

HSOM

HUMBLE SERVANTS OF THE
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707-683-6686



SUBMITTAL AND ACKNOWLEDGEMENT

Humboldt County Planning Department acknowledges submittal of the documents described below to the C-POD unit for cannabis permit application.

Permit Application No: 11543

APN: 221-021-026 **Date:** 8/10/2018

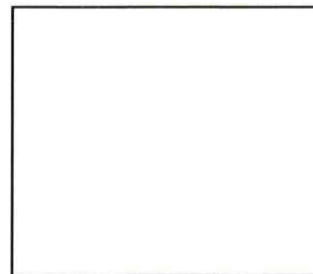
Description of Documents Submitted:

Timber conversion report: requested in 4/6/2018 incomplete letter Item #4

County Date Stamp

Notes:

Hand Delivered to Humboldt County
Planning Department





165 South Fortuna Boulevard, Fortuna, CA 95540
707-725-1897 • fax 707-725-0972
trc@timberlandresource.com



August 15, 2018

MIB, LLC
Marchello E. Karagio
2415 Judah Street Apt #8
San Francisco, Ca, 94122

Dear Marchello E. Karagio,

Re: APN 221-021-026 / Application #:11543

The following is an evaluation of potential timberland conversion on cannabis cultivation sites and associated areas included in Humboldt County Cannabis Permit Application #11543 for APN 221-021-026. An Interim Permit has been issued for 23,250 ft² of existing outdoor of cultivation and 11,000 ft² of existing mixed-light cultivation. Please accept this letter as the RPF's written report required by Humboldt County Code, Ordinance No. 2559 (Commercial Medical Marijuana Land Use), Section 55.4.10 (j), sited below.

"Alternately, for existing operations occupying sites created through prior unauthorized conversion of timberland, if the landowner has not completed a civil or criminal process and/or entered into a negotiated settlement with CALFIRE, the applicant shall secure the services of a registered professional forester (RPF) to evaluate site conditions and conversion history for the property and provide a written report to the Planning Division containing the RPF's recommendation as to remedial actions necessary to bring the conversion area into compliance with provisions of the Forest Practices Act. The Planning Division shall provide CAL-FIRE written Notice of Availability of the RPF's report. If CAL-FIRE takes no action within ten (10) days of the notice of availability, the report recommendations shall become final."

Timberland Resource Consultants (TRC) inspected and evaluated the cultivation sites and associated areas contained within the application on August 14, 2018. The RPF exercised due diligence in reviewing all sites and available resources to fully assess potential timberland conversion and consequential impacts. This report evaluates the cultivation sites and associated areas for timber operations only. The scope of this report does not include: all other land alteration (such as grading, construction, and other permit-regulated activities), all property features and sites unrelated to cultivation activities, or any proposed, planned, or absent cultivation-related project sites. All findings are summarized in the report.

Project Location

APN: 221-021-026

Acreage: 46 acres

Legal Description: NW 1/4 of NW 1/4 of Section 4
Township 3 South, Range 2 East,
Humboldt Base & Meridian, Humboldt County

Located on USGS 7.5' Quadrangle: Ettersburg

Humboldt County Zoning: Unclassified

Site Address: None

Landowner/Timber Owner: Marchello E. Karagio

APN 221-021-026 – Timberland Conversion Evaluation

Project Location (Cont.)

The project is located on the northwestern side of the upper Thomas Road loop in the Salmon Creek watershed. The property is 3 air miles northwest of Salmon Creek School.

Parcel Description & Timber Harvest History

Note: The property background has been summarized using personal accounts of the current landowner, digital orthographic quadrangle (DOQ) imagery, Humboldt County Web GIS, CAL FIRE Watershed Mapper v2, and Historic Aerials. To avoid speculation and maintain relevancy, the property background focuses mainly on the past 10-15 years.

The property's dominant stand type is Douglas-fir, tanoak, and madrone with a minor component of black oak and live oak. Stand structure is "irregular" with several age classes present. The original stand type that existed prior to timber harvesting 50-60 years ago was a matrix of (1) evenaged old growth Douglas-fir, tanoak, and madrone, and (2) oak woodland with scattered predominant and old growth Douglas-fir and younger Douglas-fir in-growth. Review of 1968 historic aerial imagery revealed that the majority of the property appeared regenerated/logged over within the last ten years. Physical reconnaissance of the property revealed two distinct stand types: (1) residual old growth tanoak and madrone (goosed out) with scattered old growth Douglas-fir stumps, and (2) Douglas-fir encroachment into former oak woodlands. Today's stand originated from the disturbance from the past timber harvesting and conifer encroachment from lack of fire. Both conditions have favored the intolerant/early successional species such as Douglas-fir, tanoak, and madrone. Residual black oak and live oak still occur but are being "out competed" by the Douglas-fir, tanoak, and madrone. Review of historic aerial imagery from 1968-present shows no signs of major ground disturbance or changes in stand structure or composition suggesting additional logging entries have occurred since the original harvest. Moreover, none have been recorded by Cal Fire (Watershed Mapper v2 http://egis.fire.ca.gov/watershed_mapper/). The current landowners, Marchello E. Karagio, purchased the property from Idyllwild LLC in April 2014.

Project Description

Three cultivation sites and two cannabis related areas were inspected during the field assessment within APN 221-021-026. The following table lists the inspected sites and their acreages; see detailed site descriptions below.

Cultivation Site/Associated Area	Total Acreage	Converted?	Converted Acreage
Cultivation Site 1	0.34	Yes	0.34
Off-stream Pond	0.11	Yes	0.11
Bladder Site	0.12	Yes	0.12
Cultivation Site 2	1.60	Yes	1.60
Cultivation Site 3	0.30	Yes	0.30
TOTAL	2.47		2.47

Cultivation Site 1

The site is approximately 200 feet long by 75 feet wide, which equates to 0.34 acres. Review of historic aerial imagery reveals that the cultivation site was established between 2014 and 2016 and included timber harvesting and grading. Untreated slash, woody debris, and logs from the conversion were observed. The cultivation-related activities observed impede the use of this space for current timber growth and harvesting; in this way, the landowner has effectively converted the single use of this space from timber production to a cannabis cultivation related activity.

Off-stream Pond

The pond's dimensions are approximately 40-ft by 60-ft with an overall disturbed area of approximately 0.11 acres. Review of historic aerial imagery reveals that the pond was established between 2010 and 2012 and included timber harvesting and grading. Untreated slash, woody debris, and logs from the conversion were observed. The cultivation-related activities observed impede the use of this space for current timber growth and harvesting; in this way, the landowner has effectively converted the single use of this space from timber production to a cannabis cultivation related activity.

Project Description (Cont.)

Bladder Site

The graded flat's dimensions are approximately 115-ft by 35-ft with an overall disturbed area of approximately 0.12 acres. Review of historic aerial imagery reveals that the graded flat was established between 2014 and 2016 and included timber harvesting and grading. The eastern portion of the bladder site is located within the Class III WLPZ. The cultivation-related activities observed impede the use of this space for current timber growth and harvesting; in this way, the landowner has effectively converted the single use of this space from timber production to a cannabis cultivation related activity.

Cultivation Site 2

The site is approximately 1.60 acres in size. Review of historic aerial imagery reveals that the cultivation site was established between 2010 and 2012 and included timber harvesting and grading. Unstable fill, slash, and logs have been side-casted into the head of a Class III watercourse within the Class III WLPZ. Storm water runoff from the large graded flat is being concentrated into the head of a Class III watercourse, which is a controllable sediment discharge site. Unstable fill material consisting of uncompacted and perched fill intermixed with slash, logs, stumps, and woody debris occurs on the western edge of the site. The cultivation-related activities observed impede the use of this space for current timber growth and harvesting; in this way, the landowner has effectively converted the single use of this space from timber production to a cannabis cultivation related activity.

Cultivation Site 3

The site is approximately 0.30 acres in size. Review of historic aerial imagery reveals that the cultivation site was established between 2014 and 2016 and included timber harvesting and grading. Untreated slash, woody debris, and logs from the conversion were observed. The southwestern portion of the graded flat was constructed in a Class III watercourse channel. The northeastern portion of the graded flat's fillslope is located within the Class III WLPZ. The cultivation-related activities observed impede the use of this space for current timber growth and harvesting; in this way, the landowner has effectively converted the single use of this space from timber production to a cannabis cultivation related activity.

Timberland Conversion Summary

TRC observed approximately 2.47 acres of unauthorized timberland conversion for cultivation-related purposes and Forest Practice Act violations as addressed below. This total does not exceed the three-acre conversion exemption maximum.

Limitations and Considerations for Timberland Conversion Activities

Watercourses and Water Resources

The following rule citations listed below prohibit timber harvesting and conversion related activities that occurred on this property in association with past timberland conversion.

14CCR 1104.1(a)(2)(F): "No timber operations are allowed within a watercourse and lake protection zone unless specifically approved by local permit (e.g., county, city)."

14CCR 916.3 General Limitations Near Watercourses, Lakes, Marshes, Meadows and Other Wet Areas
"The quality and beneficial uses of water shall not be unreasonably degraded by timber operations. During timber operations, the timber operator shall not place, discharge, or dispose of or deposit in such a manner as to permit to pass into the water of this state, any substances or materials, including, but not limited to, soil, silt, bark, slash, sawdust, or petroleum, in quantities deleterious to fish, wildlife, or the quality and beneficial uses of water. All provisions of this article shall be applied in a manner which complies with this standard."

Limitations and Considerations for Timberland Conversion Activities (Cont.)

14CCR 916.4(c) requires *"The protection and WLPZ widths for Class III and Class IV waters shall prevent the degradation of the downstream beneficial use of water and shall be determined on a site-specific basis."* Per the Humboldt County General Plan, the Grading and Open Space Ordinance would have applied to this project thus requiring County review and signed off. Consequently, a Stream Management Area or WLPZ would have been required on all Class III watercourses. Forest Practice Act violations are listed below.

1. Map Point A: Timberland conversion occurred within the Class III WLPZ in the eastern portion of the Bladder Site. This site shall be decommissioned per the specifications stated in the Applicant's Water Resource Protection Plan and CDFW 1600 Notification, which includes removal of all fill material from the Class III stream channel and buffer zone, and restoration of the stream channel back to its original location, grade, and configuration.
2. Map Point B: Timberland conversion activities resulted in the placement of unstable fill, stumps, logs, and slash into the head of a Class III watercourse located west of Cultivation Site 2 and directly south of the residence. The Water Resource Protection Plan and CDFW 1600 notification requires the removal of all unstable fill material from the Class III buffer zone, and the fill slope shall be pulled back to a maximum slope steepness of 2:1.
3. Map Point C: Timberland conversion occurred within a Class III watercourse channel at Cultivation Site 3. At this location past grading within the Class III watercourse buffer of 50-feet has resulted in the diversion of this Class III watercourse and the placement of fill in the Class III stream channel. The Water Resource Protection Plan and CDFW 1600 notification requires the decommissioning of Cultivation Site 3, which includes the removal of all fill material from the Class III stream channel and restoration of the stream channel back to its original location, grade, and configuration.
4. Map Point D: Timberland conversion occurred within the Class III WLPZ in the northeastern portion of the Cultivation Site 3, which included the placement of fill material in the Class III WLPZ. Cultivation Site 3 shall be decommissioned per the specifications stated in the Applicant's Water Resource Protection Plan and CDFW 1600 Notification, which shall include the removal of fill material located within the Class III WLPZ.

Slash, Woody Debris, and Refuse Treatment

14 CCR 914.5(b): *"Non-biodegradable refuse, litter, trash, and debris resulting from timber operations, and other activity in connection with the operations shall be disposed of concurrently with the conduct of timber operations."*

14CCR 1104.1(a)(2)(D) – *Treatment of Slash and Woody Debris*

- 1) *Unless otherwise required, slash greater than one inch in diameter and greater than two feet long, and woody debris, except pine, shall receive full treatment no later than April 1 of the year following its creation, or within one year from the date of acceptance of the conversion exemption by the Director, whichever comes first.*
- 2) *All pine slash three inches and greater in diameter and longer than four feet must receive initial treatment if it is still on the parcel, within 7 days of its creation.*
- 3) *All pine woody debris longer than four feet must receive an initial treatment prior to full treatment.*
- 4) *Initial treatment shall include limbing woody debris and cutting slash and woody debris into lengths of less than four feet, and leaving the pieces exposed to solar radiation to aid in rapid drying.*
- 5) *Full treatment of all pine slash and woody debris must be completed by March 1 of the year following its creation, or within one year from the date of acceptance of the conversion exemption by the Director, whichever comes first.*
- 6) *Full slash and woody debris treatment may include any of the following:*
 - a) *Burying;*
 - b) *Chipping and spreading;*
 - c) *Piling and burning; or*
 - d) *Removing slash and woody debris from the site for treatment in compliance with (a)-(b). Slash and woody debris may not be burned by open outdoor fires except under permit from the appropriate*

Limitations and Considerations for Timberland Conversion Activities (Cont.)

- fire protection agency, if required, the local air pollution control district or air quality management district. The burning must occur on the property where the slash and woody debris originated.*
- 7) *Slash and woody debris, except for pine, which is cut up for firewood shall be cut to lengths 24 inches or less and set aside for drying by April 1 of the year following its creation. Pine slash and woody debris which is cut up for firewood shall be cut to lengths 24 inches or less and set aside for drying within seven days of its creation.*
- 8) *Any treatment which involves burning of slash or woody debris shall comply with all state and local fire and air quality rules.*

The RPF identified piles/concentrations of untreated slash, woody debris, and logs from the conversion that require treatment as shown on the attached map. Isolated accumulations of scattered slash and woody debris not shown on the attached map may exist along the perimeter of the converted sites.

14CCR 923.2 Design and Location of Logging Roads and Landings

Cultivation Site 2 was not constructed and maintained per 14CCR 923.2(a)(5)&(6), which states:

Landings shall be hydrologically disconnected from watercourses and lakes to the extent feasible to minimize sediment delivery from road runoff to a watercourse and reduce the potential for hydrologic changes that alter the magnitude and frequency of runoff delivery to a watercourse.

Landings shall include adequate drainage structures and facilities necessary to avoid concentrating and diverting runoff, to minimize erosion of roadbeds, landing surfaces, drainage ditches, sidecast and fills, to minimize the potential for soil erosion and sediment transport, and to prevent significant sediment discharge.

While its recognized that Cultivation Site 2 is not a log landing, construction and maintenance of the graded flat should (at a minimum) meet or exceed similar requirements stated in the Forest Practice Rules for log landings. Compliance with Humboldt County's grading ordinance, Water Board Order, and other regulations would undoubtedly require even higher standards. Therefore, this report shall assess Cultivation Site 2's graded flat to the standards of a log landing. Near Map Point B, storm water runoff is being concentrated and dispersed into the head of two Class III watercourses south of the residence resulting in erosion of the fill material and sediment delivery to downstream watercourses. Corrective action is the proper drainage of the graded flat such that runoff is not concentrated onto the steep and erodible fill material. This requirement shall be addressed with more specificity in the Water Resource Protection Plan and CDFW Notification. The fill material at this location is steep, unconsolidated, and mixed with slash and woody debris. This "unstable fill" needs treatment as further addressed below.

923.4. Construction and Reconstruction of Logging Roads and Landings.

Cultivation Site 2 was not constructed per 14CCR 923.4(h), which states:

Waste organic material, such as uprooted stumps, cull logs, accumulations of limbs and branches, and unmerchantable trees, shall not be buried in logging road or landing fills. Wood debris or cull logs and chunks may be placed and stabilized at the toe of fill to restrain excavated soil from moving downslope.

Near Map Point B, portions of the fill slope, located to the west of the cultivation site and south of the residence are intermixed with stumps, logs, and woody debris. Treatment of this "unstable fill" requires removal of all buried woody material (stumps, logs, limbs, chunks, etc.) and subsequent treatment per 14CCR 1104.1(a)(2)(D) – Treatment of Slash and Woody Debris. The fill shall be reconstructed and thoroughly compacted in approximately one-foot lifts. The fill shall be no greater than 50 percent (2:1, horizontal to vertical) unless properly engineered. Portions of this unstable fill is perched and side-casted into the head of a Class III watercourse, as previously described, which shall require removal. This requirement shall be addressed with more specificity in the Water Resource Protection Plan and CDFW Notification.

Limitations and Considerations for Timberland Conversion Activities (Cont.)

Biological Resources and Forest Stand Health

14 CCR 1104.1 (2)(H): "No sites of rare, threatened or endangered plants or animals shall be disturbed, threatened or damaged and no timber operations shall occur within the buffer zone of a sensitive species as defined in 14 CCR 895.1"

A query of the California Natural Diversity Database (CNDDDB) on August 14, 2018 revealed no observations of sensitive, rare, threatened, or endangered species or species of special concern within a 0.7-mile radius biological assessment area (BAA) surrounding the cultivation sites. No sensitive, rare, threatened, or endangered species or species of special concern were observed during the TRC field assessment of the project area, though potential habitat may exist on the property.

The query of the CNDDDB revealed no known Northern Spotted Owl (NSO) Activity Centers within 0.7 miles of the project area.

No major forest health issues were observed during the field assessment except the presence of Sudden Oak Death syndrome (SOD). SOD infestations are located throughout the Salmon Creek watershed.

The conversion areas did not include late successional stands, late seral stage forests, or old growth trees. The conversion area did not include any trees that existed before 1800 A.D. and are greater than sixty (60) inches in diameter at stump height for Sierra or Coastal Redwoods, and forty-eight (48) inches in diameter at stump height for all other tree species.

Cultural Resources

14 CCR 1104.1 (2)(I): "No timber operations are allowed on significant historical or archeological sites."

No archeological sites were observed during the TRC field assessment. The RPF conducted pre-field research for the project's geographic location and closely surveyed the converted sites and surrounding undisturbed areas for presence or evidence of prehistoric or historic sites. The archaeological survey was conducted by Chris Carroll, a certified archaeological surveyor with current CALFIRE Archeological Training (Archeological Training Course #575). The survey consisted of examining boot scrapes, rodent disturbances, natural and manmade areas of exposed soils, and road and cultivation site surfaces.

Per 14 CCR 1104.2(2)(I), all required Native American tribes and organizations have been notified of the project location and are encouraged to respond with any information regarding archaeological sites, cultural sites, and/or tribal cultural resources within or adjacent to the project area.

Recommendations

In summary, a total of 2.47 acres of unauthorized timberland conversion has occurred within APN 221-021-026. This total does not exceed the three-acre conversion exemption maximum. The conversion activities conducted on the property do *not* comply with the California Forest Practice Act and the California Forest Practice Rules. The RPF recommends the following measures for the converted areas:

Slash and woody debris treatment required at approximately 5 locations as depicted on the attached Conversion Evaluation Map. Isolated accumulations of scattered slash and woody debris not shown on the attached map may exist along the perimeter of the converted sites.

Bladder Site: Fill material placed in the Class III watercourse and Class III WLPZ at Map Point A shall be removed per the Water Resource Protection Plan and replanted per the attached Restocking Plan.

Recommendations (Cont.)

Cultivation Site 2: Map Point B: Timberland conversion activities resulted in the placement of unstable fill, stumps, logs, and slash into the head of a Class III watercourse located west of Cultivation Site 2 and directly south of the residence. The Water Resource Protection Plan and CDFW 1600 notification requires the removal of all unstable fill material from the Class III buffer zone and the fill slope shall pulled back to a maximum slope steepness of 2:1. In addition, near Map Point B, storm water runoff is being concentrated and dispersed into the head of two Class III watercourses south of the residence resulting in erosion of the fill material and sediment delivery to downstream watercourses. Corrective action is the proper drainage of the graded flat such that runoff is not concentrated onto the steep and erodible fill material. Lastly, near Map Point B, portions of the fill slope, located to the west of the cultivation site and south of the residence are intermixed with stumps, logs, and woody debris. Treatment of this "unstable fill" requires removal of all buried woody material (stumps, logs, limbs, chunks, etc.) and subsequent treatment per 14CCR 1104.1(a)(2)(D) – Treatment of Slash and Woody Debris. The fill shall be reconstructed and thoroughly compacted in approximately one-foot lifts. The fills shall be no greater than 50 percent (2:1, horizontal to vertical) unless properly engineered.

Cultivation Site 3: Map Point C: Timberland conversion occurred within a Class III watercourse channel at Cultivation Site 3. At this location past grading within the Class III watercourse buffer of 50-feet has resulted in the diversion of this Class III watercourse and the placement of fill in the Class III stream channel. The Water Resource Protection Plan and CDFW 1600 notification requires the decommissioning of Cultivation Site 3, which includes the removal of all fill material from the Class III stream channel and restoration of the stream channel back to its original location, grade, and configuration. Following decommissioning, Cultivation Site 3 shall be replanted per the attached Restocking Plan.

Map Point D: Timberland conversion occurred within the Class III WLPZ in the northeastern portion of the Cultivation Site 3. This site shall be decommissioned per the specifications stated in the Applicant's Water Resource Protection Plan and CDFW 1600 Notification, which shall include the removal of fill material located within the Class III WLPZ. Following decommissioning, Cultivation Site 3 shall be replanted per the attached Restocking Plan.

Sincerely,



Chris Carroll, RPF #2628
Timberland Resource Consultants

Pictures



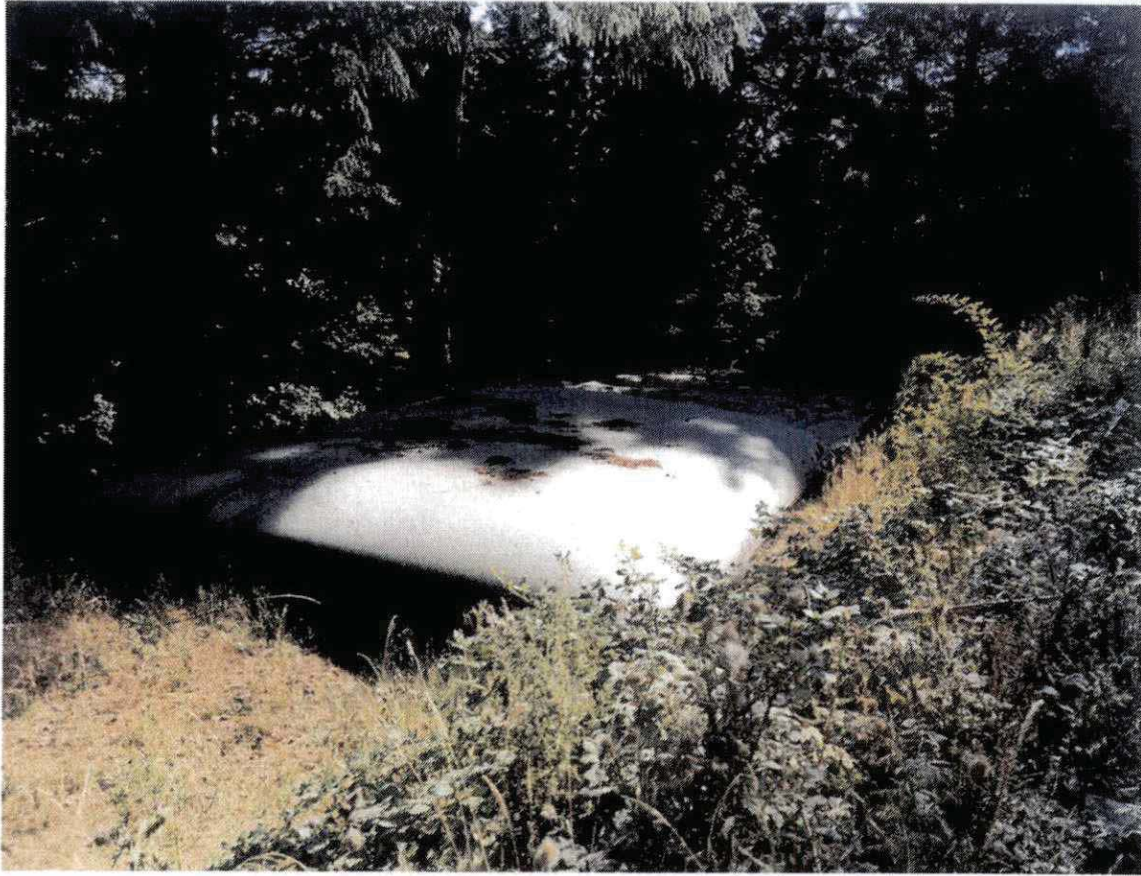
Picture 1: Slash, logs, and woody debris that requires treatment located west of the off-stream pond.
Photo date 8-14-2018.

Pictures



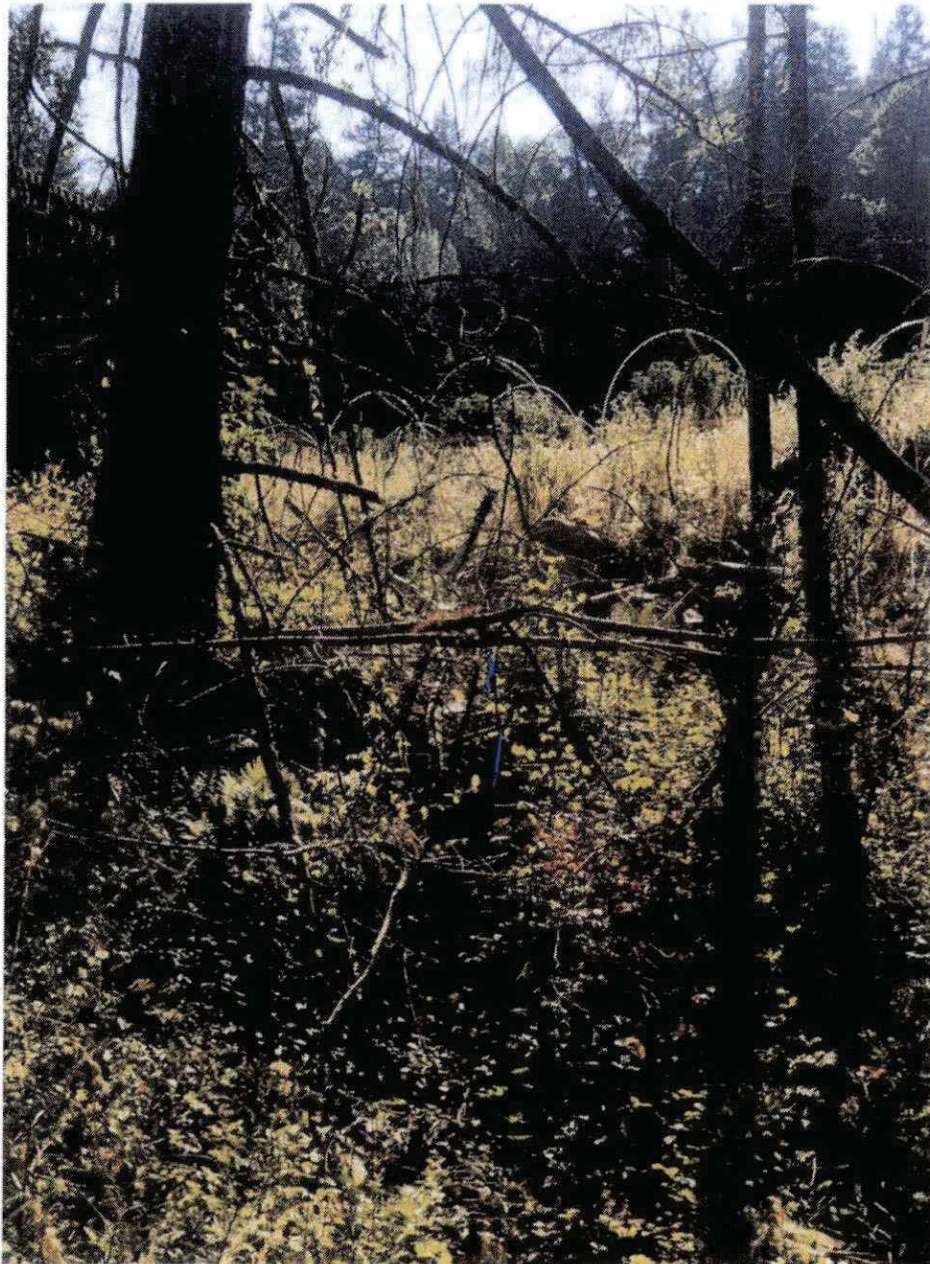
Picture 2: Off-stream pond. Photo date 8-14-2018.

Pictures



Picture 3: Bladder Site. Photo date 8-14-2018.

Pictures



Picture 4: Map Point B. Head of Class III watercourse located west of Cultivation Site 2. Unstable fill, logs, stumps, and slash are buried and intermixed in the perched fill. Photo date 8-14-2018.

Pictures



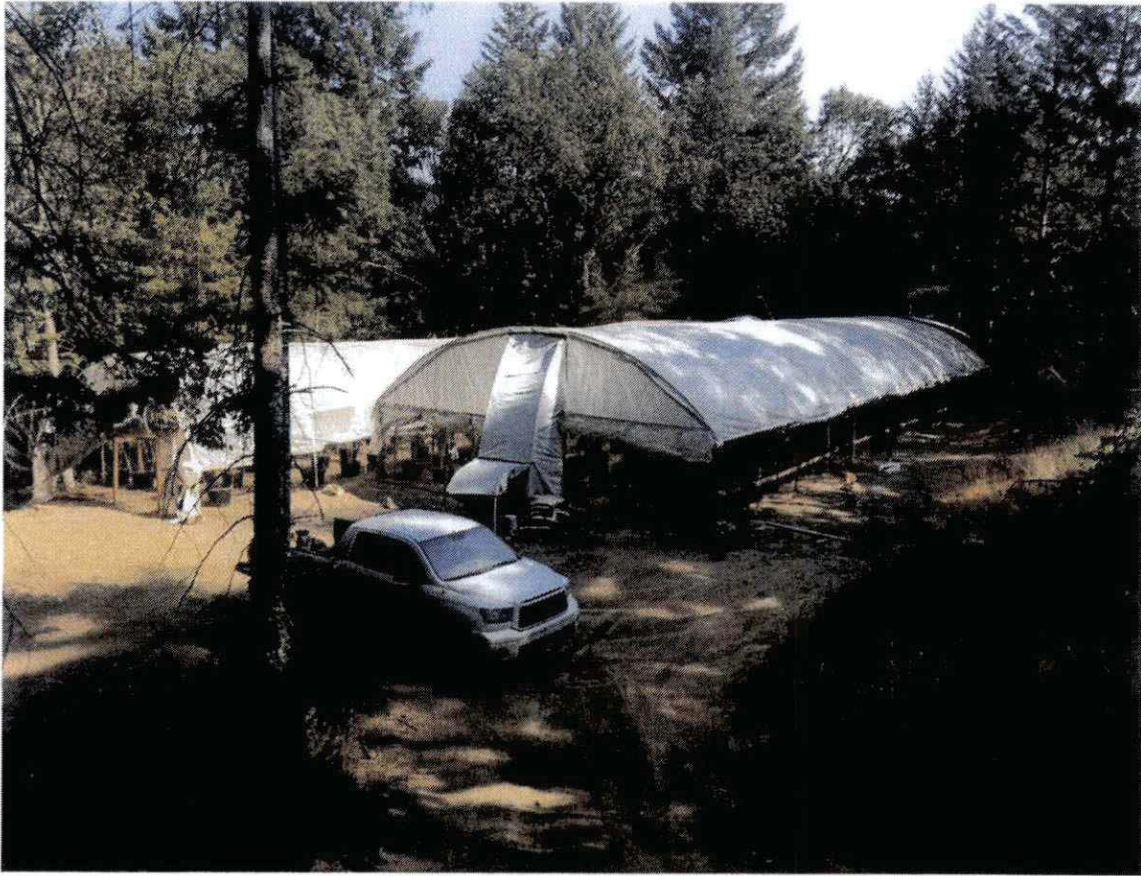
Picture 5: Untreated slash, logs, and woody debris located along the western perimeter of Cultivation Site 2 south of Map Point B. Portions of the fill slope in this area are intermixed with stumps, logs, and woody debris. Treatment of this "unstable fill" requires removal of all buried woody material (stumps, logs, limbs, chunks, etc.). Photo date 8-14-2018.

Pictures



Picture 6: Map Point C. A Class III watercourse has been diverted outside of its natural channel across the road near pickup truck during construction of Cultivation Site 3. Photo date 8-14-2018.

Pictures



Picture 7: Map Point C. The Class III watercourse's natural alignment passes through the bed of pickup truck or the southern portion of Cultivation Site 3. Photo date 8-14-2018.

Pictures



Picture 8: Map Point D. Class III watercourse is center-lined with blue flagging in foreground. In background is side-casted fill material from the construction of Cultivation Site 3. Photo date 8-14-2018.


Pictures



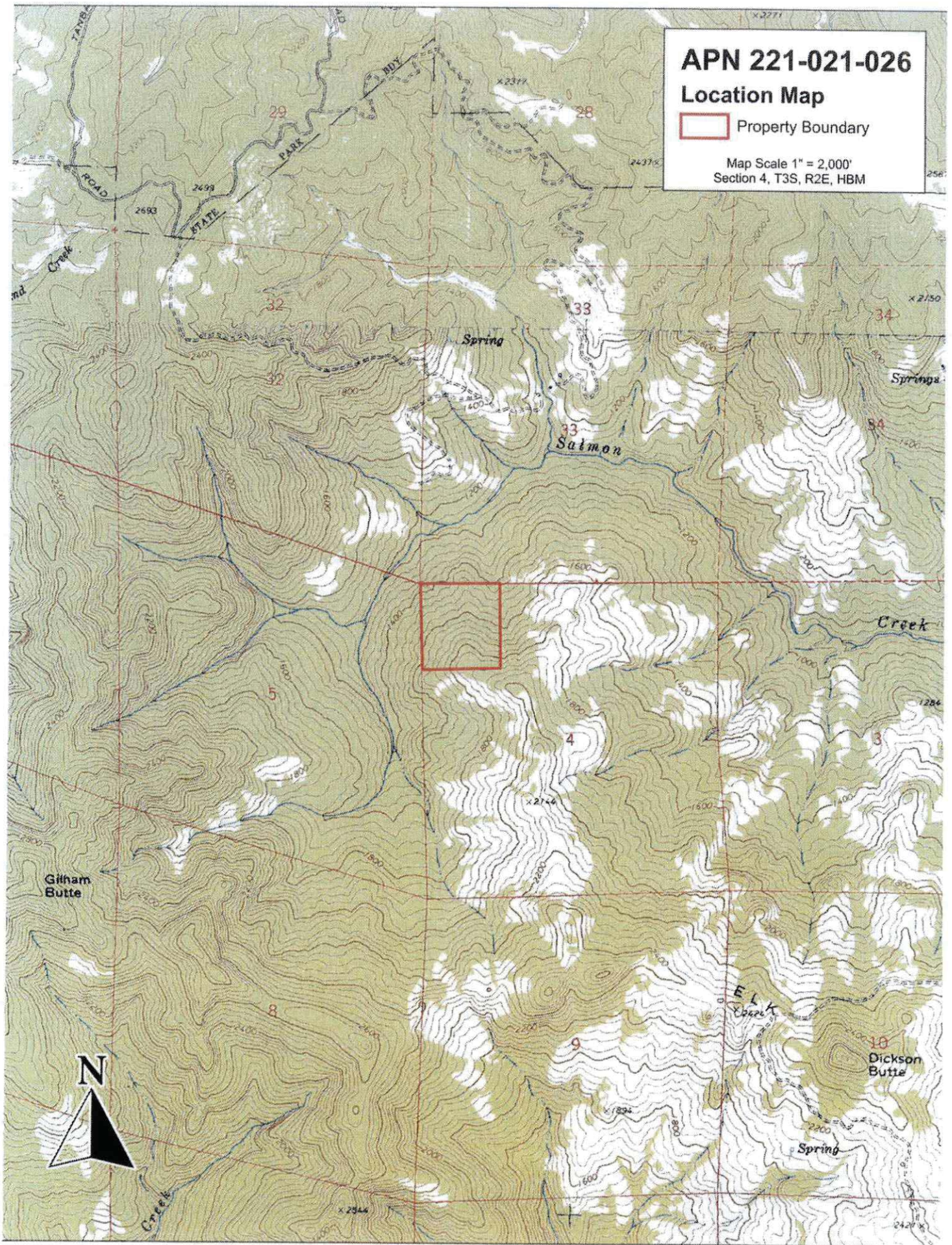
Picture 9: Cultivation Site 2. Photo date 8-14-2018.

APN 221-021-026

Location Map

 Property Boundary











Map Scale 1" = 2,000'
Section 4, T3S, R2E, HBM

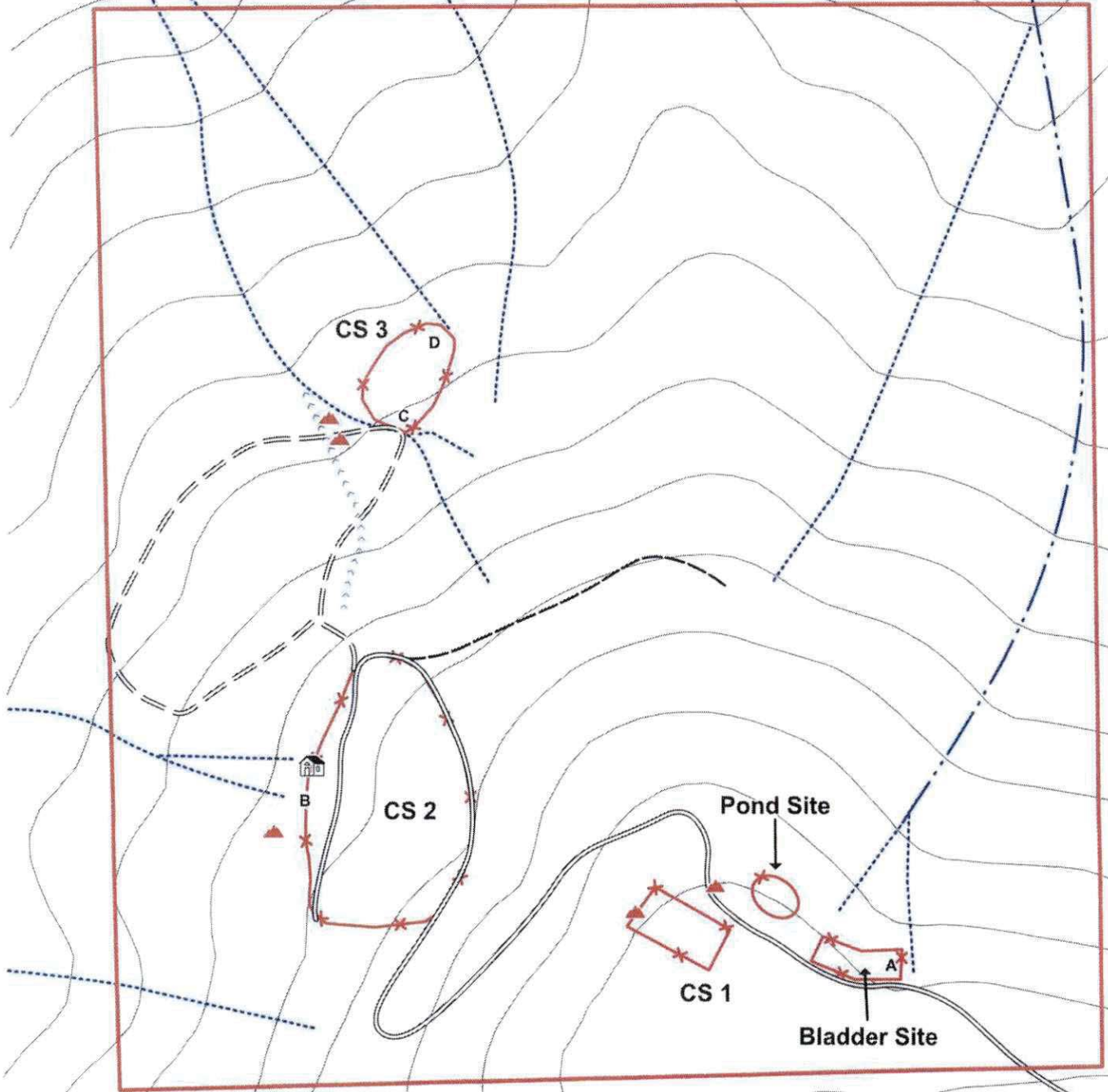


APN 221-021-026

Conversion Exemption Map

NORTH
Map Scale 1" = 200'
Section 4, T3S, R2E, H8M
Ettersburg USGS Quadrangle











- | | |
|---|---|
|  Property Boundary |  Permanent Rocked Road |
|  Timberland Conversion |  ATV Trail |
|  Class III Watercourse |  Seasonal Dirt Road |
|  Swale Feature |  Untreated Slash |
|  Class II Watercourse |  Residence |

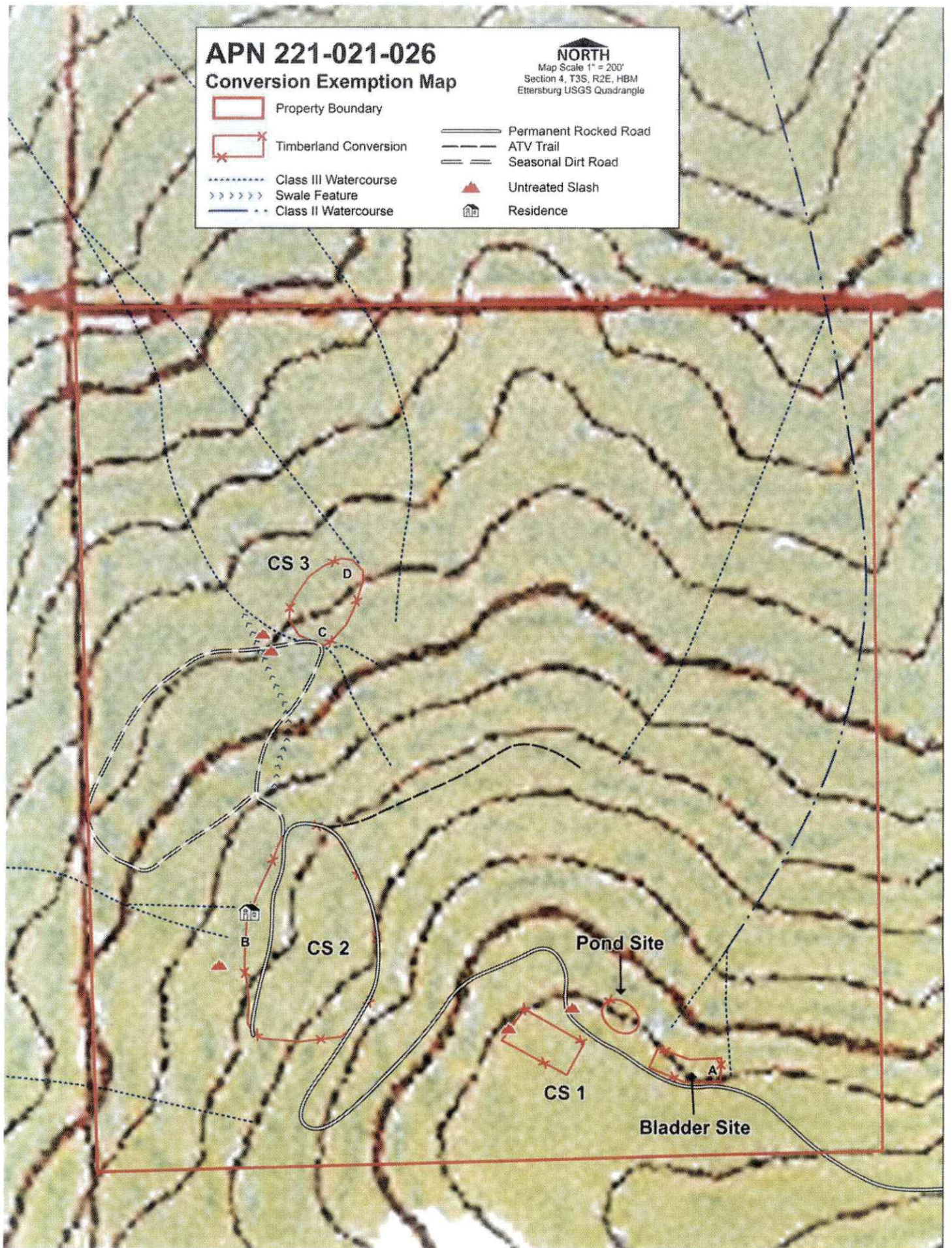


APN 221-021-026

Conversion Exemption Map

NORTH
Map Scale 1" = 200'
Section 4, T3S, R2E, HBM
Ettersburg USGS Quadrangle

- | | |
|---|---|
|  Property Boundary |  Permanent Rocked Road |
|  Timberland Conversion |  ATV Trail |
|  Class III Watercourse |  Seasonal Dirt Road |
|  Swale Feature |  Untreated Slash |
|  Class II Watercourse |  Residence |



APN 221-021-026

Conversion Exemption 2016 DOQ

NORTH
Map Scale 1" = 200'
Section 4, T3S, R2E, HBM
Ettersburg USGS Quadrangle

Property Boundary

Timberland Conversion

Class III Watercourse

Swale Feature

Class II Watercourse

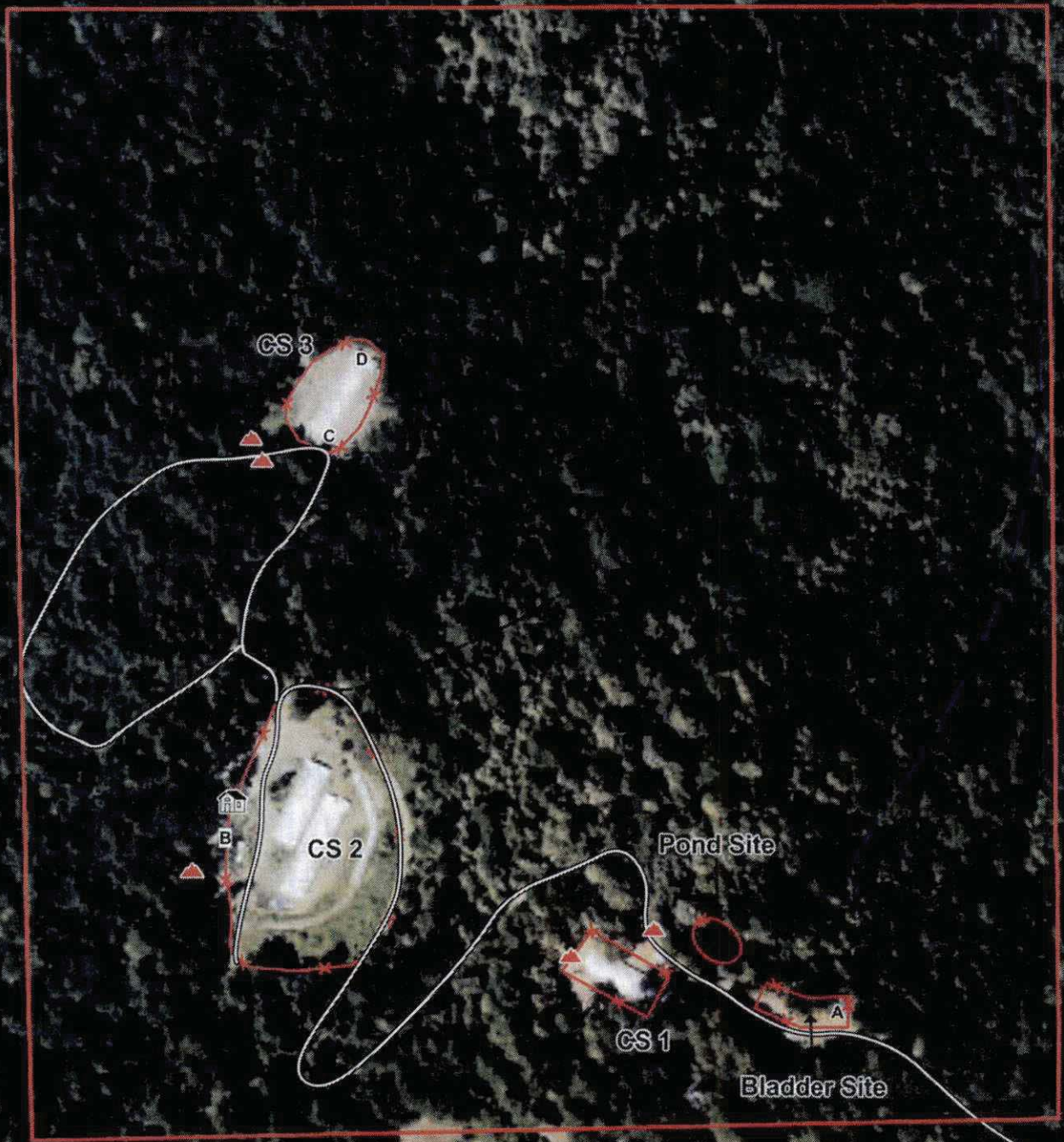
Permanent Rocked Road

ATV Trail

Seasonal Dirt Road

Untreated Slash


Residence




APN 221-021-026

CNDDDB Map

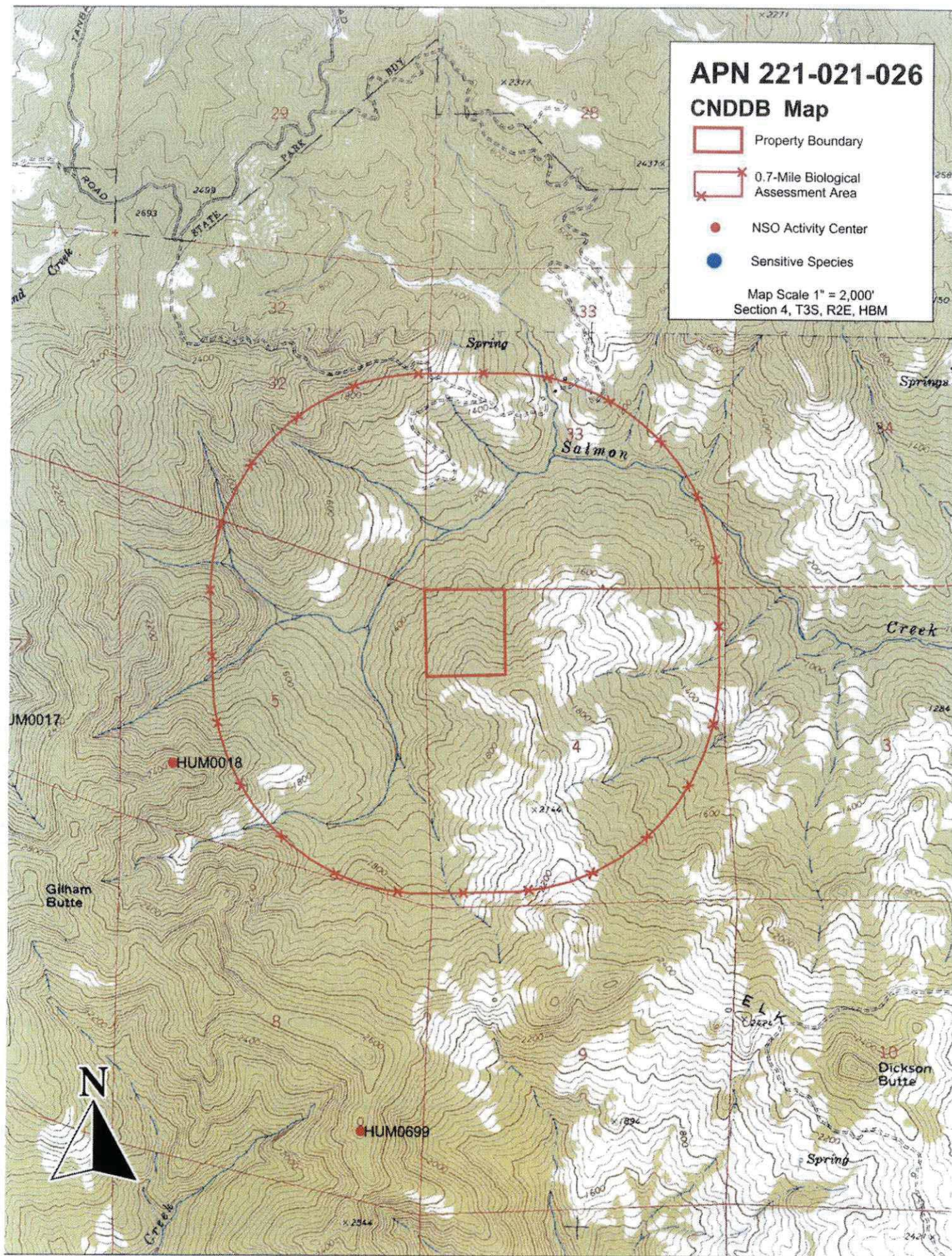
 Property Boundary

 0.7-Mile Biological Assessment Area

 NSO Activity Center

 Sensitive Species

Map Scale 1" = 2,000'
Section 4, T3S, R2E, HBM



Cultivation Site 1



Cultivation Site 2



Cultivation Site 3





RESTOCKING PLAN

FOR

APN 221-021-026

August 15, 2018

165 South Fortuna Blvd
Fortuna, CA 95540
707-725-1897
707-725-0972 Fax
trc@timberlandresource.com

Regeneration Plan

Site Preparation: Site preparation is a widely used method to facilitate the establishment of a desirable stand of trees. Site preparation activities remove or reduce competing vegetation, reduce or remove unwanted trees and logging debris, and prepare the soil to promote the growth and survival of desired tree species. There are many methods of site preparation that fall under either chemical or mechanical site preparation. The primary objective is to have an area suitable for planting and establishing a new stand of trees. If heavy equipment is available, the RPF recommends subsoiling/ripping the planted sites. Subsoiling/ripping is a mechanical site prep method for heavy soils on cutover or agricultural lands that have a compacted layer at or below the soil surface that limits root growth and development. Subsoiling/ripping increases aeration and water-holding capacity of compacted soils and breaks up root restricting hardpans and/or traffic pans.

Planting: The RPF recommends planting Douglas-fir seedlings at a spacing no less than 10 feet by 10 feet or 435 trees per acre. If deer browsing is expected (landowner's local knowledge), then the density can be slightly increased to account for mortality and/or damage. The area to be planted at the Bladder Site is approximately 0.12 acres in size, which shall require approximately 50 conifer seedlings to be planted. The area to be planted at Cultivation Site 3 is approximately 0.30 acres in size, which shall require approximately 130 conifer seedlings to be planted.

Seedlings: Most conifer seedlings that come from the nursery are usually available in two forms; bareroot seedlings and containerized seedlings. Bareroot seedlings are essentially stock whose roots are exposed at the time of planting. Bareroot seedlings are grown in nursery seedbeds and lifted from the soil in which they are grown to be planted in the field. Containerized seedlings are grown in a variety of hard-walled vessels or in peat pots from seed. Given the conditions of the site and the higher survival rate associated with containerized stock, the RPF recommends using containerized seedlings if available. Seedling care and handling is extremely important to ensure post planting survival. For long-term storage (more than 3 days) store at 33-36 degrees Fahrenheit. For short-term storage (several hours to less than 3 days) store below 42 degrees Fahrenheit. At the planting site take care to not let the roots dry out and avoid exposure to the sun or warmer temperatures.

Planting Instructions:

1. Tree planting shall only occur in winter or early spring. Tree planting should not occur if the ground is frozen, or during unusually warm periods.
2. Dig a hole at least one inch deeper and wider than the seedling roots. If planting from a container, dig the hole an inch deeper and wider than the container.
3. Place the seedling into the hole taking care not to bend the taproot, or main vertical root, and cover with soil.
4. Pack the soil down firmly around the seedling to remove any air pockets.
5. See Appendix A-D for illustrations for correct planting techniques.

6. The RPF recommends acquiring conifer seedlings from Green Diamond Resource Company's nursery in Korbel. Contact Glen Lehar @ 707-668-4439. Indicate the elevation and geographic area of the planting site and he will recommend the appropriate stock.

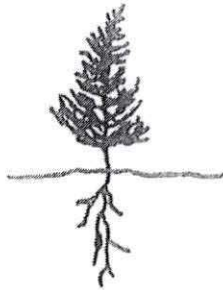
Sincerely,



Chris Carroll, RPF# 2628
Timberland Resource Consultants

APPENDIX A

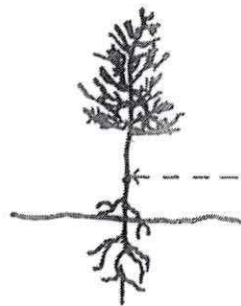
CORRECT METHOD OF SEEDLING PLANTING



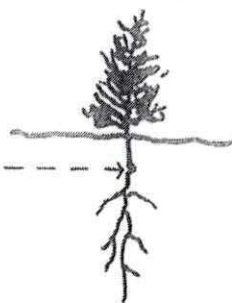
- Soil firmly packed around roots.
- No air pockets.
- Roots straight with no J or L bends.
- Root collar at or slightly below ground level.
- Root not pruned.

ERROR IN PLANTING

Too shallow



Too Deep

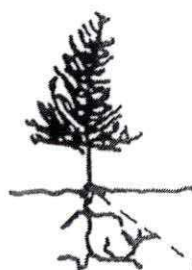


Root Collar

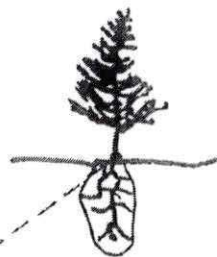
- Hole not deep enough.
- Root collar and upper roots exposed.
- Roots dry out.

- Hole is too deep.
- Root collar buried.

J or L Roots



Air Pockets



Root Collar

Hole is not deep enough — planting in rocky soil.
Roots cannot effectively take up water.
Tree not wind-firm.

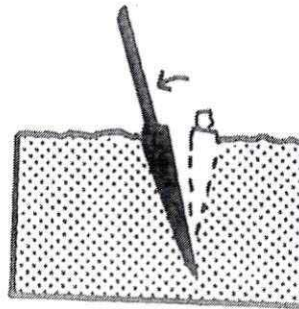
- Soil not firmly packed around roots.
- Air pocket forms.
- Roots dry out.

APPENDIX B
PLANTING WITH A FLAT BAR

1. Insert flat bar straight down.

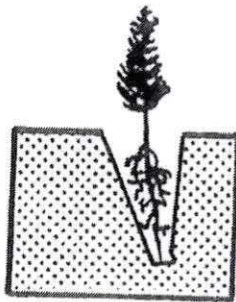


2. Pull flat bar backward to open hole.

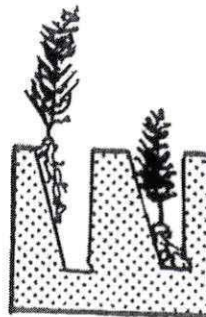


3. Remove flat bar and place seedling at correct depth with root collar at or slightly below ground level.

Correct

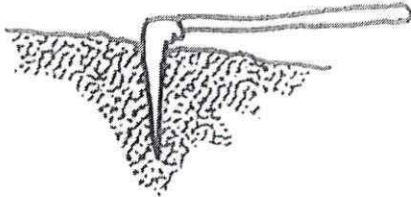


Incorrect

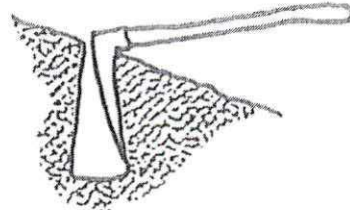


APPENDIX C
PLANTING WITH A HOE

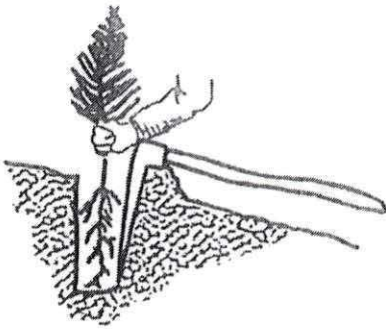
1. Swing hoe to get full penetration.



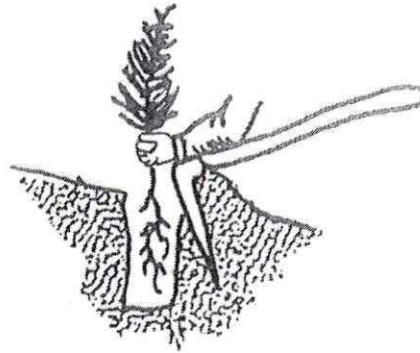
2. Lift handle and pull up to widen hole.



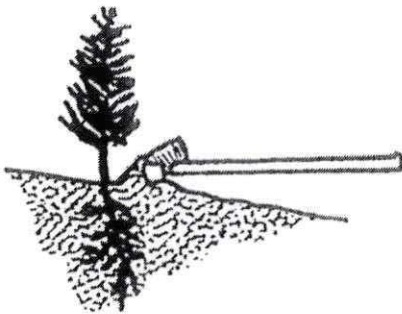
3. Place seedling while using hoe to hold back soil.



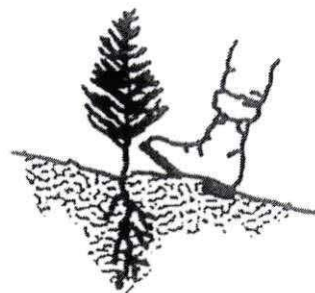
4. Use hoe to pack soil at bottom of hole.



5. Use hoe to pack soil at top hole.



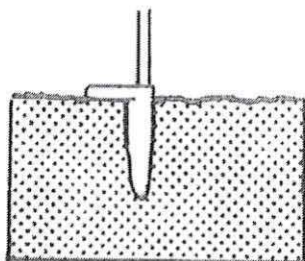
6. Firm soil around seedling with feet.



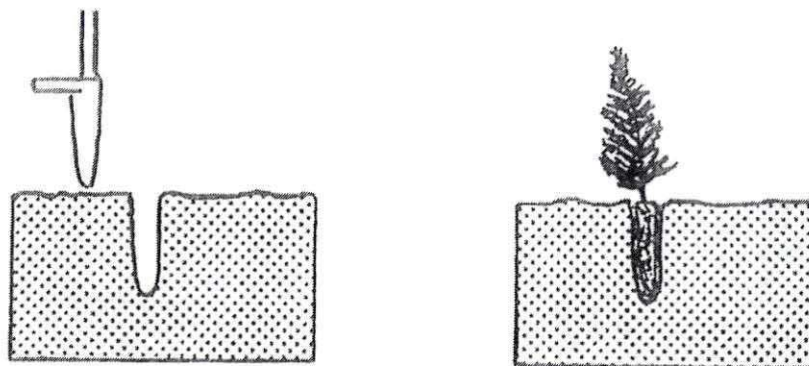
APPENDIX D

PUNTING WITH A PLUG BAR

1. Insert plug bar straight down until plug bar footrest is level with ground.



2. Remove plug bar and place seedling in hole.



3. Firm soil around seedling with heel of boot.

