State of Oregon
Department of Forestry - Department of Revenue
Notification Number: 2014-781-00527
Timber Sale: Rust Rd/R.W G4468/G4915

Attached is the processed information from the Notification of Operation/Application for Permit signed by Bethany Miller representing the Land Owner, and received by Department of Forestry on May 9, 2014. Please review this information and retain for future reference.

Notices and Permits

Notice is given to the State Forester that an operation will be conducted on the lands described herein.

A permit to use fire or operate power driven machinery is issued for the land described herein.

A notice is given to the State Forester and the Department of Revenue of the intent to harvest timber.

SF Comments:

Notification 15 Day Waiting Period:
This Operation is subject to the 15 day Waiting Period.

Operator:
South Valley Timberlands
Weyerhaeuser NR Company
P. O. Box 1819
Eugene, OR 97440-1819
(541) 744-4600

Fire Contact:
Bethany Miller
(541) 744-4683

Land Owner:
South Valley Timberlands
Weyerhaeuser Company
P.O. Box 1819
Eugene, OR 97440-1819
(541) 744-4600

Notice to Land Owner: If timber harvesting is part of the proposed operation, the party shown above, is responsible for reforestation of the site if so required.

Timber Owner:
South Valley Timberlands
Weyerhaeuser NR Company
P. O. Box 1819
Eugene, OR 97440-1819
(541) 744-4600

Notice to Timber Owner: If timber harvesting is part of the proposed operation, the party shown above, owning the timber at the point it is first measured is responsible for payment of Oregon timber taxes.

District: **Western Lane**

Office: **Veneta Unit**

County: **Lane**

(Subscriber Copy)

Doug Decker, State Forester
Link Smith, **District Forester**

Unit Information - Notification: 201478100527
Unit 1 of 1 Start: 05/27/14 End: 12/31/14
Status: Pending
Stewardship Forester: Robin L. Biesecker

Site Conditions Waters: Not Applicable.
Soils: No mass soil movement.
Slope: 36% to 65%.
SF Phone Number: (541)935-2283

Priorities: **Fire: High** **FPA: High**

			NE				NW				SW				SE				Government	Tax Lot	Reg
Twp	Rge	Sec	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	NE	NW	SW	SE	Lot Number	No.	Use
16S	07W	18	✔																		WT-1

Activity	Method	Acres	Feet	MBF	Comment
1b - Clear-Cut, Overstory Removal	Ground; Operation will utilize Cable retrieval; Other (explain)	24.00	0	1000	
3 - Reforestation Site Preparation	Mechanical application or operation	24.00	0	0	
6 - Treatment of Slash	Burning	34.00	0	0	
2a - Road Construction		0.00	1800	0	

Resource Name	Resource Description
Tributaries to Swamp Creek	Tributaries to Swamp Creek: Small Unknown

Great Blue Heron site

Subscribers: Jan Wroncy, NORTHWEST HARDWOODS

Weyerhaeuser

May 5, 2014

Robin Biesecker
87950 Territorial Hwy
Veneta, OR 97487
Stewardship Forester
Oregon Department of Forestry

Robin:

In order to meet the requirements of the Oregon Forest Practices Act, Section 629-623-0700, Weyerhaeuser submits the following written plan for operation with potential downslope public safety.

Operation: Timber Harvest (clear cut)

Unit Name: Rust Rd. (G4468)

Location: Section 7, Township 16 South, Range 7 West, Willamette Meridian

Notification Number: Submitted Concurrently

Written Plan Narrative: Due to potential public safety concerns, a Geotechnical Review was conducted to evaluate delivery potential to structures near Rust Road, downhill of the harvest unit, in accordance with ODF Technical Notes 2 and 6 (ODF, 2003a and 2003b). Please see submitted Geologic Field Report written by Susan Shaw, Weyerhaeuser geologist.

The review determined the Downslope Public-Safety Risk to be Moderate to Intermediate. To minimize the Downslope Public-Safety Risk, no harvest activity will occur in High Landslide Hazard Locations (HLHL). All HLHL have been flagged out and designated as leave tree areas. Please see attached Notification Map.

We are confident that with the help and cooperation of all parties, this plan will achieve the objectives of Oregon's Forest Practices Act. Please call me at 541-744-4683 with any questions.

Sincerely,

Bethany Miller
Engineer

Weyerhaeuser

Timberlands Technology – Environmental Forestry Research

Springfield Office
P.O. Box 275
Springfield, OR 97477
(541) 974-7805
Fax: (541) 988-0611
susan.shaw2@weyerhaeuser.com

TO: **Jill Fery**
Forest Engineer (South Valley Operations)

FROM: **Susan Shaw**
Geologist (Springfield)

RE: **Shallow Landslide and Public Safety Risk Assessment**
Rust Road unit (HPU 231068), Triangle Lake watershed

DATE: **March 19, 2013**

Overview:

This report summarizes the outcome of our public safety assessment for the proposed Rust Road unit (HPU 231068). This evaluation was performed in accordance with OAR 629-623, *Shallow, Rapidly Moving Landslides and Public Safety*, following guidance published in ODF Forest Practices Technical Note Number 2 (*High Landslide Hazard Locations, Shallow, Rapidly Moving Landslides and Public Safety: Screening and Practices*, Ver. 2.0, 1/1/2003) and Technical Note Number 6 (*Determination of Rapidly Moving Landslide Impact Rating*, Ver. 1.0, 9/1/2003). We also completed a slope-stability review of the proposed unit per internal Weyerhaeuser technical guidance (separate document).

HPU 231068 is located in western Lane County (Twp 16S, Rng 7W, sec. 18 NE ¼ of NE ¼) and is drained by two perennial, untyped streams that flow into Pontius Creek, a Medium Fish tributary to Swamp Creek in the Triangle Lake watershed. The approximately 23-acre unit contains steep slopes in the 60% to 80% range that are located upslope of Rust Road and two homes with assorted outbuildings (see Figure 1). Open slopes exceeding 75% and draws exceeding 65% would be classified as High Landslide Hazard Locations (HLHL) per OAR 629-623-0100 (a,b). The residences and outbuildings are public safety exposures per OAR 629-623-0200. Therefore, a geotechnical assessment of the site and a report are warranted.

On January 17, 2013, you and I traversed the unit from west to east, walking up the tributary drainage on the west side of the unit, cutting around the drainage initiation points on the north side of the unit, and following the tributary channel in the central part of the unit downslope to the road. We did not enter non-Weyerhaeuser private property for the analysis; however, we were able to evaluate structure location with respect to the channels from vantage points on the road and adjacent hillslopes.

Summary of Assessment:

Following the guidelines in ODF Technical Notes numbers 2 and 6, we established that the homes at 19321 and 19395 Rust Road are within the Further Review Areas for High Landslide Hazard Locations identified in HPU 231068. The Downslope Public Safety Risk level is considered Substantial for both homes and Low for Rust Road and outbuildings associated with the two residences. Consequently, harvest and new road construction would be restricted on slopes exceeding 65% in draws located upslope of both homes.

Geology and geomorphology:

The Rust Road unit is underlain principally by Quaternary alluvium [geologic unit **Qal**; data source: Oregon Geologic Data Compilation (OGDC-5) digital map produced by Oregon Department of Geology and Mineral Industries (DOGAMI, May 2009, variable scale 1:6000 – 1:500,000; available as a Weyerhaeuser Resource Management System (RMS) datalayer; see Figure 1.] River-transported sediments were deposited in a large lake formed during the Pleistocene Epoch by landslide blockage of the upper Siuslaw River in the vicinity of Lake Falls. Landslide damming caused water to back up in the upper valley, creating a massive, natural lake of which Triangle Lake is the remnant (see Figure 2). Sediment transported by rivers and landslides accumulated on the lake bottom and in embayments created at tributary mouths. HPU 231068 occupies one of these old embayments. The overall geometry of the Qal deposit suggests that it might have formed partially as an underwater delta (i.e., a lobe of sediment that grew out into the lake from an old river mouth). Slopes progressively steepen toward the south from the top of the lobe (i.e., ridge on the north side of the unit) toward its base (i.e., Rust Road), with the steeper slopes of the lobe located just upslope of the residences on Rust Road. Lake alluvium was deposited on top of Tyee Formation turbidites (**Tt**; submarine landslide deposits; see Figure 1), which have been exposed by weathering in the northwest and southeast corners of the unit. Since Tyee sandstones are present in the surface and subsurface, public safety rules pertaining to the Tyee Core Area apply to the unit (i.e., OAR 629-623-0100 (3)(a), (b)). Hence, HLHL are identified as open slopes exceeding 75% and draw slopes exceeding 65% for the purposes of this analysis.

Slopes within the unit generally appear to be stable except along steep sideslopes of the two tributary channels draining the unit and in steep slope depressions feeding these channels, where subsurface water concentrates and surface soils are saturated episodically during wetter times of the year. Sideslope slumping and surface erosion, some occurring recently judging from freshly exposed soils, were observed at various locations along the length of the channel forming the western unit boundary. Several sideslope slumps have occurred recently on the west side of the channel, just upslope of the water intake system (see Figure 1), and sediment has been delivered recently from erosion in the small feeder basin entering the channel a short distance upstream of the intake.

Old headwall failures and various generations of sideslope slumps have occurred along the tributary channel in the center of the unit. In addition, the residence at 19395 Rust Road has been built on a small debris fan formed at the mouth of the channel, which indicates the debris flows have occurred in this tributary during the past.

Shallow, Rapidly Moving Landslide Risk Assessment and Public Safety Risk Levels:

Following procedures outlined in ODF technical guidance, a public-safety risk assessment was conducted for HLHL found in the Rust Road unit. Public safety exposures are identified as (see Figure 1; also http://maps.lanecounty.org/LaneCountyMaps/viewer.htm and RMS data-layer):

1) residence located at 19321 Rust Road, owned by P. Thomas, Lane County tax lot 1607180000300; the main house is gray with a dark roof and has frontage parking located just off the county roadway;
2) residence at 19395 Rust Road, owned by S. Lindsey, tax lot 1607180000200;
3) assorted outbuildings at 19321 Rust Road, including one large storage barn or equipment shed located to the east of the house; another large barn complex is located to the west of the main house and is not considered in this analysis, as it is located downslope of the adjoining unit (HPU 231063) and outside the drainage catchments in the Rust Road unit;
4) assorted outbuildings at 19395 Rust Road; and,
5) Rust Road, a 1 to 1½ - lane, paved, county-maintained road.

Residences, listed as 1 through 4 above, are designated Exposure Category A per OAR 629-623-0200(2). Any associated outbuildings, including barns, detached garages, storage buildings, and pump houses are assigned Exposure Category C per OAR 629-623-0200(4). Rust Road qualifies as Category C public exposure per OAR 629-623-0200(4) ; traffic counts are less than 500 vehicles per day (see http://lcmaps.lanecounty.org/LaneCountyMaps/LCMaps.html?GroupName=LaneCountyMaps). Average Daily Traffic (ADT) is listed as 30 for the most recent year recorded, at a point on Rust Road just west of the junction between Swamp and Rust roads.

Public-Safety Exposure	Exposure Category
19321 Rust Road, residence	A
19395 Rust Road, residence	A
19321 Rust Road, outbuildings	C
19395 Rust Road, outbuildings	C
Rust Road	C

High Landslide Hazard Locations: High Landslide Hazard Locations (HLHL) are shown approximately as yellow and pink pixels in Figure 1 (from Weyerhaeuser RMS slope-class map; derived from USGS 10-m DEM data acquired by Weyerhaeuser; yellow pixels represent slopes with 60%-80% gradient and pink are slopes exceeding 80%). We verified gradients in the field that exceed 65% in draws and 75% on open slopes, per OAR 629-623-0100 (a,b). Note that slope classes in Figure 1 under-represent the true location and extent of steep slopes in the unit.

- We found discontinuous segments of slope exceeding 65% on sideslopes of the two channels draining the unit, as well as evidence of old slump headwalls in the upper reaches of the draw in the center of the unit. Note that the exact locations of slopes exceeding 65% need to be mapped using field measurements.
- Short, isolated slope segments exceeding 75% were also found in the southeastern corner of the unit upslope of Rust Road. These slopes meet the open-slope criterion for HLHL.

Further Review Areas (FRA): The following table shows the identified public-safety exposures downslope of the Rust Road unit according to whether they fall inside or outside the Further Review Area:

Public-Safety Exposure	Exposure Category	Inside FRA?
19321 Rust Road, residence	A	Yes
19395 Rust Road, residence	A	Yes
19321 Rust Road, outbuildings	C	Yes
19395 Rust Road, outbuildings	C	Yes
Rust Road	C	Yes

FRA designations were determined using criteria established in ODF Technical Note Number 2 (page 6), as follows:

1) The residence and affected outbuildings at 19321 Rust Road lie inside the FRA for HLHL in HPU 231068 that are located upstream in the tributary basin draining the west side of the unit. The residence is located approximately 80 ft. (SD) from the active channel margin and the channel gradient exceeds 6% for most, if not all, of its reach directly adjacent to and upstream of the house. The storage building to the east of the house is adjacent to the channel. The house and storage building also appear to occupy a low-relief debris fan at the channel mouth, although substantial grading and clearing for development have disturbed the site considerably.
2) The presence of a debris fan at the site of 19395 Rust Road automatically extends the Further Review Area to the south side of Rust Road (i.e., the downslope edge of the debris fan), according to ODF Technical Note 2 guidelines (see Part B, p. 6). Hence, the house and outbuildings are within the FRA for HLHL within the tributary basin in the center of the unit.
3) Rust Road lies within the FRA for HLHL in the two tributary basins draining the unit, as well as open slopes exceeding 75% in the southeast corner of the unit. The road cuts across debris fans at the base of both tributary channels and the open-slope criterion (i.e., slopes dropping below 40% for greater than 100 ft.) is not met.
4) The slope class map indicates that there might be open slopes in the 60% to 80% range directly upslope of the storage building located to the east of the residence at 19321 Rust Road, as well as to the northeast of the residence at 19395 Rust Road. We did not measure any open slopes exceeding 75% in these areas; however, we did not do a systematic evaluation, so it is recommended that these areas be rechecked while layout out the unit.

Impact Ratings: The following table shows impact ratings based on an assessment of the potential for future debris flows and shallow landslides to "directly impact a structure or road" (ODF Technical Note Number 6, ver. 1.0, 2003, p. 4).

Public-Safety Exposure	Exposure Category	Impact Rating
19321 Rust Road, residence	**A**	**Serious**
19395 Rust Road, residence	**A**	**Serious**
19321 Rust Road, outbuildings	**C**	**Serious**
19395 Rust Road, outbuildings	**C**	**Serious**
Rust Road	**C**	**Serious**

These public safety exposures have been assigned a "Serious" impact rating because there is the potential for debris avalanches or flows initiated within the tributary basins and the southeast corner of the unit to "directly impact the structure or road" (ODF Technical Note Number 2, page 8).

1) In terms of relative susceptibility, the home at 19395 Rust Road would be most directly impacted by debris flows initiated within the unit. The channel reach upstream of the debris fan on which the house was constructed is steep (i.e., exceeding 10%), tightly confined, and has been eroded to bedrock in places with substantial volumes of debris, including boulders, still stored in the channel. The house is directly aligned with the trend of the channel. Sideslopes within 200 ft. (SD) of the house show signs of recent surface sloughing (i.e., soil layers sliding into the channel), and there are several groundwater seepage areas exposed on the sideslopes that show some signs of slope movement in the past (i.e., hummocky ground, hardwood-dominated stands with a few pistol-butted trees). At least four old headwalls are present in the upper basin, one located near the

initiation point of the western tributary fork and coincident with the BLM 16-7-7.1 road, another located on the same drainage downslope of the road, a third and fourth located near the initiation points of the eastern tributary fork and near the BLM road (see arrows in Figure 1). These old headwalls predate the original harvest, based on presence of in-situ large stumps, and likely represent episodic failures associated with changes in groundwater flow potentially along the geologic contact between the alluvium and Tyee sandstones. More recent surficial mass movement and erosion have occurred on the face of these old features, potentially associated with root tip, groundwater flow, and channel undermining.

2) The residence at 19395 Rust Road is less exposed to potential debris flows than its neighbor, because it is offset from the western tributary channel by nearly 100 ft. In addition, the channel is less steep and confined just upstream of the structures. A direct impact of a potential debris flow to the home and storage building, however, cannot be ruled out entirely.
3) The short, isolated segments of open slope exceeding 75% in the southeast corner of the unit are perched fairly close to Rust Road. The potential is fairly low for a debris avalanche to directly hit the road; however, it cannot be ruled out entirely.

Downslope Public Safety Risk: According to Table 1 in the ODF Technical Note Number 2 (p. 8), the following Downslope Public-Safety Risk (DPSR) calls would be assigned:

Public-Safety Exposure	Exposure Category	Impact Rating	DPSR
19321 Rust Road, residence	A	Serious	Substantial
19395 Rust Road, residence	A	Serious	Substantial
19321 Rust Road, outbuildings	C	Serious	Low
19395 Rust Road, outbuildings	C	Serious	Low
Rust Road	C	Serious	Low

According to ODF guidance, DPSR associated with the residences takes precedence over the road or outbuildings because of their higher rating (i.e., Substantial vs. Low). Therefore, rules pertaining to Substantial ratings apply to all slopes exceeding 65% in the tributary basins draining the unit. OAR 623-0400 states that operators shall not remove trees from HLHL with Substantial DPSR. In addition, OAR 623-0450(2) states that operators may reconstruct existing roads (e.g., rebuild partial bench roads) in HLHL with a written plan that demonstrates that "road reconstruction will reduce landslide hazard" and when construction work is overseen by a geotechnical specialist.

In the field, we discussed options for protecting steep (exceeding 65%) sections of stream-adjacent slopes upstream from the residential properties to the headwalls on both tributaries in the unit, or to the northern unit boundary, whichever comes first. Open-slope segments exceeding 75% that are longer than 10-20 ft. were not identified in the field. We did not systematically sample open slopes in the southern end of the unit, however, and it is recommended that gradients on open slopes be consistently evaluated during unit layout.

Conclusion:

Following the guidelines in ODF Technical Note Number 2, we established that Rust Road and two residences with assorted outbuildings (i.e., structures at 19321 and 19395 Rust Road) lie inside the Further Review Areas for High Landslide Hazard Locations identified in the proposed harvest unit. The two residences have a Substantial rating for Downslope Public Safety Risk, whereas the associated outbuildings

and the county road have a Low risk rating. According to the rules, timber harvest and road construction would be restricted on slopes exceeding 65% in the two tributary basins draining the unit. The homes are located on old debris fans at near the mouths of these channels and potentially could be impacted directly by debris flows emanating from these basins.

Limitations:

This report was prepared for use by Weyerhaeuser Company in the determination of public safety risk associated with shallow, rapid landslides occurring in HPU 231068 and its proposed extensions. Slope-stability interpretations and conclusions are based on a field reconnaissance of the sites referenced in this report and review of available information (i.e., aerial photos, geologic and topographic information), which were performed in a manner consistent with similar investigations done by other qualified professionals. The areas visited in the field have been identified, and the observations indicate surface conditions only at those specific locations. No subsurface data were collected during this investigation.

If, during final lay-out of HPU 231068, conditions are found that differ significantly from those described in this report, please alert me as soon as possible so that my interpretations and recommendations can be reviewed and revised, if necessary. I cannot be responsible for construction or forest management activity on other sites that neighbor or adjoin the areas referenced in this report. This report is not intended for use by other parties should any Weyerhaeuser Company property be sold, and I cannot be responsible for any activities on this property carried out by any persons following sale or transfer of the property by Weyerhaeuser Company.

Please contact me if you have questions. Thank you.

Susan C. Shaw
Ph.D., L.E.G. (WA 1101), R.G. (OR G2237)
Geologist
Weyerhaeuser Company
Western Timberlands Environmental Forestry Research
P.O. Box 275
Springfield, OR 97477
Ph: (541) 974-7805

County: Lane
Watershed: Siuslaw
FPA District: W Lane
Elevation: 983

Weyerhaeuser

	Degrees	Minutes	Seconds
Latitude	44	11	13.159
Longitude	123	34	28.691

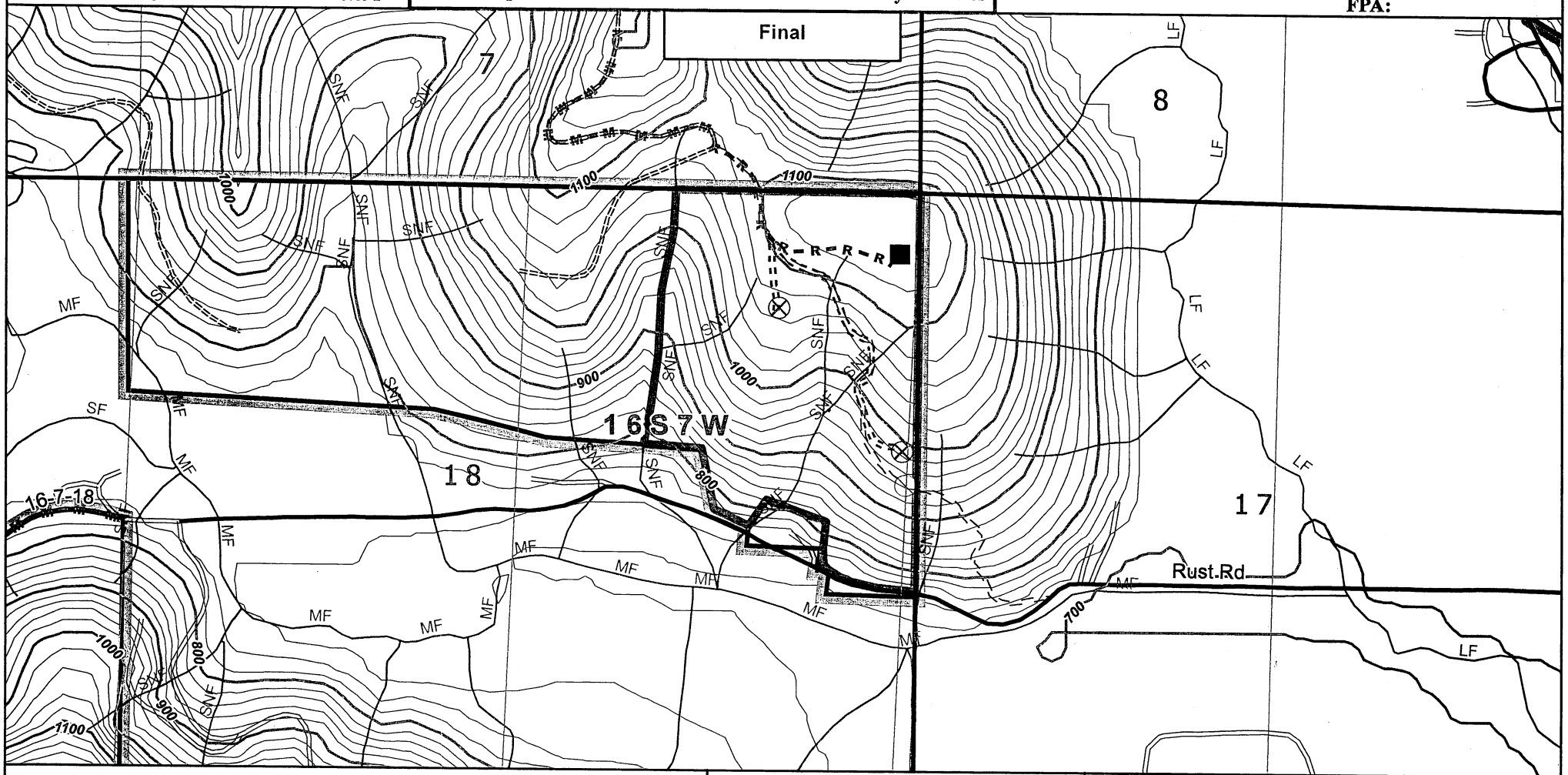
Emergency Route

From Hwy 36 turn West to Rust Rd. at the end of the pavement, continue up the BLM rd 16-7-18 and 16-7-7.1 for nearly 2.5 miles

South Valley
R/W Map
Rust Road
18-16S-7W

Setting: G4468
R/W#: G4915
HPU: 231068
Harv.Yr.: 2014
FPA:

Final



Corner
Culvert
Lat/Long Pt.
Road Block
Gate
Landing
Loggers Choice
Wildlife Tree
Water System

End of Fish
Stream
S/M/L Small/Medium/Large
F/NF Fish/Non-Fish
Intermittent
Domestic Use Stream Segment
Domestic/Municipal Water Line

Bridge
Rock Pit
Tail Tree
Spoil Area
Overhead Utility
Underground Utility

Weyerhaeuser Ownership

Engineered Roads
New Construction
M – M Maintenance
R – R Reconstruction
L – L Loggers Choice
T – T Temporary
X – X Abandon

Existing Roads
Street/Highway
Mainline
Gravel
Dirt
Undriveable

	Stations
Timbered R/W	12.0
Total Rock Sta	0
Total Grade Sta	18.2
Capital Grade	0
Expense Grade	18.2
Capital Rock	0
Expense Rock	0
Maintenance	125

Notify Engineer if survey corner is disturbed

Construction Notes:
1. Centerline marked with red & white ribbons
2. Cut 60' wide right of way
3. Construct 18' wide subgrade
4. Install all necessary x-drains
5. Construct turnarounds and landings as indicated

Creator: BETHANY

0 500
1 inch = 500 feet

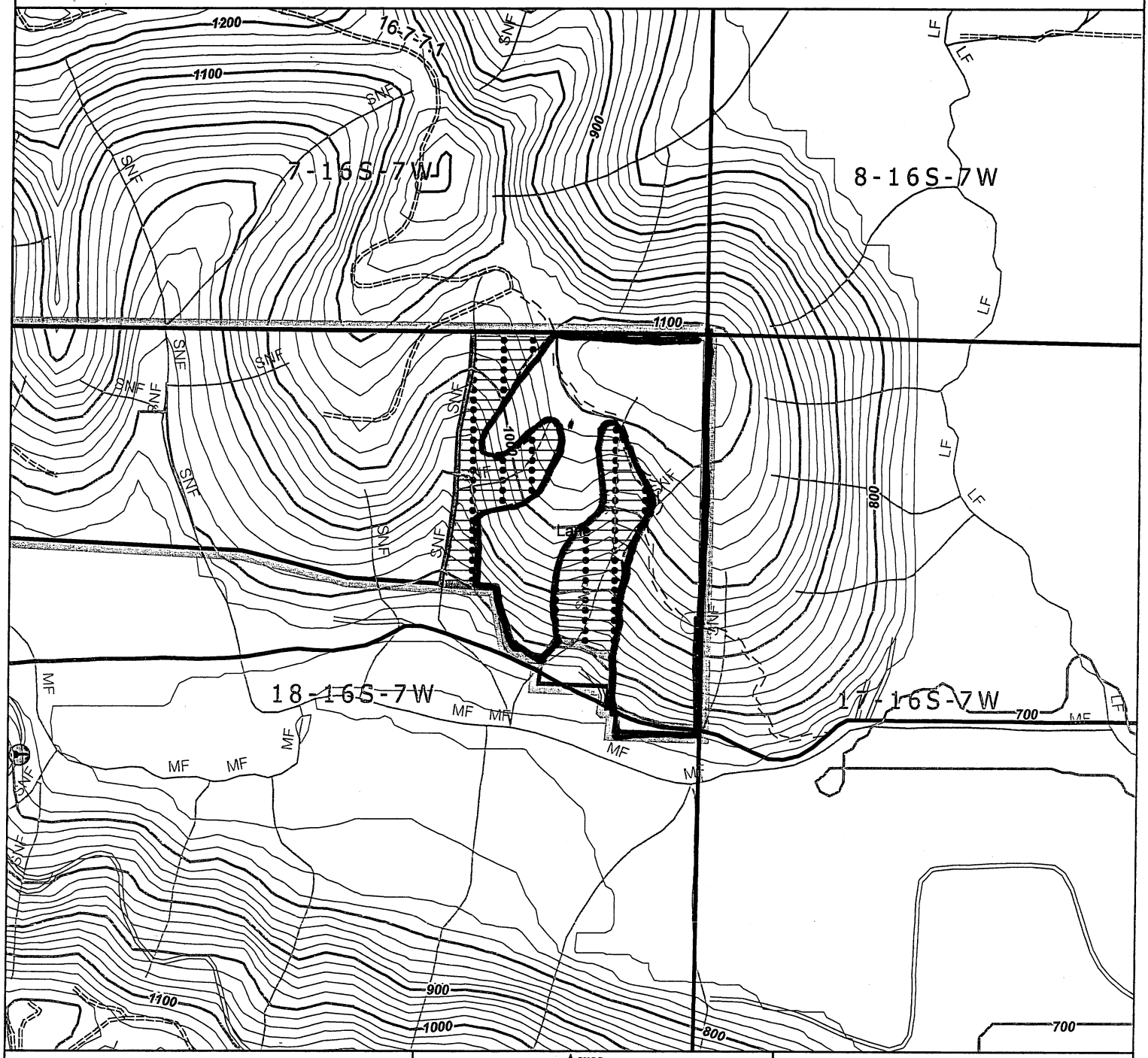
Printed DATE: 5/8/2014

Weyerhaeuser

South Valley
Setting Map
Rust Road
18-16S-7W

Setting: G4468
HPU: 231068
Harv.Yr.: 2014
FPA:

Public



Corner	End of Fish
Culvert	Stream
Lat/Long Pt.	S/M/L Small/Medium/Large
Road Block	F/NF Fish/Non-Fish
Gate	Intermittent
Landing	Domestic Use Stream Segment
Loggers Choice	Domestic/Municipal Water Line
Wildlife Tree	Overhead Utility
Water System	Underground Utility
Bridge	Weyerhaeuser Ownership
Rock Pit	
Tail Tree	
Spoil Area	

Engineered Roads
- New Construction
- M = M Maintenance
- R = R Reconstruction
- L = L Loggers Choice
- T = T Temporary
- X = X Abandon

Existing Roads
- Street/Highway
- Paved
- Gravel
- Dirt
- Undriveable

	Acres
Unit Boundary	22.7
LTA	6.9
RMA	0
Non-Forested	0
Existing R/W	0
New R/W	1.4
Net Harvestable	

FPA Acres 22.8

County: Lane
Watershed: Siuslaw
FPA District: W Lane
Elevation: 983

	Degrees	Minutes	Seconds
Lat	44	11	13.159
Long	123	34	28.691

0 — 500
1 inch = 500 feet

Contour Interval: 20 feet

Creator: BETHANY **DATE:5/5/2014**

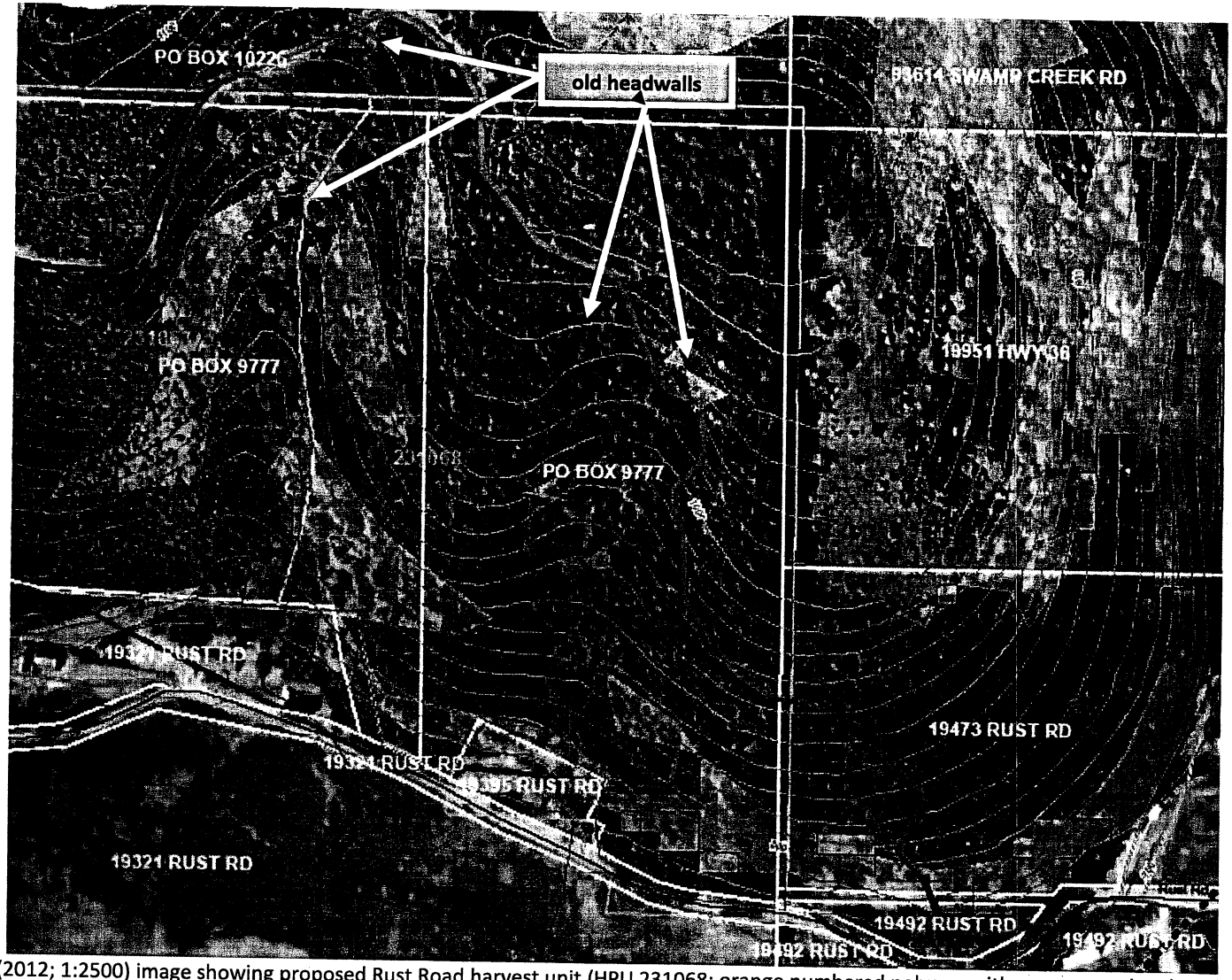


Figure 1. NAIP (2012; 1:2500) image showing proposed Rust Road harvest unit (HPU 231068; orange numbered polygon with orange numbers). Yellow pixels denote slopes with 60% to 80% gradient; pink with gradients exceeding 80% (USGS-DEM derived). Geologic units are shown with red polygons (thick lines) and lettering (**Tt** = Tertiary Tyee Formation turbidites; **Qal** = Quaternary alluvium). Magenta line shows route of the BLM 16-7-7.1 road through the unit. White polygons show property boundaries with respective addresses. Blue dots indicate approximate locations of water intake systems for downstream residences and thin red lines show [inaccurate] locations of untyped channels draining the unit. Contour interval 20 ft.

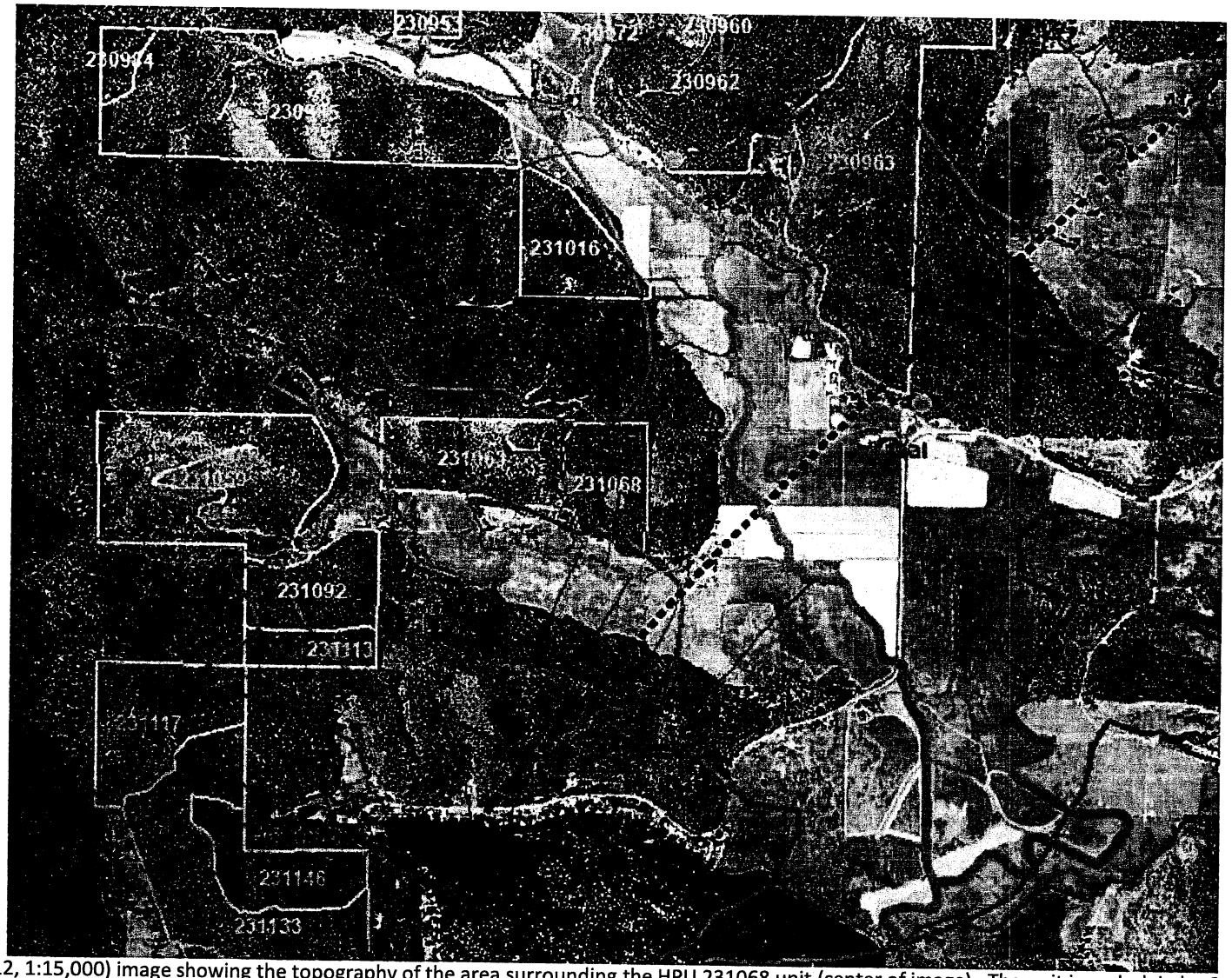


Figure 2. NAIP (2012, 1:15,000) image showing the topography of the area surrounding the HPU 231068 unit (center of image). The unit is underlain by Quaternary alluvium (**Qal**) deposited in a landslide-dammed lake that filled the upper Siuslaw drainage and created the broad, flat valleys that are now prime agricultural sites. Triangle Lake (lower center of image) is a remnant of this Pleistocene lake. Weathering and erosion have exposed underlying Tyee Formation turbidites (**Tt**) in the NW and SE corners of the unit and surrounding areas. The black dotted line defines the axis of a large fold or trough in the bedrock layers.