APPENDIX A

PERMITS

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

January 26, 2016

Jennifer Stebbings
Port of Tacoma
PO Box 1837
Tacoma, WA 98401-1837

RE: Coverage under the Construction Stormwater General Permit

Permit number:	**WAR303701**	
Site Name:	**North Lead Rail**	
Location:	**3715 East West Rd**	
	Tacoma, WA	**County: Pierce**
Disturbed Acres:	**16**	

Dear Ms. Stebbings:

The Washington State Department of Ecology (Ecology) received your Notice of Intent for coverage under Ecology's Construction Stormwater General Permit (permit). This is your permit coverage letter. Your permit coverage is effective on January 26, 2016. **Please retain this permit coverage letter with your permit (enclosed), stormwater pollution prevention plan (SWPPP), and site log book. These materials are the official record of permit coverage for your site.**

Please take time to read the entire permit and contact Ecology if you have any questions.

Appeal Process

You have a right to appeal coverage under the general permit to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this letter. This appeal is limited to the general permit's applicability or non-applicability to a specific discharger. The appeal process is governed by chapter 43.21B RCW and chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do the following within 30 days of the date of receipt of this letter:

- File your appeal and a copy of the permit cover page with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and the permit cover page on Ecology in paper form - by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Address and Location Information:

Street Addresses:	**Mailing Addresses:**
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	Department of Ecology Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board (PCHB) 1111 Israel Road SW, Suite 301 Tumwater, WA 98501	Pollution Control Hearings Board PO Box 40903 Olympia, WA 98504-0903

Electronic Discharge Monitoring Reports (WQWebDMR)
This permit requires that Permittees submit monthly discharge monitoring reports (DMRs) electronically using Ecology's secure online system, WQWebDMR. To sign up for WQWebDMR go to: www.ecy.wa.gov/programs/wq/permits/paris/webdmr.html. If you have questions, contact the portal staff at (360) 407-7097 (Olympia area), or (800) 633-6193/option 3, or email WQWebPortal@ecy.wa.gov.

Ecology Field Inspector Assistance
If you have questions regarding stormwater management at your construction site, please contact Deborah Cornett of Ecology's Southwest Regional Office in Lacey at deborah.cornett@ecy.wa.gov or (360) 407-7269.

Questions or Additional Information
Ecology is committed to providing assistance. Please review our web page at: www.ecy.wa.gov/programs/wq/stormwater/construction. If you have questions about the construction stormwater general permit, please contact Josh Klimek at josh.klimek@ecy.wa.gov or (360) 407-7451.

Sincerely,

Bill Moore, P.E., Manager
Program Development Services Section
Water Quality Program

Enclosure

DEPARTMENT OF THE ARMY
SEATTLE DISTRICT, CORPS OF ENGINEERS
P.O. BOX 3755
SEATTLE, WASHINGTON 98124-3755

REPLY TO
ATTENTION OF

Regulatory Branch

APR 1 1 2016

Mr. Tony Warfield
Port of Tacoma
P.O. Box 1837
Tacoma, Washington 98401-1837

Reference: NWS-2015-0489-WRD
Tacoma, Port of
(North Lead Rail
Improvements)

Dear Mr. Warfield:

Enclosed is a Department of the Army permit which authorizes performance of the work described in your referenced application. You are cautioned that any change in the location or plans of the work will require submittal of revised plans to this office for approval prior to accomplishment. Deviation from the approved plans may result in imposition of criminal or civil penalties.

Your attention is drawn to General Condition 1 of the permit which specifies the expiration date for completion of the work. Upon completing the authorized work, please fill out and return the enclosed *Certificate of Compliance with Department of the Army Permit* form.

We are interested in your experience with our Regulatory Program and encourage you to complete a customer service survey form. This form and information about our program is available on our website at: www.nws.usace.army.mil select "Regulatory Branch, Permit Information" and then "Contact Us."

If you have any questions please contact Ms. Olivia Romano at (206) 764-6960 or at olivia.h.romano@usace.army.mil.

Sincerely,

Michelle Walker
Chief, Regulatory Branch

Enclosures

DEPARTMENT OF THE ARMY PERMIT

Permittee: Port of Tacoma

Mr. Tony Warfield
P.O. Box 1837
Tacoma, Washington 98401-1837

Permit No: NWS-2015-0489-WRD

Issuing Office: Seattle District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the U.S. Army Corps of Engineers (Corps) having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Install an arch culvert and place up to 70 cubic yards of fill in an open channel section of Erdahl Ditch (in accordance with the plans and drawings dated July 2015 attached hereto which are incorporated in and made a part of this permit). The purpose of the project is to allow for simultaneous arrival and departure of trains to and out of the corridor and reduce the amount of time trains spend occupying at grade crossings within the Port of Tacoma.

Project Location: In Erdahl Ditch, associated with Blair Waterway, at Tacoma, Pierce County, Washington.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on APR 1 1 2019. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least 1 month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in accordance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification to this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and State coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

7. After a detailed and careful review of all the conditions contained in this permit, the permittee acknowledges that, although said conditions were required by the Corps, nonetheless the permittee agreed to

those conditions voluntarily to facilitate issuance of the permit; the permittee will comply fully with all the terms of all the permit conditions.

Special Conditions:

a. You must provide a copy of the permit transmittal letter, the permit form, and drawings to all contractors performing any of the authorized work.

b. You shall implement and abide by the *Place of Circling Waters Advance Permittee-Responsible Mitigation Use Plan*, dated October 13, 2015, and obtain advanced mitigation credits in accordance with the Port of Tacoma's Place of Circling Waters Advance Permittee-Responsible Mitigation Site Plan.

Further Information:

1. Congressional Authorities. You have been authorized to undertake the activity described above pursuant to:

☐ Section 10 of the Rivers and Harbor Act of 1899 (33 United States Code (U.S.C.) 403).

☒ Section 404 of the Clean Water Act (33 U.S.C. 1344).

☐ Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, State, or local authorization required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of the permit.

b. The information provided by you in support of your application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 Code of Federal Regulations (CFR), Part 325.7 or enforcement procedures such as those contained in 33 CFR, Parts 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR, Part 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

Tom W
Port of Tacoma

4/11/16
(DATE)

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

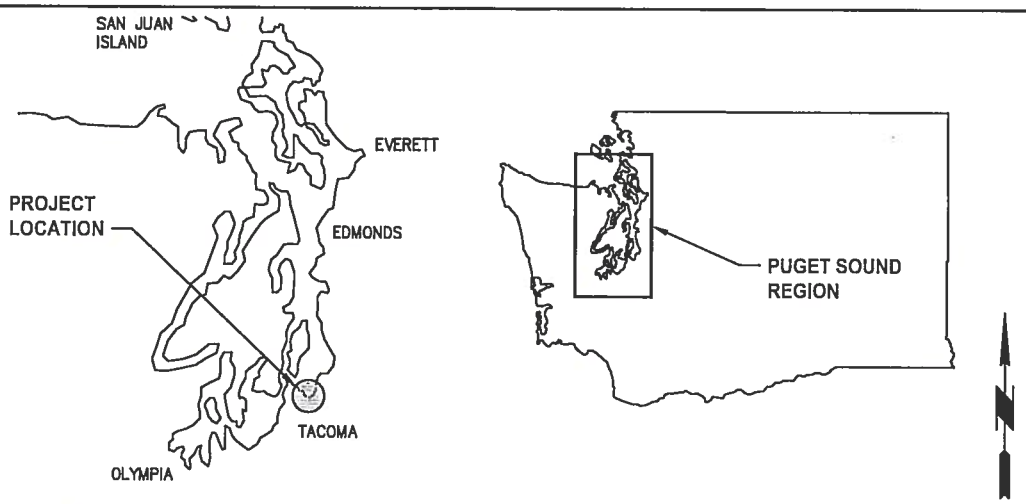
for Michelle Walker
John G. Buck
Colonel, Corps of Engineers
District Engineer

4/11/16
(DATE)

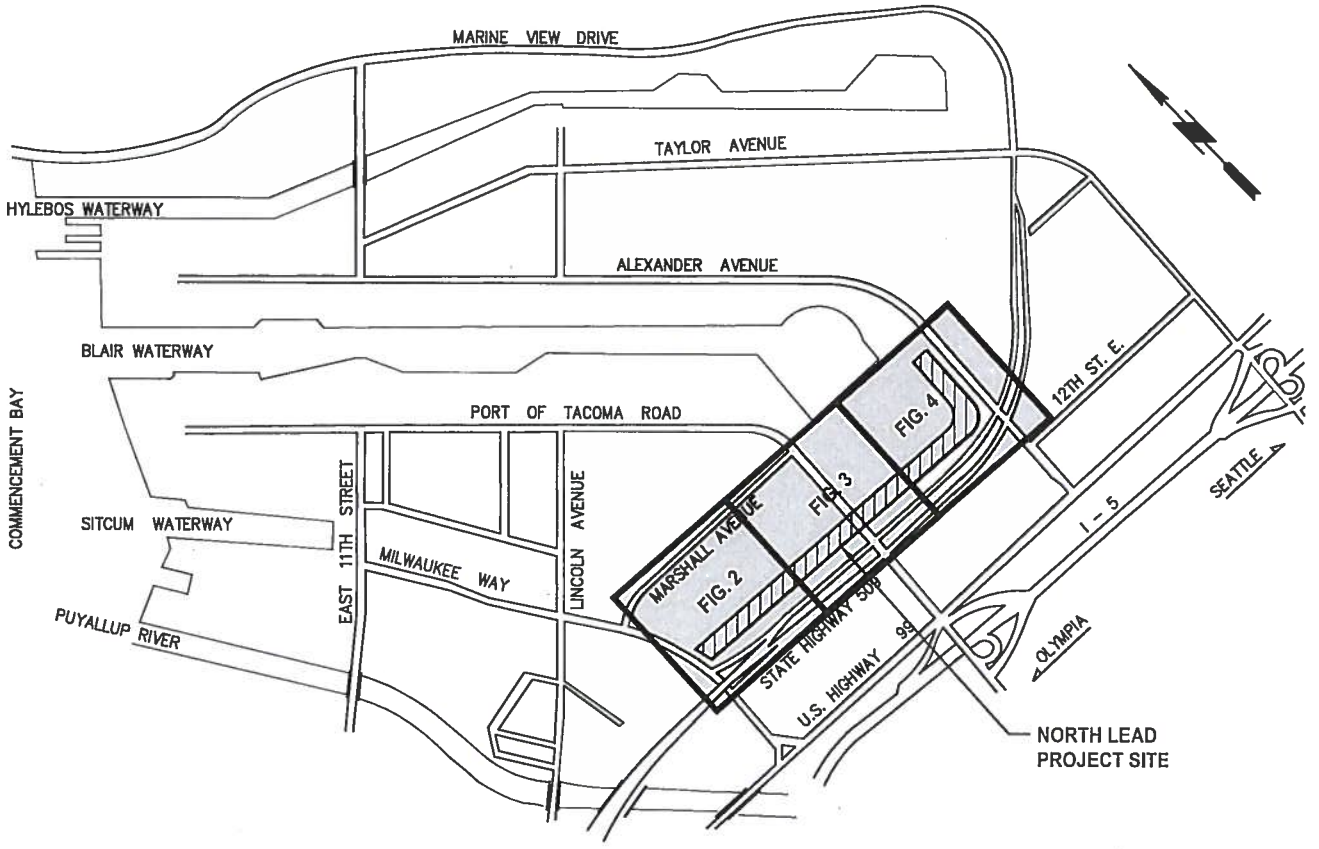
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) (DATE)



PUGET SOUND REGION MAP



VICINITY MAP NO SCALE

PORT OF TACOMA

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

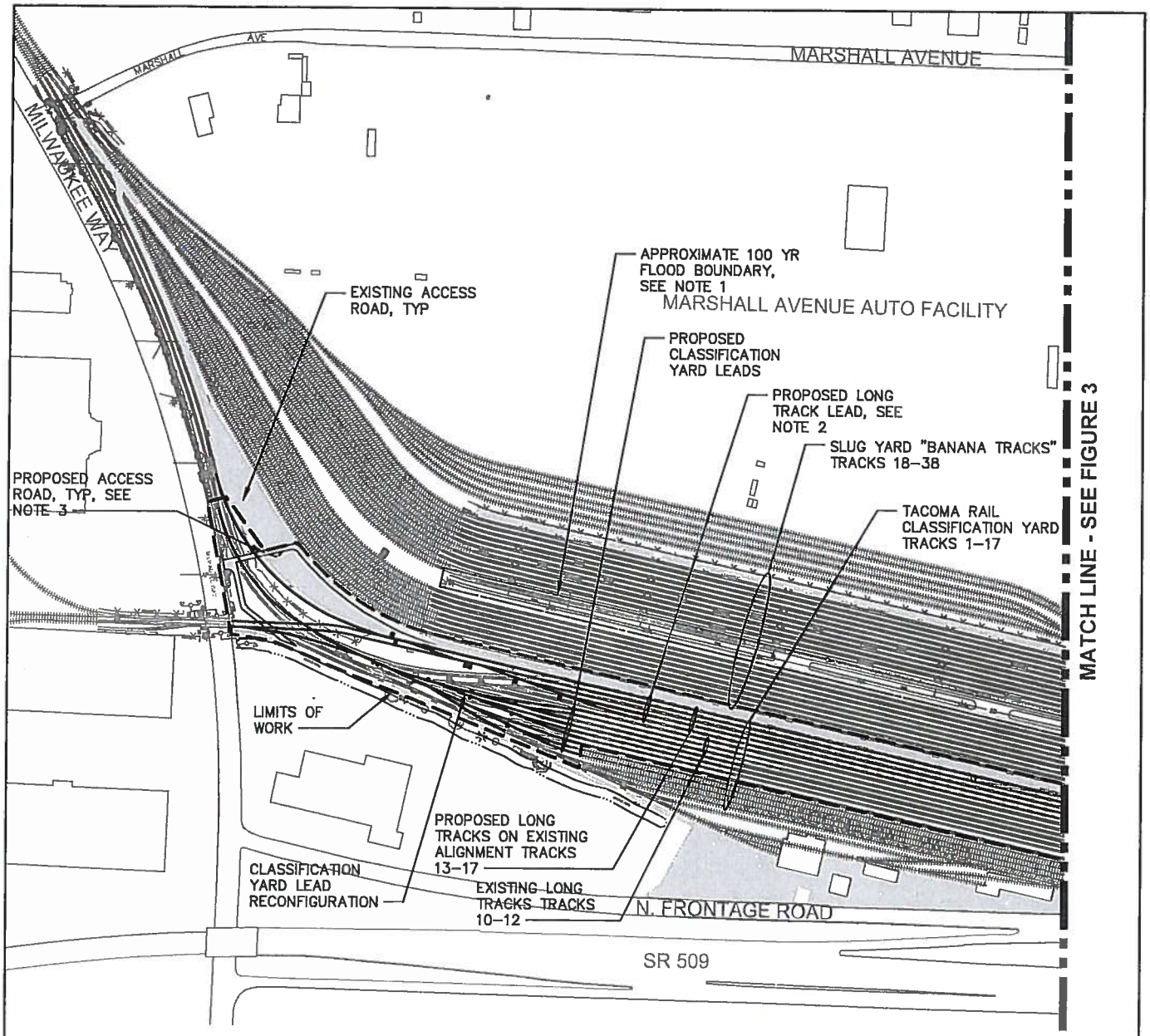
FIGURE 1 - VICINITY MAP

Port of Tacoma

P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
ADDRESS: SR 509 N. FRONTAGE ROAD
TACOMA, WA 98401
PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
LAT/LONG: 47.248128N, -122.394608W
SECT/TOWN/RANGE: SEC01 & 02, T20N, R3E
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA
NWS-2015-489-WRD

SHEET 1 OF 7 JULY 2015



NOTES :

1. AREA OF 100 YEAR FLOOD; FROM FEMA FLOOD INSURANCE RATE MAP COMMUNITY PANEL 5301380169C.
2. TRACK RELATED DEMOLITION AND FILL WILL OCCUR WITHIN THE FOOTPRINT OF THE NEW TRACK.
3. ROADWAY DEMOLITION AND FILL WILL OCCUR WITHIN THE FOOTPRINT OF THE NEW TRACK.
4. ADDITIONAL DEMOLITION AND FILL WILL OCCUR AT VARIOUS LOCATIONS WITHIN THE LIMITS OF WORK TO FACILITATE UTILITY RELOCATIONS.

LEGEND :

- LONG TRACKS ON EXISTING ALIGNMENT
- NEW TRACK, SEE FIGURE 5
- NEW PAVED ACCESS ROAD
- 100 YR FLOOD BOUNDARY, SEE NOTE 1
- LIMITS OF WORK

200' 0 200' 400'
100' 300'
SCALE: 1"=400'

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

FIGURE 2 - SITE PLAN

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
ADDRESS: SR 509 N. FRONTAGE ROAD
TACOMA, WA 98401
PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
LAT/LONG: 47.248128N, -122.394608W
SECT/TOWN/RANGE: SEC01 & 02, T20N, R3E
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA
NWS-2015-0489-WRD
SHEET 2 OF 7
JUNE 2015

Plotted: Jul 22, 2015 – 8:03pm channell Layout: Layo-2
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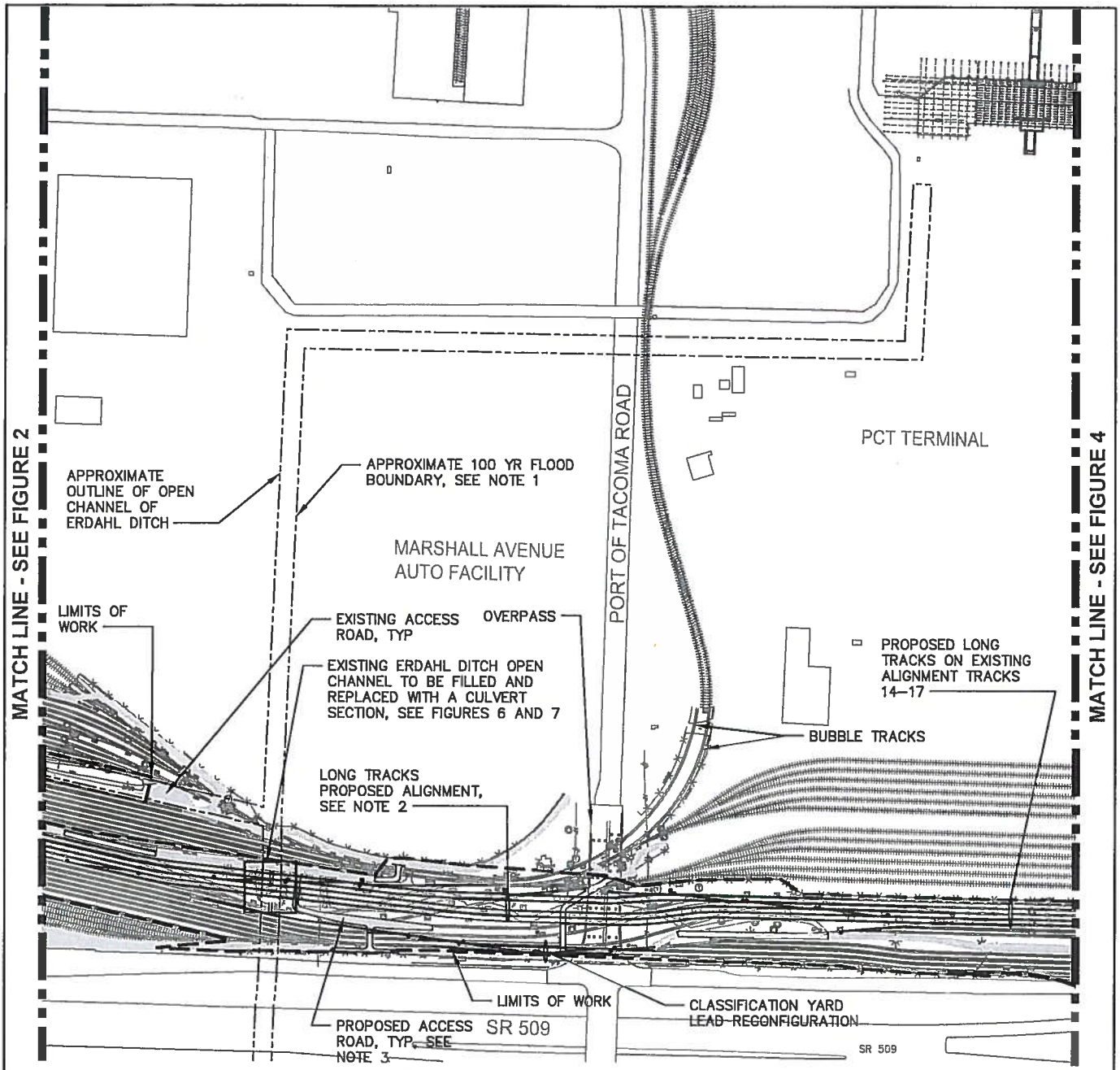

NOTES :

1. AREA OF 100 YEAR FLOOD; FROM FEMA FLOOD INSURANCE RATE MAP COMMUNITY PANEL 5301380169C.
2. TRACK RELATED DEMOLITION AND FILL WILL OCCUR WITHIN THE FOOTPRINT OF THE NEW TRACK.
3. ROADWAY DEMOLITION AND FILL WILL OCCUR WITHIN THE FOOTPRINT OF THE NEW TRACK.
4. ADDITIONAL DEMOLITION AND FILL WILL OCCUR AT VARIOUS LOCATIONS WITHIN THE LIMITS OF WORK TO FACILITATE UTILITY RELOCATIONS.

LEGEND :

- LONG TRACKS ON EXISTING ALIGNMENT
- NEW TRACK, SEE FIGURE 5
- NEW PAVED ACCESS ROAD
- APPROXIMATE 100 YR FLOOD BOUNDARY, SEE NOTE 1
- LIMITS OF WORK

200' 0 200' 400'
100' 300'

SCALE: 1"=400'

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

FIGURE 3 - SITE PLAN

Port of Tacoma

P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
ADDRESS: SR 509 N. FRONTAGE ROAD
TACOMA, WA 98401
PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
LAT/LONG: 47.248128N, -122.394608W
SECT/TOWN/RANGE: SEC01 & 02, T20N, R3E
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA

NWS-2015-0489-WRD

SHEET 3 OF 7 JULY 2015

Plotted: Jul 22, 2015 – 8:03pm channett Layout: Layo-3
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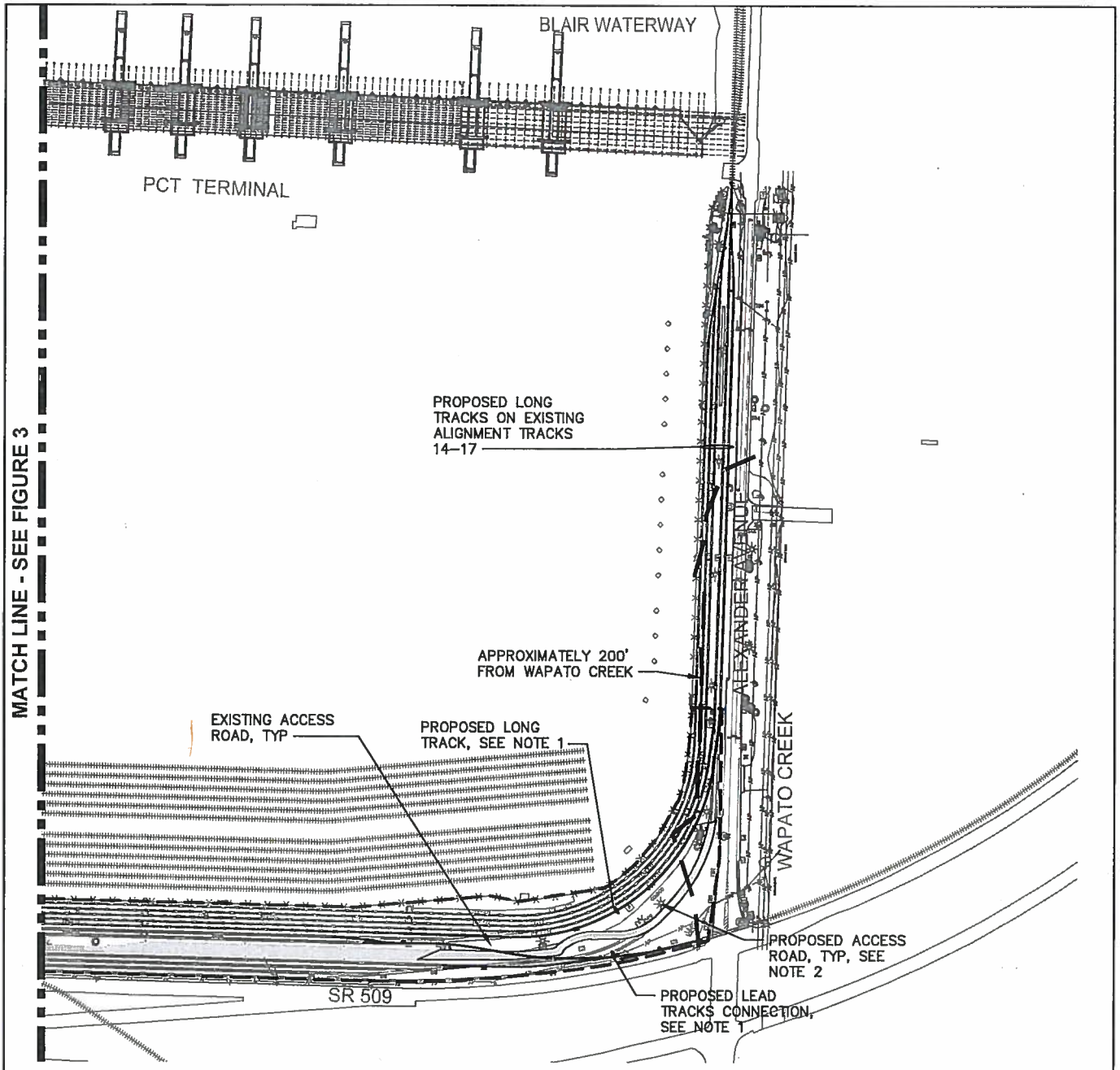

NOTES :

1. TRACK RELATED DEMOLITION AND FILL WILL OCCUR WITHIN THE FOOTPRINT OF THE NEW TRACK.
2. ROADWAY DEMOLITION AND FILL WILL OCCUR WITHIN THE FOOTPRINT OF THE NEW TRACK.
3. ADDITIONAL DEMOLITION AND FILL WILL OCCUR AT VARIOUS LOCATIONS WITHIN THE LIMITS OF WORK TO FACILITATE UTILITY RELOCATIONS.

LEGEND :

- LONG TRACKS ON EXISTING ALIGNMENT
- NEW TRACK, SEE FIGURE 5
- NEW PAVED ACCESS ROAD
- LIMITS OF WORK

200' 0 200' 400'
100' 300'

SCALE: 1"=400'

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

FIGURE 4 - SITE PLAN

Port of Tacoma

P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
ADDRESS: SR 509 N. FRONTAGE ROAD
TACOMA, WA 98401
PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
LAT/LONG: 47.248128N, -122.394608W
SECT/TOWN/RANGE: SEC01 & 02, T20N, R3E
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA
NWS-2015-0489-WRD

SHEET 4 OF 7 JULY 2015

Plotted: Jul 22, 2015 – 6:04pm channell Layout: Layo-4
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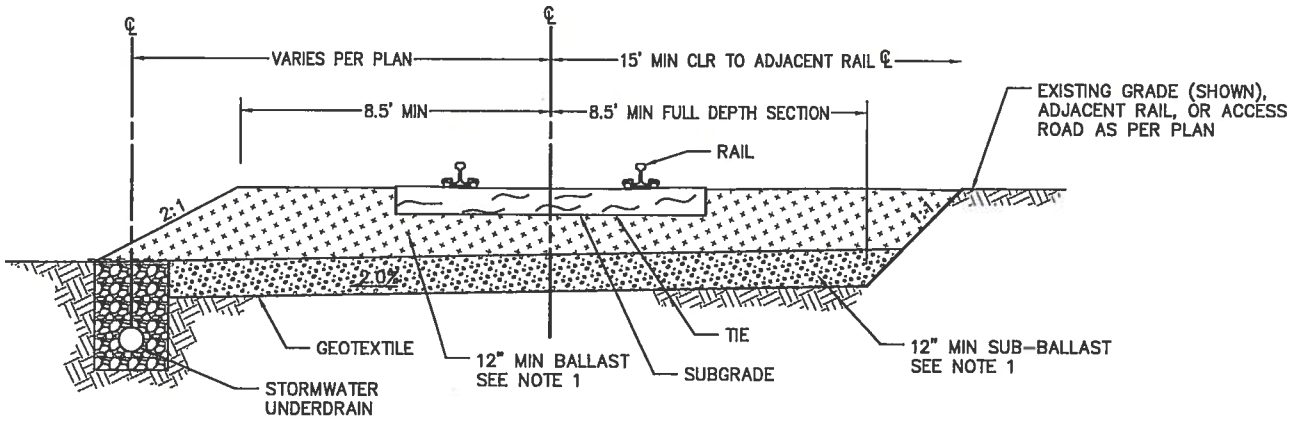

SECTION A

NOTES :

1. BALLAST AND SUB-BALLAST THICKNESS TO BE DETERMINED IN FINAL DESIGN.

2.5' 0 2.5' 5'
1.25' 3.75'
SCALE: 1"=5'

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

FIGURE 5 - TYPICAL TRACKBED SECTION

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
ADDRESS: SR 509 N. FRONTAGE ROAD
TACOMA, WA 98401
PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
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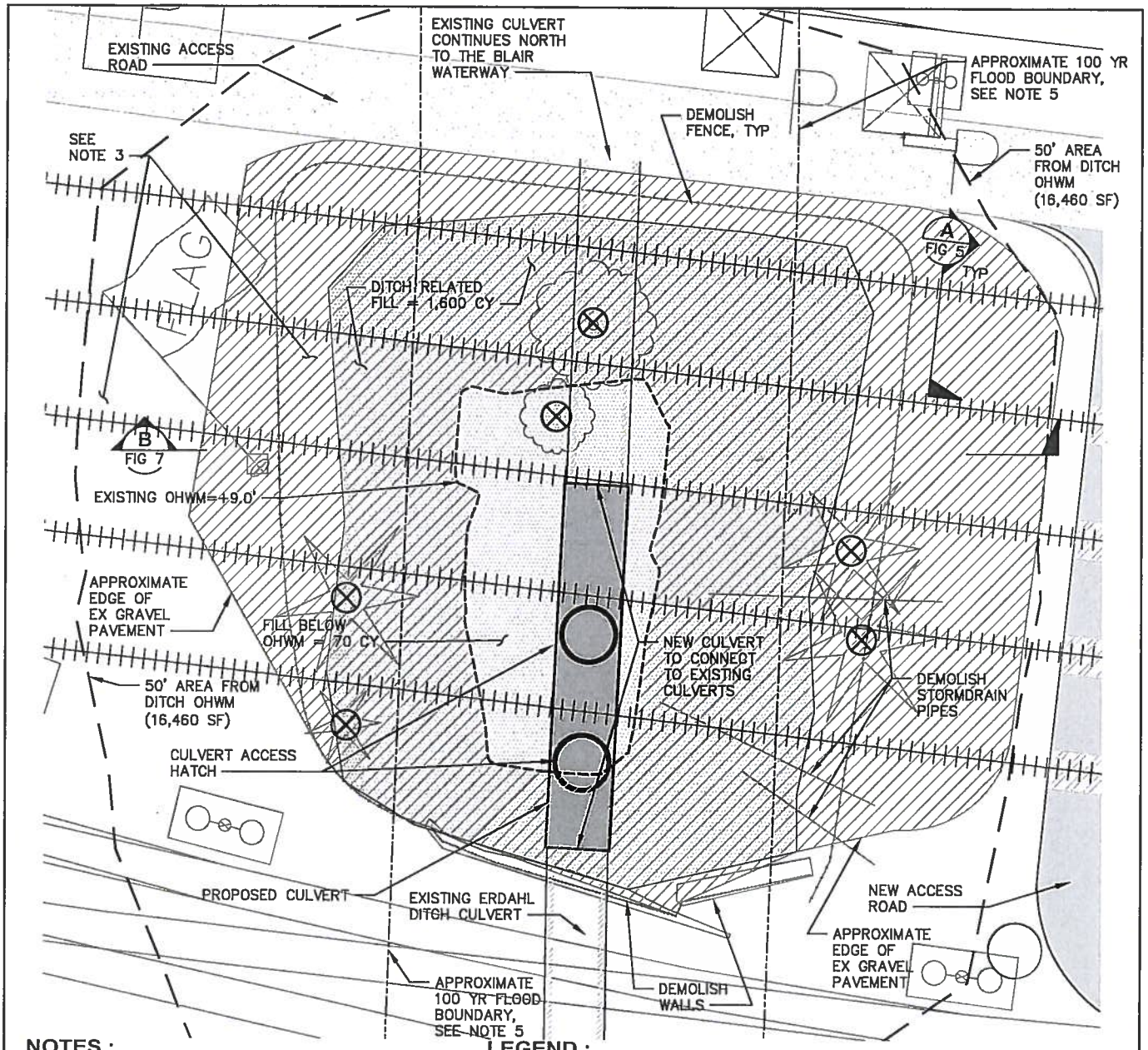
SECT/TOWN/RANGE: SEC01 & 02, T20N, R3E
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA

NWS-2015-0489-WRD

SHEET 5 OF 7 JULY 2015



NOTES :

1. FILLING OF ERDAHL DITCH BELOW OHWM = 1,190 SQ. FT.
2. PROJECT RELATED LAND DISTURBANCE WITHIN THE 50 FT AREA FROM DITCH OHWM = 16,460 SF, OF THAT 7,435 SF IS IMPACTED WITH PAVED AND GRAVEL SURFACES UNDER EXISTING CONDITIONS.
3. RAIL TURNOUTS IN THE AREA OF THE ERDAHL DITCH ARE NOT SHOWN FOR CLARITY.
4. TRACKBED UNDERDRAINS AND OTHER PROPOSED STORMWATER INFRASTRUCTURE ARE NOT SHOWN FOR CLARITY.
5. AREA OF 100 YEAR FLOOD; FROM FEMA FLOOD INSURANCE RATE MAP COMMUNITY PANEL 5301380169C.
6. ERDAHL DITCH FILLING WORK IS ANTICIPATED TO TAKE 15 CALENDAR DAYS TO COMPLETE.

LEGEND :

- NEW TRACK, SEE FIGURE 5
- NEW PAVED ACCESS ROAD
- DITCH RELATED FILL AREA
- TREE TO BE REMOVED
- APPROXIMATE 100 YR FLOOD BOUNDARY, SEE NOTE 5
- PREVIOUSLY UNIMPACTED AREA WITHIN THE 50 FT AREA FROM DITCH OHWM
- 50 FT AREA FROM DITCH OHWM

10' 0 10' 20'
5' 15'
SCALE: 1"=20'

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

FIGURE 6 - ERDAHL DITCH PARTIAL PLAN

Port of Tacoma

P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
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PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
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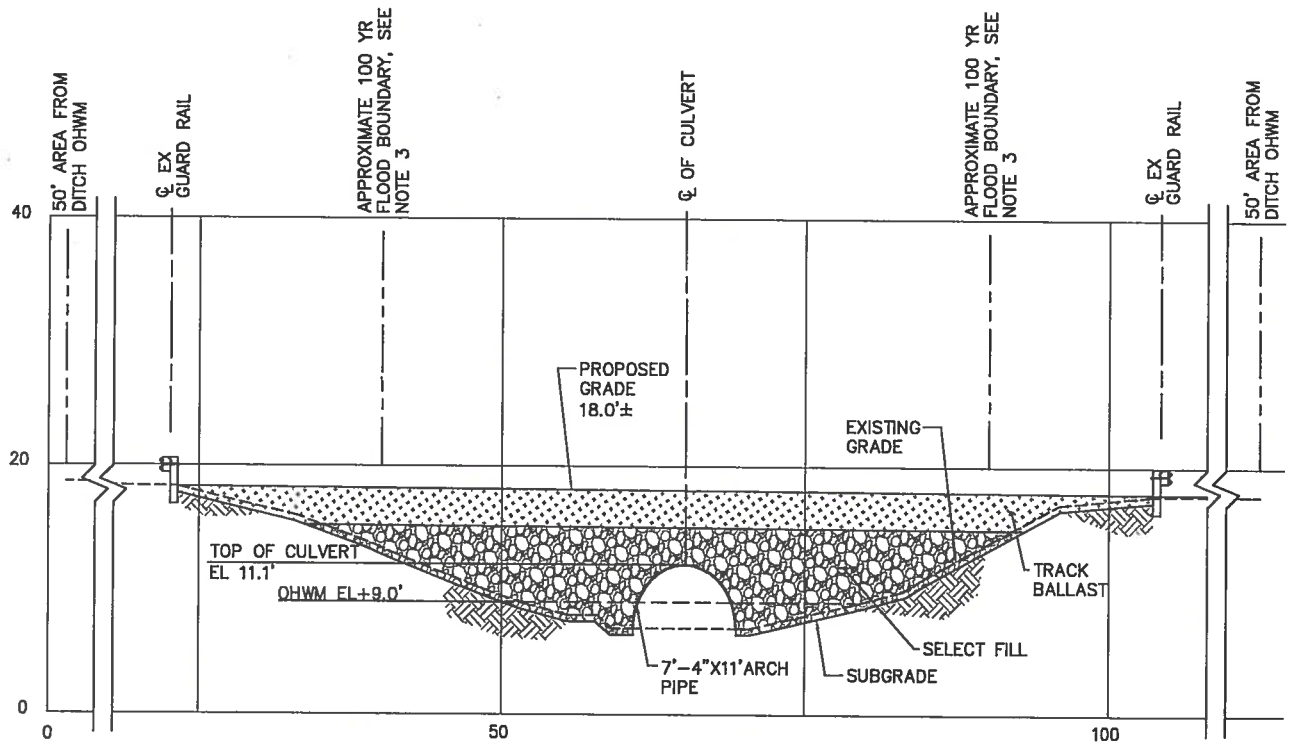
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA

NWS-2015-0489-WRD

SHEET 6 OF 7 JULY 2015



SECTION B

NOTES :

1. FILLING OF ERDAHL DITCH = 1,600 CY OF MATERIAL. 70 CY OF FILL BELOW OHWM OF +9.0'.
2. NO TIDAL INFLUENCE. MHW NOT APPLICABLE.
3. AREA OF 100 YEAR FLOOD; FROM FEMA FLOOD INSURANCE RATE MAP COMMUNITY PANEL 5301380169C.

7.5' 0 7.5' 15'
3.75' 11.25'
SCALE: 1"=15'

PURPOSE: CONSTRUCT RAIL IMPROVEMENTS TO IMPROVE CAPACITY OF THE PORT'S RAIL SYSTEM.

DATUM: VERTICAL PORT DATUM
PROJECT SPECIFIC OHWM = +9.00'
MLLW = 0.00'

ADJACENT PROPERTY OWNERS:
PORT OF TACOMA, ASC PROFILES INC, CITY OF TACOMA - TPU, WSDOT, CITY OF TACOMA

FIGURE 7 - ERDAHL DITCH SECTION

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

PROJECT: NORTH LEAD RAIL IMPROVEMENTS
ADDRESS: SR 509 N. FRONTAGE ROAD
TACOMA, WA 98401
PARCEL#: 0320031029, 0320034060, 0320023062, 0320024098, 0320013132, 0320012066
LAT/LONG: 47.248128N, -122.394608W
SECT/TOWN/RANGE: SEC01 & 02, T20N, R3E
COUNTY OF: PIERCE
STATE OF: WA
APPLICATION BY: PORT OF TACOMA
NWS-2015-0489-WRD
SHEET 7 OF 7 JULY 2015

Plotted: Jul 22, 2015 – 6:05pm channell Layout: Jcpw-7
N:\Civil\114\114148 PoT North Lead Rail\Part 3 – KPFF Design\3.13 Drawings\Exhibits\ACOE-7.dwg

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

February 26, 2016

Port of Tacoma
ATTN: Mr. Tony Warfield
PO Box 1837
Tacoma, WA 98401-1837

RE: Water Quality Certification Order No. **13156** for Corps Public Notice No. **NWS-2015-0489-WRD** for the North Lead Rail Improvements Project, within the Erdahl Drainage Ditch associated with the Blair Waterway, within the Tacoma Rail Yard, Tacoma, Pierce County, Washington

Dear Mr. Warfield:

On July 6, 2015, the Port of Tacoma submitted a Joint Aquatic Resource Permit Application (JARPA) to the Department of Ecology (Ecology) for a Section 401 Water Quality Certification (401 Certification) under the federal Clean Water Act for the North Lead rail Improvements Project that will occur within the Tacoma Rail Yard, in the city of Tacoma, Pierce County. The U.S. Army Corps of Engineers issued a joint public notice on August 7, 2015, for the proposed project.

On behalf of the State of Washington, Ecology certifies that the work described in the JARPA and the public notice complies with applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, as amended, and applicable state laws. This certification is subject to the conditions contained in the enclosed Order.

If you have any questions, please contact Lori Kingsbury at (360) 407-6926. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,

Perry J Lund, Unit Manager
Shorelands and Environmental Assistance Program
Southwest Regional Office

Enclosure

By Certified Mail 7012 2920 0000 1182 2489

cc: Olivia Romano, Corps of Engineers

e-cc: ecyrefedpermits@ecy.wa.gov
Loree' Randall, HQ
Alex Callender, SWRO SEA
Dana Mock, HQ SEA
Carol Serdar, SWRO WQ
Lori Kingsbury, SWRO SEA

IN THE MATTER OF GRANTING A WATER QUALITY CERTIFICATION TO Port of Tacoma in accordance with 33 U.S.C. 1341 (FWPCA § 401), RCW 90.48.120, RCW 90.48.260 and Chapter 173-201A WAC	)))))))	**ORDER No. 13156** **Corps Reference No. NWS-2015-0489-WRD** For the North Lead Rail Improvements Project within the Tacoma Railyard in the Erdahl Ditch associated with the Blair Waterway, Tacoma, Pierce County, Washington

TO: Port of Tacoma
ATTN: Mr. Tony Warfield
PO Box 1837
Tacoma, WA 98401-1837

On July 6, 2015, the Port of Tacoma submitted a Joint Aquatic Resource Permit Application (JARPA) to the Department of Ecology (Ecology) requesting a Section 401 Water Quality Certification. A joint public notice for a proposed water quality certification from Ecology was distributed by the U.S. Army Corps of Engineers for the above-referenced project pursuant to the provisions Chapter 173-225 WAC on August 7, 2015.

The North Lead Rail project proposes to construct rail corridor improvements to increase the capacity and efficiency of the Port of Tacoma Rail System. The project is intended to allow for the simultaneous arrival and departure of trains in and out of the corridor.

Project elements include:

- Demolition and removal of approximately 17,980 feet of existing rail, and grading of the area to achieve suitable finish grades;
- Constructing approximately 20,000 track feet of new track and reconfiguration of existing tracks to create five long tracks within the corridor;
- Removal or relocation of existing infrastructure (electrical, telecommunications, sanitary, and water) to allow for the placement of new track.
- Installation of underdrains for stormwater conveyance, and
- Installation of a culvert and backfill of the open channel portion of the Erdahl Ditch.

The project is located within the Tacoma Rail Yard at SR 509 N. Frontage Road, Tacoma Pierce County, Washington; NE Quarter of Section 01, Township 20 North, Range 3 East, WRIA 10, Puyallup-White Watershed.

AUTHORITIES:

In exercising authority under 33 U.S.C. 1341, 16 U.S.C. 1456, RCW 90.48.120, and RCW 90.48.260, Ecology has examined this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. Sections 1311, 1312, 1313, 1316, and 1317 (FWPCA Sections 301, 302, 303, 306 and 307);
2. Conformance with the state water quality standards contained in Chapter 173-201A WAC and authorized by 33 U.S.C. 1313 and by Chapter 90.48 RCW, and with other applicable state laws; and,
3. Conformance with the provision of using all known, available and reasonable methods to prevent and control pollution of state waters as required by RCW 90.48.010.

WATER QUALITY CERTIFICATION CONDITIONS:

Through issuance of this Order, Ecology certifies that it has reasonable assurance that the activity as proposed and conditioned will be conducted in a manner that will meet the applicable water quality standards and other appropriate requirements of state law. In view of the foregoing and in accordance with 33 U.S.C. § 1341, RCW 90.48.120, RCW 90.48.260, Chapter 173-200 WAC and Chapter 173-201A WAC, water quality certification is granted to the Applicant subject to the conditions within this Order.

Certification of this proposal does not authorize the Applicant to exceed applicable state water quality standards (Chapter 173-201A WAC), ground water standards (Chapter 173-200 WAC) or sediment quality standards (Chapter 173-204 WAC). Furthermore, nothing in this certification shall absolve the Applicant from liability for contamination and any subsequent cleanup of surface waters, ground waters or sediments occurring as a result of project construction or operations.

A. General Conditions:

1. For purposes of this Order, the term "Applicant" shall mean the Port of Tacoma and its agents, assignees, and contractors.
2. For purposes of this Order, all submittals required by its conditions shall be sent either by regular mail to Ecology's Southwest Regional Office, Attn: Federal Permit Manager, SEA Program, P.O. Box 47775, Olympia, WA 98504-7775 or via e-mail to loch461@ecy.wa.gov. Any submittals shall reference Order No. **13156** and Corps No. **NWS-2015-0489-WRD**.
3. Work authorized by this Order is limited to the work described in the initial JARPA received by Ecology on July 6, 2015. The Applicant will be out of compliance with this Order and must reapply with an updated application if the information contained in the JARPA is voided by subsequent changes to the project not authorized by this Order.

4. Within 30 days of receipt of an updated JARPA Ecology will determine if the revised project requires a new Water Quality Certification and Public Notice or if a modification to this Order is required.
5. This Order shall be rescinded if the U.S. Army Corps of Engineers does not issue a Section 404 permit.
6. Copies of this Order shall be kept on the job site and readily available for reference by Ecology personnel, the construction superintendent, construction managers and lead workers, and state and local government inspectors.
7. The Applicant shall provide access to the project site and all mitigation sites upon request by Ecology personnel for site inspections, monitoring, necessary data collection, and/or to ensure that conditions of this Order are being met.
8. Nothing in this Order waives Ecology's authority to issue additional orders if Ecology determines that further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if additional impacts due to project construction or operation are identified (*e.g.*, violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect water quality.
9. The Applicant shall ensure that all appropriate project engineers and contractors at the project site have read and understand relevant conditions of this Order and all permits, approvals, and documents referenced in this Order. The Applicant shall provide Ecology a signed statement (see Attachment A for an example) from each project engineer and contractor that they have read and understand the conditions of this Order and the above-referenced permit, plans, documents, and approvals. These statements shall be provided to Ecology before construction begins at the project site.
10. This Order does not authorize direct, indirect, permanent, or temporary impacts to waters of the state or related aquatic resources, except as specifically provided for in conditions of this Order.
11. Failure of any person or entity to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

B. Water Quality Conditions:

1. This Order does not authorize temporary exceedances of water quality standards beyond the limits established in WAC 173-201A-200(1)(e)(i).
2. The Applicant shall visually monitor for turbidity at the point of compliance as specified in WAC 173-201A-200(1)(e)(i).
3. If water quality exceedances are observed outside the point of compliance, work shall cease immediately and the Applicant or the contractor shall assess the cause of the water quality problem and take immediate action to stop, contain, correct the problem and

prevent further water quality turbidity exceedances. If an exceedance occurs, the Applicant shall follow the procedures below:

a. Notification of exceedances: Notification of exceedances shall be made to Ecology within **24 hours of occurrence.** Notification shall be made with reference to Order **No. 13156**, to the Federal Permit Manager by telephone at (360) 407-6926 or by e-mail at loch461@ecy.wa.gov. The Applicant shall, at a minimum, provide Ecology with the following information:
   i. A description of the nature, extent, and cause of the exceedance.
   ii. The period of non-compliance, including exact dates, duration, and times and/or anticipated time when the project will return to compliance.
   iii. The steps taken, or to be taken to reduce, eliminate, and prevent a recurrence of the non-compliance.
   iv. In addition, within five (5) days after the notification of the exceedance, the Applicant shall submit a written report to Ecology (per conditions A.2.) that describes the nature of the exceedance(s), corrective action taken and/or planned, steps taken to prevent a recurrence, photographs, and any other pertinent information;

b. Mitigation and/or additional monitoring may be required if the monitoring results indicate that the water quality standards have not been met.

C. Timing Requirements:

This Order shall remain in effect for a period of five (5) years from the date of issuance.

D. Notification Requirements:

1. The Applicant shall provide a copy of the final Corps Permit to Ecology's Southwest Regional Office Federal Permit Manager in accordance with condition A2 above within two (2) weeks of receipt of the permit.
2. Written notification (e-mail is preferred) shall be made to Ecology's Southwest Regional Office Federal Permit Manager in accordance with condition A2, above for the following activities:
   a. At least ten (10) days prior to the onset of in-water work.
   b. Within ten (10) days after completion of in-water work.
   c. Immediately following a violation of any condition of this Order.
3. If project construction is not completed within 13 months of issuance of this Order, the Applicant shall submit a written construction status report. Status reports shall be submitted every 12 months thereafter until project construction is complete.

E. Project Specific Conditions:

General Construction

1. The Applicant shall comply with the conditions of (National Pollutant Discharge Elimination System - NPDES) Construction Stormwater General Permit No. WAR303701 issued for this project.
2. All work in and near waters of the state shall be done so as to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment, and erosion control Best Management Practices (BMP's) suitable to prevent exceedances of state water quality standards shall be in place at before starting clearing, filling, and grading work and shall be maintained throughout construction.
3. Within the project limits, all environmentally sensitive areas that are to be protected from disturbance shall be fenced with high visibility construction (HVF) prior to commencing construction activities. All project staff shall be trained to recognize construction fencing or flagging that identifies sensitive area boundaries.
4. The project shall be clearly marked/staked prior to commencing project activities on site. Clearing limits, travel corridors, stockpile sites, and staging areas shall be clearly marked and maintained until all work is completed. Equipment shall enter and operate within the marked clearing limits, corridors, and stockpile areas.
5. Staging areas will be located a minimum of 50 feet from waters of the state, including wetlands. If a staging area must be located within 50 feet of waters of the state, then the Applicant shall provide a written explanation (with additional BMPs) and obtain approval from Ecology's Federal Permit Manager before placing the staging area within the setback area.
6. Machinery and equipment used during construction shall be serviced, fueled, and maintained on uplands a minimum of 50 feet, and where practical, 100 feet, from waters of the state including wetlands, unless otherwise approved by Ecology, in order to prevent contamination to any surface water.
7. No petroleum products, fresh concrete, lime, chemicals, or other toxic or deleterious materials shall be allowed to enter waters of the state.
8. All equipment that will operate over or within waters of the state shall be free of external petroleum-based products. Accumulation of soils or debris shall be removed from the drive mechanisms and the undercarriage of equipment prior to use. Equipment shall be inspected daily for leaks, accumulation of grease, etc. Any identified problems shall be fixed before operating over or within waters of the state.
9. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working area shall not be discharged into state waters. The Applicant shall establish a separate, contained area for washing down vehicles and equipment that does not have any possibility of draining to surface waters and/or wetlands.

10. All construction debris, concrete waste material, excess sediment, and other solid waste shall be properly managed and disposed of in an upland disposal site approved by the appropriate regulatory authority.
11. Appropriate BMPs shall be implemented to minimize track-out during construction.
12. Clean Fill Criteria: The Applicant shall ensure that fill (soil) placed for the proposed project does not contain toxic materials in toxic amounts.

Potentially Contaminated Soils

13. Contaminants may be present at the proposed project site. If contamination is discovered, it must be reported to Ecology (per Condition A2, above). Contaminated soils or water may require special handling and/or disposal to avoid escaping dust, soil erosion, and water pollution during grading and construction activities.
14. If contamination is observed during construction, sampling of the potentially contaminated media must be conducted. Protective measures to isolate or remove contaminated soils shall be implemented. Contaminated soils generated during site construction shall be managed and disposed of in accordance with state and local regulations.

Temporary Diversion Structure and Dewatering

15. The temporary cofferdam to divert water around the work area shall be in place prior to initiation of other work in the wetted perimeter of that area.
16. The temporary diversion shall be of sufficient size, constructed of non-erosive materials, and installed to divert the entire flow through the bypass or around the isolated work area for the duration of the project.
17. The diversion system shall be designed and operated so as not to cause erosion in the channel or on the bank of the waterbody in which the work is being conducted.
18. Prior to returning water flow to the work area, all bank protection measures shall be in place.
19. Re-introduction of water into the isolated work area shall be done gradually, and at a rate not higher than the normal flow, in order to minimize the mobilization of sediments and fines.
20. Upon completion of the project, all material used for the temporary diversion shall be removed from the site.
21. Turbid dewatering water (including turbid water generated from cleaning and maintenance activities) shall not be discharged directly into waters of the state. Turbid water shall be pumped to an upland area to allow the turbid water to settle. The discharge from the upland areas shall meet water quality criteria at the point of discharge into surface waters and/or wetlands.

22. Dewatering water that is not turbid may be discharged directly to surface waters and/or wetland provided that: a) waste water containing raw concrete or other harmful material has not been in contact with the water to be discharged, and b) the water will meet **all of the water quality standards at the point of discharge.**

F. Mitigation

1. The Applicant shall mitigate for 1,190 square feet of impacts to the Erdahl Ditch as described in the *Port of Tacoma-Place of Circling Waters Advance Permittee-Responsible Mitigation Use Plan: North Lead Rail Project dated October 13, 2015* and associated e-mail communication submitted to Ecology on November 18, 2015. The Applicant will use 595 square feet of advance mitigation credit from the Place of Circling Waters Advance Mitigation Site at a ratio of 0.5:1.
2. Prior to impacting the Erdahl Ditch, the Applicant shall submit to Ecology (in accordance with Condition A.2.) an updated Ledger for the Place of Circling Waters Advance Mitigation Site documenting the amount of advance mitigation credits (credits) and area used for the North Lead Rail Improvements Project. This documentation must include the permit number, permit issuance date, impact acreage, the amount of credits required by the permit, and date the credits were debited and remaining credit balance at the site.
3. The Applicant shall notify Ecology of any changes to the amount of impacts, or revisions to the mitigation plan.
5. If the credits are not debited within 13 months of the date of this Order, the Applicant shall inform Ecology, in writing, of the status of

   a. Port of Tacoma, North Lead Rail Improvements Project;

   b. When the credits will be debited;

   With the:

   a. Reason for the delay; and,

   b. Expected date of completion.

   The Applicant shall submit an updated written notification every 12 months thereafter until The North Lead Rail Improvements Project is complete and the required credits are debited/recorded in the Ledger.

G. Emergency/Contingency Measures:

1. The Applicant shall develop and implement a Spill Prevention and Containment Plan for all aspects of this project and shall have spill cleanup materials and an emergency call list available on site.
2. Any work that is out of compliance with the provisions of this Order, or conditions causing distressed or dying fish, or any discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, is prohibited. If these occur, the Applicant or Operator shall immediately take the following actions:

a. Cease operations that are causing the compliance problem.

b. Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.

c. In the event of finding distressed or dying fish, the Applicant or Operator shall collect fish specimens and water samples in the affected area within the first hour of the event. These samples shall be held in refrigeration or on ice until instructed by Ecology on what to do with them. Ecology may require analysis of these samples before allowing the work to resume.

d. In the event of a discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of any spilled material and used cleanup materials.

e. Immediately notify Ecology's 24-Hour Spill Response Team at 1-800-258-5990 **and** within 24 hours of spills or other events to Ecology's Federal Permit Manager at (360) 407-6926 or (360) 407-6300.

f. Submit a detailed written report to Ecology within five (5) days that describes the nature of the event, corrective action taken and/or planned, steps taken to prevent recurrence, results from any samples taken, and any other pertinent information.

3. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters.

4. If at any time during work the proponent finds buried chemical containers, such as drums, or any unusual conditions indicating disposal of chemicals, the proponent shall immediately notify Ecology using the above phone numbers.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel Rd SW STE 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

Lori Kingsbury
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
loch461@ecy.wa.gov

MORE INFORMATION

Pollution Control Hearings Board Website
www.eho.wa.gov/Boards_PCHB.aspx

Chapter 43.21B RCW - Environmental Hearings Office – Pollution Control Hearings Board
http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21B

Chapter 371-08 WAC – Practice and Procedure
http://apps.leg.wa.gov/WAC/default.aspx?cite=371-08

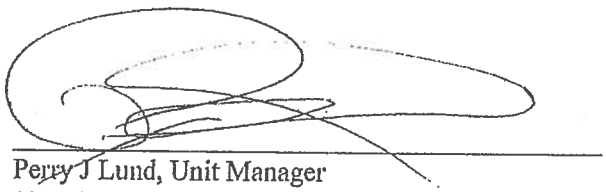
Chapter 90.48 RCW – Water Pollution Control
http://apps.leg.wa.gov/RCW/default.aspx?cite=90.48

Chapter 173.204 WAC – Sediment Management Standards
www.ecy.wa.gov/biblio/wac173204.html

Chapter 173-200 WAC – Water Quality Standards for Ground Waters of the State of Washington
www.ecy.wa.gov/biblio/wac173200.html

Chapter 173-201A WAC – Water Quality Standards for Surface Waters of the State of Washington
www.ecy.wa.gov/biblio/wac173201A.html

SIGNATURE



Perry J Lund, Unit Manager
Shorelands and Environmental Assistance Program
Southwest Regional Office

2/26/2016
Date

Attachment A
Statement of Understanding
Water Quality Certification Conditions

North Lead Rail Improvements Project
Port of Tacoma
Water Quality Certification Order No. **13156**
and
Corps Reference No. **NWS-2015-0489-WRD**

I, _____, state that I will be involved as an agent or contractor for Port of Tacoma in the site preparation and/or construction of the North Lead Rail Improvements Project located within the Erdahl Ditch associated with the Blair Waterway at SR 509 N. Frontage Road, Tacoma, Pierce County, Washington. I further state that I have read and understand the relevant conditions of Washington Department of Ecology Water Quality Certification Order No. **13156** and the applicable permits and approvals referenced therein which pertain to the project-related work for which I am responsible.

_____ _____
Signature Date

_____ _____
Title Phone

_____
Company

US Army Corps of Engineers
Seattle District

CERTIFICATE OF COMPLIANCE WITH DEPARTMENT OF THE ARMY PERMIT

Permit Number: NWS-2015-0489-WRD

Name of Permittee: Port of Tacoma

Date of Issuance: _____

Upon completion of the activity authorized by this permit, please check the applicable boxes below, date and sign this certification, and return it to the following address:

Department of the Army
U.S. Army Corps of Engineers
Seattle District, Regulatory Branch
Post Office Box 3755
Seattle, Washington 98124-3755

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with the terms and conditions of your authorization, your project is subject to suspension, modification, or revocation.

☐	The work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of this permit. Date work complete: _____
	☐ Photographs and as-built drawings of the authorized work are attached.

☐	If applicable, the mitigation required (not including monitoring (e.g., construction and plantings) in the above-referenced permit has been completed in accordance with the terms and conditions of this permit. Date work complete: _____
	☐ Photographs and as-built drawings of the mitigation are attached.

Printed Name: _____

Signature: _____

Date: _____

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

February 26, 2016

Port of Tacoma
ATTN: Mr. Tony Warfield
PO Box 1837
Tacoma, WA 98401-1837

RE: Water Quality Certification Order No. **13156** for Corps Public Notice No. **NWS-2015-0489-WRD** for the North Lead Rail Improvements Project, within the Erdahl Drainage Ditch associated with the Blair Waterway, within the Tacoma Rail Yard, Tacoma, Pierce County, Washington

Dear Mr. Warfield:

On July 6, 2015, the Port of Tacoma submitted a Joint Aquatic Resource Permit Application (JARPA) to the Department of Ecology (Ecology) for a Section 401 Water Quality Certification (401 Certification) under the federal Clean Water Act for the North Lead rail Improvements Project that will occur within the Tacoma Rail Yard, in the city of Tacoma, Pierce County. The U.S. Army Corps of Engineers issued a joint public notice on August 7, 2015, for the proposed project.

On behalf of the State of Washington, Ecology certifies that the work described in the JARPA and the public notice complies with applicable provisions of Sections 301, 302, 303, 306 and 307 of the Clean Water Act, as amended, and applicable state laws. This certification is subject to the conditions contained in the enclosed Order.

If you have any questions, please contact Lori Kingsbury at (360) 407-6926. The enclosed Order may be appealed by following the procedures described in the Order.

Sincerely,

Perry J Lund, Unit Manager
Shorelands and Environmental Assistance Program
Southwest Regional Office

Enclosure

By Certified Mail 7012 2920 0000 1182 2489

cc: Olivia Romano, Corps of Engineers

e-cc: ecyrefedpermits@ecy.wa.gov
Loree' Randall, HQ
Alex Callender, SWRO SEA
Dana Mock, HQ SEA
Carol Serdar, SWRO WQ
Lori Kingsbury, SWRO SEA

IN THE MATTER OF GRANTING A WATER QUALITY CERTIFICATION TO Port of Tacoma in accordance with 33 U.S.C. 1341 (FWPCA § 401), RCW 90.48.120, RCW 90.48.260 and Chapter 173-201A WAC	)))))))	**ORDER No. 13156** **Corps Reference No. NWS-2015-0489-WRD** For the North Lead Rail Improvements Project within the Tacoma Railyard in the Erdahl Ditch associated with the Blair Waterway, Tacoma, Pierce County, Washington

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The project is located within the Tacoma Rail Yard at SR 509 N. Frontage Road, Tacoma Pierce County, Washington; NE Quarter of Section 01, Township 20 North, Range 3 East, WRIA 10, Puyallup-White Watershed.

AUTHORITIES:

In exercising authority under 33 U.S.C. 1341, 16 U.S.C. 1456, RCW 90.48.120, and RCW 90.48.260, Ecology has examined this application pursuant to the following:

1. Conformance with applicable water quality-based, technology-based, and toxic or pretreatment effluent limitations as provided under 33 U.S.C. Sections 1311, 1312, 1313, 1316, and 1317 (FWPCA Sections 301, 302, 303, 306 and 307);
2. Conformance with the state water quality standards contained in Chapter 173-201A WAC and authorized by 33 U.S.C. 1313 and by Chapter 90.48 RCW, and with other applicable state laws; and,
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WATER QUALITY CERTIFICATION CONDITIONS:

Through issuance of this Order, Ecology certifies that it has reasonable assurance that the activity as proposed and conditioned will be conducted in a manner that will meet the applicable water quality standards and other appropriate requirements of state law. In view of the foregoing and in accordance with 33 U.S.C. § 1341, RCW 90.48.120, RCW 90.48.260, Chapter 173-200 WAC and Chapter 173-201A WAC, water quality certification is granted to the Applicant subject to the conditions within this Order.

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8. Nothing in this Order waives Ecology's authority to issue additional orders if Ecology determines that further actions are necessary to implement the water quality laws of the state. Further, Ecology retains continuing jurisdiction to make modifications hereto through supplemental order, if additional impacts due to project construction or operation are identified (*e.g.*, violations of water quality standards, downstream erosion, etc.), or if additional conditions are necessary to further protect water quality.
9. The Applicant shall ensure that all appropriate project engineers and contractors at the project site have read and understand relevant conditions of this Order and all permits, approvals, and documents referenced in this Order. The Applicant shall provide Ecology a signed statement (see Attachment A for an example) from each project engineer and contractor that they have read and understand the conditions of this Order and the above-referenced permit, plans, documents, and approvals. These statements shall be provided to Ecology before construction begins at the project site.
10. This Order does not authorize direct, indirect, permanent, or temporary impacts to waters of the state or related aquatic resources, except as specifically provided for in conditions of this Order.
11. Failure of any person or entity to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce the terms of this Order.

B. Water Quality Conditions:

1. This Order does not authorize temporary exceedances of water quality standards beyond the limits established in WAC 173-201A-200(1)(e)(i).
2. The Applicant shall visually monitor for turbidity at the point of compliance as specified in WAC 173-201A-200(1)(e)(i).
3. If water quality exceedances are observed outside the point of compliance, work shall cease immediately and the Applicant or the contractor shall assess the cause of the water quality problem and take immediate action to stop, contain, correct the problem and

prevent further water quality turbidity exceedances. If an exceedance occurs, the Applicant shall follow the procedures below:

a. Notification of exceedances: Notification of exceedances shall be made to Ecology within **24 hours of occurrence**. Notification shall be made with reference to Order **No. 13156**, to the Federal Permit Manager by telephone at (360) 407-6926 or by e-mail at loch461@ecy.wa.gov. The Applicant shall, at a minimum, provide Ecology with the following information:
   i. A description of the nature, extent, and cause of the exceedance.
   ii. The period of non-compliance, including exact dates, duration, and times and/or anticipated time when the project will return to compliance.
   iii. The steps taken, or to be taken to reduce, eliminate, and prevent a recurrence of the non-compliance.
   iv. In addition, within five (5) days after the notification of the exceedance, the Applicant shall submit a written report to Ecology (per conditions A.2.) that describes the nature of the exceedance(s), corrective action taken and/or planned, steps taken to prevent a recurrence, photographs, and any other pertinent information;

b. Mitigation and/or additional monitoring may be required if the monitoring results indicate that the water quality standards have not been met.

C. Timing Requirements:

This Order shall remain in effect for a period of five (5) years from the date of issuance.

D. Notification Requirements:

1. The Applicant shall provide a copy of the final Corps Permit to Ecology's Southwest Regional Office Federal Permit Manager in accordance with condition A2 above within two (2) weeks of receipt of the permit.

2. Written notification (e-mail is preferred) shall be made to Ecology's Southwest Regional Office Federal Permit Manager in accordance with condition A2, above for the following activities:

   a. At least ten (10) days prior to the onset of in-water work.
   b. Within ten (10) days after completion of in-water work.
   c. Immediately following a violation of any condition of this Order.

3. If project construction is not completed within 13 months of issuance of this Order, the Applicant shall submit a written construction status report. Status reports shall be submitted every 12 months thereafter until project construction is complete.

E. Project Specific Conditions:

General Construction

1. The Applicant shall comply with the conditions of (National Pollutant Discharge Elimination System - NPDES) Construction Stormwater General Permit No. WAR303701 issued for this project.
2. All work in and near waters of the state shall be done so as to minimize turbidity, erosion, and other water quality impacts. Construction stormwater, sediment, and erosion control Best Management Practices (BMP's) suitable to prevent exceedances of state water quality standards shall be in place at before starting clearing, filling, and grading work and shall be maintained throughout construction.
3. Within the project limits, all environmentally sensitive areas that are to be protected from disturbance shall be fenced with high visibility construction (HVF) prior to commencing construction activities. All project staff shall be trained to recognize construction fencing or flagging that identifies sensitive area boundaries.
4. The project shall be clearly marked/staked prior to commencing project activities on site. Clearing limits, travel corridors, stockpile sites, and staging areas shall be clearly marked and maintained until all work is completed. Equipment shall enter and operate within the marked clearing limits, corridors, and stockpile areas.
5. Staging areas will be located a minimum of 50 feet from waters of the state, including wetlands. If a staging area must be located within 50 feet of waters of the state, then the Applicant shall provide a written explanation (with additional BMPs) and obtain approval from Ecology's Federal Permit Manager before placing the staging area within the setback area.
6. Machinery and equipment used during construction shall be serviced, fueled, and maintained on uplands a minimum of 50 feet, and where practical, 100 feet, from waters of the state including wetlands, unless otherwise approved by Ecology, in order to prevent contamination to any surface water.
7. No petroleum products, fresh concrete, lime, chemicals, or other toxic or deleterious materials shall be allowed to enter waters of the state.
8. All equipment that will operate over or within waters of the state shall be free of external petroleum-based products. Accumulation of soils or debris shall be removed from the drive mechanisms and the undercarriage of equipment prior to use. Equipment shall be inspected daily for leaks, accumulation of grease, etc. Any identified problems shall be fixed before operating over or within waters of the state.
9. Wash water containing oils, grease, or other hazardous materials resulting from wash down of equipment or working area shall not be discharged into state waters. The Applicant shall establish a separate, contained area for washing down vehicles and equipment that does not have any possibility of draining to surface waters and/or wetlands.

10. All construction debris, concrete waste material, excess sediment, and other solid waste shall be properly managed and disposed of in an upland disposal site approved by the appropriate regulatory authority.
11. Appropriate BMPs shall be implemented to minimize track-out during construction.
12. Clean Fill Criteria: The Applicant shall ensure that fill (soil) placed for the proposed project does not contain toxic materials in toxic amounts.

Potentially Contaminated Soils

13. Contaminants may be present at the proposed project site. If contamination is discovered, it must be reported to Ecology (per Condition A2, above). Contaminated soils or water may require special handling and/or disposal to avoid escaping dust, soil erosion, and water pollution during grading and construction activities.
14. If contamination is observed during construction, sampling of the potentially contaminated media must be conducted. Protective measures to isolate or remove contaminated soils shall be implemented. Contaminated soils generated during site construction shall be managed and disposed of in accordance with state and local regulations.

Temporary Diversion Structure and Dewatering

15. The temporary cofferdam to divert water around the work area shall be in place prior to initiation of other work in the wetted perimeter of that area.
16. The temporary diversion shall be of sufficient size, constructed of non-erosive materials, and installed to divert the entire flow through the bypass or around the isolated work area for the duration of the project.
17. The diversion system shall be designed and operated so as not to cause erosion in the channel or on the bank of the waterbody in which the work is being conducted.
18. Prior to returning water flow to the work area, all bank protection measures shall be in place.
19. Re-introduction of water into the isolated work area shall be done gradually, and at a rate not higher than the normal flow, in order to minimize the mobilization of sediments and fines.
20. Upon completion of the project, all material used for the temporary diversion shall be removed from the site.
21. Turbid dewatering water (including turbid water generated from cleaning and maintenance activities) shall not be discharged directly into waters of the state. Turbid water shall be pumped to an upland area to allow the turbid water to settle. The discharge from the upland areas shall meet water quality criteria at the point of discharge into surface waters and/or wetlands.

22. Dewatering water that is not turbid may be discharged directly to surface waters and/or wetland provided that: a) waste water containing raw concrete or other harmful material has not been in contact with the water to be discharged, and b) the water will meet **all of the water quality standards at the point of discharge.**

F. Mitigation

1. The Applicant shall mitigate for 1,190 square feet of impacts to the Erdahl Ditch as described in the *Port of Tacoma-Place of Circling Waters Advance Permittee-Responsible Mitigation Use Plan: North Lead Rail Project dated October 13, 2015* and associated e-mail communication submitted to Ecology on November 18, 2015. The Applicant will use 595 square feet of advance mitigation credit from the Place of Circling Waters Advance Mitigation Site at a ratio of 0.5:1.
2. Prior to impacting the Erdahl Ditch, the Applicant shall submit to Ecology (in accordance with Condition A.2.) an updated Ledger for the Place of Circling Waters Advance Mitigation Site documenting the amount of advance mitigation credits (credits) and area used for the North Lead Rail Improvements Project. This documentation must include the permit number, permit issuance date, impact acreage, the amount of credits required by the permit, and date the credits were debited and remaining credit balance at the site.
3. The Applicant shall notify Ecology of any changes to the amount of impacts, or revisions to the mitigation plan.
5. If the credits are not debited within 13 months of the date of this Order, the Applicant shall inform Ecology, in writing, of the status of

   a. Port of Tacoma, North Lead Rail Improvements Project;

   b. When the credits will be debited;

   With the:

   a. Reason for the delay; and,

   b. Expected date of completion.

   The Applicant shall submit an updated written notification every 12 months thereafter until The North Lead Rail Improvements Project is complete and the required credits are debited/recorded in the Ledger.

G. Emergency/Contingency Measures:

1. The Applicant shall develop and implement a Spill Prevention and Containment Plan for all aspects of this project and shall have spill cleanup materials and an emergency call list available on site.
2. Any work that is out of compliance with the provisions of this Order, or conditions causing distressed or dying fish, or any discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, is prohibited. If these occur, the Applicant or Operator shall immediately take the following actions:

a. Cease operations that are causing the compliance problem.

b. Assess the cause of the water quality problem and take appropriate measures to correct the problem and/or prevent further environmental damage.

c. In the event of finding distressed or dying fish, the Applicant or Operator shall collect fish specimens and water samples in the affected area within the first hour of the event. These samples shall be held in refrigeration or on ice until instructed by Ecology on what to do with them. Ecology may require analysis of these samples before allowing the work to resume.

d. In the event of a discharge of oil, fuel, or chemicals into state waters, or onto land with a potential for entry into state waters, containment and cleanup efforts shall begin immediately and be completed as soon as possible, taking precedence over normal work. Cleanup shall include proper disposal of any spilled material and used cleanup materials.

e. Immediately notify Ecology's 24-Hour Spill Response Team at 1-800-258-5990 **and** within 24 hours of spills or other events to Ecology's Federal Permit Manager at (360) 407-6926 or (360) 407-6300.

f. Submit a detailed written report to Ecology within five (5) days that describes the nature of the event, corrective action taken and/or planned, steps taken to prevent recurrence, results from any samples taken, and any other pertinent information.

3. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., shall be checked regularly for drips or leaks, and shall be maintained and stored properly to prevent spills into state waters.

4. If at any time during work the proponent finds buried chemical containers, such as drums, or any unusual conditions indicating disposal of chemicals, the proponent shall immediately notify Ecology using the above phone numbers.

YOUR RIGHT TO APPEAL

You have a right to appeal this Order to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order on Ecology in paper form - by mail or in person. (See addresses below.) E-mail is not accepted.

You must also comply with other applicable requirements in Chapter 43.21B RCW and Chapter 371-08 WAC.

ADDRESS AND LOCATION INFORMATION

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503 **Pollution Control Hearings Board** 1111 Israel Rd SW STE 301 Tumwater, WA 98501	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608 **Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

CONTACT INFORMATION

Please direct all questions about this Order to:

Lori Kingsbury
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775
loch461@ecy.wa.gov

MORE INFORMATION

Pollution Control Hearings Board Website
www.eho.wa.gov/Boards_PCHB.aspx

Chapter 43.21B RCW - Environmental Hearings Office – Pollution Control Hearings Board
http://apps.leg.wa.gov/RCW/default.aspx?cite=43.21B

Chapter 371-08 WAC – Practice and Procedure
http://apps.leg.wa.gov/WAC/default.aspx?cite=371-08

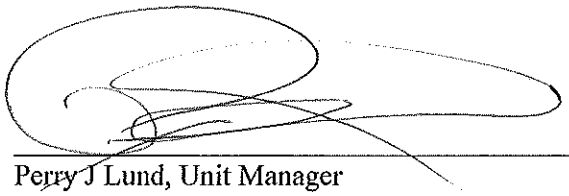
Chapter 90.48 RCW – Water Pollution Control
http://apps.leg.wa.gov/RCW/default.aspx?cite=90.48

Chapter 173.204 WAC – Sediment Management Standards
www.ecy.wa.gov/biblio/wac173204.html

Chapter 173-200 WAC – Water Quality Standards for Ground Waters of the State of Washington
www.ecy.wa.gov/biblio/wac173200.html

Chapter 173-201A WAC – Water Quality Standards for Surface Waters of the State of Washington
www.ecy.wa.gov/biblio/wac173201A.html

SIGNATURE



2/26/2016

Perry J Lund, Unit Manager
Shorelands and Environmental Assistance Program
Southwest Regional Office

Date

Attachment A
Statement of Understanding
Water Quality Certification Conditions

North Lead Rail Improvements Project
Port of Tacoma
Water Quality Certification Order No. **13156**
and
Corps Reference No. **NWS-2015-0489-WRD**

I, _____, state that I will be involved as an agent or contractor for Port of Tacoma in the site preparation and/or construction of the North Lead Rail Improvements Project located within the Erdahl Ditch associated with the Blair Waterway at SR 509 N. Frontage Road, Tacoma, Pierce County, Washington. I further state that I have read and understand the relevant conditions of Washington Department of Ecology Water Quality Certification Order No. **13156** and the applicable permits and approvals referenced therein which pertain to the project-related work for which I am responsible.

_____ _____
Signature Date

_____ _____
Title Phone

_____
Company

APPENDIX B

SWPPP

Stormwater Pollution Prevention Plan

For
Port of Tacoma North Lead Rail

Prepared For
Southwest Regional Office
PO Box 47775
Olympia, WA 98504-7775
360-407-6300

Owner	Developer	Operator/Contractor
Port of Tacoma	~	~
PO Box 1837	~	~
Tacoma, WA 98401	~	~
(253)383-5841		

Project Site Location
Tacoma, Washington

Certified Erosion and Sediment Control Lead
~
~

SWPPP Prepared By
KPFF Consulting Engineers, Inc.
2407 N 31st Street, Suite 100
Tacoma, WA 98407
253-396-0150
Steve Kingsley, Principal

SWPPP Preparation Date
March 18, 2016

Approximate Project Construction Dates
6/16/2016~5/10/2017

Contents

1.0 Introduction....1
2.0 Site Description....3
2.1 Existing Conditions....3
2.2 Proposed Construction Activities....4
3.0 Construction Stormwater BMPs....6
3.1 The 12 BMP Elements....6
3.1.1 Element #1 – Mark Clearing Limits....6
3.1.2 Element #2 – Establish Construction Access....6
3.1.3 Element #3 – Control Flow Rates....7
3.1.4 Element #4 – Install Sediment Controls....7
3.1.5 Element #5 – Stabilize Soils....8
3.1.6 Element #6 – Protect Slopes....8
3.1.7 Element #7 – Protect Drain Inlets....9
3.1.8 Element #8 – Stabilize Channels and Outlets....9
3.1.9 Element #9 – Control Pollutants....10
3.1.10 Element #10 – Control Dewatering....11
3.1.11 Element #11 – Maintain BMPs....12
3.1.12 Element #12 – Manage the Project....12
3.2 Site Specific BMPs....15
3.3 Additional Advanced BMPs....15
4.0 Construction Phasing and BMP Implementation....16
5.0 Pollution Prevention Team....17
5.1 Roles and Responsibilities....17
5.2 Team Members....17
6.0 Site Inspections and Monitoring....18
6.1 Site Inspection....18
6.1.1 Site Inspection Frequency....18
6.1.2 Site Inspection Documentation....18
6.2 Stormwater Quality Monitoring....19
6.2.1 Turbidity Sampling....19
7.0 Reporting and Recordkeeping....21
7.1 Recordkeeping....21
7.1.1 Site Log Book....21
7.1.2 Records Retention....21
7.1.3 Access to Plans and Records....21
7.1.4 Updating the SWPPP....21
7.2 Reporting....22

7.2.1 Discharge Monitoring Reports 22
7.2.2 Notification of Noncompliance 22
7.2.3 Permit Application and Changes 22

Appendix A Site plans
Appendix B Construction BMPs
Appendix C Alternative Construction BMP list
Appendix D General Permit
Appendix E Site Log and Inspection Forms
Appendix F Stormwater Flow Calculations

1.0 Introduction

This Stormwater Pollution Prevention Plan (SWPPP) has been prepared as part of the NPDES stormwater permit requirements for the North Lead Rail project at the Port of Tacoma (Port) in Tacoma, WA. The site is located between Milwaukee Way and Alexander Ave on the west and east, and between Pierce County Terminal to the north and State Route-509 to the south. The project includes an approximately 1.7-mile-long rail corridor from east of Milwaukee Way near the Tacoma Rail Yard headquarters at SR 509 North Frontage Road to west of Alexander Ave. The existing project site is approximately 16.76 acres. The proposed development consists of rail corridor improvements required to increase the capacity and efficiency of the Port's rail system, operated by Tacoma Rail. New lead tracks are planned within the corridor beginning at Milwaukee Way and extending to Alexander Avenue, as well as the reconfiguration of existing tracks to create five long tracks.

Construction activities will include demolition, excavation, grading and erosion control, railway track work and special track work. Access roads will be constructed within the rail yard, existing surface features will be relocated and additional storm drainage pipes and structures including stormwater treatment structures will be added. Compressed air distribution piping and new air connection pits shall be installed as well. Further construction details are found in Section 2.2 Proposed Construction Activities.

The purpose of this SWPPP is to describe the proposed construction activities and all temporary and permanent erosion and sediment control (TESC) measures, pollution prevention measures, inspection/monitoring activities, and recordkeeping that will be implemented during the proposed construction project. The objectives of the SWPPP are to:

1. Implement Best Management Practices (BMPs) to prevent erosion and sedimentation, and to identify, reduce, eliminate or prevent stormwater contamination and water pollution from construction activity.

2. Prevent violations of surface water quality, ground water quality, or sediment management standards.

3. Prevent, during the construction phase, adverse water quality impacts including impacts on beneficial uses of the receiving water by controlling peak flow rates and volumes of stormwater runoff at the Permittee's outfalls and downstream of the outfalls.

This SWPPP was prepared using the Ecology SWPPP Template downloaded from the Ecology website on October 26, 2015. This SWPPP was prepared based on the requirements set forth in the Construction Stormwater General Permit, Stormwater Management Manual for Western Washington (SWMMWW 2012) and in the Stormwater Management Manual for the City of Tacoma (SWMM 2012). The report is divided into seven main sections with several appendices

that include stormwater related reference materials. The topics presented in the each of the main sections are:

- Section 1 – INTRODUCTION. This section provides a summary description of the project, and the organization of the SWPPP document.

- Section 2 – SITE DESCRIPTION. This section provides a detailed description of the existing site conditions, proposed construction activities, and calculated stormwater flow rates for existing conditions and post–construction conditions.

- Section 3 – CONSTRUCTION BMPs. This section provides a detailed description of the BMPs to be implemented based on the 12 required elements of the SWPPP (SWMM 2012).

- Section 4 – CONSTRUCTION PHASING AND BMP IMPLEMENTATION. This section provides a description of the timing of the BMP implementation in relation to the project schedule.

- Section 5 – POLLUTION PREVENTION TEAM. This section identifies the appropriate contact names (emergency and non-emergency), monitoring personnel, and the onsite temporary erosion and sedimentation control inspector

- Section 6 – INSPECTION AND MONITORING. This section provides a description of the inspection and monitoring requirements such as the parameters of concern to be monitored, sample locations, sample frequencies, and sampling methods for all stormwater discharge locations from the site.

- Section 7 – RECORDKEEPING. This section describes the requirements for documentation of the BMP implementation, site inspections, monitoring results, and changes to the implementation of certain BMPs due to site factors experienced during construction.

Supporting documentation and standard forms are provided in the following Appendices:

Appendix A – Site plans
Appendix B – Construction BMPs
Appendix C – Alternative Construction BMP list
Appendix D – General Permit
Appendix E – Site Log and Inspection Forms
Appendix F – Stormwater Flow Calculations

2.0 Site Description

2.1 Existing Conditions

The site is located between Milwaukee Way and Alexander Avenue on the east and east, and between Pierce County Terminal to the north and State Route-509 to the south. The project includes an approximately 1.7-mile-long rail corridor from east of Milwaukee Way near the Tacoma Rail Yard headquarters at SR 509 North frontage Road. The existing project site is approximately 16.76 acres. The existing Port of Tacoma rail yard is operated by Tacoma Rail (TR) and the existing layout allows for only one train to leave and depart at any given time. The Tacoma Rail Yard is defined as tracks 1 through 17. Tracks 18 through 38 are Port owned tracks located just north of the TR yard and are collectively known as the Banana Tracks. In general, the majority of the project site is underlain by variable amounts of granular surface fills overlying predominately fine-grained native soils. The granular fill appears to be thickest towards the west end of the project site (four to six feet below ground surface (bgs)) and shallowest towards the middle and east end of the rail yard at two to three feet bgs.

A significant portion of stormwater from the site is directed to the Erdahl Ditch, which flows north to the Blair Waterway. The Erdahl Ditch runs south to north under State Route 509 crossing beneath the east end of the Tacoma Rail Yard and the Port-owned Banana Tracks and towards the Blair Waterway. The Erdahl Ditch is designated as a "Non-Jurisdictional Wetland" by the City of Tacoma, and is non-fish bearing. The ditch is made up of various buried culvert sections and open channel sections. An approximately 50 foot long open channel section with associated uplands is located within the project corridor just west of Port of Tacoma Road. The culvert on either side of the 50 foot long opening is approximately an 83" X 128" arch pipe. The Erdahl ditch has three pipes within the project area currently draining to it, all are 12" diameter pipes. A portion of the site adjacent to Alexander Avenue north of SR 509 drains to Wapato Creek which also flows to the Blair Waterway and another small portion of the site drains into the Lincoln Ditch, which also flows into the Blair Waterway.

Surface water is collected in stormwater catch basins and manholes which are conveyed to either the Erdahl Ditch, Lincoln Ditch or Wapato Creek. Stormwater is also collected via sub track drains (perforated pipe) and conveyed to catch basins that discharge into either Erdahl Ditch, Lincoln Ditch or Wapato Creek. There are no known historical drainage problems on the site.

The project site is part of the Port of Tacoma tideland area that is mapped by FEMA as an area of minimal flooding. The ditch that is to the north of the project site is mapped as an area of 100-year flood, base flood elevations and flood hazard factors not determined. There are no known wetlands, un-stabilized steep slopes, vegetative buffers or other sensitive or critical areas within the project limits.

A small portion of the project falls in an aquifer recharge area. Two existing wells are located near the project limits but both wells fall outside of the 100 foot limit. There are no known septic systems, existing fuel tanks, located in a wellhead recharge area.

The Sitcum Cleanup to the north of the site is the nearest Superfund Site, located approximately 2.2 miles away. There are no Superfund areas that drain to or receive drainage from the site.

2.2 Proposed Construction Activities

The proposed development includes the construction of rail corridor improvements including new track as well as reconfiguration of existing track. The new track work associated with the project extends from just east of Milwaukee Way to Alexander Avenue. No improvements will be made to either Milwaukee Way or Alexander Avenue. The final long tracks will extend through the entire length described, but the new track work is confined to the west end of the project site near Milwaukee Way, the central area below and adjacent to Port of Tacoma Road, and the east end of the project near Alexander Avenue where the existing tracks curve to the north. Existing tracks will be utilized to connect these three locations in the creation of the five long tracks. Upon completion, the long tracks will have clear lengths ranging from 7,020 feet to 7,515 feet with a total clear length of approximately 36,470 track feet.

Construction activities will include site preparation, TESC installation, and the following specific construction activities:

- Selective site demolition and erosion control;
- Railway track work and special track work;
- Access roads within the rail yard (for permanent use)
- Relocation of fencing and other surface features;
- Track drainage and relocation of existing storm drainage infrastructure:
- Relocation of existing utility infrastructure;
- Yard power and yard lighting infrastructure and relocations;
- Installation of a culvert and backfill of the open channel portion of the Erdahl Ditch;
- Compressed air distribution piping and new air connection pits at the west end of all 5 long tracks, and dummy air pits on tracks east of Port of Tacoma Road.

The existing surface is generally flat across the entire project site, consisting of 24 sub basins within the two Threshold Discharge Areas (TDAs), which all ultimately discharge to the Blair Waterway via three different outfall locations. The project proposes work in 17 of the sub basins, placing four Modular Wetland Systems (MWS) within the North Lead Rail total (TDAs) and ten StormFilter catch basins throughout the entire site. The new water quality treatment facilities will treat approximately 5.72 acres.

Stormwater runoff volumes for the project site were calculated using the Western Washington Hydrology Model (WWHM) and are summarized in the following table.

The following summarizes details regarding site areas:

- Total site area: 16.76 acres
- Percent impervious area before construction: 99.28 %
- Percent impervious area after construction: 100 %
- Disturbed area during construction: 16.76 acres
- Disturbed area that is characterized as impervious (i.e., access roads, staging, parking): 16.64 acres
- 2-year stormwater runoff peak flow prior to construction (existing): 5.83 cfs
- 10-year stormwater runoff peak flow prior to construction (existing): 9.28 cfs
- 2-year stormwater runoff peak flow during construction: 5.87 cfs
- 10-year stormwater runoff peak flow during construction: 9.35 cfs
- 2-year stormwater runoff peak flow after construction: 5.87 cfs
- 10-year stormwater runoff peak flow after construction: 9.35 cfs

All stormwater flow calculations are provided in Appendix F.

3.0 Construction Stormwater BMPs

3.1 The 12 BMP Elements

3.1.1 Element #1 – Mark Clearing Limits

To protect adjacent properties and to reduce the area of soil exposed to construction, the limits of construction will be clearly marked before land-disturbing activities begin. Trees that are to be preserved, as well as all sensitive areas and their buffers, shall be clearly delineated, both in the field and on the plans. In general, natural vegetation and native topsoil shall be retained in an undisturbed state to the maximum extent possible. The BMPs relevant to marking the clearing limits that will be applied for this project include:

- High Visibility Plastic or Metal Fence (BMP C103)

Alternate BMPs for marking clearing limits are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

3.1.2 Element #2 – Establish Construction Access

Construction access or activities occurring on unpaved areas shall be minimized, yet where necessary, access points shall be stabilized to minimize the tracking of sediment onto public roads, and wheel washing, street sweeping, and street cleaning shall be employed to prevent sediment from entering state waters. All wash wastewater shall be controlled on site. The specific BMPs related to establishing construction access that will be used on this project include:

- Stabilized Construction Entrance (BMP C105)
- Wheel Wash (BMP C106)

Alternate construction access BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

3.1.3 Element #3 – Control Flow Rates

In order to protect the properties and waterways downstream of the project site, stormwater discharges from the site will be controlled. The specific BMPs for flow control that shall be used on this project include:

- Flow Control is not required for this project; therefore no flow control BMP will be implemented.

Alternate flow control BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

The project site is located west of the Cascade Mountain Crest. As such, the project must comply with Minimum Requirement 7 (Ecology 2012).

In general, discharge rates of stormwater from the site will be controlled where increases in impervious area or soil compaction during construction could lead to downstream erosion, or where necessary to meet local agency stormwater discharge requirements (e.g. discharge to combined sewer systems).

3.1.4 Element #4 – Install Sediment Controls

All stormwater runoff from disturbed areas shall pass through an appropriate sediment removal BMP before leaving the construction site or prior to being discharged to an infiltration facility. The specific BMPs to be used for controlling sediment on this project include:

- Straw Wattles (BMP C235)

- Storm Drain Inlet Protection (BMP C220)

Alternate sediment control BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

In addition, sediment will be removed from paved areas in and adjacent to construction work areas manually or using mechanical sweepers, as needed, to minimize tracking of sediments on vehicle tires away from the site and to minimize washoff of sediments from adjacent streets in runoff.

3.1.5 Element #5 – Stabilize Soils

Exposed and unworked soils shall be stabilized with the application of effective BMPs to prevent erosion throughout the life of the project. The specific BMPs for soil stabilization that shall be used on this project include:

- Plastic Covering (BMP C123)
- Dust Control (BMP C140)

Alternate soil stabilization BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

The project site is located west of the Cascade Mountain Crest. As such, no soils shall remain exposed and unworked for more than 7 days during the dry season (May 1 to September 30) and 2 days during the wet season (October 1 to April 30). Regardless of the time of year, all soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on weather forecasts.

In general, cut and fill slopes will be stabilized as soon as possible and soil stockpiles will be temporarily covered with plastic sheeting. All stockpiled soils shall be stabilized from erosion, protected with sediment trapping measures, and where possible, be located away from storm drain inlets, waterways, and drainage channels.

3.1.6 Element #6 – Protect Slopes

All cut and fill slopes will be designed, constructed, and protected in a manner than minimizes erosion. The following specific BMPs will be used to protect slopes for this project:

- Straw Wattles (BMP C235)

Alternate slope protection BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix

D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

3.1.7 Element #7 – Protect Drain Inlets

All storm drain inlets and culverts made operable during construction shall be protected to prevent unfiltered or untreated water from entering the drainage conveyance system. However, the first priority is to keep all access roads clean of sediment and keep street wash water separate from entering storm drains until treatment can be provided. Storm Drain Inlet Protection (BMP C220) will be implemented for all drainage inlets and culverts that could potentially be impacted by sediment-laden runoff on and near the project site. The following inlet protection measures will be applied on this project:

- Storm Drain Inlet Protection (BMP C220)

3.1.8 Element #8 – Stabilize Channels and Outlets

Where site runoff is to be conveyed in channels, or discharged to a stream or some other natural drainage point, efforts will be taken to prevent downstream erosion. The specific BMPs for channel and outlet stabilization that shall be used on this project include:

- Outlet Protection (BMP C209)

Outlet protection shall be implemented primarily at the Culvert outlet to the Erdahl Ditch to prevent scour and minimize the potential for erosion by reducing the velocity of concentrated stormwater flows during construction.

Alternate channel and outlet stabilization BMPs are included in Appendix C as a quick reference tool for the onsite inspector in the event the BMP(s) listed above are deemed ineffective or inappropriate during construction to satisfy the requirements set forth in the General NPDES Permit (Appendix D). To avoid potential erosion and sediment control issues that may cause a violation(s) of the NPDES Construction Stormwater permit (as provided in Appendix D), the Certified Erosion and Sediment Control Lead will promptly initiate the implementation of one or more of the alternative BMPs listed in Appendix C after the first sign that existing BMPs are ineffective or failing.

The project site is located west of the Cascade Mountain Crest. As such, all temporary on-site conveyance channels shall be designed, constructed, and stabilized to prevent erosion from the expected peak 10 minute velocity of flow from a Type 1A, 10-year, 24-hour recurrence interval storm for the developed condition. Alternatively, the 10-year, 1-hour peak flow rate indicated by an approved continuous runoff simulation model, increased by a factor of 1.6, shall be used. Stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent

streambanks, slopes, and downstream reaches shall be provided at the outlets of all conveyance systems.

3.1.9 Element #9 – Control Pollutants

All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well organized, and free of debris. If required, BMPs to be implemented to control specific sources of pollutants are discussed below.

Vehicles, construction equipment, and/or petroleum storage/dispensing:

- Vehicles, construction equipment, and/or petroleum product storage/dispensing:
    - All vehicles, equipment, and petroleum product storage/dispensing areas will be inspected regularly to detect any leaks or spills, and to identify maintenance needs to prevent leaks or spills.
    - On-site fueling tanks and petroleum product storage containers shall include secondary containment.
    - Spill prevention measures, such as drip pans, will be used when conducting maintenance and repair of vehicles or equipment.
    - In order to perform emergency repairs on site, temporary plastic will be placed beneath and, if raining, over the vehicle.
    - Contaminated surfaces shall be cleaned immediately following any discharge or spill incident.

Demolition:

- Dust released from demolished roads, railroad and associated trackwork, or structures will be controlled using Dust Control measures (BMP C140).
- Storm drain inlets vulnerable to stormwater discharge carrying dust, soil, or debris will be protected using Storm Drain Inlet Protection (BMP C220 as described above for Element 7).
- Process water and slurry resulting from sawcutting and surfacing operations will be prevented from entering the waters of the State by implementing Sawcutting and Surfacing Pollution Prevention measures (BMP C152).

Concrete and Grout:

- Process water and slurry resulting from concrete work will be prevented from entering the waters of the State by implementing Concrete Handling measures (BMP C151).

Note: Concrete Handling Measures shall be applied to asphalt handling throughout the construction of the access roads within the rail yard in addition to any specific concrete handling.

Sanitary wastewater:

- Portable sanitation facilities will be firmly secured, regularly maintained, and emptied when necessary.

- Wheel wash or tire bath wastewater shall be discharged to a separate on-site treatment system or to the sanitary sewer as part of Wheel Wash implementation (BMP C106).

The facility is transportation-related and therefore not subject to the Federal requirements of the Spill Prevention, Control, and Countermeasure (SPCC) Plan under the Clean Water Act (CWA). If applicable, the Contractor shall prepare an SPCC Plan according to the Washington State Department of Transportation (WSDOT) Requirements (see the WSDOT Standard Specifications for Road, Bridge, and Municipal Construction 2016).

3.1.10 Element #10 – Control Dewatering

All dewatering water from open cut excavation, trench or underground vaults shall be discharged into a controlled conveyance system prior to discharge to a freshwater or saltwater body. Channels will be stabilized, per Element #8. Clean, non-turbid dewatering water will not be routed through stormwater sediment ponds, and will be discharged to systems tributary to the receiving waters of the State in a manner that does not cause erosion, flooding, or a violation of State water quality standards in the receiving water. Highly turbid dewatering water from soils known or suspected to be contaminated, or from use of construction equipment, will require additional monitoring and treatment as required for the specific pollutants based on the receiving waters into which the discharge is occurring. Such monitoring is the responsibility of the contractor.

However, the dewatering of soils known to be free of contamination will trigger BMPs to trap sediment and reduce turbidity. At a minimum, geotextile fabric socks/bags/cells will be used to filter this material. Other BMPs to be used for sediment trapping and turbidity reduction include the following:

- Construction Stormwater Filtration (BMP C251)

3.1.11 Element #11 – Maintain BMPs

All temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with each particular BMP's specifications. Visual monitoring of the BMPs will be conducted at least once every calendar week and within 24 hours of any rainfall event that causes a discharge from the site. If the site becomes inactive, and is temporarily stabilized, the inspection frequency will be reduced to once every month.

All temporary erosion and sediment control BMPs shall be removed within 30 days after the final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation shall be permanently stabilized.

3.1.12 Element #12 – Manage the Project

Erosion and sediment control BMPs for this project have been designed based on the following principles:

- Design the project to fit the existing topography, soils, and drainage patterns.
- Emphasize erosion control rather than sediment control.
- Minimize the extent and duration of the area exposed.
- Keep runoff velocities low.
- Retain sediment on site.
- Thoroughly monitor site and maintain all ESC measures.
- Schedule major earthwork during the dry season.

In addition, project management will incorporate the key components listed below:

This project site is located west of the Cascade Mountain Crest, the project will be managed according to the following key project components:

Phasing of Construction

- The construction project is being phased to the extent practicable in order to prevent soil erosion, and, to the maximum extent possible, the transport of sediment from the site during construction.

- Revegetation of exposed areas and maintenance of that vegetation shall be an integral part of the clearing activities during each phase of construction, per the Scheduling BMP (C 162).

Seasonal Work Limitations

- From October 1 through April 30, clearing, grading, and other soil disturbing activities shall only be permitted if shown to the satisfaction of the local permitting authority that silt-laden runoff will be prevented from leaving the site though a combination of the following:
    - Site Conditions including existing vegetative coverage, slope, soil type, and proximity to receiving waters; and
        - Limitations on activities and the extent of disturbed areas; and
        - Proposed erosion and sediment control measures.
- Based on the information provided and/or local weather conditions, the local permitting authority may expand or restrict the seasonal limitation on site disturbance.
- The following activities are exempt from the seasonal clearing and grading limitations:
    - Routine maintenance and necessary repair of erosion and sediment control BMPs;
    - Routine maintenance of public facilities or existing utility structures that do not expose the soil or result in the removal of the vegetative cover to soil; and
    - Activities where there is 100 percent infiltration of surface water runoff within the site in approved and installed erosion and sediment control facilities.

Coordination with Utilities and Other Jurisdictions

- Care has been taken to coordinate with utilities, other construction projects, and the local jurisdiction in preparing this SWPPP and scheduling the construction work.

Inspection and Monitoring

- All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function. Site inspections shall be conducted by a person who is knowledgeable in the principles and practices of erosion and sediment control. This person has the necessary skills to:
  - Assess the site conditions and construction activities that could impact the quality of stormwater, and
  - Assess the effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges.
- A Certified Erosion and Sediment Control Lead shall be on-site or on-call at all times.
- Whenever inspection and/or monitoring reveals that the BMPs identified in this SWPPP are inadequate, due to the actual discharge of or potential to discharge a significant amount of any pollutant, appropriate BMPs or design changes shall be implemented as soon as possible.

Maintaining an Updated Construction SWPPP

- This SWPPP shall be retained on-site or within reasonable access to the site.
- The SWPPP shall be modified whenever there is a change in the design, construction, operation, or maintenance at the construction site that has, or could have, a significant effect on the discharge of pollutants to waters of the state.
- The SWPPP shall be modified if, during inspections or investigations conducted by the owner/operator, or the applicable local or state regulatory authority, it is determined that the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site. The SWPPP shall be modified as necessary to include additional or modified BMPs designed to correct problems identified. Revisions to the SWPPP shall be completed within seven (7) days following the inspection.

3.2 Site Specific BMPs

Site specific BMPs are shown on the TESC Plan Sheets and Details in Appendix A. These site specific plan sheets will be updated annually.

3.3 Additional Advanced BMPs

No additional advanced BMPS have been selected for this project.

4.0 Construction Phasing and BMP Implementation

The BMP implementation schedule will be driven by the construction schedule. The following provides a sequential list of the proposed construction schedule milestones and the corresponding BMP implementation schedule. The primary site work has been broken up into 6 Phases, for which the contractor will be required to submit a sequencing plan and schedule no less than 10 working days prior to the start of construction. The project priority shall be to complete work within phases 1-3 prior to phases 4-6.

The BMP implementation schedule listed below is keyed to proposed phases of the construction project, and reflects differences in BMP installations and inspections that relate to wet season construction. The project site is located west of the Cascade Mountain Crest. As such, the dry season is considered to be from May 1 to September 30 and the wet season is considered to be from October 1 to April 30.

Estimate of Construction Start Date:	June 6, 2016
Mobilize equipment on site:	June 15, 2016
Mobilize and store all ESC and soil stabilization products:	June 15, 2016
Install ESC measures:	June 15, 2016
Install stabilized construction entrance:	June 15, 2016
Begin clearing and grubbing:	June 15, 2016
Begin East End:	July 14, 2016
End East End:	January 20, 2017
Begin West End:	January 23, 2017
End West End:	April 11, 2017
Estimate of Construction Finish Date:	May 10, 2017
Wet Season starts:	October 1, 2016
Dry Season starts	May 1, 2016/2017

5.0 Pollution Prevention Team

5.1 Roles and Responsibilities

The pollution prevention team consists of personnel responsible for implementation of the SWPPP, including the following:

- Certified Erosion and Sediment Control Lead (CESCL) – primary contractor contact, responsible for site inspections (BMPs, visual monitoring, sampling, etc.); to be called upon in case of failure of any ESC measures.
- Resident Engineer – For projects with engineered structures only (sediment ponds/traps, sand filters, etc.): site representative for the owner that is the project's supervising engineer responsible for inspections and issuing instructions and drawings to the contractor's site supervisor or representative
- Emergency Ecology Contact – individual to be contacted at Ecology in case of emergency.
- Emergency Owner Contact – individual that is the site owner or representative of the site owner to be contacted in the case of an emergency.
- Non-Emergency Ecology Contact – individual that is the site owner or representative of the site owner than can be contacted if required.
- Monitoring Personnel – personnel responsible for conducting water quality monitoring; for most sites this person is also the Certified Erosion and Sediment Control Lead.

5.2 Team Members

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	TBD	TBD
Resident Engineer	TBD	TBD
Emergency Ecology Contact	Southwest Regional Office	360-407-6300
Emergency Owner Contact	Port of Tacoma Security	253-383-5841
Non-Emergency Ecology Contact	Josh Klimek	360-407-7451
Monitoring Personnel	TBD	TBD

6.0 Site Inspections and Monitoring

Monitoring includes visual inspection, monitoring for water quality parameters of concern, and documentation of the inspection and monitoring findings in a site log book. A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements;
- Site inspections; and,
- Stormwater quality monitoring.

For convenience, the inspection form and water quality monitoring forms included in this SWPPP include the required information for the site log book. This SWPPP may function as the site log book if desired, or the forms may be separated and included in a separate site log book. However, if separated, the site log book but must be maintained on-site or within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

6.1 Site Inspection

All BMPs will be inspected, maintained, and repaired as needed to assure continued performance of their intended function. The inspector will be a Certified Erosion and Sediment Control Lead (CESCL) per BMP C160. The name and contact information for the CESCL is provided in Section 5 of this SWPPP.

Site inspection will occur in all areas disturbed by construction activities and at all stormwater discharge points. Stormwater will be examined for the presence of suspended sediment, turbidity, discoloration, and oily sheen. The site inspector will evaluate and document the effectiveness of the installed BMPs and determine if it is necessary to repair or replace any of the BMPs to improve the quality of stormwater discharges. All maintenance and repairs will be documented in the site log book or forms provided in this document. All new BMPs or design changes will be documented in the SWPPP as soon as possible.

6.1.1 Site Inspection Frequency

Site inspections will be conducted at least once a week and within 24 hours following any discharge from the site. For sites with temporary stabilization measures, the site inspection frequency can be reduced to once every month.

6.1.2 Site Inspection Documentation

The site inspector will record each site inspection using the site log inspection forms provided in Appendix E. The site inspection log forms may be separated from this

SWPPP document, but will be maintained on-site or within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

6.2 Stormwater Quality Monitoring

6.2.1 Turbidity Sampling

Monitoring requirements for the proposed project will include either turbidity or water transparency sampling to monitor site discharges for water quality compliance with the 2016 Construction Stormwater General Permit (Appendix D). Sampling will be conducted at all discharge points at least once per calendar week.

Turbidity or transparency monitoring will follow the analytical methodologies described in Section S4 of the 2016 Construction Stormwater General Permit (Appendix D). The key benchmark values that require action are 25 NTU for turbidity (equivalent to 32 cm transparency) and 250 NTU for turbidity (equivalent to 6 cm transparency). If the 25 NTU benchmark for turbidity (equivalent to 32 cm transparency) is exceeded, the following steps will be conducted:

1. Ensure all BMPs specified in this SWPPP are installed and functioning as intended.

2. Assess whether additional BMPs should be implemented, and document revisions to the SWPPP as necessary.

3. Sample discharge location daily until the analysis results are less than 25 NTU (turbidity) or greater than 32 cm (transparency).

If the turbidity is greater than 25 NTU (or transparency is less than 32 cm) but less than 250 NTU (transparency greater than 6 cm) for more than 3 days, additional treatment BMPs will be implemented within 24 hours of the third consecutive sample that exceeded the benchmark value. Additional treatment BMPs to be considered will include, but are not limited to, off-site treatment, infiltration, filtration and chemical treatment.

If the 250 NTU benchmark for turbidity (or less than 6 cm transparency) is exceeded at any time, the following steps will be conducted:

1. Notify Ecology by phone within 24 hours of analysis (see Section 5.0 of this SWPPP for contact information).

2. Continue daily sampling until the turbidity is less than 25 NTU (or transparency is greater than 32 cm).

3. Initiate additional treatment BMPs such as off-site treatment, infiltration, filtration and chemical treatment within 24 hours of the first 250 NTU exceedance.

4. Implement additional treatment BMPs as soon as possible, but within 7 days of the first 250 NTU exceedance.

5. Describe inspection results and remedial actions taken in the site log book and in monthly discharge monitoring reports as described in Section 7.0 of this SWPPP.

7.0 Reporting and Recordkeeping

7.1 Recordkeeping

7.1.1 Site Log Book

A site log book will be maintained for all on-site construction activities and will include:

- A record of the implementation of the SWPPP and other permit requirements;
- Site inspections; and,
- Stormwater quality monitoring.

For convenience, the inspection form and water quality monitoring forms included in this SWPPP include the required information for the site log book.

7.1.2 Records Retention

Records of all monitoring information (site log book, inspection reports/checklists, etc.), this Stormwater Pollution Prevention Plan, and any other documentation of compliance with permit requirements will be retained during the life of the construction project and for a minimum of three years following the termination of permit coverage in accordance with permit condition S5.C.

7.1.3 Access to Plans and Records

The SWPPP, General Permit, Notice of Authorization letter, and Site Log Book will be retained on site or within reasonable access to the site and will be made immediately available upon request to Ecology or the local jurisdiction. A copy of this SWPPP will be provided to Ecology within 14 days of receipt of a written request for the SWPPP from Ecology. Any other information requested by Ecology will be submitted within a reasonable time. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with permit condition S5.G.

7.1.4 Updating the SWPPP

In accordance with Conditions S3, S4.B, and S9.B.3 of the General Permit, this SWPPP will be modified if the SWPPP is ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site or there has been a change in design, construction, operation, or maintenance at the site that has a significant effect on the discharge, or potential for discharge, of pollutants to the waters of the State. The SWPPP will be modified within seven days of determination based on inspection(s) that additional or modified BMPs are necessary to correct problems identified, and an updated timeline for BMP implementation will be prepared.

7.2 Reporting

7.2.1 Discharge Monitoring Reports

If cumulative soil disturbance is 5 acres or larger: Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. Of there was no discharge during a given monitoring period, the Permittee shall submit the form as required, with the words "No discharge" entered in the place of monitoring results. The DMR due date is 15 days following the end of each month.

7.2.2 Notification of Noncompliance

If any of the terms and conditions of the permit are not met, and it causes a threat to human health or the environment, the following steps will be taken in accordance with permit section S5.F:

1. Ecology will be immediately notified of the failure to comply.

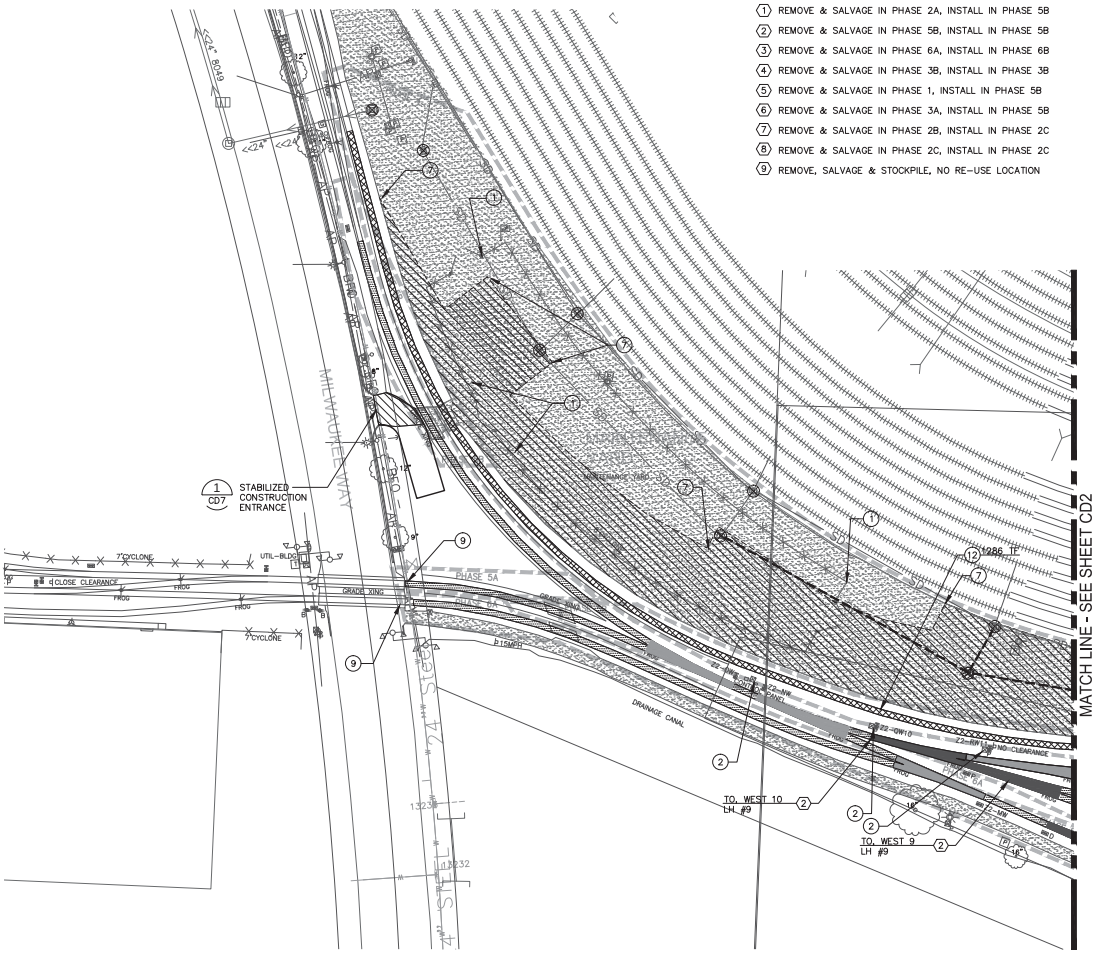
2. Immediate action will be taken to control the noncompliance issue and to correct the problem. If applicable, sampling and analysis of any noncompliance will be repeated immediately and the results submitted to Ecology within five (5) days of becoming aware of the violation.

3. A detailed written report describing the noncompliance will be submitted to Ecology within five (5) days, unless requested earlier by Ecology.

In accordance with permit condition S2.A, a complete application form will be submitted to Ecology and the appropriate local jurisdiction (if applicable) to be covered by the General Permit.

Appendix A – Site Plans

BINDING EDGE



TURNOUT SALVAGE PHASING & SEQUENCING NOTES:

1. REMOVE & SALVAGE IN PHASE 2A, INSTALL IN PHASE 5B
2. REMOVE & SALVAGE IN PHASE 5B, INSTALL IN PHASE 5B
3. REMOVE & SALVAGE IN PHASE 6A, INSTALL IN PHASE 6B
4. REMOVE & SALVAGE IN PHASE 3B, INSTALL IN PHASE 3B
5. REMOVE & SALVAGE IN PHASE 1, INSTALL IN PHASE 5B
6. REMOVE & SALVAGE IN PHASE 3A, INSTALL IN PHASE 5B
7. REMOVE & SALVAGE IN PHASE 2B, INSTALL IN PHASE 2C
8. REMOVE & SALVAGE IN PHASE 2C, INSTALL IN PHASE 2C
9. REMOVE, SALVAGE & STOCKPILE, NO RE-USE LOCATION

DEMOLITION NOTES:

1. COORDINATE DEMOLITION WORK WITH PHASING PLANS G8 – G23. FOR UTILITY AND STORM DRAINAGE RELOCATIONS SEE SHEETS ED1–ED6 AND SD1–SD6.
2. ALL LOCATIONS OF EXISTING IMPROVEMENTS SHOWN ARE FROM AVAILABLE GIS RECORDS AND FIELD SURVEY AND SHOULD BE CONSIDERED APPROXIMATE AND NOT NECESSARILY COMPLETE.
3. UTILITY POTHOLE EXISTING STRUCTURE, PIPE, AND CONDUIT, SEE APPROXIMATE POTHOLE LOCATIONS, REFERENCE SPECIFICATION SECTION 01-1400
4. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTIFICATION AND SHALL COORDINATE AND SCHEDULE ANY INTERRUPTIONS TO RAIL OPERATIONS OR ACCESS WITH THE PORT OF TACOMA, AND TACOMA RAIL PRIOR TO COMMENCEMENT OF THE WORK. SEE SPECIFICATIONS.
5. CONTRACTOR SHALL MAINTAIN AND PROTECT ALL SITE IMPROVEMENTS NOT OTHERWISE NOTED FOR DEMOLITION. CONTRACTOR SHALL REPAIR OR REPLACE ALL ITEMS DAMAGED BY CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
6. ALL PAVEMENT NOTED FOR DEMOLITION SHALL BE SAWCUT.
7. ALL QUANTITIES IDENTIFIED ARE APPROXIMATE.

DEMOLITION ITEMS:

1. DEMOLISH FENCE & GATES
2. REMOVE AND SALVAGE POWER SWITCH MACHINE TEMPORARILY REPLACE WITH MECHANICAL SWITCH MACHINE, PROVIDE TO TACOMA RAIL
3. DEMOLISH GUARD RAIL
4. DEMOLISH TIMBER RETAINING WALL
5. REMOVE WIND SOCK AND POLE
6. DEMOLISH ECOLOGY BLOCK RETAINING WALL
7. EXTENT OF HMA SAWCUT
8. REMOVE AND SALVAGE GRADE CROSSING MATERIAL
9. PROTECT GRADE CROSSING MATERIAL
10. REMOVE BOLLARDS
11. CUT AND CAP PIPE, ABANDON IN PLACE
12. REMOVE TRACK, SALVAGE RAIL FOR RELAY
13. REMOVE TRACK LUBRICATOR

DEMOLITION AND TESC LEGEND:

- REMOVE ASPHALT
- REMOVE TRACK, SALVAGE RAIL FOR RELAY
- REMOVE TRACK
- SALVAGE TURNOUT, SEE SHEET R14
- REMOVE TURNOUT
- SAWCUT HMA PAVEMENT
- REMOVE TREE/SHRUB
- DEMOLITION STORM DRAIN PIPE AND/OR STRUCTURE
- UTILITY POTHOLE LOCATION
- STRAW WATTLES
- INLET PROTECTION (2 CD7)

40' 0 40' 80'
20' 60'
SCALE: 1"=40'

100% DESIGN

kpff
2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 922-5072 FAX (253) 922-5102

MARK:	REVISION:	BY:	APPR:	DATE:

Port of Tacoma

APPROVED:

DIRECTOR ENG.	DATE
PRINTED BY:	rchandler Jan 25, 2016
PORT ADDRESS:	ONE SITOUM PLAZA
	TACOMA, WA 98401-1837

CHECKED BY	DATE
SWK	01/25/16
PROJ. ENGR	DATE

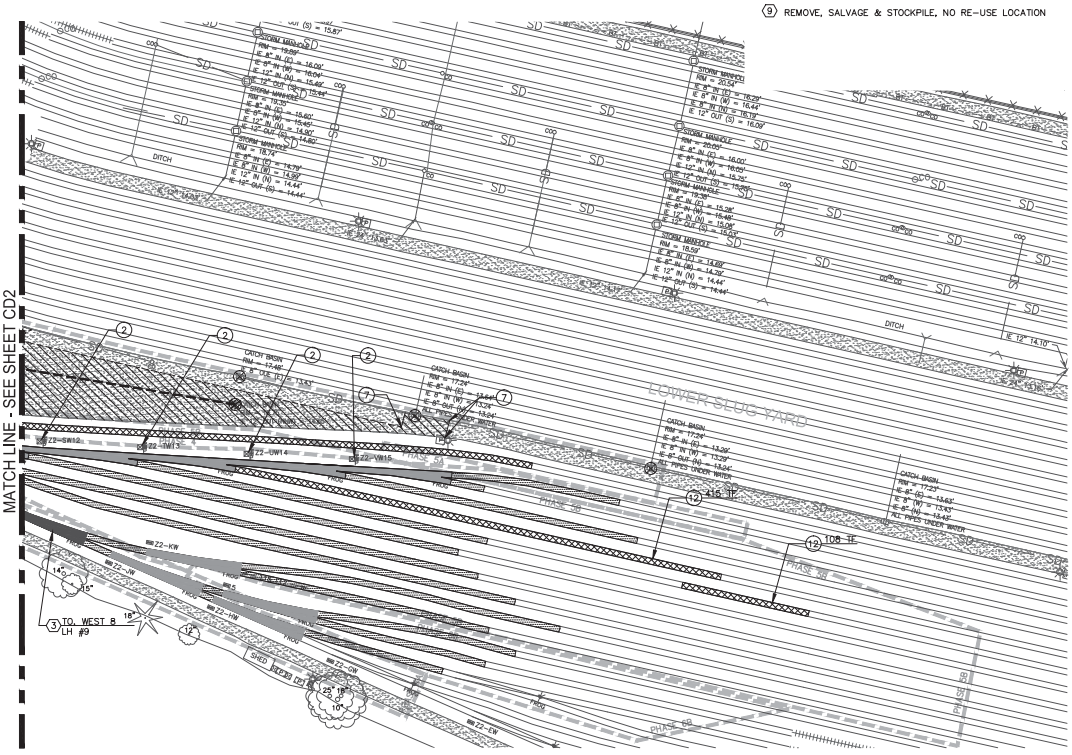
NORTH LEAD
WEST END - AREA 1
CIVIL DEMOLITION AND EROSION CONTROL PLAN

6555
CD1
SHEET 30 OF 129

CONT/CONS:	070164	TOWNSHIP: 20N	RANGE: 03E
M. ID:	092938	DAT-HRZ/VRS-SF	VERT: PORT OF TACOMA BM #846
PHASE:	100% DESIGN	PARCEL: MULTIPLE	DRAWING SCALE: AS NOTED

SECTION: 1, 2, 3

BINDING EDGE



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6. REMOVE & SALVAGE IN PHASE 3A, INSTALL IN PHASE 5B
7. REMOVE & SALVAGE IN PHASE 2B, INSTALL IN PHASE 2C
8. REMOVE & SALVAGE IN PHASE 2C, INSTALL IN PHASE 2C
9. REMOVE, SALVAGE & STOCKPILE, NO RE-USE LOCATION

DEMOLITION NOTES:

1. COORDINATE DEMOLITION WORK WITH PHASING PLANS G8 – G23. FOR UTILITY AND STORM DRAINAGE RELOCATIONS SEE SHEETS ED1–ED6 AND SD1–SD6.
2. ALL LOCATIONS OF EXISTING IMPROVEMENTS SHOWN ARE FROM AVAILABLE GIS RECORDS AND FIELD SURVEY AND SHOULD BE CONSIDERED APPROXIMATE AND NOT NECESSARILY COMPLETE.
3. UTILITY POTHOLE EXISTING STRUCTURE, PIPE, AND CONDUIT, SEE APPROXIMATE POTHOLE LOCATIONS, REFERENCE SPECIFICATION SECTION 01-1400
4. THE CONTRACTOR SHALL PROVIDE SUFFICIENT NOTIFICATION AND SHALL COORDINATE AND SCHEDULE ANY INTERRUPTIONS TO RAIL OPERATIONS OR ACCESS WITH THE PORT OF TACOMA, AND TACOMA RAIL PRIOR TO COMMENCEMENT OF THE WORK. SEE SPECIFICATIONS.
5. CONTRACTOR SHALL MAINTAIN AND PROTECT ALL SITE IMPROVEMENTS NOT OTHERWISE NOTED FOR DEMOLITION. CONTRACTOR SHALL REPAIR OR REPLACE ALL ITEMS DAMAGED BY CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
6. ALL PAVEMENT NOTED FOR DEMOLITION SHALL BE SAWCUT.
7. ALL QUANTITIES IDENTIFIED ARE APPROXIMATE.

DEMOLITION ITEMS:

1. DEMOLISH FENCE & GATES
2. REMOVE AND SALVAGE POWER SWITCH MACHINE TEMPORARILY REPLACE WITH MECHANICAL SWITCH MACHINE, PROVIDE TO TACOMA RAIL
3. DEMOLISH GUARD RAIL
4. DEMOLISH TIMBER RETAINING WALL
5. REMOVE WIND SOCK AND POLE
6. DEMOLISH ECOLOGY BLOCK RETAINING WALL
7. EXTENT OF HMA SAWCUT
8. REMOVE AND SALVAGE GRADE CROSSING MATERIAL
9. PROTECT GRADE CROSSING MATERIAL
10. REMOVE BOLLARDS
11. CUT AND CAP PIPE, ABANDON IN PLACE
12. REMOVE TRACK, SALVAGE RAIL FOR RELAY
13. REMOVE TRACK LUBRICATOR

DEMOLITION AND TESC LEGEND:

- REMOVE ASPHALT
- REMOVE TRACK, SALVAGE RAIL FOR RELAY
- REMOVE TRACK
- SALVAGE TURNOUT, SEE SHEET R14
- REMOVE TURNOUT
- SAWCUT HMA PAVEMENT
- REMOVE TREE/SHRUB
- DEMOLITION STORM DRAIN PIPE AND/OR STRUCTURE
- UTILITY POTHOLE LOCATION
- STRAW WATTLES
- INLET PROTECTION (4 CD7 / 2 CD7)

40' 0 40' 80'
20' 60'
SCALE: 1"=40'

100% DESIGN

Port of Tacoma
P.O. Box 1837, Tacoma, WA 98401-1837

kpff
2601 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 922-5072 FAX (253) 922-5102

MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED:

DIRECTOR, ENG.	DATE	CHECKED BY	DATE
		SWK	01/25/16
PROJ. ENGR	DATE		

PRINTED BY: rchandler Jan 25, 2016
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

NORTH LEAD
WEST END - AREA 2
CIVIL DEMOLITION AND EROSION CONTROL PLAN

6555
CD2
SHEET 31 OF 129

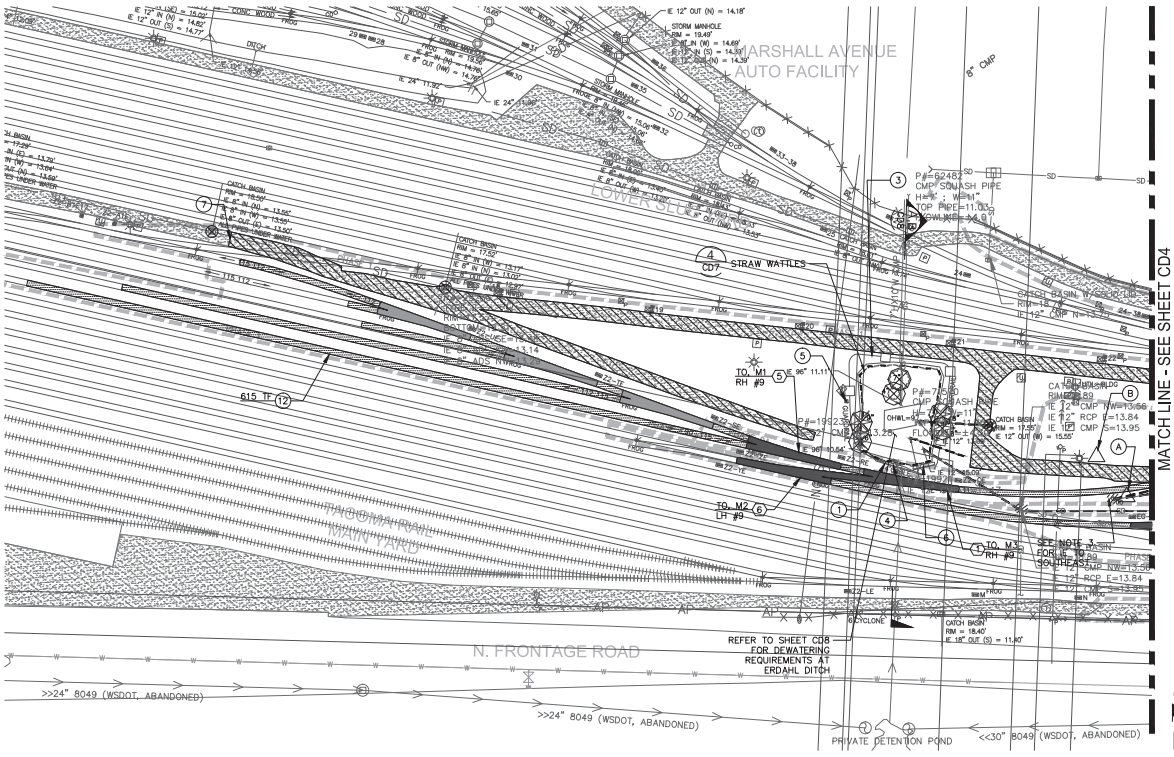
CONT/CONS: 070164	TOWNSHIP: 20N	RANGE: 03E	SECTION: 1, 2, 3
M. ID: 092938	DAT-HRZ: WA3-SF	VERT: PORT OF TACOMA BM #846	
PHASE: 100% DESIGN	PARCEL: MULTIPLE	DRAWING SCALE: AS NOTED	

BINDING EDGE

APPROXIMATE POTHOLE LOCATIONS			
POINT	NORTHING	EASTING	DESCRIPTION
(A)	703836.10	1171430.22	STORM DRAIN PIPE TO SOUTHEAST OF EXISTING CATCH BASIN
(B)	703869.50	1171405.12	ELECTRICAL CONDUIT, SEE ED3 AND E8
NOTE: LOCATIONS CORRESPOND TO CENTER OF SYMBOL ON PLAN.			

TURNOUT SALVAGE PHASING & SEQUENCING NOTES:

1. REMOVE & SALVAGE IN PHASE 2A, INSTALL IN PHASE 5B
2. REMOVE & SALVAGE IN PHASE 5B, INSTALL IN PHASE 5B
3. REMOVE & SALVAGE IN PHASE 6A, INSTALL IN PHASE 6B
4. REMOVE & SALVAGE IN PHASE 3B, INSTALL IN PHASE 3B
5. REMOVE & SALVAGE IN PHASE 1, INSTALL IN PHASE 5B
6. REMOVE & SALVAGE IN PHASE 3A, INSTALL IN PHASE 5B
7. REMOVE & SALVAGE IN PHASE 2B, INSTALL IN PHASE 2C
8. REMOVE & SALVAGE IN PHASE 2C, INSTALL IN PHASE 2C
9. REMOVE, SALVAGE & STOCKPILE, NO RE-USE LOCATION



DEMOLITION NOTES:

1. COORDINATE DEMOLITION WORK WITH PHASING PLANS G8 – G23. FOR UTILITY AND STORM DRAINAGE RELOCATIONS SEE SHEETS ED1–ED6 AND SD1–SD6.
2. ALL LOCATIONS OF EXISTING IMPROVEMENTS SHOWN ARE FROM AVAILABLE GIS RECORDS AND FIELD SURVEY AND SHOULD BE CONSIDERED APPROXIMATE AND NOT NECESSARILY COMPLETE.
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7. ALL QUANTITIES IDENTIFIED ARE APPROXIMATE.

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7. EXTENT OF HMA SAWCUT
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9. PROTECT GRADE CROSSING MATERIAL
10. REMOVE BOLLARDS
11. CUT AND CAP PIPE, ABANDON IN PLACE
12. REMOVE TRACK, SALVAGE RAIL FOR RELAY
13. REMOVE TRACK LUBRICATOR

DEMOLITION AND TESC LEGEND:

- REMOVE ASPHALT
- REMOVE TRACK, SALVAGE RAIL FOR RELAY
- REMOVE TRACK
- SALVAGE TURNOUT, SEE SHEET R14
- REMOVE TURNOUT
- SAWCUT HMA PAVEMENT
- REMOVE TREE/SHRUB
- DEMOLITION STORM DRAIN PIPE AND/OR STRUCTURE
- UTILITY POTHOLE LOCATION
- STRAW WATTLES
- INLET PROTECTION (2 CD7)

40' 0 40' 80'
20' 60'
SCALE: 1"=40'

100% DESIGN

kpff — 2407 North 31st Street, Suite 100, Tacoma, Washington 98407, (253) 922-5071, FAX (253) 922-5102

MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED:

DIRECTOR ENG.	DATE	CHECKED BY	DATE
PROJ. ENGR	DATE	SWK	01/25/16

PRINTED BY: rchandler Jan 25, 2016
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

NORTH LEAD
EAST END - AREA 3
CIVIL DEMOLITION AND EROSION CONTROL PLAN

6555
CD3
SHEET 32 OF 129

CONT/CONS:	070164
M. ID:	092938
PHASE:	100% DESIGN
TOWNSHIP: 20N	RANGE: 03E
DAT-HRZ/VRS-SF	VERT: PORT OF TACOMA BM #846
PARCEL: MULTIPLE	DRAWING SCALE: AS NOTED
SECTION: 1, 2, 3	

APPROXIMATE POTHOLE LOCATIONS			
POINT	NORTHING	EASTING	DESCRIPTION
(C)	703911.45	1171656.19	DUCTILE IRON 8"ø PIPE TO NORTH AND 8"ø TO NORTH NORTHWEST
(D)	703899.94	1171895.19	6"ø STORM PIPE AND ELECTRICAL CONDUIT, SEE ED3 AND E3
(E)	703866.03	1171888.20	6"ø STORM PIPE AND UTILITY VAULT
(F)	703828.41	1172197.22	MANHOLE
(G)	703826.10	1172287.63	CATCH BASIN
(H)	703933.86	1171544.77	CLEANOUT
*NOTE: LOCATIONS CORRESPOND TO CENTER OF SYMBOL ON PLAN.			

TURNOUT SALVAGE PHASING & SEQUENCING NOTES:

1. REMOVE & SALVAGE IN PHASE 2A, INSTALL IN PHASE 5B
2. REMOVE & SALVAGE IN PHASE 5B, INSTALL IN PHASE 5B
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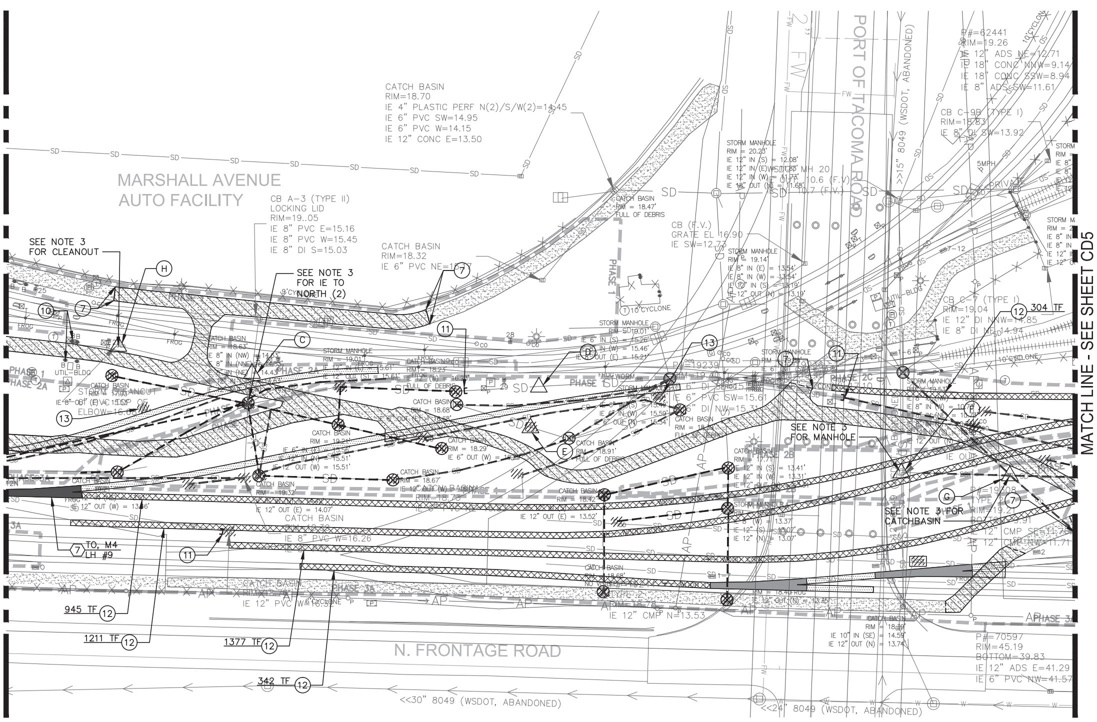
4. REMOVE & SALVAGE IN PHASE 3B, INSTALL IN PHASE 3B
5. REMOVE & SALVAGE IN PHASE 1, INSTALL IN PHASE 5B
6. REMOVE & SALVAGE IN PHASE 3A, INSTALL IN PHASE 5B
7. REMOVE & SALVAGE IN PHASE 2B, INSTALL IN PHASE 2C
8. REMOVE & SALVAGE IN PHASE 2C, INSTALL IN PHASE 2C
9. REMOVE, SALVAGE & STOCKPILE, NO RE-USE LOCATION



DEMOLITION NOTES:

1. COORDINATE DEMOLITION WORK WITH PHASING PLANS G8 – G23. FOR UTILITY AND STORM DRAINAGE RELOCATIONS SEE SHEETS ED1–ED6 AND SD1–SD6.
2. ALL LOCATIONS OF EXISTING IMPROVEMENTS SHOWN ARE FROM AVAILABLE GIS RECORDS AND FIELD SURVEY AND SHOULD BE CONSIDERED APPROXIMATE AND NOT NECESSARILY COMPLETE.
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13. REMOVE TRACK LUBRICATOR

DEMOLITION AND TESC LEGEND:

- REMOVE ASPHALT
- REMOVE TRACK, SALVAGE RAIL FOR RELAY
- REMOVE TRACK
- SALVAGE TURNOUT, SEE SHEET R14
- REMOVE TURNOUT
- SAWCUT HMA PAVEMENT
- REMOVE TREE/SHRUB
- DEMOLITION STORM DRAIN PIPE AND/OR STRUCTURE
- UTILITY POTHOLE LOCATION
- STRAW WATTLES (4/CD7)
- INLET PROTECTION (2/CD7)

40' 0 20' 40' 60' 80'

SCALE: 1"=40'

100% DESIGN

Port of Tacoma — P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

kpff — 2407 North 31st Street, Suite 100, Tacoma, Washington 98407, (253) 396-0150 Fax (253) 396-0162

STEVEN WADE KINGSLEY — STATE OF WASHINGTON — 32791 — REGISTERED PROFESSIONAL ENGINEER

MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED:

DIRECTOR ENG. DATE	CHECKED BY DATE: SWK 01/25/16	PROJ. ENGR DATE
PRINTED BY: rchandler Jan 25, 2016		
PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401-1837		

NORTH LEAD
EAST END - AREA 4
CIVIL DEMOLITION AND EROSION CONTROL PLAN

TOWNSHIP: 20N	RANGE: 03E	SECTION: 1, 2, 3
DAT–HRZ: W83–SF	VERT: PORT OF TACOMA BM #846	
PARCEL: MULTIPLE	DRAWING SCALE: AS NOTED	

6555
CD4
SHEET 33 OF 129

CONT/CONS:	070164
M. ID:	092938
PHASE:	100% DESIGN

PORT OF TACOMA FILE: N:\Civil\1141148 PoT North Lead Rail\Part 3 - KPFF Design\3.13 Drawings\Current\092938-CD04

BINDING EDGE

APPROXIMATE POTHOLE LOCATIONS			
POINT	NORTHING	EASTING	DESCRIPTION
(I)	703800.84	1172589.52	6"ø PVC STORM PIPE
(J)	703825.25	1172380.88	STORM PIPE TO NORTHWEST TO EXISTING CLEANOUT ON CD4
NOTE: LOCATIONS CORRESPOND TO CENTER OF SYMBOL ON PLAN.			

TURNOUT SALVAGE PHASING & SEQUENCING NOTES:

1. REMOVE & SALVAGE IN PHASE 2A, INSTALL IN PHASE 5B
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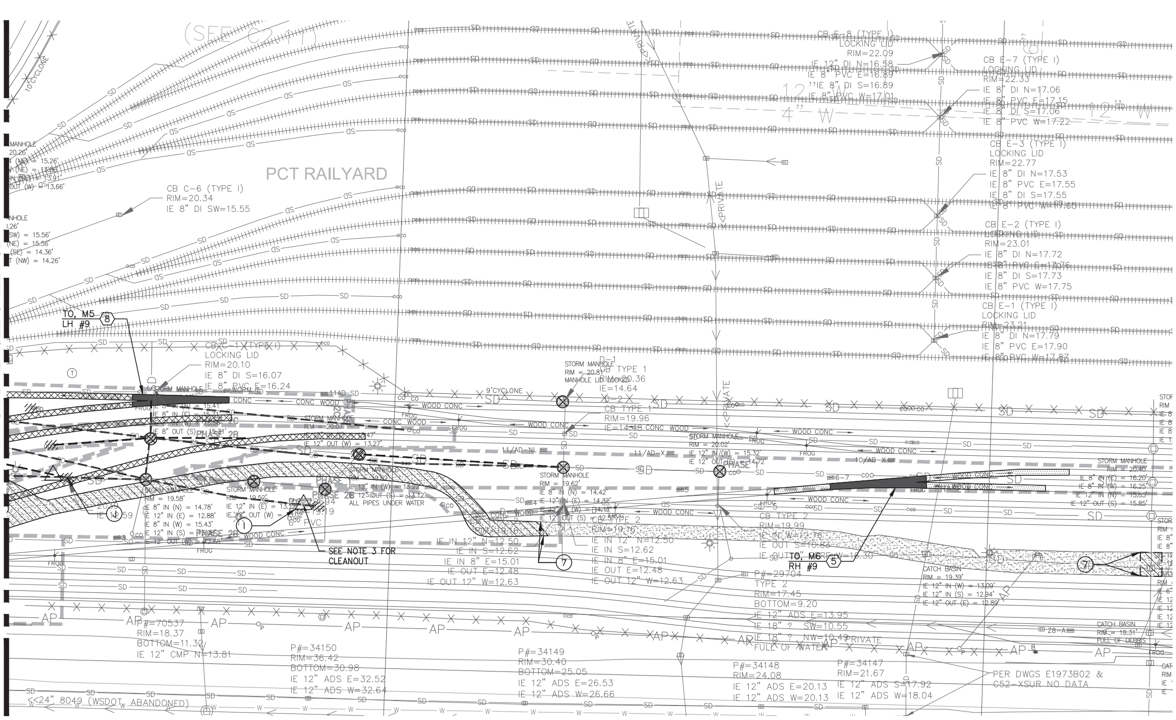
5. REMOVE & SALVAGE IN PHASE 1, INSTALL IN PHASE 5B
6. REMOVE & SALVAGE IN PHASE 3A, INSTALL IN PHASE 5B
7. REMOVE & SALVAGE IN PHASE 2B, INSTALL IN PHASE 2C
8. REMOVE & SALVAGE IN PHASE 2C, INSTALL IN PHASE 2C
9. REMOVE, SALVAGE & STOCKPILE, NO RE-USE LOCATION



DEMOLITION NOTES:

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13. REMOVE TRACK LUBRICATOR

DEMOLITION AND TESC LEGEND:

- REMOVE ASPHALT
- REMOVE TRACK, SALVAGE RAIL FOR RELAY
- REMOVE TRACK
- SALVAGE TURNOUT, SEE SHEET R14
- REMOVE TURNOUT
- SAWCUT HMA PAVEMENT
- REMOVE TREE/SHRUB
- DEMOLITION STORM DRAIN PIPE AND/OR STRUCTURE
- UTILITY POTHOLE LOCATION
- STRAW WATTLES (4/CD7)
- INLET PROTECTION (2/CD7)

40' 0 20' 40' 60' 80'

SCALE: 1"=40'

100% DESIGN

Port of Tacoma
P.O. BOX 1837 TACOMA, WA 98401 (253)383-5841

kpff
2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

STEVEN WADE KINGSLEY
STATE OF WASHINGTON
32791
REGISTERED PROFESSIONAL ENGINEER

MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED:

CHECKED BY		DATE
SWK		01/25/16
DIRECTOR ENG. DATE	PROJ. ENGR	DATE
PRINTED BY: rchandler Jan 25, 2016		
PORT ADDRESS: ONE SITCUM PLAZA TACOMA, WA 98401–1837		

NORTH LEAD
EAST END - AREA 5
CIVIL DEMOLITION AND EROSION CONTROL PLAN

TOWNSHIP: 20N	RANGE: 03E	SECTION: 1, 2, 3
DAT–HRZ: W83–SF	VERT: PORT OF TACOMA BM #846	
PARCEL: MULTIPLE	DRAWING SCALE: AS NOTED	

6555

CD5

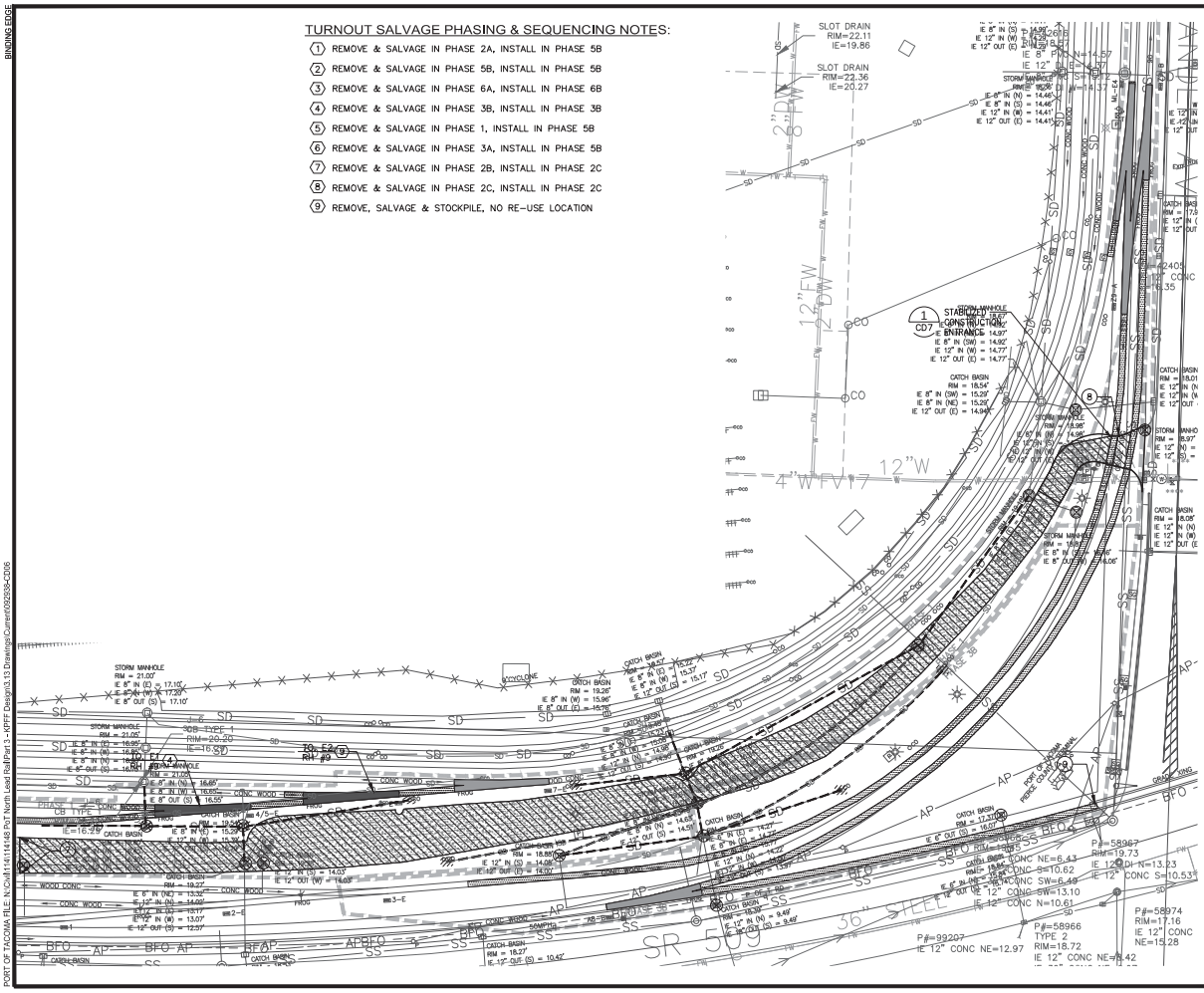
SHEET 34 OF 129

CONT/CONS:	070164
M. ID:	092938
PHASE:	100% DESIGN

BINDING EDGE

TURNOUT SALVAGE PHASING & SEQUENCING NOTES:

1. REMOVE & SALVAGE IN PHASE 2A, INSTALL IN PHASE 5B
2. REMOVE & SALVAGE IN PHASE 5B, INSTALL IN PHASE 5B
3. REMOVE & SALVAGE IN PHASE 6A, INSTALL IN PHASE 6B
4. REMOVE & SALVAGE IN PHASE 3B, INSTALL IN PHASE 3B
5. REMOVE & SALVAGE IN PHASE 1, INSTALL IN PHASE 5B
6. REMOVE & SALVAGE IN PHASE 3A, INSTALL IN PHASE 5B
7. REMOVE & SALVAGE IN PHASE 2B, INSTALL IN PHASE 2C
8. REMOVE & SALVAGE IN PHASE 2C, INSTALL IN PHASE 2C
9. REMOVE, SALVAGE & STOCKPILE, NO RE-USE LOCATION



DEMOLITION NOTES:

1. COORDINATE DEMOLITION WORK WITH PHASING PLANS GB – G23. FOR UTILITY AND STORM DRAINAGE RELOCATIONS SEE SHEETS ED1–ED6 AND SD1–SD6.
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- SALVAGE TURNOUT, SEE SHEET R14
- REMOVE TURNOUT
- SAWCUT HMA PAVEMENT
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- DEMOLITION STORM DRAIN PIPE AND/OR STRUCTURE
- UTILITY POTHOLE LOCATION
- STRAW WATTLES
- INLET PROTECTION (2 CD7)

SCALE: 1"=40'

100% DESIGN

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MARK:	REVISION:	BY:	APPR:	DATE:

APPROVED:

DIRECTOR, ENG.	DATE	CHECKED BY	DATE
		SWK	01/25/16
PROJ. ENGR.	DATE		
rohandler	Jan 25, 2016		

PRINTED BY:
PORT ADDRESS: ONE SITCUM PLAZA
TACOMA, WA 98401-1837

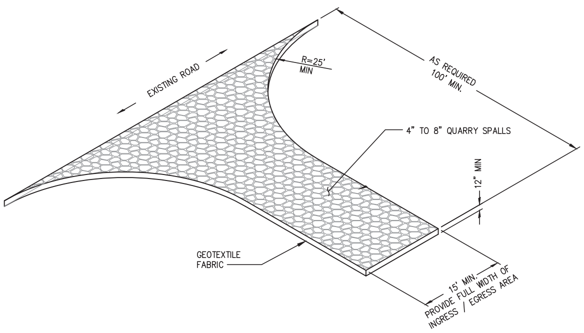
NORTH LEAD
EAST END - AREA 6
CIVIL DEMOLITION AND EROSION CONTROL PLAN

6555
CD6
SHEET 35 OF 129

CONT/CONS:	070164	TOWNSHIP: 20N	RANGE: 03E
M. ID:	092938	DAT-HRZ/VRS-SF	VERT: PORT OF TACOMA BM #846
PHASE:	100% DESIGN	PARCEL: MULTIPLE	DRAWING SCALE: AS NOTED

SECTION: 1, 2, 3

BINDING EDGE



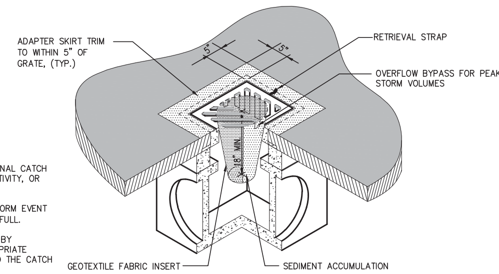
1 STABILIZED CONSTRUCTION ENTRANCE DETAIL

CD1,6

NTS

NOTES:

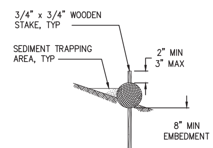
1. INSERT SHALL BE INSTALLED IN ALL OPERATIONAL CATCH BASINS PRIOR TO CLEARING AND GRADING ACTIVITY, OR UPON PLACEMENT OF A NEW CATCH BASIN.
2. FILTERS SHALL BE INSPECTED AFTER EACH STORM EVENT AND CLEANED OR REPLACED WHEN IT IS 1/3 FULL.
3. SEDIMENT REMOVAL SHALL BE ACCOMPLISHED BY REMOVING THE INSERT, EMPTYING INTO APPROPRIATE DISPOSAL LOCATION, AND REINSERTING IT INTO THE CATCH BASIN.



2 INLET PROTECTION DETAIL

CD1-6

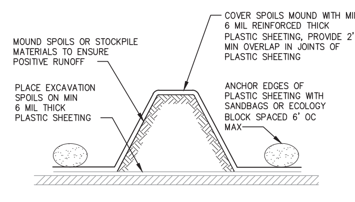
NTS



4 STRAW WATTLE DETAIL

CD3

NTS



5 STOCK PILE PROTECTION DETAIL

NTS

100% DESIGN

Port of Tacoma

kpff

2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

MARK: REVISION: BY: APPR: DATE:

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SMK 01/25/16

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TACOMA, WA 98401-1837

NORTH LEAD

CIVIL DEMOLITION AND TESC DETAILS

6555

CD7

SHEET 36 OF 129

CONT/CONS: 070164
M. ID: 092938
PHASE: 100% DESIGN

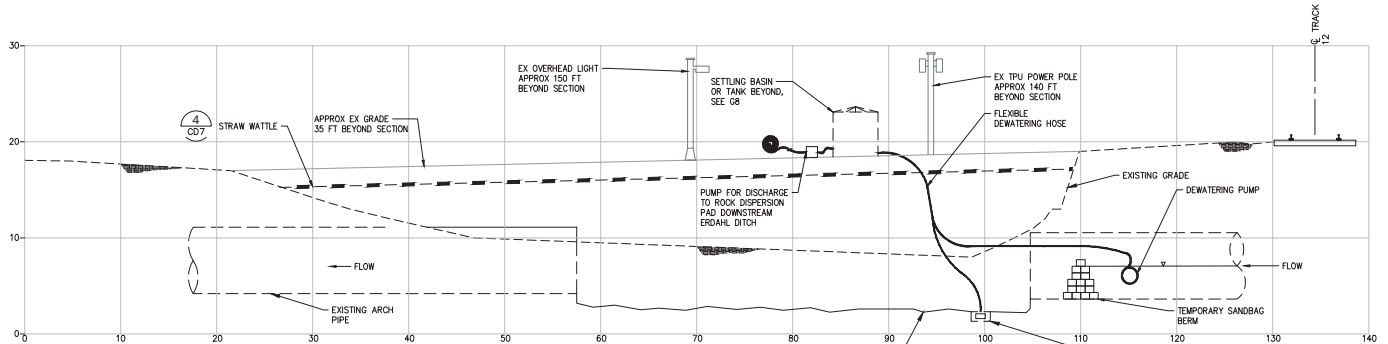
TOWNSHIP: 20N
DAT-HRZ: WB3-SF
PARCEL: MULTIPLE

RANGE: 03E
VERT: PORT OF TACOMA

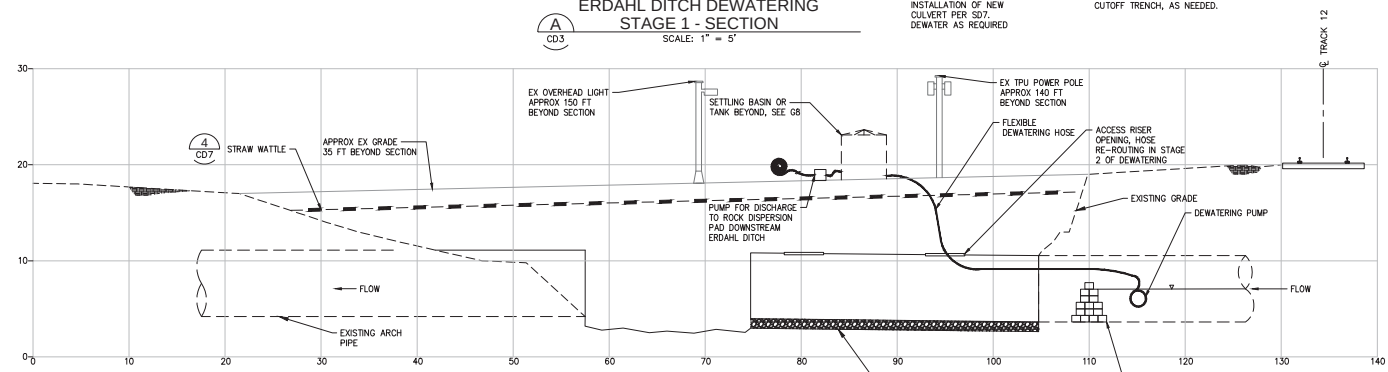
SECTION: 1, 2, 3
BM #846

DRAWING SCALE: AS NOTED

PORT OF TACOMA FILE: N:\Civil\114148 PoT North Lead Rail\Part 3 - KPFF Design\3.13 Drawings\Current\092938-CD07



ERDAHL DITCH DEWATERING
STAGE 1 - SECTION
A CD3
SCALE: 1" = 5'



ERDAHL DITCH DEWATERING
STAGE 2 - SECTION
B CD3
SCALE: 1" = 5'

DEWATERING PLAN NOTES:

THE DEWATERING SEQUENCE SHOWN REPRESENTS A POSSIBLE CONSTRUCTION SEQUENCE, THE INFORMATION PROVIDED IS SCHEMATIC IN NATURE. THE SEQUENCE SHOWN IS FOR GENERAL INFORMATION ONLY AND IS NOT INTENDED TO DICTATE TO THE CONTRACTOR THE SEQUENCE. CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL A DETAILED DEWATERING PLAN AS DESCRIBED IN THE SPECIFICATIONS.

1. CONSTRUCT SANDBAG BERM WITHIN EXISTING UPSTREAM CULVERT, SPANNING ACROSS THE WIDTH OF THE 128" WIDE CULVERT.
2. INSTALL TEMPORARY DEWATERING PUMP UPSTREAM OF SANDBAG BERM. ROUTE DISCHARGE OF PUMP ACROSS SANDBAG BERM, OUT OF DITCH, AND TO SETTLING BASIN. PLACE DEWATERING PUMPS IN CUTOFF TRENCHES OR SUMPS WITH CAPACITY AS NEEDED TO ADEQUATELY DEWATER WORKING AREA. ROUTE HOSE(S) FROM SETTLING BASIN TO ROCK DISPERSION PAD TO BE PLACED ALONG EAST BANK OF THE ERDAHL DITCH JUST DOWNSTREAM OF EXISTING CULVERT. PUMP AS NEEDED. TRACK OPERATION CANNOT BE INTERRUPTED DUE TO HOSE ROUTING. MODIFY AS NEEDED TO MEET DOWNSTREAM TURBIDITY REQUIREMENTS.
3. EXCAVATE DITCH AND PREPARE SUBGRADE.
4. INSTALL BEDDING MATERIAL AND PLACE CULVERT AND BAND CONNECTIONS.
5. UPON PARTIAL COMPLETION OF CULVERT INSTALLATION, RE-ROUTE DEWATERING HOSE THROUGH ACCESS RISER OPENING.
6. PLACE REMAINING CULVERT SEGMENTS AND BAND CONNECTIONS. REMOVE DEWATERING EQUIPMENT AND SANDBAG BERM, ALLOWING FLOW THROUGH NEW CULVERT. BACKFILL DITCH AS REQUIRED.
7. REMOVE ROCK DISPERSION PAD AND DEMOBILIZE ALL DEWATERING EQUIPMENT.

100% DESIGN

kpff
2407 North 31st Street, Suite 100
Tacoma, Washington 98407
(253) 922-5072 FAX (253) 922-5102

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	TACOMA, WA 98401-1837

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SWK	01/25/16
PROJ. ENGR	DATE

NORTH LEAD
ERDAHL DITCH DEWATERING AND TESC DETAILS

6555
CD8
SHEET 37 OF 129

CONT/CONS:	070164
M. ID:	092938
PHASE:	100% DESIGN
TOWNSHIP:	20N
RANGE:	03E
SECTION:	1, 2, 3
VERT:	PORT OF TACOMA BM #846
DAT-HRZ:	NAD83-SF
PARCEL:	MULTIPLE
DRAWING SCALE:	AS NOTED

Appendix B – Construction BMPs

High Visibility Plastic or Metal Fence (BMP C103)

Stabilized Construction Entrance (BMP C105)

Wheel Wash (BMP C106)

Straw Wattles (BMP C235)

Storm Drain Inlet Protection (BMP C220)

Plastic Covering (BMP C123)

Dust Control (BMP C140)

Outlet Protection (BMP C209)

Construction Stormwater Filtration (BMP C251)

3.1.3 BMP C103: High Visibility Plastic or Metal Fence

3.1.3.1 Purpose

Fencing is intended to:

- Restrict clearing to approved limits.
- Prevent disturbance of sensitive areas, their buffers, and other areas required to be left undisturbed.
- Limit construction traffic to designated construction entrances or roads.
- Protect areas where marking with survey tape may not provide adequate protection.

3.1.3.2 Conditions of Use

To establish clearing limits, plastic or metal fence may be used:

- At the boundary of sensitive areas, their buffers, and other areas required to be left uncleared.
- As necessary to control vehicle access to and on the site.

3.1.3.3 Design and Installation Specifications

- High visibility plastic fence shall be composed of a high-density polyethylene material and shall be at least four feet in height. Posts for the fencing shall be steel or wood and placed every 6 feet on center (maximum) or as needed to ensure rigidity. The fencing shall be fastened to the post every six inches with a polyethylene tie. On long continuous lengths of fencing, a tension wire or rope shall be used as a top stringer to prevent sagging between posts. The fence color shall be high visibility orange. The fence tensile strength shall be 360 lbs./ft. using the ASTM D4595 testing method.
- Design and install metal fences according to the manufacturer's specifications.
- Metal fences shall be at least 3 feet high and must be highly visible.
- Do not wire or staple fences to trees.

3.1.3.4 Maintenance Standards

- If the fence has been damaged or visibility reduced, it shall be repaired or replaced immediately and visibility restored.

3.1.5 BMP C105: Stabilized Construction Entrance

3.1.5.1 Purpose

Construction entrances are stabilized to reduce the amount of sediment transported onto paved roads by vehicles or equipment by constructing a stabilized pad of quarry spalls at entrances to construction sites.

3.1.5.2 Conditions of Use

Construction entrances shall be stabilized wherever traffic will be leaving a construction site and traveling on paved roads or other paved areas within 1,000 feet of the site.

Construction vehicle ingress and egress shall be limited to one route. Additional routes may be allowed for very large projects or linear projects.

3.1.5.3 Design and Installation Specifications

See Figure 2 - 2 for details.

NOTE: Reduce the length of the entrance to the maximum practicable size when the size or configuration of the site does not allow the full 100-foot length. Consult with the Erosion and Sediment Control Lead (ESCL) to determine if reducing the length of the entrance is acceptable.

- Place a separation geotextile under the spalls to prevent fine sediment from pumping up into the rock pad. The geotextile shall meet the following standards:
  - Grab Tensile Strength (ASTM D4751) – 200 psi min.
  - Grab Tensile Elongation (ASTM D4632) – 30% max.
  - Mullen Burst Strength (ASTM D3786-80a) – 400 psi min.
  - AOS (ASTM D4751) – 20 to 45 (U.S. standard sieve size)
- Consider early installation of the first lift of asphalt or extra concrete in areas that will be paved; this can be used as a stabilized entrance.
- Install fencing (see BMPs C103 and C104) as necessary to restrict traffic to the construction entrance.
- Whenever possible, construct the entrance on a firm, compacted subgrade. This can substantially increase the effectiveness of the pad and reduce the need for maintenance.
- If possible, install the stabilized construction entrance on the uphill side of the site so that stormwater will not pond near the stabilized construction entrance.

3.1.5.4 Maintenance Standards

- Add quarry spalls if the pad is no longer in accordance with the specifications.
- If the entrance is not preventing sediment from being tracked onto pavement, then alternative measures to keep the streets free of sediment shall be used. This may include street sweeping, an increase in the dimensions of the entrance, or the installation of a wheel wash.
- No tracking of sediment onto the roadway is allowed. If sediment is tracked onto the road, clean the road thoroughly by shoveling or pickup sweeping. Transport sediment to a controlled sediment disposal area.
- Keep streets clean at ALL times. Clean tracked sediment immediately.

- Street washing of sediment to the storm drain system is not allowed.
- If sediment is discharged to the stormwater system it is the responsibility of the applicant to clean the downstream system.
- Immediately remove any quarry spalls that are loosened from the pad and end up on the roadway.
- Install fencing (BMPs C103 and C104) to control traffic if vehicles are entering or exiting the site at points other than the construction entrance(s).
- Upon project completion and site stabilization, permanently stabilize all construction accesses intended as permanent access for maintenance.

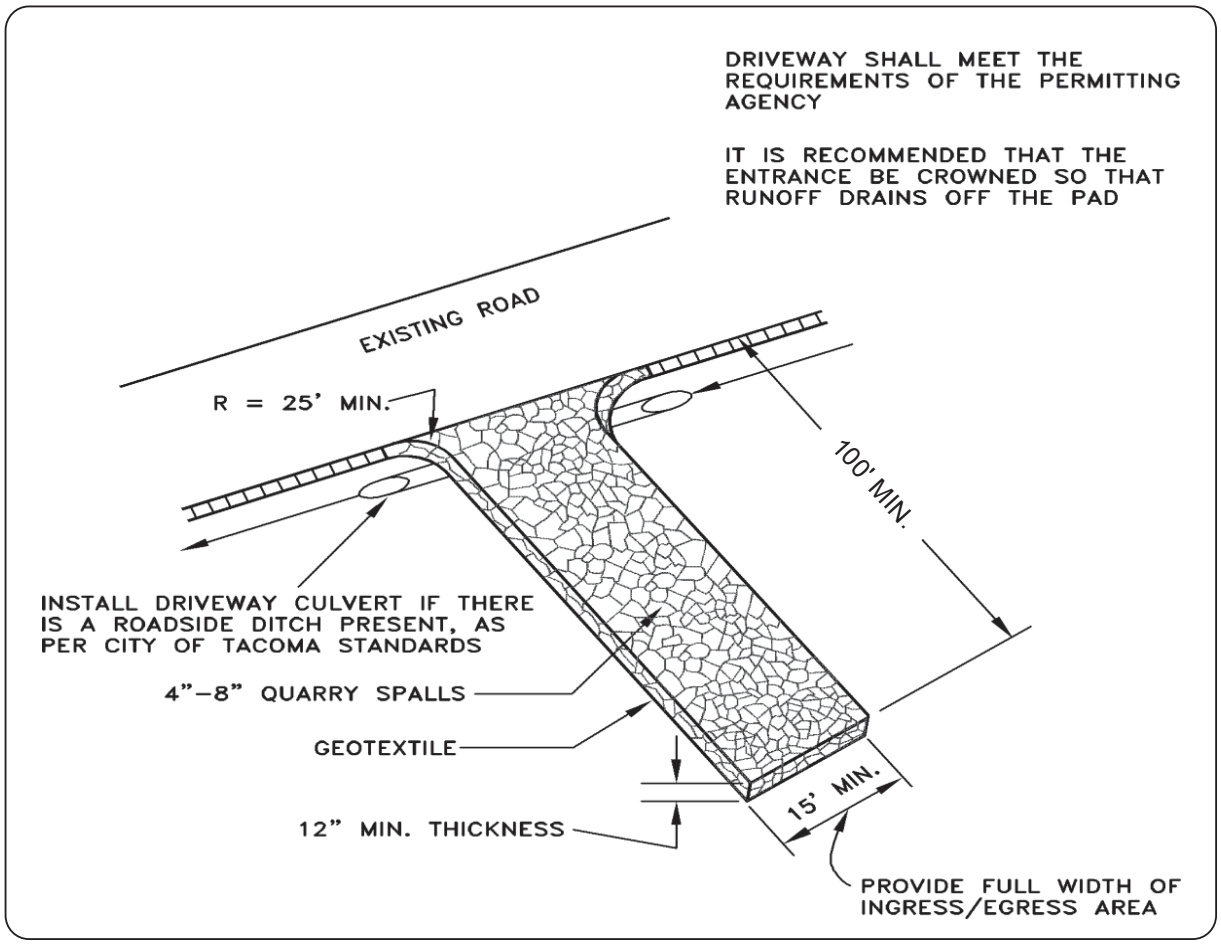


Figure 2 - 2. Stabilized Construction Entrance

Figure 2 - 3 shows a small site, stabilized construction entrance.

3.1.6 BMP C106: Wheel Wash

3.1.6.1 Purpose

Wheel washes reduce the amount of sediment transported onto paved roads by motor vehicles.

3.1.6.2 Conditions of Use

Can be used when a stabilized construction entrance (see BMP C105) is not preventing sediment from being tracked onto pavement.

- Wheel washing is generally an effective BMP when installed with careful attention to topography. For example, a wheel wash can be detrimental if installed at the top of a slope abutting a right-of-way where the water from the dripping truck can run unimpeded into the street.
- Pressure washing combined with an adequately sized and surfaced pad with direct drainage to a large 10-foot x 10-foot sump can be very effective.

3.1.6.3 Design and Installation Specifications

Suggested details are shown in Figure 2 - 4. The City may allow other designs. A minimum of 6 inches of asphalt treated base (ATB) over crushed base material or 8 inches over a good subgrade is recommended to pave the wheel wash.

Use a low clearance truck to test the wheel wash before paving. Either a belly dump or lowboy will work well to test clearance.

Keep the water level from 12 to 14 inches deep to avoid damage to truck hubs and filling the truck tongues with water.

Midpoint spray nozzles are only needed in extremely muddy conditions.

Design wheel wash systems with a small grade change, 6 to 12 inches for a 10-foot-wide pond, to allow sediment to flow to the low side of pond to help prevent re-suspension of sediment. A drainpipe with a 2- to 3-foot riser should be installed on the low side of the pond to allow for easy cleaning and refilling. Polymers may be used to promote coagulation and flocculation in a closed-loop system. Polyacrylamide (PAM) added to the wheel wash water at a rate of 0.25 - 0.5 pounds per 1,000 gallons of water increases effectiveness and reduces cleanup time. If PAM is already being used for dust or erosion control and is being applied by a water truck, the same truck can be used to change the wash water.

3.1.6.4 Maintenance Standards

The wheel wash should start out the day with fresh water.

The wash water should be changed as necessary with a minimum of once per day. On large earthwork jobs where more than 10-20 trucks per hour are expected, the wash water will need to be changed more often.

Wheel wash or tire bath wastewater shall be discharged to a separate onsite treatment system, such as closed-loop recirculation or land application, or to the sanitary sewer with a City of Tacoma Special Approved Discharge permit.

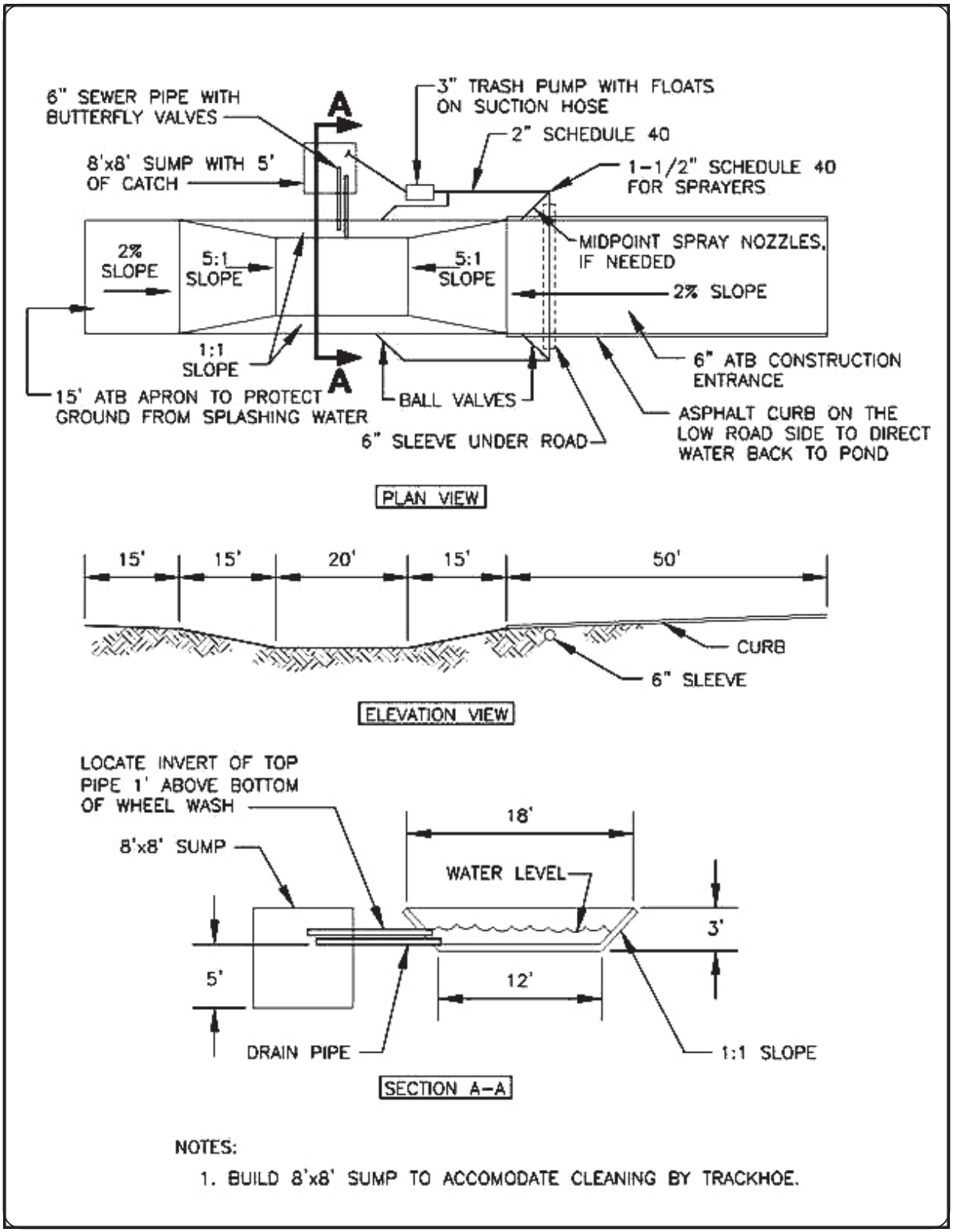


Figure 2 - 4. Wheel Wash

3.1.11 BMP C123: Plastic Covering

3.1.11.1 Purpose

Plastic covering provides immediate, short-term erosion protection to slopes and disturbed areas.

3.1.11.2 Conditions of Use

- Plastic covering may be used on disturbed areas that require cover measures for less than 30 days, except as stated below.
- Plastic is particularly useful for protecting cut and fill slopes and stockpiles.
- The relatively rapid breakdown of most polyethylene sheeting makes it unsuitable for long-term (greater than six months) applications.
- Clear plastic sheeting can be used over newly-seeded areas to create a greenhouse effect and encourage grass growth if the hydroseed was installed too late in the season to establish 75 percent grass cover, or if the wet season started earlier than normal. Clear plastic should not be used for this purpose during the summer months because the resulting high temperatures can kill the grass.
- Due to rapid runoff caused by plastic sheeting, this method shall not be used upslope of areas that might be adversely impacted by concentrated runoff. Such areas include steep and/or unstable slopes.
- Whenever plastic is used to protect slopes, water collection measures must be installed at the base of the slope. These measures include plastic-covered berms, channels, and pipes used to convey clean rainwater away from bare soil and disturbed areas. At no time is clean runoff from a plastic covered slope to be mixed with dirty runoff from a project.
- Other uses for plastic include:
  - Temporary ditch liner;
  - Pond liner in temporary sediment pond;
  - Liner for bermed temporary fuel storage area if plastic is not reactive to the type of fuel being stored;
  - Emergency slope protection during heavy rains; and
  - Temporary drainpipe (“elephant trunk”) used to direct water.

3.1.11.3 Design and Installation Specifications

See Figure 2 - 7.

Plastic slope cover must be installed as follows:

- Run plastic up and down slope, not across slope.
- Plastic may be installed perpendicular to a slope if the slope length is less than 10 feet.
- Minimum of 8-inch overlap at seams.
- On long or wide slopes, or slopes subject to wind, all seams should be taped.
- Place plastic into a small (12-inch wide by 6-inch deep) slot trench at the top of the slope and backfill with soil to keep water from flowing underneath.

- Place sand filled burlap or geotextile bags every 3 to 6 feet along seams and pound a wooden stake through each to hold them in place. Alternative options for holding plastic in place exist and may be considered with COT approval.
- Inspect plastic for rips, tears, and open seams regularly and repair immediately. This prevents high velocity runoff from contacting bare soil, which causes extreme erosion;
- Plastic sheeting shall have a minimum thickness of 6 mil.
- If erosion at the toe of a slope is likely, a gravel berm, riprap, or other suitable protection shall be installed at the toe of the slope in order to reduce the velocity of runoff.

3.1.11.4 Maintenance Standards

- Torn sheets must be replaced and open seams repaired.
- If the plastic begins to deteriorate due to ultraviolet radiation, it must be completely removed and replaced.
- When the plastic is no longer needed, it shall be completely removed.

3.1.16 BMP C130: Surface Roughening

3.1.16.1 Purpose

Surface roughening aids in the establishment of vegetative cover, reduces runoff velocity, increases infiltration, and provides for sediment trapping through the provision of a rough soil surface. Horizontal depressions are created by operating a tiller or other suitable equipment on the contour or by leaving slopes in a roughened condition by not fine grading them.

3.1.16.2 Conditions for Use

All slopes steeper than 3H:1V and greater than 5 vertical feet require surface roughening.

- Areas with grades steeper than 3H:1V should be roughened to a depth of 2 to 4 inches prior to seeding.
- Areas that will not be stabilized immediately may be roughened to reduce runoff velocity until seeding takes place.
- Slopes with a stable rock face do not require roughening.
- Slopes where mowing is planned should not be excessively roughened.

3.1.16.3 Design and Installation Specifications

There are different methods for achieving a roughened soil surface on a slope, and the selection of an appropriate method depends upon the type of slope. Roughening methods include stair-step grading, grooving, contour furrows, and tracking. See Figure 2 - 8 for tracking and contour furrows. Factors to be considered in choosing a method are slope steepness, mowing requirements, and whether the slope is formed by cutting or filling.

- Disturbed areas that will not require mowing may be stair-step graded, grooved, or left rough after filling.
- Stair-step grading is particularly appropriate in soils containing large amounts of soft rock. Each "step" catches material that sloughs from above, and provides a level site where vegetation can become established. Stairs should be wide enough to work with standard earth moving equipment. Stair steps must be on contour or gullies will form on the slope.
- Areas that will be mowed (these areas should have slopes less steep than 3:1) may have small furrows left by disking, harrowing, raking, or seed-planting machinery operated on the contour.
- Graded areas with slopes greater than 3:1 but less than 2:1 should be roughened before seeding. This can be accomplished in a variety of ways, including "track walking," or driving a crawler tractor up and down the slope, leaving a pattern of cleat imprints parallel to slope contours.
- Tracking is done by operating equipment up and down the slope to leave horizontal depressions in the soil.

3.1.16.4 Maintenance Standards

- Areas that are graded in this manner should be seeded as quickly as possible.
- Regular inspections should be made of the area. If rills appear, they should be re-graded and re-seeded immediately.

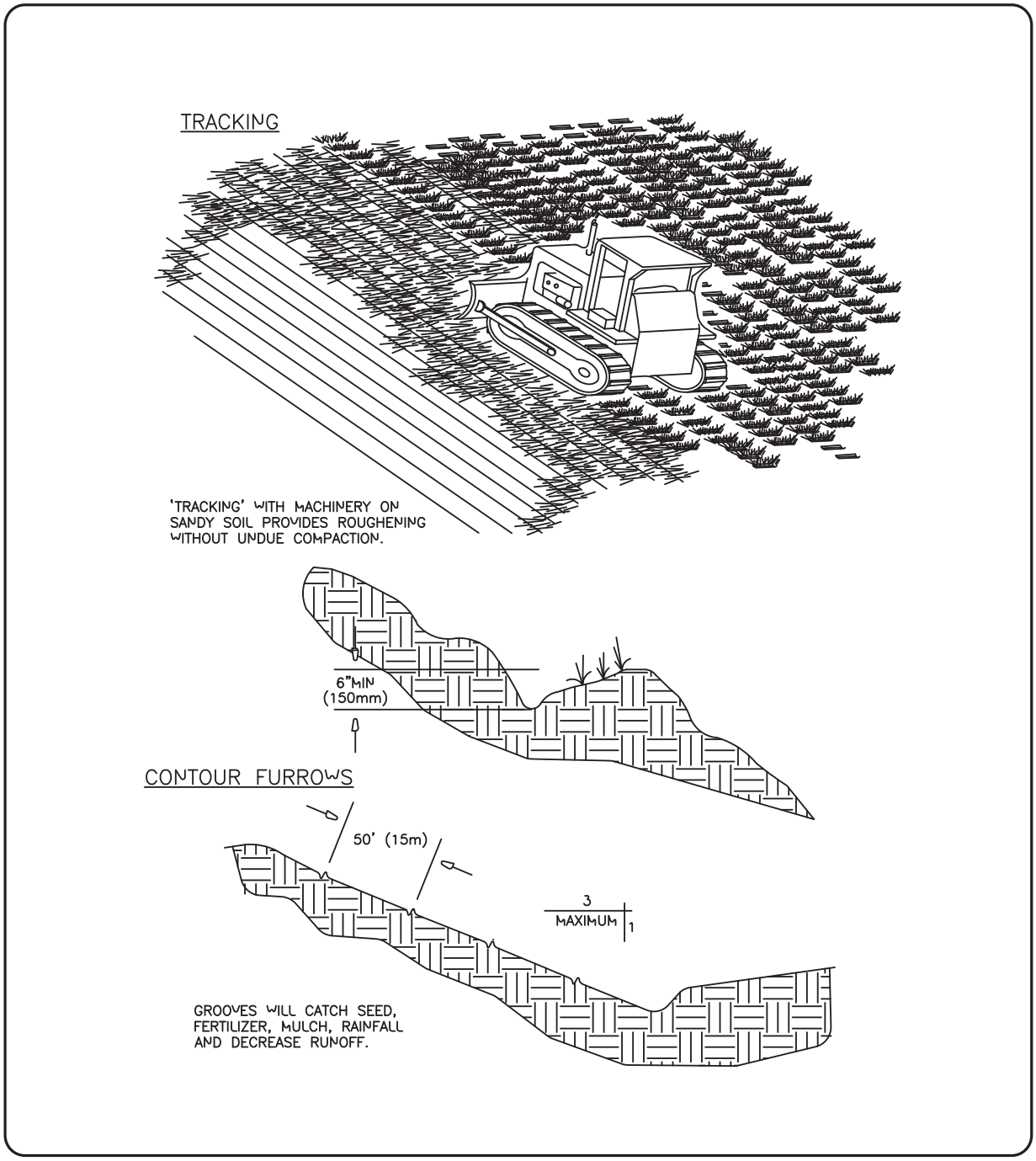


Figure 2 - 8. Surface Roughening by Tracking and Contour Furrows

3.1.18 BMP C140: Dust Control

3.1.18.1 Purpose

Dust control prevents wind transport of dust from disturbed soil surfaces onto roadways, drainage ways, and surface waters.

3.1.18.2 Conditions of Use

Use dust control practices in areas (including roadways) subject to surface and air movement of dust where onsite and offsite impacts to roadways, drainage ways, or surface waters are likely.

3.1.18.3 Design and Installation Specifications

- Vegetate or mulch areas that will not receive vehicle traffic. In areas where planting, mulching, or paving is impractical, apply gravel or landscaping rock.
- Limit dust generation by clearing only to those areas where immediate activity will take place, leaving the remaining area(s) in the original condition, if stable. Maintain the original ground cover as long as practical.
- Construct natural or artificial windbreaks or windscreens. These may be designed as enclosures for small dust sources.
- Sprinkle the site with water until surface is wet. Repeat as needed. To prevent carryout of mud onto street, refer to Stabilized Construction Entrance (BMP C105).
- Irrigation water can be used for dust control. Install irrigation systems as a first step on sites where dust control is a concern.
- Spray exposed soil areas with a dust palliative, following the manufacturer's instructions and cautions regarding handling and application. Used oil is prohibited from use as a dust suppressant. The City may approve other dust palliatives such as calcium chloride or PAM.
- PAM (BMP C127) added to water at a rate of 2/3 pounds per 1,000 gallons of water per acre and applied from a water truck is more effective than water alone. This is due to the increased infiltration of water into the soil and reduced evaporation. In addition, small soil particles are bonded together and are not as easily transported by wind. Adding PAM may actually reduce the quantity of water needed for dust control. There are concerns with the proper use of PAM, refer to BMP C127 for more information on PAM application. PAM use requires COT approval.
- Lower speed limits. High vehicle speed increases the amount of dust stirred up from unpaved roads and lots.
- Upgrade the road surface strength by improving particle size, shape, and mineral types that make up the surface and base materials.
- Add surface gravel to reduce the source of dust emission. Limit the amount of fine particles to 10 to 20 percent.
- Use geotextile fabrics to increase the strength of new roads or roads undergoing reconstruction.
- Encourage the use of alternate, paved routes, if available.
- Restrict use by tracked vehicles and heavy trucks to prevent damage to road surfaces and bases.

- Apply chemical dust suppressants using the admix method, blending the product with the top few inches of surface material. Suppressants may also be applied as surface treatments.
- Pave unpaved permanent roads and other trafficked areas.
- Use vacuum street sweepers.
- Remove mud and other dirt promptly so it does not dry and then turn into dust.
- Limit dust-causing work on windy days.
- Contact the Puget Sound Clean Air Agency for guidance and training on other dust control measures. Compliance with the Puget Sound Clean Air Agency's recommendations/requirements constitutes compliance with this BMP.

3.1.18.4 Maintenance Standards

Evaluate the potential for dust generation frequently during dry periods. Complete the actions outlined above as needed to limit the dust.

Any dust which leaves the site must be cleaned immediately.

3.2.10 BMP C209: Outlet Protection

3.2.10.1 Purpose

Outlet protection prevents scour at conveyance outlets and minimizes the potential for downstream erosion by reducing the velocity of concentrated stormwater flows.

3.2.10.2 Conditions of Use

Outlet protection is required at the outlets of all ponds, pipes, ditches, or other conveyances, and where runoff is conveyed to a natural or manmade drainage feature such as a stream, wetland, lake, or ditch.

3.2.10.3 Design and Installation Specifications

Protect the receiving channel at the outlet of a culvert from erosion by rock lining a minimum of 6 feet downstream and extending rock lining up the channel sides a minimum of 1–foot above the maximum tailwater elevation or 1-foot above the crown, whichever is higher. For large pipes (more than 18 inches in diameter), the outlet protection lining of the channel is lengthened to four times the diameter of the culvert.

- See Volume 3, Section 3.5 for permanent outlet protection.
- Organic or synthetic erosion blankets, with or without vegetation, may be, cheaper, and easier to install than rock. Materials can be chosen using manufacturer product specifications. ASTM test results are available for most products and the designer can choose the correct material for the expected flow.
- With low flows, vegetation (including sod) can be effective.
- Use the following guidelines for riprap outlet protection:
    - If the discharge velocity at the outlet is less than 5 feet per second (pipe slope less than 1 percent), use 2-inch to 8-inch riprap. Minimum thickness is 1-foot.
    - For 5 to 10 feet per second discharge velocity at the outlet (pipe slope less than 3 percent), use 24-inch to 4-foot riprap. Minimum thickness is 2 feet.
    - For outlets at the base of steep slope pipes (pipe slope greater than 10 percent), an engineered energy dissipater shall be used.
- Always use filter fabric or erosion control blankets under riprap to prevent scour and channel erosion.
- New pipe outfalls can provide an opportunity for low-cost fish habitat improvements. For example, an alcove of low-velocity water can be created by constructing the pipe outfall and associated energy dissipater back from the stream edge and digging a channel, over-widened to the upstream side, from the outfall. Overwintering juvenile and migrating adult salmonids may use the alcove as shelter during high flows. Bank stabilization, bioengineering, and habitat features may be required for disturbed areas. See Volume 3 for more information on outfall system design.

3.2.10.4 Maintenance Standards

- Inspect and repair as needed.
- Add rock as needed to maintain the intended function.
- Clean energy dissipater if sediment builds up.

3.2.11 BMP C220: Storm Drain Inlet Protection

3.2.11.1 Purpose

To prevent coarse sediment from entering drainage systems prior to permanent stabilization of the disturbed area.

3.2.11.2 Conditions of Use

Where storm drain inlets are to be made operational before permanent stabilization of the disturbed drainage area.

Provide protection for all storm drain inlets downslope and within 500 feet of a disturbed or construction area, unless the runoff that enters the catch basin will be conveyed to a sediment pond or trap. Inlet protection may be used anywhere to protect the drainage system. It is likely that the drainage system will still require cleaning.

Table 2 - 9 lists several options for inlet protection. All of the methods for storm drain inlet protection are prone to plugging and require a high frequency of maintenance. Drainage areas should be limited to 1 acre or less. Emergency overflows may be required where stormwater ponding would cause a hazard. If an emergency overflow is provided, additional end-of-pipe treatment may be required.

Only bag filter type catch basin filters (per Section 3.2.11.3) are allowed within the right of way.

Table 2 - 9: Storm Drain Inlet Protection

Type of Inlet Protection	Emergency Overflow	Applicable for Paved/Earthen Surfaces	Conditions of Use
Excavated drop inlet protection	Yes, temporary flooding will occur	Earthen	Applicable for heavy flows. Easy to maintain. Large area requirement: 30’ x 30’ per acre.
Block and gravel drop filter	Yes	Paved or earthen	Applicable for heavy concentrated flows. Will not pond.
Gravel and mesh filter	No	Paved	Applicable for heavy concentrated flows. Will pond. Can withstand traffic.
Catch basin filters	Yes	Paved or earthen	Frequent maintenance required.
Curb inlet protection with a wooden weir	Small capacity overflow	Paved	Used for sturdy, more compact installation.
Block and gravel curb inlet protection	Yes	Earthen	Sturdy, but limited filtration.

3.2.11.3 Design and Installation Specifications

Excavated Drop Inlet Protection

An excavated impoundment around the storm drain. Sediment settles out of the stormwater prior to entering the storm drain.

- Depth 1 to 2 feet, as measured from the crest of the inlet structure.
- Side slopes of excavation no steeper than 2H:1V.

- Minimum volume of excavation 35 cubic yards.
- Shape basin to fit site with longest dimension oriented toward the longest inflow area.
- Install provisions for draining to prevent standing water problems.
- Clear the area of all debris.
- Grade the approach to the inlet uniformly.
- Drill weep holes into the side of the inlet.
- Protect weep holes with screen wire and washed aggregate.
- Seal weep holes when removing structure and stabilizing area.
- It may be necessary to build a temporary dike to the down slope side of the structure to prevent bypass flow.

Block and Gravel Filter

A barrier formed around the storm drain inlet with standard concrete blocks and gravel. See Figure 2 - 20.

- Height 1 to 2 feet above inlet.
- Recess the first row 2 inches into the ground for stability.
- Support subsequent courses by placing a piece of 2x4 lumber through the block opening.
- Do not use mortar.
- Lay some blocks in the bottom row on their side for dewatering the pool.
- Place hardware cloth or comparable wire mesh with ½-inch openings over all block openings.
- Place gravel just below the top of blocks on slopes of 2H:1V or flatter.
- An alternative design is a gravel donut.
- Inlet slope of 3H:1V.
- Outlet slope of 2H:1V.
- 1-foot wide level stone area between the structure and the inlet.
- Inlet slope stones 3 inches in diameter or larger.
- Outlet slope use gravel ½- to ¾-inch at a minimum thickness of 1-foot.

Gravel and Wire Mesh Filter

A gravel barrier placed over the top of the inlet (see Figure 2 - 21). This structure does not provide an overflow.

- Hardware cloth or comparable wire mesh with ½-inch openings.
- Coarse aggregate.
- Place wire mesh over the drop inlet so that the wire extends a minimum of 1-foot beyond each side of the inlet structure.
- If more than one strip of mesh is necessary, overlap the strips.
- Place coarse aggregate over the wire mesh.

- The depth of the gravel should be at least 12 inches over the entire inlet opening and extend at least 18 inches on all sides.

Catchbasin Filters

Inserts (Figure 2 - 22) shall be designed by the manufacturer for use at construction sites. The limited sediment storage capacity increases the frequency of inspection and maintenance required, which may be daily for heavy sediment loads. The maintenance requirements can be reduced by combining a catchbasin filter with another type of inlet protection. This type of inlet protection provides flow bypass without overflow and therefore may be a better method for inlets located along active rights-of-way.

- Should have a minimum of 5 cubic feet of storage.
- Dewatering provisions.
- High-flow bypass that will not clog under normal use at a construction site.
- The catchbasin filter is inserted in the catchbasin just below the grating.
- Only bag filter type catch basin filters are allowed in the City right-of-way.

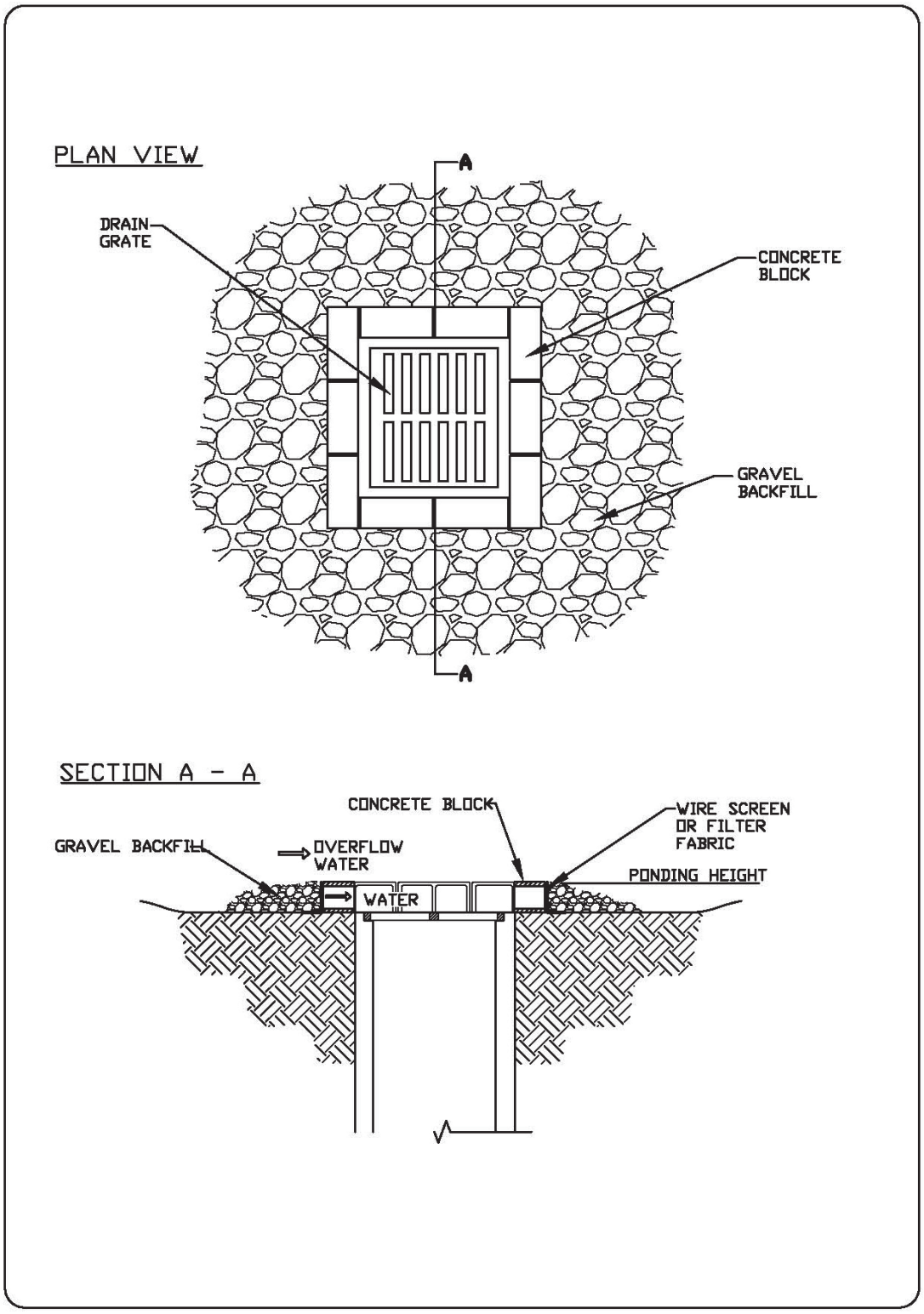


Figure 2 - 20. Drop Inlet with Block and Gravel Filter

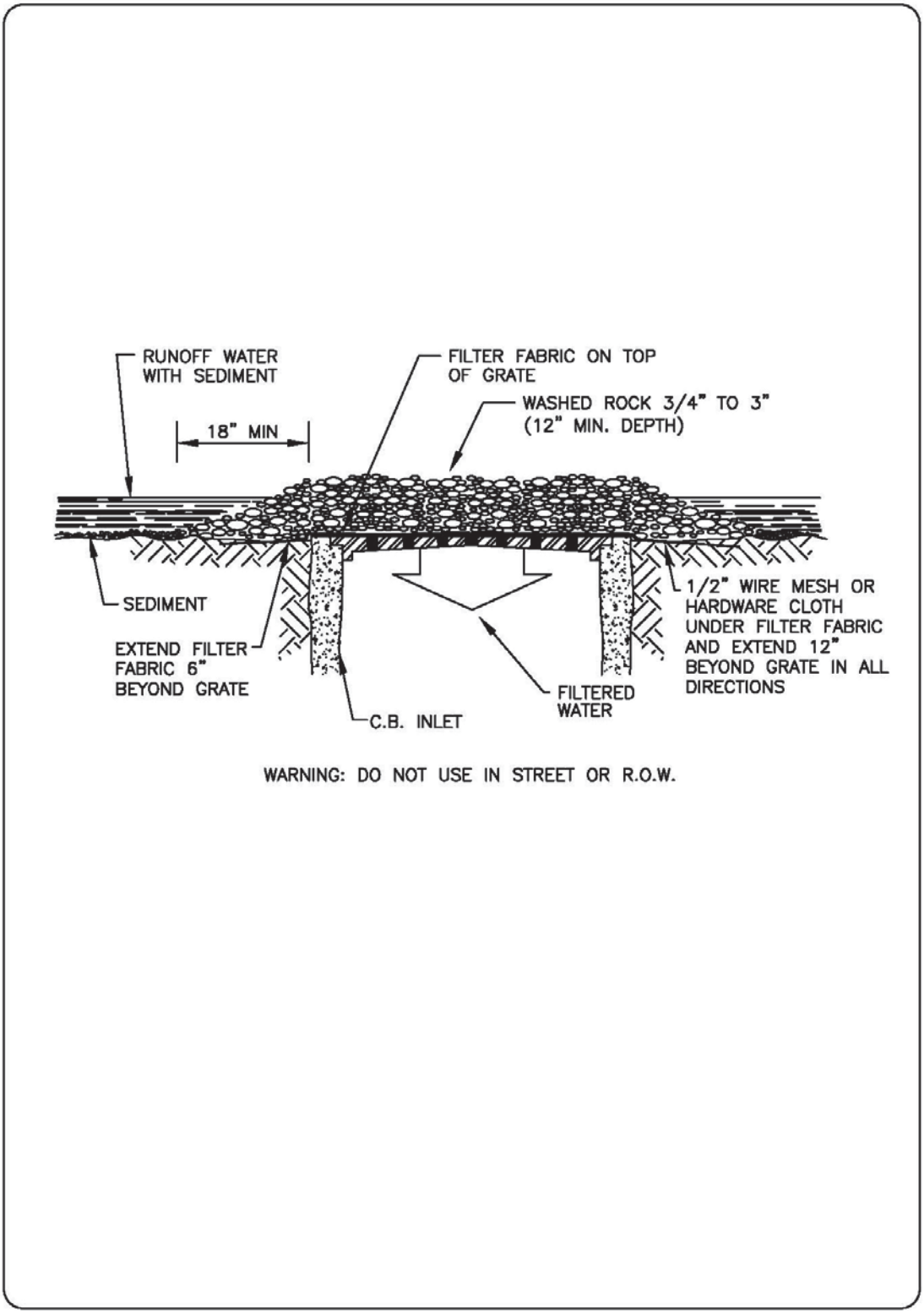
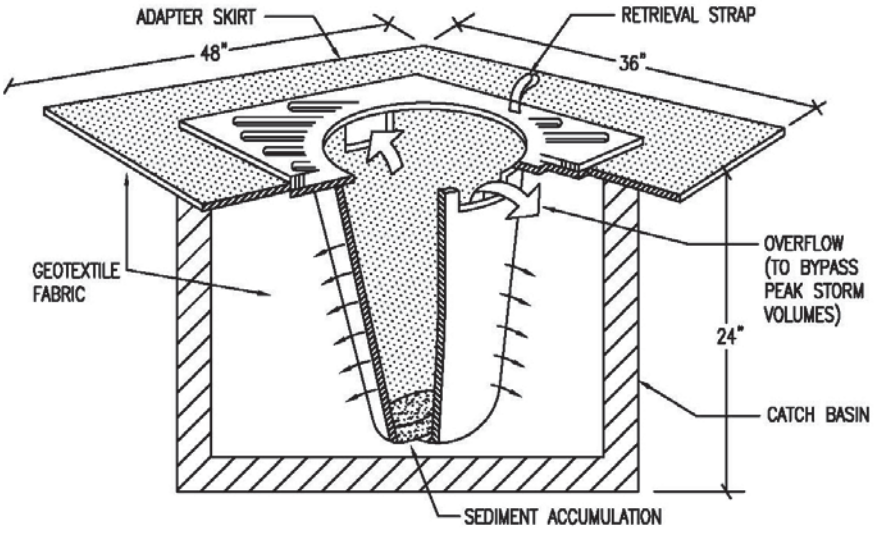


Figure 2 - 21. Gravel and Wire Mesh Filter



INLET PROTECTION NOTES:

1. FILTERS SHALL BE INSPECTED AFTER EACH STORM EVENT AND CLEANED OR REPLACED WHEN 1/3 FULL.

BAG FILTER

NOT TO SCALE

Figure 2 - 22. Catchbasin Filter

Curb Inlet Protection with Wooden Weir

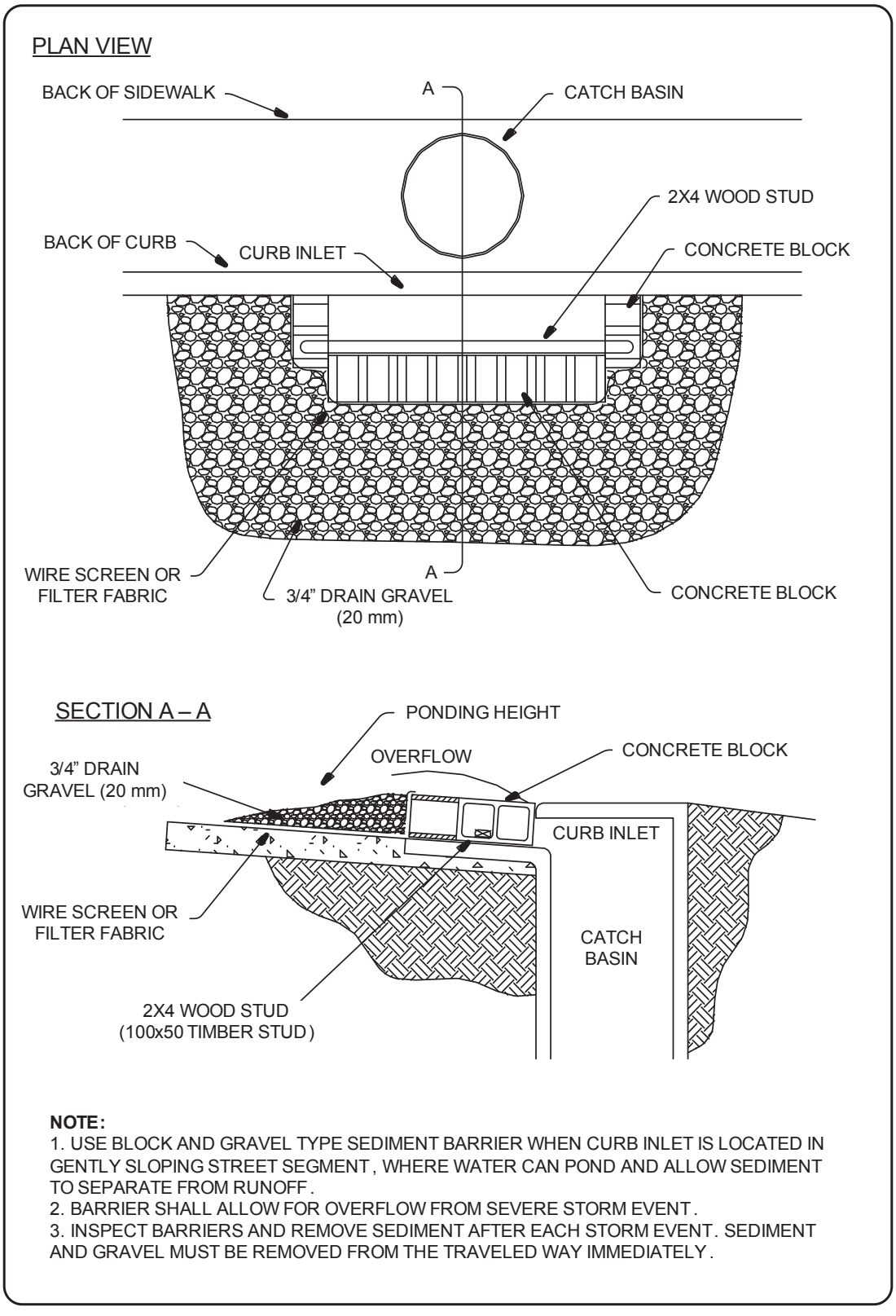
Barrier formed around a curb inlet with a wooden frame and gravel.

- Wire mesh with ½-inch openings.
- Extra strength filter cloth.
- Construct a frame.
- Attach the wire and filter fabric to the frame.
- Pile coarse washed aggregate against the wire and fabric.
- Place weight on frame anchors.

Block and Gravel Curb Inlet Protection

Barrier formed around an inlet with concrete blocks and gravel. See Figure 2 - 23.

- Wire mesh with ½-inch openings.
- Place two concrete blocks on their sides abutting the curb at either side of the inlet opening. These are spacer blocks.
- Place a 2x4 stud through the outer holes of each spacer block to align the front blocks.
- Place blocks on their sides across the front of the inlet and abutting the spacer blocks.
- Place wire mesh over the outside vertical face.
- Pile coarse aggregate against the wire to the top of the barrier.



NOTE:
1. USE BLOCK AND GRAVEL TYPE SEDIMENT BARRIER WHEN CURB INLET IS LOCATED IN GENTLY SLOPING STREET SEGMENT, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. BARRIER SHALL ALLOW FOR OVERFLOW FROM SEVERE STORM EVENT.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

Figure 2 - 23. Block and Gravel Curb Inlet Protection

Curb and Gutter Sediment Barrier

Sandbag or rock berm (riprap and aggregate) 3 feet high and 3 feet wide in a horseshoe shape. See Figure 2 - 24.

- Construct a horseshoe shaped berm, faced with coarse aggregate if using riprap, 3 feet high and 3 feet wide, at least 2 feet from the inlet.
- Construct a horseshoe shaped sedimentation trap on the outside of the berm sized to sediment trap standards for protecting a culvert inlet.
- Sandbag must be gravel filled.

3.2.11.4 Maintenance Standards

Inspect catch basin filters frequently, especially after storm events. If the insert becomes clogged, clean or replace it.

- For systems using stone filters: If the stone filter becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of gravel at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill and put fresh stone around the inlet.
- Do not wash sediment into storm drains while cleaning. Spread all excavated material evenly over the surrounding land area or stockpile and stabilize as appropriate.
- Do not allow accumulated sediment to enter the storm drain system.

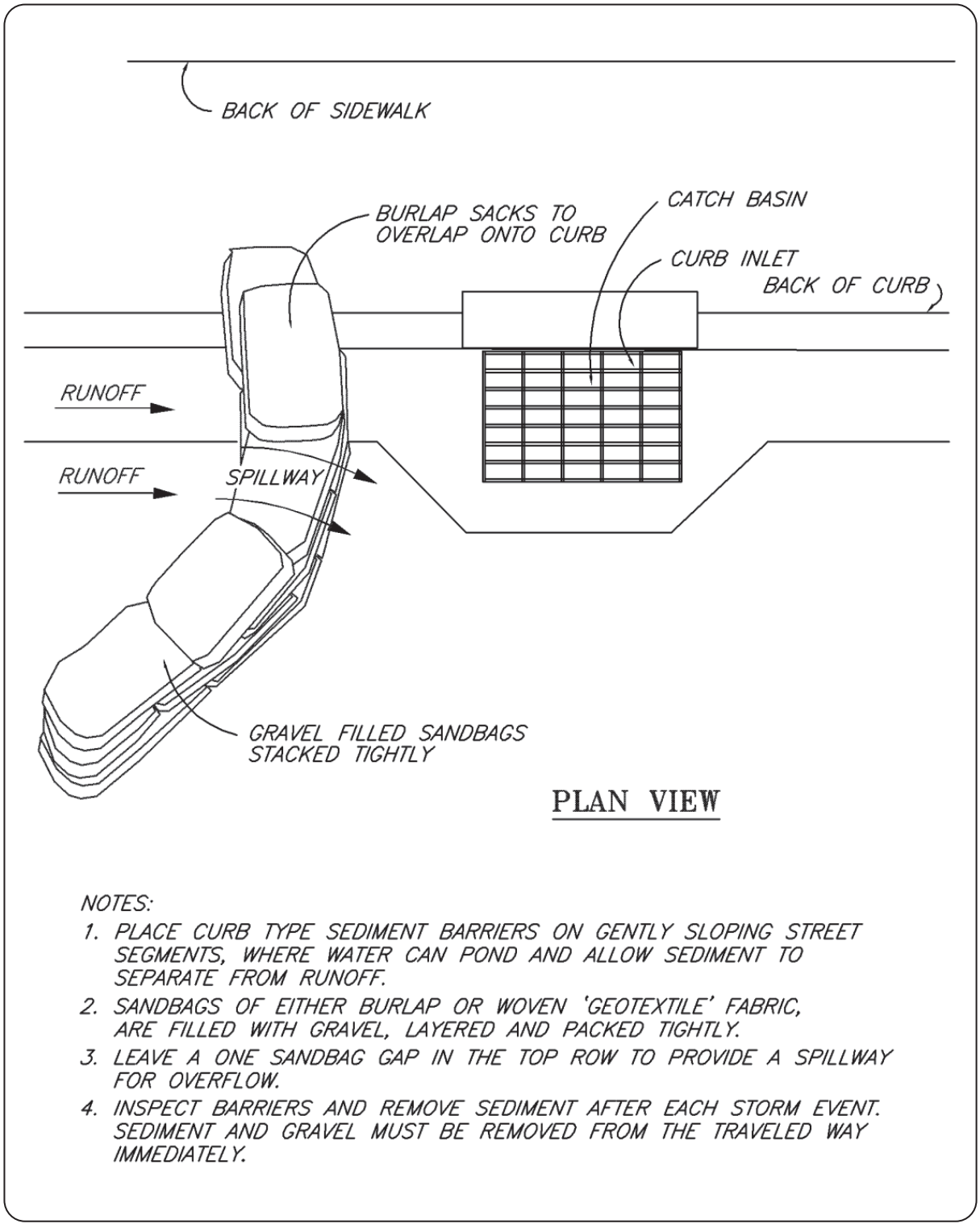


Figure 2 - 24. Curb and Gutter Sediment Barrier

3.2.16 BMP C235: Straw Wattles

3.2.16.1 Purpose

Straw wattles are temporary erosion and sediment control barriers consisting of straw that is wrapped in biodegradable tubular plastic or similar encasing material. They reduce the velocity and can spread the flow of rill and sheet runoff, and can capture and retain sediment. Straw wattles are typically 8 to 10 inches in diameter and 25 to 30 feet in length. The wattles are placed in shallow trenches and staked along the contour of disturbed or newly constructed slopes. See Figure 2 - 28 for typical construction details.

3.2.16.2 Conditions of Use

- Disturbed areas that require immediate erosion protection.
- Exposed soils during the period of short construction delays.
- On slopes requiring stabilization until permanent vegetation can be established.
- Straw wattles are effective for one to two seasons.
- If conditions are appropriate, wattles can be staked to the ground using live cuttings for added revegetation.

3.2.16.3 Design Criteria

- It is critical that wattles are installed perpendicular to the flow direction and parallel to the slope contour.
- Dig narrow trenches across the slope on contour to a depth of 3 to 5 inches on clay soils and soils with gradual slopes. On loose soils, steep slopes, and areas with high rainfall, dig the trenches to a depth of 5 to 7 inches, or 1/2 to 2/3 of the thickness of the wattle.
- Start building trenches and installing wattles from the base of the slope and work up. Excavated material should be spread evenly along the uphill slope and compacted using hand tamping or other methods.
- Construct trenches at contour intervals of 3 to 30 feet apart depending on the steepness of the slope, soil type, and rainfall. The steeper the slope, the closer together the trenches shall be.
- Install the wattles snugly into the trenches and abut tightly end to end. Do not overlap the ends. Rilling can occur beneath wattles if not properly entrenched, and water can pass between wattles if not tightly abutted.
- Install stakes at each end of the wattle, and at 4-foot centers along entire length of wattle.
- If required, install pilot holes for the stakes using a straight bar to drive holes through the wattle and into the soil.
- At a minimum, wooden stakes should be approximately 3/4 x 3/4 x 24 inches. Live cuttings or 3/8-inch rebar can also be used for stakes.
- Stakes should be driven through the middle of the wattle, leaving 2 to 3 inches of the stake protruding above the wattle.

3.2.16.4 Maintenance Standards

- Wattles may require maintenance to ensure they are in contact with soil and thoroughly entrenched, especially after significant rainfall on steep sandy soils.
- Inspect the slope after significant storms and repair any areas where wattles are not tightly abutted or water has scoured beneath the wattles.

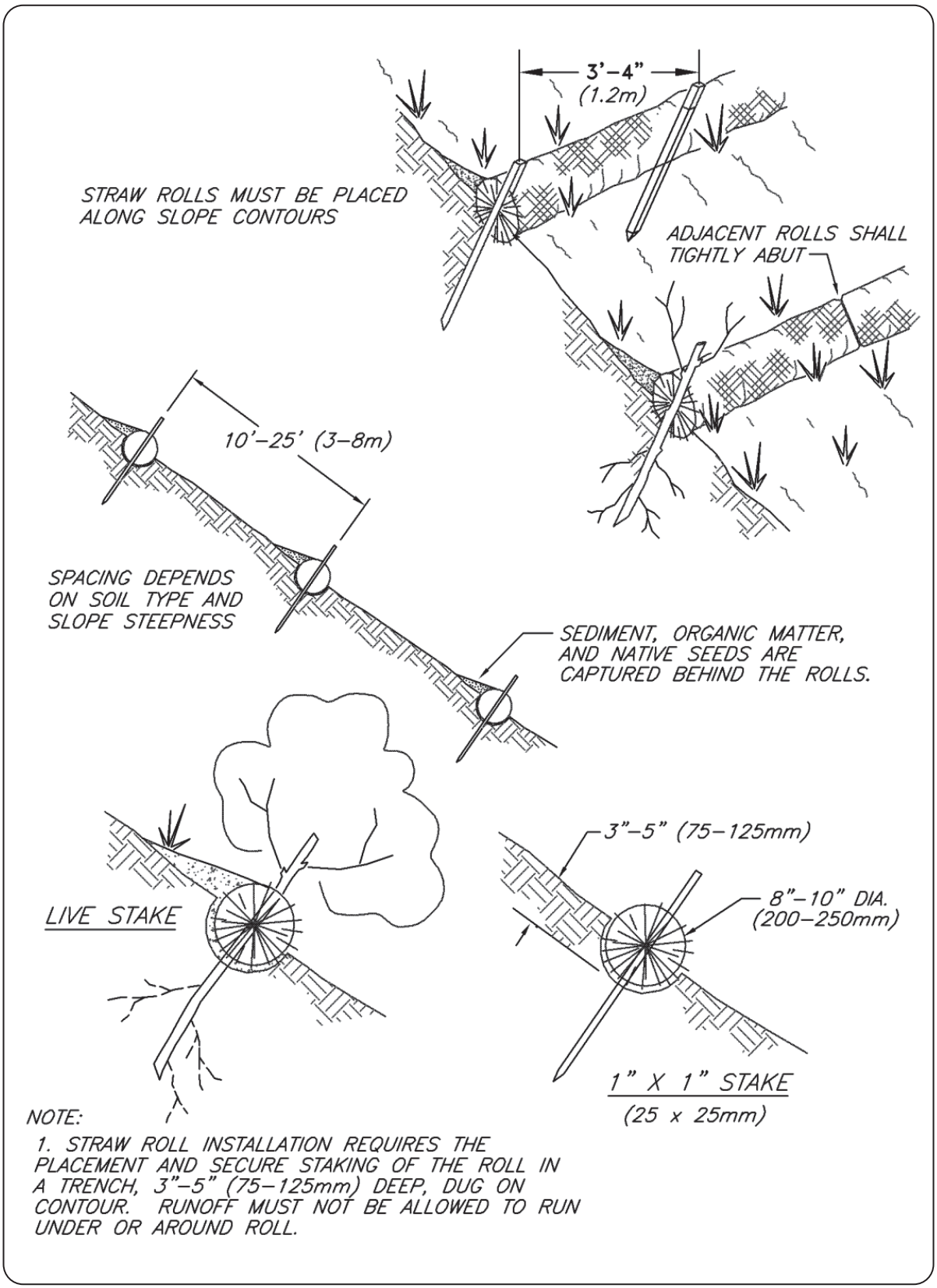


Figure 2 - 28. Straw Wattles

3.2.20 BMP C251: Construction Stormwater Filtration

3.2.20.1 Purpose

Filtration removes sediment from runoff originating from disturbed areas of the site.

3.2.20.2 Conditions of Use

Traditional BMPs used to control soil erosion and sediment loss from sites under development may not be adequate to ensure compliance with the water quality standard for turbidity in the receiving water. Filtration may be used in conjunction with gravity settling to remove sediment as small as fine silt (0.5 µm). The reduction in turbidity will be dependent on the particle size distribution of the sediment in the stormwater. In some circumstances, sedimentation and filtration may achieve compliance with the water quality standard for turbidity.

The use of construction stormwater filtration does not require approval from Ecology as long as treatment chemicals are not used. Filtration in conjunction with polymer treatment requires testing under the Chemical Technology Assessment Protocol – Ecology (CTAPE) before it can be initiated. Approval from the appropriate regional Ecology office must be obtained at each site where polymers use is proposed prior to use. For more guidance on stormwater chemical treatment see BMP C250.

3.2.20.3 Background Information

Filtration with sand media has been used for over a century to treat water and wastewater. The use of sand filtration for treatment of stormwater has developed recently, generally to treat runoff from streets, parking lots, and residential areas. The application of filtration to construction stormwater is currently under development.

3.2.20.4 Design and Installation Specifications

Two types of filtration systems may be applied to construction stormwater treatment: rapid and slow. Rapid sand filters are the typical system used for water and wastewater treatment. They can achieve relatively high hydraulic flow rates, on the order of 2 to 20 gpm/sf, because they have automatic backwash systems to remove accumulated solids. In contrast, slow sand filters have very low hydraulic rates, on the order of 0.02 gpm/sf, because they do not have backwash systems. To date, slow sand filtration has generally been used to treat stormwater. Slow sand filtration is mechanically simple in comparison to rapid sand filtration but requires a much larger filter area.

Filtration Equipment

Sand media filters are available with automatic backwashing features that can filter to 50 µm particle size. Screen or bag filters can filter down to 5 µm. Fiber wound filters can remove particles down to 0.5 µm. Filters should be sequenced from the largest to the smallest pore opening. Sediment removal efficiency will be related to particle size distribution in the stormwater.

Treatment Process Description

Stormwater is collected at interception point(s) on the site and is diverted to an untreated stormwater sediment pond or tank for removal of large sediment and storage of the stormwater before it is treated by the filtration system. The stormwater is pumped from the trap, pond, or tank through the filtration system in a rapid sand filtration system. Slow sand filtration systems are designed as flow through systems using gravity.

Sizing Criteria for Flow-Through Treatment Systems for Flow Control Exempt Water Bodies

When sizing storage ponds or tanks for flow-through systems for flow control exempt water bodies, the treatment system capacity should be a factor. The untreated stormwater storage pond or tank should be sized to hold 1.5 times the runoff volume of the 10-year, 24-hour storm event minus the treatment system flowrate for an 8-hour period. For a chitosan-enhanced sand filtration system, the treatment flowrate should be sized using a hydraulic loading rate between 6-8 gpm/ft². Other hydraulic loading rates may be more appropriate for other systems. Bypass should be provided around the chemical treatment system to accommodate extreme storms. Runoff volumes shall be calculated using the methods presented in Volume 3, Chapter 3. Worst-case conditions (i.e., producing the most runoff) should be used for analyses (most likely conditions present prior to final landscaping).

Sizing Criteria for Flow Control Waters:

Sites that must implement flow control for the developed site condition must also control stormwater release rates during construction. Construction site stormwater discharges shall not exceed the discharge durations of the pre-developed condition for the range of pre-developed discharge rates from 1/2 of the 2-year flow through the 10-year flow as predicted by WWHM. The pre-developed condition to be matched shall be the land cover condition immediately prior to the development project. This restriction on release rates will affect the size of the sediment pond, the filtration system, and the flow rate through the filter system.

The following is how WWHM can be used to determine the release rates from the filtration systems:

1. Determine the pre-developed flow durations to be matched by entering the land use area under the “Pre-developed” scenario in WWHM. The default flow range is from ½ of the 2-year flow through the 10-year flow.
2. Enter the post developed land use area in the “Developed Unmitigated” scenario in WWHM.
3. Copy the land use information from the “Developed Unmitigated” to “Developed Mitigated” scenario.
4. There are two possible ways to model stormwater filtration systems:
    a. The stormwater filtration system uses a storage pond/tank and the discharge from this pond/tank is pumped to one or more filters. In-line filtration chemicals would be added to the flow right after the pond/tank and before the filter(s). Because the discharge is pumped, WWHM can’t generate a stage/storage/discharge (SSD) table for this system. This system is modeled the same way as described in BMP C250 and is as follows:

        While in the “Developed Mitigated” scenario, add a pond element under the basin element containing the post-developed land use areas. This pond element represents information on the available storage and discharge from the filtration system. In cases where the discharge from the filtration system is controlled by a pump, a stage/storage/discharge (SSD) table representing the pond must be generated outside WWHM and imported into WWHM. WWHM can route the runoff from the post-developed condition through this SSD

table (the pond) and determine compliance with the flow duration standard. This would be an iterative design procedure where if the initial SSD table proved to be out of compliance, the designer would have to modify the SSD table outside WWHM and re-import in WWHM and route the runoff through it again. The iteration will continue until a pond that enables compliance with the flow duration standard is designed.

Notes on SSD Table Characteristics

- The pump discharge rate would likely be initially set at just below ½ of the 2-year flow from the pre-developed condition. As runoff coming to the storage pond increases and the available storage volume gets used up, it would be necessary to increase the pump discharge rate above ½ of the 2-year. The increase(s) above ½ of the 2-year must be such that they provide some relief to the storage needs but at the same time they will not cause violations of the flow duration standard at the higher flows. The final design SSD table will identify the appropriate pumping rates and the corresponding stage and storages.
- When building such a flow control system, the design must ensure that any automatic adjustments to the pumping rates will be as a result of changes to the available storage in accordance with the final design SSD table.

b. The stormwater filtration system uses a storage pond/tank and the discharge from this pond/tank gravity flows to the filter. This is usually a slow sand filter system and it is possible to model it in WWHM as a Filter element or as a combination of Pond and Filter element placed in series. The stage/storage/discharge table(s) may then be generated within WWHM as follows:

(i) While in the “Developed Mitigated” scenario, add a Filter element under the basin element containing the post-developed land use areas. The length and width of this filter element would have to be the same as the bottom length and width of the upstream storage pond/tank.

(ii) In cases where the length and width of the filter is not the same as those for the bottom of the upstream storage tank/pond, the treatment system may be modeled as a Pond element followed by a Filter element. By having these two elements, WWHM would then generate a SSD table for the storage pond which then gravity flows to the Filter element. The Filter element downstream of the storage pond would have a storage component through the media, and an overflow component for when the filtration capacity is exceeded.

WWHM can route the runoff from the post-developed condition through the treatment systems in 4b and determine compliance with the flow duration standard. This would be an iterative design procedure where if the initial sizing estimates for the treatment system proved to be inadequate, the designer would have to modify the system and route the runoff through it again. The iteration would continue until compliance with the flow duration standard is achieved.

5. It should be noted that the above procedures would be used to meet the flow control requirements. The filtration system must be able to meet the runoff treatment requirements. It

is likely that the discharge flow rate of ½ of the 2-year or more may exceed the treatment capacity of the system. If that is the case, the discharge rate(s) must be reduced to allow proper treatment. Any reduction in the flows would likely result in the need for a larger storage volume.

If the system does not allow you to discharge at the slower rate as described above and if the site has a retention or detention pond that will serve the planned development, the discharge from the treatment system may be directed to the permanent retention/ detention pond to comply with the flow control requirements. In this case, the untreated stormwater storage pond and treatment system will be sized according to the sizing criteria for flow-through treatment systems for flow control exempt waterbodies except all discharges (water passing through the treatment system and stormwater bypassing the treatment system) will be directed into the permanent retention/detention pond. If site constraints make locating the untreated stormwater storage pond difficult, the permanent retention/detention pond may be divided to serve as the untreated stormwater discharge pond and the post-treatment flow control pond. A berm or barrier must be used in this case so the untreated water does not mix with the treated water. Both untreated stormwater storage requirements, and adequate post-treatment flow control must be achieved. The post-treatment flow control pond's revised dimensions must be entered into the WWHM and the WWHM must be run to confirm compliance with the flow control requirements.

3.2.20.5 Maintenance Standards

Rapid sand filters typically have automatic backwash systems that are triggered by a pre-set pressure drop across the filter. If the backwash water volume is not large or substantially more turbid than the stormwater stored in the holding pond or tank, backwash return to the pond or tank may be appropriate. However, land application or another means of treatment and disposal may be necessary.

- Clean and/or replace screen, bag, and fiber filters when they become clogged.
- Remove sediment from the storage and/or treatment ponds as necessary. Typically, sediment removal is required once or twice during a wet season and at the decommissioning of the ponds.

Appendix C – Alternative BMPs

The following includes a list of possible alternative BMPs for each of the 12 elements not described in the main SWPPP text. This list can be referenced in the event a BMP for a specific element is not functioning as designed and an alternative BMP needs to be implemented.

Element #1 - Mark Clearing Limits

Preserving Natural Vegetation (BMP C101)
Buffer Zones (BMP C102)
Stake and Wire Fence (BMP C104)

Element #2 - Establish Construction Access

Construction Road/Parking Area Stabilization (BMP C107)

Element #3 - Control Flow Rates

Temporary Sediment Pond (BMP C240)
Sediment Trap (BMP C240)

Element #4 - Install Sediment Controls

Gravel Filter Berm (BMP C232)
Silt Fence (BMP C233)
Temporary Sediment Pond (BMP C240)
Construction Stormwater Filtration (BMP C251)

Element #5 - Stabilize Soils

Nets and Blankets (BMP C122)
Polyacrylamide for Soil Erosion Protection (BMP C127)
Surface Roughening (BMP C130)

Element #6 - Protect Slopes

Gradient Terraces (BMP C131)

Element #8 - Stabilize Channels and Outlets

Channel Lining (BMP C209)

Element #9 – Control Pollutants

Concrete Washout Area (BMP C154)

Appendix D – General Permit

Appendix E – Site Inspection Forms (and Site Log)

The results of each inspection shall be summarized in an inspection report or checklist that is entered into or attached to the site log book. It is suggested that the inspection report or checklist be included in this appendix to keep monitoring and inspection information in one document, but this is optional. However, it is mandatory that this SWPPP and the site inspection forms be kept onsite at all times during construction, and that inspections be performed and documented as outlined below.

At a minimum, each inspection report or checklist shall include:

a. Inspection date/times

b. Weather information: general conditions during inspection, approximate amount of precipitation since the last inspection, and approximate amount of precipitation within the last 24 hours.

c. A summary or list of all BMPs that have been implemented, including observations of all erosion/sediment control structures or practices.

d. The following shall be noted:

   i. locations of BMPs inspected,

   ii. locations of BMPs that need maintenance,

   iii. the reason maintenance is needed,

   iv. locations of BMPs that failed to operate as designed or intended, and

   v. locations where additional or different BMPs are needed, and the reason(s) why

e. A description of stormwater discharged from the site. The presence of suspended sediment, turbid water, discoloration, and/or oil sheen shall be noted, as applicable.

f. A description of any water quality monitoring performed during inspection, and the results of that monitoring.

g. General comments and notes, including a brief description of any BMP r repairs, maintenance or installations made as a result of the inspection.

h. A statement that, in the judgment of the person conducting the site inspection, the site is either in compliance or out of compliance with the terms and conditions of the SWPPP and the NPDES permit. If the site inspection indicates that the site is out of

compliance, the inspection report shall include a summary of the remedial actions required to bring the site back into compliance, as well as a schedule of implementation.

i. Name, title, and signature of person conducting the site inspection; and the following statement: "I certify under penalty of law that this report is true, accurate, and complete, to the best of my knowledge and belief".

When the site inspection indicates that the site is not in compliance with any terms and conditions of the NPDES permit, the Permittee shall take immediate action(s) to: stop, contain, and clean up the unauthorized discharges, or otherwise stop the noncompliance; correct the problem(s); implement appropriate Best Management Practices (BMPs), and/or conduct maintenance of existing BMPs; and achieve compliance with all applicable standards and permit conditions. In addition, if the noncompliance causes a threat to human health or the environment, the Permittee shall comply with the Noncompliance Notification requirements in Special Condition S5.F of the permit.

Site Inspection Form

General Information			
Project Name:			
Inspector Name:		**Title:** **CESCL # :**	
Date:		**Time:**	
Inspection Type:	□ After a rain event □ Weekly □ Turbidity/transparency benchmark exceedance □ Other		
Weather			
Precipitation	Since last inspection	In last 24 hours	
Description of General Site Conditions:			

Inspection of BMPs							
Element 1: Mark Clearing Limits							
BMP:							
Location	Inspected			Functioning			Problem/Corrective Action
	Y	N		Y	N	NIP	
Element 2: Establish Construction Access							
BMP:							
Location	Inspected			Functioning			Problem/Corrective Action
	Y	N		Y	N	NIP	
BMP:							
Location	Inspected			Functioning			Problem/Corrective Action
	Y	N		Y	N	NIP	
Element 3: Control Flow Rates							
BMP:							
Location	Inspected			Functioning			Problem/Corrective Action
	Y	N		Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 4: Install Sediment Controls

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 5: Stabilize Soils						
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
Element 6: Protect Slopes						
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
Element 7: Protect Drain Inlets						
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action
BMP:						
Location	Inspected Y	Inspected N	Functioning Y	Functioning N	Functioning NIP	Problem/Corrective Action

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 8: Stabilize Channels and Outlets

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 9: Control Pollutants

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Element 10: Control Dewatering

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

BMP:

Location	Inspected		Functioning			Problem/Corrective Action
	Y	N	Y	N	NIP	

Stormwater Discharges From the Site			
	Observed?		Problem/Corrective Action
	Y	N	
Location			
Turbidity			
Discoloration			
Sheen			
Location			
Turbidity			
Discoloration			
Sheen			

Water Quality Monitoring
Was any water quality monitoring conducted? □ Yes □ No
If water quality monitoring was conducted, record results here:
If water quality monitoring indicated turbidity 250 NTU or greater; or transparency 6 cm or less, was Ecology notified by phone within 24 hrs? □ Yes □ No
If Ecology was notified, indicate the date, time, contact name and phone number below:
Date:
Time:
Contact Name:
Phone #:
General Comments and Notes
Include BMP repairs, maintenance, or installations made as a result of the inspection.
Were Photos Taken? □ Yes □ No
If photos taken, describe photos below:

Appendix F – Stormwater Flow Calculations

WWHM2012
PROJECT REPORT

Project Name: CSWPPP Calcs
Site Name:
Site Address:
City :
Report Date: 10/28/2015
Gage :
Data Start : 10/01/1901
Data End : 09/30/2059
Precip Scale: 1.00
Version : 2014/10/28

Low Flow Threshold for POC 1 : 50 Percent of the 2 Year

High Flow Threshold for POC 1: 50 year

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	Acres
A B, Pasture, Steep	.12
Pervious Total	0.12

Impervious Land Use	Acres
ROADS FLAT	15.78
Impervious Total	15.78
Basin Total	15.9

Element Flows To:

Surface	Interflow	Groundwater

MITIGATED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

Pervious Land Use	Acres
Pervious Total	0

Impervious Land Use	Acres
ROADS FLAT	15.9
Impervious Total	15.9
Basin Total	15.9

Element Flows To:
Surface Interflow Groundwater

ANALYSIS RESULTS

Stream Protection Duration

Predeveloped Landuse Totals for POC #1
Total Pervious Area:0.12
Total Impervious Area:15.78

Mitigated Landuse Totals for POC #1
Total Pervious Area:0
Total Impervious Area:15.9

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	5.530149
5 year	7.423253
10 year	8.799172
25 year	10.682305
50 year	12.193644
100 year	13.800971

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	5.572168
5 year	7.479665
10 year	8.866046
25 year	10.763499
50 year	12.286331
100 year	13.905883

Stream Protection Duration
Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	6.539	6.589
1903	7.248	7.303
1904	8.204	8.267
1905	3.678	3.706
1906	4.113	4.144
1907	5.502	5.544
1908	4.524	4.558
1909	5.582	5.625
1910	5.334	5.375
1911	5.986	6.032
1912	9.921	9.996
1913	4.323	4.355
1914	18.146	18.284
1915	3.721	3.750
1916	6.962	7.015
1917	2.629	2.649
1918	5.575	5.617
1919	3.410	3.436
1920	4.538	4.572
1921	3.892	3.922
1922	6.106	6.152
1923	4.254	4.287
1924	8.051	8.112
1925	3.361	3.386
1926	6.559	6.609
1927	5.344	5.384
1928	3.963	3.993
1929	7.910	7.970
1930	8.279	8.342
1931	3.989	4.020
1932	4.307	4.340
1933	4.271	4.303
1934	6.938	6.991
1935	3.677	3.705
1936	5.147	5.186
1937	7.655	7.713
1938	3.742	3.770
1939	4.705	4.741
1940	8.303	8.366
1941	8.204	8.266
1942	6.170	6.217
1943	6.110	6.157
1944	8.784	8.851
1945	6.657	6.708
1946	5.166	5.206
1947	4.029	4.059
1948	5.543	5.585
1949	8.561	8.626
1950	4.843	4.880
1951	7.327	7.383
1952	8.212	8.275
1953	7.601	7.659
1954	4.501	4.535
1955	4.185	4.217

1956	4.127	4.159
1957	4.462	4.496
1958	5.536	5.578
1959	5.546	5.588
1960	4.404	4.437
1961	12.564	12.660
1962	5.402	5.443
1963	4.013	4.043
1964	11.634	11.722
1965	5.219	5.259
1966	4.366	4.400
1967	6.119	6.165
1968	5.157	5.196
1969	4.650	4.686
1970	5.286	5.327
1971	5.122	5.161
1972	16.939	17.068
1973	9.839	9.914
1974	7.120	7.175
1975	7.348	7.404
1976	7.837	7.897
1977	3.365	3.391
1978	5.675	5.718
1979	5.966	6.012
1980	5.883	5.928
1981	5.536	5.578
1982	4.511	4.545
1983	6.117	6.164
1984	6.081	6.128
1985	6.918	6.971
1986	3.514	3.540
1987	6.170	6.217
1988	3.679	3.707
1989	3.367	3.392
1990	4.447	4.480
1991	6.645	6.696
1992	6.319	6.367
1993	7.220	7.275
1994	4.938	4.976
1995	3.839	3.868
1996	5.145	5.184
1997	4.613	4.648
1998	5.481	5.522
1999	5.956	6.002
2000	5.236	5.276
2001	4.200	4.231
2002	7.624	7.682
2003	4.449	4.483
2004	6.674	6.725
2005	12.752	12.849
2006	5.983	6.028
2007	6.693	6.744
2008	5.515	5.557
2009	4.209	4.241
2010	5.403	5.444
2011	5.685	5.728
2012	5.277	5.317

2013	4.977	5.014
2014	4.813	4.850
2015	8.090	8.152
2016	5.055	5.094
2017	8.113	8.175
2018	4.861	4.897
2019	7.194	7.248
2020	5.889	5.933
2021	4.966	5.003
2022	8.442	8.506
2023	10.431	10.510
2024	11.153	11.238
2025	5.430	5.471
2026	5.963	6.008
2027	6.652	6.702
2028	2.604	2.623
2029	4.274	4.306
2030	8.567	8.633
2031	2.692	2.712
2032	4.560	4.595
2033	5.729	5.772
2034	4.485	4.519
2035	5.519	5.561
2036	4.478	4.512
2037	6.024	6.070
2038	5.716	5.760
2039	11.488	11.575
2040	4.496	4.530
2041	5.705	5.748
2042	6.583	6.633
2043	7.280	7.335
2044	5.001	5.039
2045	4.048	4.079
2046	4.489	4.523
2047	5.541	5.583
2048	4.568	4.603
2049	6.778	6.830
2050	5.049	5.087
2051	7.115	7.169
2052	5.435	5.477
2053	4.619	4.654
2054	9.167	9.237
2055	5.613	5.656
2056	7.242	7.297
2057	3.560	3.587
2058	6.817	6.869
2059	8.501	8.565

Stream Protection Duration
Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	18.1462	18.2841
2	16.9391	17.0679
3	12.7519	12.8489
4	12.5644	12.6599
5	11.6335	11.7220

6	11.4876	11.5749
7	11.1528	11.2375
8	10.4306	10.5099
9	9.9210	9.9957
10	9.8389	9.9137
11	9.1669	9.2366
12	8.7844	8.8512
13	8.5674	8.6325
14	8.5606	8.6256
15	8.5006	8.5653
16	8.4422	8.5064
17	8.3026	8.3657
18	8.2795	8.3424
19	8.2124	8.2749
20	8.2044	8.2668
21	8.2035	8.2659
22	8.1133	8.1749
23	8.0904	8.1519
24	8.0513	8.1124
25	7.9096	7.9697
26	7.8373	7.8969
27	7.6549	7.7131
28	7.6236	7.6816
29	7.6008	7.6586
30	7.3480	7.4039
31	7.3274	7.3831
32	7.2796	7.3350
33	7.2483	7.3034
34	7.2419	7.2969
35	7.2202	7.2751
36	7.1937	7.2484
37	7.1204	7.1745
38	7.1149	7.1690
39	6.9620	7.0149
40	6.9379	6.9906
41	6.9182	6.9708
42	6.8170	6.8688
43	6.7784	6.8300
44	6.6932	6.7441
45	6.6742	6.7249
46	6.6574	6.7080
47	6.6518	6.7023
48	6.6450	6.6955
49	6.5826	6.6326
50	6.5591	6.6090
51	6.5391	6.5887
52	6.3185	6.3666
53	6.1703	6.2173
54	6.1698	6.2166
55	6.1185	6.1650
56	6.1172	6.1636
57	6.1101	6.1565
58	6.1060	6.1524
59	6.0814	6.1277
60	6.0239	6.0697
61	5.9861	6.0316
62	5.9826	6.0280

63	5.9663	6.0116
64	5.9627	6.0080
65	5.9564	6.0016
66	5.8886	5.9334
67	5.8829	5.9276
68	5.7287	5.7723
69	5.7161	5.7595
70	5.7052	5.7485
71	5.6847	5.7279
72	5.6752	5.7184
73	5.6131	5.6557
74	5.5821	5.6245
75	5.5746	5.6170
76	5.5463	5.5884
77	5.5428	5.5849
78	5.5409	5.5830
79	5.5362	5.5783
80	5.5358	5.5778
81	5.5195	5.5614
82	5.5154	5.5573
83	5.5023	5.5441
84	5.4808	5.5224
85	5.4354	5.4768
86	5.4296	5.4709
87	5.4029	5.4440
88	5.4023	5.4434
89	5.3436	5.3842
90	5.3343	5.3748
91	5.2864	5.3266
92	5.2765	5.3166
93	5.2360	5.2758
94	5.2189	5.2586
95	5.1665	5.2057
96	5.1572	5.1963
97	5.1472	5.1863
98	5.1448	5.1839
99	5.1221	5.1610
100	5.0551	5.0935
101	5.0492	5.0875
102	5.0012	5.0393
103	4.9765	5.0144
104	4.9656	5.0033
105	4.9384	4.9760
106	4.8605	4.8974
107	4.8434	4.8801
108	4.8134	4.8500
109	4.7054	4.7412
110	4.6503	4.6856
111	4.6186	4.6537
112	4.6127	4.6477
113	4.5684	4.6031
114	4.5603	4.5950
115	4.5379	4.5724
116	4.5241	4.5585
117	4.5111	4.5454
118	4.5012	4.5354
119	4.4962	4.5303

120	4.4891	4.5232
121	4.4851	4.5192
122	4.4777	4.5117
123	4.4617	4.4956
124	4.4493	4.4831
125	4.4465	4.4803
126	4.4036	4.4370
127	4.3664	4.3995
128	4.3225	4.3554
129	4.3071	4.3398
130	4.2738	4.3063
131	4.2707	4.3031
132	4.2543	4.2866
133	4.2086	4.2406
134	4.1995	4.2314
135	4.1851	4.2169
136	4.1275	4.1588
137	4.1132	4.1445
138	4.0478	4.0786
139	4.0287	4.0594
140	4.0127	4.0432
141	3.9895	4.0198
142	3.9631	3.9931
143	3.8921	3.9216
144	3.8390	3.8681
145	3.7419	3.7703
146	3.7215	3.7497
147	3.6795	3.7074
148	3.6782	3.7062
149	3.6775	3.7054
150	3.5604	3.5875
151	3.5135	3.5401
152	3.4105	3.4364
153	3.3666	3.3921
154	3.3652	3.3908
155	3.3606	3.3861
156	2.6915	2.7120
157	2.6294	2.6494
158	2.6036	2.6234

Stream Protection Duration
POC #1
The Facility FAILED

Facility FAILED duration standard for 1+ flows.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
2.7651	4769	4917	103	Fail
2.8603	4235	4349	102	Fail
2.9556	3724	3845	103	Fail
3.0508	3284	3387	103	Fail
3.1460	2932	3011	102	Fail
3.2413	2620	2693	102	Fail
3.3365	2372	2430	102	Fail
3.4317	2112	2180	103	Fail
3.5270	1919	1972	102	Fail

3.6222	1713	1772	103	Fail
3.7175	1537	1583	102	Fail
3.8127	1395	1436	102	Fail
3.9079	1269	1304	102	Fail
4.0032	1140	1180	103	Fail
4.0984	1045	1072	102	Fail
4.1936	957	981	102	Fail
4.2889	864	896	103	Fail
4.3841	794	812	102	Fail
4.4794	727	750	103	Fail
4.5746	645	675	104	Fail
4.6698	595	612	102	Fail
4.7651	543	565	104	Fail
4.8603	497	515	103	Fail
4.9556	466	478	102	Fail
5.0508	419	438	104	Fail
5.1460	389	404	103	Fail
5.2413	347	362	104	Fail
5.3365	319	327	102	Fail
5.4317	294	302	102	Fail
5.5270	268	276	102	Fail
5.6222	243	254	104	Pass
5.7175	217	230	105	Pass
5.8127	201	209	103	Pass
5.9079	188	198	105	Pass
6.0032	174	181	104	Pass
6.0984	160	164	102	Pass
6.1936	146	150	102	Pass
6.2889	137	140	102	Pass
6.3841	126	131	103	Pass
6.4794	122	124	101	Pass
6.5746	114	120	105	Pass
6.6698	105	111	105	Pass
6.7651	95	99	104	Pass
6.8603	89	92	103	Pass
6.9555	84	87	103	Pass
7.0508	79	80	101	Pass
7.1460	75	77	102	Pass
7.2413	67	75	111	Fail
7.3365	62	63	101	Pass
7.4317	61	61	100	Pass
7.5270	58	59	101	Pass
7.6222	57	58	101	Pass
7.7175	55	55	100	Pass
7.8127	53	53	100	Pass
7.9079	48	50	104	Pass
8.0032	46	46	100	Pass
8.0984	43	46	106	Pass
8.1936	42	42	100	Pass
8.2889	37	38	102	Pass
8.3841	34	36	105	Pass
8.4794	33	34	103	Pass
8.5746	28	31	110	Pass
8.6698	28	28	100	Pass
8.7651	28	28	100	Pass
8.8603	27	27	100	Pass
8.9555	27	27	100	Pass

9.0508	27	27	100	Pass
9.1460	24	27	112	Fail
9.2413	23	23	100	Pass
9.3365	22	23	104	Pass
9.4317	22	22	100	Pass
9.5270	21	22	104	Pass
9.6222	20	21	104	Pass
9.7175	20	20	100	Pass
9.8127	17	20	117	Fail
9.9079	16	17	106	Pass
10.0032	15	15	100	Pass
10.0984	15	15	100	Pass
10.1936	15	15	100	Pass
10.2889	15	15	100	Pass
10.3841	15	15	100	Pass
10.4794	14	15	107	Pass
10.5746	14	14	100	Pass
10.6698	13	14	107	Pass
10.7651	13	13	100	Pass
10.8603	13	13	100	Pass
10.9555	12	13	108	Pass
11.0508	12	12	100	Pass
11.1460	12	12	100	Pass
11.2413	11	11	100	Pass
11.3365	11	11	100	Pass
11.4317	11	11	100	Pass
11.5270	10	11	110	Pass
11.6222	10	10	100	Pass
11.7175	9	10	111	Fail
11.8127	9	9	100	Pass
11.9079	9	9	100	Pass
12.0032	9	9	100	Pass
12.0984	8	9	112	Fail
12.1936	8	8	100	Pass

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality BMP Flow and Volume for POC #1
On-line facility volume: 0 **acre-feet**
On-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**
Off-line facility target flow: 0 **cfs.**
Adjusted for 15 min: 0 **cfs.**

Wetlands Fluctuation for POC 1
Average Annual Volume (acft)

Month	Predevel	Mitigated	Percent	Pass/Fail
Jan	286.3846	288.5609	100.8	Pass
Feb	237.5936	239.3980	100.8	Pass
Mar	192.6780	194.1420	100.8	Pass

Apr	114.6229	115.4940	100.8	Pass
May	81.9500	82.5726	100.8	Pass
Jun	62.6650	63.1416	100.8	Pass
Jul	30.7509	30.9845	100.8	Pass
Aug	36.7501	37.0295	100.8	Pass
Sep	77.4781	78.0666	100.8	Pass
Oct	181.8046	183.1881	100.8	Pass
Nov	316.8922	319.3029	100.8	Pass
Dec	325.3534	327.8281	100.8	Pass

Day	Predevel	Mitigated	Percent	Pass/Fail
Jan1	7.7678	7.8268	100.8	Pass
2	11.6631	11.7517	100.8	Pass
3	10.4665	10.5461	100.8	Pass
4	7.0049	7.0581	100.8	Pass
5	8.8622	8.9295	100.8	Pass
6	9.8199	9.8945	100.8	Pass
7	9.3357	9.4067	100.8	Pass
8	8.2803	8.3432	100.8	Pass
9	9.9274	10.0028	100.8	Pass
10	9.6139	9.6869	100.8	Pass
11	9.5246	9.5969	100.8	Pass
12	8.3928	8.4566	100.8	Pass
13	12.2059	12.2987	100.8	Pass
14	12.1402	12.2325	100.8	Pass
15	9.5449	9.6174	100.8	Pass
16	9.8788	9.9538	100.8	Pass
17	9.7402	9.8142	100.8	Pass
18	11.6868	11.7756	100.8	Pass
19	10.2452	10.3230	100.8	Pass
20	6.7007	6.7516	100.8	Pass
21	7.3181	7.3736	100.8	Pass
22	10.8596	10.9421	100.8	Pass
23	11.0678	11.1519	100.8	Pass
24	8.8608	8.9281	100.8	Pass
25	7.3914	7.4475	100.8	Pass
26	9.2544	9.3247	100.8	Pass
27	7.7437	7.8025	100.8	Pass
28	6.2391	6.2865	100.8	Pass
29	6.0169	6.0626	100.8	Pass
30	9.8607	9.9356	100.8	Pass
31	10.3599	10.4386	100.8	Pass
Feb1	9.4801	9.5521	100.8	Pass
2	7.5081	7.5651	100.8	Pass
3	6.8142	6.8660	100.8	Pass
4	6.8582	6.9103	100.8	Pass
5	11.4581	11.5451	100.8	Pass
6	6.4721	6.5213	100.8	Pass
7	9.4271	9.4987	100.8	Pass
8	7.2239	7.2787	100.8	Pass
9	7.0197	7.0731	100.8	Pass
10	7.0663	7.1200	100.8	Pass
11	9.2489	9.3192	100.8	Pass
12	8.6360	8.7016	100.8	Pass
13	9.3227	9.3936	100.8	Pass
14	7.1846	7.2392	100.8	Pass
15	9.4160	9.4876	100.8	Pass

16	13.0306	13.1296	100.8	Pass
17	11.4531	11.5401	100.8	Pass
18	10.9992	11.0828	100.8	Pass
19	7.2834	7.3387	100.8	Pass
20	6.1596	6.2063	100.8	Pass
21	7.3394	7.3951	100.8	Pass
22	6.5864	6.6364	100.8	Pass
23	6.5652	6.6150	100.8	Pass
24	10.0944	10.1710	100.8	Pass
25	6.8652	6.9174	100.8	Pass
26	9.0245	9.0931	100.8	Pass
27	7.2331	7.2881	100.8	Pass
28	6.3766	6.4250	100.8	Pass
29	5.2699	5.3099	100.8	Pass
Mar1	6.9692	7.0221	100.8	Pass
2	6.7421	6.7933	100.8	Pass
3	7.2568	7.3120	100.8	Pass
4	6.2842	6.3320	100.8	Pass
5	7.8557	7.9153	100.8	Pass
6	4.9451	4.9827	100.8	Pass
7	7.1068	7.1608	100.8	Pass
8	8.9881	9.0563	100.8	Pass
9	6.2026	6.2498	100.8	Pass
10	5.9252	5.9702	100.8	Pass
11	7.0177	7.0710	100.8	Pass
12	7.6778	7.7362	100.8	Pass
13	5.7092	5.7525	100.8	Pass
14	6.3821	6.4306	100.8	Pass
15	5.4493	5.4907	100.8	Pass
16	4.8103	4.8468	100.8	Pass
17	5.2874	5.3276	100.8	Pass
18	3.8473	3.8765	100.8	Pass
19	4.8855	4.9226	100.8	Pass
20	5.1405	5.1795	100.8	Pass
21	5.9944	6.0400	100.8	Pass
22	9.0419	9.1106	100.8	Pass
23	5.8683	5.9129	100.8	Pass
24	5.8391	5.8834	100.8	Pass
25	4.9481	4.9857	100.8	Pass
26	7.4882	7.5451	100.8	Pass
27	5.3369	5.3775	100.8	Pass
28	6.5509	6.6006	100.8	Pass
29	6.9596	7.0125	100.8	Pass
30	4.9994	5.0373	100.8	Pass
31	4.8166	4.8532	100.8	Pass
Apr1	3.3405	3.3659	100.8	Pass
2	3.4733	3.4997	100.8	Pass
3	4.3307	4.3636	100.8	Pass
4	5.2139	5.2535	100.8	Pass
5	4.3915	4.4249	100.8	Pass
6	3.8298	3.8589	100.8	Pass
7	4.6676	4.7031	100.8	Pass
8	6.0981	6.1444	100.8	Pass
9	5.1102	5.1490	100.8	Pass
10	3.7605	3.7891	100.8	Pass
11	5.3685	5.4093	100.8	Pass
12	4.0999	4.1310	100.8	Pass

13	2.8932	2.9152	100.8	Pass
14	3.2785	3.3034	100.8	Pass
15	2.3329	2.3507	100.8	Pass
16	3.9747	4.0049	100.8	Pass
17	2.4070	2.4253	100.8	Pass
18	3.1554	3.1794	100.8	Pass
19	5.6642	5.7072	100.8	Pass
20	2.9117	2.9338	100.8	Pass
21	2.8135	2.8349	100.8	Pass
22	4.3065	4.3393	100.8	Pass
23	5.5390	5.5811	100.8	Pass
24	3.1191	3.1428	100.8	Pass
25	1.5238	1.5354	100.8	Pass
26	3.9315	3.9613	100.8	Pass
27	2.7364	2.7572	100.8	Pass
28	2.8647	2.8865	100.8	Pass
29	2.7283	2.7490	100.8	Pass
30	3.9596	3.9897	100.8	Pass
May1	5.2330	5.2727	100.8	Pass
2	2.9462	2.9686	100.8	Pass
3	2.9301	2.9524	100.8	Pass
4	4.2467	4.2789	100.8	Pass
5	3.5196	3.5463	100.8	Pass
6	2.4533	2.4719	100.8	Pass
7	2.3398	2.3576	100.8	Pass
8	1.8463	1.8604	100.8	Pass
9	1.3474	1.3576	100.8	Pass
10	2.2088	2.2255	100.8	Pass
11	2.4042	2.4225	100.8	Pass
12	2.7841	2.8053	100.8	Pass
13	3.2783	3.3032	100.8	Pass
14	1.9909	2.0060	100.8	Pass
15	2.2831	2.3005	100.8	Pass
16	3.3757	3.4014	100.8	Pass
17	1.8295	1.8434	100.8	Pass
18	1.8944	1.9088	100.8	Pass
19	2.5556	2.5750	100.8	Pass
20	2.2346	2.2515	100.8	Pass
21	1.7811	1.7946	100.8	Pass
22	1.9080	1.9225	100.8	Pass
23	2.7746	2.7957	100.8	Pass
24	2.1006	2.1166	100.8	Pass
25	2.4869	2.5058	100.8	Pass
26	2.8442	2.8658	100.8	Pass
27	2.1060	2.1220	100.8	Pass
28	2.7227	2.7434	100.8	Pass
29	3.3958	3.4216	100.8	Pass
30	2.2057	2.2225	100.8	Pass
31	3.1422	3.1661	100.8	Pass
Jun1	3.2947	3.3198	100.8	Pass
2	1.6380	1.6505	100.8	Pass
3	1.8788	1.8931	100.8	Pass
4	2.6515	2.6716	100.8	Pass
5	2.5472	2.5665	100.8	Pass
6	2.7589	2.7799	100.8	Pass
7	2.5282	2.5474	100.8	Pass
8	2.6350	2.6550	100.8	Pass

9	2.6790	2.6993	100.8	Pass
10	1.7157	1.7287	100.8	Pass
11	2.1243	2.1404	100.8	Pass
12	1.5201	1.5316	100.8	Pass
13	1.5691	1.5810	100.8	Pass
14	2.5302	2.5495	100.8	Pass
15	1.9993	2.0145	100.8	Pass
16	2.5902	2.6099	100.8	Pass
17	1.6184	1.6307	100.8	Pass
18	1.3635	1.3738	100.8	Pass
19	1.2470	1.2565	100.8	Pass
20	2.3832	2.4013	100.8	Pass
21	1.5668	1.5788	100.8	Pass
22	0.8601	0.8667	100.8	Pass
23	3.6084	3.6358	100.8	Pass
24	1.4305	1.4414	100.8	Pass
25	1.8316	1.8456	100.8	Pass
26	1.4677	1.4789	100.8	Pass
27	1.3635	1.3739	100.8	Pass
28	1.4664	1.4776	100.8	Pass
29	2.6779	2.6982	100.8	Pass
30	1.6854	1.6982	100.8	Pass
Jul1	1.7436	1.7569	100.8	Pass
2	1.4662	1.4774	100.8	Pass
3	0.9279	0.9349	100.8	Pass
4	1.3609	1.3712	100.8	Pass
5	1.7668	1.7802	100.8	Pass
6	0.6136	0.6182	100.8	Pass
7	2.2234	2.2403	100.8	Pass
8	1.7043	1.7172	100.8	Pass
9	0.6558	0.6608	100.8	Pass
10	1.2414	1.2508	100.8	Pass
11	1.1927	1.2018	100.8	Pass
12	2.0226	2.0380	100.8	Pass
13	0.5377	0.5418	100.8	Pass
14	1.3272	1.3373	100.8	Pass
15	1.2224	1.2317	100.8	Pass
16	1.1421	1.1508	100.8	Pass
17	1.4101	1.4208	100.8	Pass
18	0.6888	0.6941	100.8	Pass
19	0.5997	0.6042	100.8	Pass
20	0.7673	0.7731	100.8	Pass
21	0.5699	0.5742	100.8	Pass
22	0.1622	0.1634	100.8	Pass
23	0.3115	0.3139	100.8	Pass
24	0.3752	0.3781	100.8	Pass
25	1.0203	1.0281	100.8	Pass
26	0.7621	0.7679	100.8	Pass
27	0.6989	0.7042	100.8	Pass
28	0.3292	0.3317	100.8	Pass
29	0.1143	0.1152	100.8	Pass
30	0.1106	0.1115	100.8	Pass
31	0.3481	0.3508	100.8	Pass
Aug1	0.3818	0.3847	100.8	Pass
2	0.8240	0.8303	100.8	Pass
3	1.0590	1.0670	100.8	Pass
4	0.3874	0.3904	100.8	Pass

5	0.6423	0.6472	100.8	Pass
6	0.6948	0.7001	100.8	Pass
7	0.7518	0.7575	100.8	Pass
8	0.7010	0.7063	100.8	Pass
9	0.3162	0.3186	100.8	Pass
10	0.8636	0.8701	100.8	Pass
11	0.3402	0.3428	100.8	Pass
12	1.1844	1.1934	100.8	Pass
13	0.5945	0.5990	100.8	Pass
14	1.5445	1.5563	100.8	Pass
15	1.2403	1.2497	100.8	Pass
16	1.4722	1.4834	100.8	Pass
17	1.5112	1.5227	100.8	Pass
18	0.4716	0.4752	100.8	Pass
19	1.1737	1.1826	100.8	Pass
20	0.9363	0.9434	100.8	Pass
21	1.2154	1.2246	100.8	Pass
22	1.1612	1.1700	100.8	Pass
23	2.6777	2.6981	100.8	Pass
24	1.8287	1.8426	100.8	Pass
25	1.8497	1.8637	100.8	Pass
26	2.6482	2.6683	100.8	Pass
27	2.2375	2.2545	100.8	Pass
28	2.8027	2.8240	100.8	Pass
29	1.2435	1.2530	100.8	Pass
30	1.6519	1.6645	100.8	Pass
31	3.3736	3.3992	100.8	Pass
Sep1	3.2263	3.2508	100.8	Pass
2	2.4870	2.5059	100.8	Pass
3	1.2148	1.2241	100.8	Pass
4	2.4064	2.4247	100.8	Pass
5	1.8327	1.8466	100.8	Pass
6	1.1759	1.1848	100.8	Pass
7	1.6962	1.7091	100.8	Pass
8	1.8427	1.8568	100.8	Pass
9	2.5752	2.5948	100.8	Pass
10	1.9809	1.9959	100.8	Pass
11	0.8525	0.8590	100.8	Pass
12	1.7826	1.7962	100.8	Pass
13	1.4814	1.4926	100.8	Pass
14	3.4847	3.5112	100.8	Pass
15	3.0988	3.1224	100.8	Pass
16	2.9137	2.9359	100.8	Pass
17	4.6261	4.6613	100.8	Pass
18	2.4748	2.4936	100.8	Pass
19	3.8865	3.9161	100.8	Pass
20	2.9669	2.9895	100.8	Pass
21	3.0926	3.1161	100.8	Pass
22	3.1661	3.1901	100.8	Pass
23	3.9456	3.9756	100.8	Pass
24	2.2271	2.2440	100.8	Pass
25	1.5543	1.5662	100.8	Pass
26	3.8401	3.8693	100.8	Pass
27	4.0593	4.0902	100.8	Pass
28	2.4463	2.4649	100.8	Pass
29	1.7911	1.8047	100.8	Pass
30	4.2248	4.2569	100.8	Pass

Oct1	3.4193	3.4453	100.8	Pass
2	3.0812	3.1047	100.8	Pass
3	2.7819	2.8031	100.8	Pass
4	4.1441	4.1757	100.8	Pass
5	3.8761	3.9056	100.8	Pass
6	7.1727	7.2273	100.8	Pass
7	5.2861	5.3264	100.8	Pass
8	5.5088	5.5507	100.8	Pass
9	5.3181	5.3585	100.8	Pass
10	5.0629	5.1014	100.8	Pass
11	4.3289	4.3618	100.8	Pass
12	4.3150	4.3478	100.8	Pass
13	4.6401	4.6754	100.8	Pass
14	4.8051	4.8417	100.8	Pass
15	3.8560	3.8853	100.8	Pass
16	4.8268	4.8635	100.8	Pass
17	6.1590	6.2059	100.8	Pass
18	6.3402	6.3884	100.8	Pass
19	6.7513	6.8026	100.8	Pass
20	9.1261	9.1955	100.8	Pass
21	6.7951	6.8467	100.8	Pass
22	5.4544	5.4959	100.8	Pass
23	7.2991	7.3546	100.8	Pass
24	7.4130	7.4693	100.8	Pass
25	8.2312	8.2938	100.8	Pass
26	10.3385	10.4171	100.8	Pass
27	8.6644	8.7303	100.8	Pass
28	7.6684	7.7267	100.8	Pass
29	6.4919	6.5413	100.8	Pass
30	8.5065	8.5711	100.8	Pass
31	7.8271	7.8866	100.8	Pass
Nov1	8.7850	8.8518	100.8	Pass
2	9.6513	9.7246	100.8	Pass
3	10.3209	10.3994	100.8	Pass
4	8.5298	8.5947	100.8	Pass
5	7.8393	7.8989	100.8	Pass
6	9.5222	9.5946	100.8	Pass
7	6.4243	6.4732	100.8	Pass
8	9.4079	9.4794	100.8	Pass
9	9.5761	9.6488	100.8	Pass
10	12.2793	12.3726	100.8	Pass
11	10.5031	10.5830	100.8	Pass
12	10.9049	10.9878	100.8	Pass
13	11.3506	11.4369	100.8	Pass
14	9.0372	9.1059	100.8	Pass
15	10.5774	10.6578	100.8	Pass
16	11.9422	12.0330	100.8	Pass
17	11.0089	11.0926	100.8	Pass
18	10.8167	10.8989	100.8	Pass
19	12.1957	12.2884	100.8	Pass
20	8.5644	8.6295	100.8	Pass
21	12.5989	12.6947	100.8	Pass
22	11.6617	11.7503	100.8	Pass
23	16.4850	16.6103	100.8	Pass
24	14.7516	14.8636	100.8	Pass
25	12.7572	12.8542	100.8	Pass
26	8.6621	8.7279	100.8	Pass

27	10.1652	10.2424	100.8	Pass
28	8.9771	9.0454	100.8	Pass
29	13.9561	14.0622	100.8	Pass
30	11.5680	11.6559	100.8	Pass
Dec1	12.8519	12.9495	100.8	Pass
2	13.9538	14.0599	100.8	Pass
3	11.7067	11.7957	100.8	Pass
4	12.8429	12.9405	100.8	Pass
5	11.9593	12.0502	100.8	Pass
6	10.2085	10.2861	100.8	Pass
7	10.6182	10.6989	100.8	Pass
8	8.5498	8.6148	100.8	Pass
9	11.2870	11.3728	100.8	Pass
10	11.2926	11.3784	100.8	Pass
11	12.0164	12.1077	100.8	Pass
12	8.2327	8.2952	100.8	Pass
13	10.9320	11.0151	100.8	Pass
14	10.2457	10.3235	100.8	Pass
15	9.9755	10.0513	100.8	Pass
16	10.9994	11.0829	100.8	Pass
17	8.5479	8.6129	100.8	Pass
18	8.2995	8.3626	100.8	Pass
19	12.1251	12.2172	100.8	Pass
20	11.3376	11.4238	100.8	Pass
21	11.2449	11.3303	100.8	Pass
22	9.1606	9.2302	100.8	Pass
23	9.2077	9.2777	100.8	Pass
24	8.9026	8.9703	100.8	Pass
25	10.9795	11.0629	100.8	Pass
26	10.3622	10.4410	100.8	Pass
27	8.5480	8.6129	100.8	Pass
28	9.6904	9.7640	100.8	Pass
29	11.2885	11.3743	100.8	Pass
30	6.6101	6.6603	100.8	Pass
31	9.1258	9.1952	100.8	Pass

LID Report

LID Technique	Used for Water Quality	Total Volumn Percent Treatment?	Volumn Needs Treatment (ac-ft)	Infiltration Through Facility (ac-ft)	Infiltration Volumn (ac-ft)	Cumulative Volumn Infiltration Credit	Comment Percent Water Quality Volumn Infiltrated Treated

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Perlnd and Implnd Changes

No changes have been made.

APPENDIX C

LRI CONTRACT FOR WASTE DISPOSAL

Contract #
070156

Port of Tacoma
People. Partnership. Performance.
P.O. Box 1837
Tacoma, WA 98401-1837
www.portoftacoma.com

CONTRACT FOR WASTE DISPOSAL

As of the date set forth below, the "Effective Date", this CONTRACT FOR WASTE DISPOSAL (this "Contract") is made by and between the PORT OF TACOMA, hereinafter referred to as "Port", and PIERCE COUNTY RECYCLING, COMPOSTING AND DISPOSAL, LLC d/b/a LRI, a limited liability company of The State of Washington and hereinafter referred to as "Contractor", with both also referred to herein as "Parties".

RECITALS

1. The purpose of this Contract is to establish disposal rates for work authorized on a Project specific basis by individual purchase order entered into between the Port and Contractor (each a "Purchase Order") or between the Port's Construction Contractor and the Contractor from time to time ("Construction Contractor Process").

2. Contractor understands and agrees that Port is not assigning any work to Contractor pursuant to this Contract.

3. By entering into this Contract, Port is not encumbering any funds (federal, state or otherwise).

1. TERM OF THE CONTRACT

The term of this Contract shall commence on 10/23/15 and will extend for a period of two (2) years from that date (the "Initial Term"). Two (2), one (1) -year extension periods are available upon mutual agreement of both Parties ("Extension Term" and, together with the Initial Term, the "Term".

2. DISPOSAL OBLIGATION

Port is committed to a mutually beneficial arrangement established with Contractor by means of this Contract. Port agrees that all Port Acceptable Waste (as defined in Paragraph 7 herein and identified in **Exhibit A)** that Port generates, controls, or processes and identifies for disposal, and which is actually disposed of at a solid waste facility, shall be disposed of at Contractor's Facility, per Port's Purchase Order process or Construction Contractor Process as described herein. Notwithstanding the foregoing and subject to the requirements of Paragraph 6 herein, in the event that any volumes of Acceptable Waste exceed Contractor's daily disposal capacity and expressly subject to LRI timely providing the Port advance written notice of the exceedance as provided in Paragraph 6 herein, Port shall have the right to utilize alternative resources for the disposal of only that amount of Acceptable Waste that Contractor is unable to dispose of, but, in all cases, only after Port has engaged in a purposeful and good faith discussion with Contractor regarding Port's requirements and Port has received a timely written affirmation from Contractor no later than 14 days after the Port's Project

Manager's coordination with Contractor that Contractor is unable to dispose of the volume of Acceptable Waste for the reasons described above.

3. APPLICABLE RATES

As used in this Contract, the term "applicable rates" will mean the rates cited in **Exhibit A** attached hereto as adjusted in accordance with Paragraph 4. The applicable rates established by this Contract will apply to all Purchase Orders issued from this Contract and contracts for the services described herein between LRI and the Port's Construction Contractors.

4. RATE ADJUSTMENT CALCULATIONS

The rates set forth in Exhibit A shall be adjusted annually as follows. Contractor will submit its requested applicable rates to the Port Contract and Purchasing Office no later than ninety (90) days prior to November 1st of each subsequent year throughout the term hereof (the "annual adjustment date" on which date the adjusted rates shall become effective) with the first such adjustment effective November 1, 2017. Rate adjustments are limited to and shall be calculated based on the CPI-U, A423 Seattle-Tacoma-Bremerton, WA area, calculated on annual change December to December, "All Items" series title (not seasonally adjusted), index base period 1982-84=100 plus any changes to applicable taxes.

5. ADDITIONAL CONSIDERATIONS

For Purchase Orders issued under this contract, Contractor shall:

- Coordinate with Port's Project Manager to discuss project details and establish project plan/schedule/requirements/invoicing.

- Within 14 days of the Port's Project Manager coordination described above, provide the Port written notice of Contractor's inability to accept the Port's expected volume of Acceptable Waste for that Project; if such notice is not timely given to the Port, Contractor shall be obligated to accept the Port's volume of Acceptable Waste for that Project, notwithstanding the language of Paragraph 2 herein.

- Coordinate billing efforts so invoice submittals to Port are complete, including all documentation as required. Invoicing requirements will be on a project specific basis.

Port shall:

- After providing at least fourteen days advance written notice to LRI, the Port Project Manager shall coordinate with Contractor to review the major aspects and requirements of each Project. The Port's Project Manager will manage project plan/schedule/requirements/invoicing.

- Provide notification if special funds (*i.e.*, grants, etc.) will be utilized by Port and communicate unique reporting requirements during the Project Manager' coordination.

For contracts entered between the Port's Construction Contractor and the Contractor, the Contractor shall:

- Coordinate with Port's Project Manager prior to Project bid to discuss project details and establish project plan/schedule/requirements.

- Provide Port's Construction Contractor the applicable rates defined in this agreement for all Port Acceptable Waste.

- Provide Port's Construction Contractor with Contractor's standard Special Waste Disposal Agreement for execution by Contractor and the Port's Construction Contractor at the applicable rates set forth herein.

- Within 14 days of the Port's Project Manager coordination described above, provide the Port written notice of Contractor's inability to accept the Port's expected volume of Acceptable Waste for that Project; if such notice is not timely given to the Port, Contractor shall be obligated to accept the Port's volume of Acceptable Waste for that Project.

Port shall:

- After providing at least fourteen days advance written notice to LRI, the Port Project Manager shall coordinate with Contractor prior to bid to review the major aspects and requirements of each Project.

- Require that its Construction Contractors post a payment bond and/or use retainage in amounts sufficient to ensure that Contractor's service fees as set forth herein are paid.

6. WASTE ACCEPTED AT FACILITY

During the Term, Port may, from time to time, provide to Contractor Acceptable Waste for disposal, and Contractor shall accept such Acceptable Waste, provided the Port has received a Waste Disposal Authorization ("WDA") from the Tacoma-Pierce County Health Department (TPCHD) where applicable to such Acceptable Waste. Prior to providing Contractor with Acceptable Waste, Port shall provide Contractor with the WDA where applicable describing the waste materials to be disposed. Only that waste material described in the WDA or the disposal of which is otherwise in accordance with all laws, regulations, and permits, shall be acceptable for disposal at its Facility ("Acceptable Waste"). Contractor will also review the WDA and approve acceptance of the waste.

The Port represents that the Waste delivered to Contractor at its Facility hereunder will

be Acceptable Waste and will not contain any unacceptable quantity of liquid wastes (as determined by Method 9095B (Paint Filter Liquids Test)), hazardous materials or substances, radioactive materials or substances, or toxic waste or substances, as defined by applicable federal, state, local or provincial laws or regulations. Any Waste which does not meet these requirements shall hereinafter be referred to as "Unacceptable Waste".

The Port and Contractor affirm that "Acceptable Waste" as defined herein expressly:

(1) Excludes clean (non-regulated) waste and
(2) Is specific to regulated waste ("Acceptable Waste"), and
(3) Does not include either "Unacceptable Waste" or waste that the Port actually reuses or recycles
(4) Includes regulated waste ("Acceptable Waste") from Port waterway dredging projects, so long as the distance between the dredge project and de-watering site is not greater than forty (40) roadway miles, and
(5) Includes any waste that is required to go offsite to a regulated landfill, except and only as expressly excluded in (1), (3) and (4) of this Section 7.

7. RIGHTS OF REFUSAL/REJECTION

The Port and or the Port's Construction Contractor shall inspect all Waste at the place(s) of origin and shall remove any and all Unacceptable Waste. Contractor has the right to refuse, or to reject after acceptance, any load(s) of Waste(s) delivered to its Facility that constitutes Unacceptable Waste. Contractor shall have the right to inspect all waste in order to determine whether the Waste is Acceptable Waste or Unacceptable Waste pursuant to this Contract and all applicable federal, state and local laws, rules and regulations. The word "Facility" shall mean the 304th Street Landfill (a/k/a the LRI Landfill and the PCRCD Landfill), located at 30919 Meridian Street East Graham, WA 98338. Conditioned specifically upon the Port's advance written approval, "Facility" may also mean any other properly licensed and permitted solid waste facility or facilities arranged by Contractor for the ultimate disposal of the Acceptable Waste.

8. PURCHASE ORDER MODIFICATION OR EXPANSION

Any Purchase Order may be expanded as allowed below:

A one-time Purchase Order may be modified if the Port's bid upon which the Purchase Order was based reserved the right for additional orders to be placed within a specified period of time, or if the Project or body of work associated with a Purchase Order is still active. Such modifications must be mutually agreed upon by the Parties in writing, and shall be approved by the Port Contract and Purchasing Director or the Port's Purchasing Manager on behalf of Port. No other Port employee is authorized to make such modifications.

Expansions must be issued in writing from the Port Contract and Purchasing Office in a formal notice. The Port Contract and Purchasing Office will ensure the expansion

meets the following criteria collectively: (a) it could not be separately bid, (b) the change is for a reasonable purpose, (c) the change was not reasonably known to either Port or Contractor at time of project initiation or else was called out as a possibility in the bid (such as a change in environmental regulation or other law) to which the Purchase Order is based; (d) the change is not significant enough to be reasonably regarded as an independent body of work; (e) the change could not have attracted a different field of competition; and (f) the change does not vary the essential identity or main purpose of the contract, all as determined by the Port Contract and Purchasing Office in their sole determination, provided however, the Port may make exceptions for immaterial changes, emergency or sole source conditions, or for other situations as required in the opinion of the Port Contract and Purchasing Office.

The following changes are not considered an expansion of scope, including an increase or decrease in quantities ordered, the exercise of options and alternates in the bid, or ordering of work originally identified within the originating solicitation. Such changes shall be approved via a written order issued by the Port Contract and Purchasing Office to Contractor, and shall take effect upon written confirmation by Contractor acknowledging receipt of such written order.

9. INSURANCE REQUIREMENTS

1. The Contractor shall procure and maintain during the life of this contract such insurance as shall protect it from claims or damages for bodily injury, including death resulting therefrom as well as from claims for property damage, which may arise from operations under this contract, whether such operations be by itself, its agents, or by anyone directly or indirectly employed by either of them.
2. Certificates of all insurance shall be filed with the Port of Tacoma naming the Port of Tacoma as additional insured.
3. The policies shall not be canceled or the amount thereof reduced, without the Contractor providing thirty (30) days prior written notice to the Port of Tacoma and
4. The Contractor shall also provide the Port prior written notice if the policy is not to be renewed at the scheduled expiration date.
5. The amount of such insurance shall not be less than:
    a. Commercial General Liability Insurance, on an occurrence basis, including contractual liability and completed operations, in an amount of not less than One Million Dollars ($1,000,000.00) for bodily injury, including sickness, disease, and death at any time resulting therefrom, sustained by any person and for property damage.

6. The Contractor shall procure and maintain insurance in accordance with the requirements of all applicable State and Federal Worker's Compensation Laws. Contractor shall furnish to the Port of Tacoma evidence of such insurance, including Employers Contingent Liability (Stop Gap) Insurance.

7. For contracts entered between the Port's Construction Contractor and the Contractor, the Contractor shall fulfill such insurance requirements as provided in Section 10 of the Contract.

10. MISCELLANEOUS PROVISIONS

A. Amendments: No modification of this Contract shall be effective unless in writing and signed by an authorized representative of each of Port and Contractor. Port shall issue change notices to Contractor, and such notices shall take effect under the signature of Port and upon written confirmation by Contractor acknowledging agreement to and receipt of the change notice.

B. Conflict: In the event of conflict between contract documents and applicable laws, codes, ordinances or regulations, the most stringent or legally binding requirement shall govern and be considered a part of this contract to afford Port the maximum benefits.

C. Liens, Claims and Encumbrances: All materials, equipment, or services shall be free of all liens, claims or encumbrances of any kind and if Port requests a formal release of same shall be delivered to Port.

D. Binding Contract: This Contract shall not be binding until signed by both Parties. The provisions, covenants and conditions in this Contract shall bind the Parties, their legal heirs, representatives, successors, and assigns.

E. Applicable Law/Venue: This Contract shall be construed and interpreted in accordance with the laws of the State of Washington. The venue of any action brought hereunder shall be in the Superior Court for Pierce County, Washington

F. Remedies Cumulative: Rights under this Contract are cumulative and nonexclusive of any other remedy at law or in equity.

G. Captions: All titles, including sections or subsections, are for convenience only and do not define or limit the contents.

H. Severability: Any term or provision of this Contract found to be prohibited by law shall be ineffective to the extent of such prohibition without invalidating the remainder of the Contract.

I. Waiver: No covenant, term, or the breach thereof shall be deemed waived, except by written consent of the Party against whom the waiver is claimed, and any waiver of the breach of any covenant, term or condition shall not be deemed to be a waiver of any preceding or succeeding breach of the same or any other covenant, term or condition. Neither the acceptance by Port of any performance by Contractor after the time the same shall have become due nor payment to Contractor for any portion of the Work shall constitute a waiver by Port of the breach or default of any covenant, term or condition unless otherwise this is expressly agreed to by Port, in writing. Port's failure to insist on performance of any of the terms or conditions herein or to exercise any right

or privilege or Port's waiver of any breach hereunder shall not thereafter waive any other term, condition, or privilege, whether of the same or similar type.

J. Entire Contract: This Contract, along with its Exhibits, attachments, work orders, subsequently issued change notices, and amendments constitutes the entire agreement between the Parties with respect to the Work. No verbal agreement or conversation between any officer, agent, associate or employee of Port and any officer, agency, employee or associate of Contractor prior to or following the execution of this Contract shall affect or modify any of the terms or obligations contained in this Contract.

K. Negotiated Contract: The Parties acknowledge that this is a negotiated Contract, that they have had the opportunity to have this Contract reviewed by respective legal counsel, and that terms and conditions are not construed against any Party on the basis of such Party's draftsmanship thereof.

L. No Personal Liability: No officer, agent or authorized employee of either Port or Contractor shall be personally responsible for any liability arising under this Contract, whether expressed or implied, nor for any statement or representation made herein or in any connection with this Contract.

M. Default: The Parties agree that in the event a suit is instituted for any default, the prevailing party shall recover its costs, expenses expended or incurred in connection therewith, and reasonable attorney's fees.

N. Independent Contractor: An independent contractor relationship is created by this contract. The Contractor or its employees or agents performing under this contract are not employees or agents of the Port of Tacoma. Conduct and control of the work will be solely with the Contractor.

O. Nondiscrimination: The Seller agrees not to discriminate against any client, employee or applicant for employment or services because of race, creed, color, national origin, sex, marital status, age or the presence of any sensory, mental or physical handicap with regard to, but not limited to the employment upgrading, demotion or transfer, recruitment or recruitment advertising, lay-off or termination, rates of pay or other forms of compensation, selection for training, or rendition of services. It is further understood and agreed that any Seller who is in violation of this clause or an applicable affirmative action program shall be barred forthwith from receiving awards of any purchase order from the Port of Tacoma unless a satisfactory showing is made that discriminatory practices or noncompliance has terminated and that a recurrence of such acts is unlikely.

11. ASSIGNABILITY

The rights, obligations, and duties of the Parties as specified in this Contract may not be transferred or assigned without written approval of the Parties, which approval may not be unreasonably withheld.

12. INDEMNITY / HOLD HARMLESS CLAUSE

A. The Contractor shall indemnify, defend and hold harmless the Port of Tacoma and its officers, employees and agents from and against any liability, claims, damages, losses, expenses or actions, including reasonable attorney's fees and costs, to the extent caused by or arising out of the activities of Contractor or its officers, employees, subcontractors, or agents under this Contract; or arising from the Contractor's, its' officer's, employee's, subcontractor's, or agent's failure to comply with the provisions of this Agreement or any applicable state, federal, local, law, statue, rule, regulation or act. This duty to indemnify, defend and hold harmless shall encompass, but not be limited to, any claims which include or allege negligence or willful misconduct of Contractor, its agents, officers or employees, except to the extent such claims arise out of the negligence or willful misconduct on the part of the Port of Tacoma, and this duty shall survive the termination or expiration of this Contract.

B. The Port of Tacoma shall indemnify, defend and hold harmless the Contractor and its officers, employees and agents from and against any liability, claims, damages, losses, expenses or actions, including reasonable attorney's fees or costs to the extent caused by or arising out of the activities of Port or its officers, employees, subcontractors, or agents under this Contract; or arising from the Port's, its' officer's, employee's, subcontractor's, or agent's failure to comply with the provisions of this Agreement or any applicable state, federal, local, law, statue, rule, regulation or act. This duty to indemnify, defend and hold harmless shall encompass, but not be limited to, any claims which include or allege negligence or willful misconduct of Port, its agents, officers or employees, except to the extent such claims arise out of the negligence or willful misconduct on the part of the Contractor, and this duty shall survive the termination or expiration of this Contract.

[*Remainder of Page Left Intentionally Blank; Signature Page Immediately Follows*]

IN WITNESS WHEREOF, in consideration of the terms, conditions, and covenants contained herein, or attached and incorporated and made a part hereof, the Parties have executed this Contract by having their authorized representatives affix their signatures below.

EFFECTIVE DATE

The Parties have executed this Contract this 23 October, 2015.

Pierce County Recycling Composting and Disposal, LLC d/b/a LRI	**Port of Tacoma**
Signature	Signature
Print	Sharon Rothwell
Title	Manager, Purchasing and Supplier Diversity

All communications in respects to this Contract shall include original or copy of information to the individuals above, at the following addresses:

PCRCD LLC d/b/a LRI
17925 Meridian St E
Puyallup WA 98375
P) 253-847-7555
F) 253-847-7713

Port of Tacoma
attention:
PO Box 1837
Tacoma WA 98401-1837
P) 253-592-6758
F) 253-593-4570

EXHIBIT A

ACCEPTABLE WASTE AND APPLICABLE RATES

Rates effective October 23, 2015, subject to adjustment as stated herein.

1. Regulated Soil, Unsuitable Soil or Vactor Waste (street/road sweepings, storm drain clean-out residue, etc.):

    a. Baseline disposal pricing year 1 – $20.67/ton +3.6% WA State Refuse Tax and any other applicable taxes.

2. Construction/Demolition Waste (non-recyclable or reusable waste associated with construction, demolition, and/or remodeling of Port buildings and structures):

    a. Baseline disposal pricing year 1 – $59.25/ton +3.6% WA State Refuse Tax and any other applicable taxes.

3. Asbestos Containing Material:

    a. Baseline disposal pricing year 1 – $131.56/ton +3.6% WA State Refuse Tax and any other applicable taxes.

4. Oversize Objects:

    a. Subject to quote from Contractor based on size of objects and necessary mode of transportation.

Pricing conditions:

- The above pricing is subject to an annual adjustment on the annual adjustment date as explained in the Rate Escalation Calculations sections of the Contract.

SOLID WASTE
DISPOSAL AGREEMENT

(Port of Tacoma Construction Contractor Use Only)

THIS SOLID WASTE DISPOSAL AGREEMENT (this "Agreement") is made this __ day of _____, 20__ (the "Effective Date"), by and between _____ ("Customer"), and PIERCE COUNTY RECYCLING, COMPOSTING AND DISPOSAL, LLC doing business as LRI ("Owner").

WITNESSETH:

WHEREAS, Customer desires to obtain environmentally sound solid waste disposal services; and

WHEREAS, Owner operates a regional sanitary landfill and desires to provide disposal and other solid waste related services.

NOW, THEREFORE, FOR AND IN CONSIDERATION of the respective covenants herein contained, the parties have agreed as follows:

1. Definitions.

1.1 "Acceptable Waste" or "Waste" means any waste that is solid waste, as defined in Chapter 173-303 WAC, except Unacceptable Waste, as defined below.

1.2 "Customer" means _____.

1.3 "Owner" means Pierce County Recycling, Composting and Disposal, LLC, doing business as LRI.

1.4 "DOE" means Washington Department of Ecology.

1.5 "Delivery Date" means the date that Owner first receives Acceptable Waste for disposal pursuant to this Agreement.

1.6 "Disposal Site" means the LRI 304th Street Sub-title D Landfill or any alternate site chosen by Owner to receive Acceptable Waste.

1.7 "Free Liquid" means liquid in excess of twenty-five (25) gallons per contained load of Waste which readily separates from the solid portions of such Waste on delivery to the Disposal Site under ambient temperature and pressure (*i.e.*, liquid in the Waste load that causes the Waste to fail the "paint filter test" prescribed by the Environmental Protection Agency in its "Method 9095").

1.8 "Hazardous Waste" means any material which:

(a) is required to be accompanied by a written manifest or shipping document describing the material as "hazardous waste" or "dangerous waste", pursuant to the generator's state, Washington or federal law, including, but not limited to, the Resource Conservation and Recovery Act, 40 CFR, Part 260-272, et seq. as amended, and all regulations promulgated thereunder and any such state equivalent or similar law;

(b) contains polychlorinated biphenyl or any other substance the storage, treatment or disposal of which is subject to regulation under the Toxic Substances Control Act, 40 CFR, Part 761, et seq. as amended, and all regulations promulgated thereunder and any such state equivalent or similar law;

(c) contains a radioactive material the storage or disposal of which is subject to state or federal regulation; or

(d) is designated under the generator's state, Washington or federal law or regulation as a "dangerous waste", "toxic waste", "hazardous waste", "extremely hazardous waste" or "acutely hazardous waste".

1.9 "Road Legal" means the total gross weight combined with the axle configuration of the vehicles used by the transporter of Acceptable Waste that conforms to the laws of any state or province applicable to the delivery of Acceptable Waste to the Disposal Site.

1.10 "Special Waste" means any Waste which presents personnel safety hazards, creates odor or vector problems, generates excessive leachate, leads to excessive settlement, punctures or tears the landfill liner, poses a fire hazard or increases the toxicity of landfill leachate. Special Waste includes, without limitation, any Waste which:

(a) requires special handling or management practices;

(b) may be contaminated with Hazardous Waste;

(c) includes large dead animals, sewage sludges and grit, septage, industrial solid wastes and other materials which may be hazardous or difficult to manage by virtue of its character or volume; or

(d) must be managed in accordance with the provisions described in an approved Special Waste Application.

1.11 "Ton" is defined as a unit measurement equaling 2,000 pounds.

1.12 "TPCHD" means Tacoma – Pierce County Health Department.

1.13 "Transportation" means Acceptable Waste transportation services provided by LRI, if applicable.

1.14 "Unacceptable Waste" means any and all waste that is either:

(a) prohibited from disposal at a sanitary landfill by the generator's state, Washington, federal or local law, regulation, rule, code, ordinance, permit or permit condition;

(b) Hazardous Waste;

(c) Special Waste without a Special Waste Application, with related handling and disposal costs, approved in advance by Owner;

(d) waste which in Owner's sole discretion Owner considers to be unacceptable; or

(e) waste containing Free Liquid.

1.14 "WDA" means Waste Disposal Authorization issued by TPCHD

2. Term of Agreement.

2.1 Effective Date. This Agreement will be effective upon execution, as used herein, the "Effective Date."

2.2 Term. The term of this Agreement coincides with the term of the Port of Tacoma's contract with their Construction Contractor for the project identified therein. 2.3 Renewal Terms. Renewal terms for this Agreement shall coincide with the renewal terms specified within the Port of Tacoma's contract with their Construction Contractor for the project identified therein.

3. Scope of Service.

3.1 Operation. Beginning on the Delivery Date and continuing until termination of this Agreement, Customer (Port's Construction Contractor) shall deliver or have delivered, to the Disposal Site, and Owner (LRI) shall receive for disposal, 100% of Customer's Acceptable Waste arising from the contract between the Customer and the Port of Tacoma. Customer will conform to Owner's maximum number of trips per day for the delivery of Acceptable Waste as outlined in Owner's operating permits; insuring deliveries are made during the sites hours of operation.

3.2 Hours of Operation. The Disposal Site will remain open for disposal from 8 a.m. to 4:30 p.m. Monday through Friday. In addition, the Disposal Site will be open Saturdays, on occasion, as needed by Customer when scheduled in advance. These shall be the "hours of operation" for the purpose of this Agreement. The Disposal Site is closed New Years Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day.

3.3 Waste Type and Source. Customer warrants that it shall deliver only Acceptable Waste to Owner for Disposal at the Disposal Site.

3.4 Permit and Licenses. Customer shall at all times procure and maintain in effect all licenses and permits, and conditions thereto, for the generation of Acceptable Waste covered by this Agreement, required by DOE and any and all agencies that may have jurisdiction over Customer's operation.

3.5 Compliance with Applicable Laws. Owner will comply with all present and future federal, Washington state and local statutes and ordinances regulating the construction and operation of the Disposal Site for the disposal of Acceptable Waste, and with all other rules and regulations and amendments thereto imposed by all federal and state regulatory agencies having jurisdiction over the operation of the Disposal Site. Customer warrants that they are and shall remain in compliance with all State and Federal laws, permits and licenses concerning the generation of Waste covered by this Agreement.

3.6 Equipment to be Supplied by Owner. If Transportation services are to be provided by Owner pursuant to this Agreement,, Owner shall supply a sufficient number of trucks to transport Customer's Acceptable Waste from Customer's location known as _____ to the Disposal Site. It is agreed that Customer's Acceptable Waste deliveries will not exceed Owner's total maximum number of trips per day at the Disposal Site as outlined in Owner's operating permits.

3.7 Care of Equipment. If Transportation services are to be provided by Owner pursuant to this Agreement, Customer warrants that it will provide at all times a safe loading berth, which will be free of hazards. Customer shall exercise due care and diligence in the use and handling and loading of Owner furnished equipment and shall be responsible for all damage to such equipment.

3.8 Special Waste. Customer represents, warrants and covenants that the Waste delivered to Owner hereunder (i) will not contain any Special Waste that is not specifically described on (A) any application which is attached hereto or which is subsequently approved by Owner, and/or (B) any WDA issued by TPCHD (if required by TPCHD), (ii) will meet the material description as set forth in any application and otherwise in all significant respects and (iii) will not contain Unacceptable Waste. The parties may incorporate additional Special Waste as part of this Agreement if prior to delivery of such Waste to Owner, Customer has provided an application for such Waste and Owner has approved disposal of such Waste within the limitations and conditions contained in Owner's written notice of approval of Special Waste Disposal. Title to any and all (1) Special Waste (not specifically described on a Special Waste application submitted in connection herewith), and (2) Unacceptable Waste, handled or disposed of by Owner shall at all times remain with Customer and any agent of Customer (if an agent is involved).

3.9 Right to Refuse Unacceptable Waste. Owner shall only accept Acceptable Waste. Owner may, at its sole expense, sample and analyze any shipment of Customer's waste to determine if it is Acceptable Waste. Customer shall reimburse Owner for the taxes, assessments, costs, fees and charges incurred by Owner in testing, handling, loading, preparing, transporting, storing, dismissing, returning to Customer, disposing or caring for Unacceptable Waste received from Customer. Upon rejection by Owner, Owner will coordinate with Customer

in an effort to expedite proper disposition of all Unacceptable Waste. If Owner and Customer are unable to reach terms for the appropriate handling, transportation and disposal arrangements for all Unacceptable Wastes within forty-eight (48) hours after notice from Owner, Customer will promptly and safely take possession of Unacceptable Waste at the Disposal Site and remove it. If Customer does not remove such Unacceptable Waste within three (3) days after notification by Owner to take possession, then Owner shall have the right and authority, at the expense of Customer, to arrange for the proper handling, transportation and disposal of such Unacceptable Waste. Customer shall be responsible for, and bear all reasonable expenses and damages incurred by Owner, as a result of the Unacceptable Waste and in the reloading and removal of Unacceptable Waste disposed in the Facility.

4. Compensation to Owner.

4.1 Basic Disposal Price. The basic disposal price (the "Basic Disposal Price") Customer shall pay to Owner for Acceptable Waste delivered to, and disposed of at, the Disposal Site shall be in accordance with The Contract for Waste Disposal between the Port of Tacoma and LRI, executed _____. The Basic Disposal Price does not include sales, use, refuse collection, solid waste taxes, or local program fees, if applicable, all of which shall be billed to and paid by Customer. If Transportation services are provided by Owner, an applicable Transportation rate will be added to and included in the Basic Disposal Price. Any changes in the current fees and taxes will be passed through to, and paid by, Customer.

4.2 Billings. Owner shall provide Customer with an invoice detailing the number of loads and tonnage of Customer's Waste as received at the Disposal Site. Customer shall pay disposal charges to Owner based on using Owner's certified scales at the Disposal Site to determine appropriate disposal charges to be billed to Customer. Customer shall pay each invoice within thirty (30) days of the date of the invoice, in legal tender at the time of payment, without further notice by Owner. Finance Charges on all past due accounts will accrue and be paid by Customer at the maximum rate allowed by law on all overdue amounts.

4.3 Books and Records. Owner will keep daily records of the weight or volume of Customer's Waste received at the Disposal Site and charges therefore, and upon reasonable prior notice, Customer has the right to inspect the same.

4.4 Cost of Living Adjustment for Basic Disposal Price. The per Ton Basic Disposal Price shall be adjusted annually in accordance with the Contract for Waste Disposal between the Port and LRI, executed _____.

5. Insurance.

5.1 Insurance Coverage of Owner. Owner shall provide and maintain during active Disposal Site operations, Workers' Compensation insurance for the Disposal Site, which shall meet the requirements of the State of Washington. This insurance shall cover all operations under this Agreement. Owner shall provide and maintain during the Term public liability insurance, to protect against claims arising out of Owner operations that may result in bodily injury, death or property damage suffered on or about the Disposal Site. Owner, upon request,

shall furnish Customer evidence that the insurance required is in force. The type and limits of liability of all insurance required herein shall be as set forth in **Exhibit A**, which is attached hereto and incorporated herein.

5.2 Insurance Coverage of Customer. Customer shall provide and maintain during this Agreement, Workers' Compensation insurance which shall meet the requirements of the State in which work is performed and such insurance shall cover all operations under this Agreement. Customer shall provide and maintain during the Term of this Agreement liability insurance to protect against any claim or demand concerning bodily injury, death or property damage arising out of Customer's operations. The policy or policies in force shall contain a provision that any nonrenewal in the insurance coverage must be preceded with notice in writing to Owner in accordance with the applicable provisions of such policies. Customer, upon request, shall furnish to Owner evidence satisfactory to Owner that the insurance required is in force. The type and limits of liability of all insurance required herein from Customer shall be as set forth in **Exhibit A**, which is attached hereto and incorporated herein.

5.3 Coverage. Insurance provided pursuant to this section shall be written on a claims made basis. All policies shall name the other party as an additional insured and both parties and their respective insurers shall waive subrogation against the other party.

6. Indemnity.

6.1 Indemnification of Owner. Customer shall fully and forever defend, indemnify and hold harmless Owner and its successors, assigns, officers, directors, members, managers and agents against and in respect of any and all costs, losses, damages, deficiencies, fines, penalties, expenses or liabilities (including court costs and reasonable attorneys' fees and expenses), threatened, suffered or paid, to the extent resulting from or arising out of (A) the breach of any representation or warranty made by Customer in this Agreement or in any certificate, document or instrument given pursuant hereto or in connection herewith; (B) any failure by Customer to perform or otherwise fulfill or comply with any undertaking, agreement or obligation on the part of Customer to be performed, fulfilled or complied with hereunder; (C) any claim by any third party of ownership of or any rights or interests in any Waste accepted by Owner; (D) any bodily injury, personal injury or property damage resulting from the actions of Customer; or (E) any act or omission for which Customer shall be found legally liable.

6.2 Indemnification of Customer. Owner shall fully and forever defend, indemnify and hold harmless Customer and its successors, assigns, officers, directors and agents against and in respect of any and all costs, losses, damages, deficiencies, expenses or liabilities (including court costs and reasonable attorneys' fees and expenses), threatened, suffered or paid, to the extent resulting from or arising out of (A) the breach of any representation or warranty made by Owner in this Agreement or in any certificate, document or instrument given pursuant hereto or in connection herewith; (B) any failure by Owner to perform or otherwise fulfill or comply with any undertaking, agreement or obligation on the part of Owner to be performed, fulfilled or complied with hereunder; (C) any bodily injury, personal injury or property damage resulting from the actions of Owner; or (D) any act or omission for which Owner shall be found legally liable.

7. Default.

7.1. Default; Termination. Customer shall be in default hereof if it fails to pay any invoiced amount in accordance with the terms set forth in Section 4. Either party shall be in default hereof if said party breaches this Agreement or fails to perform any of the covenants or conditions contained herein for thirty (30) days after the other party has given the breaching party written default notice; provided, however, that, if such failure or breach is of such nature as to not be curable within said thirty (30) day period, an event of default shall occur if the breaching or failing party shall have failed to commence curative action within the prescribed thirty (30) day period and prosecuted the same with due diligence to completion thereafter but in no event beyond sixty (60) days after receipt of the default notice. In any such event of default, the non-breaching party may: (i) terminate this Agreement and (ii) have recourse to any other right or remedy to which it may be entitled by law, including, but not limited to, the right to all damages or losses suffered as a result of such breach or default. In the event either party waives default by the other party, such waiver shall not be construed or determined to be a continuing waiver of the same or any subsequent breach or default.

7.2 Other Termination. The occurrence of any of the following events shall also constitute an event of default by Customer and shall give Owner the right to immediately terminate this Agreement:

(a) A petition for reorganization or bankruptcy filed by or against Customer;

(b) Failure by Customer to pay any amounts due to Owner.

(c) Any breach by Customer of any of its obligations pursuant to the Agreement.

Customer shall be liable for and shall indemnify, defend and hold harmless Owner from any losses, claims expenses or damages incurred by Owner as a result of termination hereunder.

7.3 Right of Disposal. This Agreement does not grant any rights to dispose of Waste other than in accordance herewith. Owner reserves the right to immediately terminate access to the Disposal Site by Customer and Customer's personnel in the event of breach or violation by Customer of any of the terms of this Agreement, Owner's operating rules or payment policies or any applicable laws or regulations.

7.4 Access to Payment Bond/Retainage. In the event that Customer fails to pay Owner for disposal services as required by Paragraph 4 above, Customer agrees that Owner may be paid through access to the payment bond or retainage required pursuant to Paragraph 5 of the Contract for Waste Disposal between Owner and the Port of Tacoma executed _____.

8. Miscellaneous.

8.1 Continuing Compliance. Customer has a continuing obligation to inform Owner of any new information, or information not previously provided to Owner by Customer which may affect the acceptability of the Waste by Owner. Further, Customer shall comply with all Owner requests for evidence of Customer's continuing compliance with the terms of the Agreement including but not limited to the following: (i) providing new, updated Waste profiles on the Waste(s) offered for disposal or, (ii) providing appropriate certification that the Waste being offered for disposal is accurately reflected by the appropriate application or, (iii) re-sample the Waste at Customer's expense if reasonable cause exists as to its acceptability under the terms of this Agreement or, (iv) allow Owner to re-sample the Waste if reasonable cause exists as to its acceptability under the terms of this Agreement (and Customer shall be responsible for all costs and expenses associated with such sampling if such Waste is determined to be Unacceptable Waste), or (v) all of the above.

8.2 Force Majeure. The performance of this Agreement by either party, other than the obligation to pay any sums of money hereunder, may be suspended and the obligations hereunder excused or extended in the event, and during the period, that such performance is prevented, hindered or delayed by a cause or causes beyond the reasonable control of such party. Matters beyond the reasonable control of either party include, but are not limited to, default of another party, labor disputes, strike or lockout, acts of God, war, fire, explosion, national defense requirement, accident, riot, flood, sabotage, lack of adequate fuel, power, materials, labor, or transportation facilities, power failures, breakage or failure of machinery or apparatus, damage or destruction of the Disposal Site and its facilities, injunctions or restraining orders, and judicial or governmental laws, regulations, requirements, orders, actions, or inaction, including the revocation or suspension of or failure to obtain, for reasons beyond either party's reasonable control, any licenses or permits required for operation of the Disposal Site. In the event of disruption of services under any such circumstances, Customer and Owner shall make every reasonable effort to reopen their respective facilities as soon as practicable after the cessation of the cause of suspension of services, and will take all reasonable steps to overcome the cause of cessation of services.

8.3 Taxes and Changes in Regulations Requiring Expenditures. Customer shall pay any and all taxes, charges, fees, assessments and costs on its or Owner's storage, handling and Transportation of Waste from Customer's facilities, or use thereof which Customer may be required to pay or collect under any federal, state or local law or authority now in effect or hereafter passed. Customer shall not be responsible for the payment of any taxes, charges and assessments required to be paid by Owner under the Internal Revenue Code, as amended, or under any state or local income, gross receipts or property tax, as it relates to Owner operations. Notwithstanding the prior sentence, any taxes, charges, fees, and assessments pertaining to the collection, Transportation or disposal of Acceptable Waste which are not currently in effect as of the Effective date, costs arising from a change in law or regulation after the Effective date affecting Owner's services hereunder and additional costs to Owner from force majeure events shall be billed to and paid by Customer in accordance with Section 4.2.

8.4 Independent Contractor. Owner's service hereunder is rendered to Customer as an independent contractor, and neither Owner nor any of its employees is authorized to represent Customer's interest or to take any action for Customer's account. Customer shall

have no control over the employment, discharge, compensation of or services rendered by Owner's employees. Conversely, Customer shall not represent Owner's interest or take any action for Owner's account. Owner shall have no control over the employment, discharge, compensation of or services rendered by Customer's employees.

8.5 Separability. Should any provision of this Agreement become inoperable because of any change in statute, law, regulation, legal process or decision, or other reasons, the elimination of that provision shall not affect the operation of the balance of this Agreement, which shall continue in force unabated except in accordance with other termination provisions contained herein.

8.6 Assignment. Neither party shall assign its rights or obligations under this Agreement, in whole or in part, without the prior written consent of the other, which shall not be unreasonably withheld. This Agreement shall be binding upon and inure to the benefit of the successors and assigns of each of the parties hereto.

8.7 Specific Services. This is an Agreement for the performance of specific services described herein. Under no circumstances or conditions shall the operations of Disposal Site by Owner, in accordance with this Agreement, be deemed a public function, nor has Customer acquired an interest, ownership or otherwise in the real or personal property or improvements or fixtures at the Disposal Site by virtue of this Agreement.

8.8 Notices. All notices or other communications to be given hereunder shall be in writing and shall be deemed given when hand delivered or mailed by Registered or Certified United States mail return receipt requested:

To Customer: _____
_____
_____
_____

To Owner: Pierce County Recycling, Composting and Disposal, LLC
dba LRI
Attention: Division Vice President or District Manager
17925 Meridian Street East
Puyallup, WA 98375

Any changes of address by either party shall be by notice given to the other in the same manner as specified above.

8.9 Attorney's Fees. In the event of any litigation or arbitration between the parties hereto with respect to the subject matter hereof, the prevailing party shall recover its costs and expenses including reasonable attorney fees (including those on any appeal or in any bankruptcy action), witness and expert fees, and other costs, all of which shall be included in and as a part of the judgment or award rendered in such litigation or arbitration.

8.10 Arbitration. Any controversy, or claim, arising out of, or relating to, this Agreement, or the breach of this Agreement, shall be resolved in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association. All disputes shall be heard and decided by one arbitrator selected by both parties, unless either party makes a claim or claims which exceed $50,000, in which event each party shall select one arbitrator and the two arbitrators so selected shall then select a third arbitrator. The arbitration result shall be final in accordance with the terms of RCW 7.04 et. Seq.

8.11 Applicable Law. The terms and conditions of this Agreement shall be construed in accordance with the laws of the State of Washington.

8.12 Paragraph Headings. The paragraph headings in this Agreement are inserted for convenience only and are in no way to be construed as part of this Agreement or as a limitation or enlargement of the scope or meaning of the particular sections or paragraphs to which they refer, and shall not affect the interpretation of any provisions of this Agreement.

8.13 Entire Agreement. This instrument embodies the whole Agreement of the parties hereto. There are no promises, terms, conditions or obligations referring to the subject matter other than those contained herein. No modification of this Agreement shall be effective unless made in writing and signed by both parties.

**[*Remainder of Page Intentionally Left Blank;*
Signature Page Follows.]**

IN WITNESS WHEREOF, the parties have executed this Solid Waste Disposal Agreement by their duly authorized agents, as of the date first above written.

CUSTOMER:	OWNER:
_____	Pierce County Recycling Composting Disposal LLC, d.b.a. LRI
By: _____	By: _____
Name: _____	Name: _____
Title: _____	Title: _____

EXHIBIT A

INSURANCE COVERAGE LIMITS

	Coverage	Limits of Liability
A.	Workers' Compensation	Statutory
B.	Employer's Liability	$1,000,000
C.	Comprehensive General Liability	$2,000,000 each incident
		$2,000,000 aggregate
D.	Automobile Bodily Injury	$2,000,000 each incident
E.	Automobile Property Damage	$2,000,000 each incident
F.	Excess Umbrella Liability	$5,000,000 each occurrence