Restoration Plan
APN 311-221-026

Prepared by:

Timberland Resource Consultants
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Revised April 20th, 2023

Purpose

This Restoration Plan has been prepared on behalf of RJH Beatrice LLC Company, for portions of the Stream Management Area (SMA), which were impacted from the salvaging of downed and wind-damaged red alder trees for pasturage as allowed by Humboldt County Code §314-61.1.9.2 as follows:

> 61.1.9.2.2 Timber management and harvests activities under a timber harvesting plan or nonindustrial timber management plan, or activities exempt from local regulation as per California Public Resources Code Section 4516.5(d) as well as noncommercial cutting of firewood and clearing for pasturage, provided:
>
> 61.1.9.2.2.1 Cottonwoods are retained.
>
> 61.1.9.2.2.2 Remaining willows and alders, as well as other unmerchantable hardwoods or shrubs, are to be protected from unreasonable damage.

Methods

The methods used to develop this Restoration Plan include both field and office components. The office component consisted of historic digital ortho photography review and interpretation, existing USGS quad map review, GIS mapping of field data, review of on-site photography points, streamflow calculations, and general planning. The field component included identifying and accurately mapping all watercourses, wet areas, and wetlands located downstream and nearby impacted areas. Timberland Resource Consultants (TRC) inspected and evaluated the subject site on January 20, 2023. In addition, all appurtenant roads and associated stream crossings, if any, providing access to the subject site were mapped. An accurate location of the Waters of the State is necessary to make an assessment of whether the impacted areas and appurtenant access roads have the potential to discharge waste to an area that could affect waters of the State (including groundwater).

Property Location

The property is located off Tompkins Hill Road, approximately 0.25 air miles southeast of College of the Redwoods. The situs address is 7035 Tompkins Hill Road, Loleta.

APN: 311-221-026
Acreage: 32 acres
Legal Description: Northwest ¼ of Section 33, Township 4 North, Range 1 West, HB&M.
Located on USGS 7.5' Quadrangle: Fields Landing
Humboldt County Zoning: Agriculture

Project Area Description

The impacted SMA, as shown on the attached Restoration Plan Map, is located along Willow Brook, which is a perennial stream tributary to Hookton Slough in Humboldt Bay. Willow Brook is a Class II stream that does not provide habitat for anadramous salmonids. Fish barriers include the tidal gate west of Highway 101 and stream crossings on Highway 101, Tompkins Hill Road, and Ryan Pond. Review of historic aerial imagery (https://www.historicaerials.com) reveals that the subject area was cleared of timber and vegetation resembling a clearcut between 1972 and 1983. The

Legacy Road / Skid Trail shown on the Restoration Plan Map are clearly visible in the 1986 imagery. Over the course of the next 37 years, the subject area naturally regenerated primarily with red alder with a minor component of Sitka spruce and redwood. Use of the two seasonal roads accessing the two log landing locations are visible in most of the imagery reviewed to present.

SMA Impacts

The removal of downed and wind-damaged red alder trees occurred on approximately 2.46 acres as shown on the Restoration Plan Map. 1.70 acres of salvage tree removal occurred within the SMA. The salvaging of downed and damaged trees resulted in the disturbance of soil and loss of vegetation as shown on the attached photographs. The salvage operation appears to have primarily utilized existing roads, skid trails, and log landings which are visible in historic aerial imagery and LIDAR imagery. The RPF did not observe any grading that involved the cutting and placement of fill material. Sash and woody debris created during the removal of downed and wind-damaged red alder trees was piled for future burning, and mechanically chipped which is providing ground cover to portions of the SMA. However, disturbed soil exists and two locations were identified as potential conduits to sediment entering Willow Brook.

Mitigation Measures Discussion

Humboldt County Code §314-61.1.10.1.3:

> 61.1.10.1.3 Replanting of disturbed areas with riparian vegetation (including such species as alders, cottonwoods, willows, sitka spruce, etc.) shall be required unless natural regeneration does not occur within two (2) years of the completion of the development project. The mitigation and monitoring report adopted as a part of project approval shall include an alternative regeneration plan in case natural regeneration is not successful.

The disturbed areas will naturally regenerate with red alder. Red alder is a pioneer species that establishes rapidly in openings created by forest disturbance; it commonly invades bare mineral soils after landslides, logging, or fire. Dissemination of red alder seed by the wind commonly produces widespread colonization on disturbed soils under a variety of conditions. Red alder can maintain or improve soils via rapid input of organic matter and nitrogen. Its roots fix atmospheric nitrogen via symbiosis with the actinomycete, Frankia. Red alder does not reproduce in the absence of soil disturbance, and therefore natural regeneration is expected to be successful at this site.

To improve streambank stability and ensure future sources of large woody debris; redwood seedlings shall be planted within 50 feet of the stream channel per the specifications stated in the attached Restocking Plan. Construction of stream-side skid roads and landings in association within past logging between 1972 and 1983 resulted in the removal of trees and vegetation directly adjacent to Willow Brook. As seen in the attached photographs, streambanks are eroding and there are very few trees growing directly alongside Willow Brook. Planted redwood trees will provide additional canopy cover, stream bank stabilization, large woody debris recruitment, and lastly organic litter and nutrients vital to stream dwelling organisms.

Humboldt County Code §314-61.1.10.1.6:

> 61.1.10.1.6 Concentrated runoff will be controlled by the construction and continued maintenance of culverts, conduits, nonerodible channels, diversion dikes, interceptor ditches, slope drains, or appropriate mechanisms. Concentrated runoff will be carried to the nearest drainage course. Energy dissipaters may be installed to prevent erosion at the point of discharge, where discharge is to natural ground or channels.

Two locations were identified, as shown on the Restoration Plan Map, which are potential conduits for sediment entering Willow Brook. Concentrated surface runoff from the north and south side of Willow Brook are discharging directly into the stream channel. The disturbed areas in the SMA are expected to revegetate quickly with native vegetation, which will be capable of trapping sediment before it enters the stream. However, in the interim the landowner shall place straw waddles in the locations shown on the Restoration Plan Map and as depicted on the attached photographs. In addition, the landowner shall apply Native Erosion Control Mix (distributed by Pacific Coast seed) to disturbed soils within the SMA. This seed mix consists of the following:

56% California Brome (*Bromus carinatus*)

22% Meadow Barley (*Hordeum brachyantherum*)

13% Three Weeks Fescue (*Vulpia microstachys*)

9% Tomcat Clover (*Trifolium wildenovii*)

This mix contains grasses and clover that establish quickly knitting together the soil to prevent future erosion.

Recommendations

1. Plant redwood trees in the areas depicted on the Restoration Plan Map to the specifications stated in the Restocking Plan.

2. Apply Native Erosion Control Mix to all disturbed soil in the SMA at a rate of 45 pounds per acre.

3. Place straw waddles in the locations shown on the Restoration Plan Map and as depicted on the attached photographs.

Mitigation and Monitoring Plan

1. The RPF will monitor growth and success of planted trees redwood trees one year after planting. The RPF shall conduct a point count stocking sampling survey per 14CCR 1072. If less than 55% of the planted area meets the 125-point count minimum stocking level, the site shall be replanted. Within five years of planting, a report of stocking shall be submitted to the county by an RPF, which certifies that the area meets the minimum stocking standards of 14 CCR 912.7.

2. The RPF will assess the degree of natural regeneration of red alder concurrent with monitoring of the planted redwood trees. If within 2 years natural regeneration of red alder is inadequate to meet the minimum stocking standards of 14 CCR 912.7, then red alder regeneration from planting shall occur.

3. The landowner shall maintain the straw waddles until such time the disturbed SMA is revegetated to the extent that concentrated turbid surface runoff is <u>not</u> entering the Willow Brook.

Sincerely,

Chris Carroll, RPF #2628
Timberland Resource Consultants

Photographs

Photo #1: Northernmost Legacy Log Landing / Developed Flat in the SMA located on the north side of Willow Brook.

Photographs

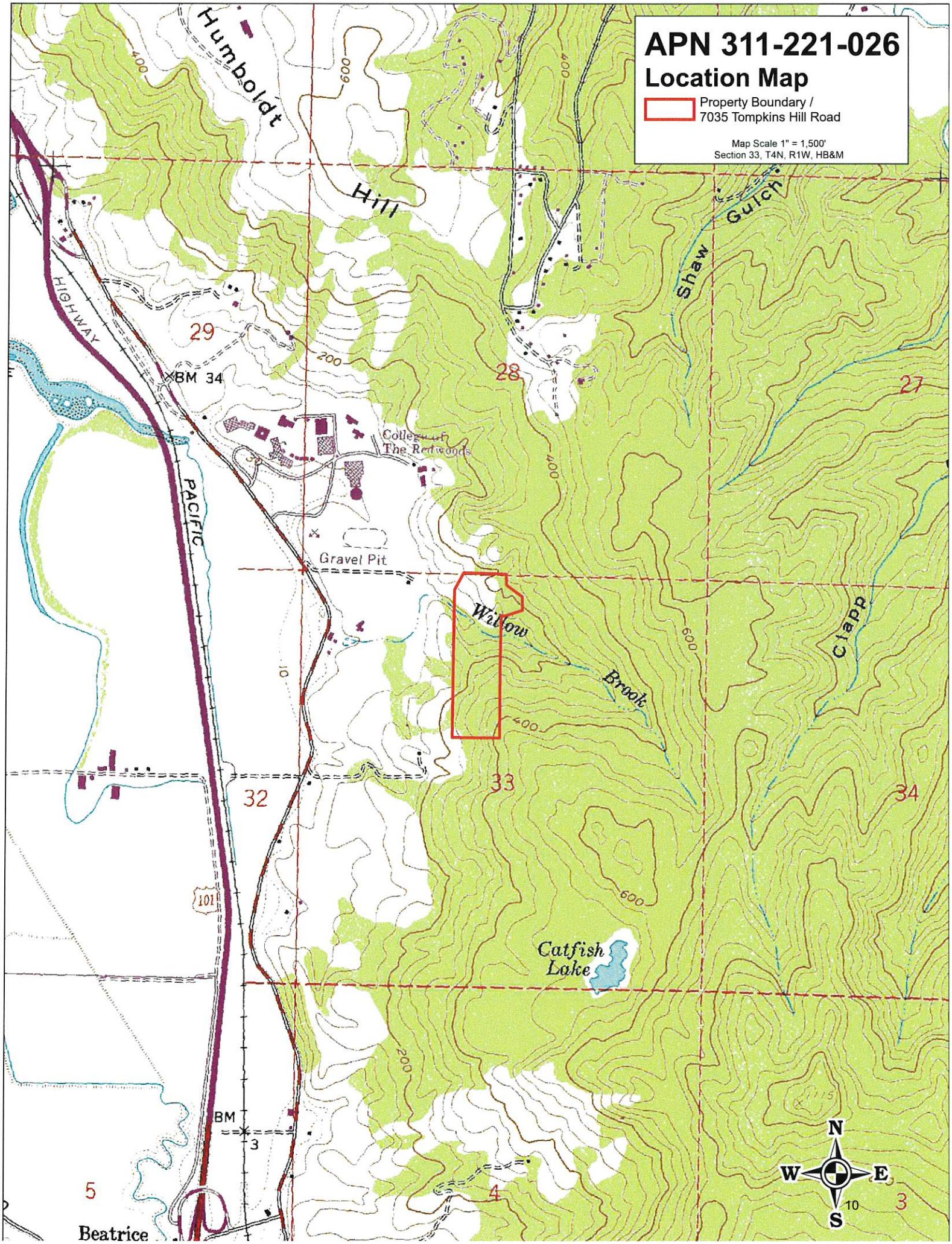
Photo #2: Southernmost Legacy Log Landing / Developed Flat in the SMA located on the south side of Willow Brook.

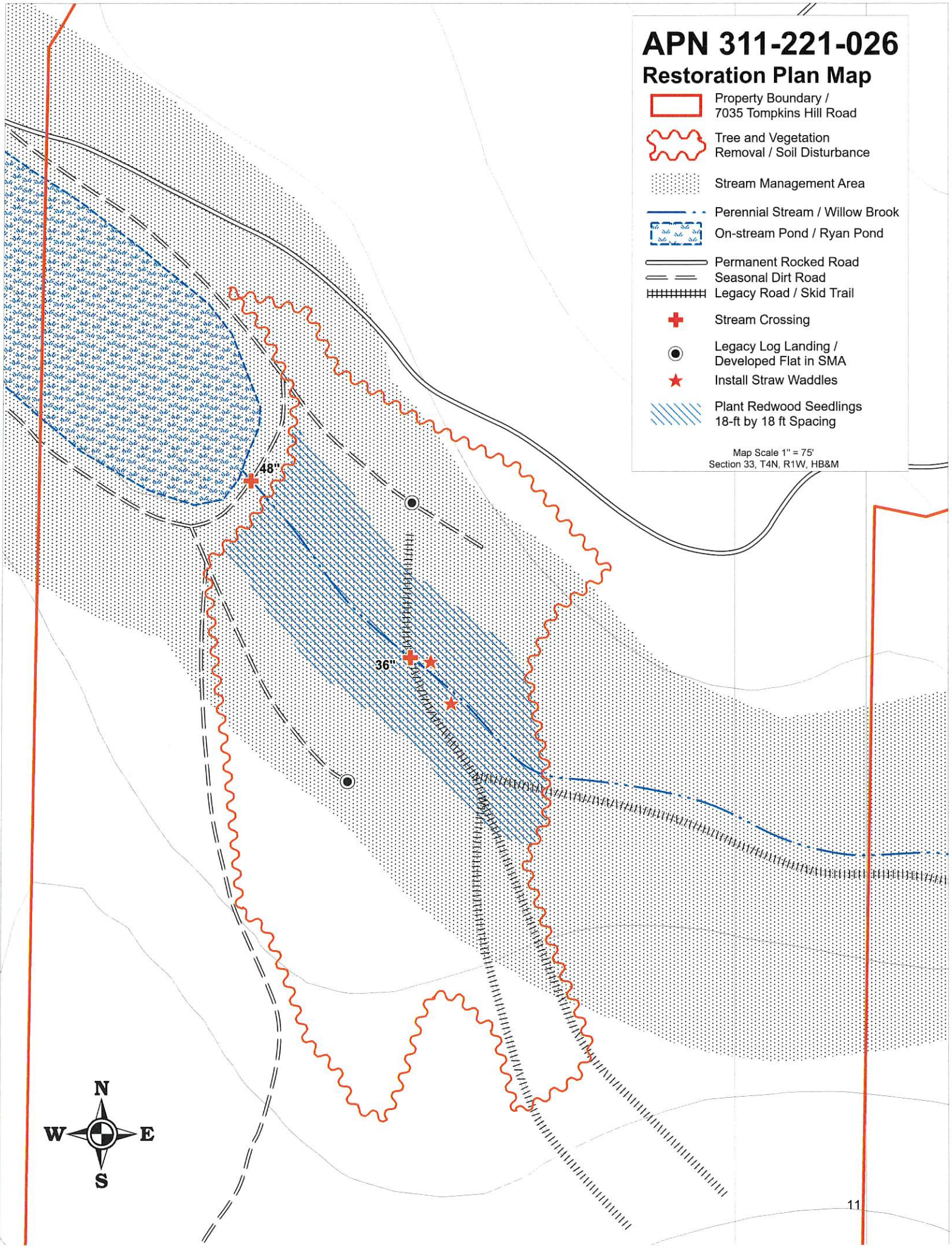
Photographs

Photo #3: Concentrated surface runoff entering Willow Brook from the southside of the stream highlighted in blue. The landowner shall place straw waddles at the area highlighted in red.

Photographs

Photo #4: Concentrated surface runoff entering Willow Brook from the northside of the stream highlighted in blue. The landowner shall place straw waddles at the area highlighted in red.


APN 311-221-026
Location Map
Property Boundary /
7035 Tompkins Hill Road
Map Scale 1" = 1,500'
Section 33, T4N, R1W, HB&M
Humboldt Hill
Shaw Gulch
HIGHWAY
PACIFIC
BM 34
College of The Redwoods
Gravel Pit
Willow Brook
Clapp
Catfish Lake
BM
Beatrice
29
28
27
32
33
34
5
4
3
400
600
200
101
N
W
E
S


APN 311-221-026
Restoration Plan Map
Property Boundary / 7035 Tompkins Hill Road
Tree and Vegetation Removal / Soil Disturbance
Stream Management Area
Perennial Stream / Willow Brook
On-stream Pond / Ryan Pond
Permanent Rocked Road
Seasonal Dirt Road
Legacy Road / Skid Trail
Stream Crossing
Legacy Log Landing / Developed Flat in SMA
Install Straw Waddles
Plant Redwood Seedlings 18-ft by 18 ft Spacing
Map Scale 1" = 75'
Section 33, T4N, R1W, HB&M
48"
36"
N
W
E
S

Timberland Resource Consultants

RESTOCKING PLAN

FOR

APN 311-221-026

February 27, 2023

165 South Fortuna Blvd
Fortuna, CA 95540
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Restocking Plan

Restocking Areas: See attached Restoration Plan Map.

Site	Total Acreage / Square ft^2	# Trees at 18'x18' Spacing
SMA	0.66 / 28,750	89

Site Preparation: Site preparation is commonly utilized to facilitate timber stand establishment. The primary objective of this practice is to create an area suitable for planting seedlings and establishing a new stand of trees. Site preparation activities remove or reduce competing vegetation, reduce or remove unwanted trees and logging debris, and prepare the soil to ultimately 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. Subsoiling/ripping is a mechanical site prep method for heavy soils on cutover timberlands 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.

Recommendation: No disturbance in the form of heavy equipment operations is deemed necessary. The site is already disturbed and trees can be planted with a shovel or hoe.

Types of Seedlings: Harvested and/or understocked timberlands should be artificially regenerated with naturally-occurring conifer species and cultivars well-adapted to the timber stand's specific climate, elevation, and other environmental conditions. Planting seedlings from appropriate seed zones and elevation ranges ensures better seedling success and, eventually, a more resilient timber stand. Specifically, timberland within the property is characterized by Redwood and red alder with a minor component of Sitka spruce. The area to be planted occurs within California Seed Zone 092 at approximately 300 feet in elevation.

Recommendation: The landowner shall plant Redwood (best suited for Seed Zone 092 at 300-foot elevation) at a uniform spacing no less than 18-feet by 18-feet, or 134 trees per acre.

Most conifer seedlings that come from nurseries are 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 individually in a variety of hard-walled vessels or in peat pots from seed. They're typically more expensive than bareroots but usually have a higher survival rate after planting due to their well-formed root system.

Recommendation: Given the conditions of the site and the higher survival rate associated with containerized stock, use containerized seedlings if available.

Seedling Care: Seedling care and handling is extremely important to ensure post planting survival.

Recommendation: For long-term storage (more than 3 days), store seedlings at 33 to 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 not to let the roots dry out and avoid exposure to the sun or warmer temperatures.

Restocking Plan

Planting Instructions: When planting seedlings, the landowner or tree planter should abide by the following:

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 seeding to remove any air pockets.
5. See Appendices A-D for illustrations for correct planting techniques.

Stock Purchase: Ideally, landowners should procure seedlings from sources growing local, site-specific stock. Appropriate stock is determined by stand type, seed zone, elevation, as well as other factors like soil type, site quality, and weather.

Recommendation: The RPF recommends acquiring conifer seedlings from one of the following sources: https://www.jonsteen.com/, https://www.samararestoration.com/, http://www.calforest.com/, https://sequoiatrees.com/, https://rngr.net/, or contact Timberland Resource Consultants for assistance.

Monitoring Seedling Survival: Although a newly planted stand immediately fulfills stocking standards, the timber stand must continually contain an average density of at least 125 trees per acre (or 18.66-foot by 18.66-foot spacing) in order to meet the intent of the California Forest Practice Rules (CFPRs). A ***Countable Tree*** per 14CCR 895.1 must be in place at least two growing seasons among other requirements.

Recommendation: Monitor growth and success of planted trees one year after planting. An RPF should conduct a point count stocking sampling survey per 14CCR 1072. If less than 55% of the planted area meets the 125-point count minimum stocking level, repeat the planting process.

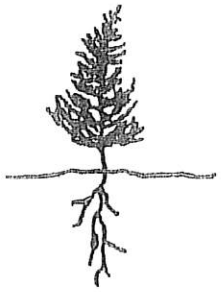
Certification: Within five years of planting, a report of stocking shall be submitted to the county by an RPF, which certifies that the area meets the minimum stocking standards of 14 CCR 912.7.

Sincerely,

Chris Carroll, RPF# 2628
Timberland Resource Consultants

APPENDIX A

CORRECT METHOD OF SEEDLING PLANTING

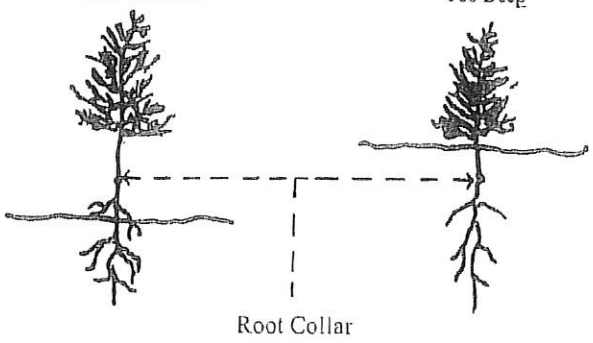


- Soil firmly packed around roots.
- No air pockets.
- Roots straight with no J or L bends.
- Root collar at or slightly below ground level.
- Root not pruned.

ERROR IN PLANTING

Too shallow

Too Deep



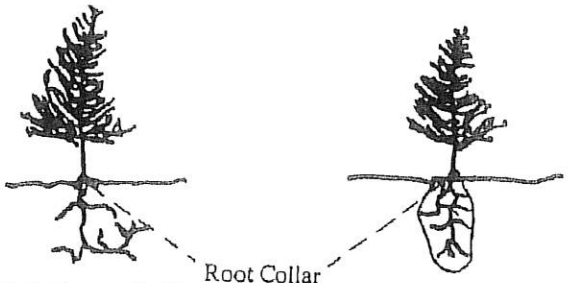
Root Collar

- 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.

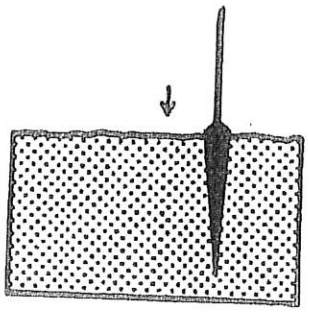
Tree not wind-firm.

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

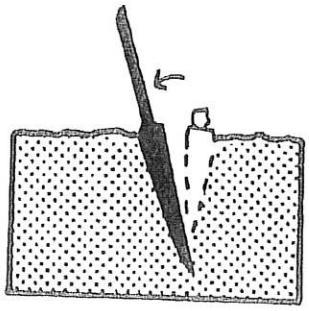
APPENDIX B

PLANTING WITH A FLAT BAR

1. Insert flat bar straight down.

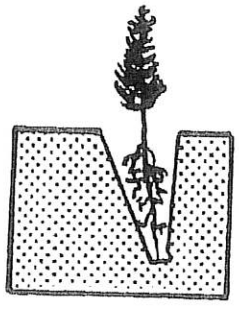


2. Pull flat bar backward to open hole.

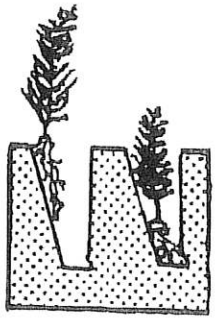


3. Remove flat bar and place seedling at correct depth with root collar at or slightly below ground level.

Correct



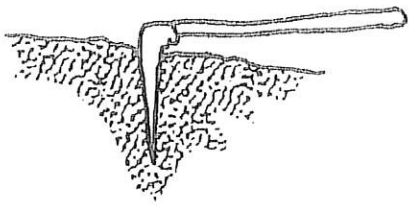
Incorrect



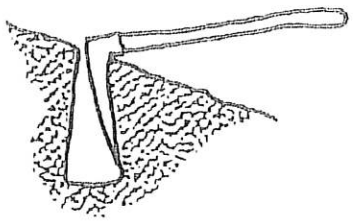
APPENDIX C

PLANTING WITH A HOE

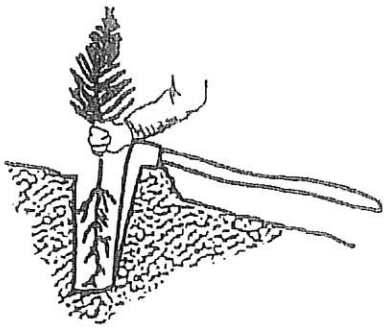
1. Swing hoe to get full penetration.



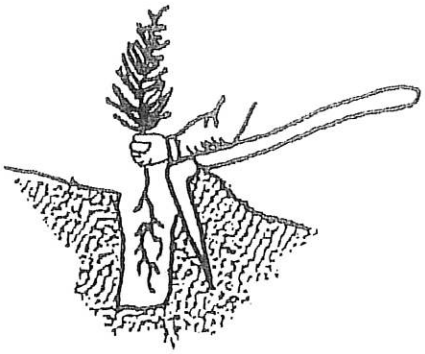
2. Lift handle and pull up to widen hole.



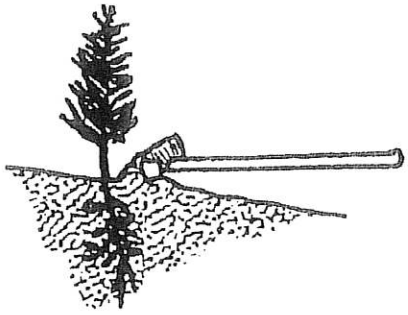
3. Place seedling while using hoe to hold back soil.



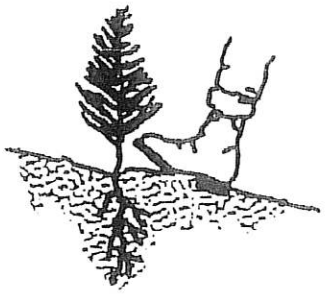
4. Use hoe to pack soil at bottom of hole.



5. Use hoe to pack soil at top hole.



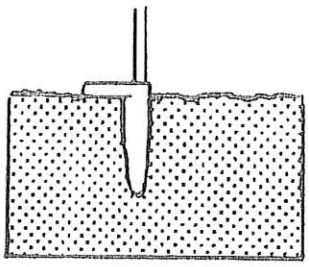
6. Firm soil around seedling with feet.



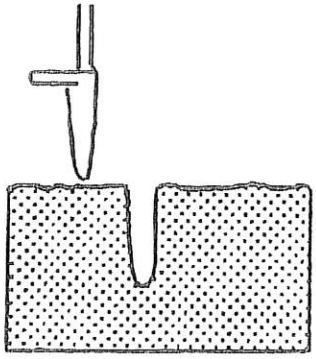
APPENDIX D

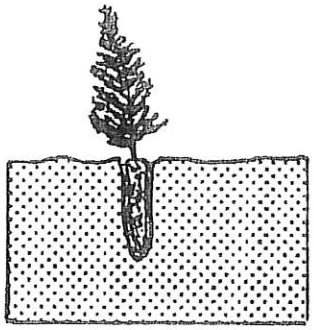
PUNTING WITH A PLUG BAR

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 seeding with heel of boot.