



**Lewis County Short Line Railroad Feasibility:
Environmental Study**

Lewis and Thurston Counties, Washington

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October 2015

SIGNATURE PAGE

The information and data in this report were compiled and prepared under the supervision and direction of the undersigned.



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Introduction

Ecological Land Services, Inc. (ELS) was contracted by Tangent Services, Inc. to perform an environmental feasibility assessment for the potential purchase of an approximately 19-mile section of railway track by Lewis County (County). The track, which is currently operated by Western Washington Railroad, LLC (WWR), extends from Maytown in Thurston County to the end of the track at Chehalis in Lewis County and is primarily used for railcar storage.

ELS conducted field work, reviewed state and federal database listings of nearby sites through purchasing a report from Environmental Data Resources (EDR), and analyzed aerial imagery. This report relies on information contained in the EDR report, National Wetlands Inventory (NWI), and Washington Department of Natural Resources (WADNR) and should in no way be considered a Phase I Environmental Site Assessment as outlined in American Society for Testing and Materials (ASTM) E1527. If the client wishes to determine potential risks to human health and the environment from the various sites located along the railway, a formal Phase I or Phase II will need to be conducted. Existing conditions of the culverts and stream crossings are considered in this report, along with wetlands and mitigation potential.

A field reconnaissance was conducted on July 29, 2015 to assess critical areas within the parcels included in the purchase, bridge crossings, and the condition of existing culverts. In addition to the field reconnaissance, an environmental corridor study report was purchased from EDR which includes government records of hazardous sites within a 1-mile radius of the WWR. This report includes general findings from the EDR corridor study, field reconnaissance, and review of NWI and WADNR stream maps. This report also includes an analysis of wetland mitigation banking potential should the site prove unfavorable for continued active railway use.

EDR Corridor Study Review

An environmental corridor study report was purchased from EDR. The EDR corridor study collected information from regulatory databases. The EDR report mapped a total of 154 locations within a 1-mile radius of the track that contains sites that are recognized by several government and/or state agencies as potentially toxic or otherwise hazardous.

ELS reviewed the EDR report and produced the list below naming 17 different sites that are within 500ft radius of the track with potential to have contaminants that may have extended onto the WWR property (Figures 1 and 2). This report does not address the environmental risk that these sites present to WWR. Additional study, including Phase 1 and Phase 2 Environment Risk Assessments are needed to comprehensively determine risk to human health and the environment as well as responsible parties. ELS discusses the potential of soil or groundwater contamination from sources on adjacent properties in the site descriptions below. For rationale and explanation, ELS used the EDR report listing descriptions, the Department of Ecology (Ecology) Toxics Cleanup Program Web Reporting, and Leaking Underground Storage Tank (LUST) Web Reporting. Further information on the government and state agencies included below can be found within the EDR report. The list below presents sites from the EDR report that may have unresolved contamination and could cause issues if the owner of WWR wanted to disturb the soils for any reason. These issues could include partial responsibility in cleanup if decided by the agencies. Additional management for soil and groundwater contamination could add costs to future track improvement projects.

The EDR Map ID shown next to each site below is labeled on both the EDR map in Appendix A and on the ELS figures. The EDR Map ID is not unique to each site. Since some sites are close together, EDR assigned multiple sites to the same Map ID in their report.

EDR Map ID: 5 Tri State Motor Transit Company (2407 Maytown Road SW, Olympia)

This site is located approximately 120 feet south of the WWR and is listed in the UST, RCRA-NonGen/NLR, FINDS, ALLSITES, and MANIFEST databases. The UST listing appears to be related to one active UST at the site (contents not indicated). The site is not listed on the LUST database or within the toxics cleanup program through Ecology's online database which, if listed, would indicate that a release of hazardous materials and/or petroleum products had occurred. There is potential for an undocumented/future release of contaminants to occur at this facility and migrate towards the WWR.

EDR Map ID: 8 Ritchie Brothers Auctioneers (3321 Maytown Road SW, Olympia)

This site is located approximately 120 feet south of the WWR and is listed in the UST, RCRA-NonGen/NLR, FINDS, ALLSITES, and NPDES databases. The UST listing appears to be related to one active UST that is located at this property; the size and possible contents of the UST were not indicated in the radius report. This facility is not listed on the LUST database or in the toxics cleanup program through the Ecology online database. A listing would indicate a release of hazardous materials and/or petroleum products had occurred. There is the potential for an undocumented/future release of contaminants to occur at this facility and migrate towards the WWR.

EDR Map ID: 9 13232 Case Road SW, Olympia

This site adjoins the WWR to the south and is listed in the Historical Auto Station database for a mobile repair facility that operated in 2008. The site is not listed on the LUST database or within the toxics cleanup program through Ecology's online database which, if listed, would indicate that a release of hazardous materials and/or petroleum products had occurred; however, there is the potential for an undocumented/future release of contaminants to occur at this facility and migrate towards the WWR.

EDR Map ID: 29 Grand Mound Shell (19704 Old Highway 99, Rochester)

This site is located approximately 340 feet west of the WWR and is listed in the UST, Historical Auto Station, and ALLSITES database. The UST listing appears to be related to three active USTs containing petroleum product. The site is not listed on the LUST database or within the toxics cleanup program through Ecology's online database. A listing would indicate a release of hazardous materials and/or petroleum products had occurred. There is the potential for an undocumented/future release of contaminants to occur at this facility and migrate towards the rail line.

EDR Map ID: 31 WA DOT I5 Milepost 87.5 (Rochester)

This area is located approximately 350 feet east of the WWR and is listed in the CSCSL and ALLSITES databases. According to the EDR report, the soil in this area has been contaminated by a release of petroleum product and is awaiting cleanup. Groundwater contamination is not noted. If groundwater contamination is found during further investigation/the cleanup of this release, there is the potential for contaminants to have migrated towards the WWR.

EDR Map ID: 34 End of the Trail #3 (20330 Old Highway 99, Rochester)

This site adjoins the WWR to the south and is listed in the UST database for four operating USTs associated with the current gas station operation. This site is not listed on the LUST database or within the toxics cleanup program through the Ecology online database which, if listed, would indicate that a release of hazardous materials and/or petroleum products had occurred; however, there is the potential for an undocumented/future release of contaminants to occur at this facility and migrate towards the WWR.

EDR Map ID: 53 Wood Products Div Wayne Dalton Corp/Pozzolonc Northwest (2001 Industrial Road/1720 Lum Road, Centralia)

This site adjoins the rail line to the west and is listed on the SPILLS, UST, ALLSITES, MANIFEST, NPDES, RCRA NonGen/NLR, and FINDS databases. According to the EDR report, the SPILLS listing appears to be related to a release of transformer oil and another unknown contaminant. Impacts to soil and/or groundwater were not noted; further information, including the method of cleanup, regarding the released oil was also unnoted. Based on the nature of this facility and location relative to the WWR, there is the potential for a future release of contaminants to occur and migrate towards the WWR.

EDR Map ID: 77 Weyerhaeuser Centralia Property (900 Block of West Main Street, Centralia)

The 900 Block of West Main Street currently has one building located on the northeast corner with the WWR traversing northwest-southeast through the central portion of the block. This block is listed in the Confirmed and Suspected Contaminated Sites (CSCSL), ALLSITES, Facility Index System (FINDS), and hazardous site list (HSL) databases. Review of the site details available through Ecology's online database indicates that soil on this block has been contaminated by a release of petroleum products and metals. Contamination of groundwater has not been confirmed; however, water contamination is suspected. This site is currently awaiting cleanup. No further information on the documented releases is available through regulatory review or Ecology's online database. Due to the lack of information for this release and the unknown location of where it occurred on this block, contaminants may potentially extend onto the WWR property. Further investigation is needed to determine environmental risk for the purchase.

EDR Map ID: 78 816 West Main Street, Centralia

This site is located approximately 215 feet east of the WWR and is listed in the Historical Cleaners database for a dry cleaner that operated from approximately 2003-2008. This facility is not listed on the LUST database or within the toxics cleanup program through Ecology's online database which, if listed, would indicate that a release of hazardous materials and/or petroleum products had occurred; however, there is the potential for an undocumented/future release of contaminants to occur at this facility and migrate towards the WWR.

EDR Map ID: 121 1101 N National Ave, Chehalis

This site is located approximately 240 feet east of the WWR and is listed in the Historical Auto Station database for an auto facility that operated in 2003 and 2008. The site is not listed on the LUST database or within the toxics cleanup program through Ecology's online database which, if listed, would indicate that a release of hazardous materials and/or petroleum products had occurred; however, there is the potential for an undocumented/future release (if the auto facility is still in operation at this location) of contaminants to occur at this facility and migrate towards the WWR.

EDR Map ID: 124 1095 NW State Avenue, Chehalis

This site is located approximately 280 feet west of the WWR and is listed in the Historical Auto Station, RCRA NonGen/NLR, and ALLSITES databases. The Historical Auto Station listing appears to be related to an auto and muffler facility that operated in approximately 2001, 2003, 2004, 2007, 2010, 2011, and 2012. The site is not listed on the LUST database or within the toxics cleanup program through Ecology's online database which, if listed, would indicate that a release of hazardous materials and/or petroleum products had occurred; however, there is the potential for an undocumented/future release (if the auto facility is still in operation at this location) of contaminants to occur and migrate towards the WWR.

EDR Map ID: 130 799 National Avenue, Chehalis

This facility is located approximately 150 feet east of the rail line and is listed in the UST, LUST, CSCSL, RCRA NonGen/NLR, FINDS, ALLSITES, MANIFEST, and NPDES databases. The site is identified with one decommissioned UST that formerly contained petroleum. According to the database report, it appears that the LUST and CSCSL listings are associated with a release of petroleum product from the UST. Review of Ecology's online LUST database indicates that soil was contaminated by this release and is awaiting cleanup. No further information on the documented releases is available through regulatory review or Ecology's online database. Further investigation is needed to determine environmental risk for the purchase.

EDR Map ID: 132 Kaijas Inc. (623 NW State Avenue, Chehalis)

This site is located approximately 70 feet west of the WWR and is listed on the UST, LUST, CSCSL, ICR, and ALLSITES databases. According to the EDR report, it appears that the LUST and CSCSL listings are associated to a release of petroleum product from the UST. Review of Ecology's online LUST database indicates that the soil and groundwater have been contaminated by the release of petroleum and are awaiting cleanup. Due to the lack of information for this release and unknown extent of contamination, there is the potential for contaminants to have extended onto the WWR. Further investigation is needed to determine environmental risk for the purchase.

EDR Map ID: 142 Grange Supply Chehalis Cenex (201 NW State Avenue, Chehalis)

This site adjoins the WWR to the east and is listed in the CSCSL, HSL, and ALLSITES databases. Review of the EDR report indicates that the listings are associated with contaminated soil and groundwater due to a release of petroleum. Cleanup has reportedly begun; however, due to the lack of information for this release and unknown extent of contamination, there is the potential for contaminants to extend onto the WWR property. Further investigation is needed to determine environmental risk for the purchase.

EDR Map ID: 142 Cenex Harvest States Cooperative (153 NW State Street, Chehalis)

This site adjoins the WWR to the east and is listed in the underground storage tank (UST), LUST, CSCSL, and ALLSITES databases. Review of the EDR report indicates that this site is listed with over six decommissioned USTs that formerly contained petroleum product. It is not noted whether there are USTs still in operation at this facility. The remaining listings appear to be associated with contaminated soil at this site due to a release of petroleum. This site is currently awaiting cleanup. Due to the lack of information for this release and unknown extent of contamination, there is the potential for contaminants to have extended onto the WWR. Further investigation is needed to determine environmental risk for the purchase.

EDR Map ID: 142 Convenience Retailers 3830 (614 W Main Street, Chehalis)

This site adjoins the WWR to the east and is listed in the UST, LUST, CSCSL, wastewater permits (NPDES), resource conservation and recovery act (RCRA) non generator/no longer regulated (NonGen/NLR), FINDS, ICR, and ALLSITES databases. Review of the EDR report indicates that this facility is listed with six decommissioned USTs and three operating USTs that contain(ed) petroleum product. Soil and groundwater have been contaminated from a release of petroleum product and are awaiting cleanup. Due to the lack of information for this release and unknown extent of contamination, there is the potential for contaminants to have extended onto the WWR property. Further investigation is needed to determine environmental risk for the purchase.

EDR Map ID: 142 Chehalis Shell (644 W Main Street, Chehalis)

This site adjoins the WWR to the east and is listed in the UST, LUST, CSCSL, and ALLSITES databases. Review of the EDR report indicates that this facility is listed with five decommissioned USTs that formerly contained petroleum product. It is not noted whether or not other USTs are still in operation. The soil and groundwater at this site have been contaminated from a release of petroleum product. Cleanup has reportedly begun; however, due to the lack of information for this release and unknown extent of contamination, there is the potential for contaminants to have extended onto the WWR property. Further investigation is needed to determine environmental risk for the purchase.

The remaining facilities listed in the EDR report are either outside of the 500ft radius or were not listed on databases signifying unresolved reporting or status.

Field Reconnaissance Methods and Findings

WWR provided a hi-rail truck and driver to navigate and guide ELS on the 19 miles of railroad on July 29, 2015. ELS documented all stream crossings and culverts viewed from the hi-rail truck. Additionally, approximate locations of sensitive habitats, such as Oregon white oak (*Quercus garryana*) stands, and wetlands, and evidence of beaver activity were documented. ELS took pictures from the ground at each stream crossing and at each culvert observed. The existing 1976 track profile and an adapted version of the track profile (designed by Tangent Services) were used to document culverts in the field. The 1976 track profile labels 33 culverts of various types; 26 concrete pipe culverts, four vitrified pipes, two cast iron pipe culverts, and one "CUL" either signifying a timber culvert or a concrete culvert. Of the estimated 33 existing culverts of various types on the railroad, 12 are in Lewis County and 22 in Thurston County. Only five culverts were located, observed, and documented during the field reconnaissance (Photoplates 1-5). Other culverts are assumed to be present, from the 1976 track profile, but could not be found due to dense vegetation. Dense vegetation along the track commonly consisted of invasive species such as reed canary grass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus arminiacus*) with patches of scotch broom (*Cytisus scoparius*). The forested portions of the track contained the above mentioned invasive species as understory with Douglas Fir (*Pseudotsuga menziesii*), Sitka spruce (*Picea sitchensis*), and patches of deciduous trees such as big leaf maple (*Acer macrophyllum*), red alder (*Alnus rubra*), and Oregon Ash (*Fraxinus latifolia*). Forested portions that were not dominated by invasive species in the understory contained red elderberry (*Sambucus racemosa*) and red osier dogwood (*Cornus sericea*). Patches of Oregon white oak were observed around Blakeslee Junction.

Of the five culverts observed, one of the culverts, found at Mile Post (MP) 58.6, matches the "concrete pipe culvert" descriptions of the majority of the culverts on the 1976 track profile (Photoplate 2). ELS is

only aware of one culvert replacement since the 1976 track profile was drawn,¹ and therefore assumes the condition of the remaining cement culverts along the railroad to be similar in condition to the concrete culvert found at MP 58.6. The concrete culvert at MP 58.6 is in good condition structurally. It was clogged with vegetation on both ends and had a boulder partially blocking the west end (Photoplate 2).

Maintenance will be needed where beaver activity was observed due to animal’s ability to constantly change water flows in an area. Beaver can clog culverts and other stream crossings, increasing water depths, and changing flow directions. Beaver activity was observed north of Scatter Creek near each of the Beaver Creek crossings. Ponded water was abutting the track ballast near MP 51.7 where beaver activity was most apparent.

Imagery Review

Culverts and Streams

WADNR maps streams crossing the track in multiple locations. Known crossings are at bridge locations (Table 1), other crossings are assumed to have culverts, but could not be confirmed during the field reconnaissance. WADNR stream types are defined as Shoreline (S), Fish Bearing (F), Non-Fish Bearing (N), and Unknown (U). Shoreline and Fish stream types both include streams with enough water flow and potential habitat to be considered fish bearing.

Table 1. Bridge Stream Crossings

Bridge Crossing	WADNR Stream Type
Dillenbaugh Creek	N
Salzer Creek	S
China Creek	F
Skookumchuck River	S
Prairie Creek	F
Scatter Creek	S
Beaver Creek	S
Beaver Creek	S
Beaver Creek	S

In addition to the above table listing streams, there are nine Type F streams, two Type N streams, and nine Type U streams mapped by WADNR that do not have known culverts or bridges. Most of these stream crossings are mapped between MP 50 and 53 and MP 58 and 62. Between MP 58 and MP 62 water was noted crossing the tracks with vegetation and soil present within the tracks (Photoplate 6). It is unknown if culverts currently exist in this area, if so, they will require high priority maintenance.

Wetlands

ELS examined NWI maps in addition to WADNR stream maps to estimate critical areas that may cross the track or present additional maintenance costs. The wetlands found to cross the track from aerial imagery and NWI analysis are dominantly forest/scrub-shrub wetlands with some presence of freshwater emergent wetlands (Figures 1A and 1B). Further NWI analysis determined 4.68 miles of

¹ Located at MP 61.5 north of the Skookumchuck River.

forested/scrub-shrub wetlands and 0.35 miles of freshwater emergent wetlands are mapped as crossing the track within the proposed purchase area.

ELS confirmed the general presence of these types of wetlands along the track, but did not perform any field mapping of wetlands adjacent to the track. The NWI analysis in combination with the field reconnaissance provides information regarding the possible risks posed to future maintenance by wetland presence along the track. With over five miles of wetlands mapped along the track, and wetlands observed by staff during the hi-rail tour, the need for maintenance of the track line due to water/wetlands can safely be assumed. Maintenance may be in the form of clearing existing ditches and culverts to reduce seasonally high water crossing over the tracks.

Wetland and Habitat Mitigation Banking Opportunity

Environmental risk in this report has mainly discussed existing conditions of the track and possible contamination from nearby sites. The risk involved in ownership of the rail line could also include the removal of the rail line if economic pursuits to keep the line active are not successful. ELS evaluated the potential of using the rail corridor as a mitigation bank.

It is estimated, based on NWI mapping, that the rail line crosses through 0.35 miles off freshwater emergent wetlands and 4.68 forested/scrub shrub wetlands. This is a total of 5.03 miles, and assuming an average rail ballast fill width of 50 feet, there are just over 30 acres of existing historic fill in jurisdictional waters and wetlands of the United States. These acres of existing wetland fill, if removed from the wetlands and waters it now occupies, offers an opportunity to restore wetlands/waters through a mitigation banking approach in compliance with the 2008 Federal Rule 33 CFR Part 332, Compensatory Mitigation for Losses of Aquatic Resources (Federal Rule). This brief analysis considers the option, if the rail line could not be maintained economically for its intended use, or some other linear transportation use such as public trails, of converting most or all of the rail line into wetland and/or habitat mitigation bank.

According to the Federal Rule, mitigation bank credits are obtained from a site or suite of sites where resources are restored, established, enhanced, and/or preserved by a bank sponsor, or proposer for the bank. In general, a mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. The operation and use of a mitigation bank is through a mitigation banking instrument (MBI) which outlines the service area of the bank, the work or functional improvement proposed, the credits to be generated and their release schedule, maintenance, monitoring, financial assurances, and long term stewardship among other details. Mitigation banks must be proposed, reviewed and permitted through a process managed by an Interagency Review Team (IRT) consisting of the Corps of Engineers, Washington State Department of Ecology, and other local, state, and federal agencies.

Considered in this analysis are the potential of using the 19 miles of track in this feasibility study as a certified mitigation bank. ELS considered potential credits/revenues along with likely costs for construction, wetland and habitat restoration, maintenance and monitoring, and permitting and entitlements. Credit demand was not analyzed here as more in-depth study would be required to ascertain whether sufficient wetland/water impact projects exist in a conceptual service area to support credit purchases from the bank.

Credit Generation

Given that the NWI mapping typically underestimates the actual amount of wetlands on the ground, it is reasonable to assume an additional 10 to 20 acres of present, but un-mapped, fill in wetlands within the rail corridor. For this analysis ELS is assuming on the low side, 30 acres of wetlands and on the high side, 45 acres of wetlands. Credit generation for a bank is typically negotiated with the IRT after consideration of a myriad of aspects of the proposed bank. For a base assumption, ELS is assuming that each acre of restored wetland generates one bank credit. Thus, this bank would generate 30-45 credits. Restored wetland in this case assumes that all railroad infrastructure, including rail, ties, fill, culverts and trestles, would be removed and the area restored to wetlands with appropriate seeding/planting, maintenance and monitoring. Credits are awarded by the IRT to the bank sponsor over the establishment period of the bank (typically 10 years) based on performance, such as wetlands restored, vegetation establishment, etc. An initial award of credits (10-15% of the total possible) is typically given to the sponsor after the bank is certified (permitting and financial assurance in place) but prior to doing any actual work. This often helps the sponsor fund the next phase of work by allowing the sponsor to sell some credits.

Service Area and Debiting

The rail line appears to bisect portions of three watersheds, the Skookumchuck, the Chehalis River, and the Black River. Therefore the conceptual service area for the mitigation bank would encompass all or portions of these three watersheds, meaning that projects with permitted wetland or aquatic impacts, such as developments, road and utility projects, flood control projects, etc. in the service area, would consider purchasing credits from the bank to off-set their own impacts to wetlands and aquatic resources. One debit typically equates to one acre of "average" functioning wetland, therefore one debit would require one credit at the bank to off-set. Impacts to higher functioning wetlands typically result in a higher debit to credit ratio, such as 1.2:1, or conversely lower functioning wetlands result in a lower debit to credit ratio, such as 0.85:1. As stated previously, the current and future demand for credits in the conceptual service area are not included in this report.

Estimated Costs

The following details a very preliminary estimate of costs necessary to entitle, certify and implement a mitigation bank on the rail line assuming up to 45 acres of wetlands are restored:

Permitting and MBI Approval Process	\$ 250,000
Construction	\$1,750,000
Seeding/Planting	\$ 150,000
Maintenance/Monitoring (10 years)	\$ 200,000
Long Term Endowment	\$ 200,000
Total Costs	\$2,550,000

Estimated Revenue

Current wetland mitigation bank credits in Western Washington range from \$75,000 to \$200,000 per credit. Using an average of this range is \$137,500 per credit. If the bank can generate a total of 30 to 45 mitigation credits, the range of total gross revenue value at \$137,500 per credit is \$4,125,000 to \$6,187,500. After subtracting total costs detailed above, net revenue could range from \$1,575,000 to \$3,637,500.

ELS is not held to this preliminary estimate, but rather provides this analysis for the client's perspective regarding opportunities ownership of the rail line corridor may offer. This could provide a unique opportunity, but would require additional research to determine if establishment of a mitigation bank is feasible.

Conclusions

This study of the approximately 19-mile corridor was not designed to capture all of the environmental factors to the future owners of the track line. This study is an overview look at potential environmental risk to the purchase of this rail corridor; it is not an exhaustive or comprehensive study of all environmental risks. This report relies on information contained in the EDR report, NWI maps, and WADNR maps and should in no way be considered a Phase I Environmental Site Assessment as outlined in ASTM E1527. ELS has highlighted specific sites listed in the EDR report for the client's consideration due to their proximity and unknown extent of soil/water contamination relative to the rail line. This report does not address the environmental responsibilities of the future owner of the track. The responsibility of the track owner of any possible contamination would need further investigation and study in conjunction with environmental law professionals to address this question.

In addition to ranking sites from the EDR report, ELS conducted an initial environmental feasibility study taking into consideration mapped wetlands and streams, existing conditions of track, bridges, and observed culverts. The unknown condition of culverts poses a risk to the purchase of this site. We were unable to locate the majority of the culverts mapped in the 1976 track profile. Further study of culvert locations and conditions would provide a more accurate understanding of the type of costs associated with 1) immediate maintenance needs and 2) ongoing maintenance. The topographic positioning of the track has unavoidable interactions with streams and wetlands. Future maintenance, repair, and expansion activities will require some level of environmental land use permitting dependent upon potential impacts to the natural environment. Proper cleaning of ditches and culvert maintenance will be needed immediately in areas mentioned in this report to maintain the usable integrity of the railway. Land use and environmental permitting costs and timelines are inherently hard to predict; therefore are not provided in this report.

Limitations

The conclusions listed above are based on standard scientific methodology and best professional judgment. This report should be considered a preliminary proposal and should be used at your own risk.

Resources

Environmental Database Report, Inc. dated July 31, 2015

National Wetland Inventory (NWI). Wetlands Mapper. Accessed August 2015.
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Western Washington Railroad. Accessed July 2015. <http://www.wrailroad.com/>

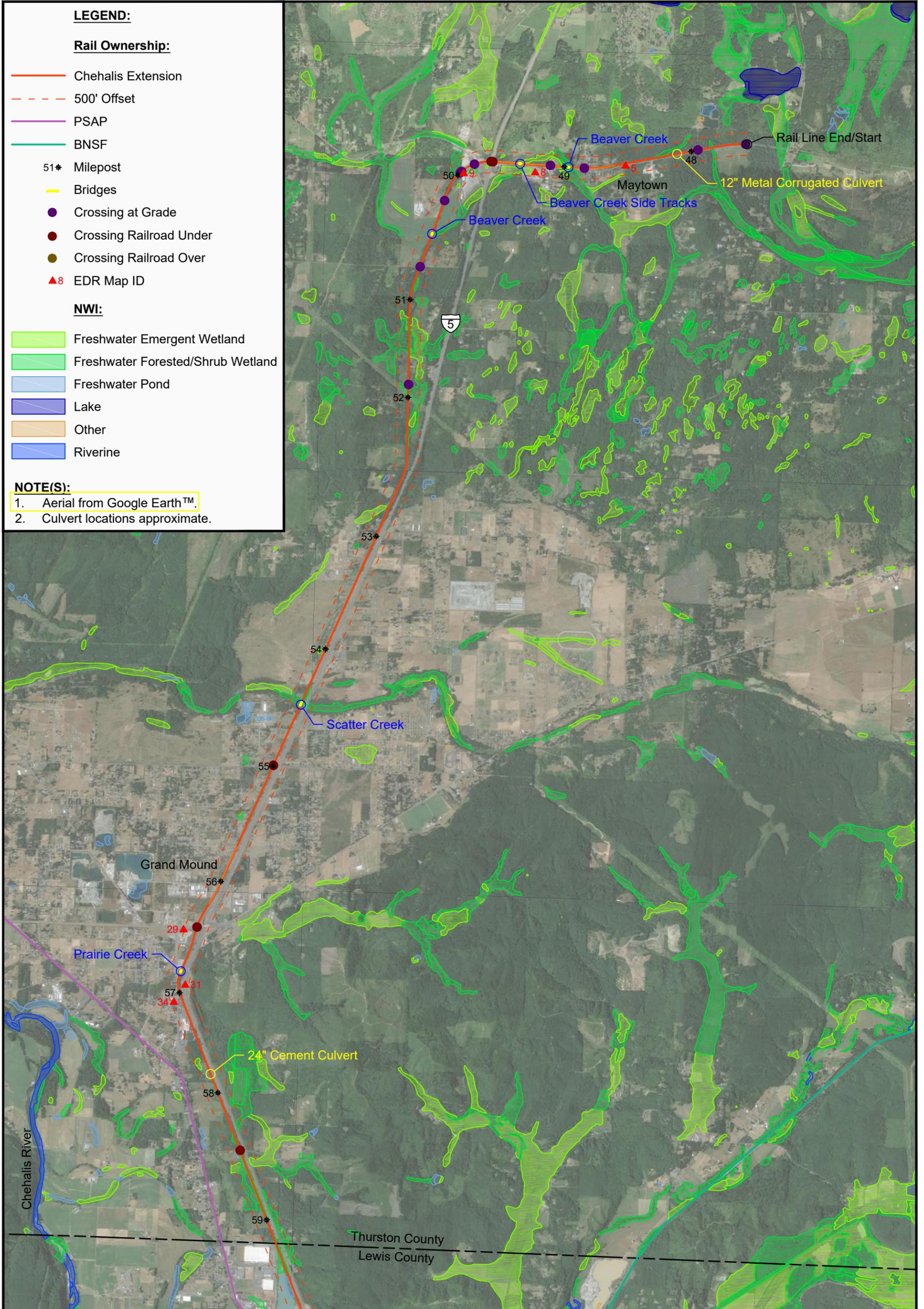
Figures

1A NWI Map Thurston County

1B NWI Map Lewis County

2A WADNR Map Thurston County

2B WADNR Map Lewis County



LEGEND:

Rail Ownership:

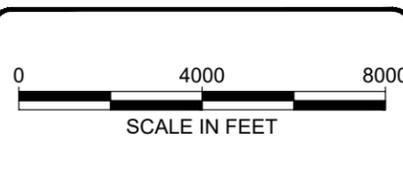
- Chehalis Extension
- - - 500' Offset
- PSAP
- BNSF
- 51* Milepost
- Bridges
- Crossing at Grade
- Crossing Railroad Under
- Crossing Railroad Over
- ▲ EDR Map ID

NWI:

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

NOTE(S):

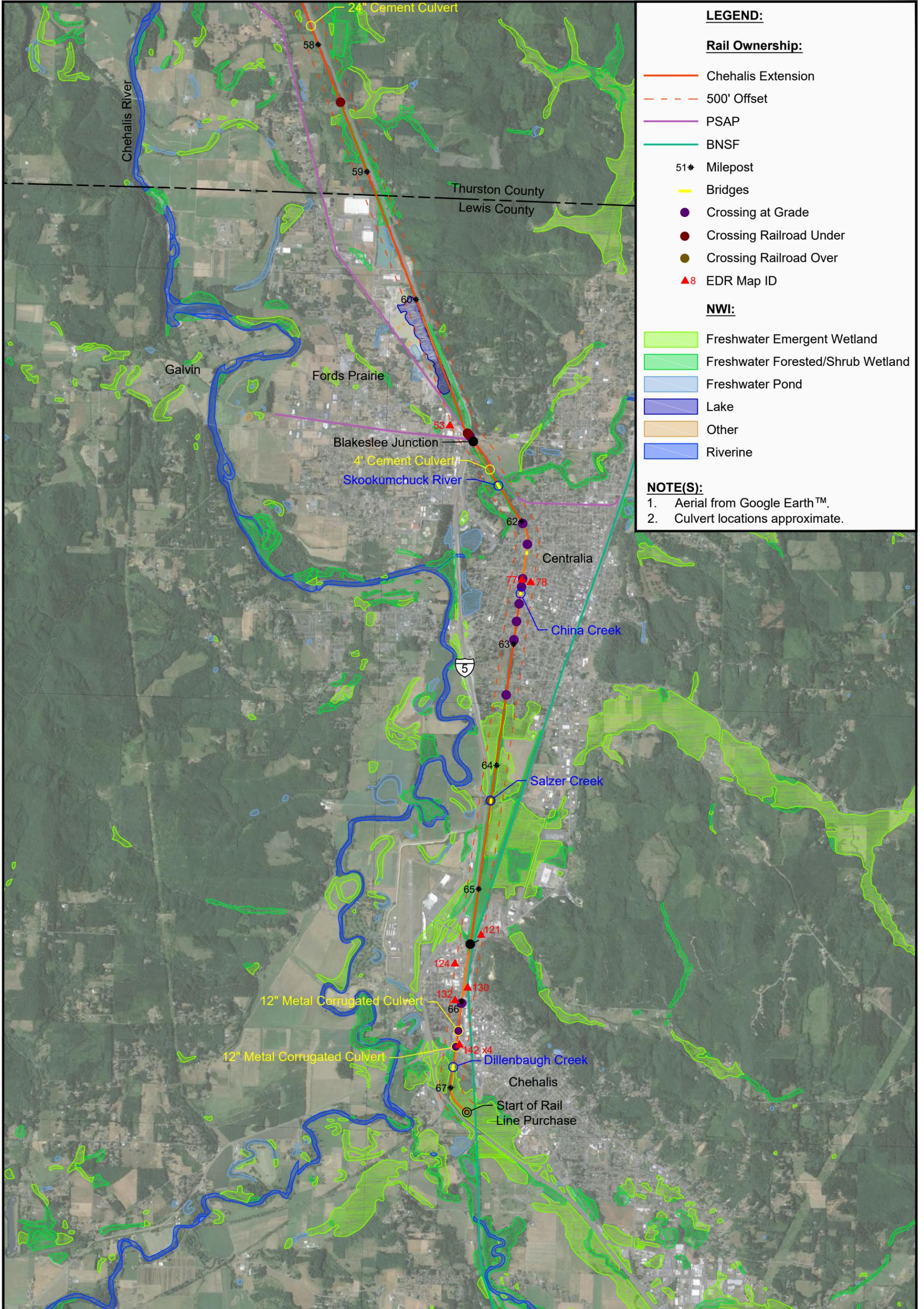
1. Aerial from Google Earth™.
2. Culvert locations approximate.



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 PROJECT NO:
 2293.01

Figure 1A
 NATIONAL WETLANDS INVENTORY MAP
 Lewis County Short Line Rail Road Feasibility Study
 Tangent Services, Inc.
 Thurston & Lewis Counties, WA



LEGEND:

Rail Ownership:

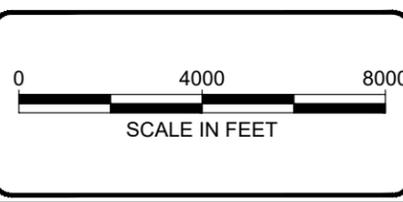
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- PSAP
- BNSF
- 51# Milepost
- Bridges
- Crossing at Grade
- Crossing Railroad Under
- Crossing Railroad Over
- ▲ EDR Map ID

NWI:

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

NOTE(S):

1. Aerial from Google Earth™.
2. Culvert locations approximate.

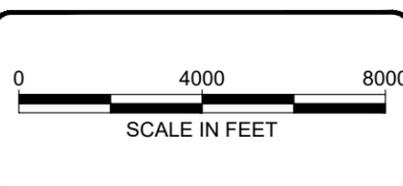
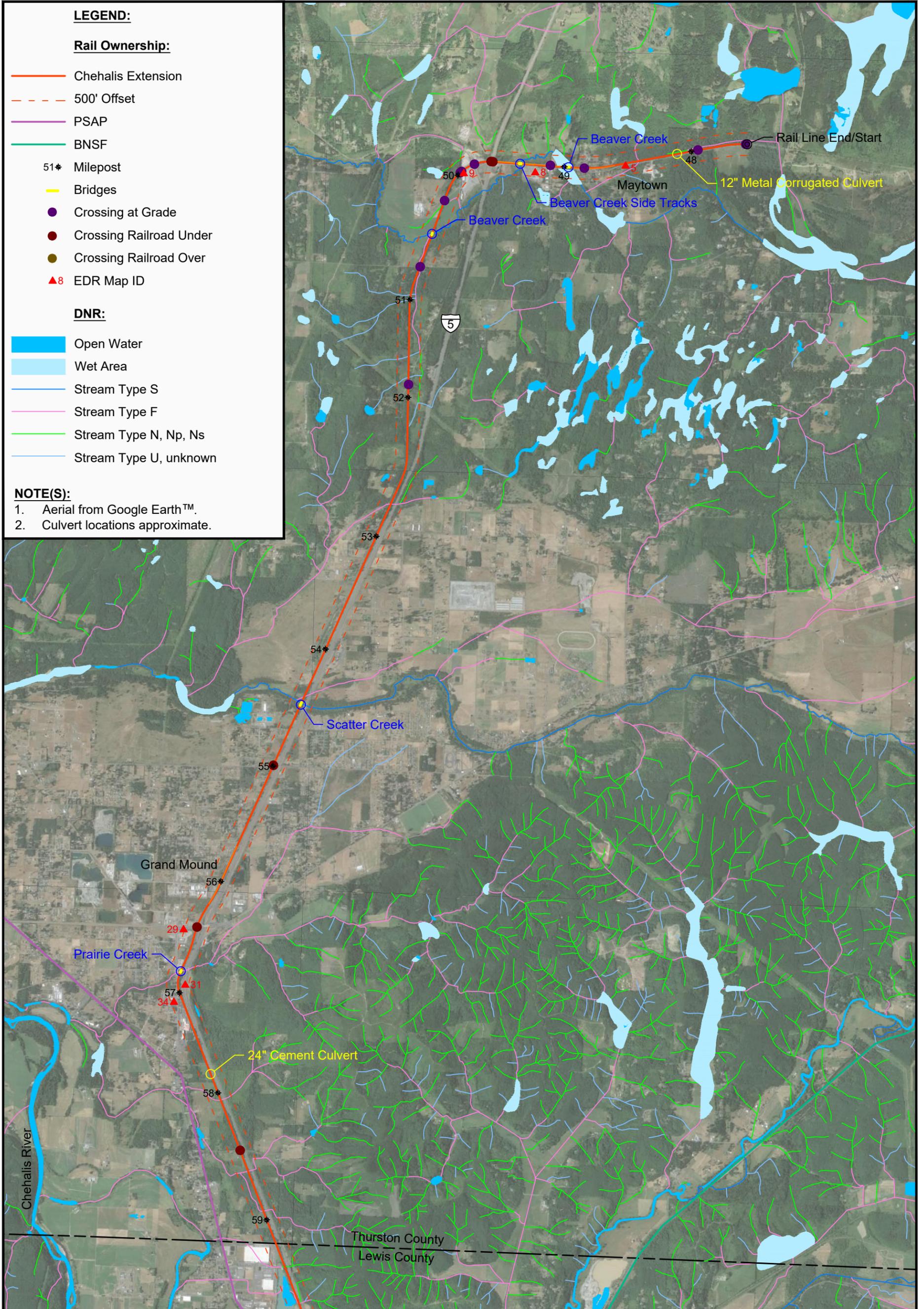




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 PROJECT NO:
 2293.01

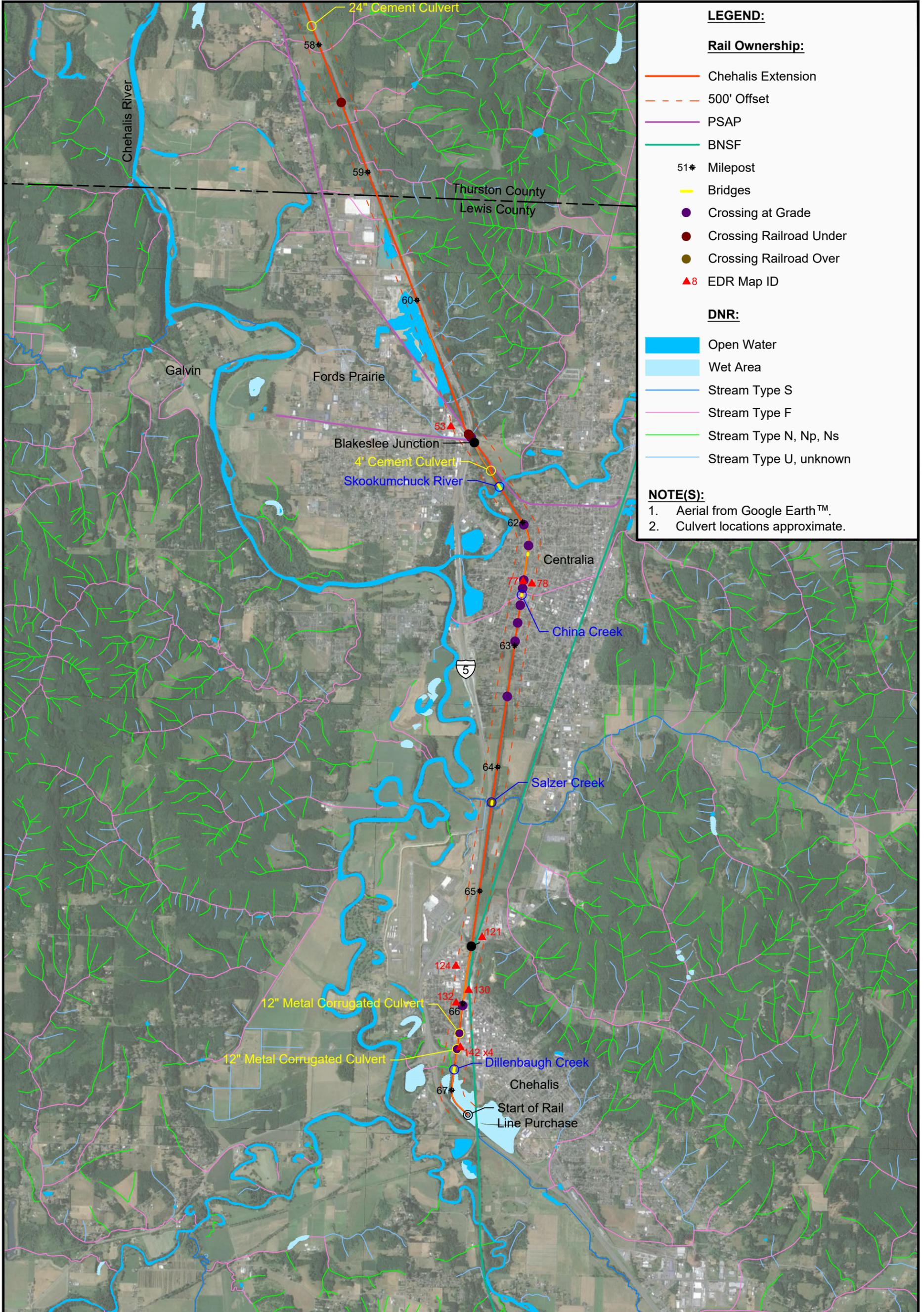
Figure 1B
 NATIONAL WETLANDS INVENTORY MAP
 Lewis County Short Line Rail Road Feasibility Study
 Tangent Services, Inc.
 Thurston & Lewis Counties, WA



1157 3rd Ave., Suite 220A
 Longview, WA 98632
 Phone: (360) 578-1371
 Fax: (360) 414-9305
 www.eco-land.com

DATE: 10/16/15
 DWN: JLL
 REQ. BY:
 PRJ. MGR: RA
 CHK:
 PROJECT NO:
 2293.01

Figure 2A
 DNR STREAM MAP
 Lewis County Short Line Rail Road Feasibility Study
 Tangent Services, Inc.
 Thurston & Lewis Counties, WA



LEGEND:

Rail Ownership:

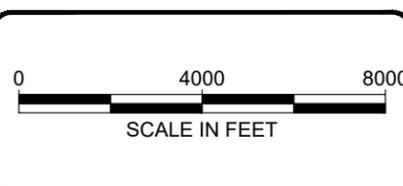
- Chehalis Extension
- - - 500' Offset
- PSAP
- BNSF
- 51* Milepost
- Bridges
- Crossing at Grade
- Crossing Railroad Under
- Crossing Railroad Over
- ▲ EDR Map ID

DNR:

- Open Water
- Wet Area
- Stream Type S
- Stream Type F
- Stream Type N, Np, Ns
- Stream Type U, unknown

NOTE(S):

1. Aerial from Google Earth™.
2. Culvert locations approximate.



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Figure 2B
 DNR SSTREAM MAP
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 Thurston & Lewis Counties, WA

Photoplates



MP 48 12" CMP Culvert



MP48 12" CMP



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Photoplate 1



MP 58.6 24" Cement Pipe



MP 58.6 This photo shows the nearby WADOT culvert and the vegetation around both culverts



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Photoplate 2



Culvert North of Prindle Street, collapsed in the middle



Culvert North of Prindle Street



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Photoplate 3



Culvert between Prindle and Main. Bottom of pipe rusted out.



Culvert between Prindle and Main with view of track.



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Photoplate 4



4 foot culvert between Skookumchuck River and Blakeslee Junction



Culvert between Skookumchuck River and Blakeslee Junction



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Photoplate 5



Evidence of water passing over tracks north of Blakeslee Junction.



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Photoplate 6