1201 3rd Avenue, Suite 2600
Seattle, Washington 98101
206.287.9130

ANCHOR QEA

Memorandum

February 13, 2026

To: Erin Andersen, MS, MPA, and Jim Petersen, PE, Washington State Department of Ecology

From: John Laplante, PE, ENV SP, and Hayley Sharkey, EIT, Anchor QEA

Re: Upland Staging Area Post-Construction Cap Engineering Design
Northport Waterfront Sediment Cleanup

Introduction

This memorandum describes the assumptions and design for the upland staging area post-construction cap for the Northport Waterfront Site (Site) in Stevens County, Washington (Figure 1). The waterfront site cleanup and upland staging area post-construction capping are led by the Washington State Department of Ecology (Ecology) under contract No. C2100057. The cleanup site identification number is 14874.

The waterfront cleanup construction, consistent with the design presented in the *Northport Waterfront Site 100% Engineering Design Report* (EDR; Anchor QEA 2023), began in March 2024. To support construction activities, an upland portion of the former LeRoi Smelter site was designated as a staging area for construction activities, including managing both off-site imported materials and site-excavated materials. Preparation of the staging area involved removal of concrete foundations, which had been incidentally functioning as a cap over the underlying soil. Following completion of the waterfront work, the staging area will be capped to contain any incidentally exposed contamination.

Because the soil in the staging area is expected to have contamination consistent with that found at the LeRoi Smelter site, this memorandum builds upon and updates the engineering design prepared by the U.S. Environmental Protection Agency (USEPA) for similar efforts conducted during the design and construction of the LeRoi Smelter site cleanup (Weston 2005).

Objective

The objective of the upland post-construction cap is to protect human and ecological receptors from risk by reducing contaminant exposure pathways.

The previous USEPA-led removal action for the LeRoi Smelter site was conducted in 2004 (Weston 2005). As part of that effort, approximately 12 inches of clean material was placed over the cleanup footprint, including the area that was later used for staging during the Site cleanup project. The objective of this memorandum is to define the assumptions for the cap design within the staging area footprint consistent with the one applied as part of the LeRoi Smelter site cleanup action.

Sampling and Screening

Stockpiles were created and managed in the upland staging area during the waterfront remedial action as presented in the EDR. Following removal of stockpiles associated with the waterfront cleanup, soil sampling was conducted in July and August 2025 to characterize soil in the construction staging area. Soil sampling was conducted in accordance with the Ecology-approved *Sampling and Quality Assurance Project Plan* (SQAPP, Anchor QEA 2025). Samples were collected from 1 to 6 inches below ground surface at locations presented in Figure 1.

The sample matrix and analyses completed for each sample are summarized in Table 1. Additionally, Model Toxics Control Act Method A screening levels are applied to Table 1, consistent with the approach used in the *Le Roi Smelter Removal Action Report* (Weston 2005). Data validation was performed by Laboratory Data Consultants, Inc. All planned soil samples were collected, processed, and analyzed in accordance with the SQAPP.

Cap Design Basis

It is understood the cap constructed during the LeRoi Smelter site cleanup was a 12-inch-thick layer of 2-inch minus gravel (Weston 2005). To be consistent with the LeRoi Smelter site cap, the upland post-construction cap thickness will require a minimum thickness of 12 inches. The cap will consist of two evenly spread layers as follows:

- Reclaimed roadway aggregate
- Minimum 4-inch thickness of 2-inch minus gravel (Washington State Department of Transportation 9-03.9(1), 9-03.9(2), 9-03.10, or approved equal)

The cap will be placed within the defined limits in Figure 1. Material placement techniques and subsequent surveys will comply with the *Northport Waterfront Sediment Cleanup Project Manual*.

References

Anchor QEA, 2023. *Northport Waterfront Site 100% Engineering Design Report*. Prepared for Toxics Cleanup Program, Washington State Department of Ecology. August 2023.

Anchor QEA, 2025. *Sampling and Quality Assurance Project Plan*. Northport Waterfront Sediment Cleanup. Prepared for Washington State Department of Ecology. June 2025.

Weston (Weston Solutions, Inc.), 2005. *Le Roi Smelter Removal Action Report Northport, Stevens County, Washington*. April 2005.

Table

Table 1
Soil Analytical Results

Location ID:			NP-01	NP-02	NP-03	NP-04	NP-05	NP-06	NP-07	NP-08	NP-09	NP-10	NP-11	NP-12	NP-13
Sample ID:			NP-01-SS-07162025	NP-02-SS-07162025	NP-03-SS-07162025	NP-04-SS-07162025	NP-05-SS-07162025	NP-06-SS-07162025	NP-07-SS-07162025	NP-08-SS-07162025	NP-09-SS-07162025	NP-10-SS-07162025	NP-11-SS-07162025	NP-12-SS-07162025	NP-13-SS-07162025
Sample Date:			7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025
Sample Depth (inches bgs):			1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6
Matrix:			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
	Screening														
Analyte	2025[a]	2003[b]													
Metals (mg/kg)															
Arsenic	20	20	31	6.1	61	27	7.5	24	26	33	14	22	20	11	10
Barium	--	--	160	160	110	85	140	87	130	93	140	56	170	120	100
Cadmium	2	--	7.9	1.6	13	2.7	1.1	3.9 J	5.6	3.9	2.2	5.1 J	3.3	2.2	1.9
Chromium	--	--	19	20	11	17	20	10	10	14	24	7.8 J	17	19	17
Copper	--	--	290 J	270	620	160	180	250	200	220	190	150	140	160	90
Lead	250	250	700	680	1200	400	330	490	460	470	520	640	300	250	170
Selenium	--	--	7.7 U	2.6 U	36 U	3.0 U	2.8 U	32 U	3.1 U	3.0 U	3.0 U	34 U	3.2 U	1.8 U	3.2 U
Silver	--	--	2.5 J	0.58 J	2.5 J	0.65 J	0.4 J	7.9 U	1.1 J	1.1 J	0.6 J	8.6 U	0.5 J	2.0 U	2.2 U
Zinc	--	--	310	2,500	250	110	1,500	330	180	730	1,000	170	260	560	280
Mercury	2000	--	390 J	37	420	130	34 J	370	450	230	130	400	160	110	100

Table 1
Soil Analytical Results

Location ID:			NP-14	NP-15	NP-16	NP-17	NP-18	NP-19	NP-20	NP-21	NP-22	NP-23	NP-24	NP-25
Sample ID:			NP-14-SS-07162025	NP-15-SS-07162025	NP-16-SS-07162025	NP-17-SS-07162025	NP-18-SS-07162025	NP-19-SS-07162025	NP-20-SS-07162025	NP-21-SS-07162025	NP-22-SS-07162025	NP-23-SS-07162025	NP-24-SS-07162025	NP-25-SS-07162025
Sample Date:			7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025	7/16/2025
Sample Depth (inches bgs):			1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6	1 to 6
Matrix:			SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO	SO
	Screening													
Analyte	2025[a]	2003[b]												
Metals (mg/kg)														
Arsenic	20	20	11	22	64	19	90	28	6.1 J	2.5 J	14	10	7.7 U	6.8 U
Barium	--	--	220	70	86	54	74	99	180	76	65	81	220	160
Cadmium	2	--	1.2	6.4	12	3.3	2.7	3	0.5 J	0.41	1.8	2.5	0.4 J	0.9 U
Chromium	--	--	50	13	16	8.7	14	16	33	20	8.3	14	36	48
Copper	--	--	46	150	280	85	340	96	25	20	67	45 J	18	17
Lead	250	250	95	620	880	260	300	250	35	20	100	160	12	11
Selenium	--	--	7.4 U	2.9 U	2.8 U	7.0 U	3.2 U	2.9 U	7.4 U	3.0 U	6.9 U	2.9 U	7.7 U	6.8 U
Silver	--	--	4.9 U	0.8 J	1.7 J	1.9 U	1.1 J	1.9 U	4.9 U	2.0 U	4.6 U	2.0 U	5.1 U	4.5 U
Zinc	--	--	92	110	220	100	120	120	77	46	120	130	51	35
Mercury	2000	--	47	810	380	170	450	340	41	47 UJ	100	200	18 J	19 J

Notes:

a. Screened against MTCA Method A (Ecology 2025)

b. Screened against MTCA Method A levels 2003 in Weston (2005).

Exceeds MTCA Method A (2025)

Exceeds MTCA Method A (2003) and MTCA Method A (2025)

Ecology (Washington State Department of Ecology), 2025. "What's New & Other Notes CLARC Table." *Toxics Cleanup Program* . Feburary 2025.

--: not applicable

bgs: below ground surface

J: estimated value

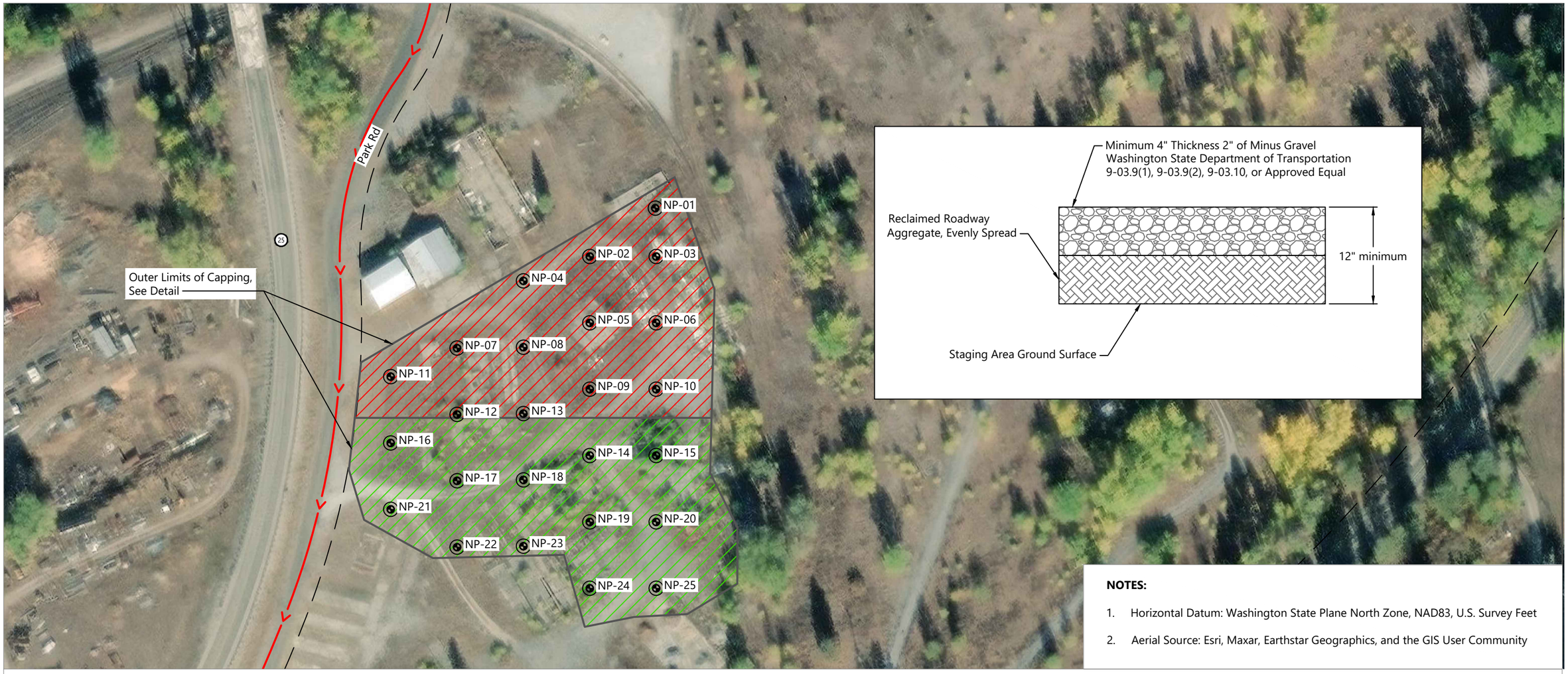
mg/kg: miligram per kilogram

MTCA: Model Toxics Control Act

SO: soil sample

U: compound analyzed for but not detected above detection limit

Figure



NOTES:

1. Horizontal Datum: Washington State Plane North Zone, NAD83, U.S. Survey Feet
2. Aerial Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

LEGEND:

- Containment Area
- Staging Area
- Access Route
- Approximate Limits of LeRoi Smelter Site
- NP-XX Sample Location

Control Points		
Point #	Northing	Easting
NP-01	714866.2	2375711.4
NP-02	714818.1	2375646.3
NP-03	714818.1	2375712.3
NP-04	714793.8	2375580.3
NP-05	714752.1	2375646.3

Control Points		
Point #	Northing	Easting
NP-06	714752.1	2375712.3
NP-07	714727.0	2375514.3
NP-08	714727.8	2375580.3
NP-09	714686.1	2375646.3
NP-10	714686.1	2375712.3

Control Points		
Point #	Northing	Easting
NP-11	714698.6	2375448.3
NP-12	714661.0	2375514.3
NP-13	714661.8	2375580.3
NP-14	714620.1	2375646.3
NP-15	714620.1	2375712.3

Control Points		
Point #	Northing	Easting
NP-16	714632.6	2375448.3
NP-17	714595.0	2375514.3
NP-18	714595.8	2375580.3
NP-19	714554.1	2375646.3
NP-20	714554.1	2375712.3

Control Points		
Point #	Northing	Easting
NP-21	714566.6	2375448.3
NP-22	714529.0	2375514.3
NP-23	714529.8	2375580.3
NP-24	714488.1	2375646.3
NP-25	714488.1	2375712.3

0 100
Feet

Publish Date: 2025/09/15 7:17 AM | User: jfoster
Filepath: K:\Projects\0402-WA Dept of Ecology\Northport\Field Sampling Plan\0402-RP-002 (Sample Locations).dwg | Figure 1

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Figure 1
Upland Cap Area and Detail

Upland Staging Area Post-Construction Cap Engineering Design
Northport Waterfront Sediment Cleanup