NOTICE OF DECISION

Proposal File #: LUA2023-0046 **Zoning:** R-2 (Mixed Residential)

Proposal: Central Valley School District Gun Club Remediation

Proposal Description: Voluntary cleanup of subject property to remediate soils impacted by metals from the former gun club operation, including lead, arsenic, and polycyclic aromatic hydrocarbons. The proposed action includes the excavation of 150,000 cu. yds. of soil, demolition of 4 structures, removal of various site asphalt and concrete site improvements, and removal of approximately 30 trees in the contamination zone, with contaminated soils placed in an onsite repository with an HDPE liner encapsulating the contaminated soils.

Site Address: 19615 E Sprague Ave, Liberty Lake, WA 99016

General Location: North side of Sprague Avenue and south side of Appleway Avenue, west of Ridgeline Highschool

Abbreviated Legal Description - **Section:** 17 **Township:** 25 **Range:** 45

Owner: Central Valley School District **Phone:** 509-558-5400

Contact: Jay Rowell **Phone:** 509-558-5400

Application Date: 12/15/2023 **Determination of Completeness Issued:** 1/19/2024

Notice of Application Review: 1/19/2024

Notice of Decision Issued: 3/1/2024 **Appeal Closing Date:** 3/15/2024

CITY OF LIBERTY LAKE PLANNING, ENGINEERING & BUILDING SERVICES DECISION:

- □ Approved
- ■ Approved w/ Conditions
- □ Disapproved

SEPA THRESHOLD DETERMINATION: Mitigated Determination of Non-Significance (see attached MDNS issued 3/1/2024)

DECISION APPEAL PROCEDURE: Interested parties with standing, as defined in RCW 36.70C, have the opportunity to appeal a final decision on a project permit. The decision may be appealed within fourteen (14) calendar days from the date the decision is rendered by delivering a notice of appeal to Planning & Building Services by mail or personal delivery. The notice of appeal must be received by 4:00 p.m. on the last day of the appeal period, unless the last day of the appeal period falls on a weekend or holiday, the notice of appeal shall then be due on the following business day. Appeal requests shall contain all information and items required in the City Development Code Section 10-4B-4, subsection H. An 'open record' appeal to the Hearing Examiner is available on many Type I project permits. The appeal procedure shall be as outlined in the City Development Code Section 10-4G-2, subsection H for Appeals of Administrative Interpretations by the Director. This Notice of Decision has been provided to the project applicant, the Spokane County Assessor, and to any person who, prior to the rendering of the decision, requested notice of the decision or submitted substantive comments on the application. A copy of the SEPA determination has also been provided to the Dept. of Ecology - Olympia, Dept. of Transportation - Spokane County, Other Reviewing Agencies, and the project applicant.

The complete record in this matter, including this decision, is on file during the appeal period with the review authority listed below. Pursuant to RCW 36.70B.130, affected property owners may request a change in valuation for property tax purposes notwithstanding any program of revaluation.

REVIEW AUTHORITY: PROJECT COORDINATOR: Lisa D. Key, Director

Planning, Engineering & Building Services
22710 E. Country Vista, Liberty Lake, WA 99019
Phone: (509) 755-6708, Fax: (509) 755-6713, www.libertylakewa.gov

Date Issued: 3/1/2024

Signature: Lisa D Key

MITIGATED DETERMINATION OF NON-SIGNIFICANCE (MDNS)

Proposal File #: LUA2023-0046 **Zoning:** R-2 (Mixed Residential)

Proposal: Central Valley School District Gun Club Remediation

Proposal Description: Voluntary cleanup of subject property to remediate soils impacted by metals from the former gun club operation, including lead, arsenic, and polycyclic aromatic hydrocarbons. The proposed action includes the excavation of 150,000 cu. yds. of soil, demolition of 4 structures, removal of various site asphalt and concrete site improvements, and removal of approximately 30 trees in the contamination zone, with contaminated soils placed in an onsite repository with an HDPE liner encapsulating the contaminated soils.

Site Address: 19615 E Sprague Ave, Liberty Lake, WA 99016

General Location: North side of Sprague Avenue and south side of Appleway Avenue, west of Ridgeline Highschool

Owner: Central Valley School District **Phone:** 509-558-5400

Contact: Jay Rowell **Phone:** 509-558-5400

NOD/MDNS Issued: 3/1/2024 **Appeal Closing Date:** 3/15/2024

LEAD AGENCY: CITY OF LIBERTY LAKE

The lead agency for this proposal has determined that it does not have a probable significant adverse impact on the environment; provided the applicant complies with the mitigation measures listed below and the attached conditions. An environmental impact statement (EIS) is not required under RCW 43.21C.030(2)(c). This decision was made after reviewing the completed environmental checklist and other information on file with the lead agency. This information is available to the public on request. The complete record of this matter is on file during the appeal period with the review authority listed below and is available to the public upon request.

■ There is no comment period for this MDNS; pursuant to WAC 197-11-355(4).

☐ This MDNS is issued under WAC 197-11-340(2); the lead agency will not act on this proposal for at least 14 days from the date issued (below).

MITIGATING MEASURES:

In addition to the plans and specifications submitted for permit and SEPA review, the following mitigation is required:

a. A Temporary Erosion and Sedimentation Control (TESC) plan shall be prepared by a WA State licensed Professional Engineer and implemented throughout the duration of construction. The TESC plan shall use best management practices (BMP's), and is to include, as a minimum, a grading plan, location, and details of silt control structures (such as silt ponds, silt traps) are to be installed prior to other site work and the TESC measures are to be implemented and maintained throughout the duration of construction.

b. The Stormwater Pollution Prevention Plan submitted as Attachment D of the January 11, 2024, submittal for this project shall be implemented for the duration of the remediation project. Erosion and sediment control measures in the plan must be implemented prior to any clearing, grading, or construction. These control measures must be effective to prevent soil from being carried into surface water by stormwater runoff. Sand, silt, and soil can damage aquatic habitat and are considered pollutants.

c. Due to the nature of the contaminated soil, best management practices to prevent and control fugitive dust shall be implemented aggressively throughout the excavation and remediation process as a required mitigation.

d. Future development of the site shall comply with City Development Code, Section 10-3H, and the Spokane Regional Stormwater Manual. Stormwater plans and drainage reports, stamped and certified by the engineer of record as being compliant with the Spokane Regional Stormwater Manual, shall be submitted to the City Engineer for review and approval prior to the commencement of construction.

e. Compliance with all Department of Ecology requirements detailed in the Department of Ecology Opinion Letter, submitted as Attachment E of the January 11, 2024, submittal for this project shall be a required mitigation and condition of approval.

f. Compliance with the Washington State Department of Ecology Water Quality and Solid & Hazardous Waste Program requirements as detailed in the Ecology comment letter dated February 29, 2024, shall be required mitigations.

g. All new dry wells and other injection wells must be registered with the Underground Injection Control program (UIC) at Department of Ecology prior to use and the discharge from the wells) must comply with the ground water quality requirement (non-endangerment standard) at the top of the ground water table.

h. Compliance with Spokane Regional Health District requirements, as detailed in their comment letter dated January 29, 2024, shall be a required mitigation and condition of approval.

i. The Inadvertent Discovery Plan submitted as an attachment to the January 11, 2024, submittal shall remain in effect for the duration of the ground disturbing activities. Should any artifacts or human remains be found once construction has commenced, the Tribal Historic Preservation Officer of the Spokane Tribe of Indians shall be notified immediately, and all work in the area shall cease immediately.

j. Compliance with Spokane Regional Clean Air Agency requirements related to fugitive dust control and asbestos remediation activities shall be a require mitigation and condition of approval.

APPEAL OF THIS DETERMINATION, allowed under City Development Code Section 10-6A-7, subsection "C" shall be filed within fourteen (14) days after the determination has been made and is appealable. Any administrative appeal of a procedural or substantive determination under SEPA issued at the same time as the decision on the project action shall be filed within fourteen (14) days after notice of the decision has been made. A notice of appeal must be delivered to Planning Engineering & Building Services by mail or personal delivery and must be received by 4:00 p.m. on the last day of the appeal period, unless the last day of the appeal period falls on a weekend or holiday, the notice of appeal shall then be due on the following business day. Appeal requests shall contain all information and items required in the City Development Code Section 10-4B-4, subsection H and shall follow the procedures outlined in City Development Code Section 10-6A-7, Subsection C for SEPA Appeals and Section 10-4G-2, subsection H for Appeals of Administrative Interpretations by the Director. **Appeal Closing Date**: March 15, 2024.

A copy of this SEPA determination has been provided to the Dept. of Ecology - Olympia, Dept. of Transportation - Spokane County, Other Reviewing Agencies, and the project applicant.

REVIEW AUTHORITY:

RESPONSIBLE OFFICIAL: **Lisa D. Key, Director**

Planning, Engineering & Building Services

22710 E Country Vista Drive. Liberty Lake WA 99019

Phone: (509) 755-6708

Date Issued: March 1, 2024

Signature: Lisa D Key

Attachment **D**
(Stormwater Pollution Prevention Plan- Copy)

Stormwater Pollution Prevention Plan (SWPPP)

for

Spokane Gun Club Cleanup Project

Prepared for:

Central Valley School District

Permittee / Owner	Developer	Operator / Contractor
Halme Construction Inc.	N/A	Halme Construction, Inc.

Certified Erosion and Sediment Control Lead (CESCL)

Name	Organization	Contact Phone Number
Dylan Miller	Halme Construction, Inc.	(509) 951-2986

SWPPP Prepared By

Name	Organization	Contact Phone Number
Dylan Miller	Halme Construction, Inc.	(509) 951-2986

SWPPP Preparation Date

12/22/2023

Project Construction Dates

Activity / Phase	Start Date	End Date
Construction	February 2024	July 2024

GENERAL INSTRUCTIONS AND CAVEATS

This template presents the recommended structure and content for preparation of a Construction Stormwater General Permit (CSWGP) Stormwater Pollution Prevention Plan (SWPPP).

The Department of Ecology's (Ecology) CSWGP requirements inform the structure and content of this SWPPP template; however, **you must customize this template to reflect the conditions of your site.**

A Construction Stormwater Site Inspection Form can be found on Ecology's website. https://www.ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit

Using the SWPPP Template

Each section will include instructions and space for information specific to your project. Please read the instructions for each section and provide the necessary information when prompted. This Word template can be modified electronically. You may add/delete text, copy and paste, edit tables, etc. Some sections may be completed with brief answers while others may require several pages of explanation.

Follow this link to a copy of the Construction Stormwater General Permit: https://www.ecology.wa.gov/Regulations-Permits/Permits-certifications/Stormwater-general-permits/Construction-stormwater-permit

List of Acronyms and Abbreviations

Acronym / Abbreviation	Explanation
303(d)	Section of the Clean Water Act pertaining to Impaired Waterbodies
BFO	Bellingham Field Office of the Department of Ecology
BMP(s)	Best Management Practice(s)
CESCL	Certified Erosion and Sediment Control Lead
CO_2	Carbon Dioxide
CRO	Central Regional Office of the Department of Ecology
CSWGP	Construction Stormwater General Permit
CWA	Clean Water Act
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
Ecology	Washington State Department of Ecology
EPA	United States Environmental Protection Agency
ERO	Eastern Regional Office of the Department of Ecology
ERTS	Environmental Report Tracking System
ESC	Erosion and Sediment Control
GULD	General Use Level Designation
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
NWRO	Northwest Regional Office of the Department of Ecology
pH	Power of Hydrogen
RCW	Revised Code of Washington
SPCC	Spill Prevention, Control, and Countermeasure
su	Standard Units
SWMMEW	Stormwater Management Manual for Eastern Washington
SWMMWW	Stormwater Management Manual for Western Washington
SWPPP	Stormwater Pollution Prevention Plan
TESC	Temporary Erosion and Sediment Control
SWRO	Southwest Regional Office of the Department of Ecology
TMDL	Total Maximum Daily Load
VFO	Vancouver Field Office of the Department of Ecology
WAC	Washington Administrative Code
WSDOT	Washington Department of Transportation
WWHM	Western Washington Hydrology Model

Project Information (1.0)

Project/Site Name: CVSD Gun Club Cleanup
Street/Location: 19615 E. Sprague Ave.
City: Spokane Valley State: WA Zip code: 99016
Subdivision: N/A
Receiving waterbody: N/A

Existing Conditions (1.1)

Total acreage (including support activities such as off-site equipment staging yards, material storage areas, borrow areas).

Total acreage: 63.7

Disturbed acreage: 45.3

Existing structures: 2

Landscape topography: Flat

Drainage patterns: Overland

Existing Vegetation: Native dryland grasses, deciduous and evergreen tree's.

Critical Areas (wetlands, streams, high erosion risk, steep or difficult to stabilize slopes):
None

List of known impairments for 303(d) listed or Total Maximum Daily Load (TMDL) for the receiving waterbody: No discharge is proposed

Table 1 includes a list of suspected and/or known contaminants associated with the construction activity.

Table 1 – Summary of Site Pollutant Constituents

Table 1 - Summary of Chemical Analytical Results-Metals in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name Sample Number	Sample Depth/Depth Range (inches bgs)	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	TCLP Lead (mg/L)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Test Pit Samples											
TP-1-6	6	8/2/18	--	--	--	--	25	--	--	--	--
TP-2-6	6	8/2/18	--	--	--	--	27	--	--	--	--
TP-3-6	6	9/25/18	--	--	--	--	26	--	--	--	--
TP-4-6	6	8/2/18	--	--	--	--	23	--	--	--	--
TP-5-6	6	9/2/18	--	--	--	--	26	--	--	--	--
TP-6-6	6	8/2/18	--	--	--	--	41	--	--	--	--
TP-7-6	6	8/2/18	--	--	--	--	44	--	--	--	--
TP-8-6	6	8/2/18	--	--	--	--	73	--	--	--	--
TP-9-6	6	8/2/18	--	--	--	--	75	--	--	--	--
TP-10-6	6	8/2/18	--	--	--	--	140	--	--	--	--
TP-11-6	6	8/2/18	--	--	--	--	72	--	--	--	--
TP-12-6	6	8/2/18	13	190	1.4 U	13	560	--	0.041 U	6.9 U	1.7 U
TP-12-12	12	8/2/18	--	--	--	--	13	--	--	--	--
TP-13-6	6	8/2/18	--	--	--	--	110	--	--	--	--
TP-14-6	6	8/2/18	--	--	--	--	200	--	--	--	--
TP-15-6	6	8/2/18	7.8	140	1.8 U	14	100	--	0.041 U	9 U	2.3 U
TP-16-6	6	8/2/18	5.9	170	1.4 U	11	41	--	0.04 U	7.1 U	1.8 U
TP-17-6	6	8/2/18	11	230	1.5 U	14	470	--	0.046 U	7.6 U	1.9 U
TP-17-12	12	8/2/18	--	--	--	--	200	--	--	--	--
TP-18-6	6	8/2/18	9.4	160	1.6 U	11	620	--	0.039 U	7.9 U	2 U
TP-18-12	12	8/2/18	--	--	--	--	36	--	--	--	--
TP-19-6	6	8/2/18	21 J	190	1.5 UJ	14 J	2,100	--	0.044	7.4 UJ	1.8 UJ
TP-19-12	12	9/2/18	--	--	--	--	430	--	--	--	--
TP-19-18	18	9/25/18	8.6	--	--	--	150	--	--	--	--
TP-19-24	24	9/25/18	--	--	--	--	270	--	--	--	--
TP-20-6	6	8/2/18	9.9	160	1.7 U	13	110	--	0.042 U	8.5 U	2.1 U
TP-21-6	6	8/2/18	--	--	--	--	27	--	--	--	--
TP-22-6	6	8/2/18	--	--	--	--	33	--	--	--	--
TP-23-6	6	8/2/18	--	--	--	--	37	--	--	--	--
TP-24-6	6	9/25/18	--	--	--	--	22	--	--	--	--
TP-25-6	6	9/25/18	--	--	--	--	110	--	--	--	--
TP-26-6	6	9/25/18	--	--	--	--	74	--	--	--	--
TP-27-6	6	9/25/18	--	--	--	--	170	--	--	--	--
TP-28-6	6	9/25/18	7.1	--	--	--	33	--	--	--	--
TP-29-6	6	9/25/18	6.8	--	--	--	81	--	--	--	--
TP-30-6	6	9/25/18	13	--	--	--	770	--	--	--	--
TP-30-12	12	9/25/18	--	--	--	--	25	--	--	--	--
TP-31-6	6	9/25/18	8	--	--	--	270	--	--	--	--
TP-31-12	12	9/25/18	--	--	--	--	14	--	--	--	--
TP-32-6	6	9/25/18	11	--	--	--	650	--	--	--	--

Table 1 - Summary of Chemical Analytical Results-Metals in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name Sample Number	Sample Depth/Depth Range (inches bgs)	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	TCLP Lead (mg/L)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Test Pit Samples											
TP-32-12	12	9/25/18	--	--	--	--	200	--	--	--	--
TP-33-6	6	9/25/18	10	--	--	--	400	--	--	--	--
TP-33-12	12	9/25/18	--	--	--	--	21	--	--	--	--
TP-34-6	6	9/25/18	7.4	--	--	--	81	--	--	--	--
TP-35-6	6	9/25/18	22	--	--	--	1,700	--	--	--	--
TP-35-12	12	9/25/18	--	--	--	--	950	--	--	--	--
TP-36-6	6	9/25/18	6	--	--	--	28	--	--	--	--
TP-37-6	6	9/25/18	21	--	--	--	1,500	--	--	--	--
TP-37-12	12	9/25/18	--	--	--	--	450	--	--	--	--
TP-38-6	6	9/25/18	7.8	--	--	--	27	--	--	--	--
TP-39-6	6	9/25/18	19	190	0.86 U	14	1,700	--	0.07	4.3 U	1.1 U
TP-39-12	12	9/25/18	--	--	--	--	1,600	--	--	--	--
TP-39(36)	36	4/25/19	--	--	--	--	19	--	--	--	--
TP-40-6	6	9/25/18	7.7	--	--	--	13	--	--	--	--
TP-41-6	6	9/25/18	10	--	--	--	700	--	--	--	--
TP-41(24-36)	24-36	4/25/19	--	--	--	--	28	--	--	--	--
TP-42-6	6	9/25/18	7.3	--	--	--	21	--	--	--	--
TP-43-6	6	9/25/18	7.7	--	--	--	45	--	--	--	--
TP-44-6	6	11/8/18	--	--	--	--	20	--	--	--	--
TP-45-6	6	11/8/18	--	--	--	--	100	--	--	--	--
TP-46-6	6	11/8/18	--	--	--	--	2,600	--	--	--	--
TP-46-12	12	11/8/18	--	--	--	--	1,600	--	--	--	--
TP-47-6	6	11/8/18	--	--	--	--	230	--	--	--	--
TP-48-6	6	11/8/18	--	--	--	--	330	--	--	--	--
TP-48-12	12	11/8/18	--	--	--	--	14	--	--	--	--
TP-49-6	6	11/8/18	--	--	--	--	17	--	--	--	--
TP-50-6	6	11/8/18	--	--	--	--	11,000	--	--	--	--
TP-50-12	12	11/8/18	--	--	--	--	1,000	--	--	--	--
TP-51-6	6	11/8/18	--	--	--	--	33	--	--	--	--
TP-52-6	6	11/8/18	--	--	--	--	30,000	--	--	--	--
TP-52-12	12	11/8/18	--	--	--	--	150	--	--	--	--
TP-53-6	6	11/8/18	--	--	--	--	380	--	--	--	--
TP-53-12	12	11/8/18	--	--	--	--	570	--	--	--	--
TP-53(24-36)	24-36	4/25/19	--	--	--	--	13	--	--	--	--
TP-54-6	6	11/8/18	--	--	--	--	220	--	--	--	--
TP-55-6	6	11/8/18	--	--	--	--	18	--	--	--	--
TP-56-6	6	11/8/18	--	--	--	--	420	--	--	--	--
TP-56-12	12	11/8/18	--	--	--	--	730	--	--	--	--
TP-56(24-36)	24-36	4/25/19	--	--	--	--	190	--	--	--	--
TP-57-6	6	11/8/18	--	--	--	--	40	--	--	--	--

Table 1 - Summary of Chemical Analytical Results-Metals in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name Sample Number	Sample Depth/Depth Range (inches bgs)	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	TCLP Lead (mg/L)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Test Pit Samples											
TP-58-6	6	11/8/18	--	--	--	--	17	--	--	--	--
TP-59-6	6	11/8/18	--	--	--	--	13	--	--	--	--
TP-60-6	6	11/8/18	--	--	--	--	330	--	--	--	--
TP-60-12		11/8/18	--	--	--	--	19	--	--	--	--
TP-61-6	6	11/8/18	--	--	--	--	9.8	--	--	--	--
TP-62-6	6	11/8/18	--	--	--	--	25	--	--	--	--
TP-63-6	6	11/8/18	--	--	--	--	12	--	--	--	--
TP-66(6)	6	2/12/19	--	--	--	--	27 J	--	--	--	--
TP-67(6)	6	2/12/19	--	--	--	--	20	--	--	--	--
TP-68(6)	6	2/12/19	--	--	--	--	31	--	--	--	--
TP-69 (6)	6	5/20/19	--	--	--	--	50,000	--	--	--	--
TP-69 (12)	12	5/20/19	--	--	--	--	47	--	--	--	--
TP-70 (6)	6	5/20/19	--	--	--	--	250	--	--	--	--
TP-71 (6)	6	5/20/19	--	--	--	--	1,200	--	--	--	--
TP-71 (12)	12	5/20/19	--	--	--	--	80	--	--	--	--
TP-72 (6)	6	5/20/19	--	--	--	--	150	--	--	--	--
TP-73 (0-1')	0-12	12/21/20	--	--	--	--	12	--	--	--	--
TP-74 (0-1')	0-12	12/21/20	--	--	--	--	15	--	--	--	--
TP-75 (0-1')	0-12	12/21/20	--	--	--	--	740	--	--	--	--
TP-75(1-2)	12-24	12/21/20	--	--	--	--	14	--	--	--	--
TP-76 (0-1')	0-12	12/21/20	--	--	--	--	50	--	--	--	--
TP-77 (0-1')	0-12	12/21/20	--	--	--	--	48	--	--	--	--
TP-78 (0-1')	0-12	12/21/20	--	--	--	--	74	--	--	--	--
TP-79 (0-1')	0-12	12/21/20	--	--	--	--	57	--	--	--	--
TP-80 (0-1')	0-12	12/22/20	--	--	--	--	95	--	--	--	--
TP-81 (0-1')	0-12	12/21/20	--	--	--	--	120	--	--	--	--
TP-82 (0-1')	0-12	12/22/20	--	--	--	--	62	--	--	--	--
TP-83 (0-1')	0-12	12/22/20	--	--	--	--	18	--	--	--	--
TP-84 (0-1')	0-12	12/22/20	--	--	--	--	52	--	--	--	--
TP-85 (0-1')	0-12	12/22/20	--	--	--	--	19	--	--	--	--
TP-86(0-1)	0-12	1/4/21	--	--	--	--	11	--	--	--	--
Soil Boring Samples											
B-1(0-6)	0-12	4/25/19	--	--	--	--	1,500	--	--	--	--
B-1(6-12)	6-12	4/25/19	--	--	--	--	11	--	--	--	--
B-3(0-6)	0-12	4/25/19	--	--	--	--	22 J	--	--	--	--
B-4(0-6)	0-12	4/25/19	--	--	--	--	1,100	--	--	--	--
B-4(6-12)	6-12	4/25/19	--	--	--	--	8.7	--	--	--	--
B-5(0-6)	0-12	4/25/19	--	--	--	--	15	--	--	--	--
B-6(0-6)	0-12	4/25/19	--	--	--	--	1,300	--	--	--	--
B-6(6-12)	6-12	4/25/19	--	--	--	--	7.1	--	--	--	--

Table 1 - Summary of Chemical Analytical Results-Metals in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name Sample Number	Sample Depth/Depth Range (inches bgs)	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	TCLP Lead (mg/L)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Test Pit Samples											
B-7(0-6)	0-12	4/25/19	--	--	--	--	620	--	--	--	--
B-7(6-12)	6-12	4/25/19	--	--	--	--	10	--	--	--	--
B-8(0-6)	0-12	4/25/19	--	--	--	--	480	--	--	--	--
B-8(6-12)	6-12	4/25/19	--	--	--	--	8.5	--	--	--	--
B-9(36)	36	4/25/19	--	--	--	--	9.1	--	--	--	--
B-10(36)	36	4/25/19	--	--	--	--	15	--	--	--	--
B-11(36)	36	4/25/19	--	--	--	--	11	--	--	--	--
B-12(96)	96	4/25/19	--	--	--	--	72	--	--	--	--
B-13(42)	42	4/25/19	--	--	--	--	9	--	--	--	--
B-14(0-6)	0-12	4/25/19	--	--	--	--	480	--	--	--	--
B-14(36)	36	4/25/19	--	--	--	--	11	--	--	--	--
B-15(0-6)	0-12	4/25/19	--	--	--	--	24	--	--	--	--
B-19(0-6)	0-12	4/25/19	--	--	--	--	130	--	--	--	--
SB-1(1-2)	12-24	10/6/20	--	--	--	--	110	--	--	--	--
SB-1(3-4)	36-48	10/6/20	8.2	--	--	--	--	--	--	--	--
SB-2(1-2)	12-24	10/6/20	--	--	--	--	280	0.21	--	--	--
SB-2(2-3)	24-36	10/6/20	--	--	--	--	18	--	--	--	--
SB-3(0-1)	0-12	10/6/20	--	--	--	--	13,000	27	--	--	--
SB-3(2-3)	24-36	10/6/20	--	--	--	--	970	--	--	--	--
SB-3(3'-4')	36-48	10/6/20	--	--	--	--	21	--	--	--	--
SB-3(4-5)	48-60	10/6/20	13	--	--	--	--	--	--	--	--
SB-4(1-2)	12-24	10/6/20	--	--	--	--	210	--	--	--	--
SB-5(1-2)	12-24	10/6/20	10	--	--	--	--	--	--	--	--
SB-5(2-3)	24-36	10/5/20	--	--	--	--	30	--	--	--	--

Table 1 - Summary of Chemical Analytical Results-Metals in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name Sample Number	Sample Depth/Depth Range (inches bgs)	Date Sampled	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	TCLP Lead (mg/L)	Mercury (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)
Test Pit Samples											
SB-6(0-1)	0-12	10/6/20	**84**	--	--	--	--	--	--	--	--
SB-6(1-2)	12-24	10/6/20	--	--	--	--	**2,300**	1.9	--	--	--
SB-6(2-3)	24-36	10/6/20	--	--	--	--	25	--	--	--	--
SB-6(3-4)	36-48	10/6/20	9.8	--	--	--	--	--	--	--	--
SB-7(0-1)	0-12	10/6/20	15	--	--	--	--	--	--	--	--
SB-7(1-2)	12-24	10/6/20	--	--	--	--	14	--	--	--	--
SB-8(2-3)	24-36	10/5/20	--	--	--	--	19	--	--	--	--
SB-9(1-2)	12-24	10/5/20	--	--	--	--	**510**	0.39	--	--	--
SB-9(2-3)	24-36	10/5/20	--	--	--	--	**470**	0.46	--	--	--
SB-9(3-4)	36-48	10/5/20	--	--	--	--	48	--	--	--	--
SB-10(0-1)	0-12	10/6/20	--	--	--	--	82	0.12	--	--	--
SB-10(5-6)	60-72	10/6/20	--	--	--	--	30	--	--	--	--
SB-11(0-1)	0-12	10/6/20	--	--	--	--	**7,700**	30	--	--	--
SB-11(2-3)	24-36	10/6/20	--	--	--	--	100	--	--	--	--
SB-12(0-1)	0-12	10/6/20	7.7	--	--	--	--	--	--	--	--
SB-12(1-2)	12-24	10/5/20	--	--	--	--	**760**	0.46	--	--	--
SB-12(2-3)	24-36	10/5/20	--	--	--	--	**570**	0.21	--	--	--
SB-12(3-4)	36-48	10/5/20	--	--	--	--	26	--	--	--	--
SB-13(1-2)	12-24	10/5/20	--	--	--	--	13	--	--	--	--
SB-14(1-2)	12-24	10/6/20	--	--	--	--	140	--	--	--	--
SB-15(0-1)	0-12	10/6/20	--	--	--	--	**13,000**	17	--	--	--
SB-15(2-3)	24-36	10/6/20	--	--	--	--	18	--	--	--	--
SB-16(1-2)	12-24	10/5/20	--	--	--	--	16	--	--	--	--
SB-17(2-3)	24-36	10/5/20	--	--	--	--	18	--	--	--	--
SB-18(5-6)	60-72	10/6/20	--	--	--	--	17	--	--	--	--
Confirmation Samples											
TP-12EX-N	8	11/12/18	--	--	--	--	29	--	--	--	--
TP-12EX-S	8	11/12/18	--	--	--	--	27	--	--	--	--
MTCA Method A Cleanup Level[2]			20	NE	2	19/2000	250	NE	2	NE	NE
Maximum Concentration of Contaminants for the Toxicity Characteristic								5			

Notes:

[1]Chemical analyses conducted by TestAmerica of Spokane, Washington. Total Metals by EPA Method 6010C/6010D (As, Ba, Cd, Cr, Pb, Se, Ag) and EPA 7471B (Hg).

[2]MTCA = Washington State, Model Toxics Control Act, Method A Soil Cleanup Levels.

mg/kg = milligrams per kilogram; mg/L = milligrams per liter; NE = Not Established; - - = not tested; TCLP = Toxicity Characteristic Leaching Procedure.

BOLD indicates detected concentration is above regulatory limit.

U = analyte not detected at a concentration greater than method reporting limits.

J = estimated value.

Table 2- Summary of Chemical Analytcal Results-PAHs in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name	Sample Depth/Depth Range (inches bgs)	Date Sampled	PAHs (ug/Kg)																			
			Naphthalenes												Carcinogenic PAH							
			1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Total Naphthalenes	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Toxic Equivalency (TEQ)[2]
Test Pits																						
TP-6-6	6	8/2/18	ND	ND	ND		ND	ND	ND	16	17	ND	ND	18	13	19	21	ND	19	ND	12	24
TP-12-6	6	8/2/18	ND	ND	ND		ND	ND	ND	31	32	ND	14	39	26	38	41	19	37	ND	24	49
TP-14-6	6	8/2/18	ND	ND	ND		ND	ND	ND	24	24	ND	10	29	19	28	31	13	28	ND	18	36
TP-15-6	6	8/2/18	ND	ND	ND		ND	ND	ND	11	12	ND	ND	12	ND	14	17	ND	12	ND	ND	16
TP-16-6	6	8/2/18	ND	ND	ND		ND	ND	ND	24	25	ND	ND	29	20	29	36	14	28	ND	19	38
TP-17-6	6	8/2/18	ND	ND	ND		58	ND	76	910	970	17	340	1,200	780	1,200	1,300	450	1,100	230	740	1,561
TP-17-12	12	8/2/18	ND	ND	ND		ND	ND	ND	44	51	ND	18	61	42	62	71	28	56	13	38	82
TP-18-6	6	8/2/18	ND	ND	ND		290	ND	370	3,300	3,900	ND	1,600	4,700	3,100	4,600	5,200	2,000	4,200	880	2,800	6,040
TP-18-12	12	8/2/18	ND	ND	ND		31	ND	43	470	520	ND	180	580	400	630	690	260	530	130	370	820
TP-18-18	18	9/25/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	10	ND	10	13	ND	ND	ND	ND	11
TP-19-6	6	8/2/18	ND	ND	ND		550	ND	670	5,100	6,300	170	2,700	7,800	5,100	7,000	7,600	3,300	6,500	1,300	4,300	9,225
TP-19-12	12	8/2/18	18	23	26	67	160	ND	220	1,600	2,000	54	850	2,400	1,700	2,300	2,600	1,100	2,100	450	1,400	3,046
TP-19-18	18	9/25/18	ND	ND	ND		74	ND	92	790	1,100	ND	340	1,200	860	1,300	1,400	570	1,100	220	690	1,685
TP-19-24	24	9/25/18	ND	ND	ND		56	ND	90	620	920	17	330	1,000	660	1,000	1,200	470	840	160	520	1,309
TP-19(36-48)	36-48	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-20-6	6	8/2/18	ND	ND	ND		12	ND	16	150	180	ND	68	200	130	210	220	93	180	41	120	272
TP-20-12	12	9/25/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-21-6	6	8/2/18	ND	ND	ND		ND	ND	ND	28	32	ND	16	46	26	36	37	16	36	ND	22	46
TP-28-6	6	9/25/18	ND	ND	ND		ND	ND	ND	19	25	ND	ND	28	18	26	32	11	26	ND	15	34
TP-29-6	6	9/25/18	ND	ND	ND		ND	ND	11	100	110	ND	41	140	96	140	170	61	130	25	83	185
TP-29-12	12	9/25/18	ND	ND	ND		ND	ND	ND	21	26	ND	ND	30	19	30	35	14	27	ND	17	39
TP-30-6	6	9/25/18	ND	ND	ND		280	ND	350 J	3,000 J	3,600 J	78	1,500 J	4,300 J	3,000 J	4,400 J	5,100 J	1,900 J	3,900 J	810 J	2,500 J	5,770
TP-30-12	12	9/25/18	ND	ND	ND		ND	ND	ND	28	33	ND	13	45	27	41	43	19	38	ND	23	53
TP-31-6	6	9/25/18	ND	ND	ND		ND	ND	ND	25	30	ND	11	35	22	34	41	15	31	ND	20	44
TP-32-12	12	9/25/18	ND	ND	12	12	73	ND	110	750	1,000	25	430	1,300	830	1,200	1,300	570	1,100	210	670	1,569
TP-32-6	6	9/25/18	ND	ND	ND		250	ND	330	2,700	3,300	68	1,300	3,900	2,600	4,100	4,300	1,900	3,300	750	2,300	5,318
TP-33-6	6	9/25/18	ND	ND	ND		ND	ND	ND	6,500	1,400	ND	1,700	8,600	8,100	12,000	4,100	ND	12,000	1,500	1,700	13,680
TP-33-12	12	9/25/18	ND	ND	ND		ND	ND	ND	35	49	ND	19	52	34	55	60	25	50	ND	30	70
TP-34-6	6	9/25/18	ND	ND	ND		34	ND	44	370	470	ND	180	590	380	550	590	270	500	99	300	719
TP-34-12	12	9/25/18	ND	ND	ND		ND	ND	ND	59	76	ND	30	100	61	88	98	38	82	16	53	115
TP-35-6	6	9/25/18	ND	ND	ND		230	ND	340	2,600	3,300	70	1,400	3,700	2,700	4,100	4,300	1,600	3,600	730	2,200	5,289
TP-35-12	12	9/25/18	16	17	22	55	160	ND	230	1,700	2,500	48	930	2,800	1,900	2,800	3,500	1,300	2,500	500	1,500	3,696
TP-36-6	6	9/25/18	ND	ND	ND		ND	ND	ND	20	26	ND	ND	31	20	30	33	14	29	ND	16	39
TP-37-6	6	9/25/18	ND	ND	ND		350	ND	420	3,300	4,200	91	1,700	4,800	3,400	5,200	5,200	2,100	4,500	920	2,800	6,687
TP-37-12	12	9/25/18	ND	ND	11	11	79	ND	100	740	970	24	420	1,400	760	1,200	1,300	520	1,000	210	650	1,554
TP-38-6	6	9/25/18	ND	ND	ND		ND	ND	ND	30	43	ND	17	53	33	47	55	19	44	ND	24	61
TP-39-6	6	9/25/18	ND	ND	ND		820	ND	1,100	7,500	10,000	250	4,200	11,000	7,800	12,000	14,000	5,100	9,800	2,100	6,300	15,628
TP-39-12	12	9/25/18	12	15	18	45	140	ND	170	1,300	1,900	38	750	2,100	1,500	2,300	2,500	1,000	2,000	370	1,200	2,977
TP-39(36)	36	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-40-6	6	9/25/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-41-6	6	9/25/18	64	91	130	285	890	ND	1,300	6,300	8,100	260	4,100	10,000	7,000	11,000	12,000	4,500	8,600	1,500	5,800	14,166
TP-41(24-36)	24-36	4/25/19	ND	ND	ND		ND	ND	ND	14	18	ND	ND	21	14	22	24	ND	19	ND	12	27
TP-42-6	6	9/25/18	ND	ND	ND		ND	ND	ND	14	23	ND	ND	26	16	22	26	10	22	ND	12	29
TP-43-6	6	9/25/18	ND	ND	ND		ND	ND	ND	ND	12	ND	ND	14	ND	14	15	ND	12	ND	ND	16
TP-44-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-45-6	6	11/8/18	ND	ND	ND		ND	ND	ND	61	68	ND	23	100	58	96	100	43	82	17	53	124
TP-45-12	12	11/8/18	ND	ND	ND		ND	ND	ND	25	28	ND	ND	38	23	33	38	15	31	ND	21	43
TP-46-6	6	11/8/18	ND	ND	ND		ND	ND	ND	37	48	ND	20	67	39	57	65	26	51	ND	31	74
TP-47-6	6	11/8/18	ND	ND	ND		ND	ND	ND	15	20	ND	ND	25	15	23	27	ND	21	ND	13	29
TP-48-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	11	ND	11	12	ND	ND	ND	ND	12
TP-49-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-50-6	6	11/8/18	ND	120	130	250	1,000	ND	1,300	12,000	14,000	320	6,000	20,000	12,000	18,000	18,000	7,800	16,000	3,200	9,800	23,240
TP-51-6	6	11/8/18	ND	ND	ND		54	ND	85	620	720	18	310	900	620	880	1,000	350	790	170	470	1,148
TP-51-12	12	11/8/18	ND	ND	ND		17	ND	12	160	160	ND	53	190	150	220	230	100	190	47	130	288
TP-52-6	6	11/8/18	360	510	1,400	2270	3,300	ND	7,300	33,000	72,000	1,400	25,000	81,000	59,000	61,000	65,000	31,000	60,000	10,000	29,000	81,050
TP-52(24-36)	24-36	4/25/19	ND	ND	ND		29	ND	45	320	390	12	180	450	340	460	500	170	430	89	250	599
TP-53-6	6	11/8/18	1,900	2,800	3,500	8200	24,000	ND	31,000	100,000	210,000	7,100	87,000	270,000	170,000	210,000	220,000	84,000	200,000	40,000	96,000	273,000
TP-53(24-36)	24-36	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-54-6	6	11/8/18	15	18	17	50	150	ND	230	1,200	1,800	56	870	2,200	1,500	2,100	2,200	830	1,800	340	950	2,700
TP-54-12	12	11/8/18	14	17	17	48	97	ND	150	880	1,100	37	650	1,600	950	1,200	1,400	520	1,400	250	720	1,598
TP-54(24-36)	24-36	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-55-6	6	11/8/18	39	59	57	155	910	ND	900	3,600	6,700	190	3,200	8,700	5,400	7,500	7,000	3,100	6,600	1,100	3,500	9,576
TP-55-12	12	11/8/18	ND	11	16		110	ND	140	1,000	1,500	28	580	2,000	1,200	1,600	1,700	700	1,500	280	870	2,090
TP-55(24-36)	24-36	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-56-6	6	11/8/18	ND	110	160	270	930	ND	1,400	7,000	11,000	290	4,700	15,000	9,300	13,000	13,000	5,600	12,000	2,200	6,400	16,770

Table 2- Summary of Chemical Analytcal Results-PAHs in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name	Sample Depth/Depth Range (inches bgs)	Date Sampled	PAHs (ug/Kg)																			
			Naphthalenes												Carcinogenic PAH							
			1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Total Naphthalenes	Acenaphthene	Acenaphthylene	Anthracene	Benzo(g,h,i)perylene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)pyrene	Toxic Equivalency (TEQ)[2]
TP-56-12	12	11/8/18	ND	ND	ND		1,300	ND	1,600	9,100	13,000	ND	5,900	19,000	11,000	15,000	16,000	6,700	14,000	2,600	7,400	19,510
TP-56(24-36)	24-36	4/25/19	ND	ND	ND		11	ND	17	190	250	ND	70	250	200	280	320	110	240	53	170	368
TP-57-6	6	11/8/18	ND	ND	ND		ND	ND	ND	83	89	ND	34	120	72	110	120	50	100	21	65	144
TP-57-12	12	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-58-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	14	ND	13	14	ND	12	ND	ND	15
TP-59-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-60-6	6	11/8/18	ND	ND	ND		77	ND	97	960	1,100	23	410	1,400	870	1,400	1,400	630	1,200	270	810	1,810
TP-60-12	12	11/8/18	ND	ND	ND		ND	ND	ND	22	22	ND	ND	32	19	28	31	13	27	ND	18	36
TP-61-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-62-6	6	11/8/18	ND	ND	ND		ND	ND	ND	37	66	ND	35	82	46	60	64	26	59	ND	30	77
TP-63-6	6	11/8/18	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-66(6)	6	2/12/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	12	ND	ND	ND	ND	1
TP-67(6)	6	2/12/19	ND	ND	ND		ND	ND	ND	13	13	ND	ND	14	ND	15	19	ND	13	ND	ND	17
TP-68(6)	6	2/12/19	ND	ND	ND		ND	ND	ND	27	28	ND	ND	33	22	32	40	16	29	ND	21	42
TP-69 (6)	6	5/20/19	440	770	800	2010	9,400	ND	8,000	58,000	99,000	2,200	39,000	110,000	70,000	96,000	99,000	45,000	88,000	14,000	52,000	124,880
TP-69 (12)	12	5/20/19	16	21	25	62	170	ND	200	650	1,800	49	810	2,200	1,400	2,000	2,300	1,100	1,800	250	670	2,590
TP-70 (6)	6	5/20/19	ND	ND	ND		15	ND	16	140	140	ND	65	170	130	220	210	92	180	45	130	283
TP-70 (12)	12	5/20/19	ND	ND	ND		ND	ND	ND	18	38	ND	14	46	30	48	58	27	42	ND	17	62
TP-71 (6)	6	5/20/19	ND	130	210	340	770	ND	840	7,900	8,400	230	3,400	9,500	7,300	12,000	13,000	5,700	9,500	2,400	7,100	15,645
TP-71 (12)	12	5/20/19	ND	ND	ND		37	ND	46	250	520	ND	190	610	410	630	760	290	530	86	250	815
TP-72 (6)	6	5/20/19	140	180	190	67	1,400	ND	2,100	14,000	23,000	490	9,800	28,000	17,000	23,000	27,000	9,900	22,000	4,300	12,000	30,246
TP-72 (12)	12	5/20/19	ND	ND	ND		79	ND	72	300	850	17	290	960	660	930	1,200	460	810	120	320	1,214
TP-75 (0-1')	0-12	12/21/20	ND	ND	ND		ND	ND	ND	16	16	ND	ND	19	14	21	24	ND	17	ND	14	26
TP-76 (0-1')	0-12	12/21/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	1
TP-77 (0-1')	0-12	12/21/20	ND	ND	ND		ND	ND	ND	19	20	ND	ND	23	17	26	27	14	22	ND	15	34
TP-78 (0-1')	0-12	12/21/20	ND	ND	ND		22	ND	24	340	380	ND	140	490	310	510	550	190	440	99	290	658
TP-78(1-2)	12-24	12/21/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-79 (0-1')	0-12	12/21/20	ND	ND	ND		ND	ND	ND	34	33	ND	ND	45	29	44	47	19	39	ND	26	56
TP-80 (0-1')	0-12	12/22/20	ND	ND	ND		ND	ND	ND	140	160	ND	60	200	140	140	230	26	170	42	120	198
TP-80(1-2)	12-24	12/22/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-81 (0-1')	0-12	12/21/20	ND	ND	ND		ND	ND	ND	27	29	ND	12	34	25	38	41	17	32	ND	22	49
TP-82 (0-1')	0-12	12/22/20	ND	ND	ND		1,300	ND	1,100	5,200	10,000	330	4,300	10,000	8,800	9,700	11,000	3,900	8,300	1,700	4,800	12,803
TP-82(1-2)	12-24	12/22/20	ND	ND	ND		ND	ND	ND	23	25	ND	11	35	24	33	34	13	31	ND	18	42
TP-83 (0-1')	0-12	12/22/20	ND	ND	ND		21	ND	22	260	260	ND	100	360	300	420	380	140	390	75	190	532
TP-83(1-2)	12-24	12/22/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-84 (0-1')	0-12	12/22/20	ND	ND	ND		46	ND	49	610	650	14	240	840	630	990	910	360	800	170	470	1,252
TP-84(1-2)	12-24	12/22/20	ND	ND	ND		ND	ND	ND	40	48	ND	14	60	45	63	66	27	58	12	32	82
TP-85 (0-1')	0-12	12/22/20	110	120	150	380	790	ND	940	10,000	14,000	300	5,100	15,000	13,000	16,000	18,000	6,700	14,000	2,900	8,900	21,090
TP-85(1-2)	12-24	12/22/20	20	24	17	61	77	ND	140	660	890	49	730	1,400	820	1,100	1,100	350	1,100	180	510	1,407
TP-85(3-4)	36-48	12/22/20	ND	ND	ND		ND	ND	ND	11	18	ND	20	33	18	23	23	ND	24	ND	ND	27
TP-87(0-1)	0-12	1/4/2021	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	15	18	ND	12	ND	ND	17
TP-88(0-1)	0-12	1/4/2021	ND	ND	ND		ND	ND	ND	16	18	ND	ND	22	17	25	27	ND	20	ND	14	31
TP-89(0-1)	0-12	1/4/2021	ND	ND	ND		18	ND	29	340	380	ND	120	480	340	570	680	240	450	96	290	739
TP-90(0-1)	0-12	1/4/2021	ND	ND	ND		ND	ND	15	81	99	ND	62	150	92	150	160	60	130	24	68	192
TP-91(0-1)	0-12	1/4/2021	ND	ND	ND		24	ND	33	350	390	ND	150	520	340	550	590	220	430	91	280	706
TP-92(0-1)	0-12	1/4/2021	ND	ND	ND		16	ND	35	290	310	ND	180	460	270	420	440	150	360	71	220	539
TP-93 (0-6")	0-6	1/19/2021	ND	ND	ND		ND	ND	ND	4,300	840	ND	490	1,500	4,000	6,500	3,300	770	9,000	1,500	1,400	7,687
TP-93 (1')	6-12	3/4/2021	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-94 (0-6")	0-6	1/19/2021	ND	ND	ND		ND	ND	ND	77	76	ND	30	99	67	120	130	46	93	21	59	153
TP-94 (1')	6-12	3/4/2021	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TP-95 (0-6")	0-6	1/19/2021	ND	ND	ND		240	ND	240	3,500	2,200	ND	990	2,800	2,400	5,000	4,300	2,000	2,900	920	2,900	6,281
TP-95 (1')	6-12	3/4/2021	ND	ND	ND		ND	ND	ND	13	13	ND	ND	28	13	18	21	ND	17	ND	ND	22
TP-96 (0-6")	0-6	3/4/2021	ND	ND	ND		ND	ND	ND	41	42	ND	16	54	37	56	62	24	48	12	31	73
TP-97 (0-6")	0-6	3/4/2021	ND	ND	ND		ND	ND	ND	50	46	ND	15	57	42	65	75	28	55	13	38	85
TP-98 (0-6")	0-6	3/4/2021	ND	ND	ND		ND	ND	ND	26	23	ND	11	30	22	35	39	15	27	ND	20	45
Borings																						
B-1(0-6)	0-6	4/25/19	ND	ND	ND		ND	ND	ND	18	19	ND	ND	23	14	23	26	ND	22	ND	14	29
B-2(0-6)	0-6	4/25/19	ND	ND	17	17	80	ND	110	1,100	1,400	44	510	1,300	1,000	1,400	2,000	670	1,300	300	950	1,905
B-2(6-12)	6-12	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-3(0-6)	0-6	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-4(0-6)	0-6	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	12	14	ND	ND	ND	ND	13

Table 2- Summary of Chemical Analtycal Results-PAHs in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name	Sample Depth/Depth Range (inches bgs)	Date Sampled	PAHs (ug/Kg)																		
			Naphthalenes				Carcinogenic PAH														
			1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Total Naphthalenes	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)Anthracene	Benzo(a)Pyrene	Benzo(b)Fluoranthene	Benzo(g,h,i)perylene	Benzo(k)Fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Pyrene	Toxic Equivalency (TEQ)[2]
B-5(0-6)	0-6	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-6(0-6)	0-6	4/25/19	ND	ND	ND		67	ND	110	980	1,260	26	490	1,400	910	**1,400**	1,600	600	1,300	280	940	1,836
B-6(6-12)	6-12	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-7(0-6)	0-6	4/25/19	ND	ND	ND		ND	ND	ND	19	20	ND	ND	25	16	25	28	ND	22	ND	16	31
B-8(0-6)	0-6	4/25/19	ND	ND	ND		12	ND	21	230	330	ND	130	390	200	**310**	350	140	310	62	180	486
B-8(6-12)	6-12	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-9(36)	36	4/25/19	ND	ND	ND		ND	ND	ND	35	49	ND	19	48	40	50	61	25	49	11	29	67
B-10(36)	36	4/25/19	ND	ND	ND		68	ND	89	600	890	26	350	860	710	**930**	1,100	420	790	170	520	1,235
B-11(36)	36	4/25/19	ND	ND	ND		ND	ND	11	64	95	ND	40	100	81	100	110	46	100	19	62	132
B-12(96)	96	4/25/19	**1,500**	**2,200**	**2,400**	6100	17,000	ND	21,000	120,000	200,000	6,800	86,000	230,000	160,000	**220,000**	240,000	85,000	200,000	39,000	110,000	285,486
B-13(42)	42	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	12	ND	13	14	ND	13	ND	ND	15
B-14(0-6)	0-6	4/25/19	ND	ND	ND		4,000	ND	4,900	50,000	52,000	1,400	22,000	64,000	46,000	72,000	70,000	23,000	64,000	14,000	33,000	91,240
B-14(36)	36	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-15(0-6)	0-6	4/25/19	19	26	35	80	270	ND	330	2,800	3,900	85	1,400	4,200	3,000	**4,500**	4,900	2,000	3,800	850	2,600	9,873
B-15(6-12)	6-12	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-16(0-14)	0-14	4/25/19	22	35	34		240	ND	370	2,300	2,600	84	1,700	4,400	2,400	**3,600**	3,400	1,200	3,000	660	1,800	4,576
B-16(14-30)	14-30	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-17(0-6)	0-6	4/25/19	ND	1,100	1,900	3000	11,000	ND	13,000	80,000	120,000	3,300	50,000	130,000	95,000	**140,000**	140,000	66,000	120,000	26,000	73,000	181,200
B-17(6-12)	6-12	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	11	ND	ND	ND	ND	1
B-18(0-6)	0-6	4/25/19	170	220	250		1,700	ND	2,000	16,000	18,000	580	8,700	23,000	16,000	**24,000**	25,000	11,000	20,000	4,500	13,000	31,159
B-18(12-18)	12-18	4/25/19	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
B-19(0-6)	0-6	4/25/19	ND	ND	ND		ND	ND	ND	50	71	ND	29	84	53	76	87	34	70	14	43	100
SB-1(2-3)	24-36	10/6/20	ND	ND	ND		ND	ND	12	190	160	ND	58	190	140	**240**	280	99	180	46	140	312
SB-1(3'4')	36-48	10/6/20	ND	ND	ND		ND	ND	ND	41	60	ND	21	73	57	86	110	45	68	14	37	113
SB-2(2-3)	24-36	10/6/20	ND	ND	ND		ND	ND	ND	21	16	ND	ND	20	17	22	31	13	20	ND	17	30
SB-3(2-3)	24-36	10/6/20	ND	ND	ND		ND	ND	ND	23	21	ND	ND	27	18	27	34	14	22	ND	17	36
SB-4(2-3)	24-36	10/6/20	ND	ND	ND		240	ND	300	2,600	3,100	ND	1,200	3,700	2,600	**4,000**	4,000	1,200	3,200	670	2,100	5,889
SB-4(4-5)	48-60	10/8/20	ND	ND	ND		13	ND	26	230	250	ND	95	280	220	**320**	370	120	260	59	180	418
SB-5(0-1)	0-12	10/5/20	ND	**5,900**	**5,800**	11700	87,000	ND	130,000	800,000	1,100,000	33,000	470,000	1,200,000	970,000	**1,400,000**	1,400,000	500,000	1,000,000	210,000	620,000	1,780,000
SB-5(2-3)	24-36	10/5/20	190	300	440		3,500	ND	4,600	27,000	41,000	1,300	18,000	46,000	36,000	**54,000**	55,000	20,000	42,000	7,900	24,000	68,719
SB-5(4-5)	48-60	10/5/20	ND	ND	ND		420	ND	590	4,100	4,800	150	2,100	5,300	4,300	**6,300**	6,500	2,600	4,600	1,100	3,300	8,126
SB-5(6-7)	72-84	10/6/20	ND	ND	ND		10	ND	18	170	220	ND	73	240	190	**270**	300	100	210	46	140	350
SB-5(7'-8')	84-96	10/6/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	10	13	ND	ND	ND	ND	11
SB-6(2-3)	24-36	10/6/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	11	13	ND	ND	ND	ND	12
SB-7(1-2)	12-24	10/8/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-7(2-3)	24-36	10/8/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-8(0-1)	0-12	10/5/20	ND	7,800	10,000	17800	83,000	ND	120,000	720,000	1,000,000	29,000	460,000	1,300,000	890,000	**1,400,000**	1,400,000	520,000	1,000,000	210,000	610,000	1,773,000
SB-8(2-3)	24-36	10/5/20	ND	82	120	202	930	ND	1,200	12,000	12,000	300	4,600	14,000	10,000	**17,000**	17,000	5,500	12,000	2,600	8,700	21,589
SB-8(4'-5')	48-60	10/5/20	ND	ND	ND		270	ND	410	2,100	3,600	ND	1,500	4,000	3,000	**5,100**	5,700	1,800	3,300	840	1,800	6,427
SB-9(3-4)	36-48	10/5/20	190	270	450	910	2,900	ND	4,000	22,000	38,000	1,100	16,000	43,000	32,000	**48,000**	48,000	17,000	38,000	6,700	21,000	60,850
SB-9(4-5)	48-60	10/5/20	ND	ND	ND		88	ND	150	1,200	1,200	37	630	1,700	1,300	**1,900**	1,700	670	1,400	320	900	2,483
SB-10(1-2)	12-24	10/6/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-11(1-2)	12-24	10/6/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-12(4-5)	48-60	10/5/20	ND	ND	ND		47	ND	67	580	690	18	260	740	590	990	990	370	690	150	470	1,164
SB-13(1-2)	12-24	10/5/20	ND	ND	ND		180	ND	200	1,600	2,100	ND	800	2,400	1,900	**2,900**	3,100	1,100	2,300	470	1,300	3,715
SB-13(2-3)	24-36	10/5/20	ND	ND	ND		21	ND	32	280	350	ND	130	420	330	**500**	540	190	380	79	230	641
SB-13(3-4)	36-48	10/5/20	ND	ND	ND		ND	ND	10	98	98	ND	41	120	92	**130**	150	52	110	24	69	179
SB-13(4'-5')	48-60	10/5/20	ND	ND	ND		670	ND	1,200	8,200	10,000	310	4,700	14,000	11,000	**19,000**	20,000	7,700	14,000	2,400	6,700	23,929
SB-14(1-2)	12-24	10/8/20	ND	ND	ND		ND	ND	ND	21	24	ND	ND	31	19	29	34	14	25	ND	17	38
SB-15(0-1)	0-12	10/6/20	ND	ND	ND		290	ND	300	3,200	4,300	ND	1,500	5,500	3,500	**5,800**	6,000	2,400	4,700	910	2,900	7,418
SB-15(1-2)	12-24	10/6/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
SB-16(1-2)	12-24	10/5/20	10	14	15	39	150	ND	190	2,000	2,100	55	900	2,400	1,900	**2,800**	3,200	1,300	2,300	480	1,500	3,681
SB-16(3'-4')	36-48	10/5/20	ND	ND	ND		81	ND	110	590	1,100	27	460	1,300	970	**1,400**	1,500	550	1,100	190	540	1,786

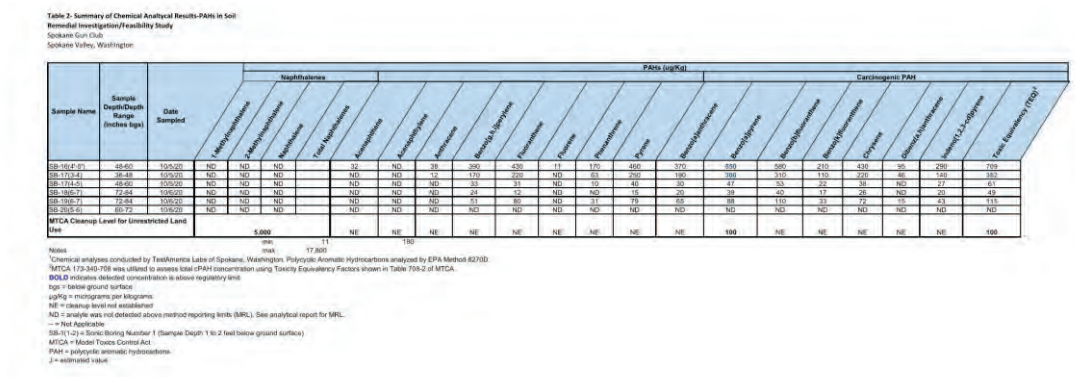


Table 2- Summary of Chemical Analtycal Results-PAHs in Soil
Remedial Investigation/Feasibility Study
Spokane Gun Club
Spokane Valley, Washington

Sample Name	Sample Depth/Depth Range (inches bgs)	Date Sampled	PAHs (ug/Kg)																				
			Naphthalenes				Carcinogenic PAH																
			1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Total Naphthalenes	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)Anthracene	Fluoranthene	Fluorene	Phenanthrene	Pyrene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Indeno(1,2,3-cd)Pyrene	Total Equivalency (TEQ)[1]
SB-16(4'-8')	48-60	10/5/20	ND	ND	ND		32	ND	38	390	430	11	170	460	370	630	580	210	430	95	280	709
SB-17(3-4)	36-48	10/5/20	ND	ND	ND		ND	ND	12	170	220	ND	63	260	180	390	310	110	220	46	140	382
SB-17(4-5)	48-60	10/5/20	ND	ND	ND		ND	ND	ND	33	31	ND	10	40	30	47	53	22	38	ND	27	61
SB-18(5-7)	72-84	10/6/20	ND	ND	ND		ND	ND	ND	24	12	ND	ND	15	20	39	40	17	26	ND	20	49
SB-19(6-7)	72-84	10/6/20	ND	ND	ND		ND	ND	ND	51	80	ND	31	79	65	88	110	33	72	15	43	115
SB-20(5-6)	60-72	10/6/20	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTCA Cleanup Level for Unrestricted Land Use			5,000 max		11 max		NE	NE	1'80	NE	NE	NE	NE	NE	NE	100	NE	NE	NE	NE	NE	100	

Notes
[1]Chemical analyses conducted by TestAmerica Labs of Spokane, Washington. Polycyclic Aromatic Hydrocarbons analyzed by EPA Method 8270D.
[2]MTCA 173-340-708 was utilized to assess total cPAH concentration using Toxicity Equivalency Factors shown in Table 708-2 of MTCA.
BOLD indicates detected concentration is above regulatory limit
bgs = below ground surface
µg/Kg = micrograms per kilograms
NE = cleanup level not established
ND = analyte was not detected above method reporting limits (MRL). See analytical report for MRL.
-- = Not Applicable
SB-1(1-2) = Sonic Boring Number 1 (Sample Depth 1 to 2 feet below ground surface)
MTCA = Model Toxics Control Act
PAH = polycyclic aromatic hydrocarbons
J = estimated value

\\haleyaldrich.com\share\pdx_data\Notebooks\150614004_CVSD_Remedial_Investigation-Feasibility_Study\Deliverables\Reports\Gun Club RIFS\Attachments\Tables\Table 1_2_Summary of Chemical Analytical Results

Proposed Construction Activities (1.2)

Description of construction activities (example: site preparation, demolition, excavation):

The proposed project is a voluntary clean up, in coordination with the Washington State Department of Ecology, to remediate site soils impacted by metals from the former gun range operations. Previous environmental studies conducted on the proposed project site, identified lead, arsenic, and polycyclic aromatic hydrocarbons (PAHs) at concentrations above cleanup levels in various areas across the former gun range. The proposed project actions will excavate soils impacted by contamination and place contaminated soils into an onsite repository. Approximately 150,000 cubic yards of soil will be excavated during the proposed process.
The proposed repository will be capped with a high-density polyethylene (HDPE) liner that extends to an anchor trench to encapsulate the contaminated soils. The HDPE liner will be covered with soil generated from repository construction and then capped with a vegetative cover. In addition to the remedial excavation, fill, and cap, the proposed project will also demolish two of the site structures and shooting stations. The proposed project will demolish the Clubhouse, and bathroom facility, approximately 7,500 square foot (sq. ft.) metal frame structure and 400 sq. ft. structure.

Description of site drainage including flow from and onto adjacent properties. Must be consistent with Site Map in Appendix A:
Existing site collects and infiltrates water through soil throughout the property.

Stormwater during construction will infiltrate onsite and no discharge is anticipated to occur. Ecology shall be notified if a discharge does occur.

Description of final stabilization (example: extent of revegetation, paving, landscaping):
The project will be resurfaced in certain locations with HMA path. All stormwater will be captured onsite as before construction activity. All un-paved surfaces shall be revegetated via sod or seeding application.

Contaminated Site Information:
Proposed activities regarding contaminated soils or groundwater (example: on-site treatment system, authorized sanitary sewer discharge):

The proposed project is to remove contaminated material located at the proposed project site. There are no alternative locations for the proposed project based on the proposed project scope.

The proposed project will excavate materials from the contaminated (southern) portion of the site. These impacted soils will be placed into an onsite repository that will be located on the northern section of the proposed project site. Approximately 150,000 cubic yards of contaminated soil will be excavated and filled. Once the repository is filled with the contaminated soils, it will be capped with a HDPE liner and then an additional soil cap. The surface soil cap will require grading for proper drainage.

Areas to be stabilized, as shown on the Drawings, are the locations suspected to contain hazardous levels of lead in the soil (TCLP greater than 5.0 mg/L lead). Soils will be stabilized in-situ. In-situ stabilization is considered any methods used that stabilize the soils within the Hazardous Lead Sampling Units shown on the Drawings prior to transport. This would include but not be limited to such methods as tractor-towed or self-propelled stabilizers/mixers, plows, discs, or stockpiling the soil within the Sampling Unit and mixing with dozers and/or excavators.

Construction Stormwater Best Management Practices (BMPs) (2.0)

The SWPPP is a living document reflecting current conditions and changes throughout the life of the project. These changes may be informal (i.e. hand-written notes and deletions). Update the SWPPP when the CESCL has noted a deficiency in BMPs or deviation from original design.

The 12 Elements (2.1)

Element 1: Preserve Vegetation / Mark Clearing Limits (2.1.1)

List and describe BMPs: BMP C101E – Preserving Natural Vegetation.

Installation Schedules: BMPs will be installed prior to commencing construction and as applicable to construction activities.

Inspection and Maintenance plan: None. Natural vegetation shall be preserved to the maximum extent possible.

Responsible Staff: Project Superintendent and project Certified Erosion and Sediment Control Lead (CESCL)

Element 2: Establish Construction Access (2.1.2)

Stabilize roadway approaches and temporary access points with the appropriate construction entry BMP to paved roadways where possible. Street sweeping will be employed as necessary.

Installation Schedules: BMPs will be installed prior to commencing construction and as applicable to construction activities.

Inspection and Maintenance plan: Inspection and maintenance will be provided in accordance with the recommendations associated with the specific BMP.

Responsible Staff: Project Superintendent and project Certified Erosion and Sediment Control Lead (CESCL)

Element 3: Control Flow Rates (2.1.3)

Will you construct stormwater retention and/or detention facilities?
Yes **No**

Will you use permanent infiltration ponds or other low impact development (example: rain gardens, bio-retention, porous pavement) to control flow during construction?
Yes **No**

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Element 4: Install Sediment Controls (2.1.4)

List and describe BMPs:

BMP C150E – Materials on Hand will be maintained on site and employed as needed.

BMP C233E – Silt fence will be installed as necessary to prevent sedimentation.

BMP C235E – Wattles will be utilized on slopes as necessary to trap sediment.

Installation Schedules: BMPs will be installed as necessary prior to and during construction to prevent sediment migration. Stock piles will be placed in a location not subject to run-off of stormwater

Inspection and Maintenance plan: Inspection and maintenance will be provided in accordance with the recommendations associated with the specific BMP.

Responsible Staff: Project Superintendent and project Certified Erosion and Sediment Control Lead (CESCL)

Element 5: Stabilize Soils (2.1.5)

East of the Cascade Mountains Crest, except the Central Basin*

Season	Dates	Number of Days Soils Can be Left Exposed
During the Dry Season	July 1 – September 30	10 days
During the Wet Season	October 1 – June 30	5 days

Soils must be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast.

Anticipated project dates: Start date: February 2024 End date: July 2024

Will you construct during the wet season?
Yes No

List and describe BMPs:

BMP C120E – Temporary and Permanent Seeding; disturbed surfaces will be permanently stabilized with hydroseed after establishing final grade or having been unworked for more than 30 days.

BMP C123E - Plastic Covering will be utilized as needed for soil piles left idle for more than 5 or 10 days (dependent on season) or if rain events are forecast with precipitation greater than 0.1" or predicted to be high intensity.

BMP C140E - Dust Control will be implemented to control fugitive dust during construction.

Installation Schedules: Sodding will be implemented as soon as possible after soil disturbing activities. Seeding will take place within the designated window for Eastern Washington
.

Inspection and Maintenance plan: Inspection and maintenance will be provided in accordance with the recommendations associated with the specific BMP.

Responsible Staff: Project Superintendent and project Certified Erosion and Sediment Control Lead (CESCL)

Element 6: Protect Slopes (2.1.6)

Will steep slopes be present at the site during construction?
Yes **No**

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Element 7: Protect Drain Inlets (2.1.7)

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Element 8: Stabilize Channels and Outlets (2.1.8).

Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes, and downstream reaches, will be installed at the outlets of all conveyance systems.

No stormwater will be discharged to a channel or outlet as a result of this project. Stormwater will be retained on site.

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Element 9: Control Pollutants (2.1.9)

The following pollutants are anticipated to be present on-site:

Lead and Arsenic

List and describe BMPs:
Pollutants will be contained and separated from uncontaminated soils throughout the entirety of the project.

If additional polluted soils are encountered during construction, these impacted soils will be placed into an onsite repository that will be located on the northern section of the proposed project site, once the repository is filled with the contaminated soils, it will be capped with a HDPE liner and then an additional soil cap.

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Will maintenance, fueling, and/or repair of heavy equipment and vehicles occur on-site?
Yes No

List and describe BMPs: We have prepared an SPCC Plan for the project. ASTs will not be located within the project area. Fueling and lubing activities will be provided from mobile equipment not stored within the project area.

Installation Schedules: SPCC plan will be in place prior to beginning construction activities.

Inspection and Maintenance plan: As specified by the SPCC plan

Responsible Staff: Project Superintendent and project Certified Erosion and Sediment Control Lead (CESCL)

Will wheel wash or tire bath system BMPs be used during construction?
Yes **No**

List and describe BMPs: N/A

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Will pH-modifying sources be present on-site?

Table 3 – pH-Modifying Sources

X	None
	Bulk cement
	Cement kiln dust
	Fly ash
	Other cementitious materials
	New concrete washing or curing waters
	Waste streams generated from concrete grinding and sawing
	Exposed aggregate processes
	Dewatering concrete vaults
	Concrete pumping and mixer washout waters
	Recycled concrete
	Other (i.e. calcium lignosulfate) [please describe]

List and describe BMPs:

BMP C150E - Materials on Hand will be maintained on site and employed as needed.

Installation Schedules: N/A

Inspection and Maintenance plan: Inspection and maintenance will be provided in accordance with the recommendations associated with the specific BMP.

Responsible Staff: Project Superintendent and project Certified Erosion and Sediment Control Lead (CESCL

Concrete trucks must not be washed out onto the ground, or into storm drains, open ditches, streets, or streams. Excess concrete must not be dumped on-site, except in designated concrete washout areas with appropriate BMPs installed.

Element 10: Control Dewatering (2.1.10)

Table 4 – Dewatering BMPs

	Infiltration
	Transport off-site in a vehicle (vacuum truck for legal disposal)
	Ecology-approved on-site chemical treatment or other suitable treatment technologies
	Sanitary or combined sewer discharge with local sewer district approval (last resort)
	Use of sedimentation bag with discharge to ditch or swale (small volumes of localized dewatering)

List and describe BMPs: Dewatering is not anticipated

Installation Schedules: N/A

Inspection and Maintenance plan: N/A

Responsible Staff: N/A

Element 11: Maintain BMPs (2.1.11)

All temporary and permanent Erosion and Sediment Control (ESC) BMPs shall be maintained and repaired as needed to ensure continued performance of their intended function.

Maintenance and repair shall be conducted in accordance with each particular BMP specification (see *Volume II of the SWMMWW or Chapter 7 of the SWMMEW*).

Visual monitoring of all BMPs installed at the site will be conducted at least once every calendar week and within 24 hours of any stormwater or non-stormwater discharge from the site. If the site becomes inactive and is temporarily stabilized, the inspection frequency may be reduced to once every calendar month.

All temporary ESC BMPs shall be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed.

Trapped sediment shall be stabilized on-site or removed. Disturbed soil resulting from removal of either BMPs or vegetation shall be permanently stabilized.

Additionally, protection must be provided for all BMPs installed for the permanent control of stormwater from sediment and compaction. BMPs that are to remain in place following completion of construction shall be examined and restored to full operating condition. If sediment enters these BMPs during construction, the sediment shall be removed and the facility shall be returned to conditions specified in the construction documents.

Element 12: Manage the Project (2.1.12)

The project will be managed based on the following principles:

- Projects will be phased to the maximum extent practicable and seasonal work limitations will be considered.
- Inspection and monitoring:
    - Inspection, maintenance and repair of all BMPs will occur as needed to ensure performance of their intended function.
    - Site inspections and monitoring will be conducted in accordance with Special Condition S4 of the CSWGP. Sampling locations are indicated on the Site Map. Sampling station(s) are located in accordance with applicable requirements of the CSWGP.
- Maintain an updated SWPPP.
    - The SWPPP will be updated, maintained, and implemented in accordance with Special Conditions S3, S4, and S9 of the CSWGP.

As site work progresses the SWPPP will be modified routinely to reflect changing site conditions. The SWPPP will be reviewed monthly to ensure the content is current.

Table 5 – Management

	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
	Other (please describe)

Table 6 – BMP Implementation Schedule

Phase of Construction Project	Stormwater BMPs	Date	Wet/Dry Season
[Insert construction activity]	[Insert BMP]	[MM/DD/YYYY]	[Insert Season]
Phase of Construction Project	**Stormwater BMPs**	**Date**	**Wet/Dry Season**

[Insert construction activity]	[Insert BMP]	[MM/DD/YYYY]	[Insert Season]

Element 13: Protect Low Impact Development (LID) BMPs (2.1.13)

None present within project area.

Pollution Prevention Team (3.0)

Table 7 – Team Information

Title	Name(s)	Phone Number
Certified Erosion and Sediment Control Lead (CESCL)	Dylan Miller	(509)-951-2986
Resident Engineer	N/A	
Emergency Ecology Contact	Jefferson Davis	(509) 329-3565
Emergency Permittee/ Owner Contact	Cody Hebrank	(509) 425-3387
Non-Emergency Owner Contact	Jeff Jurgensen	(509) 290-9239
Monitoring Personnel	Dylan Miller	(509)-951-2986
Ecology Regional Office	Eastern Region Office	(509) 329-3400

Monitoring and Sampling Requirements (4.0)

Monitoring includes visual inspection, sampling for water quality parameters of concern, and documentation of the inspection and sampling 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
- Stormwater sampling data

File a blank form under Appendix D.

The site log book must be maintained on-site within reasonable access to the site and be made available upon request to Ecology or the local jurisdiction.

Numeric effluent limits may be required for certain discharges to 303(d) listed waterbodies. See CSWGP Special Condition S8 and Section 5 of this template.

Complete the following paragraph for sites that discharge to impaired waterbodies for fine sediment, turbidity, phosphorus, or pH:

Site Inspection (4.1)

Site inspections will be conducted at least once every calendar week and within 24 hours following any discharge from the site. For sites that are temporarily stabilized and inactive, the required frequency is reduced to once per calendar month.

The discharge point(s) are indicated on the Site Map (see Appendix A) and in accordance with the applicable requirements of the CSWGP.

Stormwater Quality Sampling (4.2)

Turbidity Sampling (4.2.1)

Requirements include calibrated turbidity meter or transparency tube to sample site discharges for compliance with the CSWGP. Sampling will be conducted at all discharge points at least once per calendar week.

Method for sampling turbidity:

Table 8 – Turbidity Sampling Method

	Turbidity Meter/Turbidimeter (required for disturbances 5 acres or greater in size)
	Transparency Tube (option for disturbances less than 1 acre and up to 5 acres in size)

The benchmark for turbidity value is 25 nephelometric turbidity units (NTU) and a transparency less than 33 centimeters.

If the discharge's turbidity is 26 to 249 NTU **or** the transparency is less than 33 cm but equal to or greater than 6 cm, the following steps will be conducted:

1. Review the SWPPP for compliance with Special Condition S9. Make appropriate revisions within 7 days of the date the discharge exceeded the benchmark.
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period.
3. Document BMP implementation and maintenance in the site log book.

If the turbidity exceeds 250 NTU **or** the transparency is 6 cm or less at any time, the following steps will be conducted:

1. Telephone or submit an electronic report to the applicable Ecology Region's Environmental Report Tracking System (ERTS) within 24 hours. https://www.ecology.wa.gov/About-us/Get-involved/Report-an-environmental-issue
    - Central Region (Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, Yakima): (509) 575-2490
    - Eastern Region (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman): (509) 329-3400
    - Northwest Region (King, Kitsap, Island, San Juan, Skagit, Snohomish, Whatcom): (425) 649-7000
    - Southwest Region (Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, Wahkiakum,): (360) 407-6300
2. Immediately begin the process to fully implement and maintain appropriate source control and/or treatment BMPs as soon as possible. Address the problems within 10 days of the date the discharge exceeded the benchmark. If installation of necessary treatment BMPs is not feasible within 10 days, Ecology may approve additional time when the Permittee requests an extension within the initial 10-day response period
3. Document BMP implementation and maintenance in the site log book.
4. Continue to sample discharges daily until one of the following is true:
    - Turbidity is 25 NTU (or lower).
    - Transparency is 33 cm (or greater).
    - Compliance with the water quality limit for turbidity is achieved.
        - 1 - 5 NTU over background turbidity, if background is less than 50 NTU
        - 1% - 10% over background turbidity, if background is 50 NTU or greater
    - The discharge stops or is eliminated.

pH Sampling (4.2.2)

pH monitoring is required for “Significant concrete work” (i.e. greater than 1000 cubic yards poured concrete or recycled concrete over the life of the project).The use of engineered soils (soil amendments including but not limited to Portland cement-treated base [CTB], cement kiln dust [CKD] or fly ash) also requires pH monitoring.

For significant concrete work, pH sampling will start the first day concrete is poured and continue until it is cured, typically three (3) weeks after the last pour.

For engineered soils and recycled concrete, pH sampling begins when engineered soils or recycled concrete are first exposed to precipitation and continues until the area is fully stabilized.

If the measured pH is 8.5 or greater, the following measures will be taken:

1. Prevent high pH water from entering storm sewer systems or surface water.
2. Adjust or neutralize the high pH water to the range of 6.5 to 8.5 su using appropriate technology such as carbon dioxide (CO_2) sparging (liquid or dry ice).
3. Written approval will be obtained from Ecology prior to the use of chemical treatment other than CO_2 sparging or dry ice.

Method for sampling pH:

Table 8 – pH Sampling Method

	pH meter
	pH test kit
	Wide range pH indicator paper

Discharges to 303(d) or Total Maximum Daily Load (TMDL) Waterbodies (5.0)

303(d) Listed Waterbodies (5.1)

Is the receiving water 303(d) (Category 5) listed for turbidity, fine sediment, phosphorus, or pH?

Yes **No**

List the impairment(s): N/A

List and describe BMPs: N/A

TMDL Waterbodies (5.2)

Waste Load Allocation for CWSGP discharges:

List and describe BMPs: N/A

Discharges to TMDL receiving waterbodies will meet in-stream water quality criteria at the point of discharge.

The Construction Stormwater General Permit Proposed New Discharge to an Impaired Water Body form is included in Appendix F.

Reporting and Record Keeping (6.0)

Record Keeping (6.1)

Site Log Book (6.1.1)

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
- Sample logs

Records Retention (6.1.2)

Records will be retained during the life of the project and for a minimum of three (3) years following the termination of permit coverage in accordance with Special Condition S5.C of the CSWGP.

Permit documentation to be retained on-site:

- CSWGP
- Permit Coverage Letter
- SWPPP
- Site Log Book

Permit documentation will be provided within 14 days of receipt of a written request from Ecology. A copy of the SWPPP or access to the SWPPP will be provided to the public when requested in writing in accordance with Special Condition S5.G.2.b of the CSWGP.

Updating the SWPPP (6.1.3)

The SWPPP will be modified if:

- Found ineffective in eliminating or significantly minimizing pollutants in stormwater discharges from the site.
- There is a change in 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 will be modified within seven (7) days if inspection(s) or investigation(s) determine additional or modified BMPs are necessary for compliance. An updated timeline for BMP implementation will be prepared.

Reporting (6.2)

Discharge Monitoring Reports (6.2.1)

Cumulative soil disturbance is one (1) acre or larger; therefore, Discharge Monitoring Reports (DMRs) will be submitted to Ecology monthly. If there was no discharge during a given monitoring period the DMR will be submitted as required, reporting "No Discharge". The DMR due date is fifteen (15) days following the end of each calendar month.

DMRs will be reported online through Ecology's WQWebDMR System.

https://www.ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Water-quality-permits-guidance/WQWebPortal-guidance

Notification of Noncompliance (6.2.2)

If any of the terms and conditions of the permit is not met, and the resulting noncompliance may cause a threat to human health or the environment, the following actions will be taken:

1. Ecology will be notified within 24-hours of the failure to comply by calling the applicable Regional office ERTS phone number (Regional office numbers listed below).
2. Immediate action will be taken to prevent the discharge/pollution or otherwise stop or correct the noncompliance. 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.

Anytime turbidity sampling indicates turbidity is 250 NTUs or greater, or water transparency is 6 cm or less, the Ecology Regional office will be notified by phone within 24 hours of analysis as required by Special Condition S5.A of the CSWGP.

- Central Region at (509) 575-2490 for Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, or Yakima County
- Eastern Region at (509) 329-3400 for Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, or Whitman County
- Northwest Region at (425) 649-7000 for Island, King, Kitsap, San Juan, Skagit, Snohomish, or Whatcom County

- Southwest Region at (360) 407-6300 for Clallam, Clark, Cowlitz, Grays Harbor, Jefferson, Lewis, Mason, Pacific, Pierce, Skamania, Thurston, or Wahkiakum

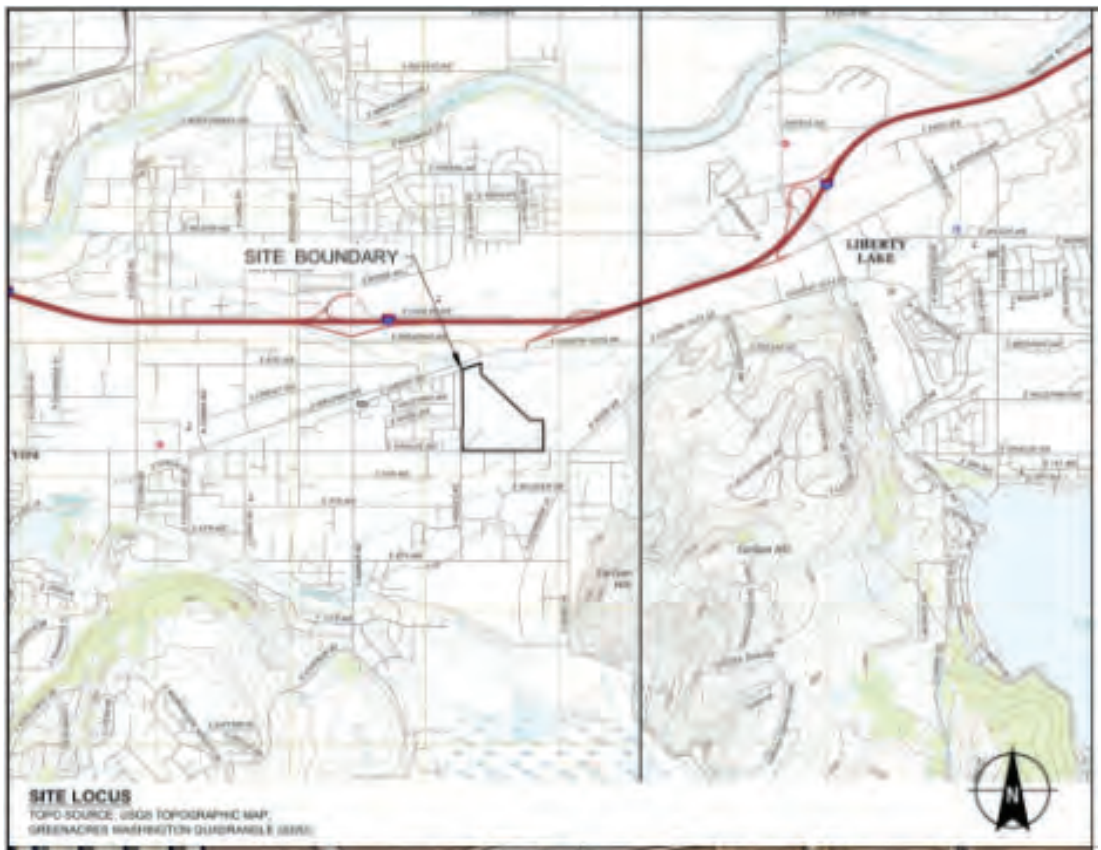
Include the following information:

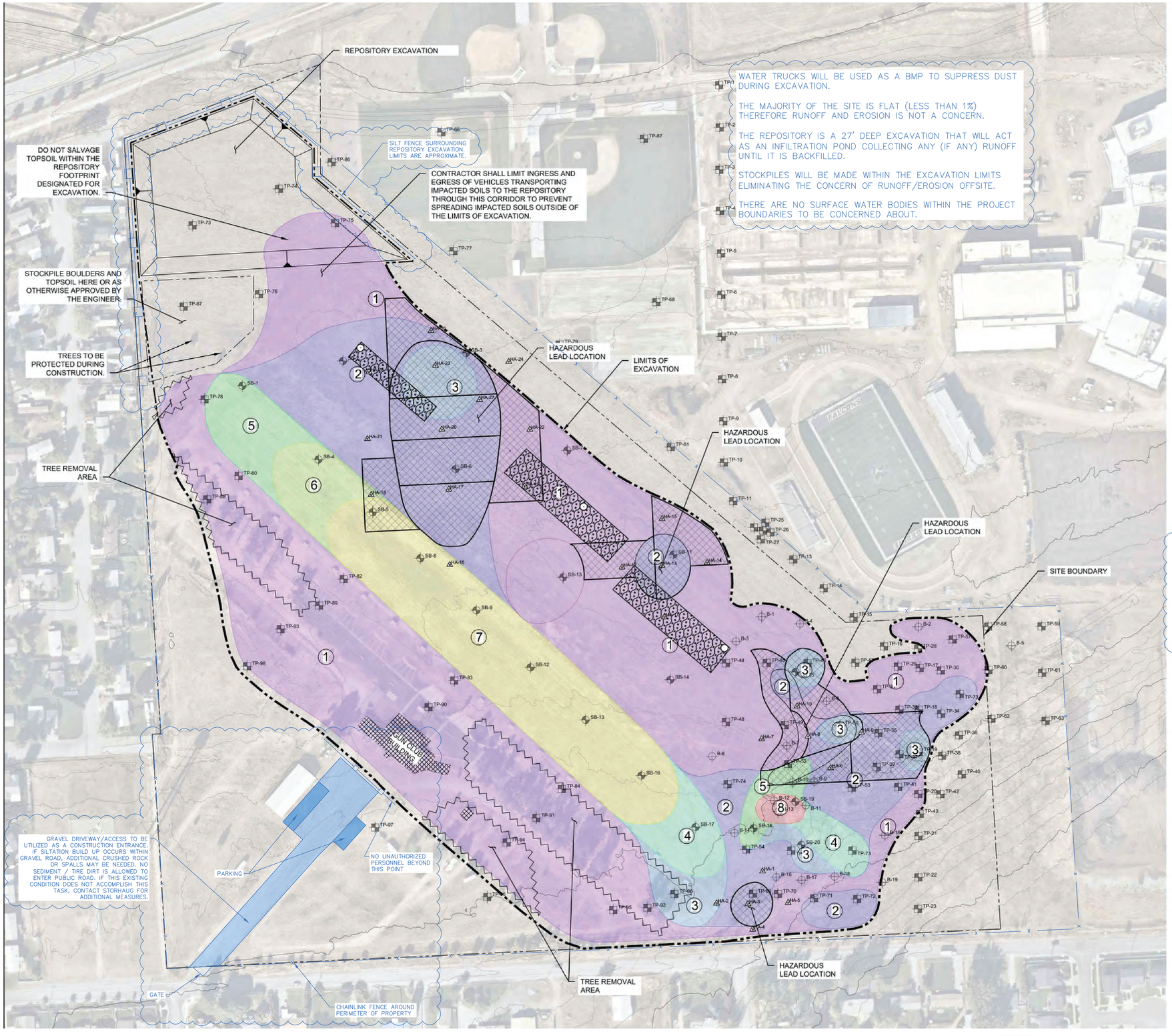
1. Your name and / Phone number
2. Permit number
3. City / County of project
4. Sample results
5. Date / Time of call
6. Date / Time of sample
7. Project name

In accordance with Special Condition S4.D.5.b of the CSWGP, the Ecology Regional office will be notified if chemical treatment other than CO_2 sparging is planned for adjustment of high pH water.

Appendix/Glossary

A. Site Map





WATER TRUCKS WILL BE USED AS A BMP TO SUPPRESS DUST DURING EXCAVATION.

THE MAJORITY OF THE SITE IS FLAT (LESS THAN 1%) THEREFORE RUNOFF AND EROSION IS NOT A CONCERN.

THE REPOSITORY IS A 27' DEEP EXCAVATION THAT WILL ACT AS AN INFILTRATION POND COLLECTING ANY (IF ANY) RUNOFF UNTIL IT IS BACKFILLED.

STOCKPILES WILL BE MADE WITHIN THE EXCAVATION LIMITS ELIMINATING THE CONCERN OF RUNOFF/EROSION OFFSITE.

THERE ARE NO SURFACE WATER BODIES WITHIN THE PROJECT BOUNDARIES TO BE CONCERNED ABOUT.

SOIL REMOVAL CUT TABLE			
NUMBER	CUT DEPTH (FT)	COLOR	VOLUME OF CUT (BCY)
1	1		37,655
2	2		25,984
3	3		8,823
4	4		7,291
5	5		10,741
6	6		8,072
7	7		54,570
8	10		2,704
		TOTAL	155,840

NOTES

1. REPOSITORY EXCAVATION NOT INCLUDED IN THE TABLE ABOVE.
2. AREA 2 IN THE TABLE ABOVE ONLY INCLUDES THE VOLUME OF CUT FROM 1 TO 2 FEET BGS BECAUSE THE VOLUME FROM 0 TO 1 FEET IS INCLUDED IN AREA 1.
3. AREA 3 IN THE TABLE ABOVE ONLY INCLUDES THE VOLUME OF CUT FROM 2 TO 3 FEET BGS BECAUSE THE VOLUME FROM 0 TO 2 FEET IS INCLUDED IN AREA 1 AND AREA 2.
4. CONTRACTOR SHALL STABILIZE HAZARDOUS LEAD LOCATIONS IN SITU OR AS APPROVED BY THE ENGINEER PRIOR TO EXCAVATION OF IMPACTED SOILS WITHIN THE LIMITS OF HAZARDOUS LEAD EXCAVATION.
5. IMPACTED SOILS SHALL NOT BE TRANSPORTED OUTSIDE OF THE LIMITS OF EXCAVATION.
6. CONTRACTOR SHALL REMOVE AND STOCKPILE TOPSOIL WITHIN THE APPROVED STOCKPILE LOCATION AND REVEGETATE THE DISTURBED AREA IN ACCORDANCE WITH THE SPECIFICATIONS.

STORHAUG EROSION SEDIMENT CONTROL PLAN

PURPOSE OF DOCUMENT:
ONLY ITEMS THAT ARE BUBBLED FALL WITHIN STORHAUG'S SCOPE / DELINEATION. THIS SHEET WAS TAKE FROM C-301 OF THE SVSD GUN CLEANUP PROJECT. NOTES WERE ADDED AS TO ADDRESS EROSION AND SEDIMENT CONTROL MEASURES TO ACCOMPANY THE SWPPP DOCUMENT AS PREPARED BY HALME CONSTRUCTION.

NO.	DESC. / DATE	BY

storhäug
civil engineering | planning
landscape architecture | surveying
510 east third avenue | spokane, wa | 99202
p 509.242.1000 | f 509.242.1001

SHEET TITLE
CONTRACTOR EROSION AND SEDIMENT CONTROL PLAN FOR SWPPP DOCUMENT

PROJECT TITLE
CVSD GUN CLUB CLEANUP PROJECT
19615 E SPRAGUE AVENUE
SPOKANE VALLEY, WASHINGTON 99016

SEAL

AUSTIN J STORHAUG
STATE OF WASHINGTON
REGISTERED
PROFESSIONAL ENGINEER
01/05/2024

DATE	01/05/2024
DRAWN	JWS
CHECKED	AJS
PROJECT NUMBER	23-455
DRAWING NO.	1 OF 2
	ESC

23-455 ESC.dwg 1 - ESC PLAN

SPOKANE ESC STANDARD NOTES

1. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL PROBLEMS:
   - 1.1. CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY ESC BMPS;
   - 1.2. INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
   - 1.3. CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
   - 1.4. STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
   - 1.5. CLEAR, GRUB AND GRADE INDIVIDUAL LOTS OR GROUPS OF LOTS;
   - 1.6. TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, LOTS OR GROUPS OF LOTS IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
   - 1.7. CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (I.E. INLETS, PONDS, UIC FACILITIES, ETC.);
   - 1.8. PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS;
   - 1.9. INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
   - 1.10. REMOVE TEMPORARY ESC CONTROLS WHEN:
     - 1.10.1. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
     - 1.10.2. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
     - 1.10.3. VEGETATION HAD BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.
2. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY, ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
3. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
4. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
5. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.
6. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
7. INSPECT SEDIMENT CONTROL BMPS WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
8. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA.
9. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FOURTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
10. PROTECT INLETS, DRYWELLS, CATCH BASINS AND OTHER STORMWATER MANAGEMENT FACILITIES FROM SEDIMENT, WHETHER OR NOT FACILITIES ARE OPERABLE.
11. KEEP ROADS ADJACENT TO INLETS CLEAN.
12. INSPECT INLETS WEEKLY AT A MINIMUM AND DAILY DURING STORM EVENTS.
13. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
14. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
15. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NON-INERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173-304 WAC FOR THE DEFINITION OF INERT WASTE), USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.
16. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DEGREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
17. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
18. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACE BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
19. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.
20. BMP'S SHALL BE IN ACCORDANCE WITH CHAPTER 7 OF THE STORMWATER MANAGEMENT MANUAL FOR EASTERN WASHINGTON.

DEFINITION:
A TEMPORARY PREFABRICATED CONCRETE WASHOUT CONTAINER OR SELF-INSTALLED STRUCTURE (ABOVE OR BELOW GRADE), APPROVED BY THE ENGINEER, USED TO DETAIN CONCRETE WASTE.

PURPOSE:
TO PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORMWATER FROM CONCRETE WASTE BY CONDUCTING WASHOUT OFFSITE OR PERFORMING ONSITE WASHOUT IN A DESIGNATED AREA TO PREVENT POLLUTANTS FROM ENTERING SURFACE WATERS OR GROUNDWATER.

CONDITIONS WHERE PRACTICE APPLIES:
WHENEVER CONCRETE IS USED AS A CONSTRUCTION MATERIAL AND IT IS NOT POSSIBLE TO DISPOSE OF ALL CONCRETE WASTEWATER AND WASHOUT OFFSITE.

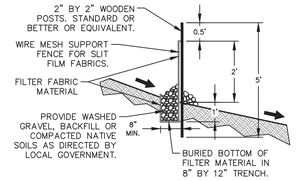
MAINTENANCE:
THE CONCRETE WASHOUT FACILITY SHALL BE INSPECTED FOR CAPACITY AND LEAKAGE PRIOR TO THE COMMENCEMENT OF CONCRETE WORK AND DAILY THEREAFTER. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES PROVIDED AND READY FOR USE ONCE THE WASHOUT BECOMES 75% FULL.

NOTES:
1. CONCRETE TRUCK CHUTES, PUMPS, AND INTERNALS SHALL BE WASHED OUT ONLY INTO FORMED AREAS AWAITING INSTALLATION OF CONCRETE OR ASPHALT.
2. UN-USED CONCRETE REMAINING IN THE TRUCK AND PUMP SHALL BE RETURNED TO THE ORIGINATING BATCH PLANT FOR RECYCLING.
3. HAND TOOLS INCLUDING, BUT NOT LIMITED TO, SCREEDS, SHOVELS, RAKES, FLOATS, AND TROWELS SHALL BE WASHED OFF ONLY INTO FORMED AREAS AWAITING INSTALLATION OF CONCRETE OR ASPHALT.
4. EQUIPMENT THAT CANNOT BE EASILY MOVED, SUCH AS CONCRETE PAVERS, SHALL ONLY BE WASHED IN AREAS THAT NO NOT DIRECTLY DRAIN TO NATURAL OR CONSTRUCTED STORMWATER CONVEYANCES.
5. WHEN NO FORMED AREAS ARE AVAILABLE, WASHWATER AND LEFTOVER PRODUCT SHALL BE CONTAINED IN A LINED CONTAINER. CONTAINED CONCRETE SHALL BE DISPOSED OF IN A MANNER THAT DOES NOT VIOLATE GROUNDWATER OR SURFACE WATER QUALITY STANDARDS.

CONCRETE WASHOUT AREA

NTS (CW)

STANDARD NOTES:
1. THE FILTER FABRIC FENCE SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, OVERLAP FILTER CLOTH AND SECURELY FASTEN BOTH ENDS TO THE POST.
2. POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 30 INCHES (WHERE PHYSICALLY POSSIBLE).
3. A TRENCH SHALL BE EXCAVATED APPROXIMATELY 8 INCHES WDE AND 12 INCHES DEEP ALONG THE LINE OF POSTS AND UP-SLOPE FROM THE BARRIER. THE TRENCH SHALL BE CONSTRUCTED TO FOLLOW THE CONTOURS.
4. WHEN SLIT FILM FILTER FABRIC IS USED, A WIRE MESH SUPPORT FENCE SHALL BE FASTENED SECURELY TO THE UP-SLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES OR HOG RINGS. THE WIRE SHALL EXTEND INTO THE TRENCH A MINIMUM OF 4 INCHES AND SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
5. SLIT FILM FILTER FABRIC SHALL BE WIRED TO THE FENCE, AND 20 INCHES OF THE FABRIC SHALL EXTEND INTO THE TRENCH. THE FABRIC SHALL NOT EXTEND MORE THAN 36 INCHES ABOVE THE ORIGINAL GROUND SURFACE. FILTER FABRIC SHALL NOT BE STAPLED TO EXISTING TREES, OTHER TYPES OF FABRIC MAY BE STAPLED TO THE FENCE.
6. WHEN EXTRA-STRENGTH OR MONOFILAMENT FABRIC AND CLOSER POST SPACING ARE USED, THE WIRE MESH SUPPORT FENCE MAY BE ELIMINATED. IN SUCH A CASE, THE FILTER FABRIC IS STAPLED OR WIRED DIRECTLY TO THE POSTS WITH ALL OTHER PROVISIONS OF STANDARD NOTE "E" APPLYING. EXTRA CARE SHOULD BE USED WHEN JOINING OR OVERLAPPING THESE STIFFER FABRICS.
7. LOCAL GOVERNMENTS MAY SPECIFY THE USE OF PROPERLY COMPACTED NATIVE MATERIALS. IN MANY INSTANCES, THIS MAY BE THE PREFERRED ALTERNATIVE BECAUSE THE SOIL FORMS A MORE CONTINUOUS CONTACT WITH THE TRENCH BELOW.

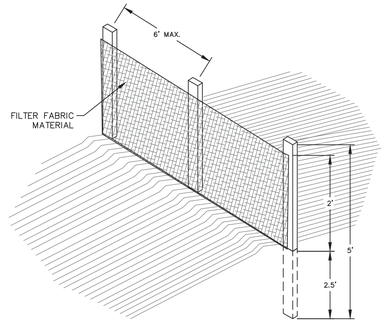


DEFINTION:
A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC STRETCHED ACROSS AND ATTACHED TO SUPPORTING POSTS AND ENTRENCHED. THE FILTER FENCE IS CONSTRUCTED OF STAKES AND SYNTHETIC FILTER FABRIC WITH A RIGID WIRE FENCE BACKING WHERE NECESSARY FOR SUPPORT.

PURPOSE:
1. TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT UNDER SHEET FLOW CONDITIONS FROM DISTURBED AREAS DURING CONSTRUCTION OPERATIONS IN ORDER TO PREVENT SEDIMENT FROM LEAVING THE SITE.
2. TO DECREASE THE VELOCITY OF SHEET FLOWS.

CONDITIONS WHERE PRACTICE APPLIES:
FILTER FENCES MUST BE PROVIDED JUST UPSTREAM OF THE POINT(S) OF DISCHARGE OF RUNOFF FROM A SITE, BEFORE THE FLOW BECOMES CONCENTRATED. THEY MAY ALSO BE REQUIRED:
1. BELOW DISTURBED AREAS WHERE RUNOFF MAY OCCUR IN THE FORM OF SHEET AND RILL EROSION; WHEREVER RUNOFF HAS THE POTENTIAL TO IMPACT DOWNSTREAM RESOURCES.
2. PERPENDICULAR TO MINOR SWALES OR DITCH LINES FROM CONTRIBUTING DRAINAGE AREAS UP TO ONE ACRE IN SIZE.
3. CONTRACTOR SHALL COORDINATE WITH DESIGN ENGINEER FOR ACTUAL PLACEMENT LOCATIONS.

MAINTENANCE:
THE FILTER FENCE AND INLET PROTECTIONS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD AND SEDIMENT OFF OF THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC CLEANING WHEN SEDIMENT BUILD UP IS SIX INCHES OR ONE-THIRD OF THE FENCE OR INLET PROTECTION'S ORIGINAL HEIGHT.



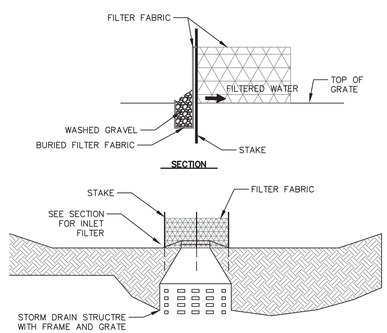
FILTER FENCE

NTS (FF)

ALL DISTURBED AREAS TO BE SEEDED AS FOLLOWS UNLESS IN CONFLICT WITH LANDSCAPE PLAN:
1. SEED SHALL BE DELIVERED IN ORIGINAL, UNOPENED CONTAINERS SHOWING WEIGHT, CERTIFIED ANALYSIS, NAME AND ADDRESS OF MANUFACTURER, AND INDICATION OF CONFORMANCE WITH STATE AND FEDERAL LAWS, AS APPLICABLE.
2. CONTRACTOR TO BRING TO THE JOB SITE THE PACKING LIST FROM THE SEED SUPPLIER LISTING ALL THE SEED DELIVERED TO THE JOB SITE.
3. PROVIDE FRESH, CLEAN, NEW-CROP SEED COMPLYING WITH TOLERANCE OF PURITY AND GERMINATION ESTABLISHED BY THE OFFICIAL SEED ANALYSIS OF NORTH AMERICA. PROVIDE SEED MIXTURE COMPOSED OF GRASS SPECIES AND PERCENTAGES AS SPECIFIED BY SEED MANUFACTURER OR SUPPLIER.
4. PROVIDE MIXTURE COMPOSED OF GRASS SEED, FERTILIZER, AND TACKIFIER, AS FOLLOWS:
   - 4.1. DRYLAND SEED MIX: "INLAND NORTHWEST NATIVE MIX" FROM PLANTS OF THE WILD OR APPROVED EQUAL.
   - 4.2. FERTILIZER: 16:16:16 TIMED RELEASE COMPOSITION, 300 LBS. PER ACRE
   - 4.3. TACKIFIER WITH PAPER OR FIBER MULCH: 3 LBS/ACRE
5. COORDINATE WITH CIVIL PLANS FOR STABILIZATION OF SLOPES TO RECEIVE HYDROSEED.
6. SEED SUPPLIER: PLANTS OF THE WILD, TEKOA WA 509-284-2848

HYDROSEED SPECIFICATIONS

NTS



NOTE:
1. ALL DRYWELLS, INLETS, CATCH BASIN AND ANY OTHER STORMDRAIN FIXTURES WITH GRATED INLETS SHALL BE PROTECTED.
2. PROTECTION SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED.
3. SEDIMENT MUST BE REMOVED WHEN IT REACHES 6" OR ¼ OF THE HEIGHT OF THE FENCE.

TEMPORARY INLET PROTECTION

NTS (IP)

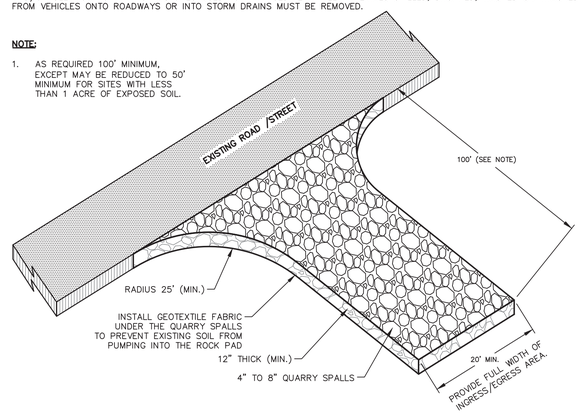
DEFINITION:
A TEMPORARY STONE-STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSE:
TO REDUCE THE AMOUNT OF MUD, DIRT, ROCK, ETC. TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF BY CONSTRUCTING A STABILIZED PAD OF ROCK SPALLS AT ENTRANCES TO CONSTRUCTION SITES AND WASHING OF TIRES DURING EGRESS.

CONDITIONS WHERE PRACTICE APPLIES:
WHEREVER TRAFFIC WILL BE LEAVING A CONSTRUCTION SITE AND MOVING DIRECTLY ONTO A PUBLIC ROAD OR OTHER PAVED AREAS.

MAINTENANCE:
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2-INCH STONES, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED.

NOTE:
1. AS REQUIRED 100' MINIMUM, EXCEPT MAY BE REDUCED TO 50' MINIMUM FOR SITES WITH LESS THAN 1 ACRE OF EXPOSED SOIL.



STABILIZED CONSTRUCTION EXIT / TIRE WASH

NTS (CE)

CONTACT PERSON/PERMIT APPLICANT

JOHN PARKER
2218 NORTH MOLTER ROAD
LIBERTY LAKE, WA 99019
PHONE: 509-558-5400

PROJECT ADDRESS

PARCEL NUMBER(S): 55174.9208, 55174.9210, 55174.9211, 55176.9206
19615 EAST SPRAGUE AVENUE
SPOKANE VALLEY, WA 99016

PROJECT / SITE DESCRIPTION

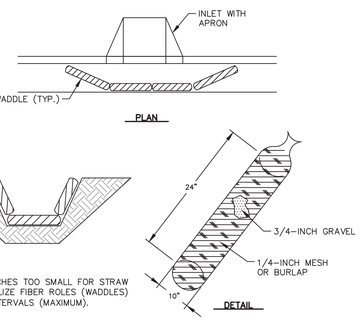
THE PROPOSED PROJECT INCLUDES EXCAVATION AND SOIL REMEDIATION ACTIVITIES.

SOIL TYPE

THE SOILS IN THIS REGION OF THE SUBJECT PROPERTY HAVE BEEN IDENTIFIED BY HART CROWSER AS PREDOMINANTLY SILTY GRAVEL WITH SAND AND TRACE AMOUNTS OF CLAY. THE USDA NATURAL RESOURCES CONSERVATION SERVICE (NRCS) CLASSIFIES ON SITE SOILS AS HYDROLOGIC GROUP "B."

EXISTING CONDITIONS

THE PROJECT SITE IS PRIMARILY VACANT LAND EXCEPT FOR THREE EXISTING STRUCTURES THAT WILL BE DEMOLISHED. THE LAND IS FLAT, WITH THE STEEPEST ON SITE SLOPE BEING BELOW 1%.



NOTE:
WITHIN DITCHES TOO SMALL FOR STRAW BALES, UTILIZE FIBER ROLES (WADDLES) AT 100' INTERVALS (MAXIMUM).

WADDLE

NTS (W)

NO.	DESC. / DATE	BY

storhäug
civil engineering | planning
landscape architecture | surveying
510 east third avenue | spokane, wa | 99202
p 509.242.1000 | f 509.242.1001

SHEET TITLE
CONTRACTOR EROSION AND SEDIMENT CONTROL DETAILS FOR SWPPP DOCUMENT

PROJECT TITLE
CVSD GUN CLUB CLEANUP PROJECT
19615 E SPRAGUE AVENUE
SPOKANE VALLEY, WASHINGTON 99016

SEAL

DATE	01/05/2024
DRAWN	JWS
CHECKED	AJS
PROJECT NUMBER	23-455
DRAWING NO.	2 OF 2
	ESC

23-455 ESC.dwg 2 - ESC DETAILS

BMP C140E: Dust Control

Purpose

Dust control prevents wind transport of dust from disturbed soil surfaces onto roadways, into drainage systems, and into receiving waters. Wind erosion is a significant cause of soil movement from construction sites in eastern Washington. Although wind erosion can contribute to water quality impacts, dust control is regulated in some areas of eastern Washington primarily through local air quality authorities. Where such an entity exists, contact the local air quality authority for appropriate and required BMPs for dust control to implement at your project site.

Conditions for Use

Use dust control in areas (including roadways) subject to surface and air movement of dust where on-site or off-site impacts on roadways, drainage systems, or receiving waters are likely.

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 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 the surface is wet. Repeat as needed. To prevent carryout of mud onto the street, see BMP C105E: Stabilized Construction Access and BMP C106E: Wheel Wash.
- Irrigation water can be used for dust control. Irrigation systems should be installed 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. Local jurisdictions may approve other dust palliatives such as calcium chloride or polyacrylamide (PAM).
- PAM (BMP C126E: Polyacrylamide for Soil Erosion Protection) added to water at a rate of 0.5 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 reduce the quantity of water needed for dust control, especially in eastern Washington. PAM should not be directly applied to water or allowed to enter a water body.
- Contact your local air pollution control authority for guidance and training on other dust control measures. Compliance with the local air pollution control authority constitutes compliance with this BMP. See the following website for more information:

https://ecology.wa.gov/About-us/Our-role-in-the-community/Partnerships-committees/Clean-air-agencies

- Use vacuum street sweepers.
- Remove mud and other dirt promptly so it does not dry and then turn into dust.

Techniques that can be used for unpaved roads and lots include the following:

- Reduce 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 < 0.075 millimeters to 10% to 20%.
- Use geotextile fabrics to increase the strength of new roads or roads undergoing reconstruction.
- Encourage the use of alternate, paved routes, if available.
- 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.
- Limit dust-generating work on windy days.
- Pave unpaved permanent roads and other trafficked areas.

Maintenance Standards

Respray area as necessary to keep dust to a minimum.

BMP C150E: Materials on Hand

Purpose

Quantities of erosion prevention and sediment control materials can be kept on the project site at all times to be used for emergency situations such as unexpected heavy rains. Having these materials on-site reduces the time needed to replace existing or implement new BMPs when inspections indicate that existing BMPs are not meeting the Construction Stormwater Pollution Prevention Plan (SWPPP) requirements. In addition, contractors can save money by buying some materials in bulk and storing them at their office or yard.

Conditions for Use

- Construction projects of any size or type can benefit from having materials on hand. A small commercial development project could have a roll of plastic and some gravel available for immediate protection of bare soil and temporary berm construction. A large earthwork project, such as highway construction, might have several tons of straw, several rolls of plastic, flexible pipe, sandbags, geotextile fabric and steel "T" posts.
- Materials should be stockpiled and readily available before any site clearing, grubbing, or earthwork begins. A large contractor or developer could keep a stockpile of materials that are available to be used on several projects.
- If storage space at the project site is at a premium, the contractor could maintain the materials at their office or yard. The office or yard must be less than an hour from the project site.

Design and Installation Specifications

Depending on the project type, size, complexity, and length, the materials and quantities will vary. A good minimum list of items that will cover numerous situations includes the following:

- Clear plastic, 6 mil
- Drainpipe, 6- or 8-inch-diameter
- Sandbags, filled
- Straw bales for mulching
- Quarry spalls
- Washed gravel
- Geotextile fabric
- Catch basin inserts
- Steel "T" posts
- Silt fence material
- Straw wattles

Maintenance Standards

- All materials with the exception of the quarry spalls, steel "T" posts, and gravel should be kept covered and out of both sun and rain.
- Restock materials as needed.

BMP C233E: Silt Fence

Purpose

Silt fence reduces the transport of coarse sediment from a construction site by providing a temporary physical barrier to sediment and reducing the runoff velocities of overland flow.

Conditions of Use

- Silt fence may be used downslope of all disturbed areas.
- Silt fence shall prevent sediment carried by runoff from going beneath, through, or over the top of the silt fence but shall allow the water to pass through the fence.
- Silt fence is not intended to treat concentrated flows, nor is it intended to treat substantial amounts of overland flow. Convey any concentrated flows through the drainage system to a sediment-trapping BMP.
- Do not construct silt fences in streams or use in V-shaped ditches. Silt fences do not provide an adequate method of silt control for anything deeper than sheet or overland flow.

Design and Installation Specifications

- Contributing area of ≤ 1 acre or in combination with sediment basin in a larger site.
- Use in combination with other construction stormwater BMPs.
- Maximum slope steepness (perpendicular to the silt fence line) of 1H:1V.
- Maximum sheet or overland flow path length to the silt fence of 100 feet.
- Do not allow flows > 0.5 cubic feet per second.
- Use geotextile fabric that meets the standards indicated in Table 7.19: Geotextile Fabric Standards for Silt Fence. All of the listed geotextile properties are minimum average roll values (i.e., the test result for any sampled roll in a lot shall meet or exceed the values shown in Table Table 7.19: Geotextile Fabric Standards for Silt Fence).

Table 7.19: Geotextile Fabric Standards for Silt Fence

Geotextile Property	Minimum Average Roll Value
Polymeric Mesh Apparent Opening Size (ASTM D4751)	0.60 mm maximum for slit film wovens (No. 30 sieve) 0.30 mm maximum for all other geotextile types (No. 50 sieve) 0.15 mm minimum for all fabric types (No. 100 sieve)
Water Permittivity (ASTM D4491)	0.02 sec-1 minimum
Grab Tensile Strength (ASTM D4632)	180 lb minimum for extra strength fabric 100 lb minimum for standard strength fabric
Grab Tensile Strength (ASTM D4632)	30% maximum
Ultraviolet Resistance (ASTM D4355)	70% minimum

- Support standard strength geotextiles shall be supported with wire mesh, chicken wire, 2- by 2-inch wire, safety fence, or jute mesh to increase the strength of the geotextile Silt fence materials are available that have synthetic mesh backing attached.
- Silt fence material shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F.
- 100% biodegradable silt fence is available that is strong, long lasting, and can be left in place after the project is completed, if permitted by the local jurisdiction.
- See Figure 7.24: Silt Fence. Include the following standard notes for silt fence on construction plans and specifications:

    1. The contractor shall install and maintain temporary silt fences at the locations shown in the plans.
    2. Construct silt fences in the areas of clearing, grading, or drainage prior to starting those activities.
    3. The silt fence shall have a 2-foot minimum and a 2.5-foot maximum height above the original ground surface.
    4. The geotextile fabric shall be sewn together at the point of manufacture to form fabric lengths as required. Locate all sewn seams at support posts. Alternatively, two sections of silt fence can be overlapped, provided the contractor can demonstrate, to the satisfaction of the licensed professional, that the overlap is long enough and that the adjacent silt fence sections are close enough together to prevent silt laden water from escaping through the fence at the overlap.
    5. Attach the geotextile fabric on the upslope side of the posts and secure with staples, wire, or in accordance with the manufacturer's recommendations. Attach the geotextile fabric to the posts in a manner that reduces the potential for tearing.
    6. Support the geotextile fabric with wire or plastic mesh, dependent on the properties of

the geotextile selected for use. If wire or plastic mesh is used, fasten the mesh securely to the upslope of the posts with the geotextile fabric upslope of the mesh.

7. Mesh support, if used, shall consist of steel wire with a maximum mesh spacing of 2 inches, or a prefabricated polymeric mesh. The strength of the wire or polymeric mesh shall be ≥ 180 pounds grab tensile strength. The polymeric mesh must be as resistant to the same level of ultraviolet radiation as the geotextile fabric it supports.

8. Bury the bottom of the geotextile fabric 4 inches minimum below the ground surface. Backfill and tamp soil in place over the buried portion of the geotextile fabric, so that no flow can pass beneath the silt fence and scouring cannot occur. When wire or polymeric support mesh is used, the wire or polymeric mesh shall extend into the ground 3 inches minimum.

9. Drive or place the silt fence posts into the ground 18 inch minimum. A 12-inch minimum depth is allowed if topsoil or other soft subgrade soil is not present and 18 inches cannot be reached. Increase fence post minimum depths by 6 inches if the fence is located on slopes of ≥ 3H:1V and the slope is perpendicular to the fence. If required post depths cannot be obtained, the posts shall be adequately secured by bracing or guying to prevent overturning of the fence due to sediment loading.

10. Use wood, steel or equivalent posts. The spacing of the support posts shall be a maximum of 6 feet. Posts shall consist of one of the following:

    - Wood with minimum dimensions of 2 inches by 2 inches by 3 feet. Wood shall be free of defects such as knots, splits, or gouges.
    - No. 6 steel rebar or larger.
    - ASTM A120 steel pipe with a minimum diameter of 1 inch.
    - U-, T-, L-, or C-shaped steel posts with a minimum weight of 1.35 pounds per foot.
    - Other steel posts having strength and bending resistance equivalent to the post sizes listed above.

11. Locate silt fences on contour as much as possible, except at the ends of the fence, where the fence shall be turned uphill such that the silt fence captures the runoff water and prevents water from flowing around the end of the fence.

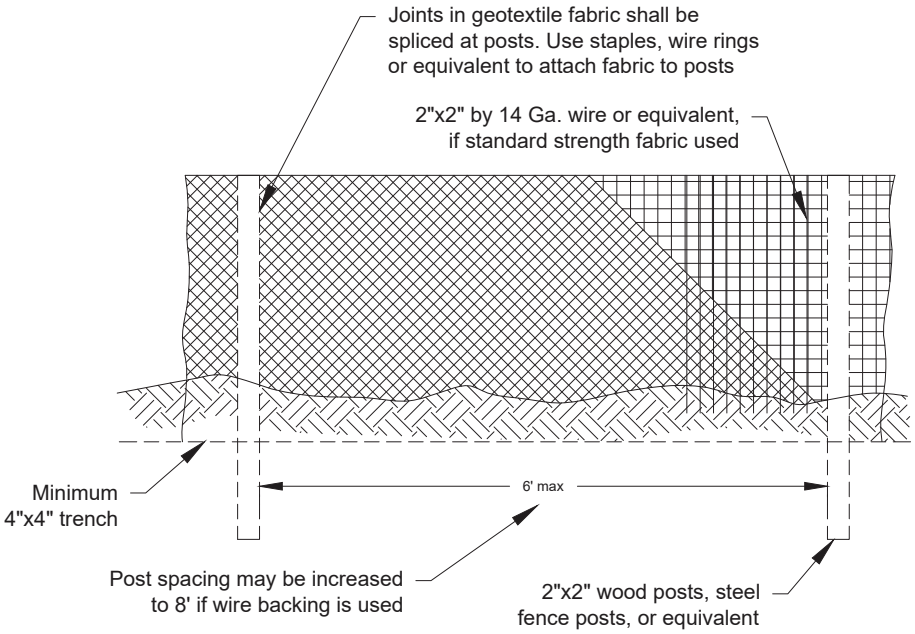
12. If the fence must cross contours, with the exception of the ends of the fence, place check dams perpendicular to the back of the fence to minimize concentrated flow and erosion. The slope of the fence line where contours must be crossed shall be ≤ 3H:1V.

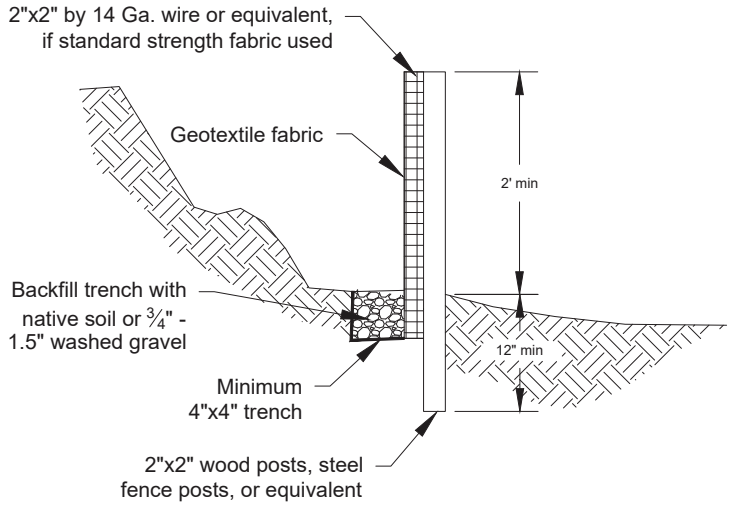
    - Check dams shall be approximately 1 foot deep at the back of the fence and shall be continued perpendicular to the fence at the same elevation until the top of the check dam intercepts the ground surface behind the fence.
    - Check dams shall consist of crushed surfacing base course, gravel backfill for walls, or shoulder ballast and shall be located every 10 feet along the fence where the fence must cross contours.

- See Figure 7.25: Silt Fence Installation by Slicing Method for slicing method details. The following are specifications for silt fence installation using the slicing method:

    1. The base of both end posts must be ≥ 2 to 4 inches above the top of the geotextile fabric on the middle posts for ditch checks to drain properly. Use a hand level or string level, if necessary, to mark base points before installation.
    2. Install posts 3 to 4 feet apart in critical retention areas and 6 to 7 feet apart in standard applications.
    3. Install posts 24 inches deep on the downstream side of the silt fence, and as close as possible to the geotextile fabric, enabling posts to support the geotextile fabric from upstream water pressure.
    4. Install posts with the nipples facing away from the geotextile fabric.
    5. Attach the geotextile fabric to each post with three ties, all spaced within the top 8 inches of the fabric. Attach each tie diagonally 45 degrees through the fabric, with each puncture ≥ 1 inch vertically apart. Each tie should be positioned to hang on a post nipple when tightening to prevent sagging.
    6. Wrap approximately 6 inches of the geotextile fabric around the end posts and secure with three ties.
    7. No more than 24 inches of a 36-inch geotextile fabric is allowed above ground level.
    8. Compact the soil immediately next to the geotextile fabric with the front wheel of the tractor, skid steer, or roller exerting ≥ 60 pounds per square inch. Compact the upstream side first and then each side twice for a total of four trips. Check and correct the installation for any deviation before compaction. Use a flat-bladed shovel to tuck fabric deeper into the ground if necessary.

Figure 7.24: Silt Fence





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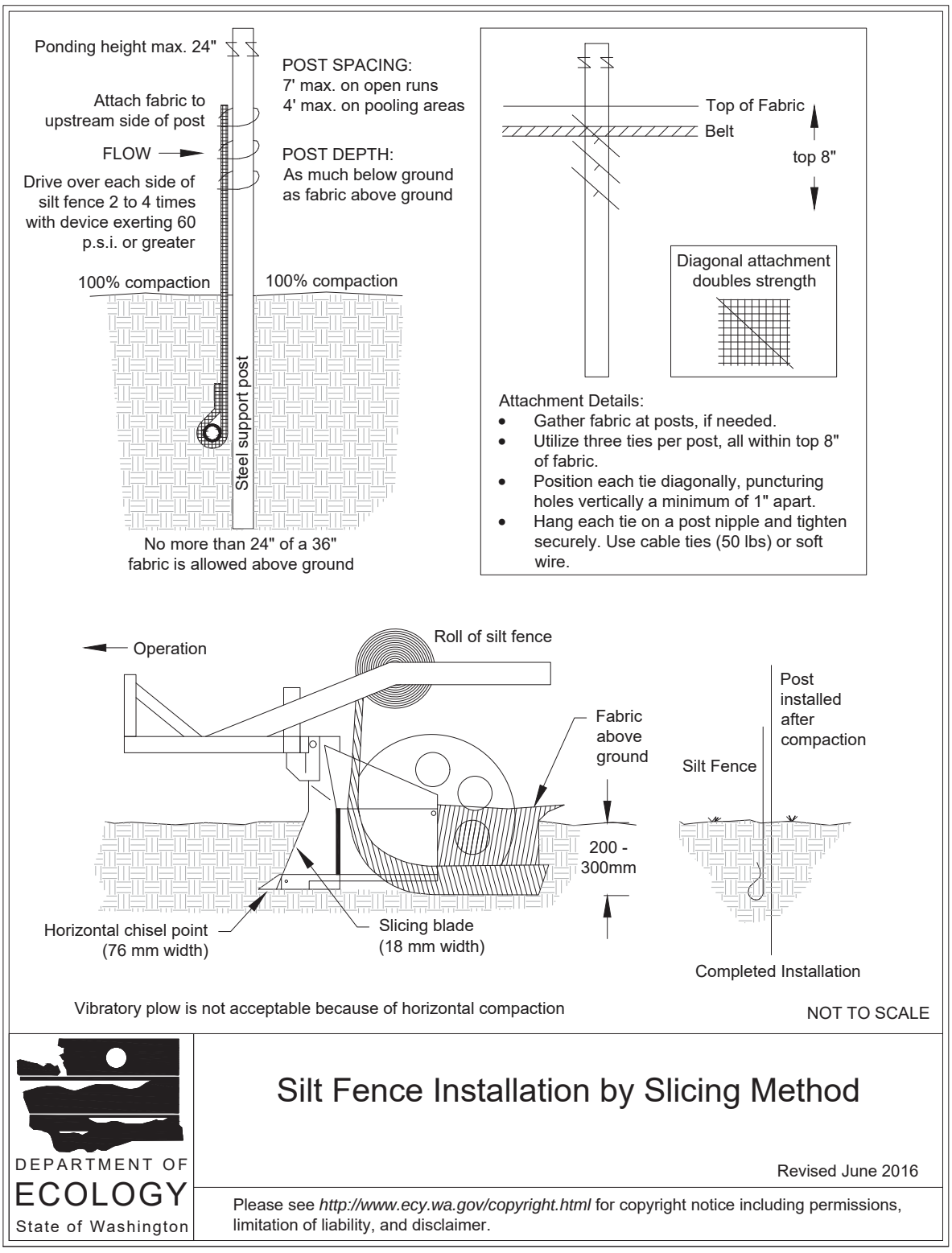
DEPARTMENT OF ECOLOGY
State of Washington

Silt Fence

Revised June 2016

Figure 7.25: Silt Fence Installation by Slicing Method



Maintenance Standards

- Repair any damage immediately.
- If concentrated flows are evident uphill of the fence, they must be intercepted and conveyed to a sediment-trapping BMP.
- It is important to check the uphill side of the silt fence for signs of the fence clogging and acting as a barrier to flow and then causing channelization of flows parallel to the fence. If this occurs, replace the fence and remove the trapped sediment.
- Remove sediments deposits when the deposit reaches approximately one-third the height of the silt fence, or install a second silt fence.
- Replace geotextile fabric that has deteriorated due to ultraviolet breakdown.

BMP C234E: Vegetated Strip

Purpose

Vegetated strips reduce the transport of coarse sediment from a construction site by providing a physical barrier to sediment and reducing the runoff velocities of overland flow.

Conditions of Use

- Vegetated strips may be used downslope of all disturbed areas.
- Vegetated strips are not intended to treat concentrated flows, nor are they intended to treat substantial amounts of overland flow. Any concentrated flows must be conveyed through the drainage system to BMP C241E: Sediment Pond (Temporary) or other sediment-trapping BMP. The only circumstance in which overland flow can be treated solely by a vegetated strip rather than a sediment-trapping BMP, is when the following criteria are met (see Table 7.20: Contributing Area for Vegetated Strips):

Table 7.20: Contributing Area for Vegetated Strips

Average Contributing Area Slope	Average Contributing Area Percentage Slope	Maximum Contributing Area Flow Path Length (feet)
≤ 1.5H:1V	≤ 67	100
≤ 2H:1V	≤ 50	115
≤ 4H:1V	≤ 25	150
≤ 6H:1V	≤ 16.7	200
≤ 10H:1V	≤ 10	250

Design and Installation Specifications

- The vegetated strip shall consist of a continuous strip of dense vegetation with topsoil for a minimum length of 25 feet along the flow path. Grass-covered, landscaped areas are generally not adequate because the volume of sediment overwhelms the grass. Ideally,

vegetated strips shall consist of undisturbed native growth with a well-developed soil that allows for infiltration of runoff.

- The slope within the vegetated strip shall be ≤ 4H:1V.
- The uphill boundary of the vegetated strip shall be delineated with clearing limits.

Maintenance Standards

- Any areas damaged by erosion or construction activity shall be seeded immediately and protected by mulch.
- If > 5 feet of the original vegetated strip width has had vegetation removed or is being eroded, sod must be installed.
- If there are indications that concentrated flows are traveling across the vegetated strip, stormwater runoff controls must be installed to reduce the flows entering the vegetated strip, or additional perimeter protection must be installed.

BMP C235E: **W**attles

Purpose

Wattles are temporary erosion and sediment control barriers consisting of straw, compost, or other material 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.

Conditions of Use

- Use wattles under the following conditions:
    - In disturbed areas that require immediate erosion protection
    - On exposed soils during the period of short construction delays or over winter months
    - On slopes requiring stabilization until permanent vegetation can be established
- The material used dictates the effectiveness period of the wattle. Generally, wattles are effective for one to two seasons.
- Prevent rilling beneath wattles by entrenching and overlapping wattles to prevent water from passing between them.

Design Criteria

- See Figure 7.26: Wattles for typical construction details.
- Wattles are typically 8 to 10 inches in diameter and 25 to 30 feet in length.
- Install wattles perpendicular to the flow direction and parallel to the slope contour.
- Place wattles in shallow trenches staked along the contour of disturbed or newly constructed slopes. 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, the trenches should be dug to a depth of 5 to 7 inches or one-half to two-thirds the thickness of the wattle.

- Start building trenches and installing wattles from the base of the slope and work up. Spread excavated material evenly along the uphill slope and compact it 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.
- Install the wattles snugly into the trenches and overlap the ends of adjacent wattles 12 inches behind one another.
- 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.
- Wooden stakes should be 0.75 by 0.75 by 24 inches minimum. Willow 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.

Maintenance Standards

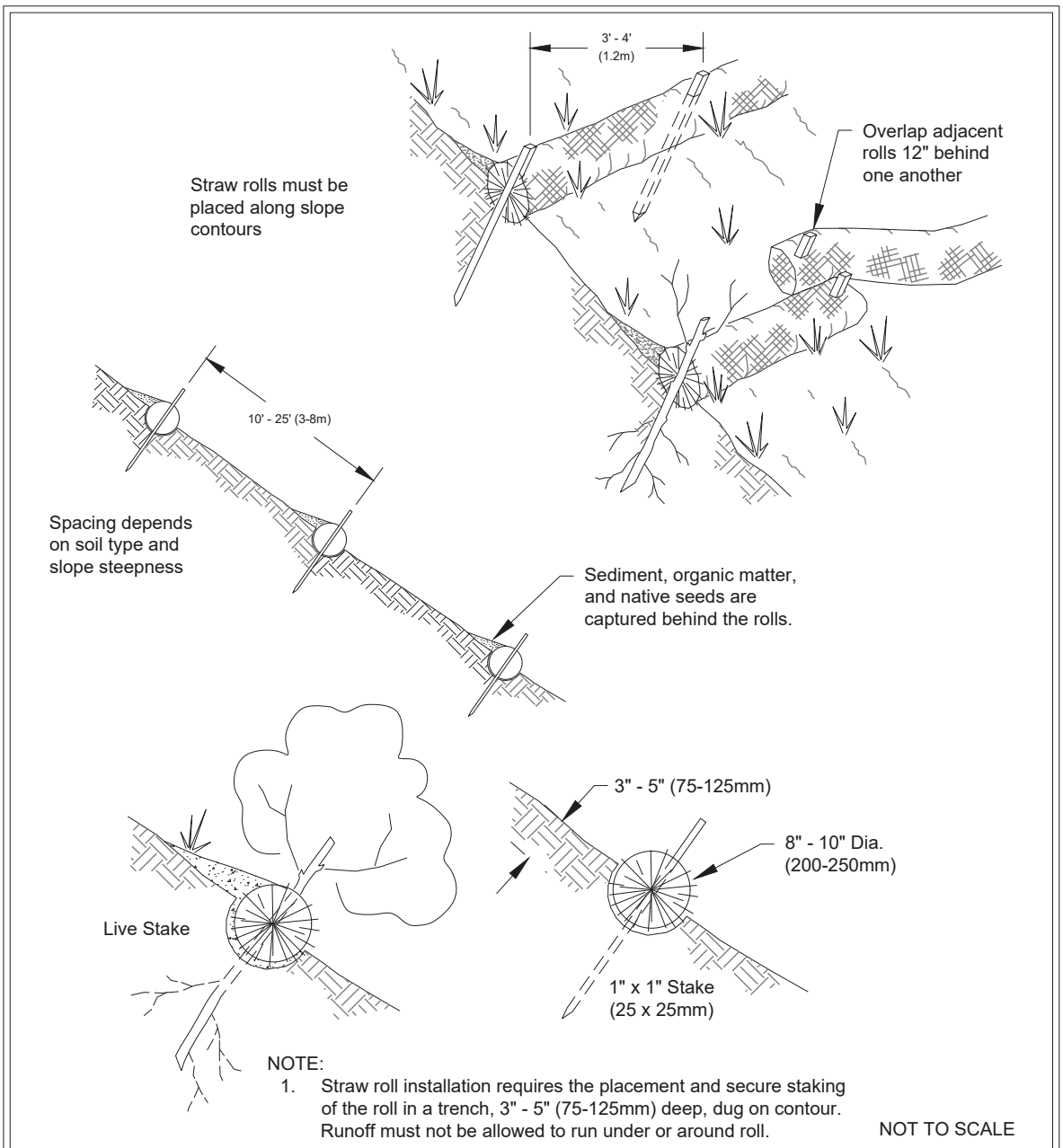
- Wattles may require maintenance to ensure they are in contact with soil and thoroughly entrenched, especially after significant rainfall on steep sandy soils.
- Inspect the slope after significant storms and repair any areas where wattles are not tightly abutted or water has scoured beneath the wattles.

Approved as Functionally Equivalent

The Washington State Department of Ecology (Ecology) has approved products as able to meet the requirements of this BMP. The products did not pass through the Technology Assessment Protocol–Ecology (TAPE) process. Local jurisdictions may choose not to accept these products or may require additional testing prior to consideration for local use. Products that Ecology has approved as functionally equivalent are available for review on Ecology's Emerging Stormwater Treatment Technologies (TAPE) web page at the following address:

https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies

Figure 7.26: Wattles



NOTE:

1. Straw roll installation requires the placement and secure staking of the roll in a trench, 3" - 5" (75-125mm) deep, dug on contour. Runoff must not be allowed to run under or around roll.

NOT TO SCALE

DEPARTMENT OF ECOLOGY
State of Washington

Wattles

Revised June 2016

BMP C120E: Temporary and Permanent Seeding

Purpose

Seeding reduces erosion by stabilizing exposed soils. A well-established vegetative cover is one of the most effective methods of reducing erosion.

Conditions of Use

- Use seeding throughout the project on disturbed areas that have reached final grade or that will remain unworked for > 30 days. See Element #5: Stabilize Soils for specific timelines for stabilizing exposed soils.
- The optimum permanent seeding window for eastern Washington is October 1 through November 15.
- The acceptable permanent seeding window for eastern Washington is September 1 through April 30.
- Seeding permanent species is not recommended for eastern Washington from May 1 through August 31, unless irrigation is conducted.
- Review all disturbed areas in late August to early September and complete all seeing by the end of April. Otherwise, vegetation will not establish itself well enough to provide more than average protection.
- Mulch is required at all times for seeding because it protects seeds from heat, moisture loss, and transport due to runoff. Mulch can be applied on top of the seed or simultaneously by hydroseeding. See BMP C121E: Mulching for specifications.
- Seed and mulch all disturbed areas not otherwise vegetated at final site stabilization. Final stabilization means the completion of all soil disturbing activities at the site and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measures (such as pavement, riprap, gabions or geotextiles) which will prevent erosion. See BMP F6.61: Amending Construction Site Soils.

Design and Installation Specifications

General

- Install channels intended for vegetation before starting major earthwork and hydroseed with a bonded fiber matrix (BFM). For vegetated channels that will have high flows, install erosion control blankets over hydroseed. Before allowing water to flow in vegetated channels, establish a 50% vegetation cover of all seeded areas after 3 months of active growth following germination during the growing season. If vegetated channels cannot be established by seed before water flow, install sod or prevegetated mats in the channel bottom over hydromulch

and blankets.

- Confirm the installation of all required stormwater control measures to prevent seed from washing away.
- Hydroseed applications shall include a minimum of 1,500 pounds per acre (lb/acre) of mulch with 3% tackifier.
- Mulch is always required for seeding. Apply mulch on top of the seed or simultaneously by hydroseeding. See BMP C121E: Mulching for specifications.
- Areas that will have seeding only and not landscaping may need compost or meal-based mulch included in the hydroseed in order to establish vegetation. Reinstall native topsoil on the disturbed soil surface before application. See BMP F6.61 (Amending Construction Site Soils) in Chapter 6 - Flow Control BMP Design.
- When installing seed via hydroseeding operations, only about one-third of the seed actually ends up in contact with the soil surface. This reduces the ability to establish a good stand of grass quickly. One way to overcome this is to increase seed quantities by up to 50%.
- Vegetation establishment can be enhanced by one of the following two approaches:
    - Approach 1: Enhance vegetation establishment by dividing the hydromulch operation into two phases:
        - Phase 1 – Install all seed and fertilizer with 25% to 30% mulch and tackifier onto the soil in the first lift.
        - Phase 2 – Install the remaining mulch and tackifier over the first lift.
    - Approach 2: Vegetation can also be enhanced by:
        - Installing the mulch, seed, fertilizer, and tackifier in one lift;
        - Spreading or blowing straw over the top of the hydromulch at a rate of about 800 to 1,000 lb/acre; or
        - Holding straw in place with a standard tackifier.
    - Both of these approaches (Approach 1 and Approach 2) will increase cost moderately but will greatly improve and enhance vegetative establishment. The increased cost may be offset by the reduced need for:
        - Irrigation,
        - Reapplication of mulch, and
        - Repair of failed slope surfaces.

      Either of these approaches can use standard hydromulch (1,500 lb/acre minimum) and BFM/mechanically bonded fiber matrix (MBFM) (3,000 lb/acre minimum).
- Seed may be installed by hand if it is:

- Temporary and covered by straw, mulch, or topsoil; or
- Permanent in small areas (usually < 1 acre) and covered with mulch, topsoil, or erosion blankets.

- The seed mixes listed in Tables 7.3.3 through 7.3.12 include recommended mixes for both temporary and permanent seeding. Alternative seed mixes approved by the local jurisdiction may be used.
- Because it is difficult to generalize soil and climate conditions in eastern Washington, the project proponent is directed to check with the local suppliers or the local conservation district for appropriate seed mixes and application rates for their site based on a variety of factors, including location, exposure, soil type, slope, and expected foot traffic.
- In addition to meeting erosion control functions and not hindering maintenance operations, selection of long-lived, successional growth native vegetation that can compete against or exclude weeds and grow with minimal maintenance after plant establishment is preferred. Provide diversity to the greatest extent possible and plan for a succession of flowering times to improve pollinator habitat.

Table 7.3: Temporary Seeding shows seeding rates for four different seed mixes (A, B, C, and D) for the temporary stabilization of disturbed areas until permanent vegetation or other long-term erosion control measures can be established. These annual plants will generally not survive more than one growing season.

Table 7.3: Temporary Seeding

Common Name	Seeding Rate for Four Seed Mixes (lb/acre)			
	A	B	C	D
Winter or spring wheat (I)	80			
Spring barley (I)		80		
Regreen (I)[a] or triticale (I)			50	
Annual ryegrass (I)				15

[a]Sterile wheat x wheatgrass hybrid

I = introduced, nonnative plant species

Table 7.4: Permanent Seed Mixes: Upland Areas with Less than 12 Inches Precipitation shows three different erosion control seed mixes (A, B, and C) for upland areas that receive less than 12 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.4: Permanent Seed Mixes: Upland Areas with Less than 12 Inches Precipitation

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Crested or Siberian wheatgrass* (droughty, coarse soils) (I)	7		
Bluebunch wheatgrass (N)		7	
Indian ricegrass (sandy soil)(N)	2		
Thickspike wheatgrass (N)			8
Sheep fescue (I)		1	1
Big bluegrass (N) or needle and thread grass (N)	1	1	
TOTAL	10	9	9
Seeds/sq ft/mixture	63	56	64

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.5: Permanent Seed Mixes: Upland Areas That Receive 12 to 15 Inches Precipitation shows three different erosion control seed mixes (A, B, and C) for upland areas that receive 12 to 15 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.5: Permanent Seed Mixes: Upland Areas That Receive 12 to 15 Inches Precipitation

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Bluebunch or beardless wheatgrass (N)		8	
Pubescent wheatgrass (I)			7
Indian ricegrass (sandy or sandy loam soils) (N)	2		
Thickspike wheatgrass (N)	7		2
Sheep fescue (I)		1	2
Basin wildrye (N)		1	
TOTAL	9	10	11
Seeds/sf/mixture	53	63	49

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.6: Permanent Seed Mixes: Upland Areas With 15 to 18 Inches Precipitation shows two different erosion control seed mixes (A and B) for upland areas that receive 15 to 18 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.6: Permanent Seed Mixes: Upland Areas With 15 to 18 Inches Precipitation

Common Name	Seeding Rate for Two Seed Mixes (lb/acre)[a]	
	A	B
Bluebunch wheatgrass (N) or beardless wheatgrass (N)	8	
Pubescent wheatgrass (I) or intermediate wheatgrass (I) or thickspike wheatgrass (N)		8
Hard fescue (I) or sheep fescue (I)	2	2
Big bluegrass (N)	1	1
Native legume (N)	2	2
TOTAL	9	10
Seeds/sf/mixture	70	72

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.7: Permanent Seed Mixes: Upland Areas With 18 to 24 Inches Precipitation (continued) shows three different erosion control seed mixes (A, B, and C) for upland areas that receive 18 to 24 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.7: Permanent Seed Mixes: Upland Areas With 18 to 24 Inches Precipitation

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Slender wheatgrass (N) or sodar streambank wheatgrass	7		
Blue wildrye (N)		8	
Mountain brome (N)	1		8
Hard fescue (I)	2	2	2
White clover (I) or red clover (I)			2

Table 7.7: Permanent Seed Mixes: Upland Areas With 18 to 24 Inches Precipitation (continued)

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Native lupine (N) or northern sweetvetch (N)		2	
Native clover spp. (N) or milkvetch spp. (N)	2		
TOTAL	12	12	12
Seeds/sf/mixture	64	62	76

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.8: Permanent Seed Mixes: Upland Areas With More Than 24 Inches Precipitation (continued) shows two different erosion control seed mixes (A and B) for upland areas that receive > 24 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.8: Permanent Seed Mixes: Upland Areas With More Than 24 Inches Precipitation

Common Name	Seeding Rate for Two Seed Mixes (lb/acre)[a]	
	A	B
Hard fescue (I)		2
Blue wildrye (N)	6	
Red fescue (I)	1	
Mountain brome (N)	2	4
Slender wheatgrass (N)		4
White clover (I)	2	
Native legume (N)		2
TOTAL	11	12

Table 7.8: Permanent Seed Mixes: Upland Areas With More Than 24 Inches Precipitation (continued)

Common Name	Seeding Rate for Two Seed Mixes (lb/acre)[a]	
	A	B
Seeds/sf/mixture	72	61

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.9: Permanent Seed Mixes: Grassed Waterways With Fewer Than 15 Inches Precipitation shows three different erosion control seed mixes (A, B, and C) for stabilizing grassed waterways in areas that receive fewer than 15 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.9: Permanent Seed Mixes: Grassed Waterways With Fewer Than 15 Inches Precipitation

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Pubescent wheatgrass (I)		10	
Streambank wheatgrass (N)			7
Thickspike wheatgrass (N)	7		
Sheep fescue (I)		2	2
Big bluegrass (N)	2		
TOTAL	9	12	9
Seeds/sf/mixture	66	48	56

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.10: Permanent Seed Mixes: Grassed Waterways With 15 to 18 Inches Precipitation shows three different erosion control seed mixes (A, B, and C) for stabilizing grassed waterways in areas that receive 15 to 18 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.10: Permanent Seed Mixes: Grassed Waterways With 15 to 18 Inches Precipitation

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Tall wheatgrass (I)	10		
Pubescent wheatgrass (I), streambank wheatgrass (N), or intermediate wheatgrass (I)		10	
Hard fescue (I) or sheep fescue (I)	2	2	2
Thickspike wheatgrass (N)			8
TOTAL	12	12	10
Seeds/sf/mixture	46	48	57

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.11: Permanent Seed Mixes: Grassed Waterways With More Than 18 Inches Precipitation shows three different erosion control seed mixes (A, B, and C) for stabilizing grassed waterways in areas that receive more than 18 inches effective precipitation. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.11: Permanent Seed Mixes: Grassed Waterways With More Than 18 Inches Precipitation

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]		
	A	B	C
Intermediate wheatgrass (I)	10		
Mountain brome (N) or meadow brome		10	
Annual ryegrass (I) or perennial ryegrass (I)	4		
Hard fescue (I)		2	
Tall wheatgrass (I)			10
TOTAL	14	12	10
Seeds/sf/mixture	40	46	38

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

sf = square feet

Table 7.12: Permanent Seed Mixes: Stabilization of Ski Slopes and Subalpine Areas (continued) shows two different erosion control seed mixes (A and B) for stabilizing ski slopes and subalpine areas in eastern Washington. For each, drilled seeding rates are given (in lb/acre); double seed rates if broadcast or hydroseeded. Consideration should be given to the traffic hazard for wildlife when selecting food species for roadside stabilization.

Table 7.12: Permanent Seed Mixes: Stabilization of Ski Slopes and Subalpine Areas

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]	
	A	B
Blue wildrye (N) or Idaho fescue (N)	10	
Pubescent wheatgrass (I) or red fescue (I)		8
Hard fescue (I)		5
Sheep fescue (I)	2	2
White clover (I) or bentgrasses (I)		2
Lupine (N)	2	

Table 7.12: Permanent Seed Mixes: Stabilization of Ski Slopes and Subalpine Areas (continued)

Common Name	Seeding Rate for Three Seed Mixes (lb/acre)[a]	
	A	B
TOTAL	14	17

[a]Expressed as pure live seed

I = introduced, nonnative plant species

N = native plant species

Roughening and Rototilling

- The seedbed should be firm and rough. Roughen all soil no matter what the slope. Track walk slopes before seeding if engineering purposes require compaction. Back-blading or smoothing of slopes > 4H:1V is not allowed if they are to be seeded.
- Restoration-based landscape practices require deeper incorporation than that provided by a simple single-pass rototilling treatment. Wherever practical, initially rip the subgrade to improve long-term permeability, infiltration, and water inflow qualities. At a minimum, permanent areas shall receive soil amendments to achieve organic matter and permeability performance defined in amended soil/landscape systems. For systems that are deeper than 8 inches, complete the rototilling process in multiple lifts, or prepare the soil amendments to achieve the specified depth.

Fertilizers

- Conducting soil tests to determine the exact type and quantity of fertilizer needed is recommended. This will prevent the overapplication of fertilizer.
- Organic matter is the most appropriate form of fertilizer because it provides nutrients (including nitrogen, phosphorus, and potassium) in the least water-soluble form. A natural system typically releases 20% to 10% of its nutrients annually. Chemical fertilizers have been formulated to simulate what organic matter does naturally.
- Always use slow-release fertilizers because they are more efficient and have fewer environmental impacts. Do not add fertilizer to the hydromulch machine, or agitate, more than 20 minutes before use. Too much agitation destroys the slow release coating.

There are numerous products available to take the place of chemical fertilizers, including several with seaweed extracts that are beneficial to soil microbes and organisms. If 100% cottonseed meal is used as the mulch in hydroseed, chemical fertilizer may not be necessary. Cottonseed meal provides a good source of long-term, slow-release, available nitrogen.

Bonded Fiber Matrix and Mechanically Bonded Fiber Matrix

- On steep slopes, use BFM or MBFM products. Apply BFM/MBFM products at a minimum rate of 3,000 lb per acre of mulch with approximately 10% tackifier. Achieve a minimum of 95% soil coverage during application. Numerous products are available commercially. Install products per manufacturer's instructions. Most products require 24 to 36 hours to cure before a rainfall and cannot be installed on wet or saturated soils. Generally, products come in 40- to 50-pound bags and include all necessary ingredients except for seed and fertilizer.
- BFMs and MBFMs provide good alternatives to blankets in most areas requiring vegetation establishment. Advantages over blankets include the following:
    - BFM and MBFMs do not require surface preparation.
    - Helicopters can assist in installing BFM and MBFMs in remote areas.
    - On slopes steeper than 2.5H:1V, blanket installers may require ropes and harnesses for safety.
    - Installing BFM and MBFMs can save at least $1,000 per acre compared to blankets.
- In most cases, the shear strength of blankets is not a factor when used on slopes, only when used in channels.
    - Areas to be permanently landscaped shall provide a healthy topsoil or amend the existing soil to reduce the need for fertilizers, improve overall topsoil quality, provide for better plant health and vitality, improve hydrologic characteristics, and reduce the need for irrigation.
    - Areas that already have good topsoil, such as undisturbed areas, do not require soil amendments.

Maintenance Standards

- Reseed any seeded areas that fail to establish ≥ 50% cover (100% cover for areas that receive sheet or concentrated flows) of all seeded areas after 3 months of active growth following germination during the growing season. If reseeding is ineffective, use an alternative method, such as sodding, mulching, or nets/blankets. If winter weather prevents adequate grass growth, this time limit may be relaxed at the discretion of the local authority when sensitive areas would otherwise be protected.
- Reseed and protect by mulch any areas that experience erosion after achieving adequate cover. If the erosion problem is drainage related, the problem shall be fixed and the eroded area reseeded and protected by mulch.
- Seeded areas shall be supplied with adequate moisture, but not watered to the extent that causes runoff.

Approved as Equivalent

The Washington State Department of Ecology (Ecology) has approved products as able to meet the requirements of BMP C120E: Temporary and Permanent Seeding. The products did not pass through the Technology Assessment Protocol–Ecology (TAPE) process. Local jurisdictions may choose not to accept this product approved as equivalent or may require additional testing prior to

consideration for local use. The products are available for review on Ecology's Emerging Stormwater Treatment Technologies (TAPE) web page at the following address:

https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Stormwater-permittee-guidance-resources/Emerging-stormwater-treatment-technologies

C. Site Inspection Form

Construction Stormwater Site Inspection Form

Project Name _____ Permit # _____ Inspection Date _____ Time _____

Name of Certified Erosion Sediment Control Lead (CESCL) or qualified inspector if *less than one acre*
Print Name: _____

Approximate rainfall amount since the last inspection (in inches): _____

Approximate rainfall amount in the last 24 hours (in inches): _____

Current Weather Clear ☐ Cloudy ☐ Mist ☐ Rain ☐ Wind ☐ Fog ☐

A. Type of inspection: Weekly ☐ Post Storm Event ☐ Other ☐

B. Phase of Active Construction (*check all that apply*):

Pre Construction/installation of erosion/sediment controls	☐	Clearing/Demo/Grading	☐ Infrastructure/storm/roads ☐
Concrete pours	☐	Vertical Construction/buildings	☐ Utilities ☐
Offsite improvements	☐	Site temporary stabilized	☐ Final stabilization ☐

C. Questions:

1. Were all areas of construction and discharge points inspected? Yes ___ No ___
2. Did you observe the presence of suspended sediment, turbidity, discoloration, or oil sheen Yes ___ No ___
3. Was a water quality sample taken during inspection? (*refer to permit conditions S4 & S5*) Yes ___ No ___
4. Was there a turbid discharge 250 NTU or greater, or Transparency 6 cm or less?* Yes ___ No ___
5. If yes to #4 was it reported to Ecology? Yes ___ No ___
6. Is pH sampling required? pH range required is 6.5 to 8.5. Yes ___ No ___

If answering yes to a discharge, describe the event. Include when, where, and why it happened; what action was taken, and when.

_____

_____

_____

*If answering yes to # 4 record NTU/Transparency with continual sampling daily until turbidity is 25 NTU or less/ transparency is 33 cm or greater.

Sampling Results: Date: _____

Parameter	Method (circle one)	Result			Other/Note
		NTU	cm	pH	
Turbidity	tube, meter, laboratory				
pH	Paper, kit, meter				

Construction Stormwater Site Inspection Form

D. Check the observed status of all items. Provide "Action Required "details and dates.

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
1 Clearing Limits	Before beginning land disturbing activities are all clearing limits, natural resource areas (streams, wetlands, buffers, trees) protected with barriers or similar BMPs? (high visibility recommended)						
2 Construction Access	Construction access is stabilized with quarry spalls or equivalent BMP to prevent sediment from being tracked onto roads?						
	Sediment tracked onto the road way was cleaned thoroughly at the end of the day or more frequent as necessary.						
3 Control Flow Rates	Are flow control measures installed to control stormwater volumes and velocity during construction and do they protect downstream properties and waterways from erosion?						
	If permanent infiltration ponds are used for flow control during construction, are they protected from siltation?						
4 Sediment Controls	All perimeter sediment controls (e.g. silt fence, wattles, compost socks, berms, etc.) installed, and maintained in accordance with the Stormwater Pollution Prevention Plan (SWPPP).						
	Sediment control BMPs (sediment ponds, traps, filters etc.) have been constructed and functional as the first step of grading.						
	Stormwater runoff from disturbed areas is directed to sediment removal BMP.						
5 Stabilize Soils	Have exposed un-worked soils been stabilized with effective BMP to prevent erosion and sediment deposition?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
5 Stabilize Soils Cont.	Are stockpiles stabilized from erosion, protected with sediment trapping measures and located away from drain inlet, waterways, and drainage channels?						
	Have soils been stabilized at the end of the shift, before a holiday or weekend if needed based on the weather forecast?						
6 Protect Slopes	Has stormwater and ground water been diverted away from slopes and disturbed areas with interceptor dikes, pipes and or swales?						
	Is off-site storm water managed separately from stormwater generated on the site?						
	Is excavated material placed on uphill side of trenches consistent with safety and space considerations?						
	Have check dams been placed at regular intervals within constructed channels that are cut down a slope?						
7 Drain Inlets	Storm drain inlets made operable during construction are protected.						
	Are existing storm drains within the influence of the project protected?						
8 Stabilize Channel and Outlets	Have all on-site conveyance channels been designed, constructed and stabilized to prevent erosion from expected peak flows?						
	Is stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream conveyance systems?						
9 Control Pollutants	Are waste materials and demolition debris handled and disposed of to prevent contamination of stormwater?						
	Has cover been provided for all chemicals, liquid products, petroleum products, and other material?						
	Has secondary containment been provided capable of containing 110% of the volume?						
	Were contaminated surfaces cleaned immediately after a spill incident?						
	Were BMPs used to prevent contamination of stormwater by a pH modifying sources?						

Construction Stormwater Site Inspection Form

Element #	Inspection	BMPs Inspected			BMP needs maintenance	BMP failed	Action required (describe in section F)
		yes	no	n/a			
9 Cont.	Wheel wash wastewater is handled and disposed of properly.						
10 Control Dewatering	Concrete washout in designated areas. No washout or excess concrete on the ground.						
	Dewatering has been done to an approved source and in compliance with the SWPPP.						
	Were there any clean non turbid dewatering discharges?						
11 Maintain BMP	Are all temporary and permanent erosion and sediment control BMPs maintained to perform as intended?						
12 Manage the Project	Has the project been phased to the maximum degree practicable?						
	Has regular inspection, monitoring and maintenance been performed as required by the permit?						
	Has the SWPPP been updated, implemented and records maintained?						
13 Protect LID	Is all Bioretention and Rain Garden Facilities protected from sedimentation with appropriate BMPs?						
	Is the Bioretention and Rain Garden protected against over compaction of construction equipment and foot traffic to retain its infiltration capabilities?						
	Permeable pavements are clean and free of sediment and sediment laden-water runoff. Muddy construction equipment has not been on the base material or pavement.						
	Have soiled permeable pavements been cleaned of sediments and pass infiltration test as required by stormwater manual methodology?						
	Heavy equipment has been kept off existing soils under LID facilities to retain infiltration rate.						

E. Check all areas that have been inspected. ✔

All in place BMPs ☐ All disturbed soils ☐ All concrete wash out area ☐ All material storage areas ☐
All discharge locations ☐ All equipment storage areas ☐ All construction entrances/exits ☐

Construction Stormwater Site Inspection Form

F. Elements checked "Action Required" (section D) describe corrective action to be taken. List the element number; be specific on location and work needed. Document, initial, and date when the corrective action has been completed and inspected.

Element #	Description and Location	Action Required	Completion Date	Initials

Attach additional page if needed

Sign the following certification:

"I certify that this report is true, accurate, and complete, to the best of my knowledge and belief"

Inspected by: (print) _____ (Signature) _____ Date: _____

Title/Qualification of Inspector: _____

Attachment E
(Washington State Department of Ecology Opinion Letter)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Eastern Region Office
4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

July 5, 2023

John Parker
Central Valley School District
2218 North Molter Road
Liberty Lake, WA 99019

Re: Opinion on Proposed Cleanup of the following Site:

Site Name:	Spokane Gun Club
Site Address:	19615 E Sprague Ave #9656, Spokane Valley
Cleanup Site ID:	14851
Facility/Site ID:	50340
VCP Project ID:	EA0374

Dear John Parker:

The Washington State Department of Ecology (Ecology) received your request for an opinion on your proposed independent cleanup of the Spokane Gun Club facility (Site) under the Voluntary Cleanup Program (VCP)[1]. This letter provides our opinion. We are providing this opinion under the authority of the Model Toxics Control Act (MTCA), Chapter 70A.305[2] RCW.

Issue Presented and Opinion

Ecology has determined that, upon completion of your proposed cleanup, no further remedial action will likely be necessary to clean up contamination at the Site.

This opinion is based on an analysis of whether the remedial action meets the substantive requirements of MTCA, Chapter 70A.305 RCW, and its implementing regulations, Chapter 173-340 WAC (collectively "substantive requirements of MTCA"). The analysis is provided as follows.

[1] https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup/Voluntary-Cleanup-Program
[2] https://app.leg.wa.gov/RCW/default.aspx?cite=70A.305

Site Description

This opinion applies to the only Site described as follows. The Site is defined by the nature and extent of contamination associated with the following release:

- Arsenic into the soil.
- Lead into the soil.
- Naphthalenes into the soil.
- Polycyclic aromatic hydrocarbons (PAHs) into the soil.

Enclosure A includes a detailed description and diagram of the Site, as currently known to Ecology.

Please note a parcel of real property can be affected by multiple sites. At this time, we have no information that the parcel(s) associated with this Site are affected by other sites.

Basis for the Opinion

This opinion is based on the information contained in the following documents:

1. Haley & Aldrich, Inc., Cleanup Action Plan, Spokane Gun Club, May 8, 2023.
2. Hart-Crowser, Inc., Remedial Investigation/Feasibility Study, Spokane Gun Club, September 20, 2021.
3. Hart-Crowser, Inc., Results of Surface Soil Sampling, Test Pits 66, 67, and 68, February 14, 2019.
4. Hart-Crowser, Inc., Interim Action Report, Former Spokane Gun Club Property, January 4, 2019.
5. Hart-Crowser, Inc., Focused Phase II Environmental Site Assessment; North Henry Road and East Sprague Avenue, Greenacres, Washington, October 22, 2018.
6. Hart-Crowser, Inc., Phase I Environmental Site Assessment; North Henry Road and East Sprague Avenue, Greenacres, Washington, October 12, 2018.

You can request these documents by filing a records request.[3] For help making a request, contact the Public Records Officer at publicrecordsofficer@ecy.wa.gov or call (360) 407-6040. Before making a request, check whether the documents are available on the Site webpage.[4]

This opinion is void if any of the information contained in those documents is materially false or misleading.

[3] https://ecology.wa.gov/About-us/Accountability-transparency/Public-records-requests
[4] https://apps.ecology.wa.gov/cleanupsearch/site/14851

Analysis of the Cleanup

Ecology has concluded that, upon completion of your proposed cleanup, **no further remedial action** will likely be necessary to clean up contamination at the Site. That conclusion is based on the following analysis:

Characterizing the Site

Ecology has determined your characterization of the Site is sufficient to establish cleanup standards and select a cleanup action. The Site is described above and in **Enclosure A.**

Beginning in 2018, soil characterization consisting of shallow samples, test pits, and borings indicated the presence of arsenic, lead, PAHs, and naphthalenes impacting soil from the ground surface to a maximum depth of approximately 10 feet below ground surface (bgs), with the largest volume of impacted soil occurring from 0 to 2 feet bgs. Select soil samples were also analyzed using the Toxicity Characteristic Leaching Procedure (TCLP) approved under WAC 173-300-110(3)(a) for testing dangerous waste criteria, which indicated the presence of leachable lead and designates the soil as a Washington State Dangerous Waste (DW) under WAC 173-303-100. Approximately 3,906,295 cubic feet (144,684 cubic yards) of soil exceeding MTCA Method A cleanup levels and 152,000 cubic feet (5,630 cubic yards) of soil exceeding the DW toxicity characteristic occur in an area extending approximately 40 acres. Groundwater at the Site occurs approximately 98 feet bgs and is considered unlikely to be at risk of impact from contaminated soil due to the age of release and observed migration depth of contaminants.

Establishing cleanup standards

Ecology has determined the cleanup levels and points of compliance you established for the Site meet the substantive requirements of MTCA.

For soil, the cleanup levels were established using MTCA Method A and are based on protection of groundwater. The current land use is classified as light industrial (LI) by Spokane County; however, potential future land use includes residential development. Therefore, MTCA Method A unrestricted land use cleanup levels were deemed appropriate. The point of compliance for soils is throughout the lateral and vertical extent of the Site. This is the standard point of compliance. The cleanup levels are as follows:

Contaminant	**Cleanup Level (mg/kg)**
Arsenic	20
Lead	250
Naphthalenes	5
PAHs (based on toxicity equivalency normalized to	0.1

Contaminant	Cleanup Level (mg/kg)
benzo(a)pyrene)	

mg/kg = milligrams per kilogram

Selecting the cleanup action

Ecology has determined the cleanup action you proposed for the Site meets the substantive requirements of MTCA. The proposed cleanup action includes the following components:

- Soils within seven (7) previously identified DW lead sampling units will be treated in situ using a stabilizing reagent to limit solubility and mobility of DW constituents. Effectiveness of the treatment will be determined by collecting 10-point composite samples of the treated soil analyzed using the TCLP method to demonstrate soils no longer exhibit the DW toxicity characteristic of leachable lead exceeding 5 mg/L. Treated soils will be excavated following confirmation.
- Soils within 146 sampling units with contaminants of concern (COCs) exceeding MTCA cleanup levels will be excavated, with confirmation using an Incremental Sampling Methodology (ISM) of one 30-point composite sample per sampling unit. Compliance will be evaluated using a threshold of 80 percent of the applicable cleanup levels.
- A below-grade repository will be constructed onsite with an area of approximately 5 acres and a depth of approximately 30 feet bgs. Treated soils and all other soils with COCs exceeding MTCA cleanup levels will be placed in the onsite repository.
- An engineered cap consisting of a high-density polyethylene (HDPE) liner, drainage controls, and vegetated and/or hardscaped cover will be installed over the repository.
- Institutional controls in the form of an environmental covenant will be implemented to restrict land use, protect the cleanup action, and define procedures for operation and maintenance of all engineering controls.

Additional requirements

Ecology does not agree that the proposed cleanup action and confirmation sampling ensure the identification and treatment of all Site soils that would potentially designate as Washington State DW. Ecology has also determined that additional requirements must be addressed to meet the applicable or relevant and appropriate requirements (ARARs) of Ecology and other regulatory agencies. This analysis is based on the following:

- Ecology concurs that the ISM approach is likely sufficient to verify that the confirmation sampling units proposed in the Monitoring and Confirmation

Sampling Work Plan meet the MTCA cleanup standards established for the Site. However, many of the proposed sampling units illustrated in Figure 2 do not have any previous soil characterization data, and it is possible that some of the sampling units contain leachable lead that has not been identified through TCLP analyses. Ecology's Tacoma Smelter Plume Model Remedy Guidance[5] and Guidance for Remediation of Petroleum Contaminated Sites[6] both recommend approximately 30-50 discrete soils samples per acre for spatial characterization and 6-7 composite samples per 1,000 cubic yards for stockpile characterization. Higher resolution sampling should be conducted in areas without prior sampling data and in areas bordering identified DW units.

- Ecology has concluded that the lead screening level of 3,250 mg/kg will not be sufficient to ensure that all soils that would designate as a Washington State DW are identified and treated. The screening level was based on a small sample size (n=10) comparing total lead to leachable lead concentrations. A regression analysis of the relationship between these variables indicates a low predictive ability, with two residuals that do not fit the standard quadratic model. This results in total lead value ranges of approximately 5,000 mg/kg for a given integer value for leachable lead. Please see **Enclosure B** for a detailed summary of the regression analysis. This regression demonstrates that a larger sample size covering the full data range for total lead is necessary to provide a better fit model and a more predictive leachable lead value. To establish a statistically significant screening level, a minimum of 30 samples should be analyzed, otherwise the TCLP level of 5.0 mg/L should be used to screen soils for treatment. Additional TCLP analyses will also help determine any spatial variability patterns that may prove effective in targeting DW soils for treatment.

- Prior to any soil excavation that would generate solid waste as defined in WAC 173-350-021, the full lateral extent of DW soils needs to be delineated using either TCLP analyses or total lead analyses using an appropriate screening level as described above. Otherwise, the selected cleanup action may be subject to DW generation, treatment, and disposal standards described in WAC 173-303-140 and 173-303-170.

- A grading permit will likely be required for the cleanup action through Spokane County in addition to a Construction Stormwater General Permit (CSWGP) through Ecology's Water Quality Program. In addition to the planning and implementation of pollution-prevention controls under these permits, the SEPA requirements under WAC 197-11 must be met, including review by the applicable lead agency and opportunity for public comment. Please plan accordingly to allow adequate time for the SEPA review process.

[5] https://apps.ecology.wa.gov/publications/documents/1909101.pdf
[6] https://apps.ecology.wa.gov/publications/documents/1009057.pdf

- In addition to the dust control protocols described in the Cleanup Action Plan, dust samples should be periodically collected during cleanup and construction and analyzed for total lead to determine if there is a threat posed to human health or the environment.

- Post-closure controls and monitoring will be required for the repository, including but not limited to institutional controls to restrict land use and protect the remedial actions, and annual site inspections to confirm the long-term effectiveness of the remedial actions. These controls may vary based on the to-be-determined finished surface of the repository and should be detailed in an operations and maintenance (O&M) plan submitted prior to recording the institutional controls. In addition, a public participation plan and public comment period may be required based on the proposed use of the repository property.

- All sampling data should be electronically submitted to Ecology's Environmental Information Management (EIM) database[7]. The Toxics Cleanup Program Policy 840[8] describes data submittal requirements. Please visit the EIM Submit Data webpage for data submittal instructions.

Limitations of the Opinion

Opinion does not settle liability with the state

Liable persons are strictly liable, jointly and severally, for all remedial action costs and for all natural resource damages resulting from the release or releases of hazardous substances at the Site. This opinion does not:

- Resolve or alter a person's liability to the state
- Protect liable persons from contribution claims by third parties.

To settle liability with the state and obtain protection from contribution claims, a person must enter into a consent decree with Ecology under RCW 70A.305.040(4).

Opinion does not constitute a determination of substantial equivalence

To recover remedial action costs from other liable persons under MTCA, one must demonstrate that the action is the substantial equivalent of an Ecology-conducted or Ecology-supervised action. This opinion does not determine whether the action you proposed will be substantially equivalent. Courts make that determination. *See* RCW 70A.305.080 and WAC 173-340-545.

Opinion is limited to proposed cleanup

This letter does not provide an opinion on whether further remedial action will actually

[7] https://ecology.wa.gov/eim
[8] https://fortress.wa.gov/ecy/publications/SummaryPages/1609050.html

be necessary at the Site upon completion of your proposed cleanup. To obtain such an opinion, you must submit a report to Ecology upon completion of your cleanup and request an opinion under the Voluntary Cleanup Program (VCP).

State is immune from liability

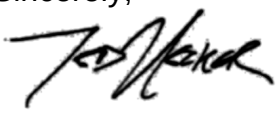
The state, Ecology, and its officers and employees are immune from all liability, and no cause of action of any nature may arise from any act or omission in providing this opinion. *See* RCW 70A.305.170.

Contact Information

Thank you for choosing to clean up the Site under the VCP. As you conduct your cleanup, please do not hesitate to request additional services. We look forward to working with you.

For more information about the VCP and the cleanup process, please visit our webpage [9]. If you have any questions about this opinion, please contact me by phone at 509-342-5564 or e-mail at ted.uecker@ecy.wa.gov.

Sincerely,



Ted M. Uecker
ERO Toxics Cleanup Program

tmu:hg

Enclosures (2): A – Site Description, History, and Diagrams
B – Regression Analysis

cc: Jay Rowell, CVSD
John Haney, Haley & Aldrich
Christer Loftenius, Ecology
Nicholas Acklam, Ecology
Eric McConnell, Ecology

[9] https://www.ecy.wa.gov/vcp

Enclosure A

Site Description, History, and Diagrams

Site Description

The Site is located in Spokane Valley near the intersection of E Sprague Avenue and N Henry Lane and consists of 40.13 acres of undeveloped land adjacent to the Spokane Gun Club trap/skeet range. The range has been in operation since 1948. The nature and extent of contamination involves arsenic, lead, and PAHs in shallow soil trending NW to SE along the shooting range boundary, associated with lead shot and clay pigeon debris. Previous shot recovery activities resulted in several soil stockpiles along the boundary. The property was purchased by the Central Valley School District in 2018 and separated into two cleanup units. The northwestern parcel (55174.9186) was characterized and remediated during the initial investigation. It was given a No Further Action determination and was subsequently developed into Ridgeline High School. The remaining parcels (55174.9011, 55174.9012, 55174.9014, 55174.9043, 55174.9042, 55174.9022, and 55174.9021) were characterized and are awaiting cleanup. The shooting range remained in operation until the second phase of cleanup began in July 2021.

Site soils generally consist of silty gravel with sand, clay, and occasional cobbles to a depth of nine (9) feet below ground surface (bgs). Site geology includes Pleistocene Lake Missoula alluvium consisting of poorly-to-moderately sorted boulders, cobbles, gravel, and sand with interbedded silt lenses. Paleozoic Hauser Lake Gneiss occurs approximately sixty (60) feet bgs. The Site is within the boundary of the Spokane Valley-Rathdrum Prairie (SVRP) Aquifer, with the static groundwater level occurring at approximately ninety-eight (98) feet bgs and variable groundwater flow direction.

Site History

A Phase I environmental site assessment (ESA) was conducted in August 2018, and identified several recognized environmental conditions (RECs), including:

- Four stockpiles of unknown origin consisting of soil, wood, concrete, and clay target/shotgun shell debris
- Shallow soil samples from the concurrent Phase II ESA containing arsenic, lead, and polycyclic aromatic hydrocarbon (PAH) concentrations exceeding the MTCA Method A cleanup levels and lead exceeding WA State DW criteria
- Shot recovery areas on the shooting range property, which included settling ponds contained in earthen berms

Phase II ESA activities were conducted concurrent to the Phase I from July 2018 to February 2021, and initially included excavation of 23 test pits and collection of soil samples between 6 and 12 inches below ground surface (bgs) in each test pit. Clay pigeon debris was encountered in three of the test pits, but no lead shot was observed. The test pits were backfilled with the excavated material. All soil samples were analyzed

for metals, while samples from test pits containing clay pigeon debris were also analyzed for PAHs. Samples from 12 inches bgs were held for analysis until contaminants were detected in the 6-inch bgs samples. Five samples from four test pits (TP-12, TP-17, TP-18, and TP-19) contained lead concentrations exceeding the MTCA Method A unrestricted soil cleanup level at 6 inches bgs. Only TP-19 exceed the lead cleanup level at 12 inches bgs. Six soil samples from four test pits (TP-17, TP-18, TP-19, and TP-20) contained PAHs exceeding the cleanup level, with TP-18 and TP-19 also exceeding the cleanup level at 12 inches bgs. The arsenic concentration in the 6-inch bgs sample from TP-19 also exceeded the cleanup level. Additional Phase II ESA activities conducted between 2018 and 2021 included an additional 69 test pits (TP-28 through TP-63 and TP-66 through TP-98), 19 direct-push soil borings, and 20 sonic soil borings, all completed to between 6 inches and 9 feet bgs.

An interim cleanup action was conducted between September and November 2018, which included excavation of four additional test pits, stockpile removal, and remediation of lead-contaminated soil near test pit TP-12. TP-24 through TP-27 were excavated near TP-12 to constrain the extent of lead contamination identified in the Phase II. Samples collected at 6 inches bgs in the three test pits were below the MTCA Method A cleanup level. Approximately 19.6 tons of soil were excavated from a 400 square foot area around TP-12 to a depth of approximately 8 inches. Two discrete samples were collected from the excavation bottom, as well as a composite sample from the temporary stockpile. All samples were below the lead cleanup level, and the stockpile was disposed at a Subtitle D facility.

Composite samples were collected from the four unknown stockpiles (SP-1 through SP-4) identified in the Phase I. These samples were analyzed for lead, arsenic, total petroleum hydrocarbons, and PAHs. Based on the results of these analyses, the stockpile samples were also analyzed for RCRA 8 metals, leachable lead, diesel- and oil-range hydrocarbons, VOCs, and one sample for PCBs. SP-1 (approximately 358 tons) contained arsenic above the MTCA Method A cleanup level and leachable lead above the Washington State Dangerous Waste (DW) criteria, and SP-2 (approximately 84 tons) contained diesel and oil above cleanup levels as well as leachable lead. Both were disposed at a Subtitle C landfill. SP-3 (approximately 91 tons) contained non-leachable lead above the cleanup level and was disposed at a Subtitle D landfill, and SP-4 did not exceed cleanup levels for any contaminants. Discrete soil samples were collected from beneath each stockpile to confirm that no contaminants remained following excavation. Surface soil samples were collected between 0-6 inches bgs from the locations of TP-64 through TP-68 to confirm that the NW parcel where the high school development is planned met MTCA cleanup standards. All samples were below the respective cleanup levels. A chain-link fence was installed to separate the Gun Club property (west), remaining contaminated soil (south), and the future high school property (northwest), which was given an NFA determination from Ecology during the initial investigation process.

Based on the characterization data from the Phase II ESA, it was determined that a total lead concentration of 3,550 mg/kg or greater would result in a leachable lead concentration exceeding the DW criteria. Therefore, a DW remediation level of 3,250 mg/kg was established for the conceptual site model (CSM) to assess the potential contaminant exposure pathways and receptors. The contaminants of concern for the CSM included arsenic, lead, and PAHs, transport mechanisms and exposure pathways evaluated included infiltration, erosion/stormwater, erosion/wind, erosion/anthropogenic transport, and bioaccumulation.

A feasibility study (FS) was completed in September 2021 to evaluate remedial alternatives. The estimated volume of contaminated soil used in the FS included 152,000 cubic feet (5,630 cubic yards) of soil exceeding the WA State DW criteria, and 3,906,600 cubic feet (144,684 cubic yards) of hazardous waste soil exceeding MTCA cleanup levels. The total volume of contaminated soil was estimated at 4,058,600 cubic feet (150,313 cubic yards) to a total depth of 10 feet bgs.

Remedial technologies evaluated in the FS report included:

- Soil washing- physical and chemical removal of contaminants with washing fluids
- Phytoremediation- stabilization and uptake of contaminants by plants
- In Situ or Ex Situ solidification/stabilization- mixing of contaminated soils with a binding agent to prevent leaching of contaminants
- Thermal treatment- combustion of volatile organic contaminants

Remedial techniques evaluated in the FS report included:

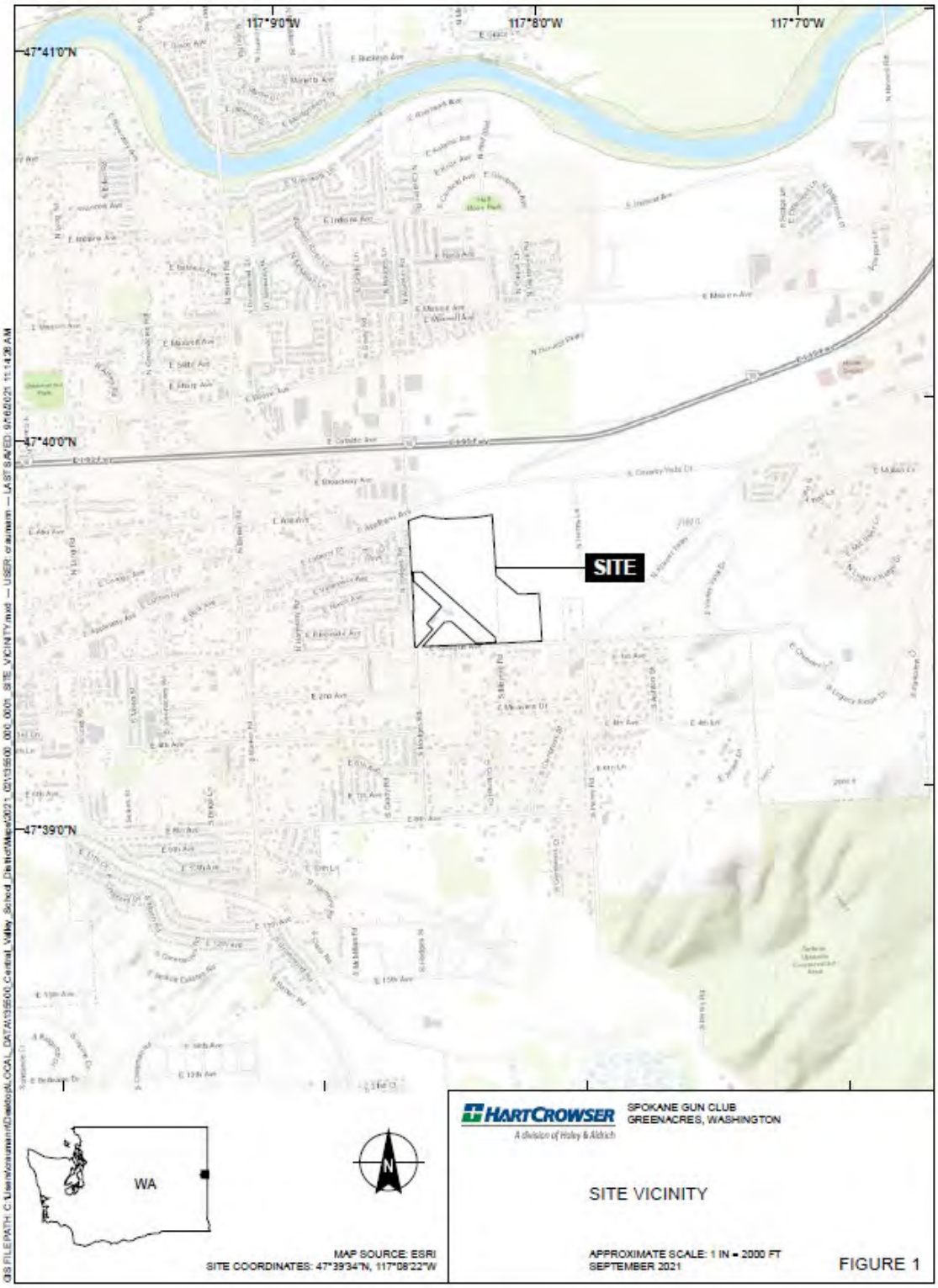
- Excavation and disposal- removal, potential treatment, and placement of soil in an on-site repository or offsite waste disposal facility
- Capping- installation of an engineered barrier to prevent direct contact and stormwater infiltration

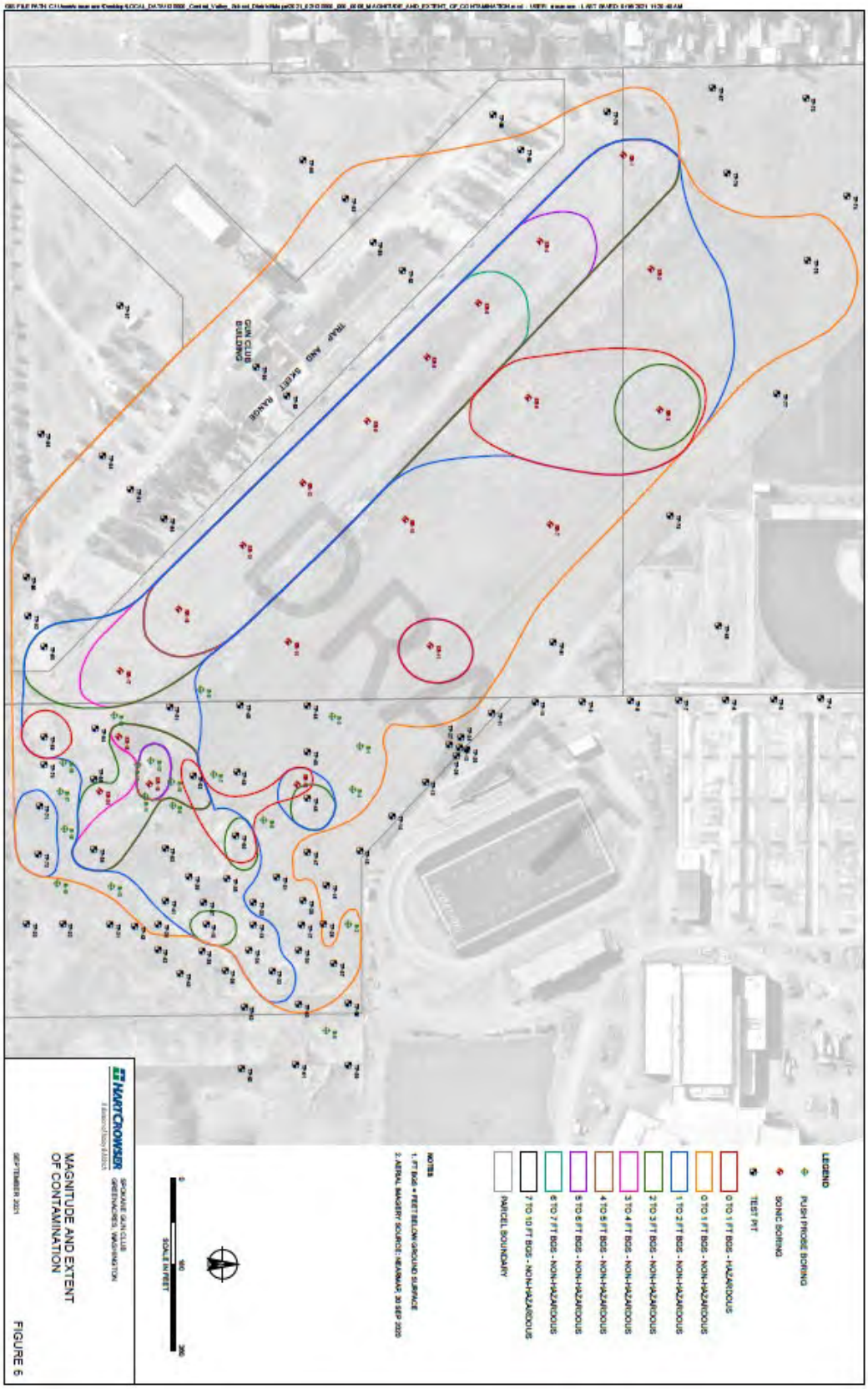
The remedial alternatives were screened for protectiveness, permanence, long-term effectiveness, short-term risk, implementability, consideration of public concern, restoration timeframe, and cost. The selected remedy included excavation of materials with contaminants above MTCA cleanup levels, stabilization of lead in materials with lead greater than 3,250 mg/kg, confirmation sampling, construction of a below-grade, approximately 5-acre on-site repository, backfill of treated and untreated materials in the repository, installation of an engineered cap, and institutional controls to protect the remedial actions.

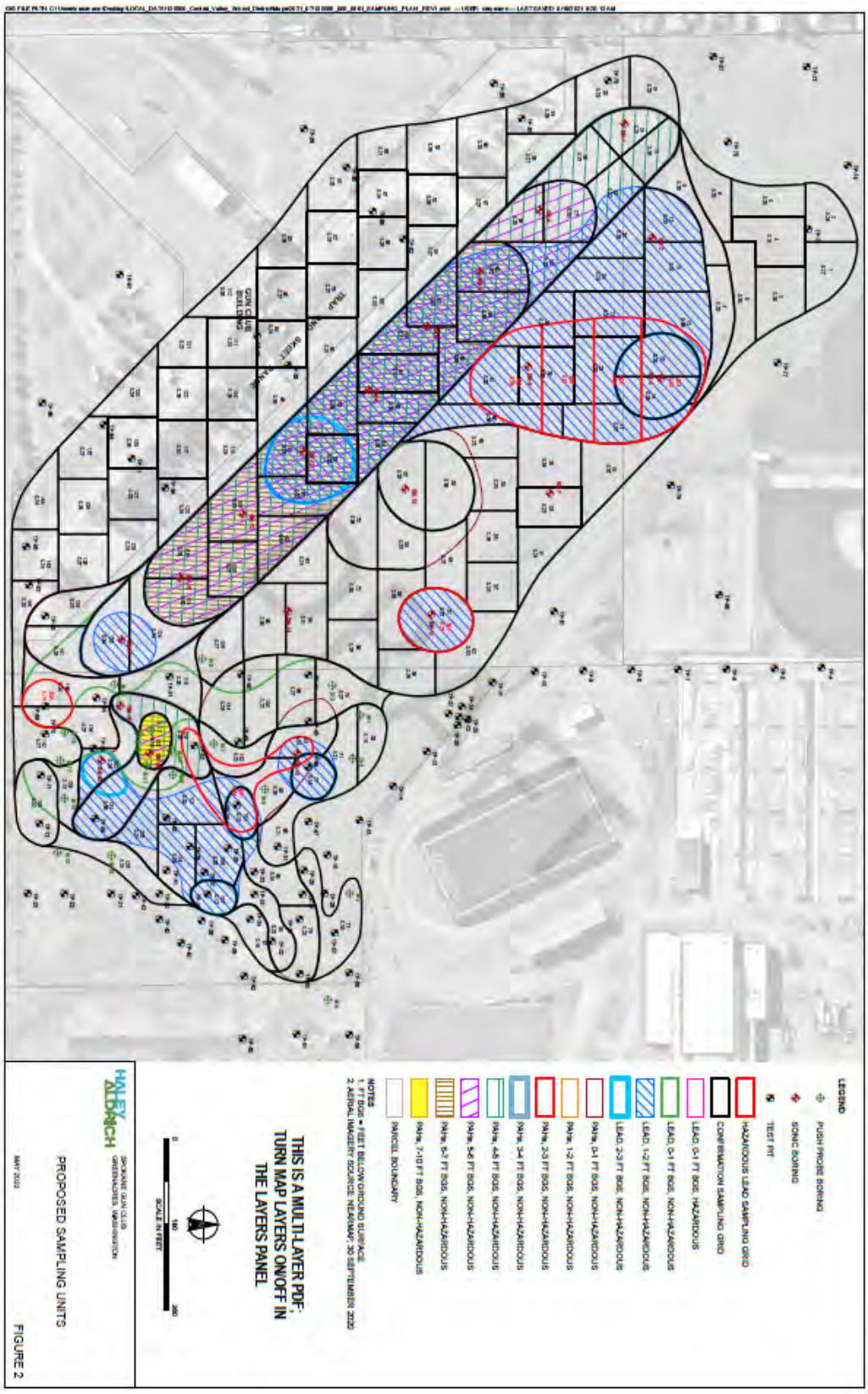
The remedy was selected with concurrence from Ecology's Hazardous Waste and Toxics Reduction program that any characteristic DW treated onsite to remove the characteristic would be exempt from any land disposal restrictions. A draft cleanup action plan (CAP) was completed in May 2023 which detailed the sampling methodology, in situ stabilization and TCLP confirmation sampling, repository construction, and final soil placement and capping.

(Hart-Crowser, Inc., 2018-2021, Haley & Aldrich, 2023)

Site Diagrams




LEGEND
PUSH PROBE BORING
SONIC BORING
TEST PIT
0 TO 1 FT BGS - HAZARDOUS
0 TO 1 FT BGS - NON-HAZARDOUS
1 TO 2 FT BGS - NON-HAZARDOUS
2 TO 3 FT BGS - NON-HAZARDOUS
3 TO 4 FT BGS - NON-HAZARDOUS
4 TO 5 FT BGS - NON-HAZARDOUS
5 TO 6 FT BGS - NON-HAZARDOUS
6 TO 7 FT BGS - NON-HAZARDOUS
7 TO 10 FT BGS - NON-HAZARDOUS
PARCEL BOUNDARY
NOTES
1. FT BGS = FEET BELOW GROUND SURFACE
2. AERIAL IMAGERY SOURCE: NEARMAP, 30 SEP 2020
0
180
360
SCALE IN FEET
HARTCROWSER
SPOKANE GUN CLUB
GREENACRES, WASHINGTON
MAGNITUDE AND EXTENT
OF CONTAMINATION
SEPTEMBER 2021
FIGURE 6


LEGEND
PUSH PROBE BORING
SONIC BORING
TEST PIT
HAZARDOUS LEAD SAMPLING GRID
CONFIRMATION SAMPLING GRID
LEAD, 0-1 FT BGS, HAZARDOUS
LEAD, 0-1 FT BGS, NON-HAZARDOUS
LEAD, 1-2 FT BGS, NON-HAZARDOUS
LEAD, 2-3 FT BGS, NON-HAZARDOUS
PAHs, 0-1 FT BGS, NON-HAZARDOUS
PAHs, 1-2 FT BGS, NON-HAZARDOUS
PAHs, 2-3 FT BGS, NON-HAZARDOUS
PAHs, 3-4 FT BGS, NON-HAZARDOUS
PAHs, 4-5 FT BGS, NON-HAZARDOUS
PAHs, 5-6 FT BGS, NON-HAZARDOUS
PAHs, 6-7 FT BGS, NON-HAZARDOUS
PAHs, 7-10 FT BGS, NON-HAZARDOUS
PARCEL BOUNDARY
NOTES
1. FT BGS = FEET BELOW GROUND SURFACE
2. AERIAL IMAGERY SOURCE: NEARMAP, 30 SEPTEMBER 2020
THIS IS A MULTI-LAYER PDF.
TURN MAP LAYERS ON/OFF IN
THE LAYERS PANEL
0
180
360
SCALE IN FEET
HALEY ALDRICH
SPOKANE GUN CLUB
GREENACRES, WASHINGTON
PROPOSED SAMPLING UNITS
MAY 2023
FIGURE 2

Enclosure B

Regression Analysis

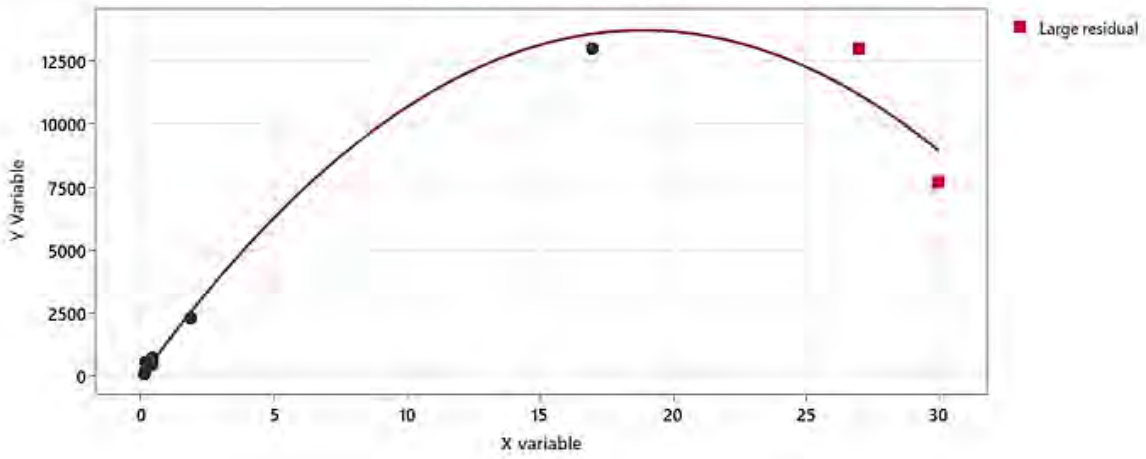
Regression for Y Variable vs X variable

Model Selection Report

Y: Y Variable
X: X variable

Fitted Line Plot for Quadratic Model

Y = - 59.4 + 1461 X - 38.69 X^2



Statistics	Selected Model Quadratic	Alternative Model Linear
R-squared (adjusted)	97.25%	73.95%
P-value, model	<0.005*	0.001*
P-value, linear term	<0.005*	0.001*
P-value, quadratic term	<0.005*	—
Residual standard deviation	882.026	2714.204

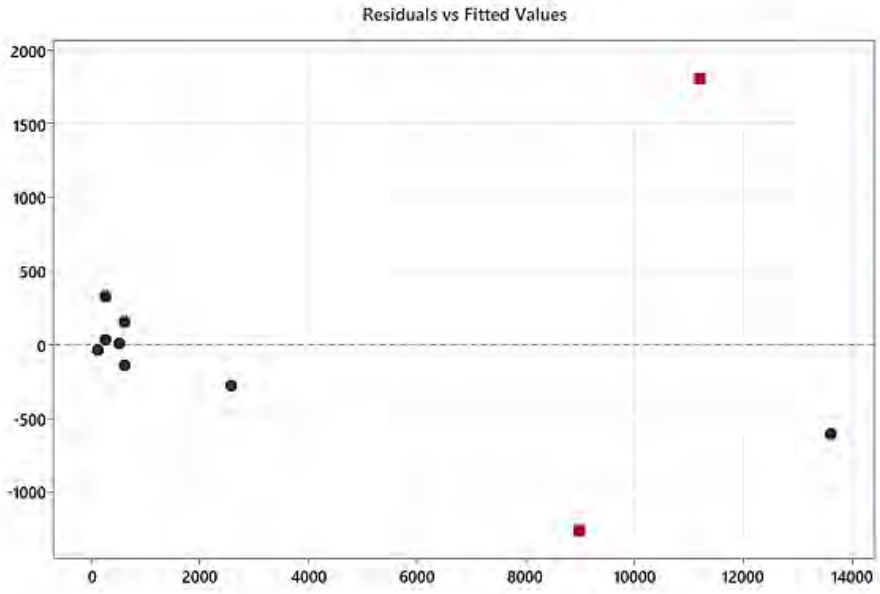
** Statistically significant ($p < 0.05$)*

Regression for Y Variable vs X variable

Report Card

Check	Status	Description
Amount of Data		Your sample size (n = 10) is not large enough to provide a very precise estimate of the strength of the relationship. Measures of the strength of the relationship, such as R-Squared and R-Squared (adjusted), can vary a great deal. To obtain a more precise estimate, larger samples (typically 40 or more) should be used.
Unusual Data		2 data points have large residuals and are not well fit by the equation. These points are marked in red on the plots. You can hover over a point or use Minitab's brushing feature to identify the worksheet rows. Because unusual data can have a strong influence on the results, try to identify the cause for their unusual nature. Correct any data entry or measurement errors. Consider removing data that are associated with special causes and redoing the analysis.
Normality		Because you have less than 15 data points, you should use caution when interpreting the p-value. With small samples, the accuracy of the p-value is sensitive to nonnormal residual errors.
Model Fit		You should evaluate the data and model fit in terms of your goals. Look at the fitted line plot to be sure that: • The sample adequately covers the range of X values. • The model properly fits any curvature in the data (avoid over-fitting). • The line fits well in areas of special interest.

Regression for Y Variable vs X variable
Diagnostic Report

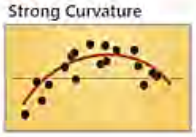


Look for patterns, such as strong curvature or clusters, that may indicate problems with the regression model. Ideally, the points should fall randomly on both sides of zero. Identify any large residuals that could have a strong influence on the fitted line.

Look for these patterns:

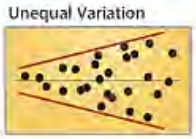
Large Residuals

Strong Curvature



Clusters

Unequal Variation

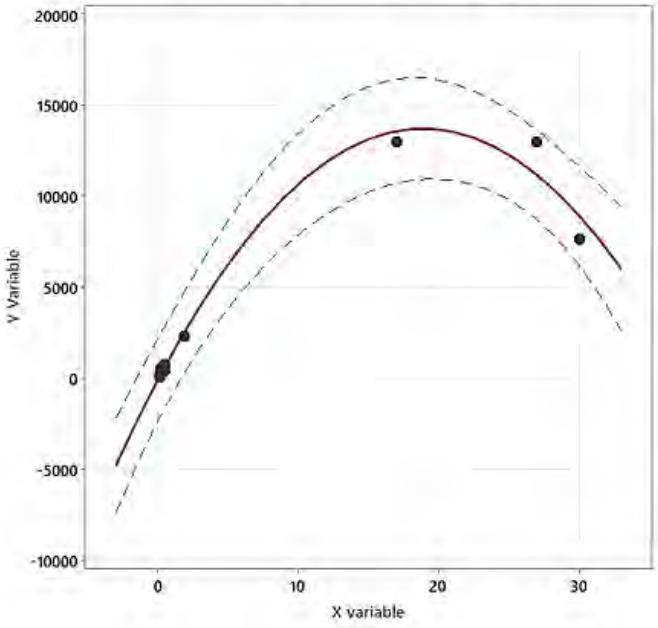


Regression for Y Variable vs X variable
Prediction Report

Y: Y Variable
X: X variable

Prediction Plot

The red fitted line shows the predicted Y for any X value. The blue dashed lines show the 95% prediction interval.



X	Predicted Y	95% PI
-3	-4790.7	(-7402.2, -2179.1)
-1.5	-2337.5	(-4710.7, 35.723)
0	-58.419	(-2306.7, 2189.9)
1.5	2046.6	(-176.91, 4270.1)
3	3977.5	(1703.9, 6251.1)
4.5	5734.3	(3364.4, 8104.2)
6	7317.1	(4830.1, 9804.0)
7.5	8725.7	(6120.0, 11331)
9	9960.3	(7247.4, 12673)
10.5	11021	(8220.9, 13821)
12	11907	(9045.7, 14769)
13.5	12620	(9724.9, 15514)
15	13158	(10259, 16056)
16.5	13522	(10648, 16395)
18	13712	(10889, 16534)
19.5	13728	(10978, 16478)
21	13570	(10907, 16232)
22.5	13238	(10666, 15809)
24	12731	(10240, 15223)
25.5	12051	(9607.4, 14495)
27	11197	(8746.0, 13647)
28.5	10168	(7631.7, 12704)
30	8965.5	(6246.9, 11684)
31.5	7588.8	(4583.8, 10594)
33	6038.0	(2644.4, 9431.7)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Eastern Region Office
4601 North Monroe St., Spokane, WA 99205-1295 • 509-329-3400

February 29, 2024

Lisa Key
Director of Planning & Engineering
City of Liberty Lake
22710 E. Country Vista
Liberty Lake, WA 99019

Re: Central Valley School District Gun Club Remediation
File: LUA2023-0046

Dear Lisa Key:

Thank you for the opportunity to comment on the Central Valley School District Gun Club Remediation Project (Proponent: Central Valley School District). After reviewing the documents, the Department of Ecology (Ecology) submits the following comments:

Hazardous Waste and Toxics Reduction Program

Please keep in mind that during the construction activities associated with the Central Valley School District Gun Club Remediation Project, some construction-related wastes produced may qualify as dangerous wastes in Washington State. Some of these wastes include:

- Absorbent material
- Aerosol cans
- Asbestos-containing materials
- Lead-containing materials
- PCB-containing light ballasts
- Waste paint
- Waste paint thinner
- Sanding dust
- Treated wood

You may find a more comprehensive list, as well as a link to identify and designate your wastes. This can be found online at: https://ecology.wa.gov/Regulations-Permits/Guidance-technical-assistance/Dangerous-waste-guidance/Common-dangerous-waste/Construction-and-demolition.

The applicant, as the facility generating the waste, bears the responsibility for all construction waste. The waste generator is the person who owns the site. Even if you hire a contractor to conduct the demolition or a waste service provider to designate your waste, the site owner is ultimately liable. This is why it is important to research reputable and reliable contractors

In order to adequately identify some of your construction and remodel debris, you may need to sample and test the wastes generated to determine whether they are dangerous waste.

For more information and technical assistance, contact Alex Bergh at (509) 385-5539 or albe461@ecy.wa.gov.

Water Quality Program

Operators of construction sites that disturb one acre or more total area and has or will have a discharge of stormwater to a surface water or to a storm sewer, must apply for coverage under Department of Ecology's Construction Stormwater General Permit.

If soil or ground water contamination is known at the site, additional information will be required. The applicant will be required to submit additional studies and reports including, but not limited to, temporary erosion and sediment control plans, a stormwater pollution prevention plan, a site map depicting sample locations, a list of known contaminants with concentrations and depths found and other information about the contaminants.

Application should be made at least 60 days prior to commencement of construction activities. A permit application and related documents are available online at http://www.ecy.wa.gov/programs/wq/stormwater/construction.

For more information or technical assistance, please contact Suman Paudel at (509) 601-2124 or via email at suman.paudel@ecy.wa.gov.

State Environmental Policy Act (SEPA)

Ecology bases comments upon information submitted for review. As such, comments made do not constitute an exhaustive list of the various authorizations you may need to obtain, nor legal requirements you may need to fulfill in order to carry out the proposed action. Applicants should remain in touch with their Local Responsible Officials or Planners for additional guidance.

For information on the SEPA Process, please contact Cindy Anderson at (509) 655-1541 or via email at Cindy.Anderson@ecy.wa.gov.

To receive more guidance on or to respond to the comments made by Ecology, please contact the appropriate staff listed above at the phone number or email provided.

Department of Ecology
Eastern Regional Office
(Ecology File: 202400768)

Ec: Jay Rowell, Central Valley School District

SEPA COMMENTS

January 29, 2024

Central Valley School District
Attn: Jay Rowell
2218 N Molter Rd
Liberty Lake, WA 99019

SPOKANE REGIONAL HEALTH DISTRICT

1101 West College Avenue
Spokane, WA 99201-2095

509.324.1500 | TEL
509.324.1464 | TDD
www.SRHD.org

SEPA Number: LUA2023-0046
Project Description: CVSD Old Spokane Gun Club Remediation
Location: 19615 E Sprague Ave
Parcel Numbers: 55176.9206

The Spokane Regional Health District has completed a review of the information provided in the SEPA Environmental Checklist. The following comments are offered for consideration:

Solid Waste Program Comments

1. All demolition/construction debris must be transported to a permitted solid waste disposal facility designated to accept the specific waste type. No on-site burning or burying of debris will be allowed.

2. If the site of the proposed project requires fill or grading, and clean soil or rock are used, no action is required by the Health District. If the fill includes inert waste such as concrete or asphalt it shall not exceed 250 cubic yards without obtaining an inert waste landfill permit. Sites requiring an inert waste landfill permit shall comply with WAC 173-350-410. Any other regulated solid waste placed on the site shall meet the requirements of the Chapter 173-350 WAC.

3. Inert wastes such as concrete can be utilized if crushed, rendered, or processed into an engineered specified aggregate recycled material in accordance with ASTM standards and it is certified. and signed by an engineer licensed in the state of Washington. These recycled inert waste materials are considered processed as a product and are exempt from inert waste permitting requirements.

4. Please be advised that any on-site septic disposal system for a property that will be connected to the municipal sewer or removed must be decommissioned in accordance with Chapter 246-272A WAC Section 300, Abandonment. Any existing on-site septic systems that will continue to be actively used must abide to all minimum setback requirements as specified in WAC 246-272A-0210 Location. Table IV, Minimum Horizontal Separations.

5. Any on-site drinking water or irrigation well on the subject property that is no further in use must be decommissioned in accordance with Chapter 173-160 WAC Section 381 Standards for decommissioning a well.

School Program Comments

6. Appropriate measures must be implemented to prevent dust from remediation activities intruding onto the adjacent Ridgeline High School or the school athletic fields.

7. Prior to constructing any school facilities on the property, including athletic fields or parking lots, the site must be approved to ensure it presents no health risks. Final sampling and monitoring results must be provided to ensure that the site remediation has been completed.

8. Plans and specifications for any new school development must be submitted for review and approval to livingenvironment@srhd.org. The *K-12 School Construction Project Submittal* form must be included with the plan submittal. The form is located on the SRHD website at https://srhd.org/media/documents/School-Project-Submittal-Checklist-5-16_181101_083551.pdf. For questions on this, please contact sphillips@srhd.org .

Sandy Phillips, CPHI(C)
Technical Advisor Living Environment Program
Environmental Public Health Division
Office 509.324.1572 | Cell 509.294.1004

Thank you for the opportunity to comment on the project. For questions regarding these comments call 509-324-1653.

Sincerely,

Kasey Wilberding, R.S.
Technical Advisor
Environmental Public Health Division

INADVERTENT DISCOVERY PLAN

PLAN AND PROCEDURES FOR THE DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS

To request ADA accommodation, including materials in a format for the visually impaired, call Ecology at 360-407-6000 or visit https://ecology.wa.gov/accessibility. People with impaired hearing may call Washington Relay Service at 711. People with a speech disability may call TTY at 877-833-6341.

Site Name(s): Central Valley School District Old Spokane Gun Club Remediation Location: Spokane Valley, Washington

Project Lead/Organization: Jay Rowell/ Central Valley School District County: Spokane County

If this Inadvertent Discovery Plan (IDP) is for multiple (batched) projects, ensure the location information covers all project areas.

1. INTRODUCTION

The IDP outlines procedures to perform in the event of a discovery of archaeological materials or human remains, in accordance with applicable state and federal laws. An IDP is required, as part of Agency Terms and Conditions for all grants and loans, for any project that creates disturbance above or below the ground. An IDP is not a substitute for a formal cultural resource review (Executive 21-02 or Section 106).

Once completed, **the IDP should always be kept at the project site** during all project activities. All staff, contractors, and volunteers should be familiar with its contents and know where to find it.

2. CULTURAL RESOURCE DISCOVERIES

A cultural resource discovery could be prehistoric or historic. Examples include (see images for further examples):

- An accumulation of shell, burned rocks, or other food related materials.
- Bones, intact or in small pieces.
- An area of charcoal or very dark stained soil with artifacts.
- Stone tools or waste flakes (for example, an arrowhead or stone chips).
- Modified or stripped trees, often cedar or aspen, or other modified natural features, such as rock drawings.
- Agricultural or logging materials that appear older than 50 years. These could include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, and many other items.
- Clusters of tin cans or bottles, or other debris that appear older than 50 years.
- Old munitions casings. ***Always assume these are live and never touch or move.***
- Buried railroad tracks, decking, foundations, or other industrial materials.
- Remnants of homesteading. These could include bricks, nails, household items, toys, food containers, and other items associated with homes or farming sites.

The above list does not cover every possible cultural resource. When in doubt, assume the material is a cultural resource.

3. ON-SITE RESPONSIBILITIES

If any employee, contractor, or subcontractor believes that they have uncovered cultural resources or human remains at any point in the project, take the following steps to ***Stop-Protect-Notify***. **If you suspect that the discovery includes human remains, also follow Sections 5 and 6.**

STEP A: Stop Work.

All work must stop immediately in the vicinity of the discovery.

STEP B: Protect the Discovery.

Leave the discovery and the surrounding area untouched and create a clear, identifiable, and wide boundary (30 feet or larger) with temporary fencing, flagging, stakes, or other clear markings. Provide protection and ensure integrity of the discovery until cleared by the Department of Archaeological and Historical Preservation (DAHP) or a licensed, professional archaeologist.

Do not permit vehicles, equipment, or unauthorized personnel to traverse the discovery site. Do not allow work to resume within the boundary until the requirements of this IDP are met.

STEP C: Notify Project Archaeologist (if applicable).

If the project has an archaeologist, notify that person. If there is a monitoring plan in place, the archaeologist will follow the outlined procedure.

STEP D: Notify Project and Washington Department of Ecology (Ecology) contacts.

Project Lead Contacts

Primary Contact		Alternate Contact	
Name:	Jason Poulsen	Name:	McKynzie Clark
Organization:	Haley & Aldrich, Inc.	Organization:	Haley & Aldrich, Inc.
Phone:	208.412.1499	Phone:	509.944.5344
Email:	jpoulsen@haleyaldrich.com	Email:	mclark@haleyaldrich.com

Ecology Contacts (completed by Ecology Project Manager)

Ecology Project Manager		Alternate or Cultural Resource Contact	
Name:	Ted M. Uecker	Name:	
Program:	ERO Toxics Cleanup Program	Program:	
Phone:	509.342.5564	Phone:	
Email:	ted.uecker@ecy.wa.gov	Email:	

STEP E: Ecology will notify DAHP.

Once notified, the Ecology Cultural Resource Contact or the Ecology Project Manager will contact DAHP to report and confirm the discovery. To avoid delay, the Project Lead/Organization will contact DAHP if they are not able to reach Ecology.

DAHP will provide the steps to assist with identification. DAHP, Ecology, and Tribal representatives may coordinate a site visit following any necessary safety protocols. DAHP may also inform the Project Lead/Organization and Ecology of additional steps to further protect the site.

Do not continue work until DAHP has issued an approval for work to proceed in the area of, or near, the discovery.

DAHP Contacts:

Name: Rob Whitlam, PhD
Title: State Archaeologist
Cell: 360-890-2615
Email: Rob.Whitlam@dahp.wa.gov
Main Office: 360-586-3065

Human Remains/Bones:

Name: Guy Tasa, PhD
Title: State Anthropologist
Cell: 360-790-1633 (24/7)
Email: Guy.Tasa@dahp.wa.gov

4. TRIBAL CONTACTS

In the event cultural resources are discovered, the following tribes will be contacted. See Section 10 for Additional Resources.

Tribe:	Spokane Tribe of Indians	Tribe:	
Name:	Randy Abrahamson	Name:	
Title:	Tribal Historic Preservation Officer	Title:	
Phone:	509.258.4222	Phone:	
Email:	randya@spokanetribe.com	Email:	
Tribe:		Tribe:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

Please provide contact information for additional tribes within your project area, if needed, in Section 11.

5. FURTHER CONTACTS (if applicable)

If the discovery is confirmed by DAHP as a cultural or archaeological resource, or as human remains, and there is a partnering federal or state agency, Ecology or the Project Lead/Organization will ensure the partnering agency is immediately notified.

Federal Agency:		State Agency:	
Agency:		Agency:	
Name:		Name:	
Title:		Title:	
Phone:		Phone:	
Email:		Email:	

6. SPECIAL PROCEDURES FOR THE DISCOVERY OF HUMAN SKELETAL MATERIAL

Any human skeletal remains, regardless of antiquity or ethnic origin, will at all times be treated with dignity and respect. Follow the steps under ***Stop-Protect-Notify.*** For specific instructions on how to handle a human remains discovery, see: *RCW 68.50.645: Skeletal human remains—Duty to notify—Ground disturbing activities—Coroner determination—Definitions*.

Suggestion: If you are unsure whether the discovery is human bone or not, contact Guy Tasa with DAHP, for identification and next steps. Do not pick up the discovery.

Guy Tasa, PhD State Physical Anthropologist
Guy.Tasa@dahp.wa.gov
(360) 790-1633 (Cell/Office)

For discoveries that are confirmed or suspected human remains, follow these steps:

1. Notify law enforcement and the Medical Examiner/Coroner using the contacts below. **Do not call 911** unless it is the only number available to you.

   Enter contact information below (required):
   - Local Medical Examiner or Coroner name and phone: Spokane County Medical Examiner 509.477.2296
   - Local Law Enforcement main name and phone: Spokane County Sheriffs Office 509.477.2240
   - Local Non-Emergency phone number (911 if without a non-emergency number): Spokane County Sheriffs Office 509.456.2233
2. The Medical Examiner/Coroner (with assistance of law enforcement personnel) will determine if the remains are human or if the discovery site constitutes a crime scene and will notify DAHP.
3. **DO NOT speak with the media, allow photography or disturbance of the remains, or release any information about the discovery on social media.**
4. If the remains are determined to be non-forensic, Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection and to shield them from being photographed by others or disturbed.

Further activities:

- Per RCW 27.44.055, RCW 68.50, and RCW 68.60, DAHP will have jurisdiction over non-forensic human remains. Ecology staff will participate in consultation. Organizations may also participate in consultation.
- Documentation of human skeletal remains and funerary objects will be agreed upon through the consultation process described in RCW 27.44.055, RCW 68.50, and RCW 68.60.
- When consultation and documentation activities are complete, work in the discovery area may resume as described in Section 8.

If the project occurs on federal lands (such as a national forest or park or a military reservation) the provisions of the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) apply and the responsible federal agency will follow its provisions. Note that state highways that cross federal lands are on an easement and are not owned by the state.

If the project occurs on non-federal lands, the Project Lead/Organization will comply with applicable state and federal laws, and the above protocol.

7. DOCUMENTATION OF ARCHAEOLOGICAL MATERIALS

Archaeological resources discovered during construction are protected by state law RCW 27.53 and assumed eligible for inclusion in the National Register of Historic Places under Criterion D until a formal Determination of Eligibility is made.

The Project Lead/Organization must ensure that proper documentation and field assessment are made of all discovered cultural resources in cooperation with all parties: the federal agencies (if any), DAHP, Ecology, affected tribes, and the archaeologist.

The archaeologist will record all prehistoric and historic cultural material discovered during project construction on a standard DAHP archaeological site or isolate inventory form. They will photograph site overviews, features, and artifacts and prepare stratigraphic profiles and soil/sediment descriptions for minimal subsurface exposures. They will document discovery locations on scaled site plans and site location maps.

Cultural features, horizons, and artifacts detected in buried sediments may require the archaeologist to conduct further evaluation using hand-dug test units. They will excavate units in a controlled fashion to expose features, collect samples from undisturbed contexts, or to interpret complex stratigraphy. They may also use a test unit or trench excavation to determine if an intact occupation surface is present. They will only use test units when necessary to gather information on the nature, extent, and integrity of subsurface cultural deposits to evaluate the site's significance. They will conduct excavations using standard archaeological techniques to precisely document the location of cultural deposits, artifacts, and features.

The archaeologist will record spatial information, depth of excavation levels, natural and cultural stratigraphy, presence or absence of cultural material, and depth to sterile soil, regolith, or bedrock for each unit on a standard form. They will complete test excavation unit level forms, which will include plan maps for each excavation level and artifact counts and material types, number, and vertical provenience (depth below

surface and stratum association where applicable) for all recovered artifacts. They will draw a stratigraphic profile for at least one wall of each test excavation unit.

The archaeologist will screen sediments excavated for purposes of cultural resources investigation through 1/8-inch mesh, unless soil conditions warrant 1/4-inch mesh.

The archaeologist will analyze, catalogue, and temporarily curate all prehistoric and historic artifacts collected from the surface and from probes and excavation units. The ultimate disposition of cultural materials will be determined in consultation with the federal agencies (if any), DAHP, Ecology, and the affected tribe(s).

Within 90 days of concluding fieldwork, the archaeologist will provide a technical report describing any and all monitoring and resultant archaeological excavations to the Project Lead/Organization, who will forward the report to Ecology, the federal agencies (if any), DAHP, and the affected tribe(s) for review and comment.

If assessment activities expose human remains (burials, isolated teeth, or bones), the archaeologist and Project Lead/Organization will follow the process described in **Section 6**.

8. PROCEEDING WITH WORK

The Project Lead/Organization shall work with the archaeologist, DAHP, and affected tribe(s) to determine the appropriate discovery boundary and where work can continue.

Work may continue at the discovery location only after the process outlined in this plan is followed and the Project Lead/Organization, DAHP, any affected tribe(s), Ecology, and the federal agencies (if any) determine that compliance with state and federal laws is complete.

9. ORGANIZATION RESPONSIBILITY

The Project Lead/Organization is responsible for ensuring:

- This IDP has complete and accurate information.
- This IDP is immediately available to all field staff at the sites and available by request to any party.
- This IDP is implemented to address any discovery at the site.
- That all field staff, contractors, and volunteers are instructed on how to implement this IDP.

10. ADDITIONAL RESOURCES

Informative Video

Ecology recommends that all project staff, contractors, and volunteers view this informative video explaining the value of IDP protocol and what to do in the event of a discovery. The target audience is anyone working on the project who could unexpectedly find cultural resources or human remains while excavating or digging. The video is also posted on DAHP's inadvertent discovery language website.

Ecology's IDP Video (https://www.youtube.com/watch?v=ioX-4cXfbDY)

Informational Resources

DAHP (https://dahp.wa.gov)

Washington State Archeology (DAHP 2003)
(https://dahp.wa.gov/sites/default/files/Field%20Guide%20to%20WA%20Arch_0.pdf)

Association of Washington Archaeologists (https://www.archaeologyinwashington.com)

Potentially Interested Tribes

Interactive Map of Tribes by Area
(https://dahp.wa.gov/archaeology/tribal-consultation-information)

WSDOT Tribal Contact Website
(https://wsdot.wa.gov/tribal/TribalContacts.htm)

11. ADDITIONAL INFORMATION

Please add any additional contact information or other information needed within this IDP.

Implement the IDP if you see…

Chipped stone artifacts.

Examples are:

- Glass-like material.
- Angular material.
- “Unusual” material or shape for the area.
- Regularity of flaking.
- Variability of size.

Stone artifacts from Oregon.

Stone artifacts from Washington.

Biface-knife, scraper, or pre-form found in NE Washington. Thought to be a well knapped object of great antiquity. Courtesy of Methow Salmon Rec. Foundation.

Implement the IDP if you see…

Ground stone artifacts.

Examples are:

- Unusual or unnatural shapes or unusual stone.
- Striations or scratching.
- Etching, perforations, or pecking.
- Regularity in modifications.
- Variability of size, function, or complexity.

Above: Fishing Weight - credit CRITFC Treaty Fishing Rights website.

Artifacts from unknown locations (left and right images).

Implement the IDP if you see…

Bone or shell artifacts, tools, or beads.

Examples are:

- Smooth or carved materials.
- Unusual shape.
- Pointed as if used as a tool.
- Wedge shaped like a “shoehorn”.
- Variability of size.
- Beads from shell (dentalium) or tusk.

Upper Left:*Bone Awls from Oregon.*

Upper Center: *Bone Wedge from California.*

Upper Right: *Plateau dentalium choker and bracelet, from Nez Perce National Historical Park, 19th century, made using Antalis pretiosa shells Credit: Nez Perce - Nez Perce National Historical Park, NEPE 8762, Public Domain.*

Above: *Tooth Pendants. Right: Bone Pendants. Both from Oregon and Washington.*

Implement the IDP if you see…

Culturally modified trees, fiber, or wood artifacts.

Examples are:

- Trees with bark stripped or peeled, carvings, axe cuts, de-limbing, wood removal, and other human modifications.
- Fiber or wood artifacts in a wet environment.
- Variability of size, function, and complexity.

Left and Below: *Culturally modified tree and an old carving on an aspen (Courtesy of DAHP).*

Right, Top to Bottom: *Artifacts from Mud Bay, Olympia: Toy war club, two strand cedar rope, wet basketry*.

Implement the IDP if you see…

Strange, different, or interesting looking dirt, rocks, or shells.

Human activities leave traces in the ground that may or may not have artifacts associated with them. Examples are:

- "Unusual" accumulations of rock (especially fire-cracked rock).
- "Unusual" shaped accumulations of rock (such as a shape similar to a fire ring).
- Charcoal or charcoal-stained soils, burnt-looking soils, or soil that has a "layer cake" appearance.
- Accumulations of shell, bones, or artifacts. Shells may be crushed.
- Look for the "unusual" or out of place (for example, rock piles in areas with otherwise few rocks).

Shell Midden pocket in modern fill discovered in sewer trench.

Underground oven. Courtesy of DAHP.

Shell midden with fire cracked rock.

Hearth excavated near Hamilton, WA.

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Agricultural or logging equipment. May include equipment, fencing, canals, spillways, chutes, derelict sawmills, tools, etc.
- Domestic items including square or wire nails, amethyst colored glass, or painted stoneware.

Left: Top to Bottom: *Willow pattern serving bowl and slip joint pocket knife discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Right: *Collections of historic artifacts discovered during excavations in eastern Washington cities.*

Implement the IDP if you see…

Historic period artifacts (historic archaeology considered older than 50 years).

Examples are:

- Railway tokens, coins, and buttons.
- Spectacles, toys, clothing, and personal items.
- Items helping to understand a culture or identity.
- Food containers and dishware.

Main Image: *Dishes, bottles, workboot found at the North Shore Japanese bath house (ofuro) site, Courtesy Bob Muckle, Archaeologist, Capilano University, B.C. This is an example of an above ground resource.*

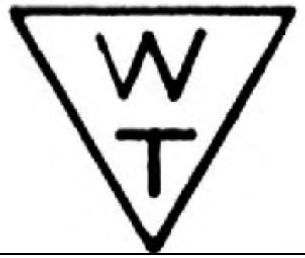
Right, from Top to Bottom: *Coins, token, spectacles and Montgomery Ward pitchfork toy discovered during Seattle Smith Cove shantytown (45-KI-1200) excavation.*

Implement the IDP if you see…

- Old munition casings – if you see ammunition of any type – ***always assume they are live and never touch or move!***
- Tin cans or glass bottles with an older manufacturer's technique – maker's mark, distinct colors such as turquoise, or an older method of opening the container.

Far Left: .303 British cartridge found by a WCC planting crew on Skagit River. Don't ever touch something like this!
Left: Maker's mark on bottom of old bottle.

Right: *Old beer can found in Oregon. ACME was owned by Olympia Brewery. Courtesy of Heather Simmons.*



Logo employed by Whithall Tatum & Co. between 1924 to 1938 (Lockhart et al. 2016).

Can opening dates, courtesy of W.M. Schroeder.

Implement the IDP if you see…

You see historic foundations or buried structures.

Examples are:

- Foundations.
- Railroad and trolley tracks.
- Remnants of structures.

Counter Clockwise, Left to Right: *Historic structure 45KI924, in WSDOT right of way for SR99 tunnel. Remnants of Smith Cove shantytown (45-KI-1200) discovered during Ecology CSO excavation, City of Spokane historic trolley tracks uncovered during stormwater project, intact foundation of historic home that survived the Great Ellensburg Fire of July 4, 1889, uncovered beneath parking lot in Ellensburg.*

Implement the IDP if you see...

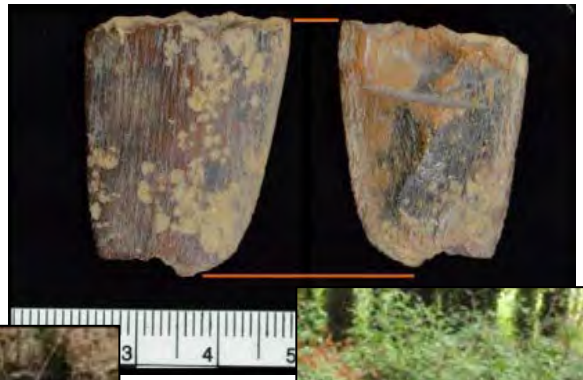
Potential human remains.

Examples are:

- Grave headstones that appear to be older than 50 years.
- Bones or bone tools--intact or in small pieces. It can be difficult to differentiate animal from human so they must be identified by an expert.
- These are all examples of animal bones and are not human.

Center: *Bone wedge tool, courtesy of Smith Cove Shantytown excavation (45KI1200).*

Other images (Top Right, Bottom Left, and Bottom) Center: Courtesy of DAHP.



Directly Above: This is a real discovery at an Ecology sewer project site.

What would you do if you found these items at a site? Who would be the first person you would call?

Hint: *Read the plan!*