proposed practice differs from the standard practice in that heavy equipment may be used in the WLPZs, however, harvesting equipment shall not be used within 15 feet from the watercourse transition line, or within wet areas.

Justification: This proposed practice will result in less ground disturbance (especially within the 15 feet closest to the watercourse) than if the timber was felled and end-lined out of the WLPZ as would be required by the standard rules. Furthermore, some of the conifers targeted for removal are not harvestable without entering the WLPZ. Use of heavy equipment in WLPZs is necessary to achieve the objectives of the prescription.

Overstory canopy retention

14 CCR § 936.5(e): "|" To protect water temperature, filter strip properties, upslope stability, and fish and wildlife values, at least 50% of the total canopy covering the ground shall be left in a well distributed multi-storied stand configuration composed of a diversity of species similar to that found before the start of operations. The residual overstory canopy shall be composed of at least 25% of the existing overstory conifers. Due to variability in Class II watercourses these percentages and species composition may be adjusted to meet on-site conditions when agreed to by the RPF and the Director in the THP.

Explanation: The proposed practice is to not retain 50% total canopy (25% of existing overstory conifers) in the Class I WLPZ. The proposed practice differs from the standard practice in that 50% total canopy (25% of existing overstory conifers) in the Class I WLPZ may not be retained.

Justification: Reduction of the overstory canopy (particularly conifers) is necessary to achieve the objectives of this presciption. If left within the WLPZ, conifers will continue to encroach in the meadows and overtop the aspen.

Understory retention

14 CCR § 936.4(b)(6): Within the WLPZ, at least 75% surface cover and undisturbed area shall be retained to act as a filter strip for raindrop energy dissipation, and for wildlife habitat. This percentage may be adjusted to meet site specific conditions when proposed by the RPF and approved by the Director or where broadcast burning is conducted under the terms of a project type burning permit and in compliance with 14 CCR § 935.2(b).

Explanation: The proposed practice is to not retain at least 75% surface cover and undisturbed area to act as a filter strip for raindrop energy dissipation, and for wildlife habitat. The proposed practice differs from the standard practice in that at least 75% surface cover and undisturbed area may not be left.

Justification: Surface cover and understory vegetation is not targeted for removal, however, the level of vegetation will likely be reduced due to disturbance associated with implementation of the Aspen Restoration.

Additional in-lieu or alternative practices

14 CCR § 936.3(f): Where less than 50% canopy exists in the WLPZs of Class I and II waters before timber operations, only sanitation salvage which protects the values described in 14 CCR § 936.4(b) shall be allowed.

Explanation: The proposed practice is to use Aspen, Meadow, and Wet Area Restoration in the WLPZ of Class I watercourses where less than 50% canopy exists in the WLPZs of Class I and II waters before timber operations. The proposed practice differs from the standard practice in that the silviculture will not be limited to sanitation salvage where less than 50% canopy exists in the WLPZs of Class I and II waters before timber operations.

Justification: Aspen, Meadow, and Wet Area Restoration is the appropriate prescription to achieve the objectives of the project. The proposed in-lieu practices are necessary to maintain, protect and contribute to

the restoration of the values described in 14 CCR § 936.2, and to protect vegetation structure diversity for fish and wildlife habitat (specifically for aspen dependent species) as described in 14 CCR § 936.4(b)g.

ITEM 32: BIOLOGICAL RESOURCES

The biological assessment area includes all areas within 1.3 miles of the plan area (refer to the Biological Assessment Area Maps at the end of Section IV). The scoping area includes the nine USGS 7.5 minute quadrangles encompassing and adjacent to the plan area. These quadrangles are: Hotlum, Mount Shasta, Ash Creek Butte, City of Mount Shasta, McClould, Elk Spring, Dunsmuir, Girard Ridge and Lake McCloud. Scoping was used to determine which special status species are known, or could potentially occur within the plan and biological assessment area. The California Natural Diversity Database (CNDDB) (July 2015 version) was queried for all quadrangles within the scoping area. This methodology provides a reasonable assessment of habitat types, elevations, soils, and vegetative communities that could be present with the plan and is representative of the habitats found in the general landscape. Specific operational mitigation measures for each specific species, if necessary, are described in Section II, Item 32 of this plan.

Wildlife Species

The following table lists the wildlife species that are known to, or could potentially occur within the plan area or biological assessment area.

Wildlife Species in Scoping Area					
Common Name	*Scientific Name*	*Status*	*In Plan Area*	*In Assessment Area*	*Potential Habitat in Plan Area*
Birds					
American peregrine falcon	*Falco peregrines anatum*	BOF	N	N	N
Bald eagle	*Haliaeetus leucocephalus*	SE	N	N	N
Bank swallow	*Riparia riparia*	ST	N	N	N
Black-backed woopecker	*Picoides arcticus*	None	N	N	N
Black swift	*Cypseloides niger*	SSC	N	N	N
Osprey	*Pandion haliaetus*	BOF	N	N	Y
Cooper's hawk	*Accipter cooperii*	SSC-WL	N	N	Y
Great blue heron	*Ardea herodias*	None	N	N	Y[1]
Great gray owl	*Strix nebulosa*	SE	N	N	N
Greater sandhill cranes	*Grus canadensis tabida*	ST	N	Y	Y[1]
Northern goshawk	*Accipiter gentilis*	BOF	N	N	Y
Northern spotted owl	*Strix occidentalis*	FT	N	N	Y[1]
Red-tailed hawk	*Buteo jamaicensis*	FGC	N	N	Y
Sharp-shinned hawk	*Accipter striatus*	SSC-WL	Y	Y	Y
Willow flycatcher	*Empidonax traillii*	SE	Y	Y	Y
Mammals					
California wolverine	*Gulo gulo*	ST	N	N	N
Fisher	*Pekania pennanti*	FC, SC	Y	Y	Y[1]
Gray-headed pika	*Ochotona princeps schisticeps*	None	N	N	N
Gray wolf	*Canis lupus*	FP, SE	N	Y	Y
Marten	*Martes caurina*	None	N	N	N
North American Beaver	*Castor canadensis*	None	Y	Y	Y
Oregon snowshoe hare	*Lepus americanus klamathensis*	SSC	N	Y	Y
Sierra Nevada mountain beaver	*Aplodontia rufa californica*	SSC	N	N	N
Sierra Nevada red fox	*Vulpes vulpes necator*	ST	N	Y	N
Silver-haired bat	*Lasionycteris noctivagans*	None	N	N	Y[1]

Wildlife Species in Scoping Area					
Common Name	**Scientific Name**	**Status**	**In Plan Area**	**In Assessment Area**	**Potential Habitat in Plan Area**
Spotted bat	*Euderma maculatum*	SSC	N	N	Y[1]
Townsend's big-eared bat	*Plecotus townsendii*	SSC, SC	N	N	Y[1]
Western mastiff bat	*Eumops perotis californicus*	SSC	N	N	Y[1]
Fish and Amphibians					
Bull trout	Salvelinus confluentus	FT, SE	N	N	N
Cascades frog	Rana cascadae	SSC	N	N	Y
Foothill yellow-legged frog	Rana boylii	FC, SSC	N	N	Y
McCloud River redband trout	*Oncorhynchus mykiss*	SSC	N	N	N
Shasta salamander	*Hydromantes shastae*	ST	N	N	N
Tailed frog	*Ascaphus truei*	SSC	N	N	Y
Western pond turtle	*Clemmys maramorta*	SSC	N	N	Y

Y	Yes	SC	State Candidate	FE	Federal Endangered
Y[1]	Yes, Foraging habitat	FP	State Fully Protected	FT	Federal Threatened
N	No	SE	State Endangered	FC	Federal Candidate
BOF	Board of Forestry Sensitive	ST	State Threatened		
WL	Watch List	FGC	California Fish and Game Code		
		SSC	CDFW Species of Special Concern		

Black-backed woodpecker: There are no known detections of black-backed woodpecker within plan, biological assessment area or scoping area. In 2013, the California Fish and Game Commission determined and voted that the species is not warranted for listing under the California Endangered Species Act (ESA). The current known range of the species in California includes the Sierras, southern Cascades, and Siskiyou Mountains. Conifer forest types which support breeding include Sierra mixed conifer, lodgepole, subalpine, and true fir found above 5,000 feet. Specific habitat elements that the species uses for both foraging and breeding include hard snags with the highest densities occurring in less than 10-year old intensively burned coniferous forests. The breeding season occurs between April 15 and July 15. A potential threat is sanitation/salvage harvesting during the breeding season of: intensively burned conifer stands, or bug infested/diseased conifers, where most of the trees in the stand have recently died. Potential "take" of or significant adverse impact to this species from this proposed plan will not occur as: (1) No portion of the plan area is above 5,000 feet, (2) No intensively burned coniferous forests or bug infested/diseased stands of conifers occur within the plan area above 5,000 feet, and (3) All snags, including those with freshly excavated cavities, will be retained to the extent feasible, Section II, Item 33.

Fisher: In 2010 and again in 2015, the CDFW recommended the species is not warranted for listing within the plan area under the State Endangered Species Act. Fisher are a mid-sized carnivore, or mesocarnivore, that reproduces and forages in conifer and mixed conifer-deciduous forests. The fisher breeding season is typically late February to late April, with juveniles capable of independently foraging for prey in late July (McCamman 2010). Natal den period is typically March 1 through May 15 and the maternal den period is typically from May 16 through July 31. Natal and maternal den sites typically occur in higher canopy closure stands (>60%) within individual decayed, complex conifer or hardwood trees with large cavities (McCamman 2010, Zielinski et al. 2004). Studies occurring in the Southern Cascades or interior Klamath province found den sites in decayed conifers ranging in size from 35.0 to 51.9 inches dbh (Aubry and Raley 2006, McCamman 2010) and decayed hardwoods averaged 24.8 inches dbh (McCamman 2010). Also, in interior northern California both natal and maternal den sites have been found in hardwoods greater than 15 inches dbh with visible cavities and conifer snags or live green cull conifers trees greater than 22 inches dbh (SPI 2012). Resting sites also typically occur in higher canopy closure stands (> 60%) and individual trees range in size for conifer, 30 to 44 inches dbh, and hardwoods 19 to 34 inches dbh (McCamman 2010). Fisher are known to forage in a variety of habitats typically in conifer or conifer-hardwood mixed stands with moderate to higher canopy closure (>40%). Measures are described in Section II, Item 32 that ensure that take of the species shall not result from the proposed plan.

Gray wolf: In 2011, a male gray wolf, designated OR7, entered California from Oregon. The species did not travel through the plan area, but did travel through the assessment area. Historically, the species inhabited portions of California and the last confirmed siting in California was in 1924. Based on radio-telemetry tracking the male did travel within the assessment area, but the species did not travel through the plan area. In 2013, the California Fish and Game Commission determined the species may be warranted for listing under the California Endangered Species Act (CESA) and the species is currently considered a candidate species under CESA. On June 4, 2014 the California Fish and Game Commission listed the species under CESA. In 2015, the CDFW reported the observation of the "Shasta" pack in the vicinity of Mount Shasta. Based on the current location of the "Shasta" Pack, operational measures are proposed in Section II, Item 32 to ensure that "take" of the species does not occur.

Great gray owls: There are no known detections of Great gray owl within or immediately adjacent to the plan area. According to a DFW Habitat Model (1991) there are several potential suitable habitat locations mapped within or adjacent to the plan area. Following guidance provided by DFW Interior Planning Team, suitable foraging must also have nesting habitat within or adjacent to the meadow foraging habitat and plan area (greater than 10 acre meadow). The meadows are suitable foraging habitat for the species, and the meadows are greater than 10 acres. However, no potential suitable nesting habitat is currently adjacent to foraging habitat within are adjacent to the plan (WHR 4D or greater). Accordingly, no suitable foraging in combination with nesting habitat is currently located within or adjacent to the plan area and no operational measures are necessary to ensure that "take" of the species does not occur. However, based on potential changes in habitat condition due to forest growth, disease, insect damage or wildfire, for each Notice of Timber Operations (Notice) that is filed five years following approval of the plan, the RPF shall include in the Notice a certification that the Notice complies with original scoping and habitat review for this species.

Greater sandhill cranes: There are no known breeding site detections of Greater sandhill crane within the plan or biological assessment area, however, there have been foraging or dispersing sites detected within the assessment area. During development and PHI of Girard Portal THP (2-09-015-SIS) the species was detected foraging or dispersing east of the current proposed THP along Squaw Valley Creek meadows. No specific location was provided for the foraging or dispersing Greater sandhill cranes in the Girard Portal THP and no specific location exists in CNDDB. It is presumed the previous detection was approximately 300 to 1000 feet from the current proposed NTMP. The ambient noise and human activity along Squaw Valley Creek road, at the golf course and around homes not only creates noise disturbance but creates potential threats to any potential Greater sandhill crane breeding. If Greater sandhill cranes forage in the existing meadow or forage in the meadow following restoration, forest management activities adjacent to this type of crane behavior does not constitute" take" under CESA. Based on the lack of any previous breeding activity in the meadow, the numerous known threats to breeding activity, and the sensitivity of the species to disturbance near breeding sites, the proposed plan including meadow enhancement is unlikely to reduce these other threats to breeding activity. In the unlikely case that breeding behavior is observed, general measures for all listed species are in the plan under Section II, Item 32, if any listed species is discovered in or immediately adjacent to the plan area and additional protection measures are deemed necessary by the RPF or supervised designee, after consultation with CDFW, the location and additional mitigation measures shall be amended into the plan.

Oregon Snowshoe Hare: Occurs in mid-to upper-elevations of the Cascade Mountains from the vicinity of Mount Hood, Oregon southward to Mount Shasta, and the Trinity Mountains of California. In California, and Oregon snowshoe hares are generally found above the Yellow Pine Zone. In the northern Sierra Nevada, snowshoe hares are abundant in dense stands of Manzanita that develop following a major fire. Oregon snowshoe hares were apparently not historically common in California. These species are likely present within the plan area and are rarely seen because it hides during the day in forms of dense cover. There is no data to suggest that numbers of Oregon snowshoe hare have declined in California or elsewhere in its range. No individuals of this species have been observed within the plan area, therefore, no operational measures are necessary to ensure that no significant adverse impacts occur to the species.

Shasta salamander: There are no known detections of Shasta salamander within plan or biological assessment area, however, they do occur within the scoping area. The species is considered State Threatened the California Endangered Species Act (ESA). The current known range of the species in California includes the southern Cascades, primarily around Shasta County near Shasta Lake. The species appears to be associated with larger areas of limestone based boulder and talus slopes. No suitable limestone based boulder or talus slopes occur within or immediately adjacent to the plan area. Accordingly, since no individuals of this species have been observed and no potential

suitable habitats exists within or adjacent to the plan area, no operational measures are necessary to ensure that "take" or no significant adverse impacts occur to the species.

Sierra Nevada red fox: The species is not known to occur within the plan area, but historically occurred within the biological assessment area. The species is state listed. The THP lies inside of the CDFW Region 1 core range of the species, however, the THP lies below 4,500 feet. No sign of the species presence within the plan area have been observed despite repeated site visits by the RPF and forestry and wildlife staff. Spring and summer breeding habitat for the species, consisting of both barren slopes and sparse conifer forest occurring over 6,000 feet in elevation does not exist within the plan area. Winter foraging habitat, consisting of conifer forests as low as 4,500 feet does not exist with the plan area. Accordingly, the current absence of the species from both the plan and assessment area, no operational measures are necessary to ensure that "take" of the species does not occur.

Townsend's big-eared bat: On April 25, 2013, the CDFW determined that there is sufficient information that listing the species under state ESA may be warranted (Bonham 2013). On June 26, 2013, the California Fish and Game Commission accepted the petition and the species is currently considered a candidate species under state ESA. The species is typically a colonial breeder ranging from a few dozen to several hundred bats in one maternal colony (Bonham 2013). Breeding and winter hibernation colonies typically us open caves, mines, mine shafts (Bonham 2013), building, bridges or rock crevices (Gellman and Zielinski 1996).

They may also use, although less frequently, large hollow redwood trees (Fellers and Pierson 2002, Mazurek 2004). There is no published literature that provides minimum dimensions of trees that can be used by the species as maternity roots or hibernacula (Cal Fire 2015). The species has used one bay laurel tree with basal hallow opening approximately 1.3 feet wide by 3 feet high (3.9 square feet) within an internal hallow of 4 feet wide by 9.8 feet high(Fellers and Pierson 2002). For redwood trees (n=6) with dbh from 3.8 feet to 6.4 feet, basal hollow entrances averaged 2.4 feet wide by 8.6 feet high and internal hallows averaged 3.0 feet high by 10 feet high (Fellers and Pierson 2002). For tree species that included redwood, incense cedar and Douglas-fir maternal roosts and hibernacula consisted of trees 9 to 13 feet in dbh with internal hallows of 22 to 36 square feet (Gellman and Zielinski 1996). The species is not known to occur within the scoping area or plan area. All tree species within the plan area were considered when potential use by the species was reviewed, however, there are no known trees within the plan area with the combination of tree dbh (3.8 feet to 6.4 feet), basal hollow entrance area (2.4 feet wide to 8.6 feet high) and internal hollow volume (3 feet high by 10 feet high), as referenced above, to support day roosts, maternal roosts or hibernacula of the species. The species frequently forages along riparian areas and also forages in oak woodlands and in conifer forests (Pierson and Rainey 1998). The species frequently forages along riparian areas and also forages in oak woodlands and in conifer forests (Pierson and Rainey 1998).

Willow Flycatcher: Potential suitable habitat for the species within and adjacent to the plan area was field reviewed. Individual areas have been mapped by the CDFW Willow Flycatcher Habitat Model (C. Stermer, 2005) within and adjacent to the plan area. This geographic information system (GIS) based model predicts potential suitable habitat from several remote sensed GIS coverages. The CDFW recommends that the results of the model be field verified prior to conducting protocol surveys. Accordingly, the predicted suitable habitat sites were: (1) Field reviewed to determine if the site meets the criteria for suitable habitat including presence of willow, standing or flowing water and generally less than five-degree slopes and, (2) If the site does meet the criteria for suitable habitat, CDFW recommended protocol surveys shall be conducted following, "A Willow Flycatcher Survey Protocol for California", Bombay et al. 2003. The field review found potential suitable habitat identified by the model within and immediately adjacent to the plan area. In addition, a pair of willow flycatchers were heard and seen within one of the potential suitable habitat areas. Measures are described in Section II, Item 32 that ensure that "take" of the species shall not result from the proposed plan.

Native Plants

Based on the information gathered during a nine-quad scoping for this plan, those species that are State or Federal listed, or CRPR 1A, 1B, or 2, and known to occur or have habitat within the biological assessment area (see Biological Assessment Area Map at the end of Section IV) are assessed. Information regarding the each species known plant community, typical associated suitable habitat, typical associated soil type, lifeform, known elevation extant and blooming period were reviewed using CalFlora database (www.calflora.org), California Native Plant Society (8th Edition), and the Jepson Manual. All species identified in the scoping process are unlisted species.

Plant Species in Scoping Area						
Scientific Name	*Common Name*	*California Rare Plant Rank Status*	*State & Federal Status*	*In Plan Area*	*In Assessment Area*	*Potential Habitat in Plan Area*
Ageratina shastensis	Shasta ageratina	1B.2	None	N	N	Y[1]
Asarum marmoratum	Marbled wild-ginger	2B.3	None	N	N	Y[1]
Balsamorhiza lanata	Wolly balsamroot	1B.2	None	N	N	N
Botrychium pinnatum	northwestern moonwort	2B.3	None	N	N	Y[2]
Botrychium pumicola	pumice moonwort	2B.2	None	N	N	Y[2]
Botrypus virginianus	rattlesnake fern	2B.2	None	N	Y	Y[2]
Calochortus greenei	Greene's mariposa-lily	1B.2	None	N	N	N
Campanula shetleri	Castle Crag harebell	1B.3	None	N	N	N
Campanula wilkinsiana	Wilkin's harebell	1B.2	None	N	N	Y[1]
Cardamine angulate	Seaside bittercress	2B.1	None	N	N	Y[2]
Carex comosa	Bristly sedge	2B.1	None	N	N	Y[2]
Carex lasiocarpa	Woody-fruited sedge	2B.3	None	N	N	Y[2]
Chaenactis suffrutescens	Shasta chaenactis	1B.3	None	N	N	N
Clarkia borealis ssp. arida	Shasta clarkia	1B.1	None	N	N	Y[1]
Clarkia borealis ssp. borealis	northern clarkia	1B.3	None	N	N	Y[1]
Cordylanthus tenuis pallescens	palid bird's-beak	1B.2	None	N	N	Y[1]
Draba carnosula	Mt. Eddy draba	1B.3	None	N	N	N
Epilobium oreganum	Oregon fireweed	1B.2	None	N	N	Y[1]
Erigeron bloomeri nudatus	Waldo daisy	2B.3	None	N	N	N
Erigeron nivalis	snow fleabane daisy	2B.3	None	N	N	N
Eriogonum pyrolifolium pyrolifolim	Pyrola-leaved buckwheat	2B.3	None	N	N	N
Erythronium klamathense	Klamath fawn lily	2B.2	None	N	N	Y[1]
Eurybia merita	subalpine aster	2B.3	None	N	N	N
Geum aleppicum	Aleppo avens	2B.2	None	N	Y	Y[1]
Hulsea nana	little hulsea	2B.3	None	N	N	N
Hymenoxys lemmonii	alkali hymenoxys	2B.2	None	N	N	N
Ivesia longibracteata	Castle Crag ivesia	1B.3	None	N	N	Y[1]
Meesia uliginosa	broad-nerved hump moss	2B.2	None	N	N	Y[2]
Moneses uniflora	Woodnymph	2B.2	None	N	N	Y[1]
Ophioglossum pusillum	northern adder's-tongue	2B.2	None	N	N	Y[2]
Orthocarpus pachystachyus	Shasta orthocarpus	1B.1	None	N	N	Y[2]
Orthotrichum holzingeri	Holzinger's orthotrichum moss	1B.3	None	N	N	N
Parnassia cirrata intermedia	Cascade grass-of-Parnassus	2B.2	None	N	N	Y[1]
Penstemon filiformis	thread-leaved beardtongue	1B.3	None	N	N	N
Polemonium pulcherrimum shastense	Mt. Shasta sky pilot	1B.2	None	N	N	N
Rosa gymnocarpa serpentina	Gasquet rose	1B.3	None	N	N	N
Scutellaria galericulata	marsh skullcap	2B.2	None	N	N	Y[2]
Silene suksdorfii	Cascade alpine campion	2B.3	None	N	N	N
Smilax jamesii	English Peak greenbrier	1B.3	None	N	N	Y[1]
Trifolium siskiyouense	Siskiyou clover	1B.1	None	N	N	Y[2]

N	No. The plants habitat requirements, known elevation requirements or physical geological or soil requirements are not present within the plan area.
Y	Yes
Y^1	Potential suitable habitat occurs in portions of plan area and potential for significant disturbance where the species may occur is likely, therefore an Intensive Survey is proposed in focused intuitive portions of the plan area. These searches shall be conducted during the proper blooming period for each species and reference sites for these species shall be visited, whenever possible, to aid in the proper identification of the species.
Y^2	Potential suitable habitat occurs in riparian habitats such as bogs, fens, meadows, seeps, and channel margins, very limited suitable habitat exists within the plan and limited or no potential disturbance from proposed timber operations will occur within riparian habitats, therefore and Extensive Survey is proposed.
Y^3	Potential suitable habitat occurs in the plan area and potential adverse impacts from proposed timber operations are unlikely, therefore no further assessment or searches are necessary.

The California Rare Plant Rank System	
Rank	***Status***
1A	Plants Presumed Extinct in California
1B	Plants Rare, Threatened, or Endangered in California and Elsewhere
2	Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
3	Plants About Which We Need More Information - A Review List
4	Plants of Limited Distribution - A Watch List
Rank	***Threat***
0.1	Seriously threatened in California (high degree/immediacy of threat)
0.2	Fairly threatened in California (moderate degree/immediacy of threat)
0.3	Not very threatened in California (low degree/immediacy of threats or no current threats known)

ITEM 33: SNAG FALLING/HAZARD REDUCTION

Felling of hazard snags for hazard reduction within 100 feet of all roads or landings will not result in the loss of habitat elements associated with late seral stage timber stands. There are snags in later stages of decay throughout these stand types. All unmerchantable snags and live culls >22 inches dbh shall be retained as wildlife snags unless they present a safety or fire access concern. All snags with visible nesting sites of eagles, hawks, owls, waterfowl, or any rare or endangered species shall be left standing as prescribed under 14 CCR §§ 939.1 and 939.2(d). Trees identified with a painted "W" and/or a metal "Wildlife Tree" sign shall similarly be protected and retained.

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ITEM 39: PRESENT & PROPOSED PLAN AREA USES OTHER THAN TIMBER PRODUCTION

The property is currently used a working forest and this use is planned to continue into the future and is compatible with timber production.

ITEM 40: TIMBER STAND CHARACTERISTICS

a. Species Composition

Refer to Item 43, MSP Timber Assessment, Table 7, which shows the trees per acre by species and diameter class.

b. Age Classes

All ages of trees are present. However, due to past harvests and wildfire there are very few trees older than 150 years. Some areas are evenaged due to reforestation of past wildfires.

c. Projected Growth

Refer to Item 43, MSP Timber Assessment, Timber Production Analysis.

d. Present Stocking Level

Refer to Item 43, MSP Timber Assessment, Table 2, Table 7, and the Timber Production Analysis.

e. Present Volume per Acre

Refer to Item 43, MSP Timber Assessment, Table 1, and the Timber Production Analysis.

f. Size Class Distribution

Refer to Item 43, MSP Timber Assessment, Table 7, and the Timber Production Analysis.

g. Stand Management History

These stands have been aggressively harvested in the past. Portions of the plan area were originally logged in the early and mid-1900s. The area has been managed as an unevenaged forest since that time with periodic re-entries occurring at various intervals in portions of the area over the past 50 years. The most recent harvesting was in 2001 and followed by a biomass thin in 2006.

h. Potential Pest or Protection Problems

There are no known pest or protection problems beyond normal levels of mortality for this timber type.

ITEM 41: PROPOSED MANAGEMENT OBJECTIVES

The plan area is primarily managed as a working forest. The objective of the landowner is to secure a long-term management plan that will allow for sustainable harvests into the future to allow the forestland to be held intact.

ITEM 42: PROPOSED ACTIVITIES TO ACHIEVE OBJECTIVES

a. Projected Frequencies of Harvest

Timber harvesting will occur on a 10-year entry cycle. Actual entry cycles may be different as they are dependent upon stocking levels, stand conditions, and economic considerations. Catastrophic occurrences such as insect damage, disease, or drought may necessitate more frequent light sanitation-salvage entries. Biomass harvesting (pre-commercial thinning) is not expected after the first entry, but may be used adjust the overstocking of small trees (less than 13 inches dbh) if it occurs in future years. Regardless of the actual frequency of harvests, the intensity of harvests will be adjusted to keep track with the standing inventory projections described in the MSP Timber Assessment in Item 43.

b. Silvicultural Prescriptions for Harvesting

Unevenage silviculture utilizing individual tree selection and group selection is the proposed and modeled harvest method.

c. Type of Yarding Systems to be used for each Area/Unit

Ground based tractor logging systems will be utilized on all timbered stands.

d. Anticipated Interim Management Activities which may Result in Rule Compliance Questions

Potential future interim management activities that might occur on the ownership may include sanitation-salvage treatments necessitated by mortality due to environmental factors, or biomass harvesting (pre-commercial thinning) to adjust overstocking of small trees. Harvest intensities and cycle entry length may vary

somewhat from the plans detailed in the MSP Timber Assessment in Item 43 in order to keep track with the inventory projections in the assessment.

ITEM 43: PERIOD OF TIME OVER WHICH GROWTH WILL BE BALANCED WITH HARVEST

Pursuant to 14 CCR § 933.11(a) and § 1090.5(g),(h),(i),&(j), a complete timberland assessment has been prepared and is included within this item (see MSP Timber Assessment below). In summary, Table 5 within the assessment shows various attributes from the modeled projection of the plan area. According to the model, volumes of growth and harvest generally trend upward and balance in approximately 60 years. Growth and harvest values will balance as volume reaches a higher level, approximately 12 to 18 M board feet per acre, and when there is a sustainable mix of larger merchantable trees and healthy regeneration.

MSP TIMBER ASSESSMENT

INVENTORY

Cruise Methodology

Land classification and timber types were originally delineated by a registered professional forester familiar with the property. They were further refined based on the 2014 digital imagery from NAIP[1] for Siskiyou County. Land class and timber types are entered directly in the GIS based on similar species composition, size, density, and age. Also included are sample point locations, ownership lines, township, range, and section lines, roads, watercourses, contour lines, and infrastructure to develop a map of the property. See Stand and Plots Map below that shows the stands and plots for the McCloud-Soda Springs property.

Sample plots are distributed on a 7.1 by 7.1 chain grid across the forested stands. The property was cruised in the fall of 2013. Commercial conifer trees eight inches diameter at breast height (DBH) and larger were collected on 20-BAF variable plots during this cruise. Species and DBH were recorded for each tree, and total height and live crown ratio were recorded for a subset of approximately one-third of the sample trees.

A second sampling effort was conducted in the spring of 2015. The purpose of this cruise was to collect information on regeneration and non-commercial trees such as hardwoods. The same plot grid spacing and mapped plot locations were used in both cruises. In many cases the plot centers established in the 2013 cruise were found and used in the new cruise. In other cases the first cruise plots were not found and the new plots were established in their appropriate location, based on compass and pacing, and occasional off-sets based on GPS location. Hardwood trees were collected using a 20-BAF variable plot, and small trees were collected using a 1/50th acre fixed plot. Species and DBH were recorded for all trees, and total height and live crown were recorded on a subset of approximately one-third of the sample trees.

A total of 23 additional plots were established during the second cruise in order to strengthen the sample size in smaller stands. The mapped grid spacing was reduced and additional plots were established in between the original grid for stands 7, 13, 27, and 30. Commercial conifers, regeneration trees, and non-commercial species were collected on these plots, using the same collection methodology as described above.

Cruise Processing

Tree defect was collected in both cruises. Defect was found to be quite rare and variable; generally in the one to two percent range. In order to represent visible and hidden defect and potential logging loss, a reduction of 3% is applied to all volume calculations.

Site index data for the first cruise was provided from previous ownership information. An additional 19 site trees were collected in the 2015 cruise. With this information a base age 50 site index for each species was assigned to each stand. Site index for ponderosa pine and white fir ranged from 73 to 88 and averaged 82 (these values represent estimated heights of dominant and co-dominant trees at breast height age of 50).

Missing tree heights and crown ratios are filled in with custom imputation procedures. Tree data from the 2013 cruise was grown in FORSEE[2] for one year and then added to the newer cruise data to provide a complete tree list for each plot and each stand. This data was entered into FORSEE and compiled to produce a variety of reports. Volume is computed using Wensel and Olsen tree taper equations within FORSEE. Volume is reported for commercial conifer trees only that are at least 11 inches DBH and contain at least one 16-foot log to an 8-inch top diameter inside bark.

[1] National Agriculture Imagery Program, http://datagateway.nrcs.usda.gov.
[2] FORSEE (Forest Stand Evaluation Environment), a California growth and yield simulator based on the original Cactos (Wensel et al. 1986) work. Principle developer Dr. Bruce Krumland

Cruise Results

Table 1. Summary volume by species for each strata, showing thousand board feet (MBF). Volumes are net of defect and riparian corridors.

Type	PP	DF	WF	IC	Total
Plantations	4,754	74	370	58	5,255
Timbered	5,237	154	2,521	434	8,346
Total	9,991	228	2,891	491	13,602

Table 2. Gross acres by California Wildlife Habitat Relationship (CWHR) type, as computed within FORSEE using Helge and Eng procedure, except density class is slightly augmented using a mid-point between overlapping and non-overlapping crown ratios.

Type	CWHR	Acres
Annual grassland	AGS	20
Montane Hardwood	MHW	7
Montane Hardwood-Conifer	MHC2D	20
Montane Hardwood-Conifer	MHC4M	44
Ponderosa Pine	PPN2M	26
Ponderosa Pine	PPN3S	23
Ponderosa Pine	PPN4D	83
Ponderosa Pine	PPN4M	578
Ponderosa Pine	PPN4P	297
Ponderosa Pine	PPN4S	27
Sierran Mixed Conifer	SMC4M	143
Sierran Mixed Conifer	SMC4P	99
Urban	URB	3
Wet meadow	WTM	24
Total	--	1,394

Table 3. Acres, plots, and assorted summary information for forested stands only. Net acres is derived from subtracting riparian buffers that include 40 feet no harvest each way from Class I watercourse centerlines, and 20 feet for Class II watercourses. Trees per acre in this table includes all trees greater than one inch DBH. (Note: total gross forested acres is reduced to 1,329 acres after the planned meadow restoration.)

Plantation Stands

Stand	Gr. Acres	Nt. Acres	Plots	Age	TPA	BA	BdFt/Ac	StErr (%)	CWHR
03	79	79	16	40	125	93	10,039	10.8	PPN4P
06	27	27	6	40	69	48	3,637	23.0	PPN4S
07	23	23	9	40	131	52	3,497	24.3	PPN3S
09	99	89	22	40	219	97	8,516	13.0	SMC4P
11	78	76	16	40	214	101	9,863	9.9	PPN4M
13	13	13	7	40	435	108	15,635	40.1	PPN4M
14	39	38	9	30	109	55	3,812	28.8	PPN4P
26	170	170	38	40	221	112	11,260	9.5	PPN4M
27	12	12	8	40	83	87	10,335	19.6	PPN4P
30	31	31	10	30	133	73	4,714	14.1	PPN4P
31	22	22	6	40	317	133	10,892	19.9	PPN4D
Total	593	580	147	--	190	95	9,059	2.9	--
Natural Stands									
04	238	236	50	U/E	285	92	10,736	7.1	PPN4M
08	57	57	14	U/E	273	92	6,506	13.3	SMC4M
10	61	48	12	U/E	514	130	11,034	14.2	PPN4D
15	35	16	7	U/E	253	91	11,478	18.7	PPN4M
16	20	10	6	U/E	441	113	13,196	17.5	MHC2D
19	26	17	7	U/E	636	130	15,658	11.7	PPN2M
21	105	106	21	U/E	309	100	14,352	8.3	PPN4P
22	86	85	17	U/E	288	133	17,649	10.8	SMC4M
28	44	44	9	U/E	355	114	4,773	27.3	MHC4M
29	31	31	8	U/E	203	107	13,878	25.5	PPN4P
36	44	44	7	U/E	381	111	15,017	17.5	PPN4M
Total	748	695	158	--	328	106	12,051	2.7	--
Grand Total:	**1,341**	**1,275**	**305**	**--**	**261**	**101**	**10,669**	**3.2**	**--**

TIMBER PRODUCTION ANALYSIS

Timber Production Model

The current condition of the property is relatively young and it is the owner's management objective to increase the structural diversity of the forest. Specifically, the goal is to maintain on average across the property at least 10 square feet of basal area per acre and 20% of total volume in trees 30 inches DBH and greater, to retain all trees over 40 inches DBH, and to limit total harvesting to 25% of inventory in a given decadal period.

The FORSEE software is used to simulate the future growth and harvest using all the plots of the current inventory for each stand. A regime script within FORSEE is used to automatically process the 22 stands through the simulation. The model projects a total of 10 10-year periods with harvests occurring at the beginning of each period.

The regime script determines if 10 square feet basal area and 20% of inventory exists in commercial conifer trees 30 inches and greater DBH for each stand in each period. If it does then a thinning is applied to commercial conifers 12 to 40 inches DBH. (Note: 10% of 40+ inch DBH trees are harvested in periods 9 and 10 to help stabilize the population of these large trees). If it does not then a thinning is applied to commercial conifers 12 to 30 inches DBH. The intensity of the thinning is designed to harvest approximately 25% of the inventory volume. Hardwoods 4 to 40 inches DBH are harvested at half the intensity of conifers to simulate the incidental cutting of these trees. At least 75 square feet of basal area per acre of conifers remain in each stand after harvest.

Additionally, six acres of stand 21 and six acres of stand 22 are completely harvested in the first period to simulate the planned meadow restoration in these stands. After the first year, the forested acres of these stands are reduced by six acres each, and the forested area of the property is reduced from 1,275 acres to 1,263 acres.

Merchantable trees are assigned board foot volume and defect using the same procedures as in the Cruise Methodology section above.

Growth Calibration

Previous and current registered professional foresters working on the property recognize that the growth of the plantation trees is greater than the growth model prediction. It is common to see two to three foot internodes in the pine trees in the plantations. FORSEE predicts slightly above one foot per year height growth. Therefore, for the plantation stands (as shown in Table 3 above) the height growth is increased by 50% for the first ten years and 25% for the second ten years. It was also recognized that height growth was fast and too tall for given DBH classes in the later periods. Therefore, height growth in periods five through ten are reduced by 50%. All other growth coefficients are not changed from default settings.

In-growth

Starting in year 20 and continuing every 20 years thereafter, 35 in-growth trees per acre are added to each plot. Table 4 shows in more detail what is added to each plot. This type of regeneration will be achieved in the field by timber marking to promote the stated regeneration by providing adequate space for sunlight, nutrients, and moisture, or by using the group selection method, where species composition may be managed if necessary to achieve the desired species mix through planting and controlling competing vegetation.

Table 4. Future regeneration.

Species	DBH	Total Height	Crown Ratio	Regen Years	Weight
PP	4	15	60	10	60
IC	4	13	60	10	5
WF	4	15	60	10	20
BO	4	13	60	10	15

Regen Years is the number of years to wait after in-growth is invoked

Habitat Type Classification

California Wildlife Habitat Relationship (CWHR) types (Mayer and Laudenslayer 1988) are computed for each stand and period by FORSEE. The FORSEE CWHR calculations are based on the program developed by Greenwood and Eng (Greenwood and Eng 1993). However, the density class has been altered by using the midpoint between total and non-overlapping crown cover ratio, rather than using non-overlapping. This was done because of the well-spaced nature of tree distribution. All mixed conifer cover types are Sierra Mixed Conifer (SMC).

Timber Assessment Results

Output is provided by FORSEE and custom processing procedures for each stand and each period. Table 5 summarizes this information and shows the trees per acre, basal area per acre, quadratic mean diameter prior to harvest, and net standing volume in inventory prior to harvest, harvest, and growth during the period. Table 6 summarizes the CWHR types for all stands. Tables 7, 8, and 9 show stand tables for the beginning, middle, and end of the planning horizon.

Growth and harvest begin to balance at the very end of the planning horizon and will remain balanced thereafter with the management of all size classes of trees. Additional detail is available within Microsoft Excel spreadsheets upon request.

This assessment complies with and demonstrates Maximum Sustained Production of High Quality Timber Products, defined in 14 CCR § 933.11, using option b. Long Term Sustained Yield (LTSY) is defined in 14 CCR § 895.1 as "the average annual growth sustainable by the inventory predicted at the end of a 100-year planning period." The LTSY resulting from this model is approximately 700 thousand board feet per year, or 557 board feet per acre per year. The LTSY will be achieved by implementing the spirit of this model. Foresters will proceed in a workmanlike manner and use a variety of tools to meet or exceed the harvest and growth, forest health, and regeneration levels that are assumed in this model.

Table 5. Model output by year showing per acre values for the number of stems, basal area, quadratic mean diameter, and volumes property-wide in thousands of board feet. The changes in TPA and QMD between period one and two are due to the growth of the previously un-counted one-inch DBH trees.

Year	TPA	BA	QMD	Bd Ft /ac Inventory	Bd Ft /ac Harvest	Bd Ft /ac Growth
2015	261	100	8.75	10,669	1,569	4,871
2025	572	122	6.50	13,939	3,334	5,040
2035	515	134	7.19	15,578	3,860	5,057
2045	499	147	7.60	16,696	4,225	5,268
2055	453	159	8.31	17,653	4,451	4,935
2065	448	175	8.71	18,045	4,554	5,720
2075	405	187	9.48	19,117	4,774	5,860
2085	393	194	9.73	20,106	4,969	5,772
2095	341	191	10.40	20,808	5,199	5,890
2105	329	190	10.51	21,393	5,451	5,567

Table 6. Acres by CWHR type by period. Abrupt changes from period 1 to period 2 may be due to the growth of previously un-counted one inch DBH trees.

	MHC					PPN					
Period	2D	2M	3D	4D	4M	2M	3S	4D	4M	4P	4S
1	10	0	0	44	0	17	23	71	556	296	27
2	10	89	13	101	0	0	0	22	387	100	0
3	348	0	0	101	0	0	0	79	320	12	0
4	348	0	0	101	0	0	0	197	135	0	0
5	246	0	89	114	0	0	0	197	74	0	0
6	236	0	10	203	0	0	0	0	62	0	0
7	0	0	10	214	0	0	0	0	62	0	0
8	0	0	0	312	0	0	0	0	62	0	0
9	0	0	0	391	43	0	0	0	31	0	0
10	0	0	0	391	12	0	0	0	0	0	0

	SMC						WFR		
Period	2D	2M	3D	4D	4M	4P	2D	3D	4D
1	0	0	0	0	142	89	0	0	0
2	236	100	66	79	16	0	0	0	44
3	211	0	148	0	0	0	44	0	0
4	184	0	100	79	0	0	120	0	0
5	56	38	0	250	0	0	123	76	0
6	34	0	86	399	12	0	44	178	0
7	0	0	34	790	12	0	0	66	76
8	0	0	16	719	12	0	0	44	98
9	0	0	16	617	23	0	0	44	98
10	0	0	0	618	123	0	0	0	120

Table 7. Number of cut and retained trees per acre for the year 2015.

	PP		DF		WF		IC		Total	
DBH	Cut	Ret	Cut	Ret	Cut	Ret	Cut	Ret	Cut	Ret
2	0.00	15.27	0.00	0.43	0.00	7.66	0.00	3.82	0.00	27.38
4	0.00	15.59	0.00	0.00	0.00	5.36	0.00	1.92	0.00	23.06
6	0.00	12.09	0.00	0.00	0.00	3.57	0.00	1.07	0.00	16.73
8	0.00	4.96	0.00	0.20	0.00	1.52	0.00	0.71	0.00	7.40
10	0.00	5.87	0.00	0.00	0.00	1.41	0.00	0.60	0.00	7.87
12	0.76	8.25	0.11	0.16	0.13	1.17	0.01	0.70	1.01	10.28
14	1.71	7.88	0.00	0.00	0.02	0.82	0.02	0.54	1.75	9.23
16	1.44	6.69	0.06	0.05	0.31	1.60	0.08	0.39	1.88	8.74
18	0.76	4.31	0.03	0.02	0.23	0.82	0.01	0.33	1.03	5.47
20	0.33	2.89	0.00	0.03	0.15	0.45	0.05	0.12	0.53	3.49
22	0.23	1.52	0.00	0.00	0.17	0.56	0.03	0.17	0.43	2.25
24	0.20	1.13	0.03	0.04	0.05	0.26	0.03	0.12	0.30	1.55
26	0.14	0.71	0.00	0.02	0.07	0.30	0.00	0.04	0.20	1.06
28	0.10	0.54	0.02	0.02	0.05	0.15	0.01	0.16	0.18	0.86
30	0.05	0.33	0.00	0.01	0.02	0.14	0.02	0.05	0.09	0.54
32	0.02	0.24	0.00	0.01	0.00	0.09	0.00	0.01	0.02	0.36
34	0.02	0.12	0.00	0.00	0.00	0.04	0.00	0.01	0.02	0.17
36	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10
38	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05
40	0.00	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.05
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5.78	88.58	0.24	1.01	1.20	25.93	0.26	10.75	7.48	126.67

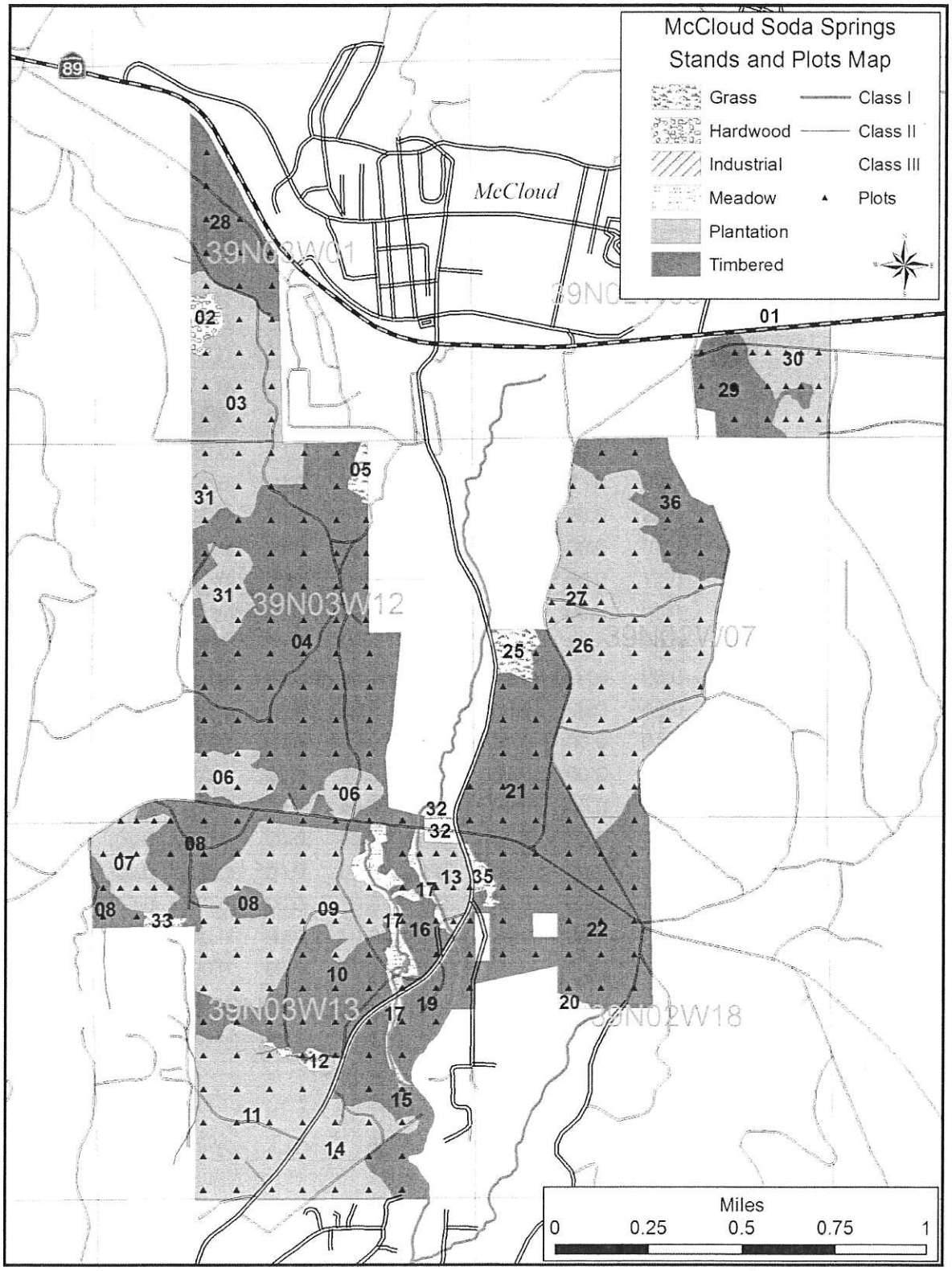
Table 8. Number of cut and retained trees per acre for the year 2055.

	PP		DF		WF		IC		Total	
DBH	Cut	Ret	Cut	Ret	Cut	Ret	Cut	Ret	Cut	Ret
2	0.00	42.37	0.00	0.42	0.00	71.39	0.00	28.14	0.00	142.37
4	0.00	53.35	0.00	0.15	0.00	53.49	0.00	8.73	0.00	115.85
6	0.00	27.03	0.00	0.13	0.00	35.07	0.00	3.12	0.00	65.42
8	0.00	14.19	0.00	0.13	0.00	18.80	0.00	1.84	0.00	35.06
10	0.00	8.87	0.00	0.09	0.00	8.10	0.00	0.86	0.00	17.96
12	0.75	5.38	0.00	0.09	0.20	4.41	0.00	0.66	0.95	10.60
14	0.96	2.44	0.03	0.00	0.65	1.84	0.04	0.38	1.68	4.69
16	0.56	1.70	0.00	0.03	0.44	1.04	0.07	0.20	1.07	2.96
18	0.52	1.99	0.00	0.00	0.29	0.70	0.03	0.21	0.84	2.91
20	0.84	1.54	0.02	0.05	0.22	0.25	0.04	0.11	1.12	1.95
22	0.64	1.13	0.00	0.00	0.21	0.24	0.05	0.12	0.90	1.50
24	0.63	0.95	0.00	0.01	0.13	0.18	0.09	0.06	0.84	1.21
26	0.46	0.67	0.00	0.01	0.03	0.14	0.05	0.10	0.54	0.92
28	0.26	0.67	0.00	0.00	0.09	0.10	0.02	0.04	0.37	0.81
30	0.40	0.52	0.00	0.02	0.02	0.13	0.05	0.06	0.47	0.72
32	0.24	0.45	0.00	0.00	0.04	0.07	0.02	0.03	0.31	0.56
34	0.13	0.38	0.00	0.00	0.06	0.06	0.02	0.04	0.22	0.48
36	0.06	0.24	0.00	0.00	0.03	0.13	0.00	0.03	0.10	0.40
38	0.04	0.17	0.00	0.00	0.02	0.08	0.00	0.05	0.06	0.30
40	0.01	0.20	0.00	0.00	0.01	0.06	0.00	0.02	0.02	0.29
42	0.00	0.11	0.00	0.00	0.00	0.10	0.00	0.03	0.00	0.24
44	0.00	0.07	0.00	0.01	0.00	0.06	0.00	0.01	0.00	0.14
46	0.00	0.04	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.08
48	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.05
50	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6.50	164.51	0.05	1.17	2.45	196.51	0.49	44.86	9.49	407.51

Table 9. Number of cut and retained trees per acre for the year 2105.

	PP		DF		WF		IC		Total	
DBH	Cut	Ret	Cut	Ret	Cut	Ret	Cut	Ret	Cut	Ret
2	0.00	5.77	0.00	0.13	0.00	23.41	0.00	12.19	0.00	41.51
4	0.00	36.50	0.00	0.10	0.00	31.07	0.00	8.53	0.00	76.22
6	0.00	25.64	0.00	0.04	0.00	17.94	0.00	3.60	0.00	47.24
8	0.00	19.29	0.00	0.04	0.00	13.73	0.00	3.17	0.00	36.25
10	0.00	17.83	0.00	0.00	0.00	11.98	0.00	2.29	0.00	32.14
12	4.23	10.71	0.01	0.06	3.82	7.78	0.69	0.97	8.74	19.55
14	4.45	4.06	0.03	0.05	6.03	2.90	0.43	0.36	10.95	7.37
16	0.82	2.42	0.00	0.02	0.87	1.80	0.12	0.30	1.84	4.55
18	0.83	1.68	0.01	0.00	0.81	1.42	0.04	0.13	1.69	3.25
20	0.62	1.81	0.00	0.00	0.42	0.75	0.05	0.10	1.10	2.67
22	0.25	0.56	0.00	0.00	0.39	0.59	0.04	0.07	0.68	1.23
24	0.34	0.50	0.00	0.00	0.21	0.58	0.00	0.06	0.56	1.15
26	0.25	0.47	0.00	0.02	0.36	0.33	0.02	0.05	0.64	0.86
28	0.11	0.25	0.00	0.01	0.16	0.34	0.04	0.06	0.32	0.66
30	0.05	0.15	0.00	0.00	0.09	0.17	0.01	0.01	0.15	0.33
32	0.05	0.16	0.00	0.00	0.06	0.12	0.01	0.01	0.13	0.29
34	0.07	0.11	0.00	0.00	0.05	0.09	0.00	0.01	0.11	0.22
36	0.03	0.10	0.00	0.00	0.02	0.02	0.00	0.02	0.05	0.13
38	0.03	0.09	0.00	0.00	0.00	0.03	0.00	0.01	0.04	0.13
40	0.01	0.09	0.00	0.00	0.01	0.01	0.00	0.02	0.01	0.13
42	0.01	0.10	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.13
44	0.00	0.10	0.00	0.00	0.00	0.03	0.00	0.01	0.00	0.14
46	0.01	0.14	0.00	0.00	0.00	0.02	0.00	0.01	0.01	0.17
48	0.03	0.26	0.00	0.00	0.00	0.04	0.00	0.03	0.03	0.33
50	0.02	0.14	0.00	0.00	0.00	0.04	0.00	0.03	0.03	0.21
52	0.01	0.09	0.00	0.00	0.00	0.06	0.00	0.03	0.02	0.17
54	0.01	0.04	0.00	0.00	0.01	0.07	0.00	0.02	0.02	0.13
56	0.00	0.00	0.00	0.01	0.01	0.07	0.00	0.01	0.02	0.08
58	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.03
60	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02
	12.23	129.09	0.07	0.50	13.34	115.44	1.48	32.11	27.16	277.28

Figure 1. Map of the ownership with stands and plots.



ANALYSIS OF ALTERNATIVES

1. The Project as Proposed

This alternative would allow the proposed timber operations under the approved plan. This is the most feasible alternative as it meets the objectives of the purpose and need stated above in addition to the goals of the Forest Practice Act (FPA) and Timberland Productivity Act (TPA). As per 14 CCR § 897(b)(1): The goal of forest management on a specific ownership shall be the production or maintenance of forests which are healthy and naturally diverse, with a mixture of trees and under-story plants, in which trees are grown primarily for the production of high quality timber products, and which meet the following objectives:

- Achieve a balance between growth and harvest over time consistent with the harvesting methods within the rules of the Board.
- Maintain functional wildlife habitat in sufficient condition for continued use by the existing wildlife community within the planning watershed.
- Retain or recruit late and diverse seral stage habitat components for wildlife concentrated in the WLPZs and as appropriate to provide for functional connectivity between habitats.
- Maintain growing stock, genetic diversity, and soil productivity.

All of the goals of the FPA stated above have been complied with in this plan. No significant adverse impacts are expected to result from the proposed timber operations. Mitigation for significant environmental impacts have been included in the plan and implementation and effectiveness monitoring will be conducted to ensure compliance with the plan. As per 14 CCR § 898, on Timber Production Zone (TPZ) lands, the harvesting per se of trees shall not be presumed to have a significant adverse impact on the environment.

2. No Project

The no project alternative would involve no timber harvesting. The site would remain as is. This alternative is not feasible, as it does not meet the goals of the timberland owner, the FPA, or the TPA. Additionally the following effects would result:

- The opportunity for timber harvesting would be lost at this time.
- Erosion would not be curtailed from road maintenance associated with this plan and subsequent timber operations.
- Salvage volume would not be captured resulting in the loss of wood volume and waste of the timber resource.
- Stand vigor would decrease due to overstocked stand conditions that would result from foregoing thinning and aggressive fuel reduction efforts.
- The risk of complete stand loss from catastrophic fires would be ever increasing due to the increasingly overstocked high fuel load conditions.
- Wildlife habitat would be adversely affected due to the resulting decadent overstocked and possibly destroyed stands from fires.

3. Alternative Land Uses

Alternative land uses could be conducted on the property, other than the proposed project, while achieving some or all of the landowner's objectives and lessening or avoiding one or more potentially significant effects on the environment. Lands under the proposed plan could be used as a timber preserve. This alternative would be similar in effect to the No Project alternative. This alternative is not feasible, as it does not meet the goals of the timberland owner, the FPA, or the TPA.

4. Timing of the Project

This alternative would involve carrying out the project at a different time within the decade. This approach could change the cumulative impacts and allow adjacent areas to adjust to new conditions before carrying out this project. This alternative is not feasible as the lands are managed on continuous cutting cycles that allows for periodic entries in predetermined areas of the ownership. Delaying this entry would cause an increase in the area treated the following year in order to maintain the stand treatment schedule. The ownership has been managed using light harvests that do not impact the lands to the point that a recovery period is needed prior to implementing another harvest in the same watershed. Timber harvests adjacent to each other allow for a

continuous stand treatment across the ownership without untreated stand blocks with overstocked high fuel load conditions.

5. Alternative Site

Conducting timber operations on an alternative site within the same ownership if the plan would result in a significant effect that could not be mitigated on the proposed site and the effect could be avoided by moving the plan to another location. This alternative is not necessary, as any significant negative effect from the proposed timber operations has been mitigated in the plan.

6. Public Acquisition

This alternative consists of limitations on management activities through public acquisition of the land or donation or sale of conservation easements. The landowner has recently secured a conservation easement with Pacific Forest Trust to ensure the property is maintained as a working forest. The timberland owner has chosen to have the land managed for economic return and is therefore not a willing seller.

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Exhibit G
Non-Industrial Timber Management Plan

SECTION IV: CUMULATIVE IMPACTS ASSESSMENT

STATE OF CALIFORNIA
BOARD OF FORESTRY
CUMULATIVE IMPACTS ASSESSMENT

(1) Do the assessment area(s) of resources that may be affected by the proposed project contain any past, present, or reasonably foreseeable probable future projects? ☒ Yes ☐ No

If the answer is yes, identify the project(s) and the effected resource subject(s).

(2) Are there any continuing, significant adverse impacts from past land use activities that may add to the impacts of the proposed project? ☐ Yes ☒ No

If the answer is yes, identify the activities, describing their location, impacts, and the affected resource subject(s).

(3) Will the proposed project, as presented, in combination with the past, present, or reasonably foreseeable probable future projects identified in items (1) and (2) above, have a reasonable potential to cause or add to significant cumulative impacts in any of the following resource subjects?

Impact Assessment	*Yes After Mitigation (a)*	*No After Mitigation (b)*	*No Reasonably Potential Significant Effects ©*
1. Watershed			X
2. Soil Productivity			X
3. Biological			X
4. Recreation			X
5. Visual			X
6. Traffic			X
7. Other: Greenhouse Gases			X

a. Yes, means that potential significant adverse cumulative impacts are left after application of the forest practice rules and mitigations or alternatives proposed by the plan submitter.
b. No after mitigation means that any potential for the proposed timber operation to cause or add to significant adverse cumulative impacts by itself or in combination with other projects has been reduced to insignificance or avoided by mitigation measures or alternatives proposed in the plan and application of the forest practice rules.
c. No reasonably potential significant cumulative effects means that the operations proposed under the plan do not have a reasonable potential to join with the impacts of any other project to cause, add to, or constitute significant adverse cumulative impacts.

(4) If column (a) is checked in (3) above, describe why the expected impacts cannot be feasibly mitigated or avoided and what mitigation measures or alternatives were considered to reach this determination. If column (b) is checked in (3) above describe what mitigation measures have been selected which will substantially reduce or avoid reasonably potential cumulative impacts except for those mitigation measures or alternatives mandated by the application of the rules of the Board of Forestry.

(5) Provide a brief description of the assessment area used for each resource subject.

(6) List and briefly describe the individuals, organizations, and records consulted in the assessment of cumulative impacts for each resource subject. Records of the information used in the assessment shall be provided to the Director upon request.

Exhibit G
Non-Industrial Timber Management Plan

PAST AND FUTURE ACTIVITIES

The assessment area for past and future activities is comprised of the CalWater version 2.2.1 planning watersheds that the biological assessment area and watershed assessment areas lie within (see Biological & Watershed Assessment Area Map at the end of Section IV). The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 2, were used as the rationale for the establishment of the assessment area. The biological assessment area includes all areas within one mile of the plan area. The assessment area for past and future activities is comprised of the following CalWater version 2.2.1 planning watersheds:

PAST, PRESENT, & FUTURE PROJECTS ASSESSMENT AREA CAL WATER PLANNING WATERSHEDS VERSION 2.2.1		
Number	***Name***	***Acres***
5505.230005	Lower Mud Creek	9,420
5505.220101	Lower Panther Creek	8,209
5505.220103	McCloud	1,340
5525.210201	Middle Soda Creek	9,709
5505.220104	Pig Creek	13,335
5505.220102	Squaw Valley Creek	10,985
5525.210203	Upper Soda Creek	5,714
Total		**58,712**

There are no past, present, or reasonably foreseeable probable future timber harvesting projects on land owned or controlled by the timberland owner of this plan within the assessment area. Nonetheless, Past, Present, & Future Projects Maps are provided at the end of Section IV.

Past Activities

Past Projects means previously approved, on-going, or completed projects which may add to or lessen impact(s) created by the plan under consideration. These generally include, but may not be limited to, projects completed within the last 10 years. Within the assessment area, the following harvesting activity has occurred:

HARVESTED PORTION OF ASSESSMENT AREA		
Method	***Acres***	***Percent***
Selection	7,282	12%
Group Selection	5,397	9%
Clearcut	3,607	6%
Sanitation Salvage	2,873	5%
Commercial Thinning	1,939	3%
Shelterwood Removal Cut	674	1%
Seed Tree Seed Cut	354	1%
Other	715	1%
Total	**22,841**	**39%**

A total of 39% of the assessment area had been harvested. Only 6% of the assessment area has been harvested by clearcut. The majority of the area (17%) has been harvested using uneven age methods.

PAST PROJECTS IN ASSESSMENT AREA														
CC	*CT*	*GS*	*NH*	*SS*	*Sel*	*SWR*	*Conv*	*STR*	*STS*	*SWS*	*VR*	*Trans*	*Rehab*	*Total*
Lower Mud Creek														
78	654	1,126	92	656	4,793	6	-	-	-	-	-	-	-	7,404
1%	7%	12%	1%	7%	51%	0%	0%	0%	0%	0%	0%	0%	0%	79%
Lower Panther Creek														
94	234	1431	0	1547	6	41	32	177	29	21	0	0	0	3611
1%	**3%**	**17%**	**0%**	**19%**	**0%**	**0%**	**0%**	**2%**	**0%**	**0%**	**0%**	**0%**	**0%**	44%
McCloud														
9	146	24		1	7									187
1%	**11%**	**2%**	**0%**	**0%**	**1%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**14%**
Middle Soda Creek														
1,356	87	107	-	-	495	95	-	-	29	-	48	-	-	2,216
14%	1%	1%	0%	0%	5%	1%	0%	0%	0%	0%	0%	0%	0%	23%
Pig Creek														
321	423	1,115	-	336	1,719	67	-	-	257	-	-	-	-	4,239
2%	3%	8%	0%	3%	13%	1%	0%	0%	2%	0%	0%	0%	0%	32%
Squaw Valley Creek														
139	278	939	181	85	26	466	-	-	39	-	-	145	-	2,297
1%	3%	9%	2%	1%	0%	4%	0%	0%	0%	0%	0%	1%	0%	21%
Upper Soda Creek														
1,611	117	657	10	248	236	-	-	-	-	-	-	-	9	2,887
28%	2%	11%	0%	4%	4%	0%	0%	0%	0%	0%	0%	0%	0%	51%
Total														
3,607	1,939	5,397	282	2,873	7,282	674	32	177	354	21	48	145	9	22,841
6%	3%	9%	0%	5%	12%	1%	0%	0%	1%	0%	0%	0%	0%	39%

CC	Clearcut	CT	Group Selection	GS	Group Selection
NH	No Harvest	SS	Sanitation Salvage	Sel	Selection
SWR	Shelterwood Removal Cut	Conv	Conversion	STR	Seed Tree Removal Cut
STS	Seed Tree Seed Cut	SWS	Shelterwood Seed Cut	VR	Variable Retention
Rebab	Rehabilitation of Understocked Timberlands				

PAST ACTIVITIES IN ASSESSMENT AREA				
Harvest Doc. Number	*Silviculture*	*Silviculture 2*	*Landowner*	*Acres*
Lower Mud Creek				
2-05-134-SIS	Clearcut		Roseburg Resources Co	26
2-05-134-SIS	Group Selection		Roseburg Resources Co	47
2-05-134-SIS	Shelterwood Removal Cut		Roseburg Resources Co	6
2-05-190-SHA	Selection		Hearst Corp	67
2-05-190-SHA	Selection		Hearst Forests LLC	44
2-06-047-SIS	Alternative Prescription	Sanitation Salvage	Hearst Corp	246
2-06-047-SIS	Sanitation Salvage		Hearst Corp	167
2-06-047-SIS	Selection		Hearst Corp	1557
2-07-040-SHA	Selection		Hearst Forests LLC	2
2-08-063-SIS	Commercial Thin		Wyntoon Timberlands LLC	25
2-08-063-SIS	Selection		Wyntoon Timberlands LLC	845
2-09-065-SIS	Clearcut		Bascom Pacific LLC	48
2-09-065-SIS	Commercial Thin		Bascom Pacific LLC	507
2-09-065-SIS	Group Selection		Bascom Pacific LLC	422

2-09-065-SIS	Sanitation Salvage		Bascom Pacific LLC	7
2-09-065-SIS	Selection		Bascom Pacific LLC	6
2-10-014-SIS	Selection		Wyntoon Timberlands LLC	60
2-11-008-SIS	Alternative Prescription	Sanitation Salvage	Wyntoon Timberlands LLC	237
2-11-008-SIS	Selection		Wyntoon Timberlands LLC	484
2-11-054-SIS	Selection		Wyntoon Timberlands LLC	9
2-11-088-SHA	Selection		Wyntoon Timberlands LLC	0
2-12-063-SIS	Alternative Prescription	Selection	Wyntoon Timberlands LLC	911
2-12-063-SIS	Selection		Wyntoon Timberlands LLC	800
2-13-012-SIS	Alternative Prescription	Clearcut	Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	3
2-13-012-SIS	Commercial Thin		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	2
2-13-012-SIS	Commercial Thin		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	0
2-13-012-SIS	Selection		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	6
2-13-030-SIS	Commercial Thin		John Hancock Life Insurance Co	120
2-13-030-SIS	Group Selection		John Hancock Life Insurance Co	656
2-13-030-SIS	No Harvest Area		John Hancock Life Insurance Co	92
TOTAL				**7,404**
Lower Panther Creek				
2-05-134-SIS	Clearcut		Roseburg Resources Co	58
2-05-134-SIS	Group Selection		Roseburg Resources Co	8
2-05-134-SIS	Sanitation Salvage		Roseburg Resources Co	18
2-07-004-SIS	Commercial Thin		Hancock Forest Management	87
2-07-004-SIS	Commercial Thin		Hancock Forest Management	20
2-07-004-SIS	Group Selection		Hancock Forest Management	160
2-07-004-SIS	Sanitation Salvage		Hancock Forest Management	330
2-07-004-SIS	Seed Tree Seed Cut		Hancock Forest Management	29
2-07-004-SIS	Shelterwood Removal Cut		Hancock Forest Management	41
2-08-004-SIS	Conversion		McCloud Meadows Ranch	32
2-09-086-SIS	Clearcut		John Hancock Life Ins Co	36
2-09-086-SIS	Commercial Thin		John Hancock Life Ins Co	76
2-09-086-SIS	Group Selection		John Hancock Life Ins Co	716
2-09-086-SIS	Sanitation Salvage		John Hancock Life Ins Co	63
2-09-086-SIS	Sanitation Salvage	Transition	John Hancock Life Ins Co	966
2-09-086-SIS	Seed Tree Removal Cut		John Hancock Life Ins Co	177
2-10-041-SIS	Selection		McCloud Meadows Ranch	6
2-11-039-SIS	Commercial Thin		John Hancock Life Ins Co	50
2-11-039-SIS	Group Selection		John Hancock Life Ins Co	496
2-11-039-SIS	Sanitation Salvage		John Hancock Life Ins Co	170
2-11-039-SIS	Shelterwood Seed Cut		John Hancock Life Ins Co	21
2-13-030-SIS	Group Selection		John Hancock Life Insurance Co	51
TOTAL				**3,611**
McCloud				
2-09-065-SIS	Clearcut		Bascom Pacific LLC	9

2-09-065-SIS	Commercial Thin		Bascom Pacific LLC	16
2-09-065-SIS	Group Selection		Bascom Pacific LLC	9
2-09-065-SIS	Selection		Bascom Pacific LLC	7
2-13-030-SIS	Commercial Thin		John Hancock Life Insurance Co	130
2-13-030-SIS	Group Selection		John Hancock Life Insurance Co	15
2-13-030-SIS	Sanitation Salvage		John Hancock Life Insurance Co	1
TOTAL				**187**
Middle Soda Creek				
2-05-033-SHA	Clearcut		Roseburg Resources Co et al	85
2-05-033-SHA	Clearcut		Roseburg Resources Co et al	14
2-05-033-SHA	Clearcut		Roseburg Resources Co et al	13
2-05-033-SHA	Clearcut		Roseburg Resources Co et al	75
2-05-033-SHA	Clearcut		Roseburg Resources Co et al	19
2-05-033-SHA	Commercial Thin		Roseburg Resources Co et al	31
2-05-033-SHA	Group Selection		Roseburg Resources Co et al	34
2-05-033-SHA	Group Selection		Roseburg Resources Co et al	49
2-05-033-SHA	Selection		Roseburg Resources Co et al	23
2-05-033-SHA	Selection		Roseburg Resources Co et al	6
2-05-033-SHA	Selection		Roseburg Resources Co et al	89
2-05-033-SHA	Selection		Roseburg Resources Co et al	4
2-05-033-SHA	Shelterwood Removal Cut		Roseburg Resources Co et al	8
2-05-033-SHA	Shelterwood Removal Cut		Roseburg Resources Co et al	71
2-05-033-SHA	Shelterwood Removal Cut		Roseburg Resources Co et al	5
2-05-033-SHA	Shelterwood Removal Cut		Roseburg Resources Co et al	11
2-05-159-SIS	Clearcut		Roseburg Resources Co	4
2-05-159-SIS	Commercial Thin		Roseburg Resources Co	0
2-08-055-SIS	Clearcut		Oxbow Timber I LLC	82
2-08-055-SIS	Clearcut		Oxbow Timber I LLC	159
2-08-055-SIS	Clearcut		Oxbow Timber I LLC	235
2-08-055-SIS	Clearcut		Oxbow Timber I LLC	12
2-08-055-SIS	Selection		Oxbow Timber I LLC	19
2-09-015-SIS	Commercial Thin		Betty R Cooley Trust	56
2-09-015-SIS	Seed Tree Seed Cut		Betty R Cooley Trust	29
2-09-015-SIS	Selection		Betty R Cooley Trust	271
2-10-060-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	300
2-10-060-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	357
2-10-060-SIS	Selection		Oxbow Timber I LLC	62
2-10-060-SIS	Selection		Oxbow Timber I LLC	22
2-10-060-SIS	Variable Retention		Oxbow Timber I LLC	46
2-12-053-SIS	Variable Retention		Oxbow Timber I LLC	2
2-12-081-SHA	Group Selection		John Hancock Life Insurance Co	24
2-13-066-SIS	Alternative Prescription		Oxbow Timber I LLC	0
TOTAL				**2,216**
Pig Creek				
2-05-069-SHA	Selection		Hearst Forests LLC	3
2-06-047-SIS	Selection		Hearst Corp	60
2-06-068-SHA	Selection		Hearst Forests LLC	0
2-07-004-SIS	Group Selection		Hancock Forest Management	158
2-07-004-SIS	Sanitation Salvage		Hancock Forest Management	278

2-07-004-SIS	Seed Tree Seed Cut		Hancock Forest Management	54
2-07-004-SIS	Shelterwood Removal Cut		Hancock Forest Management	67
2-09-015-SIS	Commercial Thin		Betty R Cooley Trust	51
2-09-015-SIS	Sanitation Salvage		Betty R Cooley Trust	57
2-09-015-SIS	Seed Tree Seed Cut		Betty R Cooley Trust	204
2-09-015-SIS	Selection		Betty R Cooley Trust	880
2-09-045-SHA	Selection		Wyntoon Timberlands LLC	215
2-09-065-SIS	Clearcut		Bascom Pacific LLC	0
2-09-065-SIS	Commercial Thin		Bascom Pacific LLC	21
2-09-065-SIS	Group Selection		Bascom Pacific LLC	187
2-09-065-SIS	Selection		Bascom Pacific LLC	12
2-10-014-SIS	Selection		Wyntoon Timberlands LLC	19
2-10-060-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	27
2-10-060-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	108
2-10-060-SIS	Selection		Oxbow Timber I LLC	1
2-11-039-SIS	Sanitation Salvage		John Hancock Life Ins Co	0
2-12-081-SHA	Group Selection		John Hancock Life Insurance Co	770
2-13-012-SIS	Alternative Prescription	Clearcut	Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	186
2-13-012-SIS	Commercial Thin		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	31
2-13-012-SIS	Commercial Thin		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	141
2-13-012-SIS	Commercial Thin		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	180
2-13-012-SIS	Selection		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	253
2-13-012-SIS	Selection		Bascom Pacific LLC& John Archie Thomas Trust& Edith Fisher& Robert & Maylon Friday	10
2-13-020-SHA	Selection		Wyntoon Timberlands LLC	266
TOTAL				**4,239**
Squaw Valley Creek				
2-05-134-SIS	Clearcut		Roseburg Resources Co	125
2-05-134-SIS	Group Selection		Roseburg Resources Co	347
2-05-134-SIS	Sanitation Salvage		Roseburg Resources Co	16
2-05-134-SIS	Shelterwood Removal Cut		Roseburg Resources Co	448
2-09-086-SIS	Clearcut		John Hancock Life Ins Co	14
2-09-086-SIS	Group Selection		John Hancock Life Ins Co	18
2-09-086-SIS	Sanitation Salvage	Transition	John Hancock Life Ins Co	145
2-13-030-SIS	Alternative Prescription	Seed Tree Seed Cut	John Hancock Life Insurance Co	39
2-13-030-SIS	Alternative Prescription	Shelterwood Removal Cut	John Hancock Life Insurance Co	18
2-13-030-SIS	Commercial Thin		John Hancock Life Insurance Co	278
2-13-030-SIS	Group Selection		John Hancock Life Insurance Co	574
2-13-030-SIS	No Harvest Area		John Hancock Life Insurance Co	181
2-13-030-SIS	Sanitation Salvage		John Hancock Life Insurance Co	69
2-13-030-SIS	Selection		John Hancock Life Insurance Co	26
TOTAL				**2,297**
Upper Soda Creek				
2-05-159-SIS	Clearcut		Roseburg Resources Co	39
2-05-159-SIS	Clearcut		Roseburg Resources Co	8
2-05-159-SIS	Clearcut		Roseburg Resources Co	603

2-05-159-SIS	Clearcut		Roseburg Resources Co	21
2-05-159-SIS	Commercial Thin		Roseburg Resources Co	94
2-05-159-SIS	Rehabilitation - Understocked		Roseburg Resources Co	9
2-05-159-SIS	Selection		Roseburg Resources Co	67
2-05-159-SIS	Selection		Roseburg Resources Co	18
2-05-159-SIS	Selection		Roseburg Resources Co	52
2-05-159-SIS	Selection		Roseburg Resources Co	10
2-07-004-SIS	Sanitation Salvage		Hancock Forest Management	6
2-08-055-SIS	Clearcut		Oxbow Timber I LLC	0
2-10-060-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	2
2-11-039-SIS	Commercial Thin		John Hancock Life Ins Co	23
2-11-039-SIS	Group Selection		John Hancock Life Ins Co	657
2-11-039-SIS	Sanitation Salvage		John Hancock Life Ins Co	242
2-12-059-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	315
2-12-059-SIS	Alternative Prescription	Clearcut	Oxbow Timber I LLC	129
2-12-059-SIS	No Harvest Area		Oxbow Timber I LLC	10
2-12-059-SIS	Selection		Oxbow Timber I LLC	21
2-12-059-SIS	Selection		Oxbow Timber I LLC	9
2-13-091-SIS	Alternative Prescription	Clearcut	Oxbow Timber LLC	267
2-13-091-SIS	Alternative Prescription	Clearcut	Oxbow Timber LLC	226
2-13-091-SIS	Selection		Oxbow Timber LLC	48
2-13-091-SIS	Selection		Oxbow Timber LLC	10
TOTAL				**2,887**
GRAND TOTAL				**22,841**

Future Activities

Future timber harvesting is anticipated to continue at a similar rate within the assessment area.

Cumulative Effects

The past activities primarily utilized unevenaged management. Unevenaged management is a partial cutting system which retains many elements of the preharvest stand, and maintains a modest minimum basal area level post-harvest. No cumulative effect on past and future activities is expected to occur as a result of this plan when combined with other past and future activities.

A. WATERSHED RESOURCES

The watershed assessment area is includes the CalWater version 2.2.1 planning watersheds that the plan lies within. The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 2, were used as the rationale for the establishment of the assessment area. The assessment area for watershed resources (see Biological & Watershed Assessment Area Map at the end of Section IV) is comprised of the following CalWater version 2.2.1 planning watersheds:

WATERSHED ASSESSMENT AREA CAL WATER PLANNING WATERSHEDS VERSION 2.2.1		
Number	*Name*	*Acres*
5505.230005	Lower Mud Creek	9,420
5505.220101	Lower Panther Creek	8,209
5505.220103	McCloud	1,340
5505.220104	Pig Creek	13,335
Total		**32,304**

Beneficial uses of water, watershed effects, and watercourse condition were assessed.

A.1 WATERSHED DESCRIPTIONS

The watershed assessment area is not within the anadromous salmonid endangered species unit and therefore Anadromous Salmonid Protection under the California Forest Practice Rules does not apply.

A.1.a Lower Mud Creek

Planning watershed 5505.230005 covers the area east of McCloud, for a total of 9,420 acres. Elevations range from 5,200 feet in the north to 2,720 feet at the McCloud River. Prominent features include Highway 89, water infrastructure, Huckleberry Spring, Huckleberry Creek, and the McCloud River. This planning watershed does not support anadromous salmonids, therefore, standard California Forest Practice Rules apply.

A.1.b Lower Panther Creek

Planning watershed 5505.220101 lies on the northern edge of the plan area, and covers 8,209 acres. Elevations range from 5,705 feet on top of Everitt Hill, to 3,180 feet just south of McCloud. Prominent features within the planning watershed include Dogwood Butte, Signal Butte, Everitt Hill, Panther Creek, Highway 89, and the western half of the town of McCloud. This planning watershed does not support anadromous salmonids, therefore, standard California Forest Practice Rules apply.

Panther Creek appears to be a Class III watercourse above the plan area, however, just prior to entering the plan area it enters an engineered channel to go through the town of McCloud (thus acquiring Class IV watercourse classification). The U.S. Geological Survey Map indicates that it then enters Squaw Valley Creek to the south of the town. Squaw Valley Creek eventually joins the McCloud River, which flows into Shasta Lake, before eventually joining the Sacramento River past Shasta Dam.

Much of the natural hydrology in and around the town of McCloud shows significant modification due to the town building, mill site, railroad and other engineering activities. Natural flows appear diverted in some areas, and likely some former Class III watercourses are now no longer connected to Class I and II waters.

Ownership within the planning watershed includes private timberland, other private lands, and U.S. Government managed lands. Much of the area within the watershed is managed for timber production.

A.1.c McCloud

Planning watershed 5505.220103 covers part of the town of McCloud, and area immediately south of town, for a total of 1,340 acres. Elevations range from 3,400 feet to 3,110 feet. Prominent features include the eastern half of McCloud, most of the old McCloud mill site, water infrastructure, Squaw Valley Creek, sewage disposal ponds, a disposal site, a golf club, and Highway 89. This planning watershed does not support anadromous salmonids, therefore, standard California Forest Practice Rules apply.

Squaw Valley Creek is a Class I watercourse, of moderate size, which eventually flows into the McCloud River.

Much of the natural hydrology in and around the town of McCloud shows significant modification due to the town building, mill site, railroad and other engineering activities. Natural flows appear diverted in some areas, and likely some former Class III watercourses are now no longer connected to Class I and II waters.

Since the watershed primarily covers the town and outlying areas of McCloud, much of the area is not managed for timber production.

A.1.d Pig Creek

Planning watershed 5505.220104 covers the southern portion of the plan, for a total of 13,335 acres. Elevations range from 4,298 feet to 2,707 feet Prominent features include Pig Creek, Willow Creek, Cottonwood Creek, Connor Creek, Dairy Creek, Soda Springs, Squaw Creek, and an area of mobile home parks and recreation sites. Squaw Valley Creek is the highest order watercourse in the watershed, and eventually joins the McCloud River, which flows into Shasta Lake, before eventually joining the Sacramento River past Shasta Dam. This planning watershed does not support anadromous salmonids, therefore, standard California Forest Practice Rules apply.

Ownership within the planning watershed includes private timberland, other private lands, and US Government managed lands. Much of the area within the watershed is managed for timber production.

A.2. Beneficial Uses of Water

The watershed assessment area is located within the Sacramento River Basin. The Central Valley Regional Water Quality Control Board (CVRWQCB) addresses water quality issues within this basin. The governing document of the Central Valley Region is the Fourth Edition Water Quality Control Plan (Basin Plan), revised October 2011.

The CVRWQCB lists the following beneficial uses for the Sacramento River (between Shasta Dam to Colusa Basin Drain):

Municipal - Municipal and Domestic Supply
Agriculture- Irrigation and Stock Watering
Industry - Service Supply, and Power
Recreation - Contact, Canoeing and Rafting, and Other Non-contact
Fresh Water Habitat - Warm, and Cold
Migration- Warm, and Cold
Spawning - Warm, and Cold
Wildlife Habitat
Navigation

There are numerous water diversions and domestic uses within the watershed assessment area.

Potential impacts include impacts to threatened and endangered aquatic species, non-point sources including risk of erosion and sedimentation from timber operations, risk of landslides that may deposit large quantities of sediment into watercourses, and potential impacts to domestic water users. These risks should be minimized due to the mitigations included in this plan. Additionally, risk of impacts will be minimized through implementation, forensic, and effectiveness monitoring of activities conducted under the required by the CVRWQCB. This monitoring is qualitative and visual. Adherence to the California Forest Practice Rules as well as voluntary measures applied as necessary to protect watershed resources will further minimize the risk of impacts to beneficial uses.

The McCloud River is not on the CVRWQCB 303d list for water quality impairment or a National Wild and Scenic River. The Sacramento River is on the CVRWQCB 303d list for a number of pollutants, including unknown toxicity, metals, pesticides, and other organics. The Sacramento River is not listed as a National Wild and Scenic River, nor is it designated under the California Wild and Science Rivers System.

A.3. Watershed Effects

Sediment effects, water temperature effects, organic debris effects, chemical contamination effects, and peak flow effects were assessed.

A.3.a. Sediment Effects

Cumulative impacts to the watersheds from sediment are not predicted. The California Forest Practice Rules limit operations on steep slopes, unstable areas, and in high or extreme EHR areas. This particular plan area has no known unstable areas, has gentle slopes low erosion hazard rating, utilizes unevenaged management, and a winter operating plan. Furthermore, the California Forest Practice Rules require soil stabilization, water bars, watercourse buffers, limitations during the winter period, and numerous other requirements, all of which ensure

impacts from timber operations will be minimized, and therefore not result in significant cumulative sediment impacts to the planning watersheds.

A.3.b. Water Temperature Effects

The early logging entries, which occurred many years prior to the 1973 Forest Practice Act, likely removed much of the large timber along watercourses. The result of these historical practices was a reduction in streamside vegetation, particularly coniferous species. These trees previously formed the main canopy that provided essential shade for the watercourse. In areas lacking shade, water temperatures may become elevated and possibly detrimental to some aquatic species in a localized manner. Other areas may have natural openings resulting from topography, microsite, or past natural disturbance. However, the majority of the natural watercourses in the area have sufficient streamside vegetation and canopy (exclusive of places naturally devoid of significant canopy cover) to provide healthy water temperatures. Thus, cumulative impacts to temperature effects are not anticipated as a result of this plan. This plan, coupled with the California Forest Practice Rules, will limit disturbance in WLPZs adjacent to Class I and II waters, which will ensure no negative cumulative impacts will occur to water temperature.

A.3.c Organic Debris Effects

In many mountain streams, large woody debris may play an important role in controlling channel morphology, storing sediment and organic debris, and creating fish habitat within this response reach, although the function of large woody debris in Sierran streams is not as critical as in coastal streams. Organic debris and streamside vegetation is adequate within the majority of the plan area. Most watercourses have adequate vegetation on their banks and an abundance of organic debris, which create diversions and subsequently braided channels. Seasonal flood events periodically flush accumulated debris from many of these watercourses. This plan, coupled with the California Forest Practice Rules, will also ensure that unnatural deposition of large amounts of organic debris does not occur within the watercourse, via WLPZs, and other protection measures. Therefore, no negative cumulative impacts from organic debris are anticipated from this plan.

A.3.d. Chemical Contamination Effects

Potential sources of contamination effects include run-off from roads that are treated for dust abatement, run-off from herbicide treatments, and contamination from equipment fuels and oils. Watercourse and Lake Protection Zones along Class I and Class II watercourses, ELZs along Class III watercourses, and the water drafting guidelines provided in this plan will mitigate potential chemical contamination. In addition, all fuel storage and placement during operations will comply with all state regulations.

The area under this plan will not require artificial reforestation to meet maximum sustained production or stocking standards and therefore will not require the use of herbicides to facilitate the establishment of regeneration. Herbicides may be used in the area to be treated with the fuelbreak prescription for brush control as part of routine maintenance.

Herbicides may be used within the fuelbreak area, which comprises 87 acres (6%) of the 1,394-acre plan area and 0.2% of the 32,304-acre watershed assessment area. If herbicides are used, they are anticipated to be used infrequently and only if needed to control brushy fuels that would not be more effectively treated by hand or mechanically. Herbicide has been used in the past to a very limited extent within the watershed assessment area. Much of the plantation that was established within the watershed assessment area was established without the use of herbicides. To control the weed seed bank and competing vegetation, the top layer of soil was pushed into windrows which likely resulted in soil impacts and reduced tree health due to displacement of the soil organics. Although herbicides are currently more commonly used for control of competing vegetation in regeneration areas, the current management within the watershed assessment area does not extensively use evenage management. Therefore, herbicides use is minimal. Future projects are anticipated to utilize herbicides at a similar rate to current practices.

Herbicides will primarily be used in situations where woody brush is the predominant fuel. These treatments are intended to lower the wildfire risk (and risk of investment loss), by reducing future brushy fuel loads. Use of herbicides is reduced because applications employ voluntary watercourse exclusion buffers that exceed regulatory and label requirements. Controls include an Integrated Pest Management Plan approach, detailed

site operation plans and site-specific consideration to ensure the most appropriate control measures are applied in each instance where it is necessary to apply herbicides. Examples include ongoing staff training, detailed edaphic, climatic, and weather prescriptions, and buffers and monitoring systems to ensure the protection of sensitive crops, vegetation and water quality.

A.3.d.1. Herbicides to be used

Potential herbicides that may be used to control woody fuel growth within the fuelbreak area include the few herbicides registered for forestry use in California. Herbicides that may be used will likely consist of products containing glyphosate, triclopyr, and/or 2,4-D as active ingredients.

Prior to any pesticide being available for use, it must first go through a comprehensive federal registration process. The Federal Environmental Protection Agency regulates pesticides under two major statutes, Federal Insecticide, Fungicide and Rodenticide Act and the Federal Food, Drug and Cosmetic Act. The registration process involves over 120 tests on product chemistry, human and environmental assessment for food safety, tolerance information concerning pesticide residues on food, and proof the manufacturing process is reliable.

All pesticides that may be applied are approved and regulated by the California Department of Pesticide Regulation (DPR). The DPR regulatory program is a functional equivalent of an environmental impact report (EIR) certified by the California Secretary of Resources pursuant to PRC Section 21080.5. The registration process includes the US EPA label (which is a binding legal document) that prescribes limitations on use and mitigations for proper use. California may add additional restrictions beyond the EPA label and does so through the classification of an EPA labeled pesticide as a California "restricted pesticide" (e.g. 2,4-D). When a pesticide is registered in California, it has been determined through detailed testing and analysis (building upon US EPA testing) that if the pesticide is applied according to label restrictions, DPR and local county regulations, and the written pest control recommendation there will not be significant adverse impacts upon the environment. The DPR regulatory program is designed to study and test pesticides and mitigate potential environmental effects by the registration, label, and commercial application control process.

A.3.d.2. Application Methods

Directed foliar application by ground crews equipped with backpack sprayers is the anticipated application method. Due to the small area, proximity to residents, public roads, and watercourses, aerial application will not be used to avoid impacts to water quality and other sensitive areas. Buffer zones and sensitive areas are flagged ahead of time. Ground broadcast applications are carried out with the nozzles pointed in a downward direction to ensure proper placement of product. Applicators are taught to spray away from water and sensitive areas when doing their buffer passes. Ground applications are not done in winds that exceed 10 miles per hour. Large nozzles are also used that minimize drift. If needed, drift control agents may be added to the spray mix.

A.3.d.3. Mitigation Measures

The DPR process requires site and time specific analysis, including mitigation and consideration of alternatives in the form of a written recommendation for herbicide use prepared by a State Licensed Agricultural Pest Control Advisor (PCA). All spray operations must conform to the label of the pesticide being used, DPR and local county regulations, and the mitigations contained in the PCA recommendation. All commercial herbicide applications must be conducted by a licensed Pest Control Operator (PCO) under the supervision of a licensed Qualified Applicator (QAL).

The judicious use of herbicides when combined as part of an integrated pest management program is an important tool to achieve forest management objectives. These objectives include minimizing the risk of catastrophic loss due to fire. The wise use of the most appropriate vegetation management tools available which consider silvicultural, biological (wildlife), environmental (air, soil, water), economic and social factors is imperitive. An integrated program will consider all tools including silvicultural, chemical, prescribed fire, manual, mechanical, and biological means to control vegetation and include guidelines for their use.

The following are guidelines for the use of herbicides will be used:

1. Pest management decisions will include an evaluation of economic, environmental (water, soil, air), biological (wildlife and habitat), silvicultural (forest health, growth, stocking), and social factors. Professional

input from licensed Pest Control Advisors, Registered Professional Foresters (RPF), and Wildlife Biologists will be utilized in the decision making process.

2. Written recommendations will be prescribed by a licensed Pest Control Advisor for all pesticide applications. All Pest Control Advisor recommendations will be based upon on-site visits and will include at least the following information: specific location of treatment, most appropriate method of application, pests to be controlled, name(s) of most appropriate pesticide to use, descriptions of hazards, restrictions, schedule, time and/or conditions of proper application, locations of all watercourses in or adjacent to treatment area with minimum buffers stated, proximity to and likelihood of recreational or residential use by humans, presence of livestock, and consideration of alternative treatments.
3. All applicable federal and state laws and regulations and all label requirements as regulated by the California Environmental Protection Agency (CALEPA) Department of Pesticide Regulations (DPR) and the local County Agricultural Commissioner will be complied with. For all counties in which spray operations will be performed, the landbase will annually register with the County Agricultural Commissioner to obtain landowner identification numbers and restricted materials permits.
4. All applications will be conducted by licensed Pest Control Operators (PCOs).
5. Prior to all spray applications, PCOs will be shown all boundaries and sensitive areas. If feasible, the RPF and/or PCA will be on site during applications.
6. Buffers will be established which meet and often exceed labels and regulations. For all applications herbicide shall not be applied within any WLPZ/ELZ/EEZ. Should specific chemical, site (slope, soil type, beneficial uses of water, vegetation etc.) or climatic (wind speed & direction, thermal etc.) conditions warrant, then this buffer may be increased in the prescription and/or at any time during application.
7. All treatments will consider community concerns, particularly neighboring landowners. To the extent feasible, adjacent landowners will be notified prior to treatments and their concerns will be considered when establishing chemical use, application methods, and property line buffers. In situations where neighbors have expressed concern, have not been contacted, or have not responded, methods will be selected and minimum buffers established to insure no off-site drift or movement of herbicide will impact their property.
8. Records of all treatments will be kept, including maps, chemicals, and methods used. Pest Control Operators shall submit Pesticide Use Reports to the appropriate counties and shall send copies of all use reports to landowner to keep on file.
9. Applications will be appropriately monitored for effectiveness and compliance by the RPF and/or PCA. This will include recording chemical, application, and climatic information. In some environmentally or socially sensitive situations, this may include the use of spray droplet detection cards and/or water quality monitoring. All treatment areas will generally be visited by the RPF or PCA at least once to monitor compliance with and effectiveness of the prescription. Any suggestions for improvement of developing or implementing future prescriptions will be evaluated.

A.3.d.4. Regulations

On a local level in the State of California, pesticide applications are monitored and enforced by the County Agricultural Commissioner. Field inspections are carried out by qualified county staff for both ground and aerial applications. Use reports of all pesticide applications must be filled out by operators and submitted to the County Agricultural Commissioner within seven days of application.

Herbicide applications will adhere strictly to the pesticide label, federal laws, state and local regulations, and requirements in a written pest control recommendation prepared by a California licensed Pest Control Advisor. It is a violation of federal law to apply a pesticide in a manner inconsistent with its labeling. The intent of the pesticide label is to give clear and concise directions for use while minimizing risks to human health and the environment. The label has specific directions for rates used, personal protective equipment, restricted entry intervals, hazards to humans and wildlife, special restrictions near water, lists of active ingredients, directions for container disposal, specific application instructions, and signal word denoting the level of hazard.

The PCA will adhere to strict guidelines for mitigating risks associated with pesticide applications. All state and federal labels and laws as well as all state and local county regulations in addition to mitigations will be strictly followed in all pesticide applications. All chemical applications are applied by California licensed applicators only. California applicators are required to pass a rigorous exam to show competence, and may only keep their license after accumulating 20 to 40 hours of continuing education within their two-year certification period. No applications are made unless a written recommendation has been obtained by a licensed pest control advisor. Pest Control Advisor's must have at least a bachelor's degree in forestry, crop science, biology or related field. Pest control advisors must complete 40 hours of continuing education within their two year certification period. The written recommendation must be on site during the pesticide application. Recommendations include such things as pesticide(s) to be used, the rate at which the pesticide is to be applied, dilution, method of application, environmental conditions, hazards and mitigation measures, label precautions, and directions for use. Pest Control Advisor's are also required to consider and evaluate all feasible alternatives and select the most appropriate method and pesticide(s) available.

Although products containing 2,4-D, 2-ethylhexyl ester are labled for use in California as "low volatile" ester, the potential for volatilization still exists at high ambient air temperatures. Volatilized 2,4-D, 2-ethylhexyl ester molecules have the potential to drift and damage non-target crops that are very sensitive to low amounts of 2,4-D, 2-ethylhexyl ester such as grapes and cotton. Therefore labels restrict the application of products containing 2,4-D, 2-ethylhexyl ester when air temperatures can lead to volatilization, with some labels specifying maximum air temperatures of 85 to 90 degrees Fahrenheit. As an added margin of safety, spray applications of products containing 2,4-D, 2-ethylhexyl ester generally stop when air temperatures reach 75 degrees Fahrenheit. As an additional precaution, products containing 2,4-D, 2-ethylhexyl ester are not used during summer months on units where highly sensitive crops (e.g. grapes) are growing within one mile. In areas where temperatures inversions are common in the summer months (e.g. agricultural valleys) this restriction is extended up to five miles.

A.3.d.5. Compliance with Regulations

Herbicides are approved by federal and state agencies for applications in forest and woodland management. California's Pesticide Regulatory process is one of the world's most stringent. To mitigate potential hazards, the proper handling and application of the product is identified on the herbicide label and Material Safety Data Sheet. Application is consistent with the weather parameters and timing restrictions identified on the label and as recommended by a Licensed Pest Control Advisor. Minimum effective rates are applied.

Forest applications are carried out in accordance with the US EPA and the California Department of Pesticide Regulation (DPR) licensing and permitting procedures and all proposed treatment areas are examined by a Pest Control Advisor. As required by California law, the appropriate county agricultural commissioner is provided 24-hour notice of all applications of 2,4-D and pesticide use reports are sent to the appropriate county agricultural commissioner upon completion of operations.

A.3.d.6. Site Specific PCA Recommendations

All applications of herbicides are prescribed by a Pest Control Advisor after an onsite visit and consideration of alternative treatment methods. The Pest Control Advisor recommendations consider alternative treatments (both pesticide and non-pesticide), and include a description of location, most appropriate chemical, rate, hazards, use restrictions, identification of sensitive areas within or near the project area and mitigations that frequently exceed minimum regulations or label requirements.

An evaluation of all environmental conditions will be conducted when determining whether to apply herbicides. When application of herbicides are necessary to meet the objectives of the fuelbreak, a Pest Control Advisor recommends when, where, and how herbicides will be applied based on site-specific circumstances. Professionally trained foresters and wildlife biologists are consulted. Information concerning impacts to non-target organisms (particularly threatened or endangered species) is evaluated and mitigations applied as necessary. A Licensed Pest Control Business (under the auspices of a Qualified Applicator) performs the application, following all label instructions, regulations, and the Pest Control Advisor recommendation.

A.3.d.7. Timing

The application of herbicides generally occurs in the late spring to early fall, when very little rainfall occurs in northern California. Applications are also done with sufficient buffer widths from any watercourses, ponds, lakes, wet areas etc. These two factors, in combination with the herbicide properties and all the other mitigations, should fully address any concerns.

The method of use, climate, and environmental conditions of the actual field applications of herbicides lead to very little risk of adverse cumulative watershed impact. Herbicides used will be exposed to aerobic conditions which lead to rapid breakdown prior to it posing a significant risk of bioaccumulation or other adverse effect.

A.3.d.8. Worker Protection

In 1996, the Federal Worker Protection Standards were also adopted to further protect applicators, field workers, mixers/loaders and other people that may come in contact with treated areas. Primarily, the act increased the scope of people who require pesticide safety training, increased restricted entry intervals, and broadened the requirement for personal protective equipment.

All personnel including applicators, mixers/loaders, contractors and workers who enter treated units within 30 days of the expiration of the restricted entry interval on the pesticide label are safety trained on an annual basis by licensed professionals in the use and safety of pesticides. Any person applying, mixing/loading, or entering a treated unit within the restricted entry interval must generally wear coveralls, rubber gloves, safety goggles, boots, and socks or as required by the herbicide label.

During applications, on site decontamination facilities are available which include soap, disposable towels, clean change of clothes, eyewash and wash water. Emergency medical information is posted at the site for the nearest hospital. All spray tanks and backpacks are labeled with the product, rate, signal word, EPA number, manufacturer and the name, address and phone number of the applicator. All workers are required to wash their hands before eating, drinking or using tobacco. Mixing and loading of restricted materials is only done by a licensed professional.

Prior to applications a meeting is conducted with the applicator to insure they understand all unit boundaries, buffer zones, sensitive areas, property lines, the Pest Control Advisor recommendation and any additional concerns the situation may pose.

A.3.d.9. Summary

Due to the operational measures and considerations incorporated into the plan and compliance with all regulations and label requirements, no adverse cumulative impacts from chemical use are anticipated from this plan.

A.3.e. *Peak Flow Effects*

Annual precipitation in the watershed assessment area is approximately 55 inches depending on elevation and geographic position. A portion of this precipitation comes in the form of snow. Flood conditions as a result of intense rain are infrequent in the watershed assessment area. Late spring, summer, and early fall rainfalls seldom occur, with the exception of infrequent intense thunderstorms. The majority of the soils in the area are deep and porous, providing adequate infiltration rates for the typical moderate precipitation, thus reducing the risk associated with surface runoff.

Snow pack depths vary, but are generally not sufficient to cause spring snowmelts that produce detrimental flooding. The watershed assessment area is dominated by heavily forested areas with some large areas dominated by brush, areas of meadow, and oak woodlands to the west. More precipitation reaches the ground in the un-forested areas, than in the adjacent forested areas. These large open areas are susceptible to rapid melting from rain-on-snow events, warm winds, and solar radiation. Rain-on-snow events have the potential to generate higher flows that could result in channel erosion. However, because of the low annual precipitation, moderate precipitation intensity, moderate topography, porous soils, and low percentage of hydrologically immature vegetation types, the watershed assessment area is relatively safe from peak flow effects.

A.4. Watercourse Condition

Stream channel condition assessments were conducted for primary watercourses within the plan area. Peak flows have the greatest effect on stream channel conditions in the watershed assessment area. These effects may be exasperated by management activities when soils become exposed and sediment is transported into the stream channels. Other effects on stream channel conditions that may be caused by management activities include the reduction in streamside vegetation which has an effect on water temperature, sediment transport, and organic matter content. Due to the influence peak flows have on stream channels, a strong emphasis was placed on stream reach responses to peak flows when describing the following stream channel conditions. Further emphasis was placed on streamside vegetation and how it has been affected by past events whether naturally caused or through management activities.

Squaw Valley Creek, and its tributary Cherry Creek are both Class I watercourses within the assessment area. Squaw Valley Creek has a gradient of three to four percent in the lower reaches, while Cherry Creek has a gradient of five percent. Squaw Valley Creek supports native trout due to the presence of cool, clear water year-around.

Mud Creek is a Class II watercourse east of the plan area. Its southern reach has a gradient of about two percent, while it has a much steeper gradient of six percent in the northern reaches. Mud Creek originates from deep snow pack and glaciers on the southeast side of Mount Shasta. Steve Bachman, hydrologist, U.S.D.A. Forest Service, McCloud Ranger District indicated that Mud Creek has seasonal mud flows and highly turbid waters during the summer months when deep snow pack and glaciers are melting. During winter months Mud Creek has annual or semi-annual debris torrents from the steeps slopes of Mount Shasta. The combination of both summer and winter conditions restrict native trout from reaches of Mud Creek. California Department of Fish and Wildlife have previously surveyed these reaches of Mud Creek and have not found native trout.

A.5. Cumulative Effects

No cumulative effect on watershed resources is expected to occur as a result of this plan.

B. SOIL PRODUCTIVITY

The assessment area for soil productivity impacts is limited to the plan area. The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 2, were used as the rationale for the establishment of the assessment area. Organic matter loss, surface soil loss, soil compaction, and growing space loss were assessed.

B.1. Organic Matter Loss

Organic material loss is not a concern due to the retention of down woody material, ample vegetative cover, and snags which will mitigate organic material loss. Unevenaged management reduces the amount of vegetative cover and organic matter lost, and limits losses primarily to skid trails. Additional exposed soils occur on roads and landings.

The harvest under this plan will remove a small portion of the standing biomass from the area and therefore a small portion of the site nutrients. However, nutrient availability is not nearly as limiting a factor on forest productivity as are moisture availability and the short duration of the growing season. Removal of a small percentage (<5%) of site nutrients from the forest area will not affect vegetative growth because the soil retains a nutrient bank. The vast majority of site nutrients remain on-site in the form of residual vegetation, harvested tree crown biomass, litter, and that amount held by the soil itself. While the proposed silviculture may temporarily modify nutrient cycling, it does not interrupt it. A much greater proportion of soil nutrients are removed through uncontrolled, catastrophic fire than through mechanized thinning and chipping operations that tend to reduce occurrences of this type of fire.

B.2. Surface Soil Loss

Surface soil loss is most commonly the result of erosion, but mechanical site preparation, skidding, and other ground disturbing operations may also cause displacement. Surface soil loss largely occurs on hillslopes in combination with the removal of high proportions of vegetation. No mechanical site preparation shall occur under this plan, no steep slopes exist within the plan area, and vegetative cover post-operations will be high.

Snags and down woody debris are considered important components for stabilizing surface soil and will be retained to the extent that they meet stand management and regeneration objectives.

Roads and landings used in conjunction with timber operations are maintained in accordance with the requirements of the California Forest Practice Rules. The required and prudent use of waterbreaks, stabilization of road running surfaces, and maintenance of drainage ditches are generally sufficient to minimize surface soil losses.

Soil loss should be insignificant due to standard erosion control practices and the gentle to moderate topography within the plan. The entire plan area has a low erosion hazard rating (California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 1, February 1, 1990) based on slope, high percentage of vegetative cover retained after harvest, and soil characteristics, which shall greatly reduce the risk of significant surface soil loss. Winter operating restrictions also reduce the likelihood of soil erosion.

B.3. Soil Compaction

Some initial harvest entries within the assessment area may have occurred during adverse conditions and likely resulted in soil compaction. Historically, heavy equipment was used to harvest large timber with much less regard for soil resources than is currently used.

The plan area will generally be managed on a 10-year cutting cycle with occasional sanitation-salvage intermediate treatments as needed. This frequent re-entry cycle creates additional risk of soil compaction from frequent use of ground-based mechanical harvesting equipment. Risk would naturally increase during periods with multiple salvage entries. These salvage entries are generally light harvests which cause limited disturbance on a per acre basis. Regular entries within the plan area will use the group selection regeneration method. These are low volume per acre harvests which do not pose a high risk of soil compaction at water contents near field capacity. Additionally, most compaction occurs on skid trails and landings which are not devoted to growing timber. Most skid trails and landings are already in place and will be used for subsequent management activities, so the effect of operations proposed under this plan on cumulative soil productivity from soil compaction are insignificant.

In addition to harvest frequency and intensity, soil moisture content, and soil type determine a soils susceptibility to compaction. Soil compaction is detrimental to site productivity when it significantly reduces the large pores that transmit air and winter in the soil, which also restricts root growth. The risk of soil compaction is worst when the soil moisture is near field capacity, and with certain soil types (particularly clay soils). The soils within this plan area are predominantly sandy loam and loamy sand soils, which are relatively resistant to compaction. Harvest operations are restricted during the winter period from November 15th to April 1st to prevent compaction of soils when soil moisture is near field capacity. Winter operation limitations will adequately mitigate possible adverse impacts to soil compaction.

B.4. Growing Space Loss

The loss of growing space on property devoted to commercial timber production is primarily associated with roads, skid trails and landings. A minimal additional loss of growing space may occur within the plan area due to a minor amount of new landing construction anticipated. For all operations on the plan area, existing tractor roads will be used to the greatest extent practical.

B.5. Cumulative Effects

No cumulative effect on soil productivity is expected to occur as a result of this plan.

C. BIOLOGICAL RESOURCES

The assessment area for biological resources is the plan area plus 1.3 miles (see Biological & Watershed Assessment Area Map at the end of Section IV). The scoping area includes the nine USGS 7.5 minute quadrangles encompassing and adjacent to the plan area. These quadrangles are: Hotlum, Mount Shasta, Ash Creek Butte, City of Mount Shasta, McClould, Elk Spring, Dunsmuir, Girard Ridge, and Lake McCloud.

The boundaries for this assessment represent an area where species using large home ranges could possibly be affected. The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule

Addendum No. 2, were used as the rationale for the establishment of the assessment area. Known rare, threatened, or endangered species, significant known wildlife or fisheries resource concerns, aquatic and near-water habitat conditions, and biological habitat condition were assessed.

Scoping was used to determine which special status species are known, or could potentially occur within the plan and biological assessment area. The California Natural Diversity Database (CNDDB) (July 2015 version) was queried for all quadrangles within the scoping area. This methodology provides a reasonable assessment of habitat types, elevations, soils, and vegetative communities that could be present with the plan and is representative of the habitats found in the general landscape. Specific operational mitigation measures for each specific species, if necessary, are described in Section II, Item 32 of this plan.

C.1. Known Rare, Threatened, or Endangered Species

Willow flycatcher is the only currently known rare, threatened, or endangered species within the plan area or within the biological assessment area that will be affected by the project.

Willow flycatcher: This species is State endangered. Protection measures are outlined Section II, Item 32a of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

C.2. Significant Known Wildlife or Fisheries Resource Concerns

Fisher and sharp-shinned hawk are known to occur within the plan area. Sierra Nevada red fox is historically known to occur within the biological assessment area and Sandhill crane is known to currently occur within the biological assessment area. There are no other currently known rare, threatened, or endangered species within the plan area or within the biological assessment area that will be affected by the project. However, there are potential suitable habitats for several species that may occur within the plan area (see Section III, Item 32) and operation provisions for several species that may occur within the plan area (see Section II, Item 32(a) and 32(b)).

Beaver: This species is has no state status. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Cascades frog: This species is State Species of Special Concern. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Cooper's hawk: This species is State Species of Special Concern - Watch List. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Foothill yellow-legged frog: This species is State Species of Special Concern. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Fisher: In 2010 and again in 2015, the CDFW recommended the species is not warranted for listing within the plan area under the State Endangered Species Act. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Gray wolf: This species is a State fully protected Species. While the species has passed through the assessment area, the species is not currently known to occur in the assessment area. Accordingly, no significant adverse impacts are expected to occur to this species as a result of this plan.

Northern goshawk: This species is a Board of Forestry Sensitive Species. Protection measures are outlined Section II, Item 32a of this plan. Following these rules, and the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Northern spotted owl: The species was listed federal threatened in 1990. The range of the Northern spotted owl is delineated into 12 physiographic provinces based on recognized landscape subdivisions exhibiting different physical and environmental features (Thomas et al 1993 as reported in USFWS 2008). The three provinces

important to California are the California Coast, California Klamath, and the California Cascades. The plan area is within the California Klamath and California Cascades provinces. In California, the NSO is a CESA candidate species. The California Forest Practice Rules ensure that a THP will not individually result in a "take" or cause a significant cumulative adverse impact on any individual of the species.

The listing criteria determined the NSO was at risk to extinction "due to loss and adverse modification of suitable habitat as a result of timber harvesting and exacerbated by catastrophic events such as fire, volcanic eruption, and wind storms". Past timber management and other forest management activities have affected the landscape on and adjacent to the plan area. The plan area been managed for commercial timber values since the early 1900's. Consequently, these forests are relatively young (<80 years old) with small (<10 acres), isolated patches of older trees. Forests on and adjacent to the plan area tend to be naturally fragmented due to diversity in geology, topography, climatic conditions and periodic fire events. On-going timber harvest and fuels management have contributed to this diverse forest mosaic.

Forest management activities have the potential to alter forest characteristics and influence the availability and quality of Northern spotted owl habitat. The modification of forest stand conditions through timber harvest has the greatest potential to affect, both positively and negatively, Northern spotted owls because of the immediate and long-term effects it has on habitat conditions and prey availability. Silvicultural treatments such as uneven-aged management may benefit Northern spotted owls by accelerating the development of owl habitat and increasing prey abundance and by reducing the risk of catastrophic wildfire.

Measures describe in this THP (Section II, Item 32a) ensure that "take" of an individual NSO will not result from forest management activities proposed in the THP. Habitat maintenance measures and operational disturbances measures are described in the plan. Accordingly, based on operational measures in Section II, Item 32a, no significant cumulative adverse impacts are expected to occur to this species as a result of this plan.

Osprey: Osprey is unlisted under the State and Federal Endangered Species Acts, but is a Board of Forestry Sensitive Species. General protection measures, and nest specific protection measures are outlined in both the California Forest Practice Rules, and Section II, Item 32a of this plan. Following these rules, and the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Red-tailed hawk: Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Sharp-shinned hawk: This species is State Species of Special Concern - Watch List. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Silver-haired bat: This species is State Species of Special Concern. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Spotted bat: This species is State Species of Special Concern. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Townsend's big eared bat: On April 25, 2013, the CDFW determined that there is sufficient information that listing the species under state ESA may be warranted (Bonham 2013). On June 26, 2013, the California Fish and Game Commission accepted the petition and the species is currently considered a candidate species under state Endangered Species Act. Protection measures are outlined Section II, Item 32a of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Western mastif bat: This species is State Species of Special Concern. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

Western pond turtle: This species is State Species of Special Concern. Protection measures are outlined Section II, Item 32b of this plan. Following the protection measures outlined in this plan, no significant adverse impacts are expected to occur to this species as a result of this plan.

C.3. Aquatic and Near-Water Habitat Conditions

Pools and riffles, large woody material, and near-water vegetation were assessed.

C.3.a. Pools and Riffles

Refer to Section III, Site Description, Watershed and Stream Conditions, and Section IV, Watershed Resources, Watercourse Condition, for stream channel conditions.

C.3.b. Large Woody Material

Large woody debris (LWD) is an important aspect of the watercourses in the watershed assessment area. It not only provides habitat for aquatic species but perhaps more importantly it provides structure and stability to the watercourses and serves other hydrologic functions such as sediment storage and metering. This LWD component aids in reducing the amount of scour, bank cutting, and down cutting within the watercourses which helps limit the amount of sediment from channel erosion that is transported downstream.

The channel and banks of each of the transport reaches are formed primarily from bedrock or colluvial material made up of medium to large sized boulders. The response reaches of each watercourse are primarily made up of alluvial material that has been transported down from these upper reaches. In many mountain streams, LWD may play an important role in controlling channel morphology, storing sediment and organic debris, and creating fish habitat within response reaches, although the function of LWD in Sierran streams is not as critical as in coastal streams (Berg et al. 1998). Large woody debris may be more important as a structural component in response reaches than it is along transport reaches because of stream gradient, width and the general difference in watercourse bank and channel substrate.

Streamside conifers, on a long term basis, are the primary source for LWD. Due to the removal of much of the conifer component along the watercourses from historical logging, some areas of the watercourses have a decreased source of LWD. In general, the present riparian overstory is characterized by 12 to 40-inch dbh sized conifers of low to moderate density with a low density of hardwoods and an understory of brush. Over time, the hardwood density will decrease as the conifer density increases. The first harvest entry resulted in a short term reduction of potential LWD. This short term reduction is being made up by current standing cull retention standards, and the retention standards within Forest Practice Rules in WLPZs. Additionally, hardwoods have and will continue to serve as a LWD source.

The majority of the watercourses, however, do currently possess adequate quantities of organic debris, and some segments even have excess quantities, which may create problems with culvert maintenance and fish migration. All permanent culvert crossings are generally inspected annually by the landowner, and more frequently if they are within an active timber sale.

Recruitment of LWD is accomplished through mortality of large trees left as culls during past logging. Additionally, trees that lean across watercourses that cannot be feasibly removed will be left. All snags in the WLPZ which do not contain sound saw-log volume or have evidence of use by wildlife will be left as well. Generally there is not a lack of LWD in the watercourses and the level should increase over time because the management techniques used on all ownerships of the plan area will maintain and grow large trees within WLPZs.

C.3.c. Near-Water Vegetation

The existing vegetation is structurally diverse along segments of the Class I and II watercourses. Alder, aspen, cottonwood, ash, bracken fern, *Ceanothus* spp., conifer, *Ribes* spp., maple, willow, dogwood, and blackberry, as well as grasses and forbs are present to various degrees along the watercourse banks and the forest areas. Much of the vegetation along with watercourses is comprised of a sod layer of meadow species. Some riparian areas within the plan area have been affected by past grazing management practices. Observed impacts to riparian areas include minor stream bank trampling, loss of streamside vegetation, and minor turbidity. The landowner actively moves cattle around the property to ensure efficient forage utilization. Other landowners in the assessment area work with grazing lease holders where possible (some land is open range) to modify the terms of leases to more actively apply impact avoidance measures relative to grazing. Generally, grazing related impacts do not affect vegetative diversity at the watershed scale.

C.4. Biological Habitat Condition

Within the forest area, there are small to medium openings (two to five acres) comprised of both manzanita (*arctostaphylos spp.*) and *ceanothus spp.* or grasses and forbs. Other understory hardwoods include California

black oak (*quercus spp.*), white oak (*quercus spp.*), big leaf maple (*acer spp.*), dogwood (*cornus spp.*), willow (*salix spp.*), and cottonwood and quaking aspen (*populous spp.*) along some of the watercourses. In many of the timber stands there is a moderate to well-developed brush component in the understory. This evaluation resulted from numerous trips to the area by W. M. Beaty & Associates, Inc. forestry staff. The desired future condition across the plan area is a forest that will allow for naturally functioning ecosystem processes and future commercial harvests. To meet these goals, habitat elements with intrinsic wildlife value have been identified (i.e. snags, cull trees, down woody material) and will be retained following harvest. Only those snags specified in Item 33 will be felled, all large down woody debris will be left intact, and areas of hardwoods will remain where they currently exist.

The vegetation and stand conditions and the biological resources sections included in Section III, Site Description, adequately address assessment and mitigation of possible biological impacts. Positive biological cumulative impacts associated with the timber operations proposed here should be noted. These include thinning of overstocked stands (and the associated reduction in risk of catastrophic wildfire), and increased forage production in areas where a significant portion of the tree canopy is removed.

C.4.a. Snags/Den/Nest Trees

Relatively few trees with evidence of use by wildlife exist within the assessment area due to the generally young timber stands that comprise the plan area. Some of the retention trees within previously harvested evenaged units show evidence of use by birds. Some of the areas adjacent to the Class I and II watercourses also show larger numbers of snags, potential den trees, and potential nest sites due to the more complex forest structure.

C.4.b. Downed Large Woody Debris

Downed large woody debris exists within the plan area primarily due to large cull trees and logs left from previous timber harvests. Larger trees will be retained within the plan area and along watercourses for habitat needs.

C.4.c. Multistory Canopy

Forest structure varies widely across the plan area, due to the long history of forest management in the area. Since the area is composed primarily of younger trees, forest structure is not as complex as historical stands likely would have been. Some larger trees do exist within the plan area, which contribute to a more complex and diverse forest structure. Some of the areas adjacent to the Class I and II watercourses also have a slightly higher proportion of larger trees, due to reduced levels of harvest in these areas over the past 30 years. Trees within the watercourse buffers will continue to stratify in the canopy, and a more complex multistory canopy will slowly be developed. Overall, it is not anticipated that this plan will significantly diminish the habitat components associated with multistory canopies.

C.4.d. Road Density

Overall, the density of roads within these watersheds is low to moderate, with some roads receiving moderate amounts of vehicular traffic from agriculture and timber management activities, as well as traffic from individuals residing on the property. The presence of terrestrial wildlife species in the area was noted during field reconnaissance and because no roads are planned be constructed as part of this plan, it is unlikely that there will be an adverse impact on large mammals due to a change in road density.

C.4.e. Hardwood Cover

No hardwoods >20-inch dbh are scheduled for harvest as part of this plan; thus, there will not be a landscape level impact associated with a reduction of mast producing trees.

C.4.f. Late Seral Forest Characteristics

The entire plan area has been previously harvested. No old growth stands or remnant patches of late seral stage forest which generally conform to the definition of un-harvested forests (but do not meet the acreage criteria) are present within the plan area. Some large old trees are present that were left as culls during the early logging entries. With very few exceptions, these trees will not be harvested.

C.4.g. Late Seral Habitat Continuity

The area has been managed as a mixed conifer forest since the initial harvest entries with periodic re-entries occurring approximately every 20 years. The plan area has been extensively harvested over the past 50 years and there is no late seral habitat present.

C.4.h. Special Habitat Elements

In general, the forest stands retain: 1) variable stocking, including some large older trees; 2) background levels of disease and parasites; 3) large snags and downed logs in some areas; 4) plant assemblages that represent a variety of stages in forest development.

C.5. Cumulative Effects

No cumulative effect on biological resources is expected to occur as a result of this plan.

D. RECREATIONAL RESOURCES

The assessment area for recreational impacts is the plan area plus 300 feet. The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 2, were used as the rationale for the establishment of the assessment area.

No recreational Special Treatment Areas described by the California State Board of Forestry and Fire Protection are on or contiguous to the recreational impacts assessment area.

The landowner does not allow unauthorized entry onto the property; therefore, recreation will not be effected by timber operations.

No cumulative effect on recreational resources is expected to occur as a result of this plan.

E. VISUAL RESOURCES

The assessment area for visual resources is that portion of the plan area that is visible to significant numbers of people within three miles. The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 2, were used as the rationale for the establishment of the assessment area.

No visual value Special Treatment Areas described by the Board of Forestry are on or contiguous to the plan area.

The proposed timber operations will be visible to a moderate to high number of people. In particular, the areas immediately adjacent to Squaw Valley Road, and to a lesser extent those areas along State Highway 89 and the adjacent residential areas are of particular visual importance. Viewing is done on foot, in vehicles, and from stationary points. No significant negative visual impacts are anticipated, because the plan will primarily be harvested using group selection. This plan may have a positive future visual impact in the area; if a catastrophic wildfire occurs in the area, the severity (and thus visual impacts) within the plan area will be reduced due to the forestland management that will occur under this plan.

No cumulative effect on visual resources is expected to occur as a result of this plan.

F. VEHICULAR TRAFFIC IMPACTS

The assessment area for traffic impacts is the first public roads over which logging traffic must travel. The guidelines offered by the California State Board of Forestry and Fire Protection, Technical Rule Addendum No. 2, were used as the rationale for the establishment of the assessment area.

Logging truck traffic will access and use Squaw Valley Road and State Highway 89. These roads regularly experience traffic associated with logging activity and other commercial transportation.

No cumulative effect on vehicular traffic impacts is expected to occur as a result of this plan.

G. GREEN HOUSE GAS EVALUATION

The assessment area for greenhouse gas impacts is the plan area.

An evaluation of the potential cumulative impacts associated with climate change and increased gas emissions which may result from the proposed harvest operations when compared to the impacts of past, present and reasonably foreseeable future projects was conducted. The Greenhouse Gas Emissions Calculator released by Cal Fire dated June 11, 2010, was used to predict the potential environmental impact from greenhouse gas emissions related to this project. The greenhouse gas worksheets are included in Section V. Periodic harvesting will result in a short term loss of carbon storage, which will be offset by the reduction in fire hazard, subsequent CO_2 emissions, water quality impacts, and increased stand health and vigor that would result from the area being untreated and subject to catastrophic wildfire.

The results of the analysis indicate carbon stocks will decline as a result of operations under this plan but will recoup within a period of three years due to growth after harvest. Planned operations in the plan area over a 100-year planning horizon will result in the total sequestration of approximately 175,856 metric tonnes of carbon dioxide equivalent. As such, there is a net positive impact on greenhouse gases.

No cumulative effect on greenhouse gas emissions is expected to occur as a result of this plan.

H. REFERENCES

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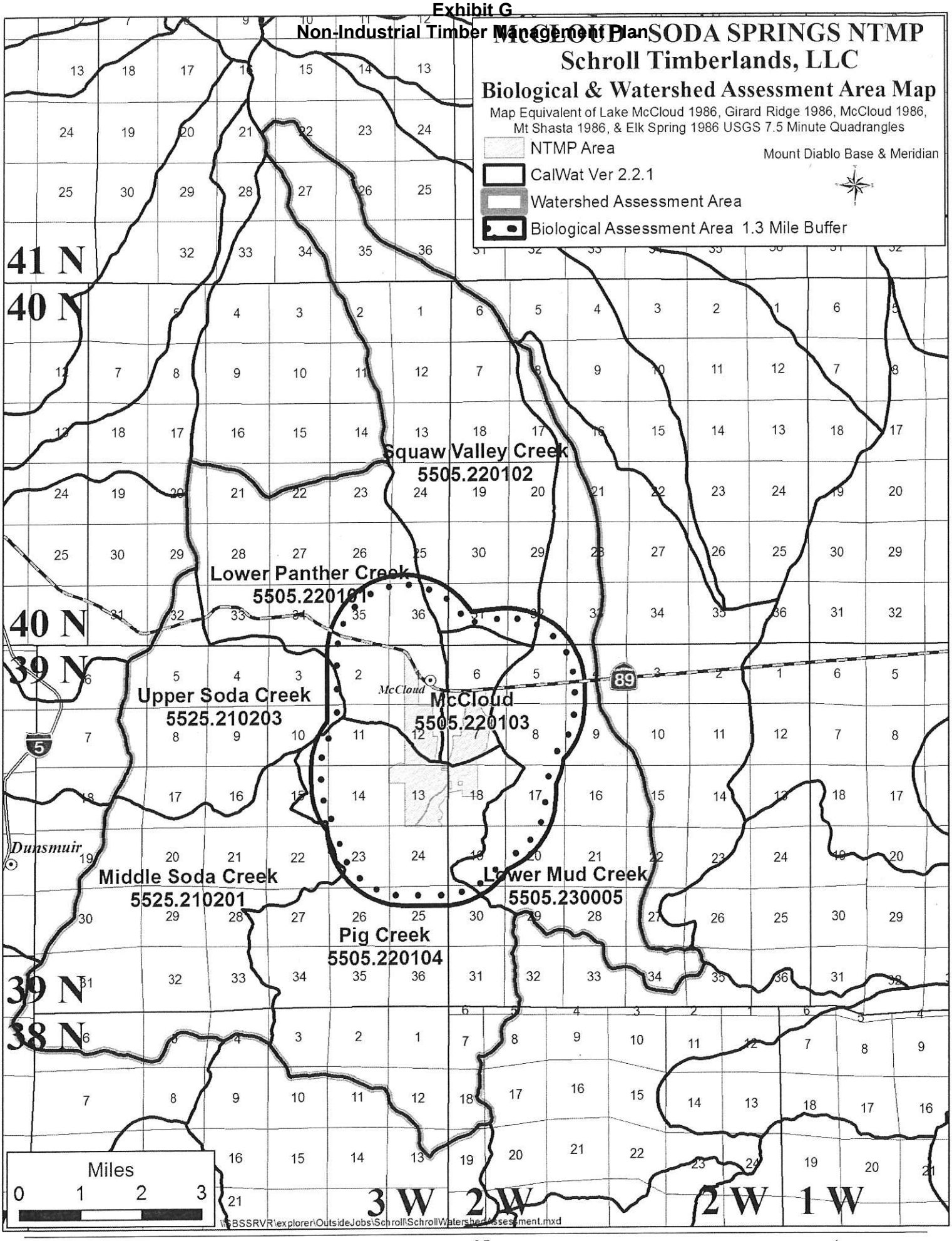
McCLOUD SODA SPRINGS NTMP
Schroll Timberlands, LLC
Biological & Watershed Assessment Area Map
Map Equivalent of Lake McCloud 1986, Girard Ridge 1986, McCloud 1986, Mt Shasta 1986, & Elk Spring 1986 USGS 7.5 Minute Quadrangles
NTMP Area
CalWat Ver 2.2.1
Watershed Assessment Area
Biological Assessment Area 1.3 Mile Buffer
Mount Diablo Base & Meridian
Squaw Valley Creek
5505.220102
Lower Panther Creek
5505.220101
Upper Soda Creek
5525.210203
McCloud
5505.220103
Middle Soda Creek
5525.210201
Lower Mud Creek
5505.230005
Pig Creek
5505.220104
McCloud
Dunsmuir
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39 N
38 N
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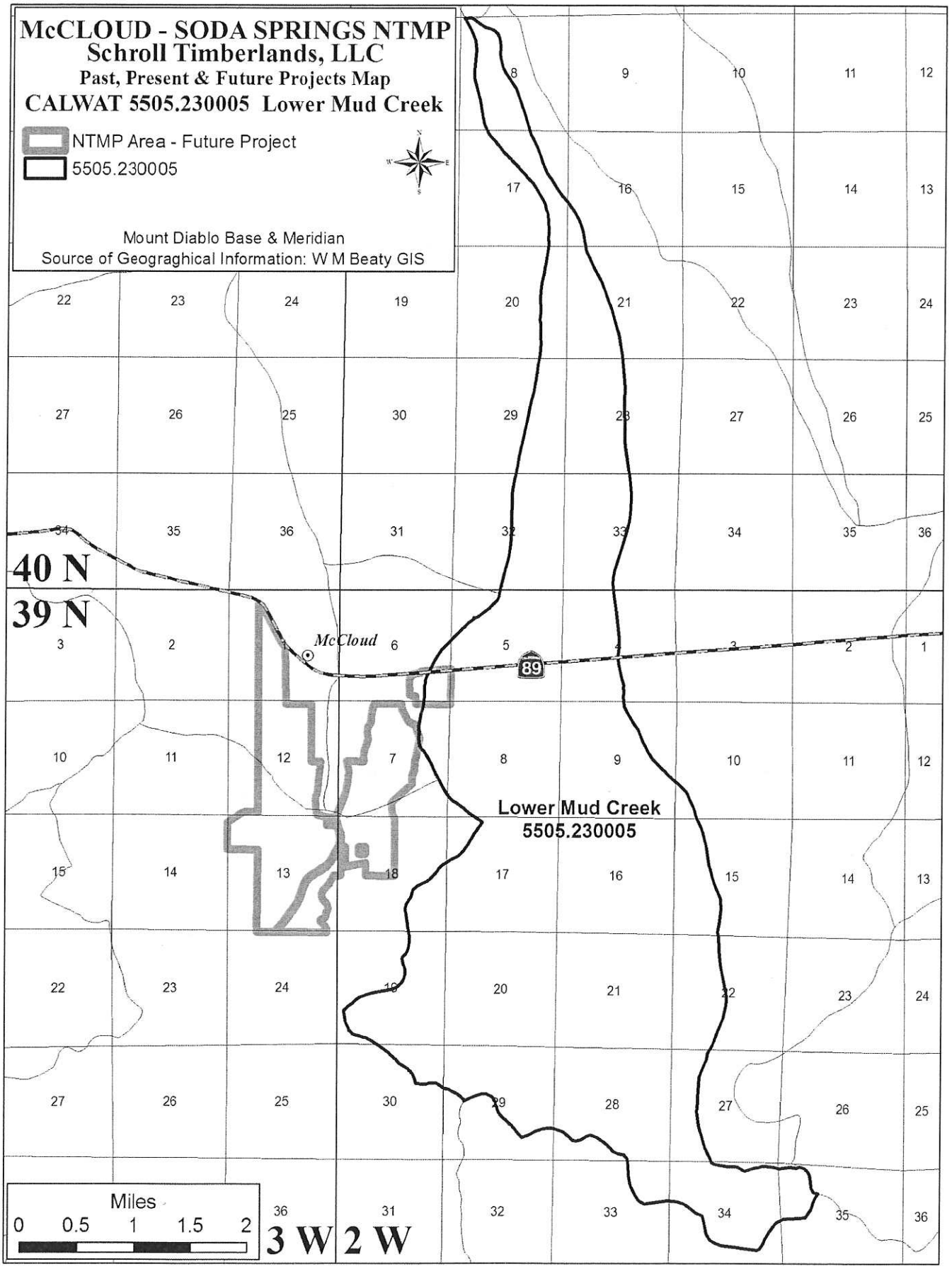
McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5505.230005 Lower Mud Creek
NTMP Area - Future Project
5505.230005
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
40 N
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McCloud
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Lower Mud Creek
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Miles
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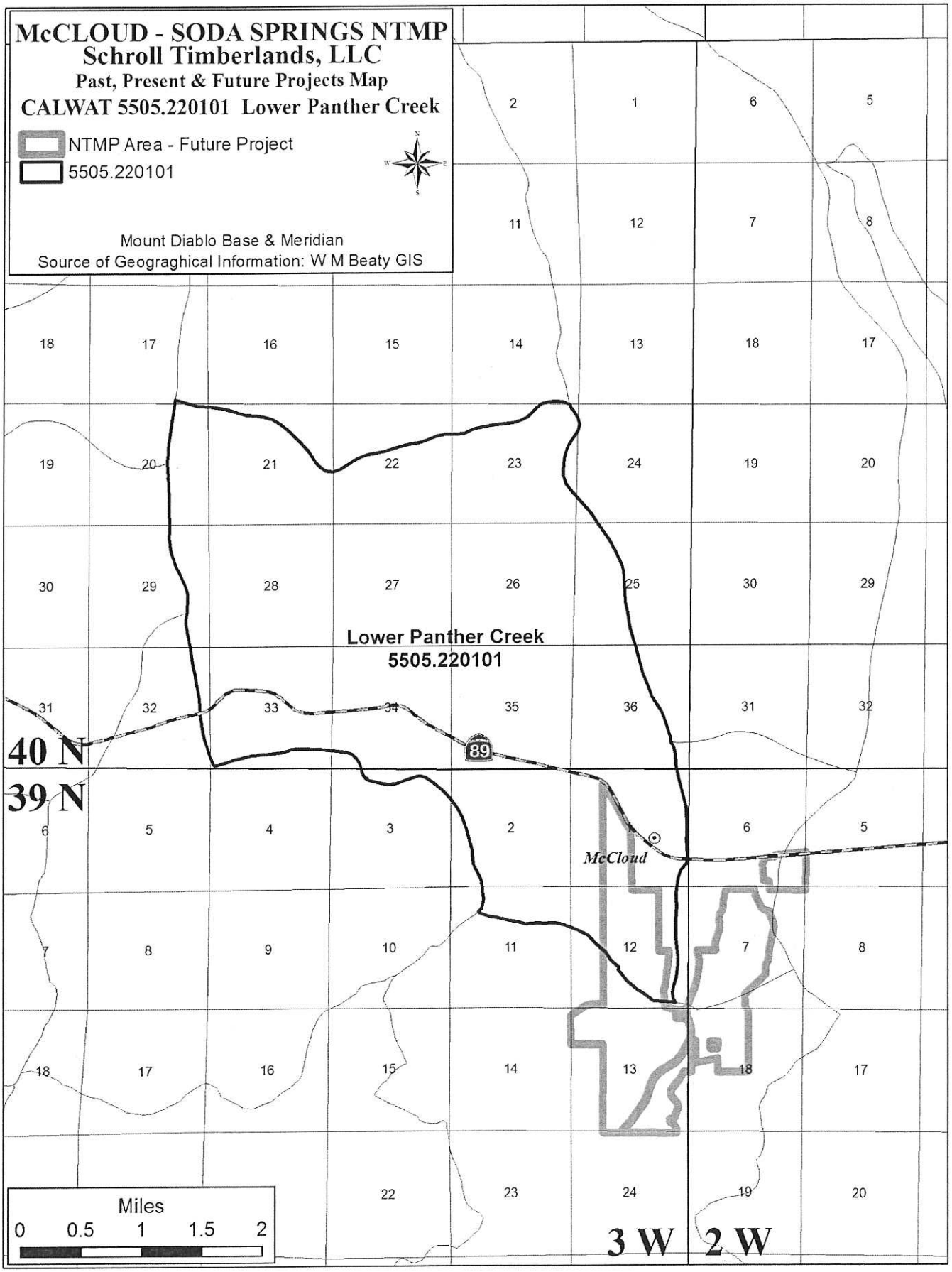
3 W
2 W


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5505.220101 Lower Panther Creek
NTMP Area - Future Project
5505.220101
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
Lower Panther Creek
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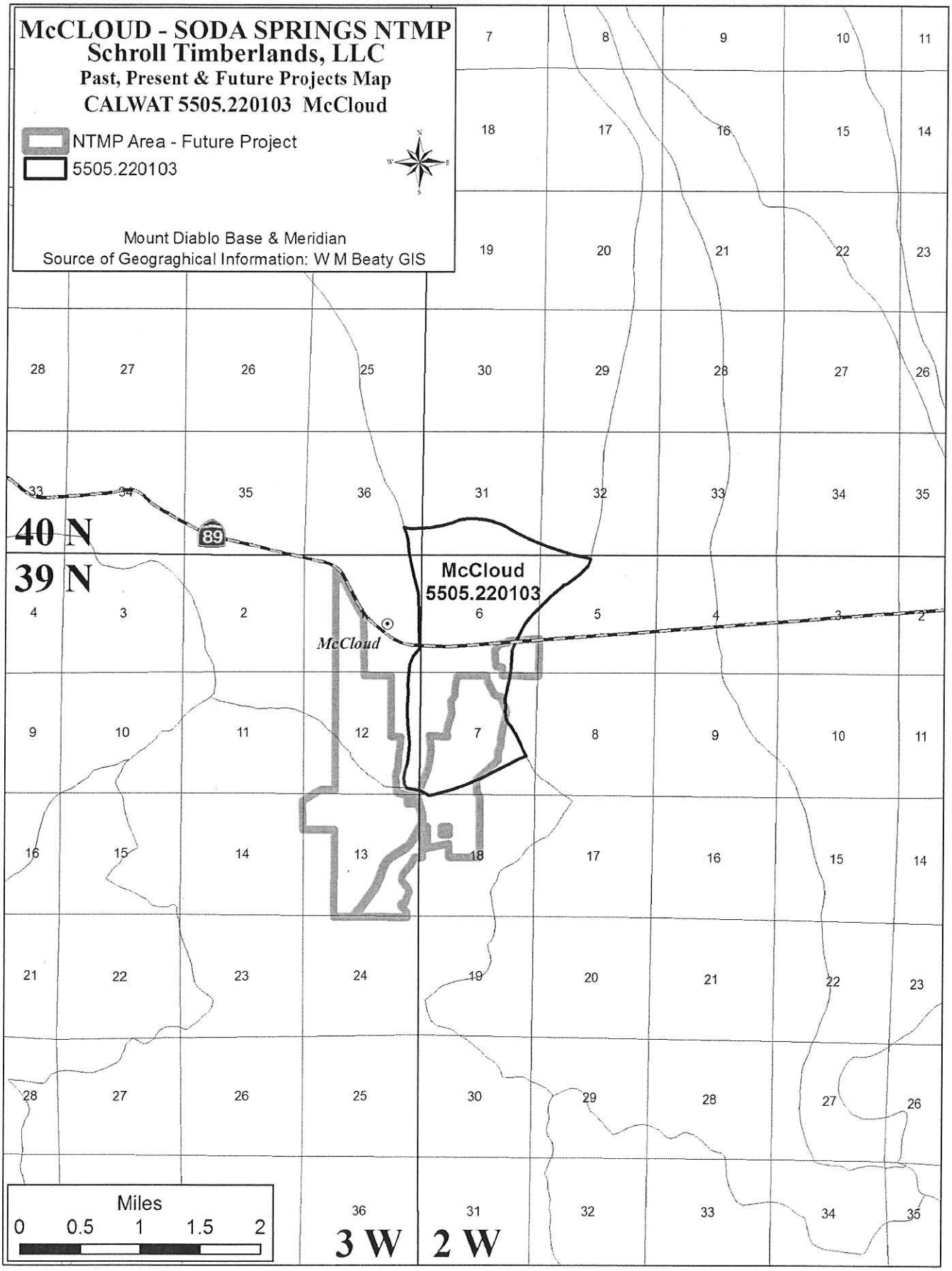
McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5505.220103 McCloud
NTMP Area - Future Project
5505.220103
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
40 N
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89
McCloud
5505.220103
McCloud
Miles
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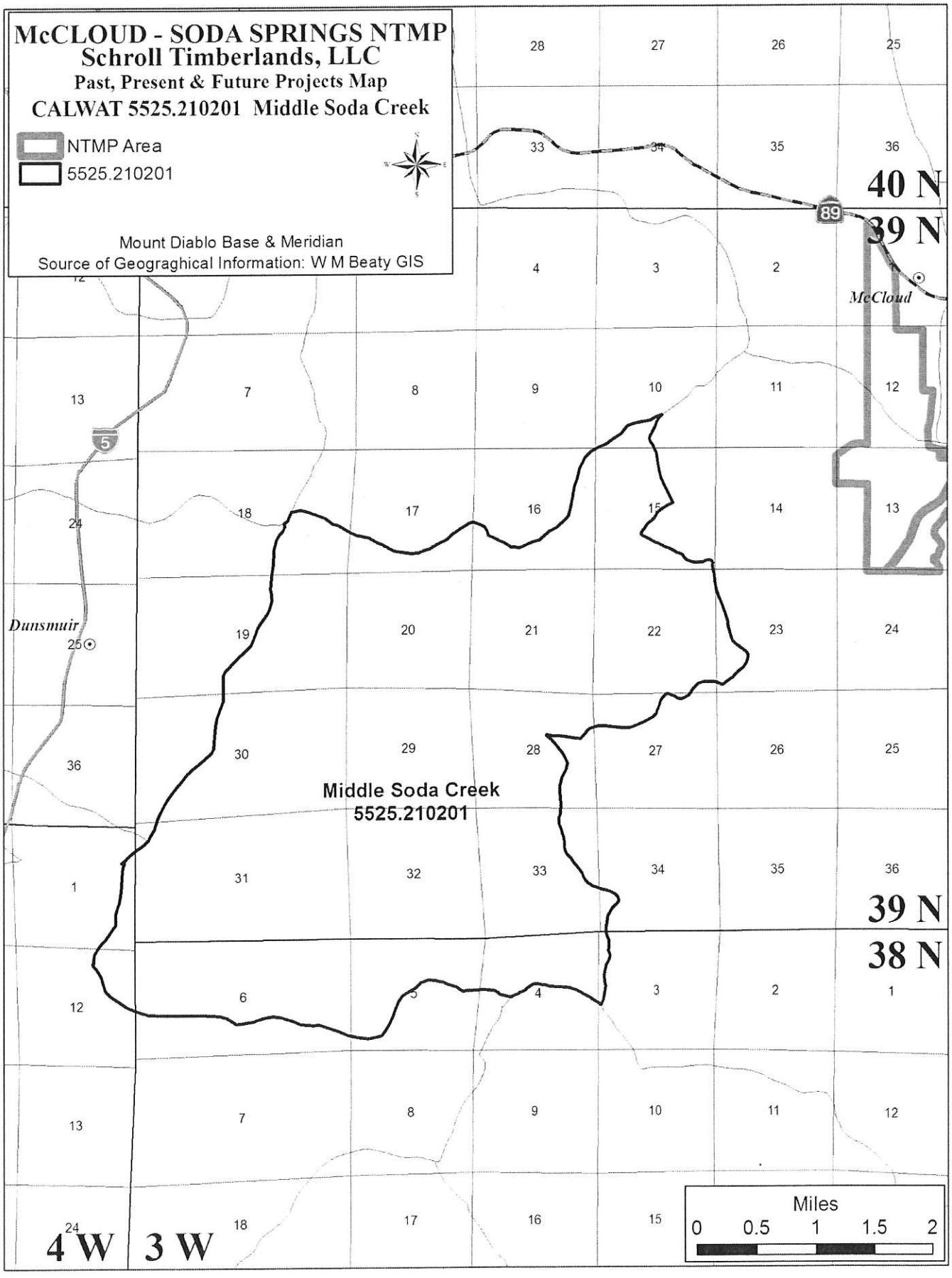
2 W


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5525.210201 Middle Soda Creek
NTMP Area
5525.210201
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
Middle Soda Creek
5525.210201
McCloud
Dunsmuir
40 N
39 N
38 N
4 W
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Miles
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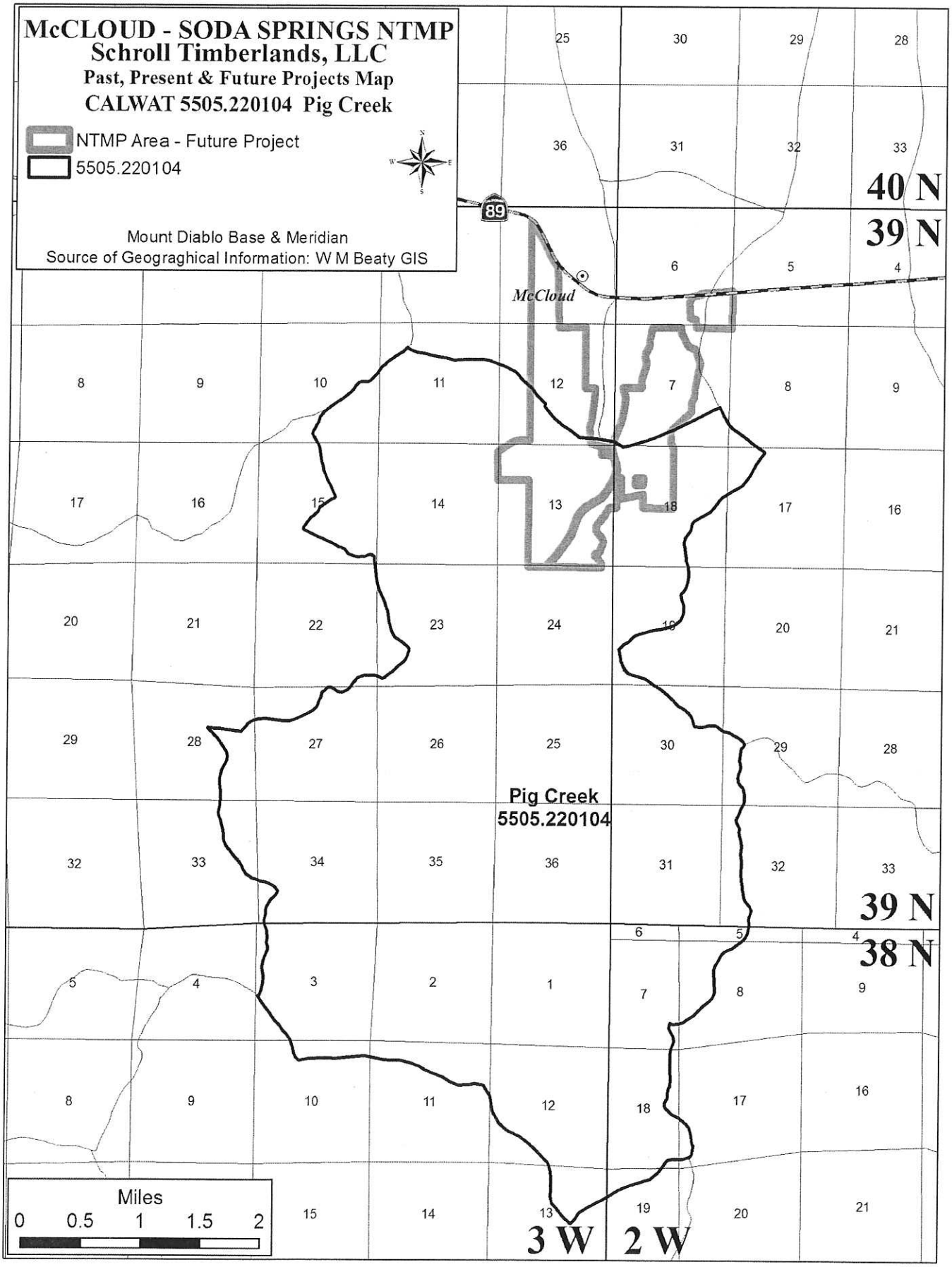
McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5505.220104 Pig Creek
NTMP Area - Future Project
5505.220104
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
McCloud
89
Pig Creek
5505.220104
40 N
39 N
38 N
3 W
2 W
Miles
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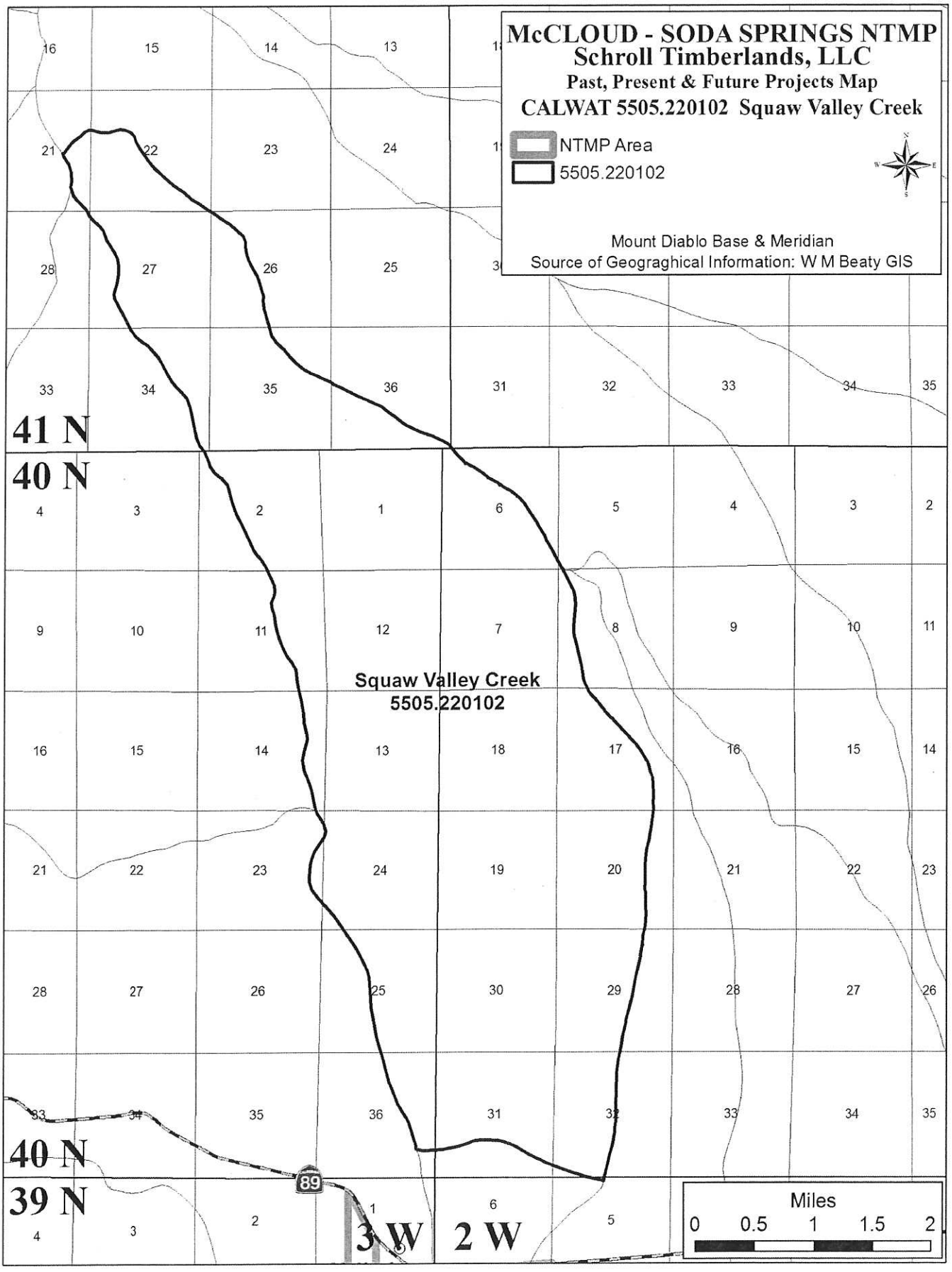
McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5505.220102 Squaw Valley Creek
NTMP Area
5505.220102
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
41 N
40 N
39 N
Squaw Valley Creek
5505.220102
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3 W
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Miles
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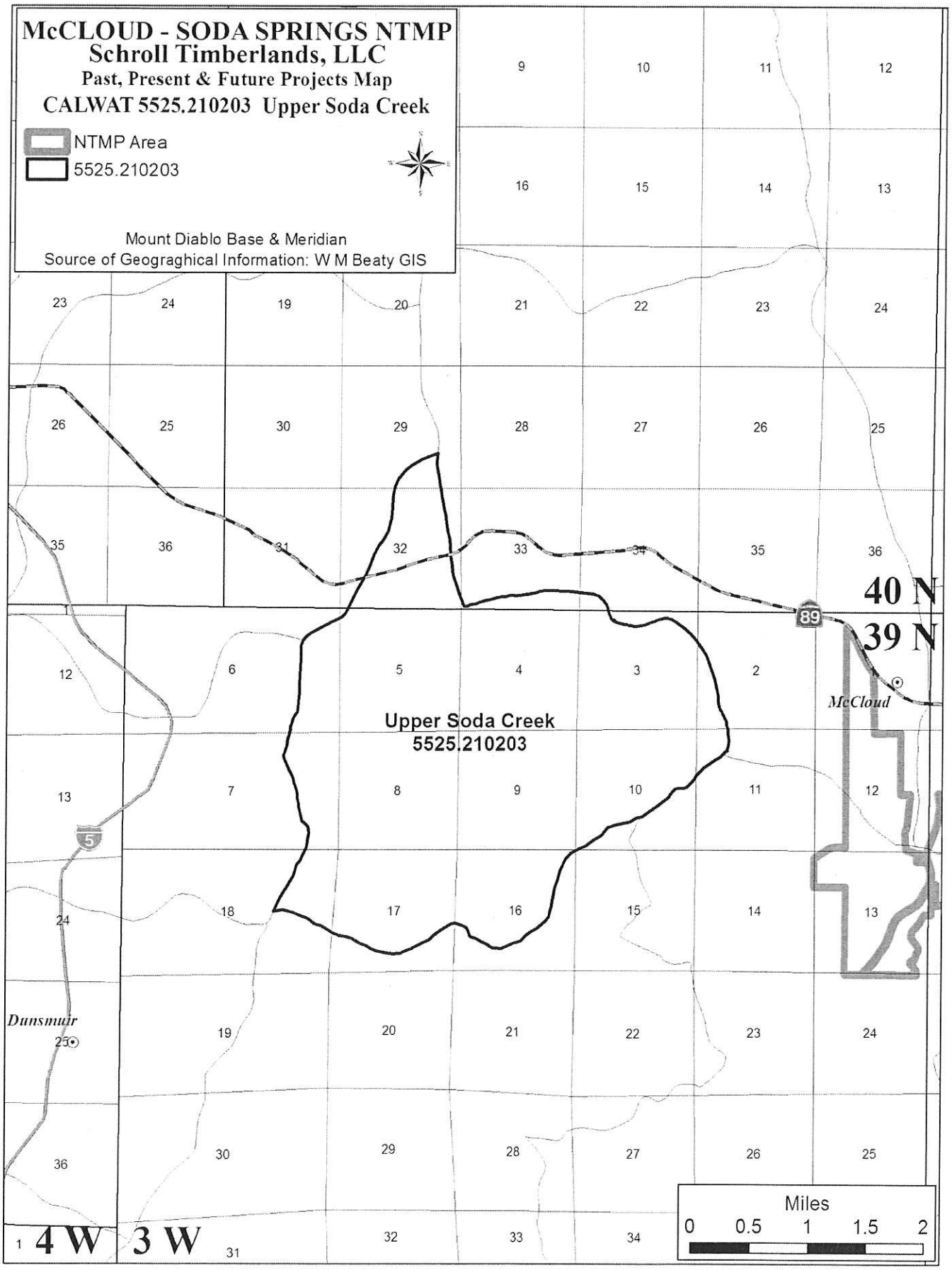
McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Past, Present & Future Projects Map
CALWAT 5525.210203 Upper Soda Creek
NTMP Area
5525.210203
Mount Diablo Base & Meridian
Source of Geograghical Information: W M Beaty GIS
Upper Soda Creek
5525.210203
McCloud
Dunsmuir
40 N
39 N
4 W
3 W
Miles
0 0.5 1 1.5 2

Exhibit G
Non-Industrial Timber Management Plan

SECTION V: ATTACHMENTS

Cal Fire Fuelbreak Concurrence Letter

Domestic Water Supply Letter Contacts

Domestic Water Supply Information Request Letter Example

Domestic Water Supply Newspaper Notice

Erosion Hazard Rating Worksheets

Soils Map

Timber Cruising Manual

Greenhouse Gas Worksheets

Northern Spotted Owl Suitable Habitat and Survey Assessment

STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY EDMUND GERALD BROWN JR, *Governor*

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
P.O. Box 128
YREKA, CA 96097
(530) 842-3516
Website: www.fire.ca.gov

October 1, 2015

Non-Industrial Timber Management Plan
No. 2-15NTMP-003
McCloud Soda Springs

Schroll Timberlands LLC
C/O Pacific Forest Trust
1001 O'Reilly Ave. Ste. A
San Francisco, CA 94129

Dear Gentlepersons:

Pursuant to the California Forest Practice Rules (14 CCR 933.4(c)), the Fuelbreak prescription proposed in the above mentioned NTMP must meet the objectives of the Community Fuelbreak as defined under 14 CCR 895.1. Given the subject Fuelbreak area was referenced as a pre-fire project in the Siskiyou Units Strategic Fire Plan of 2014, the proposed prescription is in conformance of the California Forest Practice Rules and is supported by the pre-fire objectives of the Siskiyou Unit.

Sincerely,

PHILLIP A. ANZO
Unit Chief

"The Department of Forestry and Fire Protection serves and safeguards the people and protects the property and resources of California."

MC CLOUD-SODA SPRINGS NTMP
MAILING LIST - DOMESTIC WATER LETTERD
MAY 27, 2015

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Encinitas CA 92024-1918

John P. Butler
PO Box 980
McCloud CA 96057-0980

Andrew B. & Katherine A. Campbell
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McCloud CA 96057-0943

CAMPBELL TRUST
PO Box 943
McCloud CA 96057-0943

Richard L. & Erika A. Carpenter
McFarland
PO Box 1057
McCloud CA 96057-1057

Behyar & O'Connell
Kathleen Forghani
38 Berkeley Ave
Orinda CA 94563-2104

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McCloud CA 96057-0345

Jack J. Childs
8698 Skyline Blvd
Oakland CA 94611-1636

Fred Cox
PO Box 388
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Joseph & Cassie B. Erro
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Redding CA 96002-4067

Lawrence E. & Susan A. Holmboe
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Modesto CA 95355-1128

Baker W. & Kate Jaxon
PO Box 994248
Redding CA 96099-4248

Craig Vincent Iaconis
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Sacramento CA 95821-5311

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Anthony L. Reginato
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McCloud CA 96057-1690

Richard P. Slavich
PO Box 1059
Durham CA 95938-1059

John B. & Michelle K. Stirling
PO Box 802
McCloud CA 96057-0802

FORESTLAND MANAGEMENT

W. M. BEATY & ASSOCIATES, INC.

845 BUTTE ST. / P.O. BOX 990898
REDDING, CALIFORNIA 96099-0898
530-243-2783 / FAX 530-243-2900
www.wmbeaty.com

May 27, 2015

Mr. Jack J. Childs
8698 Skyline Blvd
Oakland CA 94611-1636

Re: McCLOUD-SODA SPRINGS NTMP - PFT O.J.
Domestic Water Supply Information Request

Dear Mr. Childs:

W. M. Beaty & Associates, Inc. is currently preparing the McCloud-Soda Springs Nonindustrial Timber Management Plan (NTMP) in Siskiyou County. The NTMP area is located approximately 0.25 mile south of McCloud, California. The legal description is Sections 1, 12, and 13, Township 39 North, Range 3 West, and Sections 6, 7, and 18, Township 39 North, Range 2 West, MDBM (see the enclosed maps). The NTMP area is located on the the Lake McCloud 1986, Girard Ridge 1986, McCloud 1986, and Elk Spring 1986 USGS 7.5' quadrangle maps.

As per the California Code of Regulations Title 14 §1032.10, information is requested regarding surface domestic water use from tributaries to Pig Creek, Squaw Valley Creek, and unnamed watercourses, within the NTMP area or within 1,000 feet downstream of the NTMP. Domestic water use means the use of water in homes, motels, resorts, organizations camps, campgrounds etc., including the incidental watering of domestic stock for family sustenance or enjoyment and the irrigation of not more than one-half acre in lawn, ornamental shrubbery, or gardens at any single establishment. The use of water at a campground or resort for human consumption, cooking, or sanitation purposes is also domestic use. If you use surface water from these watercourses for domestic use, please contact us so that appropriate mitigations to protect this domestic use can be incorporated into the NTMP.

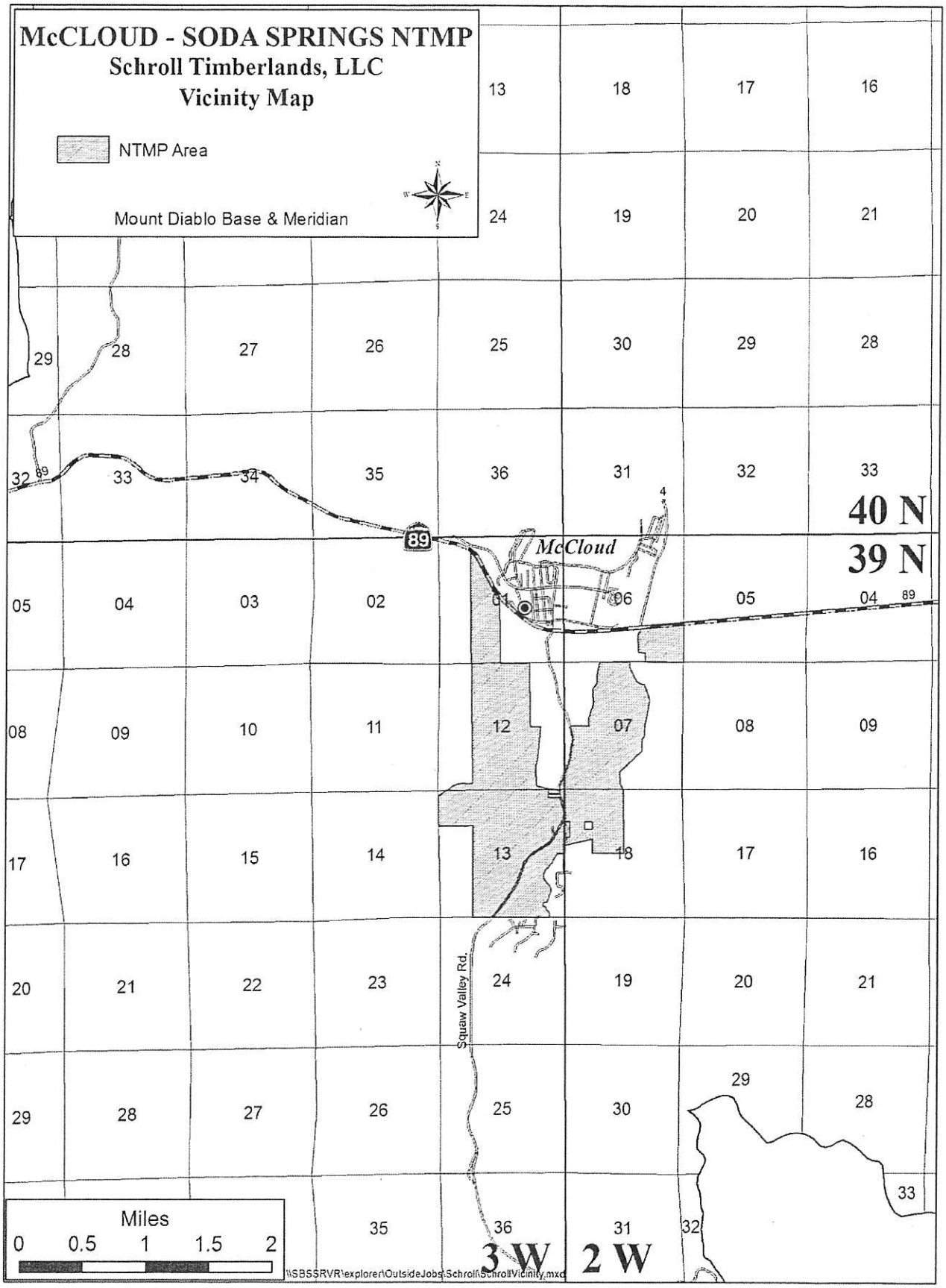
Your response is requested within 10 days of the postmarked date of this letter. Please respond to the address listed above. Thank you for your cooperation.

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Project Forester
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:klh
Enclosures


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Vicinity Map
NTMP Area
Mount Diablo Base & Meridian
McCloud
Squaw Valley Rd.
Miles
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40 N
39 N
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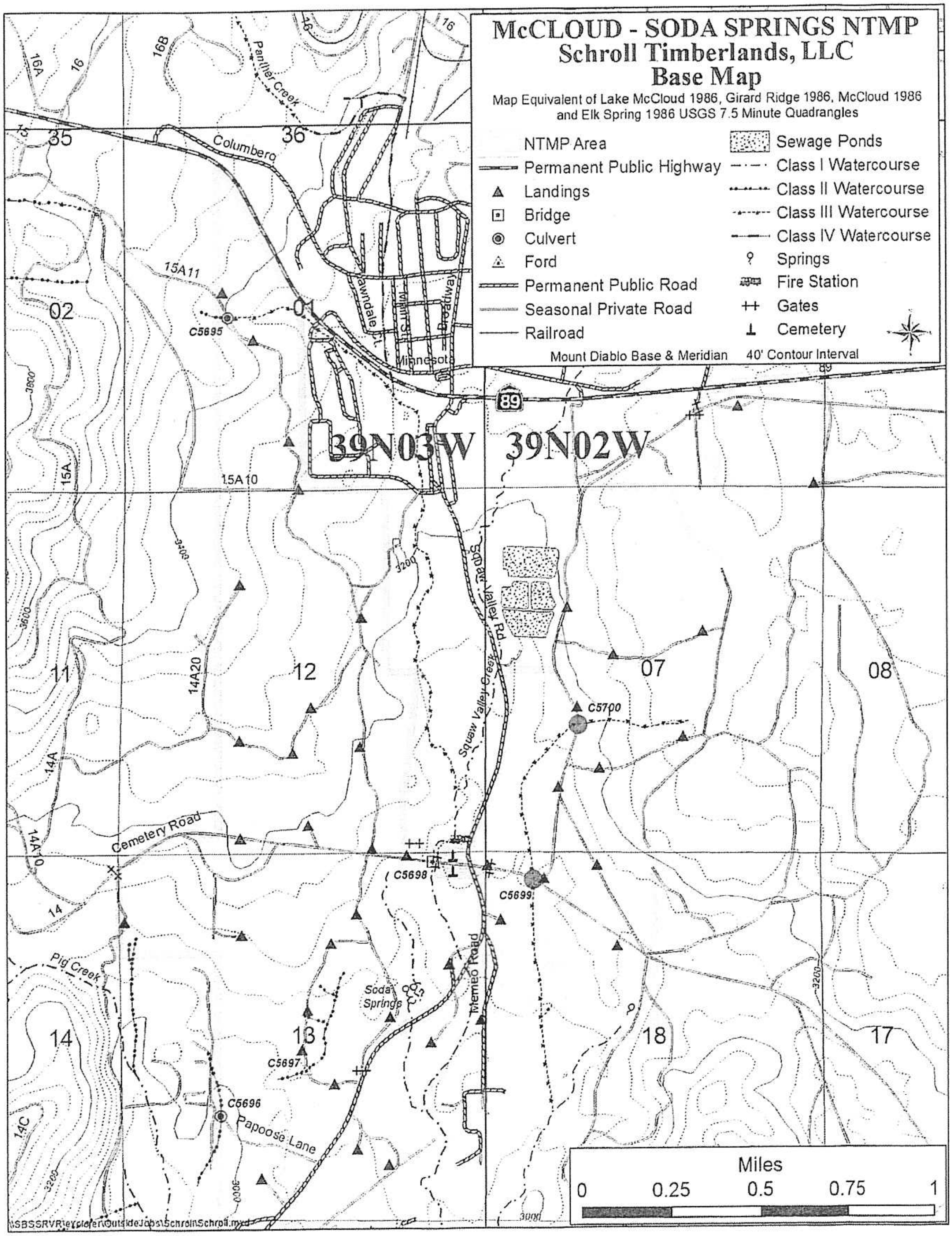
\\SBSSRVR\explorer\OutsideJobs\Schroll\Schroll\Vicinity.mxd


McCLOUD - SODA SPRINGS NTMP
Schroll Timberlands, LLC
Base Map
Map Equivalent of Lake McCloud 1986, Girard Ridge 1986, McCloud 1986 and Elk Spring 1986 USGS 7.5 Minute Quadrangles
NTMP Area
Permanent Public Highway
Landings
Bridge
Culvert
Ford
Permanent Public Road
Seasonal Private Road
Railroad
Sewage Ponds
Class I Watercourse
Class II Watercourse
Class III Watercourse
Class IV Watercourse
Springs
Fire Station
Gates
Cemetery
Mount Diablo Base & Meridian
40' Contour Interval
39N03W
39N02W
Columbero
Panther Creek
15A11
15A10
14A20
Cemetery Road
Squaw Valley Rd.
Squaw Valley Creek
Pig Creek
Soda Springs
Papoose Lane
Mermeo Road
C5695
C5696
C5697
C5698
C5699
C5700
Miles
0
0.25
0.5
0.75
1

PROOF OF
PUBLICATION
(2015.5 C.C.P.)

Mt. Shasta Area Newspapers
Mount Shasta Herald,
Weed Press, Dunsmuir News
STATE OF CALIFORNIA,
County of Siskiyou

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the Administrative Assistant of the Mt. Shasta Area Newspapers, newspapers of general circulation, published weekly in the cities of Mount Shasta, Weed and Dunsmuir, County of Siskiyou, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Siskiyou, State of California, under the dates of: Mount Shasta Herald-July 9, 1951, Case Number 14392; Weed Press-June 22, 1953, Case Number 15231; Dunsmuir News-May 25, 1953, Case Number 15186; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspapers and not in any supplement thereof on the following dates, to-wit:

March 9,

all in the year 2016

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Mount Shasta, California,

this 9th day of March

2016.

/s/ Marcella Gerace
Authorized Signature

PROOF OF PUBLICATION OF

DOMESTIC WATER SUPPLY INFORMATION REQUEST

W. M. Beaty & Associates, Inc. is currently preparing the McCloud-Soda Springs Nonindustrial Timber Management Plan (NTMP) in Siskiyou County. The NTMP area is located approximately 0.25 mile south of McCloud, California. The legal description is Sections 1, 12, and 13, Township 39 North, Range 3 West, and Sections 6, 7, and 18, Township 39 North, Range 2 West, MDBM. The NTMP area is located on the Lake McCloud 1986, Girard Ridge 1986, McCloud 1986, and Elk Spring 1986 USGS 7.5' quadrangle maps.

As per the California Code of Regulations Title 14 §1032.10, information is requested regarding surface domestic water use from tributaries to Pig Creek, Squaw Valley Creek, and unnamed watercourses, within the NTMP area or within 1,000 feet downstream of the NTMP. Your response is requested within 10 days of the postmarked date of this publication. Please respond to: Scott Carnegie, CA RPF No. 2540, W. M. Beaty & Associates, Inc., PO Box 990698, Redding, CA 96099-0898, (530) 524-9071.

7497 msan mr9c

PROOF OF PUBLICATION

ESTIMATED SURFACE SOIL EROSION HAZARD
RM - 87 (4/84)

STATE OF CALIFORNIA
BOARD OF FORESTRY

I. SOIL FACTORS

				FACTOR RATING BY AREA		
A. SOIL TEXTURE	Fine	Medium	Course	259	286	309
DETACHABILITY	Low	Moderate	High	23	23	27
RATING	1 - 9	10 – 18	19 - 30			
PERMEABILITY	Slow	Moderate	Rapid	1	1	1
RATING	5 - 4	3 – 2	1			

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	Deep			
	1" - 19"	20" - 39"	40" - 60"(+)	6	1	1
Rating	15 - 9	8 – 4	3 – 1			

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES

	Low	Moderate	High				FACTOR RATING BY AREA		
	(-)10 - 39%	40 - 70%	71 - 100%	4	5	6			
Rating	10 - 6	5 - 3	2 - 1				259	286	309
						SUBTOTAL	34	30	35

II. SLOPE FACTOR

Slope	5 - 15%	16 - 30%	31 - 40%	41 - 50%	51 - 70%	71 - 80%(+)	1	5	1
Rating	1 - 3	4 - 6	7 - 10	11 - 15	16 – 25	26 – 35			

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

	Low	Moderate	High			
	0 - 40%	41 - 80%	81 – 100%	3	3	3
Rating	15 - 8	7 - 4	3 – 1			

IV. TWO-YEAR, ONE-HOUR, RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme			
	(-)30 - 39	40 - 59	60 - 69	70 - 80(+)	6	6	6
Rating	1 - 3	4 - 7	8 - 11	12 – 15			
				TOTAL SUM OF FACTORS	44	44	45

EROSION HAZARD RATING

<50	50 - 65	66 - 75	>75	L	L	L
LOW (L)	MODERATE (M)	HIGH (H)	EXTREME (E)			
			THE DETERMINATION IS			

ESTIMATED SURFACE SOIL EROSION HAZARD
RM - 87 (4/84)

STATE OF CALIFORNIA
BOARD OF FORESTRY

I. SOIL FACTORS

				FACTOR RATING BY AREA		
A. SOIL TEXTURE	Fine	Medium	Course	310		
DETACHABILITY	Low	Moderate	High	17		
RATING	1 - 9	10 – 18	19 - 30			
PERMEABILITY	Slow	Moderate	Rapid	1		
RATING	5 - 4	3 – 2	1			

B. DEPTH TO RESTRICTIVE LAYER OR BEDROCK

	Shallow	Moderate	Deep			
	1" - 19"	20" - 39"	40" - 60"(+)	1		
Rating	15 - 9	8 – 4	3 – 1			

C. PERCENT SURFACE COARSE FRAGMENTS GREATER THAN 2 MM IN SIZE INCLUDING ROCKS OR STONES

	Low	Moderate	High				FACTOR RATING BY AREA		
	(-)10 - 39%	40 - 70%	71 - 100%	7					
Rating	10 - 6	5 - 3	2 - 1				310		
						SUBTOTAL	26		

II. SLOPE FACTOR

Slope	5 - 15%	16 - 30%	31 - 40%	41 - 50%	51 - 70%	71 - 80%(+)	1		
Rating	1 - 3	4 - 6	7 - 10	11 - 15	16 – 25	26 – 35			

III. PROTECTIVE VEGETATIVE COVER REMAINING AFTER DISTURBANCE

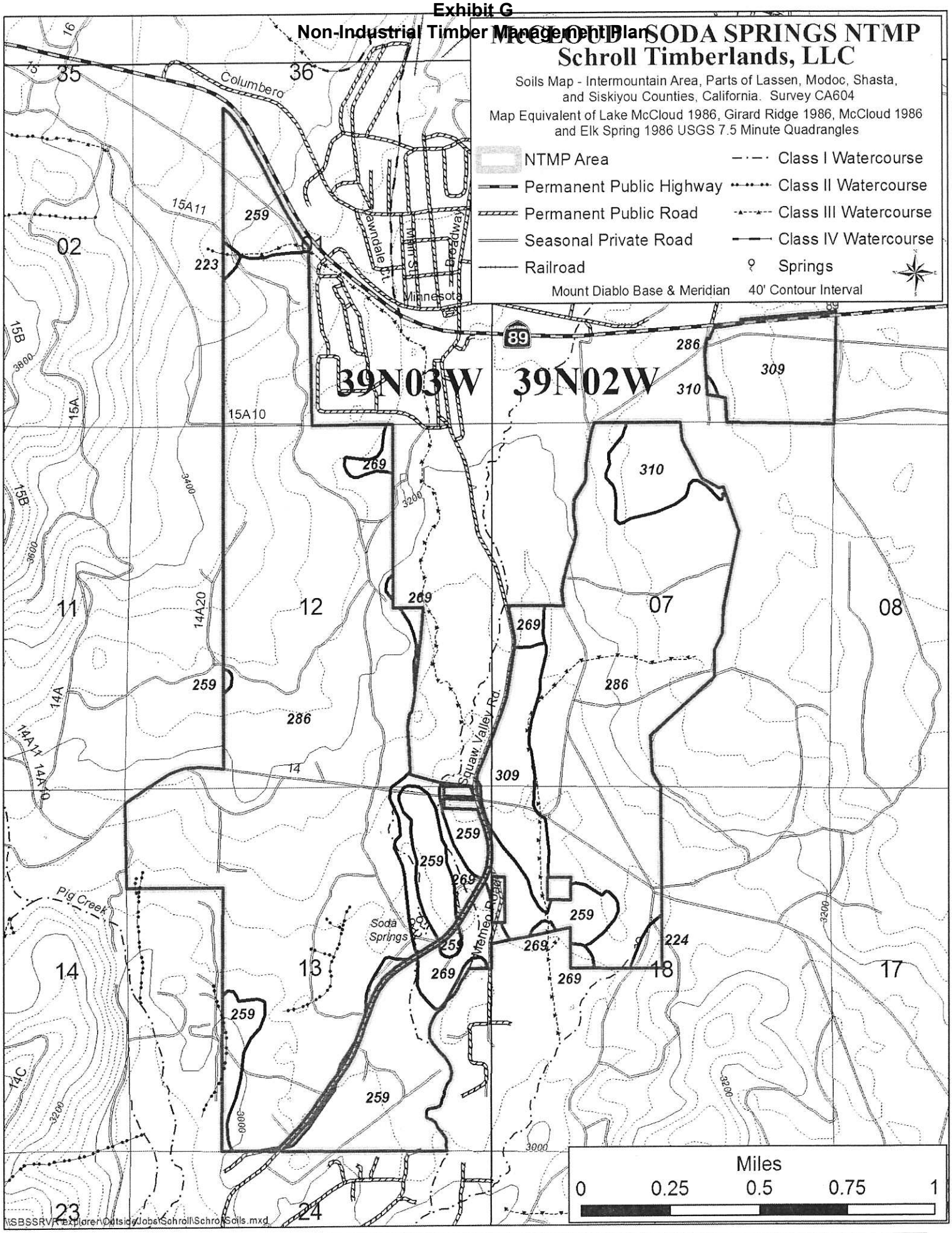
	Low	Moderate	High			
	0 - 40%	41 - 80%	81 – 100%	3		
Rating	15 - 8	7 - 4	3 – 1			

IV. TWO-YEAR, ONE-HOUR, RAINFALL INTENSITY (Hundredths Inch)

	Low	Moderate	High	Extreme			
	(-)30 - 39	40 - 59	60 - 69	70 - 80(+)	6		
Rating	1 - 3	4 - 7	8 - 11	12 – 15			
				TOTAL SUM OF FACTORS	36		

EROSION HAZARD RATING

<50	50 - 65	66 - 75	>75			
LOW (L)	MODERATE (M)	HIGH (H)	EXTREME (E)	L		
			THE DETERMINATION IS			


McCLOUD SODA SPRINGS NTMP
Schroll Timberlands, LLC
Soils Map - Intermountain Area, Parts of Lassen, Modoc, Shasta, and Siskiyou Counties, California. Survey CA604
Map Equivalent of Lake McCloud 1986, Girard Ridge 1986, McCloud 1986 and Elk Spring 1986 USGS 7.5 Minute Quadrangles
NTMP Area
Permanent Public Highway
Permanent Public Road
Seasonal Private Road
Railroad
Class I Watercourse
Class II Watercourse
Class III Watercourse
Class IV Watercourse
Springs
Mount Diablo Base & Meridian
40' Contour Interval
39N03W
39N02W
Columbero
Minnesota
Broadway
Squaw Valley Rd
Soda Springs
Pig Creek
Miles
0
0.25
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W. M. Beaty & Associates, Inc.

Timber Cruising Manual

3/1/1998
Updated: J. Mills 1/15/2014

INTRODUCTION

This manual covers the procedures and methodologies of timber cruising and plantation sampling for W. M. Beaty & Associates, Inc. (hereafter WBA). Not all subjects covered here are pertinent to a specific job. In addition to information in this manual an individual "**Cruise Specifications Sheet**" is provided at the end of this document that details specific requirements of each job.

All field work conducted for WBA must be performed with safety as the primary consideration.

EQUIPMENT

Required equipment

1) First aid kit (in truck)
2) Work boots (8" min ht)
3) Field vest with pockets
4) Spencer 75-foot d-tape
5) Relascop
6) Compass
7) Field map
8) Plot cards or Data collector
9) Increment Borer

Optional equipment

1) Calculator
2) Biltmore stick
3) Laser Hypsometer
4) GPS receiver
5) Tatum/Notebook
6) Bark thickness gauge
7) String box
8) Hand-held radio

PLOT ESTABLISHMENT

Mapping Control

Cruise maps showing plot locations are provided for each section to be sampled. Plot grid lines run true north-south and east-west, and plot center locations are at the point on the map. The distance between plots can be found in the legend of the map.

Mapping control (getting yourself where you need to be on the ground) is primarily established using legal section landmarks for starting locations. Other control mechanisms including GPS, road and stream intersections, road intersections, and road and section line intersections, are used if this primary control cannot be established or to re-establish control during the course of the day.

The cruiser determines the distance from the starting control point to the first plot by measuring the map distance and adjusting according to the map scale. Field map scale is shown in the legend of each map.

Plot Location

Pacing is acceptable for determining distances to and between plot locations. Periodic re-establishment of control using the above described procedures is critical to maintaining reasonable accuracy of plot locations.

For most WBA cruises roads, landings, and creeks are not "mapped out". Consequently, plots should be established where they land relative to these features, unless otherwise noted.

Mark the plot center with flagging by pushing into or otherwise attaching flagging to the ground. Additionally, write the plot number on a piece of flagging (one to two feet in length) and hang as

near as possible to plot center at or above eye level. Also at the major road crossings hang a double sided flag labeled with the next plot number and the cardinal direction and distance. Preferred flagging color is pink.

Adjustments and Boundary Plots

It is occasionally necessary to adjust plot location due to errors in pacing or in the map, or if a plot is located very close to the boundary of a non-sample area. If a location adjustment is necessary, the plot should be relocated one chain in a cardinal direction (North, South, East, or West) away from the stand boundary. **Exception**: if a plot is near a boundary of a land type that may have changed the biological characteristics of the area to sample, establish the plot where it lands and establish a "half plot". First determine a straight line that divides the two land types, then proceed as normal on the half of the plot (180 degrees) that lies within the stand to be sampled and count each tree twice.

PLOT TYPES

Plots may be fixed or variable radius of different sizes. Plots should be sized to collect an average of **5-8** trees per plot. Fixed plot size and variable BAF can be changed from stand to stand, but it is extremely important to record the correct plot size. Table 1 lists the fixed radius and BAF sizes that can be used, and Table 2 lists the plot radius factors for the different BAFs.

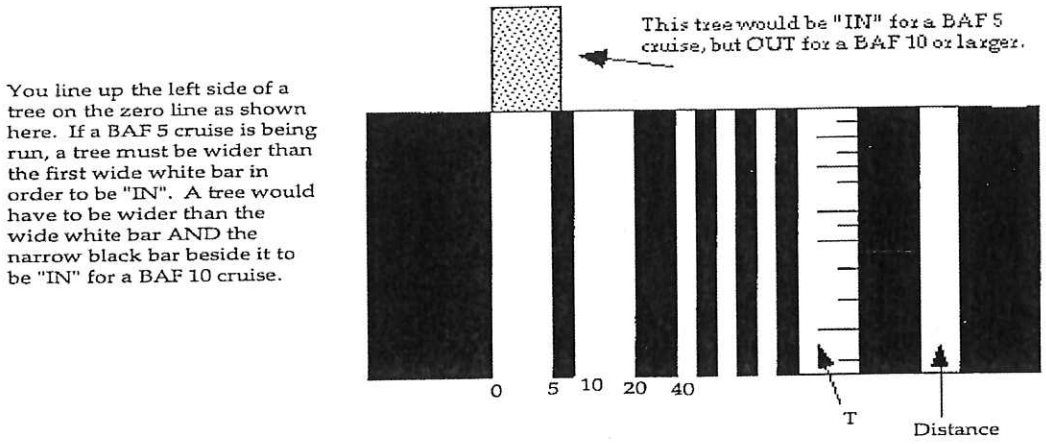
Table 1. Fixed plot sizes

Circular (radius) feet	Plot Size (fraction)	Plot Size (dec.)
26.33	1/20	0.05
16.65	1/50	0.02
11.78	1/100	0.01

Table 2. Basal area factors.

BAF	PRF	Bars
10	2.75	Left 2
20	1.944	Left 3
27.78	1.65	2 big, 4 little
40	1.375	Left 4

Figure 1. Basal area factors shown in Relascop view.



It is critical that the cruiser record the correct number of trees at each plot. In cases where a tree cannot be seen from the plot center, two methods are acceptable for determining whether a tree is in or out:

1) Move off plot center and sight the tree in question from a distance that is equal to the distance from the plot center to the tree.
2) Use the BAF plot radius factor (1.944 for a 20 factor prism) multiplied by the tree DBH (to the nearest tenth of an inch). If the computed value is equal to or greater than the horizontal distance from the plot center to the center of the tree, the tree is "in" the plot.

Trees on each plot are recorded in a clockwise direction around the plot center **starting from North**. It is a good idea to check the amount of trees recorded on the plot before going to the next one, with particular attention to any larger trees that may have been missed.

Typically not all measurements are taken for each tree. Often height and crown are sub-sampled on only certain plots. These are called "Measure Plots", and plots without heights and crown are called "Count Plots".

TREE MEASUREMENTS

Species

Table 3 shows the tree species names and codes that are recognized by WBA.

Table 3: Acceptable tree species and codes

Common Name	Species Code	CE Code	Common Name	Species Code	CE Code
Ponderosa pine	PP	1	Quaking Aspen	QA	17
Sugar pine	SP	2	Grey pine	GP	18
Incense-cedar	IC	3	Knobcone pine	KP	19
Douglas fir	DF	4	Cottonwood	CO	20
White fir	WF	5	Golden chinquapin	GC	21
California red fir	RF	6	Grand fir	GF	22
Jeffrey pine	JP	7	Hemlock	HM	23
Lodgepole pine	LP	8	Madrone	MA	24
Juniper	JU	9	Oregon white oak	WO	25
Black oak	BO	10	Port Orford Cedar	PO	26
Canyon live oak	LO	11	Tanoak	TO	27
Interior live oak	IN	12	White pine	WP	28
Blue oak	BL	13	Unknown conifer	XC	29
Alder	AL	14	Unknown hardwood	XH	30
Bigleaf maple	BM	15	Unknown species	XX	31
Pacific Yew	PY	16	Non Stocked	NC	99

Status

Table 7: Shows the status codes that are used for data entries on the WT (Wood Type) column.

Status Code	Features
0	Live tree
1	Snag
2	Down woody debris
3	Brush or lesser vegetation
4	On-plot site tree
5	Off-plot site tree
6	On-plot height intercept tree
7	Off-plot height intercept tree
8	Wildlife Tree

Diameter at Breast Height (DBH)

DBH is defined as the tree stem diameter in inches outside bark measured at 4.5 feet from the **high side of the ground**. If the stem is defective at DBH (i.e. swollen such as from a limb on a plantation pine tree or missing bark, etc), the cruiser should do either of the following, given by priority:

1) Take the average of measurements above and below DBH
2) Take an ocular estimate of DBH without the defect

DBH is measured with either a diameter tape or a Biltmore stick. If using a tape make sure it is held horizontally around the stem and is free of limbs. If using a Biltmore stick and the stem appears out-of-round the measurement should be the average of the narrow side and the wider side.

5

Total Height

Total height is determined by measuring from the ground to the tip of the tree using an angle device such as a Relascop, a clinometer, or a laser hypsometer. Total height must be estimated if the tree is broken or has defect that causes the total height to be less than what is would have been without the breakage or defect. Take appropriate defect deductions for missing top logs and for diameter loss on new tops. If a tree is leaning the measurement should be taken at a 90-degree angle from the lean at a point where the tree is "straightened" to full height.

Height to Crown Base

Measure the height from the ground to the base of the live tree crown. For un-even tree crowns, the base of the crown should be balanced, or averaged, using the lowest point and the highest point. Epicormic branches should not be counted, and no effort to compact "weak" crown should be made.

Site Trees

For breast-height age, the annual rings are counted from a core extracted from the tree at DBH going to at least three rings of the pith (center) using an increment borer. Alternatively, on young pine trees the annual whirls can be counted from DBH to the top of the tree. In addition to age, measurements on these trees include species, DBH and careful measurement of total height.

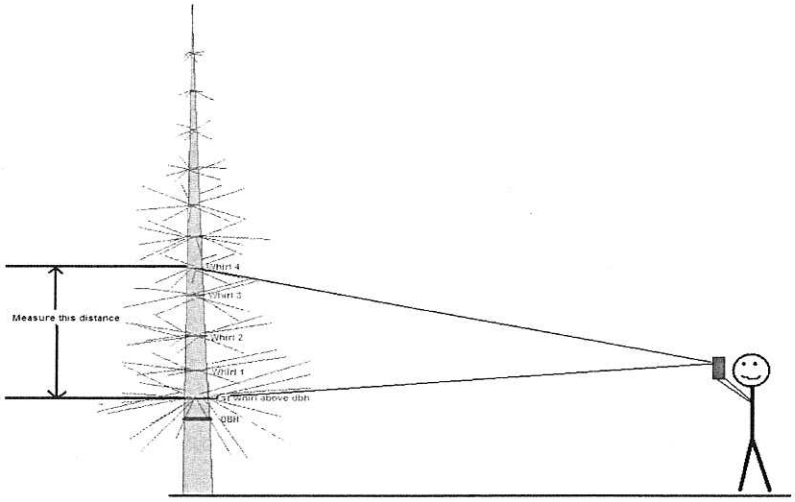
Site trees should be taken on the plot, except if no acceptable tree exists on-plot the first acceptable tree closest to the plot shall be chosen. Acceptable site trees are:

1) Major commercial conifer species
2) Dominant or co-dominant canopy status within immediate area
3) Aged 30 to 90 years old
4) No height-affecting defect or past suppression.

Height Intercept

Height intercept (Powers and Oliver, 1972) is used to obtain site index on young ponderosa pine stands. The measurement is taken by locating DBH on dominant or co-dominant pine trees without significant defect or past suppression and then looking for the first whirl of branches at or above DBH. From the first whirl at or above DBH the cruiser counts four more whirls up the tree and measures the distance in feet between the top and bottom whirl (see Figure 3 for measurement details).

Figure 3. Height Intercept measurement.



Log Defect

Defect may occur due to mechanical injury, rot, decay, breakage, or deformation. Defect is taken based on the type and extent of visible indicators. Experienced cruisers make adjustments based on indicators such as tree vigor, local conditions, defect location and type, and judgment. The following is a guideline (based on empirical evidence and Forest Service studies) for types of defect and their associated defect deductions.

1. **Butt Swell**
   a. Make a deduction only if the tree is associated with conks, scars, bleeding, or other abnormalities.

2. **Indian Paint fungus (rust red stringy rot)**
   a. Occurs mainly on older white fir. Has a larger, hoof shaped conk with coarse, grayish spines or teeth on the lower side.
   b. Larger conks on larger trees account for approximately 40 feet of cull for each conk. Smaller conks on smaller trees account for about 16 feet of cull. If conks are 25 or more feet apart, the entire tree is cull.

3. **Phellinus pini fungus (fomes pini)**
   a. Occurs mainly on Douglas-fir. Conks are bracket-like to hoof shaped, dark on upper side, brown on lower side.
   b. Deduct 4 feet above and below a small conk (3" wide). Deduct 16 feet above and below a large conk (6" wide). Numerous conks along the bole often indicate a cull tree.

4. **Velvet Top fungus (brown cubical butt rot)**
   a. Occurs on Douglas-fir and pines. Look for conks near or on the base of trees that look like cattle droppings (brown, mushroom like).
   b. Cull butt log if conk is found on bole of tree. Deduct ½ log if conk is found on the ground.

5. **Frost Cracks**
   a. Notice a vertical seam in or separation of the bark without much bark missing. WF may bleed.
   b. Deduct 10% if crack is straight through the length of the log. Deduct 50% if the crack spirals the length of the log.

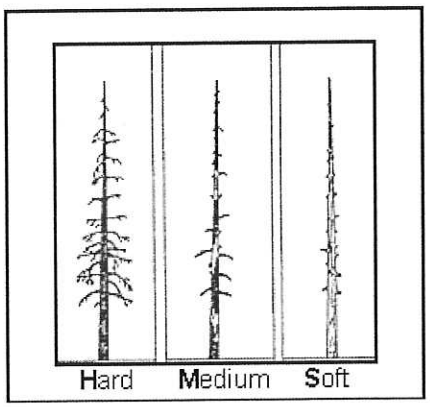
6. **Fire and Other Basal Scars**
   a. Ignore wounds less than ten years old unless they create a loss of wood volume. Basal scars in contact with the ground are important defect indicators for all species.
   b. For pine and Doug-fir, deduct 0 to 10% for small scars with no evidence of rot or swelling. Deduct up to 50% for larger scars with evidence of rot or swelling. For white fir, deduct for the scar plus 8 feet above the scar or swelling. For cedar, deduct up to one-half the length of the scar or related swelling. Do not deduct higher than the scar or swelling unless other cull indicators are present.

7. **Broken Tops**
   a. Defect 8 feet below the broken top for other than cedar species. Deduct 2 feet below the break for cedar. Re-build where necessary.

8. **Forked Trees**
   a. Deduct 10 - 20% at the fork for genetically forked trees. For "elbow" shaped forks, deduct 20% at the fork for other than white fir. Deduct up to 8 feet at the fork (measured from the crotch down) for white fir.
   b. Deduct from the fork up for the amount of lost volume due to cylinder size reduction. Re-build where necessary.

SNAGS

Snags, or standing dead trees, are recorded on inventory plots. Any snag with a minimum diameter of one inch is recorded. Often a soundness or condition code accompanies each snag entry. Soundness is determined by observing its relative stage of natural decay. Snag decay classes are defined in Maser et al. 1979.[1]



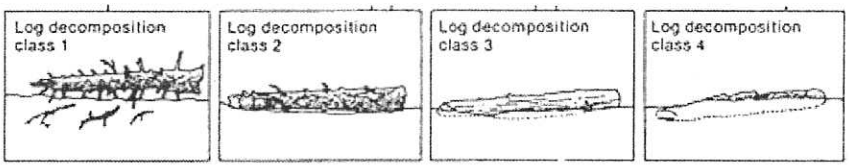
- Hard snags have sound wood, original branch structure and typically significant needle retention and are recorded as a 1 in the L1 column.
- Medium snags have small limbs remaining and some or all of its bark present and are recorded as a 2 in the L1 Column.
- Soft snags include all others which have late stage decay characteristics including severe bark sloughing (or no bark), and few, or no, remaining branches and are recorded as a 3 in the L1 column. (See illustration).

DOWN WOODY DEBRIS

Down woody debris is taken on fixed 1/50-acre inventory plots. Any piece of dead woody material such as a dead bole, limb, or large root ball, which intersects the fixed plot with a minimum diameter of 10" (measured at the mid-point within the fixed plot) and minimum total length of 10' (in and out of the fixed plot). Length within the plot is measured in feet and the mid-point diameter within the plot is measured in inches. Decomposition classes are defined in Maser et al. 1979 and recorded for each piece of down woody debris. The classification system is shown here:

Log decomposition classes for down woody debris.

[1] Hard Snags are classified as Stage 1-3. Medium Snags are classified as Stage 4-5. Soft Snags are classified as Stage 5-9.

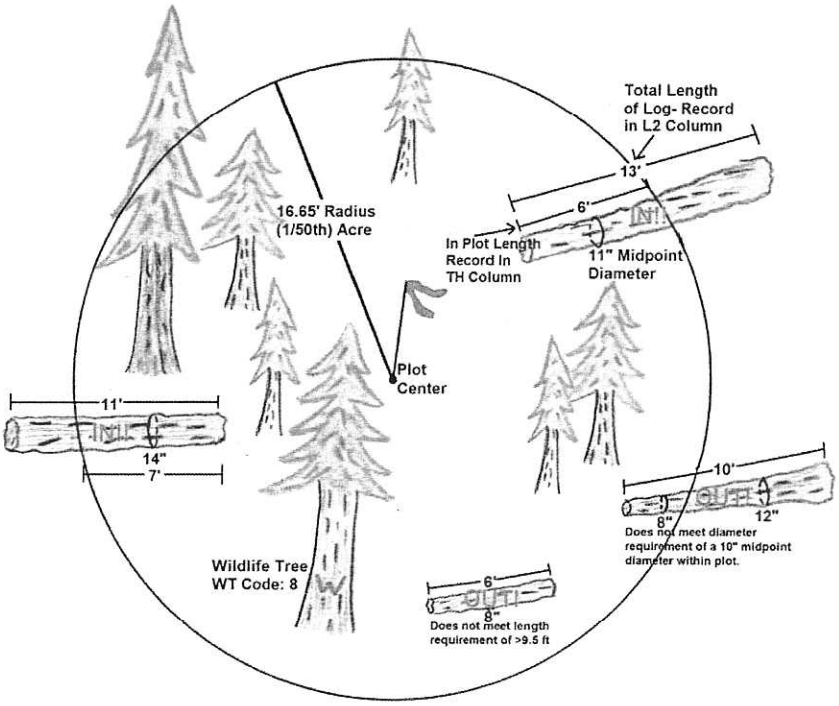


Class 1 - intact bark, intact wood texture, and several remaining branches

Class 2 - intact bark, softer wood texture, no remaining twigs, and sagging between support points

Class 3 - trace amounts of bark, wood texture turning to large "chunks", and is sagging to, or touching, the ground.

Class 4 - no remaining bark, smaller and softer wood texture, oval shape, and is entirely touching, or part of the ground.



WILDLIFE TREES

Wildlife trees are to be recorded as a wood type code of "8" if they land within the plot. Wildlife trees will either have a blue "W" painted on them or a tree tag indicating that it is a designated wildlife tree.

WILDLIFE OBSERVATIONS

Inventory cruisers are additionally requested to record in writing the observation of selected wildlife species. Cruisers should be aware of birds that appear to be defending territory, or animals that are using structure, flying, nesting, or mating. Nest structures or indicators are also important features to

record. The observation should be recorded on the form entitled 'Wildlife Observation Report Form' and submitted to the wildlife department at the Redding office as quickly as possible.

Species of primary concern at this time include the bald eagle, goshawk, spotted owl, and the sandhill crane. It is the responsibility of the cruiser to become knowledgeable about these species. Additional information is available through the WBA Wildlife Department.

The bald eagle is often found near water. It is a large, dark brown to blackish-bodied raptor that attains a white head and tail near age 4 or 5. Stick nests may be very large (3-6' diameter) and are usually within the tree canopy near the tops of large trees and snags.

The goshawk is a forest dwelling raptor. It's a fast-flying, powerful, and large bird. It has a gray chest, dark gray body, a white stripe on the head, fluffy white under-tail coverts, dark crown, long banded tail, and yellow legs and feet.

The spotted owl is a large, dark brown owl, heavily spotted and barred. In flight it has heavy methodical wing beats, but appears buoyant for its size. This owl might be distinguished from great gray owls or great horned owls by the dark brown rather than yellow eyes.

Sandhill cranes are large, gray birds with long necks, long legs, and long, stout bills. Heights may reach 4 feet. Adults develop a bald, red crown. These cranes are distinguished from great blue herons by their overall gray coloration, extended neck in flight, and the manner in which they move their wings with slow downstrokes and quick upstrokes. The sandhill crane call has been described as a rolling, guttural, rattle, "krooo-oo" or "garooo-a-a-a", which is repeated, and can be heard for well over a mile. They are often found in wet meadow areas

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Iles, Kim, 2003. "A Sampler of Inventory Topics: a practical discussion for resource samplers, concentrating on forest inventory techniques", pp 630. Kim Iles & Associates, Ltd.

Maser, C. and R.G. Anderson, K.G. Cromack, J.T. Williams, R.E. Martin. 1979. Dead and down woody material. pp. 79-95 in Wildlife Habitat in Managed Forests in the Blue Mountains of Oregon and Washington. Thomas, J.W. (editor), USDA Forest Service Agriculture Handbook No. 553.

Powers, Robert F., and William W. Oliver, 1978. "Site Classification of Ponderosa Pine Stands Under Stocking Control in California", USDA, PSW-128.

Cruise Specifications
McCloud-Soda Springs

Count Plots

Live trees >=1" DBH variable radius plot

- Species
- DBH (1")
- % Defect by 16' log (conifers >11" DBH only)
- % Dead (Non commercial trees only – nearest 10%)

Measure plots - On plot numbers divisible to an integer by 3

Live trees >=1" DBH variable radius plot

- Species
- DBH
- Total height
- Height to crown base
- % Defect by 16' log (conifers >11" DBH only)
- % Dead (Non commercial species only – nearest 10%)

Site tree – one per measure plot

- As above for measure plot live trees
- Breast-height age

Regeneration Plot – at all plot locations

Fixed circular 1/100th acre plot (radius 11.78 feet)

For each species and 1" diameter class record:

- Species, DBH (1"), quantity, average height, average height to crown base

Tolerances

Maximum number of errors allowed in each of the following: 1 in 10 plots
Conifers

- Tree count and species: No tolerance
- DBH: +/- 2 inches
- Total height: +/- 10%
- Height to crown base: +/- 10%
- Age: +/- 10%

Hardwoods

- Tree count and species: No tolerance
- DBH: +/- 4 inches
- Total height: +/- 20%

Plot location: +/- one chain

Project Carbon Accounting: Inventory, Growth, and Harvest

This worksheet addresses the sequestation and emissions associated with the project area's balance of harvest, inventory, and growth plus any emissions associated with site preparation. Complete the input for Steps 0- 8 on this worksheet.

Forest Type

Multipliers to Estimate Carbon Tonnes per MBF (Sampson, 2002)

Forest Type	**Step 0.** Identify the approximate percentage of conifers by volume within the harvest plan. Must sum to 100%.	Multiplier from Cubic Feet (merchantable) to Total Biomass	Pounds Carbon per Cubic Foot
Douglas-fir	2%	1.7	14.4
Redwood	3%	1.7	13.4
Pines	72%	2.3	12.1
True firs	21%	2.3	11.2
Hardwoods	2%	2.2	11.8
Conversion of Board Feet to Cubic Feet	0.165	Pounds per Metric Tonne	2,204
Multipliers to Estimate Total Carbon Tonnes per MBF	Conifer	**2.0**	
	Hardwoods	**1.9**	
Multipliers to Estimate Merchantable Carbon Tonnes per MBF	Conifer	**0.9**	
	Hardwoods	**0.9**	

Harvest Periods, Inventory, Growth Rates, Harvest Volume

Harvest Periods: Time of Harvest (years from project approval)	Inventory: Conifer Live Tree Volume (MBF/Acre) - Prior to Harvest	Inventory: Hardwood Live Tree Volume (BA square feet/Acre) - Prior to Harvest	Growth Rates: Conifer Growth Rate BF/Acre/Year	Growth Rates: Hardwood Growth Rate BA/Acre/Year	Harvest Volume: Conifer Harvest Volume (MBF/acre)	Harvest Volume: Hardwood Harvested / Treated Basal Area (BA/Acre)
Step 1. Enter the anticipated future harvest entries. The re-entry cycles should be supported by management plan, if available.	**Step 2.** Enter the estimated conifer inventory (mbf/acre) present in project area prior to harvest.	**Step 3.** Enter the estimated hardwood inventory (basal area per acre) present in project area prior to harvest.	**Step 4.** Enter the average annual periodic growth of conifers between harvests based on estimated growth in management plan, if available. Must be entered for each harvest cycle identified in Step 1.	**Step 5.** Insert average annual periodic growth of hardwoods between harvests based on estimated growth in management plan, if available.	**Step 6.** Enter the estimated conifer harvested per acre at current and future entries. The estimate should be based on projections from the management plan if available.	**Step 7.** Enter estimated hardwood basal area harvested/treated per acre
User must enter harvest cycles to 100 years and/or at least three entry cycles.						
0	10.7	5.0	426.0	0.8	1.6	0.1
10	13.4	12.9	497.0	0.7	3.3	0.0
20	15.0	20.1	504.0	0.7	3.9	0.1
30	16.1	27.0	506.0	0.6	4.2	0.1
40	17.0	32.9	527.0	0.6	4.5	0.0
50	17.7	38.6	494.0	0.5	4.5	0.1
60	18.2	43.6	572.0	0.5	4.8	0.0
70	19.1	48.9	596.0	0.5	5.0	0.1
80	20.0	53.7	577.0	0.5	5.2	0.0
90	20.6	58.5	595.0	0.4	5.5	0.1
100	20.9	62.7	657.0	0.4	5.5	0.0

Inventory Conversion and Site Preparation

Harvest Periods	Inventory Conversion to Carbon (prior to harvest): Conifer Live Tree Tonnes (C/acre)	Inventory Conversion to Carbon (prior to harvest): Hardwood Live Trees Tonnes (C/acre)	Inventory Conversion to Carbon Dioxide Equivalent (prior to harvest): Conifer Live Tree Tonnes (CO_2 equivalent/acre)	Inventory Conversion to Carbon Dioxide Equivalent (prior to harvest): Hardwood Live Tree Tonnes (CO_2 equivalent/acre)	Site Preparation	
from above (Time of Harvest as years from project approval)	**Computed:** MBF * Conifer Multiplier from Step 0.	**Computed:** BA*Volume/Basal Area Ration (to convert to MBF) * Hardwood Multiplier from Step 0	**Computed:** Conversion of carbon to CO_2 (3.67 tonnes CO2 per 1 tonne Carbon)	**Computed:** Conversion of carbon to CO_2 (3.67 tonnes CO2 per 1 tonne Carbon)	**Step 8.** Enter the value (in bold) for each harvest cycel that best reflects the site preparation activities, as averaged across the project area. **Heavy**- 50% or more of the project area is covered with brush and removed as part of site preparation or stumps are removed (mobile emissions estimated at .429 metric tonnes CO2e per acre, biological emissions estimated at 2 metric tonnes CO2e per acre) **Medium** - >25% <50% of the project area is covered with brush and removed as part of site preparation (mobile emissions estimated at .202 metric tonnes CO2e per acre, biological emissions estimated at 1 metric tonne per acre). **Light** - 25% or less of the project area is covered with brush and is removed as part of site preparation (mobile emissions estimated at .09 metric tonnes CO2e per acre, biological emissions estimated at .5 metric tonnes per acre). **None** - No site preparation is conducted.	
0	21	1	77	2	None	0
10	26	2	96	7	None	0
20	29	3	107	11	None	0
30	32	4	116	15	None	0
40	33	5	122	18	None	0
50	35	6	127	21	None	0
60	36	6	131	24	None	0
70	37	7	137	26	None	0
80	39	8	144	29	None	0
	Difference between ending stocks and beginning stocks		67	25.15	Sum of emissions (Metric Tonnes CO2e) per acre	0

Project Carbon Accounting: Harvesting Emissions

This worksheet addresses the non-biological emissions associated with the project area's harvesting activities. Complete the input for Steps 9- 14 on this worksheet.

Harvest Periods	Falling Operations	Production per Day	Emissions Associated with Yarders and Loaders			Emissions Associated with Tractors and Skidders			Emissions Associated with Helicopters			Landing Saws	Trucking Emissions		
from Inventory, Growth, and Harvest Page (Time of Harvest as years from project approval)	**Assumption:** ((.25 gallons gasoline per MBF harvested * 5.33 (pounds carbon per gallon))/2205(conversion to metric tonnes)* mbf per acre harvested	MBF (all species) Yarded Delivered to Landing	**Assumption:** (((35 gallons diesel per day per piece of equipment * 6.12 pounds carbon / gallon)/2205 to convert to metric tonnes carbon)* 3.67 to convert to metric tonnes CO2 equivalent)/Production per Day			**Assumption:** (((55 gallons diesel per day per piece of equipment * 6.12 pounds carbon / gallon)/2205 to convert to metric tonnes carbon)* 3.67 to convert to metric tonnes CO2 equivalent)/Production per Day			**Assumption:** (((200 gallons jet fuel per day per piece of equipment * 5 pounds carbon / gallon)/2205 to convert to metric tonnes carbon)* 3.67 to convert to metric tonnes CO2 equivalent)/Production per Day			**Assumption:** (((.16 gallons gasoline per MBF * 5.33 (pounds carbon per gallon))/2205(conversion to metric tonnes)* 3.67 to convert to metric tonnes CO2 equivalent)/mbf per acre harvested. Applies to all species whether harvested or not.	**Assumption:** Round Trip Hours/Load average (from below, to compute the mbf/hour) /((6 gallons diesel/hour * 6.12 pounds carbon/gallon)/2205 (conversion to metric tonnes carbon))*3.67 (conversion to metric tonnes carbon dioxide equivalent)		
	Computed. Metric Tonnes CO2 equivalent per mbf harvested Applies to all species whether harvested or treated	**Step 9.** Enter the estimated volume delivered to the landing in a day	**Step 10.** Enter number of pieces of equipment in use per day for each harvest entry	**Computed.** Yarders and Loaders CO2 equivalient/mbf (metric tonnes)	**Computed.** Yarders and Loaders CO2 equivalent per Acre Harvested (metric tonnes)	**Step 11.** Enter number of pieces of equipment in use per day for each harvest entry	**Computed.** Tractor and skidder CO2 equivalient/mbf (metric tonnes)	**Computed.** Tractors and Skidders CO2 equivalent per Acre Harvested (metric tonnes)	**Step 12.** Enter number of pieces of equipment in use per day for each harvest entry	**Computed.** Helicopter CO2 equivalient/mbf (metric tonnes)	**Computed.** Helicopters CO2 equivalent per Acre Harvested (metric tonnes)	**Computed.** Landing Saws CO2 equivalent per Acre Harvested (metric tonnes)	Steps 13 and 14 below		**Computed.** Estimated Metric Tonnes CO2e per harvested acre for each harvesting period.
0	(0.00)	37.4	2	-0.02	-0.03	4	-0.06	-0.09	0	0.00	0.00	0.00	**Step 13.** Enter Estimated Load Average: MBF/Truck	4.2	-0.024900292
10	(0.01)	78.7	2	-0.01	-0.03	4	-0.03	-0.09	0	0.00	0.00	0.00			-0.052338192
20	(0.01)	93.0	2	-0.01	-0.03	4	-0.02	-0.09	0	0.00	0.00	-0.01	**Step 14.** Enter Estimated Round Trip Haul in Hours	4	-0.061854227
30	(0.01)	100.2	2	-0.01	-0.03	4	-0.02	-0.09	0	0.00	0.00	-0.01			-0.066612245
40	(0.01)	107.3	2	-0.01	-0.03	4	-0.02	-0.09	0	0.00	0.00	-0.01			-0.071370262
50	(0.01)	107.3	0	0.00	0.00	4	-0.02	-0.09	0	0.00	0.00	-0.01			-0.071370262
60	(0.01)	114.5	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	-0.01			-0.07612828
70	(0.01)	0.0	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	-0.01			-0.07882449
80	(0.01)	0.0	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	-0.01			-0.082472303
90	(0.01)	0.0	0	0.00	0.00	0	0.00	0.00	0	0.00	0.00	-0.01			-0.087230321
Sum Emissions	-0.09				-0.15			-0.56			0.00	-0.06			-0.67

Project Carbon Accounting: Harvested Wood Products and Processing Emissions

This worksheet addresses the non-biological emissions associated with the project area's harvesting activities. Complete the input for Steps 15- 16 on this worksheet.

Harvest Periods			Quantity of Forest Carbon Delivered to Mills		Non-Biological Emissions Associated with Mills	Quantity of Forest Carbon Remaining Immediately After Milling (Mill Efficiency)			Long-Term Sequestration in Wood Products	
from Inventory, Growth, and Harvest Page (Time of Harvest as years from project approval)	Step 15. Insert the percentage of conifer trees harvested that are subsequently delivered to sawmills	Step 16. Insert the percentage of hardwoods harvested or treated that are subsequently delivered to sawmills	Computed: The merchantable portion determined by the conversion factors (Sampson, 2002) on the Inventory, Growth, and Harvest worksheet. This is multiplied by the percent delivered to mills to reflect the carbon delivered to mills.	Computed: The merchantable portion determined by the conversion factors (Sampson, 2002) on the Inventory, Growth, and Harvest worksheet. This is multiplied by the percent delivered to mills to reflect the carbon delivered to mills	Assumption. 20 kw/hour (mill energy use) /(40mbf lumber processed/hour) *(.05 metric tonnes/kw hour) * mbf processed	Computed. Remaining CO2 equivalent after Milling Efficiency for Conifers	Computed. Remaining CO2 equivalent after Milling Efficiency for Hardwoods	The difference between carbon delivered to mills and carbon remaining after milling is assumed to be emitted immediately	Computed. CO2 Equivalent Tonnes in Conifer Wood Products in Use- 100 Year Weighted Average / Acre and Landfill	Computed. CO2 Equivalent Tonnes in Hardwood Wood Products in Use- 100 Year Weighted Average / Acre
	Conifer Percentage Delivered to Mills	Hardwood Percentage Delivered to Mills	Conifer CO2e Delivered to Mills / Acre	Hardwood CO2 equivalent Delivered to Mills / Acre	Calculated. The CO2e associated with processing the logs at the mill	The efficiency rating from mills in California is 0.67 (DOE 1605b) for conifers	The efficiency rating from mills in California is .5 (DOE 1605b) for hardwoods	Estimate. The weighted average carbon remaining in use at year 100 is 46.3%	Estimate. The carbon in landfills at year 100 is 29.8% of the initial carbon produced in wood products.	Estimate. The carbon in landfills at year 100 is 29.8% of the initial carbon produced in wood products
0	100%	0%	5.08	0.00	-0.04	3.40	0.00	2.59	0.00	0.00
10	100%	0%	10.68	0.00	-0.08	7.16	0.00	5.45	0.00	0.00
20	100%	0%	12.62	0.00	-0.10	8.46	0.00	6.44	0.00	0.00
30	100%	0%	13.59	0.00	-0.11	9.11	0.00	6.93	0.00	0.00
40	100%	0%	14.56	0.00	-0.11	9.76	0.00	7.43	0.00	0.00
50	100%	0%	14.56	0.00	-0.11	9.76	0.00	7.43	0.00	0.00
60	100%	0%	15.53	0.00	-0.12	10.41	0.00	7.92	0.00	0.00
70	100%	0%	16.08	0.00	-0.12	10.78	0.00	8.20	0.00	0.00
80	100%	0%	16.83	0.00	-0.13	11.28	0.00	8.58	0.00	0.00
90	100%	0%	17.80	0.00	-0.14	11.93	0.00	9.08	0.00	0.00
100	100%	0%	17.80	0.00	-0.14	11.93	0.00	9.08	0.00	0.00
			Sum of emissions associate with processing of lumber		-1.20	Sum of CO2 equivalent in wood products		36.25	0.00	

Summary			
	Beginning Stocks	Ending Stocks	
Emissions Source/Sink/Reservoir	Metric Tonnes CO2 Equivalent Per Acre Basis		
Live Trees (Conifers and Hardwoods)	79.56	172.38	
Wood Products		36.25	
Site Preparation Emissions		0.00	
Non-biological emissions associated with harvesting		-1.54	
Non-biological emissions associated with milling		-1.20	
Sum of Net Emissions/Sequestration over Identified Harvest Cycles (CO2 metric tonnes)		126.33	
Project Summary			
Project Acres	Step 17- Insert the acres that are part of the harvest area.	1,392	
Total Project Sequestration over defined Harvesting Periods (CO2 metric tonnes)		175,856	

Years until Carbon Stocks are Recouped from Initial Harvest (Includes Carbon in Live Trees, Harvested Wood Products, and Landfill)
3 Years

Years	Conifer												
	Starting Inventory (MBF/Acre)	Starting Inventory (CO2-e Tonnes/Acre)	Harvest (MBF/Acre)	Annual Inventory Estimate (MBF/acre)	Estimated CO2 equivalent in Inventory (Metric Tonnes/Acre)	Estimated CO2 equivalent harvested in total tree (Metric Tonnes/Acre)	Portion of Harvest Delivered to Mill	Amount CO2 equivalent transferred to the mill (bole portion w/o bark of the tree) (Metric Tonnes/Acre)	In Use Decay Curve of Wood Products (Conifer) (%)	CO2 -e in in-use harvested wood products (Metric Tonnes/Acre)	Fraction of CO2 equivalent remaining in landfills (%)	CO2 -e in Landfills (Metric Tonnes/Acre)	Combined CO2-e in Landfills and In-use (Metric Tonnes/Acre)
Pre-harvest	11	77	2	9	66	11	100%	5	0.68	3	0.02	0.09	3.52
1			-	10	69	-		-	0.64	3	0.04	0.18	3.41
2			-	10	72	-		-	0.60	3	0.05	0.26	3.32
3			-	10	75	-		-	0.57	3	0.07	0.34	3.25
4			-	11	78	-		-	0.55	3	0.08	0.41	3.18
5			-	11	81	-		-	0.52	3	0.09	0.48	3.12
6			-	12	84	-		-	0.50	3	0.11	0.54	3.07
7			-	12	87	-		-	0.48	2	0.12	0.60	3.03
8			-	13	90	-		-	0.46	2	0.13	0.66	2.99
9			-	13	93	-		-	0.44	2	0.14	0.72	2.95
10			3	10	72	24		11	0.42	9	0.15	0.96	10.32
11			-	11	76	-		-	0.41	9	0.16	1.19	10.09
12			-	11	79	-		-	0.40	8	0.17	1.41	9.87
13			-	11	82	-		-	0.39	8	0.18	1.62	9.70
14			-	12	85	-		-	0.38	8	0.19	1.82	9.54
15			-	12	88	-		-	0.36	7	0.19	1.99	9.40
16			-	13	91	-		-	0.36	7	0.20	2.17	9.29
17			-	13	94	-		-	0.35	7	0.21	2.33	9.20
18			-	13	97	-		-	0.34	7	0.22	2.48	9.09
19			-	14	100	-		-	0.33	6	0.22	2.63	9.01
20			4	10	75	28		13	0.32	15	0.23	3.00	17.69
21			-	11	78	-		-	0.32	14	0.23	3.35	17.40
22			-	11	81	-		-	0.31	13	0.24	3.67	17.12
23			-	12	84	-		-	0.30	13	0.25	3.99	16.89
24			-	12	87	-		-	0.30	12	0.25	4.29	16.69
25			-	13	90	-		-	0.29	12	0.26	4.55	16.49
26			-	13	93	-		-	0.29	12	0.26	4.82	16.36
27			-	13	97	-		-	0.28	11	0.26	5.08	16.24
28			-	14	100	-		-	0.28	11	0.27	5.30	16.10
29			-	14	103	-		-	0.27	10	0.27	5.53	16.00
30			4	11	76	30		14	0.27	19	0.28	5.99	25.31
31			-	11	79	-		-	0.26	19	0.28	6.43	25.00
32			-	11	82	-		-	0.26	18	0.28	6.83	24.69
33			-	12	85	-		-	0.25	17	0.29	7.23	24.43
34			-	12	88	-		-	0.25	17	0.29	7.61	24.20
35			-	13	91	-		-	0.25	16	0.29	7.94	23.97
36			-	13	94	-		-	0.24	16	0.30	8.28	23.82
37			-	13	97	-		-	0.24	15	0.30	8.60	23.69
38			-	14	100	-		-	0.23	15	0.30	8.89	23.53
39			-	14	103	-		-	0.23	14	0.31	9.18	23.41
40			5	10	74	32		15	0.23	24	0.31	9.71	33.37
41			-	11	77	-		-	0.22	23	0.31	10.23	33.03
42			-	11	80	-		-	0.22	22	0.32	10.70	32.69
43			-	12	83	-		-	0.22	21	0.32	11.17	32.41
44			-	12	86	-		-	0.21	21	0.32	11.61	32.16
45			-	12	89	-		-	0.21	20	0.32	12.01	31.90
46			-	13	92	-		-	0.21	19	0.33	12.41	31.73
47			-	13	95	-		-	0.20	19	0.33	12.79	31.59
48			-	14	98	-		-	0.20	18	0.33	13.12	31.41
49			-	14	101	-		-	0.20	18	0.33	13.47	31.26
50			5	10	72	32		15	0.20	27	0.33	14.04	41.20
51			-	10	75	-		-	0.19	26	0.33	14.59	40.83
52			-	11	78	-		-	0.19	25	0.33	15.10	40.48
53			-	11	81	-		-	0.19	25	0.33	15.60	40.18
54			-	12	84	-		-	0.19	24	0.34	16.13	39.96
55			-	12	87	-		-	0.18	23	0.34	16.56	39.68
56			-	13	90	-		-	0.18	23	0.34	17.00	39.50
57			-	13	93	-		-	0.18	22	0.34	17.41	39.34
58			-	13	97	-		-	0.18	21	0.34	17.77	39.14
59			-	14	100	-		-	0.18	21	0.35	18.20	39.03
60			5	9	68	34		16	0.17	31	0.35	18.80	49.61
61			-	10	71	-		-	0.17	30	0.35	19.38	49.19
62			-	10	74	-		-	0.17	29	0.35	19.92	48.79
63			-	11	77	-		-	0.17	28	0.35	20.45	48.45
64			-	11	80	-		-	0.16	27	0.36	21.11	48.29
65			-	12	83	-		-	0.16	26	0.36	21.57	47.97
66			-	12	87	-		-	0.16	26	0.36	22.03	47.76
67			-	12	90	-		-	0.16	25	0.36	22.47	47.57
68			-	13	93	-		-	0.16	24	0.36	22.85	47.33
69			-	13	96	-		-	0.15	24	0.37	23.39	47.29
70			-	14	99	-		-	0.15	23	0.37	23.73	47.07
71			-	14	102	-		-	0.15	23	0.37	24.06	46.95
72			-	15	105	-		-	0.15	22	0.37	24.37	46.82
73			-	15	108	-		-	0.15	22	0.37	24.67	46.67
74			-	15	111	-		-	0.15	22	0.38	25.23	46.78
75			-	16	114	-		-	0.15	21	0.38	25.49	46.60
76			-	16	117	-		-	0.14	21	0.38	25.76	46.52
77			-	17	120	-		-	0.14	20	0.38	26.03	46.43
78			-	17	123	-		-	0.14	20	0.38	26.25	46.31
79			-	18	126	-		-	0.14	20	0.38	26.73	46.44
80			-	18	129	-		-	0.14	19	0.38	26.93	46.29
81			-	18	132	-		-	0.14	19	0.38	27.11	46.18
82			-	19	136	-		-	0.13	19	0.38	27.29	46.07
83			-	19	139	-		-	0.13	18	0.38	27.47	45.96
84			-	20	142	-		-	0.13	18	0.39	27.99	46.20
85			-	20	145	-		-	0.13	18	0.39	28.16	46.07
86			-	21	148	-		-	0.13	18	0.39	28.31	45.97
87			-	21	151	-		-	0.13	17	0.39	28.47	45.88
88			-	21	154	-		-	0.13	17	0.39	28.61	45.77
89			-	22	157	-		-	0.13	17	0.40	29.07	45.98
90			-	22	160	-		-	0.12	17	0.40	29.18	45.83
91			-	23	163	-		-	0.12	16	0.40	29.27	45.70
92			-	23	166	-		-	0.12	16	0.40	29.38	45.59
93			-	24	169	-		-	0.12	16	0.40	29.47	45.46
94			-	24	172	-		-	0.12	16	0.40	30.01	45.79
95			-	24	175	-		-	0.12	16	0.40	30.11	45.66
96			-	25	178	-		-	0.12	15	0.40	30.20	45.56
97			-	25	181	-		-	0.12	15	0.40	30.29	45.46
98			-	26	184	-		-	0.11	15	0.40	30.36	45.34
99			-	26	188	-		-	0.11	15	0.41	30.86	45.64
100			-	27	191	-		-	0.11	15	0.41	30.90	45.49

Hardwood

Starting Inventory (BA/Acre)	Starting Inventory CO2-e (Metric Tonnes/Acre)	Harvest (BA/Acre)	Annual Inventory (BA/acre)	Estimated CO2 equivalent in Inventory (Metric Tonnes/Acre)	Estimated CO2 equivalent harvested in total tree (Metric Tonnes/Acre)	Portion of Harvest Delivered to Mill (%)	Amount CO2 equivalent transferred to the mill (bole portion w/o bark of the tree) (Metric Tonnes/Acre)	In Use Decay Curve of Wood Products (Conifer) (Metric Tonnes/Acre)	CO2 -e in in-use harvested wood products (Metric Tonnes/Acre)	Fraction of CO2 equivalent remaining in landfills (%)	CO2 -e in Landfills (Metric Tonnes/Acre)	Combined CO2-e in Landfills and In-use (Metric tonnes/Acre)
5	3	0	5	3	0	0%	-	0.57	-	-	-	-
		-	6	3	-		-	0.53	-	0.02	-	-
		-	7	4	-		-	0.49	-	0.03	-	-
		-	7	4	-		-	0.46	-	0.05	-	-
		-	8	4	-		-	0.44	-	0.06	-	-
		-	9	5	-		-	0.41	-	0.07	-	-
		-	10	5	-		-	0.39	-	0.08	-	-
		-	11	6	-		-	0.37	-	0.09	-	-
		-	11	6	-		-	0.35	-	0.10	-	-
		-	12	7	-		-	0.33	-	0.11	-	-
		-	13	7	-		-	0.32	-	0.12	-	-
		-	14	7	-		-	0.32	-	0.12	-	-
		-	15	8	-		-	0.32	-	0.12	-	-
		-	15	8	-		-	0.32	-	0.12	-	-
		-	16	9	-		-	0.32	-	0.12	-	-
		-	17	9	-		-	0.26	-	0.14	-	-
		-	18	10	-		-	0.26	-	0.14	-	-
		-	19	10	-		-	0.26	-	0.14	-	-
		-	19	10	-		-	0.26	-	0.14	-	-
		-	20	11	-		-	0.26	-	0.14	-	-
		0	21	11	0		-	0.22	-	0.16	-	-
		-	22	12	-		-	0.22	-	0.16	-	-
		-	22	12	-		-	0.22	-	0.16	-	-
		-	23	12	-		-	0.22	-	0.16	-	-
		-	24	13	-		-	0.22	-	0.16	-	-
		-	25	13	-		-	0.19	-	0.17	-	-
		-	26	14	-		-	0.19	-	0.17	-	-
		-	26	14	-		-	0.19	-	0.17	-	-
		-	27	15	-		-	0.19	-	0.17	-	-
		-	28	15	-		-	0.19	-	0.17	-	-
		0	29	15	0		-	0.17	-	0.18	-	-
		-	30	16	-		-	0.17	-	0.18	-	-
		-	30	16	-		-	0.17	-	0.18	-	-
		-	31	17	-		-	0.17	-	0.18	-	-
		-	32	17	-		-	0.17	-	0.18	-	-
		-	33	18	-		-	0.15	-	0.19	-	-
		-	34	18	-		-	0.15	-	0.19	-	-
		-	34	18	-		-	0.15	-	0.19	-	-
		-	35	19	-		-	0.15	-	0.19	-	-
		-	36	19	-		-	0.15	-	0.19	-	-
		-	37	20	-		-	0.13	-	0.19	-	-
		-	38	20	-		-	0.13	-	0.19	-	-
		-	38	21	-		-	0.13	-	0.19	-	-
		-	39	21	-		-	0.13	-	0.19	-	-
		-	40	21	-		-	0.13	-	0.19	-	-
		-	41	22	-		-	0.12	-	0.20	-	-
		-	42	22	-		-	0.12	-	0.20	-	-
		-	42	23	-		-	0.12	-	0.20	-	-
		-	43	23	-		-	0.12	-	0.20	-	-
		-	44	24	-		-	0.12	-	0.20	-	-
		0	45	24	0		-	0.11	-	0.20	-	-
		-	45	24	-		-	0.11	-	0.20	-	-
		-	46	25	-		-	0.11	-	0.20	-	-
		-	47	25	-		-	0.11	-	0.20	-	-
		-	48	26	-		-	0.11	-	0.20	-	-
		-	49	26	-		-	0.10	-	0.20	-	-
		-	49	27	-		-	0.10	-	0.20	-	-
		-	50	27	-		-	0.10	-	0.20	-	-
		-	51	27	-		-	0.10	-	0.20	-	-
		-	52	28	-		-	0.10	-	0.20	-	-
		-	53	28	-		-	0.09	-	0.21	-	-
		-	53	29	-		-	0.09	-	0.21	-	-
		-	54	29	-		-	0.09	-	0.21	-	-
		-	55	30	-		-	0.09	-	0.21	-	-
		-	56	30	-		-	0.09	-	0.21	-	-
		-	57	30	-		-	0.08	-	0.21	-	-
		-	57	31	-		-	0.08	-	0.21	-	-
		-	58	31	-		-	0.08	-	0.21	-	-
		-	59	32	-		-	0.08	-	0.21	-	-
		-	60	32	-		-	0.08	-	0.21	-	-
		-	61	33	-		-	0.07	-	0.21	-	-
		-	61	33	-		-	0.07	-	0.21	-	-
		-	62	33	-		-	0.07	-	0.21	-	-
		-	63	34	-		-	0.07	-	0.21	-	-
		-	64	34	-		-	0.07	-	0.21	-	-
		-	65	35	-		-	0.07	-	0.21	-	-
		-	65	35	-		-	0.07	-	0.21	-	-
		-	66	36	-		-	0.07	-	0.21	-	-
		-	67	36	-		-	0.07	-	0.21	-	-
		-	68	36	-		-	0.07	-	0.21	-	-
		-	69	37	-		-	0.06	-	0.21	-	-
		-	69	37	-		-	0.06	-	0.21	-	-
		-	70	38	-		-	0.06	-	0.21	-	-
		-	71	38	-		-	0.06	-	0.21	-	-
		-	72	39	-		-	0.06	-	0.21	-	-
		-	73	39	-		-	0.06	-	0.22	-	-
		-	73	39	-		-	0.06	-	0.22	-	-
		-	74	40	-		-	0.06	-	0.22	-	-
		-	75	40	-		-	0.06	-	0.22	-	-
		-	76	41	-		-	0.06	-	0.22	-	-
		-	77	41	-		-	0.05	-	0.22	-	-
		-	77	42	-		-	0.05	-	0.22	-	-
		-	78	42	-		-	0.05	-	0.22	-	-
		-	79	42	-		-	0.05	-	0.22	-	-
		-	80	43	-		-	0.05	-	0.22	-	-
		-	81	43	-		-	0.05	-	0.22	-	-
		-	81	44	-		-	0.05	-	0.22	-	-
		-	82	44	-		-	0.05	-	0.22	-	-
		-	83	45	-		-	0.05	-	0.22	-	-
		-	84	45	-		-	0.05	-	0.22	-	-
		-	85	45	-		-	0.05	-	0.22	-	-

Total					
CO2-e in Standing Inventories (Metric Tonnes/Acre)	CO2-e in Harvested Wood Products (Metric Tonnes/Acre)	CO2-e in Inventories and in Harvested Wood Products (Metric Tonnes/Acre)	Initial CO2-e in Forest	Years in Which Project Sequestration Exceed Initial CO2-e Prior to Harvest (Metric Tonnes) (101 indicates that the emissions from harvest have not been recouped from sequestration and storage)	Number of Years for Growth and Harvested Wood Products to Achieve pre-Harvest Sequester CO2-e
70.53	3.52	72	80	101	3
74.39	3.41	75		101	
78.25	3.32	79		101	
82.11	3.25	82		3	
85.97	3.18	85		4	
89.83	3.12	89		5	
93.70	3.07	92		6	
97.56	3.03	96		7	
101.42	2.99	99		8	
105.28	2.95	103		9	
85.43	10.32	90		10	
89.29	10.09	93		11	
93.15	9.87	96		12	
97.01	9.70	100		13	
100.87	9.54	103		14	
104.73	9.40	106		15	
108.59	9.29	110		16	
112.45	9.20	113		17	
116.31	9.09	116		18	
120.17	9.01	120		19	
95.91	17.69	104		20	
99.78	17.40	107		21	
103.64	17.12	110		22	
107.50	16.89	114		23	
111.36	16.69	117		24	
115.22	16.49	120		25	
119.08	16.36	124		26	
122.94	16.24	127		27	
126.80	16.10	130		28	
130.66	16.00	134		29	
104.25	25.31	116		30	
108.11	25.00	119		31	
111.97	24.69	123		32	
115.83	24.43	126		33	
119.69	24.20	129		34	
123.55	23.97	132		35	
127.41	23.82	136		36	
131.27	23.69	139		37	
135.13	23.53	142		38	
138.99	23.41	146		39	
110.52	33.37	127		40	
114.38	33.03	130		41	
118.24	32.69	133		42	
122.10	32.41	136		43	
125.96	32.16	140		44	
129.82	31.90	143		45	
133.69	31.73	146		46	
137.55	31.59	150		47	
141.41	31.41	153		48	
145.27	31.26	156		49	
116.70	41.20	137		50	
120.56	40.83	140		51	
124.42	40.48	143		52	
128.28	40.18	147		53	
132.14	39.96	150		54	
136.00	39.68	153		55	
139.86	39.50	156		56	
143.72	39.34	160		57	
147.58	39.14	163		58	
151.44	39.03	166		59	
120.82	49.61	146		60	
124.68	49.19	149		61	
128.54	48.79	152		62	
132.40	48.45	155		63	
136.26	48.29	159		64	
140.12	47.97	162		65	
143.98	47.76	165		66	
147.84	47.57	168		67	
151.70	47.33	172		68	
155.56	47.29	175		69	
159.42	47.07	178		70	
163.28	46.95	182		71	
167.15	46.82	185		72	
171.01	46.67	188		73	
174.87	46.78	192		74	
178.73	46.60	195		75	
182.59	46.52	199		76	
186.45	46.43	202		77	
190.31	46.31	206		78	
194.17	46.44	209		79	
198.03	46.29	213		80	
201.89	46.18	216		81	
205.75	46.07	219		82	
209.61	45.96	223		83	
213.47	46.20	226		84	
217.33	46.07	230		85	
221.19	45.97	233		86	
225.06	45.88	237		87	
228.92	45.77	240		88	
232.78	45.98	244		89	
236.64	45.83	247		90	
240.50	45.70	250		91	
244.36	45.59	254		92	
248.22	45.46	257		93	
252.08	45.79	261		94	
255.94	45.66	264		95	
259.80	45.56	268		96	
263.66	45.46	271		97	
267.52	45.34	274		98	
271.38	45.64	278		99	
275.24	45.49	282		100	
-	-				

NORTHERN SPOTTED OWL
SUITABLE HABITAT AND SURVEY ASSESSMENT

McCLOUD - SODA SPRINGS NTMP

PREPARED BY:

STUART L. FARBER JR.
W.M. BEATY & ASSOCIATES, INC.
Spotted Owl Expert (SOE)
CDFW Scientific Collecting Permit (SCP), SC-0797

8/3/15

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TABLE OF CONTENTS

1.0 INTRODUCTION

The McCloud - Soda Springs NTMP (plan) is approximately 1,394 acres of privately owned forestland in Siskiyou and Shasta Counties, California. Pacific Forest Trust (PFT) currently manages the forestland owned by Schroll Timberlands, LLC. The forestland was acquired from Bascom Woods, LLC in 2015. Both the Pacific Forest Trust and Schroll Timberlands, LLC. have strong conservation ethics and a willingness to manage their properties as healthy natural areas that provide aesthetic, recreational, wildlife and community values.

The plan is located immediately adjacent to the town of McCloud in Siskiyou County, California. The plan occurs within the McCloud River basin, which lies within the Southern Cascades of California. The plan ranges in elevation from 3,040 feet along Squaw Valley creek up to 3,480 feet mountain ridges. The primary commercial conifer species being managed are white fir (*Abies concolor*), ponderosa pine (*Pinus ponderosa*), Douglas-fir (*Pseudotsuga menziesii*), sugar pine (*Pinus lambertiana*) and incense cedar (*Calocedrus decurrens*).

1.1 Northern Spotted Owl Status and Protection Measures

The Northern spotted owl (*Strix occidentalis caurina*) (NSO) was listed as a threatened species in 1990 under the federal Endangered Species Act. The plan occurs within the known range of the Northern spotted owl and within the Northern Spotted Owl Evaluation Area (NSO evaluation area) (14 CCR 895.1). To ensure "take" of Northern spotted owls will not result from forest management activities the plan has completed a suitable habitat and survey assessment to fulfill the requirements of 14 CCR 939.9. W.M. Beaty and Associates, Inc. has prepared the suitable habitat and survey assessment with PFT. The assessment was drafted under the direction of Stuart L. Farber Jr., a Spotted Owl Expert (SOE) designated by Cal Fire on March 3, 2010. Accordingly, information is included in this plan complies with 14 CCR 939.9 to ensure that "take" of Northern spotted owls will not result from forest management activities and that "take" has been avoided as per 14 CCR 939.10.

2.0 ENVIRONMENT

2.1 Suitable Habitats

The identification and verification of suitable habitats within 1.3 miles of the plan boundary has been completed using the forest inventory and Geographic Information Systems (GIS) databases. The forest inventory is based on individual field inventory variable plots which create low sampling variance resulting in a high degree of statistical certainty for suitable habitat parameters like tree diameter, basal area and density of trees. Based on the individual plot data the forest inventory types are converted to stand size and density classes described in the California Wildlife Habitat Relationship (WHR) habitat types. These WHR habitat size and density classes are then converted to Northern spotted owl suitable habitat types recommended by the U.S. Fish and Wildlife Service(USFWS)(2008). The suitable habitat types are validated through the use of digital aerial photography during field reconnaissance. In other words, tree size and density classes are not exclusive in determining suitable habitat types, as field validation is necessary to review presence of important habitat elements (i.e. snags, deformed trees, dense groups of trees) that owls use for roosting and foraging and may be absent from otherwise suitable habitat types (USFWS 2008).

This suitable habitat assessment uses suitable habitat types described by the USFWS (2008) which include: high quality nesting and roosting habitat, nesting and roosting habitat, foraging habitat, and low quality foraging habitat. One modification to these suitable habitat types is the classification of even-aged mixed conifer plantations. As described above, tree size and density classes are not exclusive in determining suitable habitat types. The even-aged mixed conifer plantations range in age from 2 years old up to 40 years old. The older plantations exhibit tree size greater than 11 inch dbh and 40% canopy closure, meeting Low Quality Foraging habitat definitions. However, the plantation trees typically have dead or live limbs to the ground and that provides little or no canopy lift necessary for foraging owls. Accordingly, plantations that do not provide adequate canopy lift for foraging owls (Irwin et al. 2007) were not classified as either foraging or low quality foraging habitats.

2.2 Northern Spotted Owl activity centers

The plan occurs within the Southern Cascades province of the Northern spotted owl along the most eastern and southern portions of the range (USFWS 2008). Surveys for Northern spotted owls have been conducted previously within the plan area and adjacent forestlands since the listing of the species in 1990. Detection and non-detection records from many of these surveys are recorded in the DFG BIOS Northern spotted owl database (Appendix E). A review of the DFG BIOS database indicated there are no occupied, unoccupied or abandoned activity centers within 1.3 mile of forestlands (Appendix A, E).

3.0 SUITABLE HABITAT AND SURVEY ASSESSMENT

The suitable habitat assessment described in Section 2.1 was completed and found only low quality foraging and non-habitat within the plan boundary, and foraging, low quality foraging and non-habitat within 1.3 miles of the plan boundary (Appendix B, C). A critical component of the USFWS (2008) guidance in determining habitat use is the proximity of one habitat type to another (e.g. nesting and roosting habitat to foraging or low-quality foraging). Recent scientific research efforts to predict the likelihood of a NSO inhabiting specific forest stands in northern California have used a model selection methodology (Zabel et al. 2003). This method uses statistical analytical procedures to identify precisely which forest attributes, in what types of spatial arrangement are common among many sites known to be used by NSOs. The final model indicated that a combination of nesting and roosting habitat and foraging habitat was a key predictor of occupancy by NSOs (Zabel et al. 2003). It has also been shown in other studies that NSO habitat is a combination of nesting and roosting areas interspersed and juxtaposed with foraging areas (Farber and Crans 2000, Franklin et al. 2000, Hunter et al. 1995, Irwin et al. 2000, Zabel et al. 2003). Zabel et al (2003) concluded that their results are a good predictor of NSO occupancy within a given 0.5 mile circle or 500 acre core area and that at the lower probability levels (i.e. areas that support only foraging or low-quality foraging habitat but do not support nesting and roosting habitats) NSO absence is predicted. Based on this best available information, the suitable habitat arrangement within 1.3 miles of the plan boundary includes only foraging, low-quality foraging and non-habitat, and no nesting and roosting habitat indicating very low predicted presence. Accordingly, the following survey categories are proposed.

3.1 Category 1: Survey Exemption

For portions of a Notice area that do not contain suitable nesting and roosting habitat or foraging habitat and are greater than 0.25 miles from suitable nesting and roosting habitat or foraging habitat, surveys are not required prior to operations. For the purposes of this assessment, the term foraging habitat does not mean low quality foraging habitat.

3.2 Category 2: Modified 0.25 mile Survey Areas or Modified Seasonal Restriction

For portions of a Notice that do not contain nesting and roosting habitat or foraging habitat, but are less than 0.25 miles from suitable nesting and roosting or foraging habitat, surveys are required prior to operations unless operations occur between July 10th and January 31st of any given year. If surveys are conducted, it is only necessary to survey those areas of suitable nesting and roosting habitat or foraging habitat within 0.25 miles of the proposed operations. For the purposes of this assessment, the term foraging habitat does not mean low quality foraging habitat.

This suitable habitat and survey assessment process has been discussed with the USFWS - Yreka Field Office. Initial review by Jan Johnson, Wildlife Biologist, indicates that the proposed survey categories may be appropriate for the combination of existing suitable habitat conditions and lack of occupied activity centers within and adjacent to the plan area (Appendix D). Accordingly, based on the current suitable habitat conditions within the plan area and within

1.3 miles of the plan area (Appendix B) the plan and first Notice proposes Category 1: Survey Exemption and to not conduct protocol surveys prior to operations.

4.0 SUITABLE HABITAT ASSESSMENT FOR NEW ACTIVITY CENTERS

While there are no currently known, occupied Northern spotted owl activity centers within 1.3 miles of the plan boundary, in the event a Northern spotted owl is detected in a location not previously occupied, and the detection(s) meet USFWS (2012) standards for an activity center, a 1.3 mile suitable habitat assessment shall be completed. The assessment of suitable habitat shall be based on the USFWS (2008) guidance and the following standard protection measures which shall be implemented to ensure "take" of an individual Northern spotted owl (NSO) will not result from proposed forest management activities:

(1) The habitat protection zone for NSOs shall consist of the area within a 1000 feet radius of a tree, or trees, containing a nest supporting an activity center.

(2) No timber operations will occur within a 500 feet radius of an activity center during the NSO breeding season unless explained, justified and approved by the director. Timber operations may be conducted in this area outside the breeding season if appropriated measures are adopted to protect nesting habitat. The habitat qualities of functional nesting and roosting habitat shall be maintained.

(3) Within 500 to 1000 feet of the activity center no timber operations will occur during the NSO breeding season unless explained, justified and approved by the director. Habitat qualities will retain sufficient functional characteristics to support roosting habitat.

(4) A minimum of 500 acres of suitable NSO habitat shall remain post-harvest within the area out to .7 miles surrounding a tree, or trees, containing a nest or supporting an activity center. Less than 50 percent of the retained area may be operated on in any given year, depending on the amount of pre harvest suitable habitat present within .7 miles of the tree, or trees, containing a nest or supporting an activity center.

(5) A minimum of 1,336 acres of suitable NSO habitat shall remain post-harvest within the area out to 1.3 miles surrounding a tree, or trees, containing a nest or activity center.

(6) The critical period for NSO breeding is between February 1st and August 31st. During this period, no operations are permitted within .25 miles of a known, occupied activity center.

5.0 REPORTING

For each Notice that is filed 5 years following approval of the plan, the Registered Professional Forester (RPF) shall include in the Notice a certification that the Notice complies with Northern spotted owl measures in the plan ensuring "take" of Northern spotted owls will not result from forest management activities and that "take" has been avoided as per 14 CCR § 939.10. The RPF certification shall also include which Survey Category the RPF intends to implement to ensure that "take" of Northern spotted owls will not result from forest management activities and that "take" has been avoided as per 14 CCR § 939.10. In addition, if any of the following conditions have changed within the plan or assessment area, the RPF shall report the changes and propose measures, if necessary:

(1) Based on significant changes in habitat condition due to forest growth, disease, insect damage or wildfire, the RPF shall update of suitable habitat maps and propose changes in surveys, if appropriate, or,

(2) If surveys are conducted, a summary of survey results including survey stations, dates and times of surveys, and survey results including information on activity center status will be provided. Survey maps shall include survey stations with suitable habitat types to determine adequacy of surveys or,

(3) A summary of Northern spotted owls detected in locations not previously detected and a summary of measures, if any, associated with the new detection will be provided.

6.0 REFERENCES

Farber, S.L. and R. Crans 2000. Habitat Relationships of Northern Spotted Owls on Timber Products Forestlands in Northern California. Timber Products Company 130 Phillipe Lane Yreka CA 96097 June 1, 2000. 28 p.

Franklin, A.B., D.R. Anderson, R.J. Gutierrez and K.P. Burnham 2000. Climate, habitat quality and fitness in northern spotted owl populations in northwestern California. Ecological Monographs 70(4): 539-590.

Hunter, J.E. R.J. Gutierrez and A.B. Franklin 1995. Habitat configuration around spotted owl sites in northwestern California. Condor 97:684:693.

Irwin, L.L., D.F. Rock and G.P. Miller. 2000. Stand structures used by northern spotted owls in managed forests. J. Raptor Research 34(3):175-186.

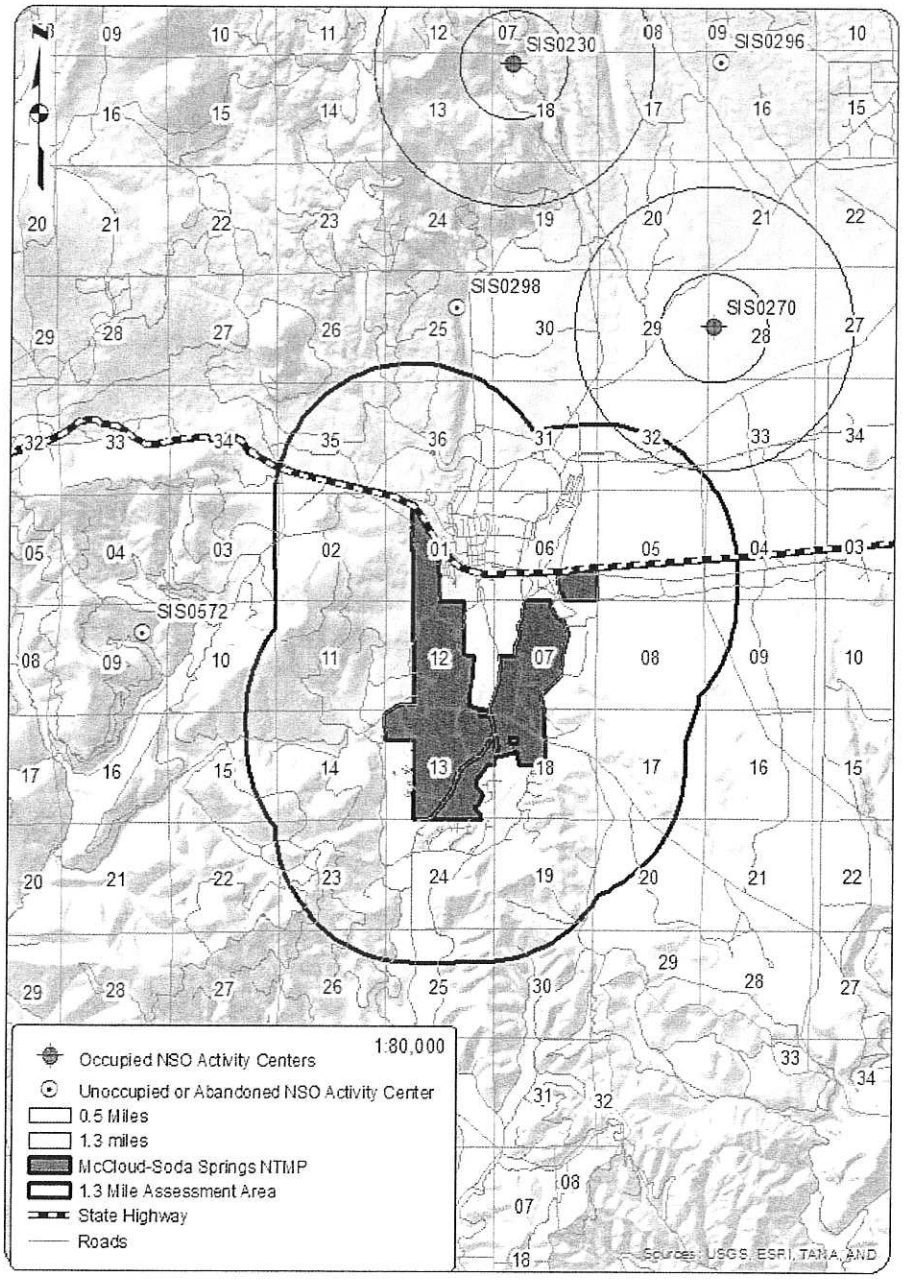
U.S. Fish and Wildlife Service 2008. Regulatory and Scientific Basis for U.S. Fish and Wildlife Service, Guidance for Evaluation of Take for Northern spotted owls on Private Timberlands in California's northern Interior Region. U.S. Fish and Wildlife Service, Yreka Field Office, 1829 South Oregon Street, Yreka, CA 96097. February 27, 2008.

U.S. Fish and Wildlife Service 2012. 2012 Northern spotted owl survey protocol. U. S. Fish and Wildlife Service, Pacific Southwest Region, 2800 Cottage Way, Room W-2606, Sacramento, CA, 95825-1846. February 7, 2011. As Amended with Errata February 15, 2011 and Revised January 9, 2012.

Zabel, C.J., J.R. Dunk, H.B.Stauffer, L.M.Roberts, B.S. Mulder and A. Wright. 2003. Northern spotted owl habitat models for research and management application in California. Ecological Applications: 13(4) 1027-1040.

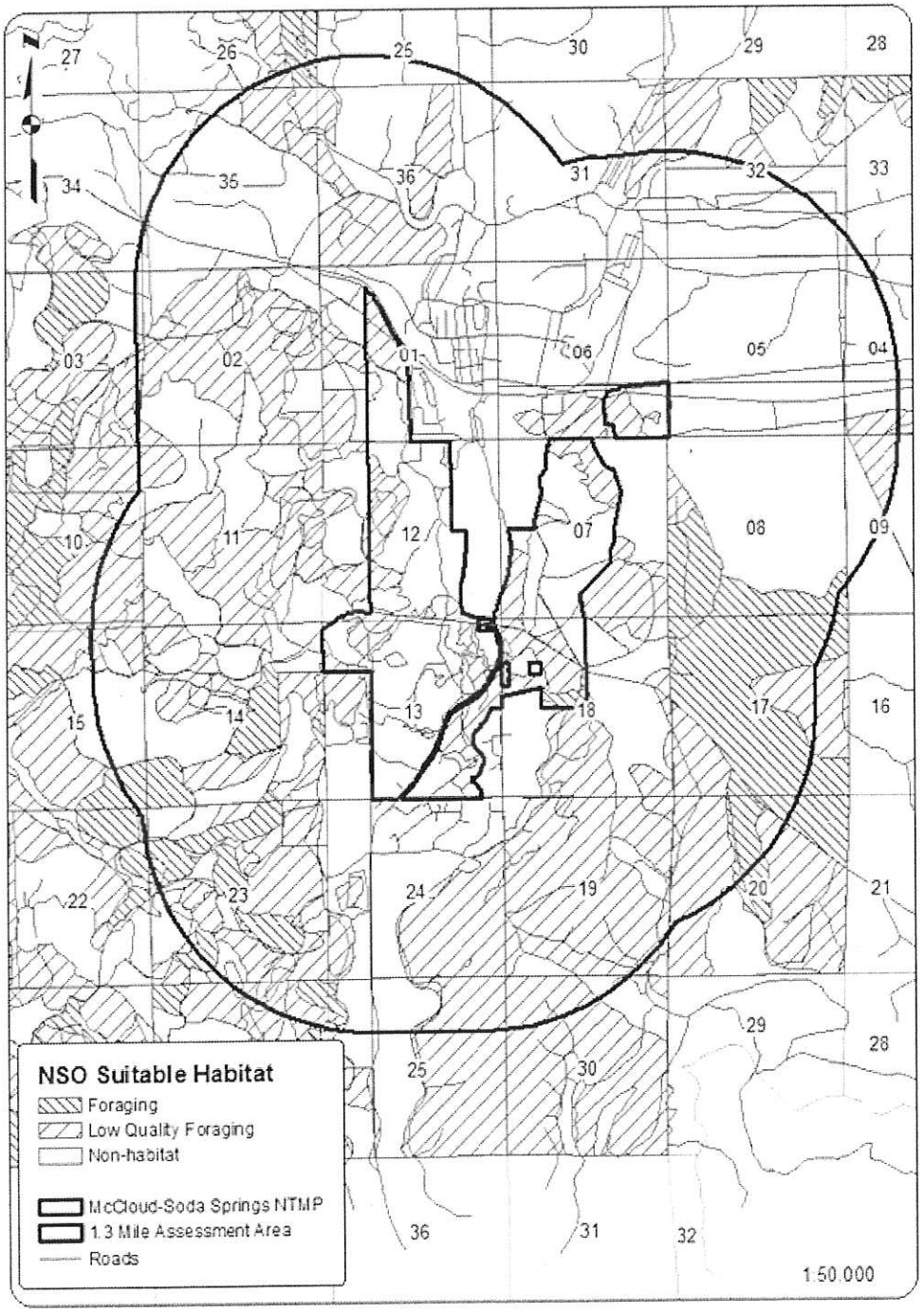
APPENDIX A

Map of McCloud - Soda Springs NTMP within the NSO Evaluation Area as defined by 14 CCR § 895.1 and all known NSO activity centers outside 1.3 miles of the NTMP and adjacent to the assessment area.



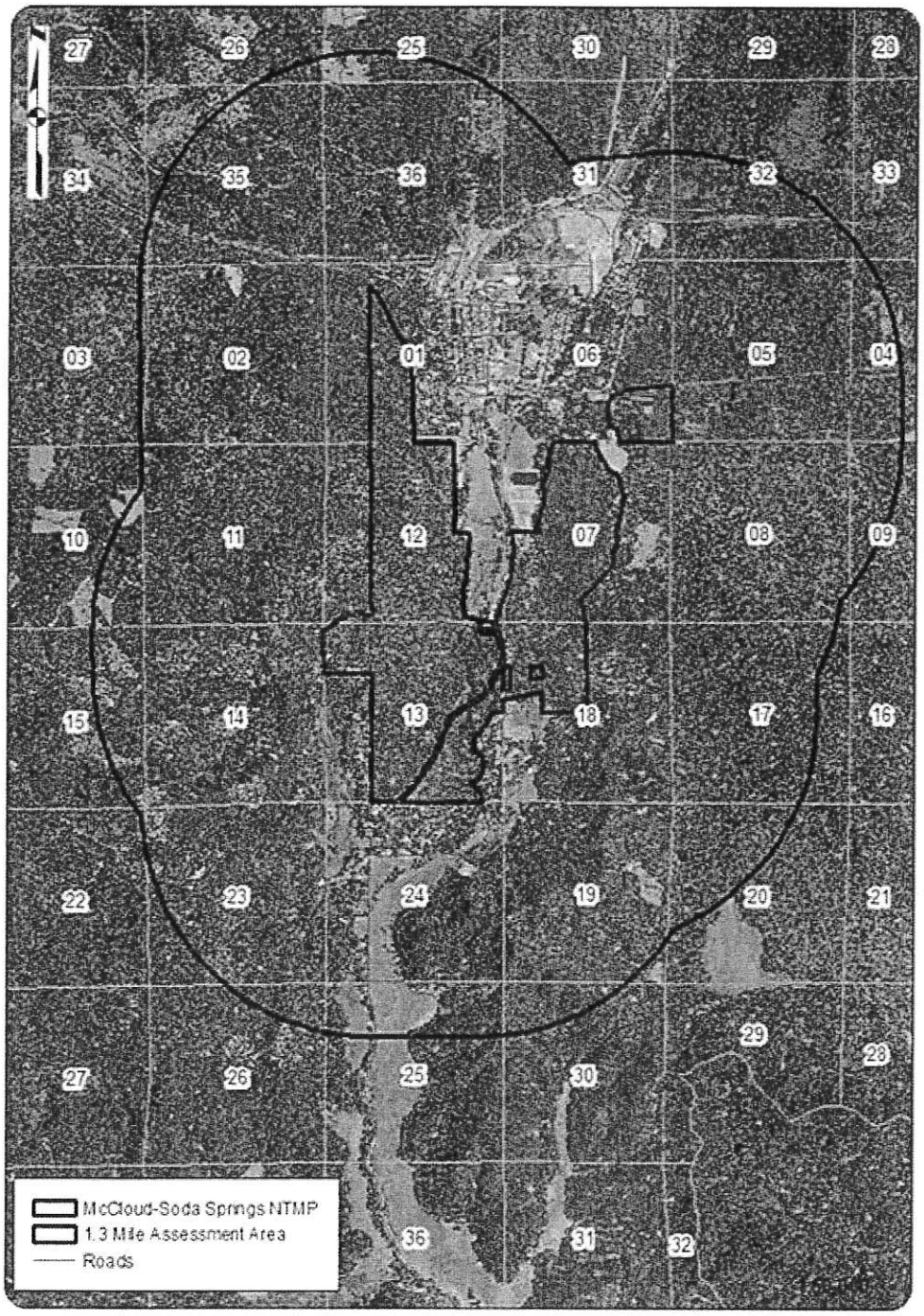
8/3/15

APPENDIX B Northern spotted owl suitable habitat assessment following USFWS (2008) guidance.



8/3/15

APPENDIX C 2014 digital aerial photography of NSO assessment area.



8/3/15

APPENDIX D

Email response from Jan Johnson, USFWS - Yreka Field Office regarding initial habitat assessment and exemption of surveys.

8/3/15

Stu Farber

From: Johnson, Jan <jan_johnson@fws.gov>
Sent: Tuesday, July 14, 2015 1:08 PM
To: Stu Farber; Laura Finley
Cc: Robert_Carey@fws.gov
Subject: Re: McCloud NTMP Technical Assistance

I always have the interest, just not the time :D I can speak for Bob in that way too - we both are 100% committed to other (really fun) things. Based on that imagery, I would concur with your initial habitat assessment and I would exempt surveys. Because of the long-term nature of NTMPs, I would recommend a TA that includes a similar approach as done for Beaty and others with some kind of check in (every 5 years) with the standard clause included if new information is revealed....etc. Should go through the channels with CF though yes. Forward this to Adam if you want.

On Tue, Jul 14, 2015 at 12:04 PM, Stu Farber <StuF@wmbeaty.com> wrote:

Jan,

Somethings never change, one of them is asking you for Technical Assistance and the other is ownership change of McCloud area properties. This 1,394 acres was previously managed by Campbell Group and was recently purchased by a family who is having WM Beaty submit an NTMP for the ownership. This family is also working closely with Pacific Forest Trust in managing the ownership. As you can see from the map it surrounds the southside of McCloud and the golf course. The NSO habitat within the NTMP is 1960-1980's pine plantations. While I haven't finished NSO habitat typing of the ownership, it appears to be low-quality foraging and non-habitat based on our previous discussions regarding the McCloud flat plantations. This ownership is immediately adjacent to Hancock Forest Management ownership and their TA Survey Category 1: Survey Exemption (see attached map).

My question for you is do you have interest and time to work on a TA directly for this ownership, or should we propose measures in the NTMP that are appropriate for the ownership and ask for Technical Assistance through CALFIRE?

Thanks for the help,

Stu

Stuart Farber

APPENDIX E

California Department of Fish and Wildlife Northern spotted owl database, July 2015.

8/3/15

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE BIOS
Graphics and Selections
PLSS Sections Selection (Go T X)
Spotted Owl Observations [ds704] Selection (Go T + X)
California Natural Diversity Database (CNDDB) Commercial [ds85] Selection (Go T + RF X)
BIOS Layers
+ Spotted Owl Observations [ds704] (Go + ? X)
+ Spotted Owl Observations Spider Diagram [ds705] (Go X)
+ CNDDB Unprocessed Animal Data from Online Field Survey Form [ds1002] (Go X)
+ Northern Spotted Owl - Final Critical Habitat, USFWS [ds156] (Go X)
– California Natural Diversity Database (CNDDB) Commercial [ds85] (Go + RF ? X)
Symbology
Plant (80m)
Plant (specific)
Plant (non-specific)
2mi

Data Version Date:
07/01/2015

Report Generation Date:
7/30/2015

Report #1 - Spotted Owl Sites Found
Known Spotted Owl sites having observations within the search area.

Meridian, Township, Range, Section (MTRS) searched:

M_39N_02W Sections(04,05,06,07,08,09,16,17,18,19,20,21,28,29,30);

M_39N_03W Sections(01,02,03,10,11,12,13,14,15,22,23,24,25,26,27);

M_40N_02W Sections(31,32,33);

M_40N_03W Sections(34,35,36);

Masterowl	Subspecies	LatDD NAD83	LonDD NAD83	MTRS	AC Coordinate Source
SIS0270	NORTHERN	41.283355	-122.094888	M 40N 02W 28	Contributor

Report #2 - Observations Reported
List of observations reported by site.

Data Version Date:
07/01/2015

Report Generation Date:
7/30/2015

Meridian, Township, Range, Section (MTRS) searched:

M_39N_02W Sections(04,05,06,07,08,09,16,17,18,19,20,21,28,29,30);

M_39N_03W Sections(01,02,03,10,11,12,13,14,15,22,23,24,25,26,27);

M_40N_02W Sections(31,32,33);

M_40N_03W Sections(34,35,36);

Page 1

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
Masterowl: SIS0270 Subspecies: NORTHERN											
NEG	1988-04-28		0					41.295042	-122.101176	M 40N 02W 20	Quarter-section centroid
POS	1988-05-05		1	UM				41.295042	-122.101176	M 40N 02W 20	Quarter-section centroid
NEG	1988-06-20		0					41.295042	-122.101176	M 40N 02W 20	Quarter-section centroid
NEG	1988-07-09		0					41.295042	-122.101176	M 40N 02W 20	Quarter-section centroid
NEG	1988-07-18		0					41.295042	-122.101176	M 40N 02W 20	Quarter-section centroid
NEG	1989		0					41.313076	-122.105839	M 40N 02W 17	Section centroid
NEG	1989-04-18		0					41.284163	-122.105995	M 40N 02W 29	Section centroid
NEG	1989-05-01		0					41.284163	-122.105995	M 40N 02W 29	Section centroid
NEG	1989-05-25		0					41.284163	-122.105995	M 40N 02W 29	Section centroid
NEG	1989-06-15		0					41.284163	-122.105995	M 40N 02W 29	Section centroid
POS	1990-04-23		1	UM				41.273139	-122.082099	M 40N 02W 33	Quarter-section centroid
NEG	1990-04-24		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
POS	1990-05-15		1	UU				41.287819	-122.101228	M 40N 02W 29	Quarter-section centroid
NEG	1990-05-16		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	1990-05-24		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	1990-06-13		0					41.284173	-122.086685	M 40N 02W 28	Section centroid

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	1990-06-18		1	UU				41.287799	-122.081643	M 40N 02W 28	Quarter-section centroid
POS	1990-06-19		2	UMUF	Y			41.287799	-122.081643	M 40N 02W 28	Quarter-section centroid
POS	1990-06-20		1	UF				41.287799	-122.081643	M 40N 02W 28	Quarter-section centroid
NEG	1990-06-26		0					41.298585	-122.086544	M 40N 02W 21	Section centroid
POS	1990-07-28		1	UF				41.273120	-122.101429	M 40N 02W 32	Quarter-section centroid
POS	1990-08-02		1	UU				41.284153	-122.101278	M 40N 02W 29	Half-section centroid
NEG	1991-05-02		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
POS	1991-05-03		1	UM				41.287819	-122.101228	M 40N 02W 29	Quarter-section centroid
POS	1991-05-06		1	UF	Y			41.283867	-122.091179	M 40N 02W 28	Contributor
POS	1991-05-06		1	UM	Y			41.287815	-122.091555	M 40N 02W 28	Quarter-section centroid
POS	1991-05-10		1	UM				41.287815	-122.091555	M 40N 02W 28	Quarter-section centroid
POS	1991-05-15		1	UF	Y			41.287815	-122.091555	M 40N 02W 28	Quarter-section centroid
POS	1991-05-15		1	UM	Y			41.287815	-122.091555	M 40N 02W 28	Quarter-section centroid
POS	1992-04-14		1	UM				41.283355	-122.094888	M 40N 02W 28	Contributor
AC	1992-05-15		2	UMUF	Y	Y		41.283355	-122.094888	M 40N 02W 28	Contributor
POS	1992-05-28		2	UMUF	Y		2	41.283355	-122.094888	M 40N 02W 28	Contributor
POS	1993		2	UMUF	Y			41.287815	-122.091555	M 40N 02W 28	Quarter-section centroid

Type	Date	Time	#Adults	Age/Sex	Pair	Nest	#Young	Latitude DD NAD83	Longitude DD NAD83	MTRS	Coordinate Source
POS	1993-05-01	1721	2	UMUF	Y	Y		41.287524	-122.091221	M 40N 02W 28	Quarter-section centroid
POS	1993-05-13		1	AU	N			41.287815	-122.091555	M 40N 02W 28	Quarter-section centroid
POS	1993-06-16		1	UF	N			41.280502	-122.091692	M 40N 02W 28	Quarter-section centroid
NEG	1994		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	1996		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	1997		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	1998		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
POS	1999	2400	1	UM				41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	2001		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	2002		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	2003		0					41.284173	-122.086685	M 40N 02W 28	Section centroid
NEG	2004		0					41.284173	-122.086685	M 40N 02W 28	Section centroid

Page 4

2.15NTMP-003

ATTENTION

THE FOLLOWING ADDENDUM(S), AND INFORMATION IS REQUIRED BY LAW TO BE KEPT CONFIDENTIAL AND IS NOT FOR PUBLIC VIEWING:

ARCHEOLOGY:
(GOV. CODE 6254.10) & 14 CCR 929.1(a) (2))

PAGE 142 THROUGH PAGE 410

OPTION "A" TRADE SECRETS:
(GOV. CODE 6254.7(a))

PAGE_____ THROUGH PAGE _____

NTMP – TRADE SECRETS:
(GOV. CODE 6254.7(a))

PAGE_____ THROUGH PAGE _____

I. THE FOLLOWING NON-CONFIDENTIAL PAGES HAVE BEEN REMOVED FROM THIS THP/NTMP. THESE PAGES ARE AVAILABLE UPON REQUEST FROM THE DEPARTMENT OF FORESTRY & FIRE PROTECTION, 6105 AIRPORT RD., REDDING, CA 96002, OR CALL 530-224-2445.

OTHER(S)_____

PAGE_____ THROUGH PAGE _____

FORESTLAND
MANAGEMENT

W. M. BEATY &
ASSOCIATES, INC.
845 BUTTE ST. / P.O. BOX 990898
REDDING, CALIFORNIA 96099-0898
530-243-2783 / FAX 530-243-2900
www.wmbeaty.com

October 14, 2015

RECEIVED
OCT 14 2015
REDDING
FOREST PRACTICE

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed please find a Nonindustrial Timber Management Plan prepared by W. M. Beaty & Associates, Inc. resubmitted for your approval.

Deficiencies Warranting Return

A. Fuelbreak

Written correspondence from a responsible fire agency is included stating that the proposed fuelbreak meets the definition of a Community Fuelbreak and the proposed treatments meet the objectives of the Community Fuelbreak. The concurrence letter has been added to Section V.

Section II has been revised to include the following:

- A statement that the proposed fuelbreak is required to be completed prior to filing of the completion report.
- The plan specific vegetation and fuels treatment, including timing, to reduce fuels to meet the objectives of the Community Fuelbreak area.

B. Native American Contact Letter

A sample copy of the Native American contact letter is provided in the Confidential Archaeological Addendum.

Additional Revisions

1. Section V: The domestic water notification has been replaced with the affidavit of publication from the Mount Shasta Herald.
2. Section VI: The Second Notification letters to Native American groups will be sent following the PHI and Part 3 of the CAA will then be revised with the letter date and a sample copy of the letter will be provided for inclusion in the plan.

3. Section VI, Part 8 has been revised to provide significance information for those sites not afforded protection in Part 9.
4. Section II, Item 23 has been revised to state that the plan has a low EHR.
5. Section II, Item 32 has been revised to make the table of plants consistent with Section III, Item 32.
6. Section II, Item 32 has been revised to clarify the scoping and future surveys.
7. Section III, Item 32 has been revised to remove snail species from the plants section of the table.
8. Section III, Item 32, *Carex comosa, Carex lasiocarpa, Smilax jamesii*.
    a. An evaluation of the potential for these species to occur within the project area is provided.
    b. An indication of whether habitat exists within the project area is provided
        i. Potential impact of the harvest on these species is addressed in Section II, Item 32.
        ii. Mitigations to prevent impacts on these species is addressed in Section II, Item 32.
9. Section II, Item 27 has been revised to clarify the extent of the potential removal of meadow vegetation.
10. Section II, Item 14 has been revised to state that un-merchantable understory conifers may be treated to fulfill the objective of the project.
11. Section II, Item 32 has been revised regarding fisher.
12. Section II, Item 9 and 10 have been revised to put the item numbers in synch.
13. The Watercourse Crossings Tables have been revised.
    a. A statement regarding when repair work will be completed has been added above the tables. The tables have been revised to state if work is required and what work is to occur.
    b. The descriptions of crossings C5696 and S5701 have been revised.
14. Section II: Forest Practice Rule citations regarding new/reconstructed crossings have been removed.
15. See response number 4 above.
16. Section II, Item 23 has been revised to state in sub item 11 that no unstable areas are within the plan area.
17. Section II, Item 24 has been revised to clarify that the reference to the Operations Map is for landing locations.

18. Section II, Item 26 has been revised to remove sub item (p).
19. Agreed.
20. Section II, Item 26 has been revised to remove the statement that no harvesting shall occur within the Class I WLPZ. Flagging of the heavy equipment use is not necessary. The limitations to the LTO for use of heavy equipment in the WLPZ are stated in Section II, Item 27.
21. Item 27 has been revised to state that this in lieu practice shall only apply to the Aspen, Meadow, and Wet Area Restoration area.
22. Section II, Item 30 has been revised to delete the reference to the Silviculture Map.

Adjacent Landowners

Revised addresses are provided for the following adjacent landowners:

GEORGE G & JENNIFER A BREMER
1531 SQUAW VALLEY RD
MCCLOUD CA 96057

SHANE TATOM
7954 SILVER BRIDGE RD
PALO CEDRO CA 96073-8783

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:klh
Enclosure

January 4, 2015

FORESTLAND MANAGEMENT

W. M. BEATY & ASSOCIATES, INC.
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www.wmbeaty.com

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed are the responses to the review team questions and PHI recommendations for the above referenced NTMP.

Responses to First Review Questions

1. Item 14: The NTMP will achieve MSP pursuant to 14 CCR § 933.11(b), therefore, the requirements of 14 CCR § 933.2(2)(A)(4) are not applicable.
2. Item 17: The Moderate EHR waterbreak spacing has been removed.
3. Item 23: A statement that no site preparation is proposed has been added.
4. Item 26: The specifications for proposed operations within the WLPZ during the winter period have been revised.
5. Item 26: The requirements of 14 CCR § 936.5(e) are provided.
6. Item 26: The references to C5504 and S1 have been removed.
7. Item 26: Sub item (c) has been changed to "Yes" and the minimum culvert specifications are provided.
8. Item 31: The requirements of 14 CCR § 937.2(a)(1-2) are provided.
9. Item 32: The text has been revised to state that the NSO information is in Section V.
10. Item 32: The reference to 14 CCR § 939.9(g) has been added. The plan requests that Cal Fire review, and if necessary the USFWS review, the plan protocol survey measures for NSO to ensure that "take" of an individual NSO will not result from forest management activities proposed in the plan.
11. Item 32: The NTMP already has the most recent language for COTO. No revision is necessary.
12. Item 32: A statement that survey results for Sharp-shinned hawk shall be amended into the plan has been added.

13. Item 32: The mitigations for fisher have been revised and moved from sub item b to sub item a. The Wildlife Species in Scoping Area table in Section III has been updated.
14. Section III: The Site Description has been revised to make the location of the plan area consistent with the Notice of Preparation.
15. Section IV. Sub item A.3.d has been revised to address the potential herbicide use within the fuelbreak area.
16. Section VI: Second Notification Letters have been sent, Part 3 has been revised to indicate that the letter has been sent, Part 13 has been revised to indicate that an example copy of the letter is included, and a sample copy of the letter is provided.
17. Item 26: Refer to the response to question six above.
18. Item 32: As stated in Section II, Item 32, bullet Item 1,"... if scoping has not been updated within the previous five years, the scoping will be updated...". As stated in bullet Item 2, "subsequent surveys shall occur if indicated by the results of the scoping.

Responses to Archaeological PHI Recommendations

1. Part 7: Revised to state that the site was not relocated. Efforts were made to contact Cliff Kennedy via telephone and email to discuss site CA-SIS-1815. No response was received.
2. Part 9: Revised to add the words "if found" to the protection for site CA-SIS-1815.
3. Part 8: Revised to indicate that site CA-SIS-1834 is not significant.
4. Part 9: Revised to change protection measures for site CA-SIS-1834 to "none".
5. Additional fieldwork has been conducted to determine extent of intact segments of site CA-SIS-2408.
6. Part 7: Revised to indicate that portions of the site CA-SIS-2408 are intact.
7. Part 9: Revised to provide protection for site CA-SIS-2408.
8. Part 11: Revised to indicate that a site record update has been prepared and a site record update for site CA-SIS-2408 is provided.
9. Part 11: Revised to indicate that a site record update has been prepared and a site record update for site CA-SIS-1816 is provided.
10. Archaeological Coverage Map: The map has been revised to show the intact segment of site CA-SIS-2408 within the plan area.

Responses to Cal Fire PHI Recommendations

1. Silviculture Map: The areas where Aspen, Meadow, and Wet Area prescriptions will be used have been separately identified.
2. Item 35: The protection measures for sharp-shinned hawk have been revised.
3. Item 35: The protection measures for sharp-shinned hawk have been revised.
4. Item 32: The protection measures for willow flycatcher have been revised.

PART OF PLAN

5. Silviculture Map: The additional aspen restoration and meadow restoration areas have been added to the map.

   Item 35: The protection measures for sharp-shinned hawk have been revised.

6. Silviculture, Operations, and Biological Resources Maps: The watercourse and spring classifications have been updated.

7. Silviculture, Operations, and Biological Resources Maps: The watercourse and spring classifications have been updated.

   Item 26: The protection measures for springs and seeps have been revised.

8. Item 32: The protections measures under 14 CCR § 939.9(g) are in the NTMP (a long term plan) in case any future NSO occurs within 1.3 miles of the NTMP. Also, the NTMP states "...We request that Cal Fire review, and if necessary the USFWS review, the plan measures for NSO to ensure that "take" of an individual NSO will not result from forest management activities proposed in the plan (see Section V, Northern Spotted Owl Suitable Habitat and Survey Assessment, for additional information)." Therefore, changing the rule reference to 14 CCR § 939.9(e) to exclusively have the USFWS determine take is not appropriate.

Responses to CDFW PHI Recommendations

1. Item 31: A statement that slash piles shall not be created or burned within the aspen, meadow, and wet area restoration areas has been added.
2. Item 32: The sentence regarding future harvest entries has been revised.
3. Item 35: The protection measures for non-listed raptor species have been revised.

Responses to Second Review Questions

1. See responses above.
2. See responses above.
3. See responses above.
4. See responses above.
5. Item 38: As per the CDFW PHI Report based on field inspection, "During the PHI, participants visited three of the four water drafting sites (i.e., WD1, WD3, and C5698) identified in the NTMP. All drafting sites are existing; located on Class I streams with perennial flow; and will not require in-stream modifications to facilitate water drafting. The existing road that accesses WD1 may require maintenance including vegetation clearing prior to use; however, no modifications to the drafting sites are necessary or proposed. CDFW does not have any recommendations regarding water drafting." Nonetheless, the estimated unimpeded streamflow is provided to confirm the field observation.
6. Item 26: The statement regarding future 1603 addendums is provided.

Other Changes

1. Item 32: For the fisher mitigation, the word "feet" has been added after 375.
2. Part 3: The date the Notification Letters were sent to the Native Americans has been added along with the "no reply received as of date".

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:klh
Enclosure

JAN 04 2016

FORESTLAND MANAGEMENT

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REDDING, CALIFORNIA 96099-0898
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www.wmbeaty.com

January 22, 2016

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed are the responses to the second review questions for the above referenced NTMP.

First Review Questions

7. Page 18, Item 26: The minimum culvert size and length have been added to the tractor road crossing discussion.

11. Page 45, Item 32: The tree-based habitat characteristics for COTO utilized for scoping determination have been added.

15. Page 74-74.4: The potential cumulative effects have been further assessed.

RT15. Page 7, Item 14: A statement that herbicides will not be used within the standard WLPZ/ELZ/EEZ for Class I, II, and III watercourses has been added.

Cal Fire PHI Report

1. Page 35: The Silviculture Map has been revised to separate the difference between the "Aspen Restoration" and "Meadow and Wet Area Restoration".

5. Page 35: The Silviculture Map has been revised to show the additional Aspen Restoration area.

Page 7, Item 14: The acres by silviculture have been revised.

6. Page 35-37: Silviculture, Operations, and Biological Resources Maps: The watercourse and spring classifications have been updated.

7. Page 35-37: Silviculture, Operations, and Biological Resources Maps: The watercourse and spring classifications have been updated.

Additional Correction

Page 13: Item 24e has been included on the page.

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:klh
Enclosure

JAN 2 2 2016

FORESTLAND MANAGEMENT

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www.wmbeaty.com

February 16, 2016

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed are the responses to the additional review questions for the above referenced NTMP.

First Review Questions

11. Page 45, Item 32: The tree-based habitat characteristics for COTO utilized for scoping determination are included in the plan and are consistent with the text in the recently approved Meadowlands THP No. 2-15-076-SHA.

Additional Review Questions

1. Page 12: Item 23 has been revised to clarify the principle form of precipitation in bullet 6.

2. Page 13: Item 23 has been revised to clarify the sentence regarding the silvicultural system.

3. Page 16: Item 26 has been revised to include a statement that "no slopes >50% exist within the plan area".

4. Page 25 and 25.1: Item 32a has been revised to include the certification requirement.

5. Page 29: Item 35 has been revised to include the restriction on cutting of certain snags.

6. Page 40: Item 14 has been revised to show the revised acres for Aspen, Meadow, and Wet Area Restoration.

7. The table already shows Fisher as a CESA candidate (SC = State Candidate).

8. Page 43: The table has been revised to show Townsend's big-eared bat as a CESA candidate (SC).

9. Pages 52-55: The area of stands 21 and 22 will be reduced by six acres each after the first period of the timber projection to account for the meadow restoration. At that point, the forested acres in the timber assessment matches the acres in Item 14 for group selection and fuelbreak. An explanation has been added to the document, and Tables 5 and 6 have been changed. The harvest volume on six acres of each stand from the previous regime has been removed and replaced with a total harvest of these acres, and then the acres are removed.

10. The area proposed for restoration includes areas typed as timber (stands 21 and 22).

11. Both stands 01 and 32 were typed as urban and neither are available for growing timber. These stands are not included in the timber production model.

12. Page 52: Explanation has been added to the document for Table 3.

13. Page 53: Text has been added to the document to explain the harvesting of trees over 40 inches DBH.

14. Page 78: The reference to Hancock has been removed and the NSO status has been revised.

15. Page 78: The sentence regarding adjacent public timberlands has been removed.

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:spc
Enclosure

FEB 16 2016

Exhibit G
Non-Industrial Timber Management Plan

Reviewed by: M
Dist. by: TO
Dist. Date: 3.24.16
RU ____ PS
FG ____ TO
WO ____ TLO
ARCH LTO
RPF DMG
INSP BOE
Other: ____
FPS ____
Status: POP

FORESTLAND MANAGEMENT

W. M. BEATY & ASSOCIATES, INC.
845 BUTTE ST. / P.O. BOX 990898
REDDING, CALIFORNIA 96099-0898
530-243-2783 / FAX 530-243-2900
www.wmbeaty.com

March 23, 2016

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

RECEIVED
MAR 23 2016
REDDING
FOREST PRACTICE

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed are the responses to the additional review questions for the above referenced NTMP.

First Review Question

11. Page 25.1 and 26: New language has been added regarding RPF certification regarding COTO for future notices of timber operations.

Additional Review Questions

1. Page 42: The table has been revised to show Pacific fisher as a CESA candidate.

2. Page 24 and 24.1: New language has been added regarding RPF certification regarding great gray owl for future notices of timber operations.

3. Page 44: The discussion has been revised to further explain how the proposed meadow enhancement would not provide suitable habitat for greater sandhill crane.

4. Page 13: The "regeneration harvest" has been replaced with "group selection openings".

5. Page 13: A statement regarding landing construction in the winter period has been added.

6. Page 21: A statement that the in lieu practices only apply to the aspen, meadow, and wet area restoration has been added.

7. The willow flycatcher habitat is within the willow areas along the watercourse. The aspen restoration area will only remove conifers within the area where aspen trees are present. No aspens are located within the areas dominated by willows that comprise the willow flycatcher habitat, thus, the Wet Area and Meadow Restoration will not negatively impact the willow flycatcher habitat.

8. Page 40: The reference to Class II watercourses has been changed to Class I watercourses.

9. Page 40: A monitoring plan that includes the measureable standards and pre-project measurements is provided.

10. A. Only the 12-acre forested portion of the meadow restoration area was harvested once in the model and then future entries are excluded.

B. Of the total of 65 acres of restoration, 31 acres were typed as non-forest and was not modeled. Twelve acres were modeled for complete removal to account for the meadow restoration. The remaining 22 acres are in the wet and aspen restoration areas and are split amongst forested stands 4, 8, 9, 15, 16, 19, and 22. Unfortunately, the timber assessment was completed prior to the silviculture decisions and these acres are modeled as selection/group selection. However, we believe the work involved in remaking the model is not necessary because the harvesting to promote the wet and aspen restoration is not significantly different than the modeling for the selection, since very few conifers less than 12 inches and greater than 24 inches DBH are harvested, only 'most' of the remaining conifers are harvested, and according to the cruise, hardwoods including aspen make up a very minor component of the forested portion of the restoration areas. Additionally, we believe the minor amount of acres and the relative accuracy of the model do not warrant a remake.

C. Yes, the 12 acres are part of the net acres.

D. The land typing for the timber assessment represents our best effort in determining lands capable of growing timber, based on aerial imagery and some ground observation. While there likely is and will be a small amount of timber in areas determined to be non-forest that may be harvested, it is a minor amount and not included in Table 5.

11. a. ✓ Page 72: Because the plan area does not lie within the Middle Soda Creek, Upper Soda Creek, or Squaw Valley Creek watersheds, these watersheds are not included in the assessment area for watershed resources. The total watershed assessment area acres has been corrected and is 32,304.

b. ✓ Because the Biological Assessment Area includes portions of the Middle Soda Creek, Upper Soda Creek, and Squaw Valley Creek watersheds, these watersheds were included in the assessment area for past, present, and future activities as required by Technical Rule Addendum II.

c. ✓ W. M. Beaty & Associates, Inc. regularly assists in the scheduling of timber sales and preparation of timber harvesting plans and biological assessments for Hancock Forest Management. W. M. Beaty & Associates, Inc. communicates with the other major land managers in the watershed assessment area (Bascom Pacific LLC, Hearst Corporation, and Roseburg Resources) regarding timber harvesting plans in various forums and is familiar with their management, operations, and plans. For these reasons, a formal poll specific to this plan was not necessary for evaluation of potential cumulative watershed effects.

12. Although Aspen and Wet Area Restoration are proposed within the WLPZ of Class I waters, the intent is only to remove conifers that interfere with the growth and

proliferation of aspen trees or that are artificially encroaching on the wet area. To restore the natural pre-fire exclusion conditions, existing conifers will be retained in the WLPZ of the associated Class I watercourse if they are not adversely affecting aspen or encroaching on the naturally occurring wet area. Additionally, all aspen trees will be retained to the extent feasible. The in lieu practices allow for the reduction of overstory conifer canopy within the WLPZ. The in lieu practices combined with the goal of the Aspen and Wet Area Restoration will progress the areas within the associated WLPZs toward their natural condition.

13. Page 74: The total watershed assessment acres and associated percentage has been corrected.

14. Page 76: The sentence has been revised to state that these are low volume per acre harvests.

15. Page 99: The newspaper notice has been re-published. A copy of the affidavit is provided.

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:klh
Enclosure

MAR 2 3 2016

Reviewed by: JM
Dist. by: TO
Dist. Date: 4-6
RU ___ PS
FG ___ TO
WO ___ TLO
ARCH ___ LTO
RPF ___ DMG
INSP ___ BOE
Other: ___
FPS ___
Status: POP

FORESTLAND MANAGEMENT

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April 5, 2016

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

RECEIVED
APR - 6 2016
REDDING
FOREST PRACTICE

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed are the responses to the additional review questions for the above referenced NTMP.

First Review Question

11. Pages 25.1 and 45: To further clarify the assessment for the species the term "or roosting areas" has been added to Section II, Item 32(a), Townsend's big-eared bat. Also, the term "day roosts" has been added to Section III, Item 32, Townsend's big-eared bat. Adding these terms brings this NTMP to be consistent with two recently approved plans, THP 2-15-076-SHA, approved on January 5, 2016, and NTMP 2-15NTMP-001 approved on February 23, 2016. We believe the specific habitat criteria used for the scoping process is described in Section III and referenced in Section II of this NTMP. This same specific habitat criteria was also described in Section III and referenced in Section II in the approved plans, THP 2-15-076-SHA and NTMP 2-15NTMP-001.

Additional Review Questions

2. Page 44: The plan has been revised to bring the additional information in Section III, Item 32, Great gray owl consistent with current proposed measures in Section II, Item 32, Great gray owl.

3. Page 44: The plan has been revised in Section III, Item 32, Greater sandhill crane to reflect the following information. There have never been any known Greater sandhill crane breeding site detected within the plan or biological assessment area. The ambient noise and human activity along Squaw Valley Creek Road, at the McCloud Golf course and around homes not only creates noise disturbance but creates potential threats to any potential Greater sandhill cranes breeding. Based on the lack of any previous breeding activity in the meadow, the numerous known threats to breeding activity, and the sensitivity of the species to disturbance near breeding sites, the proposed meadow enhancement is unlikely to reduce these other threats to breeding activity. Accordingly, no operational measures are necessary to ensure that "take" of the species does not occur.

If Greater sandhill cranes forage in the existing meadow or forage in the meadow following restoration, forest management activities adjacent to this type of crane behavior does not constitute" take" under CESA. In the unlikely case that following meadow restoration breeding behavior is observed, general measures for all listed species are in the NTMP under Section II, Item 32, "...If any listed species is discovered in or immediately adjacent to the plan area and additional protection measures are deemed necessary by the RPF or supervised designee, after consultation with CDFW, the location and additional mitigation measures shall be amended into the plan."

11. Page 5: The total watershed acreage has been revised.

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:klh
Enclosures

APR 0 5 2016

PART OF PLAN

Reviewed by: SM
Dist. by: MD
Dist. Date: 4-14-16
RU ____ PS
FG ____ TO
WO ____ TLO
ARCH LTO
RPF DMG
INSP BOE
Other: ____
FPS ____
Status: POP

FORESTLAND MANAGEMENT

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April 14, 2016

Mr. John Ramaley
CALIFORNIA DEPARTMENT OF
FORESTRY & FIRE PROTECTION
6105 Airport Rd
Redding CA 96002-9422

RECEIVED
APR 14 2016
REDDING
FOREST PRACTICE

Re: McCLOUD-SODA SPRINGS NTMP No. 2-15NTMP-003

Dear Mr. Ramaley:

Enclosed are the responses to the additional review questions for the above referenced NTMP.

First Review Question

11. Page 45: Clarification has been added regarding Townsend's big-eared bat.

Outstanding Issue

3. Page 44: Clarification has been added regarding sandhill cranes.

Sincerely,

W. M. BEATY & ASSOCIATES, INC.

Scott P. Carnegie
Manager, Projects Department
RPF No. 2540
(530) 524-9071
scottc@wmbeaty.com

SPC:spc
Enclosures

Exhibit G
Non-Industrial Timber Management Plan 2.15NTMP-003SIS

NOTICE OF PREPARATION TO HARVEST TIMBER

McCloud-Soda Springs

A Non-Industrial Timber Management Plan (NTMP) or Amendment has been submitted to the California Department of Forestry & Fire Protection (CAL FIRE). CAL FIRE will be reviewing the proposed timber operation for compliance with State law and rules of the Board of Forestry and Fire Protection. The following briefly describes the proposed timber operation and where and how to get more information. In accordance with the timeline stated under Public Resources Code Section 4593.7, you may submit written public comments on the NTMP or Amendment for CAL FIRE to consider.

This notice applies to (select one below):

☒ New Non-Industrial Timber Management Plan ☐ Amendment to an Approved Non-Industrial Timber Management Plan

Applicant Information (Plan Submitter should match those listed in the NTMP or Amendment.)

1. The name of the Plan or Amendment Submitter: Schroll Timberlands, LLC

Project Summary (County, legal description, acres proposed to be harvested and treatments to be used should match those listed in the NTMP or Amendment.)

2. Location of the proposed NTMP area (county, legal description, approximate direction & approximate distance of the NTMP area from the nearest community or well-known landmark):
   Siskiyou County
   Section 06, 07, & 18, Township 39 North, Range 02 West, MDBM
   Sections 01, 12, & 13, Township 39 North, Range 03 West, MDBM
   One half mile south of McCloud, California
3. The name of the nearest perennial blue line stream flowing through or downstream from the NTMP area:
   Squaw Valley Creek flows through the plan area
4. The acreage of the area to be included in the NTMP: 1,394
5. The silvicultural method(s) proposed:
   Group Selection, Fuelbreak, and Aspen, Meadow & Wet Area Restoration

Public Information: The review times allowed for CAL FIRE to review the proposed timber operation are variable in length, but limited. To ensure CAL FIRE receives your comments please read the following:

The estimated earliest possible date CAL FIRE may **APPROVE** the NTMP or Amendment is: 12.10.16
(This date is 45 calendar days from receipt of the NTMP or Amendment by CAL FIRE.)

NOTE: THE ESTIMATED EARLIEST APPROVAL DATE IS PROBABLY NOT THE ACTUAL APPROVAL DATE. Normally, a much longer period of time is available for public comment and preparation of CAL FIRE's responses to public comments. Please check with CAL FIRE, prior to the above listed date, to determine the actual date that the public comment period closes.

The public may review, or purchase a copy of, the NTMP or Amendment at the CAL FIRE Review Team Office shown below. The cost to obtain a copy is 37 cents for each page, $2.50 minimum per request. The cost to obtain a copy of this NTMP or Amendment is: $160.68
(to be completed by CAL FIRE upon receipt of NTMP).

Questions or concerns regarding this NTMP should be directed to the CAL FIRE Review Team Office shown below or emailed to **ReddingPublicComment@fire.ca.gov** for incorporation into an Official Response Document. Please include the NTMP number on all correspondence.

Forest Practice Program Manager
CAL FIRE
6105 Airport Road
Redding, CA 96002
(530) 224-2445

RECEIVED
OCT 14 2015
REDDING
FOREST PRACTICE

The NTMP may be viewed online at ftp://thp.fire.ca.gov/THPLibrary/Cascade_Region

A map showing the approximate boundary of the NTMP area, a map legend, and a scale is attached to help in locating where the proposed timber operation is to occur.

For CAL FIRE Use Only

NTMP Number: 2.15NTMP-003SIS Date of Receipt: OCT 14 2015 W. M. BEATY & ASSOCIATES, INC.

Exhibit G
Non-Industrial Timber Management Plan

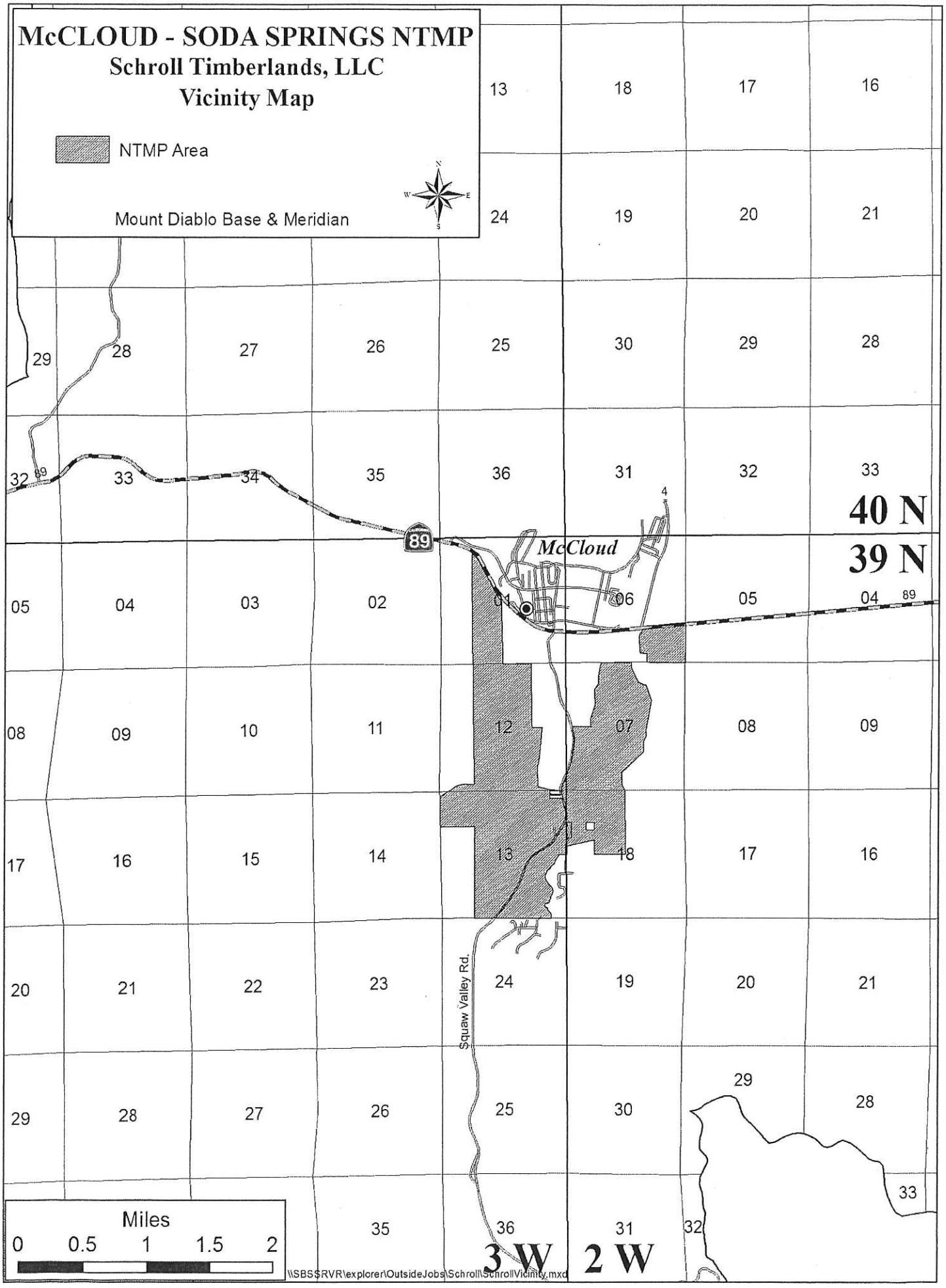

Exhibit G
Non-Industrial Timber Management Plan

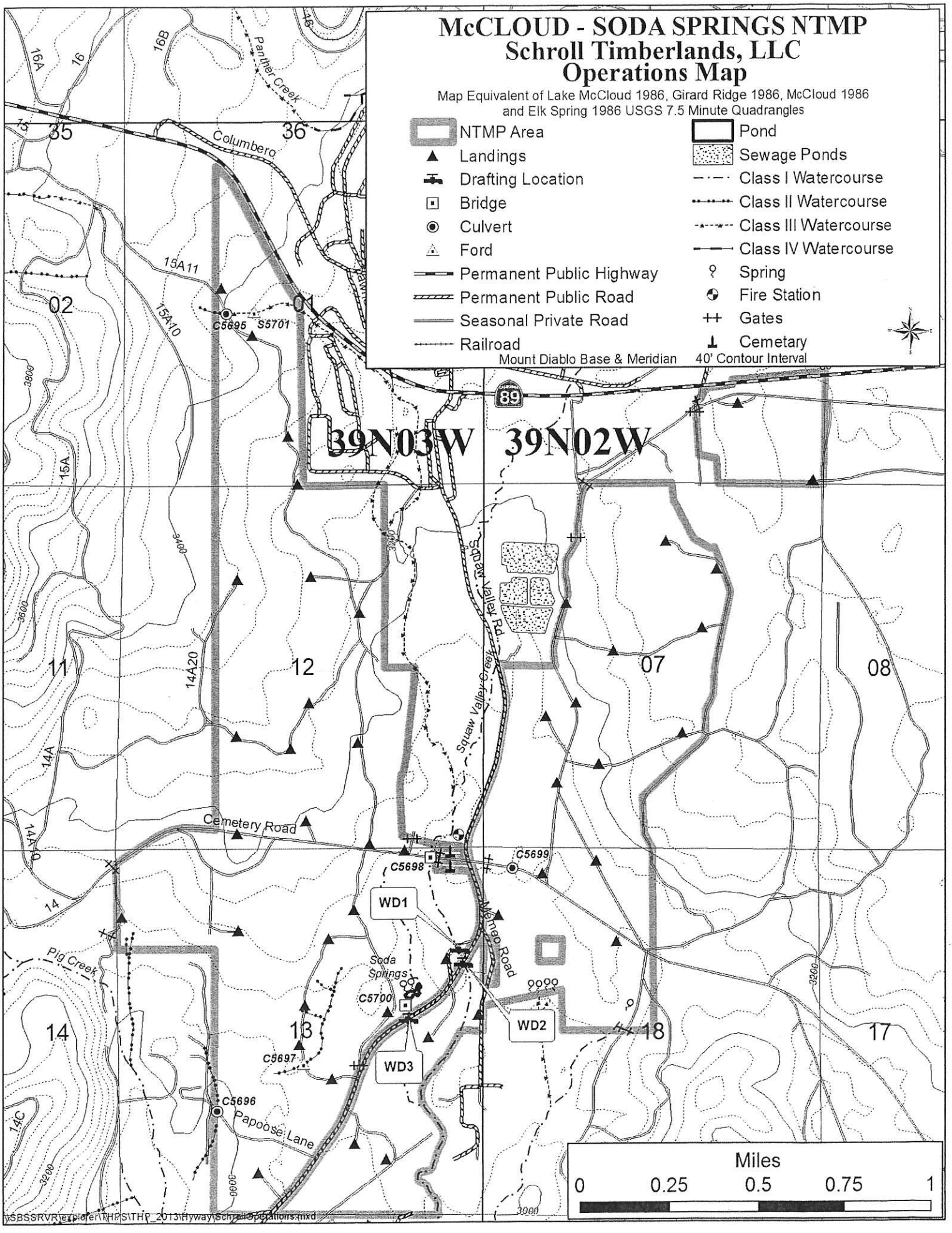

Exhibit G
Non-Industrial Timber Management Plan

APN 028-540-100-000
BAKER W & KATE JAXON
BOX 994248
REDDING CA 96099-4248

MC CLOUD MEADOW RANCH
PROPERTY OWNERS ASSOC
1510 MARKET ST
REDDING CA 96001-1023

APN 049-061-330-000
MC CLOUD COMM SERVICES
DIST
PO BOX 487
MC CLOUD CA 96057-0487

APN 049-061-460-000
MICHAEL T & SANDRA N
BORDEN
PO BOX 654
MC CLOUD CA 96057-0654

APN 049-061-550-000
DAVID & SUZANNE ABBOTT
PO BOX 1720
MC CLOUD CA 96057-1720

APN 049-171-130-000
MONA L BRUNELLO
PO BOX 168
MC CLOUD CA 96057-0168

APN 049-341-010-000
MC CLOUD MEADOW RANCH
INC
905 SIERRA VISTA DR
REDDING CA 96001-0113

APN 049-342-240-000
BRYCE & CINDIA MARTINEZ
BAUER
4205 HARRISON GRADE RD
SEBASTOPOL CA 95472-9776

APN 049-342-320-000
ROBERT N & SILVA SHELLY M
VASCONCELLES
5125 KELLER RIDGE DR
CLAYTON CA 94517

APN 049-011-060-000
RICHARD J & ALEXANDRA L
SMITH
3500 LOWER LOCK AVE
BELMONT CA 94002-1309

APN 049-041-060-000
MC CLOUD GOLF CLUB INC
PO BOX 728
MC CLOUD CA 96057-0728

APN 049-061-410-000
SHANE TATOM
7954 SILVER BRIDGE RD
PALO CEDRO CA 96073-8783

APN 049-061-470-000
BRANDON M HITCHCOCK
PO BOX 25
MC CLOUD CA 96057-0025

APN 049-343-300-000
DARREL O & LAURA ROZELLE
RYKER
15741 ROSEMONT LN
RAMONA CA 92065

APN 049-281-100-000
HAROLD & SANDRA FANTEL
PO BOX 192
MC CLOUD CA 96057-0192

APN 049-342-210-000
JAMES L & KRISTINE M SAUVE
430 LINCOLN ST
RED BLUFF CA 96080-3727

APN 049-342-290-000
STEWART & TAWANA
CAMERON
6763 EASTMONT DR
REDDING CA 96002

APN 049-342-360-000
MC CLOUD MEADOW RANCH
PROPERTY OWNERS ASSOC
1510 MARKET ST
REDDING CA 96001-1023

APN 049-011-070-000
ALICE DEBON
PO BOX 1710
MC CLOUD CA 96057-1710

APN 049-041-070-000
CALIF STATE OF FORESTRY &
FIRE PRO
BOX 128
YREKA CA 96097-0128

APN 049-061-450-000
DENESE G WELCH
PO BOX 682
MC CLOUD CA 96057-0682

APN 049-061-480-000
TERRY L & PAMELA J
HITCHCOCK
PO BOX 872
MC CLOUD CA 96057-0025

APN 049-171-110-000
RONALD J & MARTHA A
BERRYMAN
PO BOX 522
MC CLOUD CA 96057-0522

APN 049-281-140-000
WILLIAM L & MARILYN M
OBRIAN
46 OAKWOOD RD
ORINDA CA 94563

APN 049-342-220-000
STEPHEN J & TERESA L
DOWNEY
20902 PEBBLESTONE DR
RED BLUFF CA 96080-4052

APN 049-342-310-000
DOUGLAS P & KIM L PATTISON
1997 BALZAC CT
REDDING CA 96003-9330

APN 049-343-030-000
THOMAS E & JUDITH A WARD
4095 CALLIOPE CT
REDDING CA 96002-5156

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Non-Industrial Timber Management Plan

Landowners within 300 feet of the plan area

APN 028-090-040-000
JOHN HANCOCK MUTUAL LIFE INS CO
17700 MILL PLAIN BLVD #180
VANCOUVER WA 98683-7582

APN 028-090-090-000
SISKIYOU CO OF RD DEPT
PO BOX 1127
YREKA, CA 96097

APN 028-150-140-000
GEORGE G & JENNIFER A BREMER
1531 SQUAW VALLEY RD
MCCLOUD CA 96057

3115 Palomares R Castro Valley CA 94552 - 9642

APN 028-150-150-000
MARC M UMEDA
938 POMELLO DR
CLAREMONT CA 91711-2048

APN 028-150-190-000
ROLAND C & BARBARA J EASTMAN
PO BOX 691
MC CLOUD CA 96057-0691

APN 028-150-220-000
DEAN T ADAMS
P O BOX 985
MC CLOUD CA 96057-0985

APN 028-150-230-000
TEXAS & MARION E HAVARD
PO BOX 318
MC CLOUD CA
96057-0318

APN 028-150-240-000
RICHARD W BALDINI
PO BOX 516
MC CLOUD CA 96057-0516

APN 028-150-260-000
MC CLOUD CEMETERY ASSOCIATION
PO BOX 1173
MCCLOUD CA 96057

APN 028-150-300-000
KENNETH F & AUDREY A EASTMAN
PO BOX 512
MC CLOUD CA 96057-0512

APN 028-150-310-000
MILTON LEROY & MARY BETH SHRADER
PO BOX 903
MC CLOUD CA 96057-0903

APN 028-150-320-000
RICHARD & CHERYL TSUSHIMA
6555 MC COURTNEY RD
LINCOLN CA 95648

APN 028-150-350-000
DARYLE LEO R & NELLETTA LILA E WINTERS
5125 LAUREL DR
CONCORD CA 94521

APN 028-150-410-000
KEITH A GETTING
2102 SADDLEBRED DR
FAIRFIELD CA 94534-7458

APN 028-150-420-000
MARKAEL ELIZABETH ENGDAHL
PO BOX 741
MOUNT SHASTA CA 96067-0741

APN 028-150-500-000
ANDREW B & KATHERINE A CAMPBELL
PO BOX 943
MC CLOUD CA 96057-0943

APN 028-150-510-000
CAMPBELL TRUST
PO BOX 943
MC CLOUD CA 96057-0943

APN 028-150-520-000
CRAIG VINCENT IACONIS
2809 LA PAZ WAY
SACRAMENTO CA 95821

APN 028-150-530-000
RICHARD L & ERIKA A CARPENTER MC FARLAND
PO BOX 1057
MC CLOUD CA 96057-1057

APN 028-150-540-000
RUTH E BODDYE
650 WILLOWSPRING DR
ENCINITAS CA 92024-1918

APN 028-150-550-000
JOHN P BUTLER
PO BOX 980
MC CLOUD CA 96057-0980

APN 028-150-560-000
JACK E & MARGO J PRYDE
PO BOX 521
MC CLOUD CA 96057-0521

APN 028-150-570-000
LAWRENCE E & SUSAN A HOLMBOE
3920 MIDCREST CT
MODESTO CA 95355

APN 028-150-650-000
ANTHONY L REGINATO
PO BOX 1690
MC CLOUD CA 96057-1690

APN 028-260-050-000
WYNTOON TIMBERLANDS LLC
5 THIRD ST
SAN FRANCISCO CA 94103-3203

APN 028-260-170-000
BASCOM PACIFIC LLC
ONE SW COLUMBIA SUITE 17
PORTLAND OR 97258-2039

APN 028-270-020-000
VALENE BASKFIELD
PO BOX 401
RIDGWAY CO 81432-0401

APN 028-270-190-000
MARJORIE HERRON
PO BOX 1870
MC CLOUD CA 96057-1870

APN 028-270-220-000
CHARLES & JANE M DEGUIA
PO BOX 816
MC CLOUD CA 96057-0816

APN 028-270-260-000
JOHN B & MICHELLE K STIRLING
PO BOX 802
MCCLOUD CA 96057-0802

APN 028-270-270-000
JACK J CHILDS
8698 SKYLINE BLVD
OAKLAND CA 94611-1636

APN 028-270-320-000
JESSE DEAN & SANDRA M HARRIER
20350 HOLE IN ONE DR #4
REDDING CA 96002-9311

APN 028-270-330-000
MERILYN WHEELER
PO BOX 887
MC CLOUD CA 96057-0887

APN 028-440-300-000
CALIF STATE OF DIV OF HWYS
1657 RIVERSIDE DRIVE
REDDING CA 96001

APN 028-450-020-000
DARYLE ROSS & NELLETTA ELIZABETH WINTERS
5125 LAUREL DR
CONCORD CA 94521

APN 028-450-030-000
JOHN B & MARGARET J PERACCHINO
PO BOX 748
MC CLOUD CA 96057-0748

APN 028-450-040-000
GEORGE B & MAURINE C BARBERICK
PO BOX 153
MC CLOUD CA 96057-0153

APN 028-450-390-000
RICHARD P SLAVICH
PO BOX 1059
DURHAM CA 95938-1059

APN 028-450-430-000
BEHYAR & OCONNELL KATHLEEN FORGHANI
38 BERKELEY AVE
ORINDA CA 94563-2104

APN 028-510-010-000
PENSCO TRUST COMPANY
PO BOX 173859
DENVER CO 80217-3859

APN 028-510-020-000
BERNADETTE B BOARD
1955 BLACKSTONE DR
WALNUT CREEK CA 94598-4150

APN 028-510-030-000
JIMMY L & LINDA S MYERS STEVENS
PO BOX 626
MC CLOUD CA 96057-0626

APN 028-510-180-000
HELEN J VALSECCHI
163 PICNIC AVE
SAN RAFAEL CA 94901-5056

APN 028-510-200-000
MC CLOUD PROPERTIES
7014 LOS PADRES CT
VENTURA CA 93003

APN 028-510-210-000
DAVID O & LILLIAN JEAN COOK
PO BOX 642
MC CLOUD CA 96057-0642

APN 028-510-220-000
MARY KERSTEN
806 COLBY DR
DAVIS CA 95616

APN 028-510-230-000
MARK M & TONI I ERRO
PO BOX 593
MC CLOUD CA 96057-0593

APN 028-510-240-000
JOSEPH & CASSIE B ERRO
7390 PACHEO SCHOOL RD
REDDING CA 96002

APN 028-510-440-000
VERNON E MEUSER
1054 MOUNTAIN SHADOWS
REDDING CA 96003

APN 028-510-450-000
BEHYAR FORGHANI
38 BERKELEY AVE
ORINDA CA 94563-2104

APN 028-540-090-000
DAVID D & KRAEMER SUSAN COSCA
1215 COLBY DR
DAVIS CA 95616-1718

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