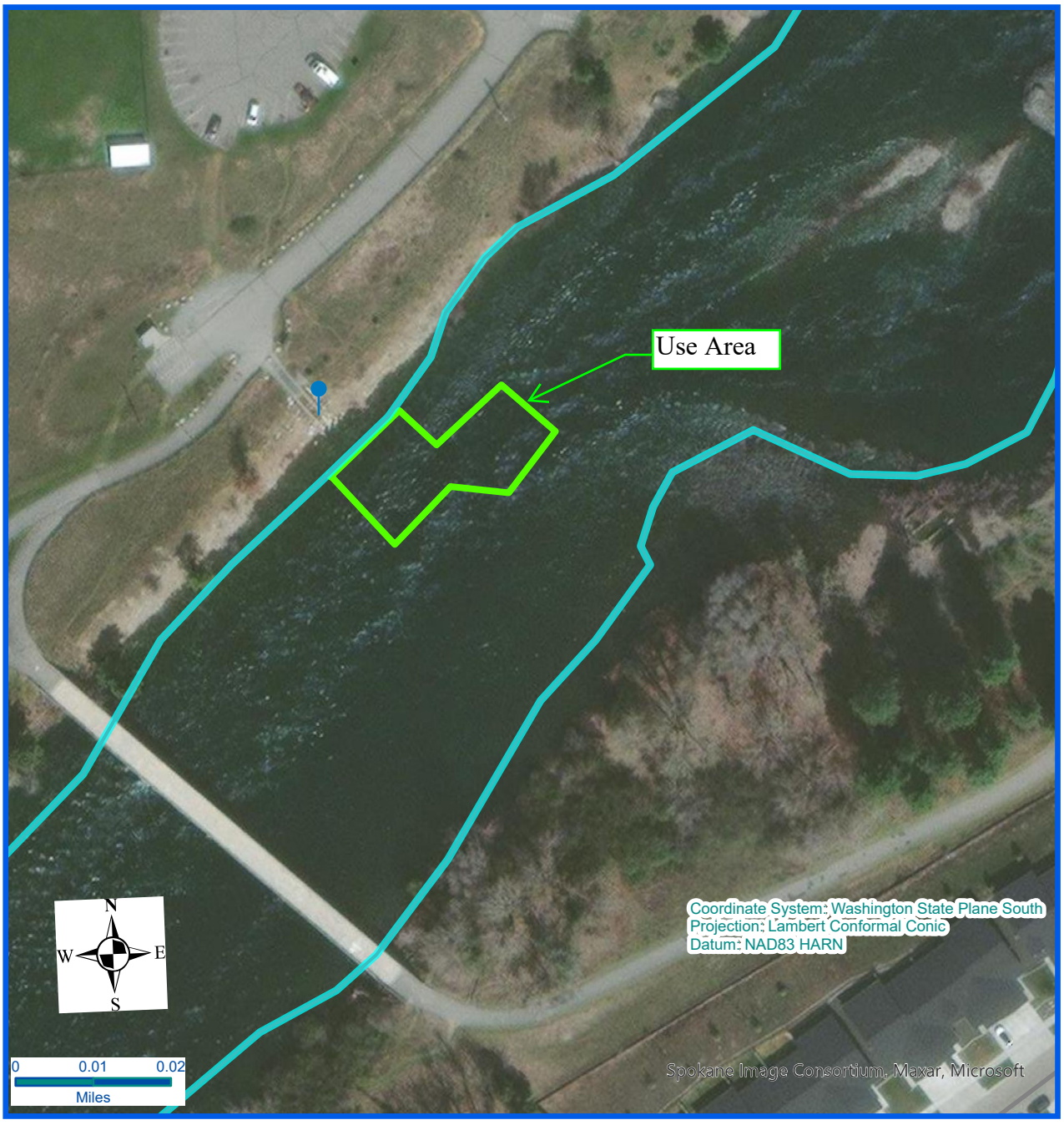
WASHINGTON STATE DEPT OF NATURAL RESOURCES

Application for Use of State-Owned Aquatic Lands

Applicant Name: KAISER ALUMINUM
County: Spokane County
Water Body: Spokane River
Type of Authorization - Use: Right of Entry
Authorization Number: 23-103859
Term: 2 year

Description: This agreement will allow the use of State-owned aquatic lands for the sole purpose of shoreline scour protection/mitigation. It is located in the Spokane River, in Spokane County, Washington.

Kaiser Aluminum
Authorization No. 23-103859
Authorized Use: Right of Entry
Location: Spokane River, Spokane County



Vicinity Map

Every attempt was made to use the most accurate and current geographic data available. However, due to multiple sources, scales, and the currency of the data used to develop this map Washington Department of Natural Resources cannot accept responsibility for errors and omissions in the data. Furthermore, this data is not survey grade information and cannot be substituted for an official survey. Therefore, there are no warranties that accompany this material

Legal Description:

Gov't Lot 6, Section 4, Township 25 N, Range 44 E, W.M.

Latitude: 47.693712
Longitude: -117.250167

Prepared By: CN
Date: 10/24/2023

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) [help]

US Army Corps of Engineers
Seattle District

AGENCY USE ONLY
Date received:_____; ☐ Town
☐ Application Fee Received; ☐ Fee N/A
☐ New Application; ☐ Renewal Application
Type/Prefix #:_____; NaturE Use Code:_____
LM Initials & BP#:_____
RE Assets Finance BP#:_____
New Application Number:_____
Trust(s):_____; County:_____
AQR Plate #(s):_____
Gov Lot #(s):_____
Tax Parcel #(s):_____

Attachment E:
Aquatic Use Authorization on Department of Natural Resources (DNR)-managed aquatic lands [help]

Complete this attachment and submit it with the completed JARPA form only if you are applying for an Aquatic Use Authorization with DNR. Call (360) 902-1100 or visit http://www.dnr.wa.gov/programs-and-services/aquatics/leasing-and-land-transactions for more information.

- DNR recommends you discuss your proposal with a DNR land manager before applying for regulatory permits. Contact your regional land manager for more information on potential permit and survey requirements. You can find your regional land manager by calling (360) 902-1100 or going to http://www.dnr.wa.gov/programs-and-services/aquatics/aquatic-districts-and-land-managers-map. [help]
- The applicant may not begin work on DNR-managed aquatic lands until DNR grants an Aquatic Use Authorization.
- Include a $25 non-refundable application processing fee, payable to the "Washington Department of Natural Resources." (Contact your Land Manager to determine if and when you are required to pay this fee.) [help]

DNR may reject the application at any time prior to issuing the applicant an Aquatic Use Authorization. [help]

Use black or blue ink to enter answers in white spaces below.

1. Applicant Name (Last, First, Middle)

Brent Downey

2. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]

Kaiser Aluminum – Trentwood Scour Repair

3. Phone Number and Email

509.927.6219 / brent.downey@kaiserted.com

4. Which of the following applies to Applicant? Check one and, if applicable, attach the written authority – bylaws, power of attorney, etc. [help]

☒ Corporation	☐ Individual
☐ Limited Partnership	☐ Marital Community (Identify spouse):
☐ General Partnership	_____
☐ Limited Liability Company	☐ Government Agency
Home State of Registration:	☐ Other (Please Explain):
_____	_____

5. Washington UBI (Unified Business Identifier) number, if applicable: [help]

6. Are you aware of any existing or previously expired Aquatic Use Authorizations at the project location?

☐ Yes ☒ No ☐ Don't know

If Yes, Authorization number(s): _____

7. Do you intend to sublease the property to someone else?

☐ Yes ☒ No

If Yes, contact your Land Manager to discuss subleasing.

8. If fill material was used previously on DNR-managed aquatic lands, describe below the type of fill material and the purpose for using it. [help]

N/A

To be completed by DNR and a copy returned to the applicant.

Signature for projects on DNR-managed aquatic lands:

Applicant must obtain the signature of DNR Aquatics District Manager OR Assistant Division Manager if the project is located on DNR-managed aquatic lands.

I, a designated representative of the Dept. of Natural Resources, am aware that the project is being proposed on Dept. of Natural Resources-managed aquatic lands and agree that the applicant or his/her representative may pursue the necessary regulatory permits. My signature does not authorize the use of DNR-managed aquatic lands for this project.

Carrie Nelson	Carrie Nelson	07/21/2022
Printed Name	**Signature**	**Date**
Dept. of Natural Resources District Manager or Assistant Division Manager	Dept. of Natural Resources District Manager or Assistant Division Manager	

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA Publication ORIA-16-016 rev. 10/2016

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

_____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Kaiser Aluminum – Trentwood Scour Repair

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Brent Downey			
2b. Organization (If applicable)			
Kaiser Aluminum – Trentwood Works			
2c. Mailing Address (Street or PO Box)			
15000 East Euclid Avenue			
2d. City, State, Zip			
Spokane Valley, Washington 99216			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
509.927.6219	N/A	N/A	Brent.Downey@kaisertwd.com

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Jason Poulsen, PWS			
3b. Organization (If applicable)			
Haley & Aldrich			
3c. Mailing Address (Street or PO Box)			
702 West Idaho Street, Suite 310			
3d. City, State, Zip			
Boise, Idaho 83702			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
208.401.1317	N/A	N/A	jpoulsen@haleyaldrich.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☐ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☒ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
Contact: Brent Downey			
4b. Organization (If applicable)			
Kaiser Aluminum - Trentwood Works			
4c. Mailing Address (Street or PO Box)			
15000 East Euclid Avenue			
4d. City, State, Zip			
Spokane Valley, Washington 99216			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
509.927.62.19	N/A	N/A	Brent.Downey@kaiseraluminum.com

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☒ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

15000 East Euclid Avenue

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Spokane Valley, Washington 99216

5d. County [help]

Spokane

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
NE	10	25 North	44 East

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

47.683405, -117.220832

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

45101.9039

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Washington State Department of Parks & Rec	7150 Clearwater Lane Olympia, WA, 98504	45101.9004
Centennial Properties, Inc.	999 W Riverside Ave Spokane, WA, 99201	45034.9078
U.S.A.	222 N Havana St Spokane, WA, 99202-4724	45024.0108
City of Spokane Valley	11707 E Sprague Ave Ste 106 Spokane, WA, 99206	45101.9068

5i. List all wetlands on or adjacent to the project location. [help]

No wetlands are present at the site

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

The pump house facility is located on the east shore of the Spokane River

5k. Is any part of the project area within a 100-year floodplain? [help]

☒ Yes ☐ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

Vegetation and habitat are limited at the proposed project repair site. There are two intake structures (pump House) and paved parking located at the site. The two pump house buildings extend partially into the river and have deep concrete foundation walls that are buried in the east bank of the river below the surface of the water. A steel sheet pile retaining wall is located between the two buildings, supporting the parking area and separates the pump house from the Spokane River.

5m. Describe how the property is currently used. [help]

Kaiser withdraws surface water from the Spokane River for use as once through, cooling water. The configuration of the intake structure includes a bar screen, followed by a mesh screen, and two travelling screens to remove solid debris. The pumps in the intake structures convey water into two 24-inch and one 12-inch main, which then travel 2,600 feet to the mill. Water is circulated through the water through condensers and discharged back to the Spokane River downstream from the intake structures. Debris collected by the screens is removed by a high-pressure spray wash system and are conveyed through a 12-inch trash discharge line to the Spokane River downstream from the intake structures.

UPDATE:

This was general background information provided to explain the project site and its overall purpose. There is no connection between the screens/wash system and the emergency repair action. The members of this repair and mitigation team have no knowledge of this system or the permits that may or may not be required for the screening operations at the site. The current intakes/screens were avoided when placing the concrete bags and will be avoided during the placement of riprap fill materials.

5n. Describe how the adjacent properties are currently used. [help]

Adjacent properties include riparian areas (east and south) of the Spokane River managed by the Washington State Department of Parks & Recreation. The main Kaiser Trentwood facility to the east of the intake structures is used to produce aluminum sheet, plate, and coil through the rolling of aluminum with neat oils and emulsions. Supporting operations include direct chill casting and solution heat treating. Finished products are used mainly in the aerospace industry and for general engineering applications. Undeveloped properties lie to the north and west of the site along the Spokane River.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

There are two intake structures (pump houses) at the Trentwood facility that withdraw water from the Spokane River, circulating the water through condensers, and discharging it back to the Spokane River. The configuration of the Kaiser intake structures includes bar screens (trash racks), followed by mesh screens, and two travelling screens to remove solid debris.

The south pumphouse (pump house #1) was constructed in 1942 by the United Engineering & Foundry Company, acting on behalf of the Defense Plant Corporation, to withdraw water from the Spokane River to support operations at the Trentwood aluminum rolling mill. In 1967, the north (pumphouse #2) was constructed approximately 30 feet to the north of pump house #1 along the river. The river pumping station has seven, 3-

stage, 400-horespower turbine pumps. Pumps #1 through #4 are in pumphouse #1 and pumps #5 through #7 are situated in pumphouse #2. The nominal pumping rate of each pump is 5,000 gpm. The pump system conveys the surface water into two 24-inch and one 12-inch steel mains, which convey water 2,600 feet to the mill. The 24-inch mains surround the plant, where they deliver surface water for production of ingots. The 12-inch mainline is used for fire suppression.

The intake structures are in relatively good condition, however; the central sheet pile wall (wall) failed at some unknown time after installation when it began to tilt outward. The wall was repaired by installing a steel waler across and near the top of the wall. The waler was connected to two steel tie-rods running through the wall and backfill to two concrete deadmen buried below the parking area. Sometime after the first repair, the wall began to move again and another waler, set of rods and deadmen were installed near the middle of the wall, just above the water line, in 1992 to support the wall.

More recently, a sinkhole began to develop in the parking area directly behind the wall and adjacent to the south pumphouse. The sinkhole has continued to increase in size since. Repeated attempts have been made to fill the sinkhole with various materials but have not been successful in stopping the expansion.

It appears that scour has eroded the riverbed material below and some of the backfill material behind the wall creating a void and undermining the remaining wall backfill. It is believed that the void was caused by scour and is the reason for the sinkhole developing in the parking area. The erosion of the wall backfill material at the sinkhole location reached the pavement subgrade resulting in the collapse of the AC pavement.

UPDATE:

In early December 2021, the project repair team was informed by site operation personnel, that the sinkhole had recently become larger in size and depth. Based on this sudden change in the sinkhole conditions, the project team felt it was important to address this repair before the 2022 Spring runoff event. Therefore, the applicable jurisdictional agencies were immediately informed the of the situation and the change to "emergency status" to repair the wall and prevent an ecological impact to the Spokane River due to the impacts of river scour.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

From Interstate 90, take the North Pines Road (SR 27) exit (289). Turn left and head north on SR 27 for 1.2 miles to East Trent Avenue (SR 290). Turn right (east) on SR 290 and travel 1.1 miles to North Evergreen Road. Turn right (south) on North Evergreen Road and travel 0.7 miles. The intake structures are located about 600 feet to the southwest along the Spokane River.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

An underwater survey of the intakes found that the wall is undermined and the footings of the north half of the west side of the south pump house are exposed. The bottom of the new sheet piles need to be embedded far enough into the ground (riverbed) so that there is sufficient passive lateral soil pressure on the embedded portion of the sheet piles to resist the lateral load of the backfill and any surcharges placed on it. Repair of the existing wall will need to provide support for the bottom of the sheet piles, support the existing backfill by filling in the present void left by the scour and provide long term scour protection of the repaired wall as well as the foundations of the south pump house.

The sheet pile wall has not collapsed to date, but it has failed structurally and must be repaired or replaced as soon as possible before catastrophic collapse occurs. If no repair is completed, the size of the sinkhole will continue to expand, and the scour eventually will undermine the steel rods holding up the wall. The wall is presently at risk for collapse or catastrophic failure. Wall failure would create an even more significant issue related to future cost for cleanup of the collapsed retaining wall along with the cost of construction of a new wall. Repercussions from the deposition of material into the Spokane River might be substantial and create significant ecological issues.

UPDATE:

Since the project was changes to "emergency status" because of the sudden increase in the size of the sinkhole in December 2021, repairs were required in early January 2022 on the wall structure only. The appropriate agencies were notified (City of Spokane Community and Public Works Department (Floodplain [Deanna Horton] and Community Development [Lori Barlow] Departments; U.S. Army Corps of Engineers (USACE) – Jess Jordan; Washington State Department of Ecology (Ecology) – Jeremy Sikes; Washing Department of Natural Resources (DNR) – Dave Harsh; Washington Department of Fish and Wildlife (WDFW) – Jeff Lawlor Washington State Parks & Recreation (WSPR) – Brian Patnode & Diana Dupuis) and approval to move forward with the wall repair only was approved by each agency.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

See description in 6a above.

6c. Indicate the project category. (Check all that apply) [help]

☒ Commercial ☐ Residential ☐ Institutional ☐ Transportation ☐ Recreational

☐ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☐ Culvert	☐ Float	☐ Retaining Wall (upland)
☒ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☐ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☒ Other: Sheet pile retaining wall repair to prevent collapse or catastrophic failure and ecological impacts to the Spokane River.

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

The preferred repair method would support the bottom of the wall by welding steel plates to the bottom of the existing sheet piles to extend them to the river bottom. The plates would be sealed with underwater sealant where they contact the walls of the pumphouses and any gaps where they contact the existing sheet piles. The bottom of the plates, where they contact the river bottom, would be sealed with sandbags placed end-to-end along the outside of the bottom of the plates. This method will provide a "closed form" for placement of grout behind the steel plates, significantly reducing the potential for leaks during placement. Once sealed, grout could be pumped into the void through hoses connected to valves installed in the face of the wall. The grout would fill the void space created by the scour. The steel plates would support the sheet pile facing and the grout would support the wall backfill and steel tie-rods. Rip rap would then be placed in front of the sheet piles to prevent future scour and erosion. During construction best management practices (BMPs) would be employed to minimize impacts to the Spokane River.

UPDATE:

In January 2022, sheet piles were installed to support the bottom of the wall by welding steel plates to the bottom of the existing sheet piles to extend them to the river bottom. The plates were sealed with underwater sealant where they contact the walls of the pumphouses and any reaming gaps where they contact the existing sheet piles. The bottom of the plates, where they contact the river bottom, were required to be sealed with 206 (60 pound) Central Premix quickrete burlap bags placed end-to-end along the outside of the bottom of the plates. This method provided a "closed form" for placement of grout behind the steel plates, to prevent leaks during grouting placement. Once sealed, grout was then pumped into the void through hoses connected to valves installed in the face of the wall, filling the void space created by the scour. The wall repair activities did not include the placement of riprap in front of the sheet piles. The repair only placed the concrete bags as necessary to complete the wall repair and these bags will be included in the total quantity of fill calculations related to the future placement of riprap to prevent future scour and erosion. During construction best management practices (BMPs) were employed to minimize impacts to the Spokane River.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: January 17, 2022 End Date: December 31, 2022 ☒ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

$150,000

6h. Will any portion of the project receive federal funding? [help]

- **If yes,** list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☐ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☒ Not applicable

No wetlands are located at the site.

7b. Will the project impact wetlands? [help]

☐ Yes ☒ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☐ Yes ☒ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☐ Yes ☒ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☐ Yes ☒ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

N/A

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

N/A

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
N/A	N/A	N/A	N/A	N/A	N/A	N/A

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

N/A

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

N/A

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☐ Not applicable

UPDATE:

During construction, BMPs were be employed to protect from impacts to the Spokane River. Vented water from the void was be pumped and contained as the grout was pumped during repair the repair process. Following completion of the repair, contained water properly disposed of.

Mitigation Site – Islands Boat Launch approx. 1.9 miles downstream from the Pump House:

In addition, eight 4-man boulders will be installed below the OHWM around the boat launch. These boulders will be used for stability and erosion control to reduce impacts from heavy recreational use at the boat launch and provide increase fish habitat.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☒ Yes ☐ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☒ Yes ☐ No ☐ Don't know

Aquatic mitigation is required for the proposed repair project due to the placement of concrete bags required for the repair and installation of riprap protection from river scour. The proposed mitigation site is located approximately 1.9 miles downstream from the pump house at the Islands Boat Launch site. Proper BMPS such as straw bale discharge structures will be placed in an upland position for temporary dewatering and turbidity management. Staging, refueling, and maintenance will occur in the paved parking area located over 150 feet from the ordinary high-water mark (OHWM) of the Spokane River.

Several large boulders will be retained upland from the work area. A total of eight 4-man habitat boulders will also be installed below the OHWM around the boat launch. These boulders will be used for stability and erosion control to reduce impacts from heavy recreational use at the boat launch. In addition, eight habitat boulder clusters (8 four-man boulders and 24 three man boulders) will be installed in the river in accordance with Washington State Department of Transportation (WSDOT) Specification 9-03.11(4). The total area of habitat boulder clusters below the OHWM will be approximately 400 square feet (sf) to enhance in water habitat.

No upland or riparian plantings are planned at this time. However, efforts will be made to avoid shrubs and trees within the project site during construction. Access disturbance areas will be regraded and seeded with a local native seed mix after work is completed.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

The mitigation plan is intended to mitigate for approximately 79 cy, of concrete bag placement (12 cy) and rip rap (67 cy) placement (approximately 400 sf footprint) in in front of the sheet piles at the site that will prevent future scour and erosion. The placement of concrete bags and rip rap is the only in water work necessitating fill to be placed in the river at the repair site.

Habitat boulder clusters will be placed in the Spokane River at the mitigation site (Island Boat Launch). The habitat boulders will enhance 400 sf of habitat within the river. Moreover, eight 4-man boulders (128 sf) placed along the existing boat ramp will provide habitat below the OHWM and will reduce erosion into the Spokane River from current recreational uses. The total area of mitigation below the OHWM will be 528 sf and total with total placement of approx. 48 cy of boulder clusters.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
Fill	Spokane River	Sheet Pile Wall	Permanent	Concrete 12 cy / Riprap 67 cy (total 79 cy)	400 sf
Fill (Habitat)	Spokane River	Island Boat Launch	Permanent	48 cy	528 sf

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

All riprap (67 cy) used at the project site and habitat boulders (48 cy) used at the mitigation site will be sourced locally. Concrete and riprap will be used adjacent to the sheet wall at the intake structures to prevent scour and erosion. The rip rap will be placed in the river with an excavator operating from the intake structures.

Habitat boulders will be used to enhance habitat below the OHWM at the Island Boat Launch. In addition, habitat boulders will be used to stabilizer the boat launch and reduce erosion at this popular recreational facility.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

No excavation or dredging has been conducted or is proposed to be conducted as part of the pump house repair. Although the concrete bags used to stabilize the repair have been installed, future riprap will be placed adjacent to the sheet wall after the proper permits obtained.

Minimal excavation will occur at the mitigation site. An excavator will be used from the shore to scour a small depression prior to placement of habitat boulders in the river and below the OHWM. The minimal amounts of riverbed material that is displaced for boulder placement will be replaced around the area associated with the placement of the boulders

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
Washington State Department of Ecology	Jacob McCann	509.329.3584	
Washington State Department of Natural Resources	Dave Harsh	509.220.3009	
U.S. Army Corps of Engineers	Jess Jordan	206.316.3967	

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: https://ecology.wa.gov/Water-Shorelines/Water-quality/Water-improvement/Assessment-of-state-waters-303d.

☒ Yes ☐ No

Polychlorinated Biphenyls (PCBs)

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

170103070105

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-supply/Water-availability/Watershed-look-up to find the WRIA #.

Middle Spokane

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to https://ecology.wa.gov/Water-Shorelines/Water-quality/Freshwater/Surface-water-quality-standards/Criteria for the standards.

☒ Yes ☐ No ☐ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: https://ecology.wa.gov/Water-Shorelines/Shoreline-coastal-management/Shoreline-coastal-planning/Shoreline-laws-rules-and-cases.

☒ Urban ☐ Natural ☐ Aquatic ☒ Conservancy ☐ Other: _____

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☒ Shoreline ☐ Fish ☐ Non-Fish Perennial ☐ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: Ecology Stormwater Management Manual for Eastern WA May 2018 errata 1/16/2020

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☒ Yes ☐ No

The Spokane River has sediment with elevated concentrations of PCBs. However, the Spokane River in the vicinity of the pump house repair is not an area of sediment deposition. Furthermore, sediment disturbance is not an action required for the placement of concrete bags and riprap materials to protect the new sheet pile wall.

The placement of habit and erosion prevention boulders in the area of the Islands Boat Launch is not expected to significantly disturb river sediments.

9j. If you know what the property was used for in the past, describe below. [help]

The site has been used as a cooling water intake structure since World War II. Prior to this, the site was farmland.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☐ Yes ☒ No

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]
Bull trout (*Salvelinus confluentus*) are the only federally listed species with potential presence at the site. However, rare occurrences of bull trout in the Spokane River are expected to be specimens entrained down the Spokane River, most likely originating upstream from Coeur d'Alene Lake and its tributaries. The nearest bull trout critical habitat is located upstream from the site at Coeur d'Alene Lake. No other listed species or critical habitats are present in the Spokane River near the site.
9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]
Low numbers of westslope cutthroat trout (*Oncorhynchus clarki lewisi*) are present in the Spokane River below Post Falls Dam. Poor habitat quality due to unfavorable thermal conditions and flow regimes coupled with species competition has most likely limited westlsope cutthroat trout numbers in the mainstem of the river. Rainbow trout (*Oncorhynchus mykiss*) are also present in the Spokane River. Recent data support the hypothesis that the population may have achieved a stable, but low level of abundance in the portion downstream of Sullivan Road.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help] • For more information about SEPA, go to https://ecology.wa.gov/regulations-permits/SEPA-environmental-review.
☐ A copy of the SEPA determination or letter of exemption is included with this application.
☒ A SEPA determination is pending with City of Spokane Valley (lead agency). The expected decision date is 5/1/2022.
☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]
☐ This project is exempt (choose type of exemption below). ☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt? _____ ☐ Other: _____
☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☒ Shoreline Exemption Type (explain): Letter of Exemption required by City of Spokane Valley

Other City/County permits:

☒ Floodplain Development Permit ☒ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☒ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

Washington Department of Natural Resources:

☒ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification ☐ Non-Federally Regulated Waters

FEDERAL AND TRIBAL GOVERNMENT

United States Department of the Army (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard:

For projects or bridges over waters of the United States, contact the U.S. Coast Guard at: d13-pf-d13bridges@uscg.mil

☐ Bridge Permit ☐ Private Aids to Navigation (or other non-bridge permits)

United States Environmental Protection Agency:

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) on tribal lands where tribes do not have treatment as a state (TAS)

Tribal Permits: (Check with the tribe to see if there are other tribal permits, e.g., Tribal Environmental Protection Act, Shoreline Permits, Hydraulic Project Permits, or other in addition to CWA Section 401 WQC)

☐ Section 401 Water Quality Certification (discharges into waters of the U.S.) where the tribe has treatment as a state (TAS).

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. DD (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

Brent Downey / Kaiser Trentwood		3/31/22
Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Jason E. Poulsen / Haley & Aldrich		03 / 31 / 22
Authorized Agent Printed Name	Authorized Agent Signature	Date

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

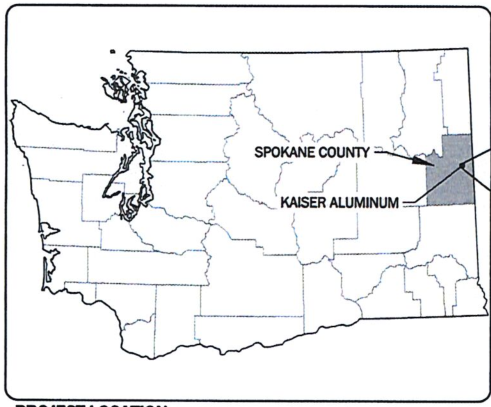
BRENT DOWNEY		3/31/22
Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

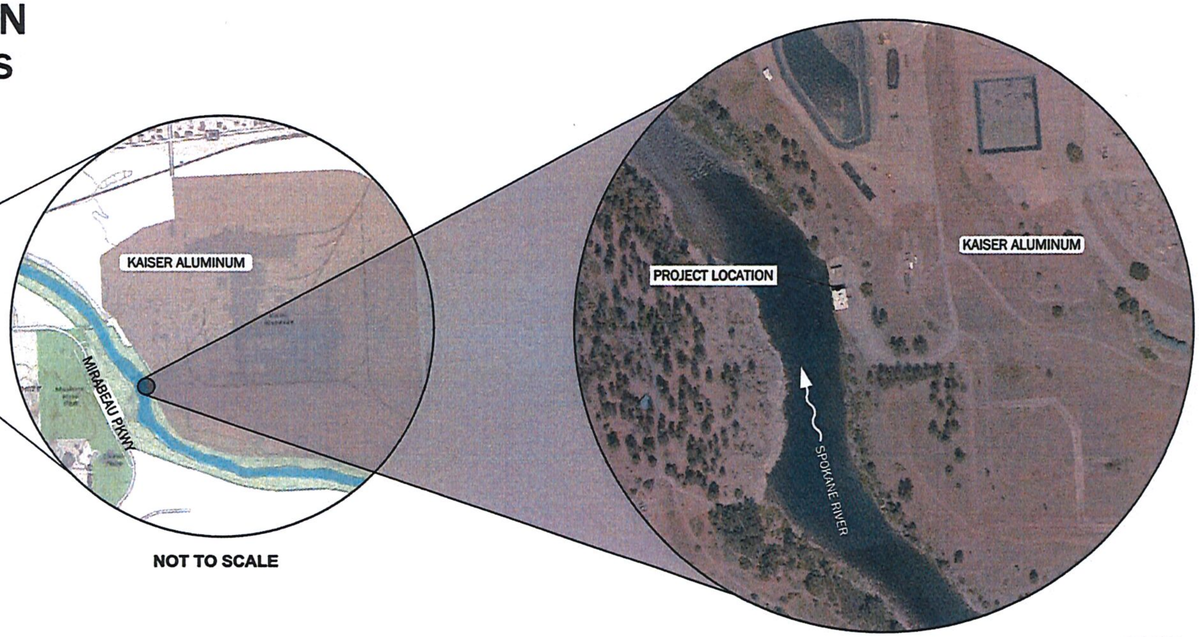
If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2018

BANK STABILIZATION

KAISER ALUMINUM - TRENTWOOD WORKS
SPOKANE VALLEY, WASHINGTON
ISSUED FOR CONSTRUCTION DRAWINGS



PROJECT LOCATION
15000 EAST EUCLID AVENUE
SPOKANE VALLEY, WASHINGTON



SHEET INDEX:

CONTACT INFORMATION

GEOENGINEERS INC.
RYAN S. CARNIE, PE
412 E. PARKCENTER BLVD.
SUITE 305
BOISE, IDAHO 83706
PH: (208) 258-8326

ERIK J. ARNSON, PE
523 E. SECOND AVE.
SPOKANE, WASHINGTON 99202
PH: (509) 363-3125

KAISER ALUMINUM
SCOTT BRAUN, PMP
SENIOR PROJECT MANAGER
15000 E. EUCLID AVE.,
SPOKANE VALLEY, WASHINGTON 99216
PH: (614) 565-0017

811 Know what's below. Call before you dig.

RYAN S. CARNIE — STATE OF WASHINGTON — 52457 — REGISTERED PROFESSIONAL ENGINEER
04/28/2022

Plotted: 04/27/2022, 18:10 | hmara \\geoengineers.com\WAN\Projects\7\7839046\CAD\01\Bank Stabilization Trentwood\04_R01 [IFC]7839046000_SH 1_1.1 [COVER SHEET].dwg

NO.	DATE	BY	ISSUE / DESCRIPTION
1	04/28/22	RSC	SPOKANE VALLEY COMMENT RESPONSE

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 4/28/2022

GEOENGINEERS
WWW.GEOENGINEERS.COM

PREPARED FOR: KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

COVER SHEET

DRAWING NUMBER: 1.1
SHEET: 1 OF 9

GENERAL NOTES

GENERAL:

THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL EXISTING DIMENSIONS AND SITE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THE PLANS AND THOSE UTILITIES OR UNDERGROUND OBSTRUCTIONS NOT SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL ABANDONED UTILITIES, OR OTHER UNDERGROUND OBSTRUCTIONS THAT INTERFERE WITH THE NEW CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION PROCESS AND THE SAFETY OF THE WORKERS. THIS INCLUDES BUT IS NOT LIMITED TO, THE CONSTRUCTION SEQUENCE, TEMPORARY HANDRAILS, EXCAVATION ACCESS, AND BARRIERS. IT ALSO INCLUDES LIFTING OF MATERIALS AND CONSTRUCTION EQUIPMENT INTO AND OUT OF THE EXCAVATION, TEMPORARY BRACING OF SINGLE-SIDED FORMWORK, TEMPORARY SHORING OF EXCAVATIONS, AND STABILITY OF ALL TEMPORARY CUT SLOPES.

A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO THE START OF THE WORK AND SHALL BE ATTENDED BY THE ENGINEER, THE GENERAL CONTRACTOR, THEIR SUBCONTRACTOR(S), AND KAISER ALUMINUM REPRESENTATIVES. THE PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED TO CLARIFY THE REQUIREMENTS FOR THE WORK, TO COORDINATE THE CONSTRUCTION ACTIVITIES, AND TO IDENTIFY CONTRACTUAL RELATIONSHIPS AND RESPONSIBILITIES.

REFERENCE DATA:

BASE CAD FILES DG000229.dwg AND DG000230.dwg PROVIDED MAY 22, 2020.

BUILDING CODES, DESIGN MANUALS, AND SPECIFICATIONS:

2015 INTERNATIONAL BUILDING CODE.

DESIGN LIVE LOADS:

A 250 PSF LIVE LOAD SURCHARGE ALONG THE TOP OF THE RETAINING WALLS.

SUBSURFACE DESIGN PARAMETERS:

THE FOLLOWING ARE ESTIMATED SOIL PROPERTIES FOR EXISTING RETAINING WALL BACKFILL:

SUBSURFACE UNIT	UNIT WEIGHT (PCF)	SOIL FRICTION (DEG)	SOIL COHESION (PSF)
ALLUVIUM/FILL	130	36	0

CONSTRUCTION SURVEY:

CONSTRUCTION SURVEY IS RESPONSIBILITY OF CONTRACTOR.

STABILIZATION ROCK SPECIFICATIONS

MATERIALS:

1. CHANNEL SUBSTRATE SHALL BE COMPRISED OF STREAMBED SEDIMENT GRADATIONS IN THE TABLE BELOW AND RIPRAP GRADATIONS IDENTIFIED AS FOLLOWS:
   a. RIPRAP EMBANKMENT: WSDOT CLASS A (SPECIFICATION 9-13.4(2)).
   b. RIPRAP SHALL BE WASHED TO REMOVE ALL FINES AND APPROVED BY THE ENGINEER BEFORE PLACEMENT.

EXECUTION:

ACCESS AND STAGING;

1. VEHICLE MAINTENANCE, FUELING AND OVERNIGHT STORAGE SHALL BE A MINIMUM 150 FEET FROM THE ORDINARY HIGH WATER MARK AS SHOWN ON THE DRAWINGS.
2. DEWATERING IS NOT PROPOSED WITH THE INSTALLATION OF THE PROPOSED RIPRAP.
3. THE RIPRAP EMBANKMENT CONSTRUCTION SHALL OCCUR DURING IN-WATER WORK PERIOD AS DETERMINED BY PERMIT FOLLOWING COMPLETION OF RETAINING WALL REPAIR, AS INDICATED ON THESE DRAWINGS.

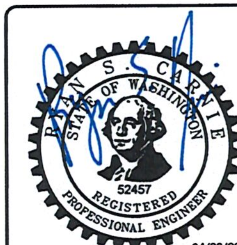
RIPRAP REVETMENT PLACEMENT;

1. RIPRAP PROTECTION SHALL BE INSTALLED AS SHOWN ON THE DRAWINGS.
2. RIPRAP PROTECTION SHALL BE PLACED BY BUCKET OR HAND AND NOT END DUMPED PER WSDOT SPECIFICATION 8-15.3.
3. PREVENT VOIDS OR HONEYCOMBING OF RIPRAP DURING PLACEMENT. FILL VOIDS WITH SMALLER PIECES OF ROCKS.
4. PLACE RIPRAP PROTECTION SO AS NOT TO CRUSH OR OTHERWISE DAMAGE EXISTING STRUCTURES.

WSDOT CLASS A GRADATION

APPROXIMATE SIZE (INCH)	PERCENT PASSING (SMALLER)
18	100
16	80-95
12	50-80
8	15-50
4	15 max.

APPROXIMATE SIZE CAN BE DETERMINED BY TAKING THE AVERAGE DIMENSION OF THE THREE AXES OF THE ROCK, LENGTH, WIDTH, AND THICKNESS, BY USE OF THE FOLLOWING EQUATION: (LENGTH + WIDTH + THICKNESS)/3



04/28/2022

NO.	DATE	BY	ISSUE / DESCRIPTION
1	04/28/22	RSC	SPOKANE VALLEY COMMENT RESPONSE

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 4/28/2022

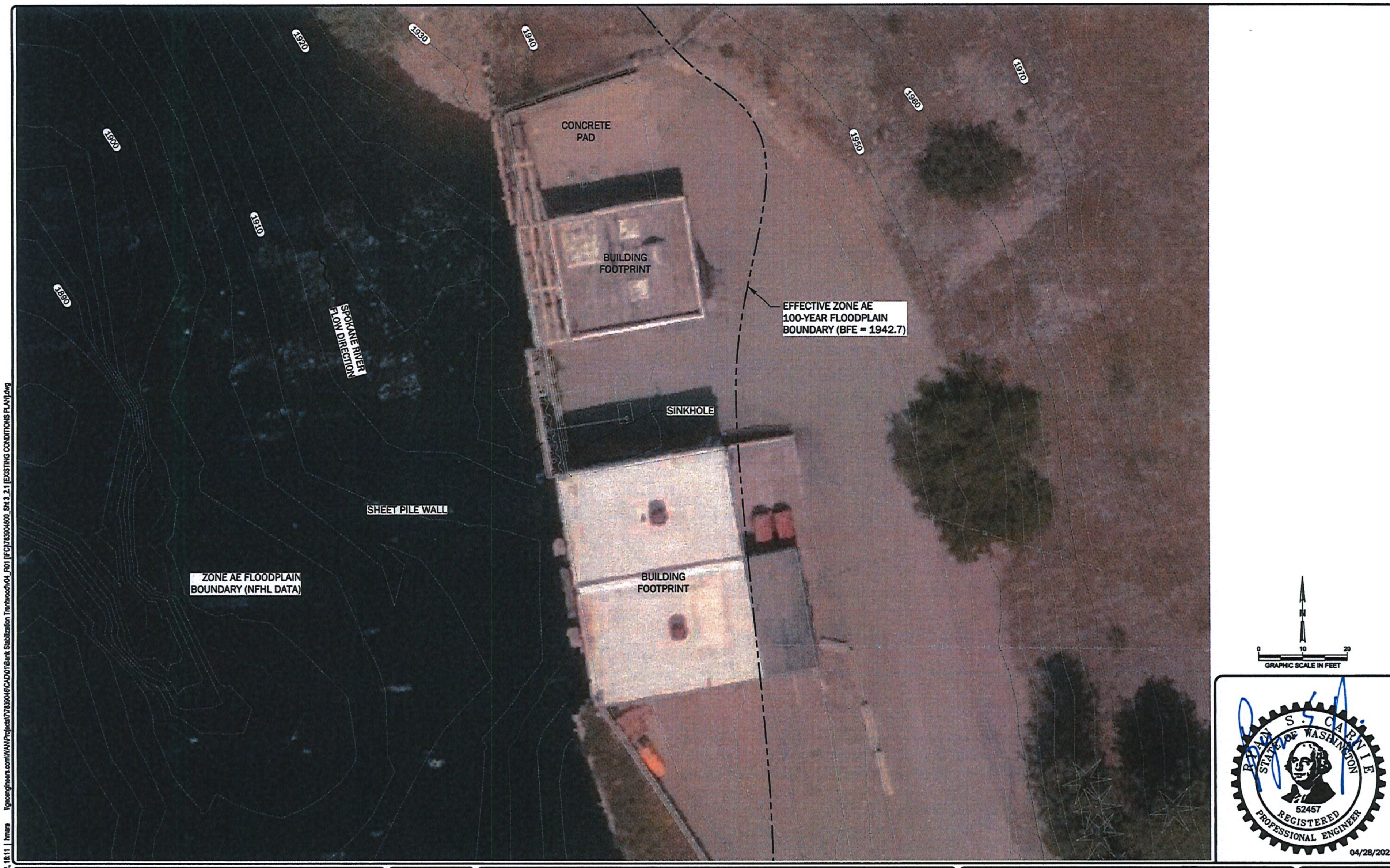
GEOENGINEERS
WWW.GEOENGINEERS.COM

PREPARED FOR: KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

GENERAL NOTES AND QUANTITIES

DRAWING NUMBER: 1.2
SHEET: 2 OF 9



Plotted: 04/27/2022, 18:11 | hmara \\geoengineers.com\WAN\Projects\7\7839046\CAD\01\Bank Stabilization Trentwood\v04_R01 [IFC]\783904600_Sht 3_2.1 [EXISTING CONDITIONS PLAN].dwg

NO.	DATE	BY	ISSUE / DESCRIPTION
1	04/28/22	RSC	SPOKANE VALLEY COMMENT RESPONSE

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 4/28/2022

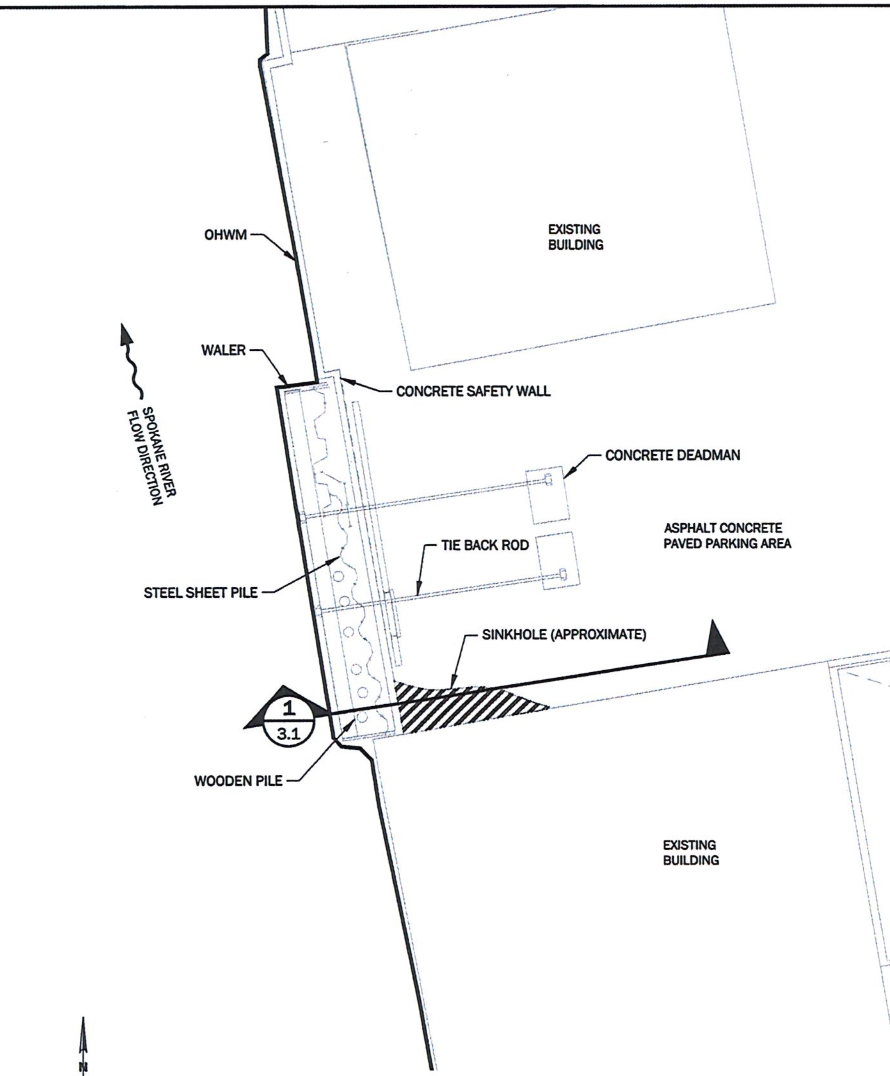
GeoEngineers
www.geoengineers.com

PREPARED FOR:
KAISER ALUMINUM

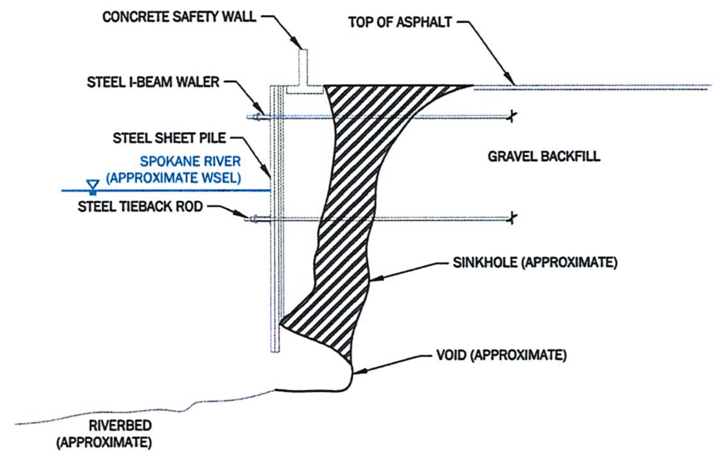
KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

EXISTING CONDITIONS PLAN

DRAWING NUMBER: 2.1
SHEET: 3 OF 9



EXISTING WALL PLAN



EXISTING WALL SECTION 1/3.1
SCALE: NOT TO SCALE

ERIK J ARNSON, STATE OF WASHINGTON, 44658, REGISTERED PROFESSIONAL ENGINEER, 12/20/2021

Plotted: 12/20/2021, 13:20 | csticksl \\geoengineers.com\WAN\Projects\7\7839046\CAD\01\Bank Stabilization Trentwood\v04_[IFC]\783904600_Sht 4_3.1 [EXISTING WALL PLAN AND SECTION].dwg

NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 12/20/2021

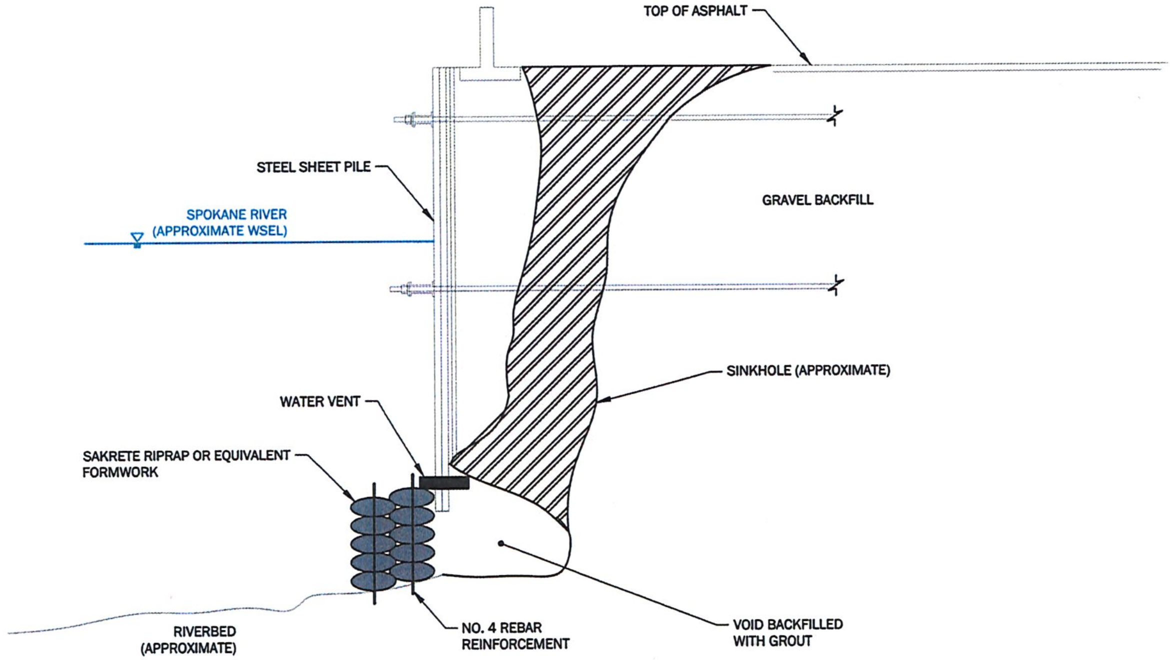
GEOENGINEERS
WWW.GEOENGINEERS.COM

PREPARED FOR: KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

EXISTING WALL PLAN AND SECTION

DRAWING NUMBER: 3.1
SHEET: 4 OF 9



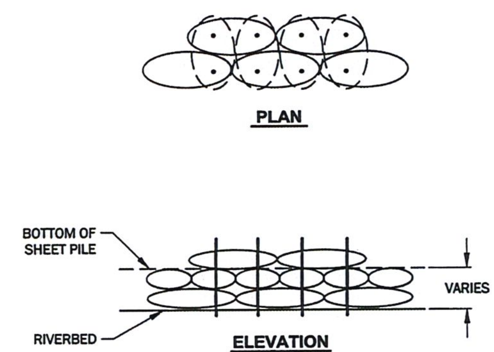
PROPOSED WALL REPAIR SECTION (1 / 3.2)
SCALE: NOT TO SCALE

WALL REPAIR SPECIFICATIONS

MATERIALS:

1. GROUT SHALL BE A PUMPABLE NON-SHRINK, NON-CORROSIVE CEMENTITIOUS GROUT AND SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 5,000 PSI AT 28 DAYS PER ASTM C109/AASHTO T106.
   a. WATER SHALL BE POTABLE AND FREE FROM CONSTITUENTS DETRIMENTAL TO PORTLAND CEMENT HYDRATION AND HARDENING.

FORMWORK TO EXTEND AT LEAST ONE LAYER OF BAGS ABOVE BOTTOM OF SHEET PILE. STAGGER BAG STACKING TO INTERLOCK BAGS. DRIVE REBAR THROUGH FULL HEIGHT OF STACKED BAGS.



SAKRETE RIPRAP (OR EQUIVALENT) FORMWORK DETAIL (-)
SCALE: NOT TO SCALE

NOTE:
SAKRETE OR EQUIVALENT TO BE USED DURING PROPOSED VOID BACKFILL. THE SAKRETE INSTALLATION WILL REMAIN IN PLACE AND BE COVERED BY RIPRAP AS SHOWN ON SHEET 4.2.

ERIK J ARNSON, STATE OF WASHINGTON, 44658, REGISTERED PROFESSIONAL ENGINEER, 12/20/2021

NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 12/20/2021

GEOENGINEERS
WWW.GEOENGINEERS.COM

PREPARED FOR: KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

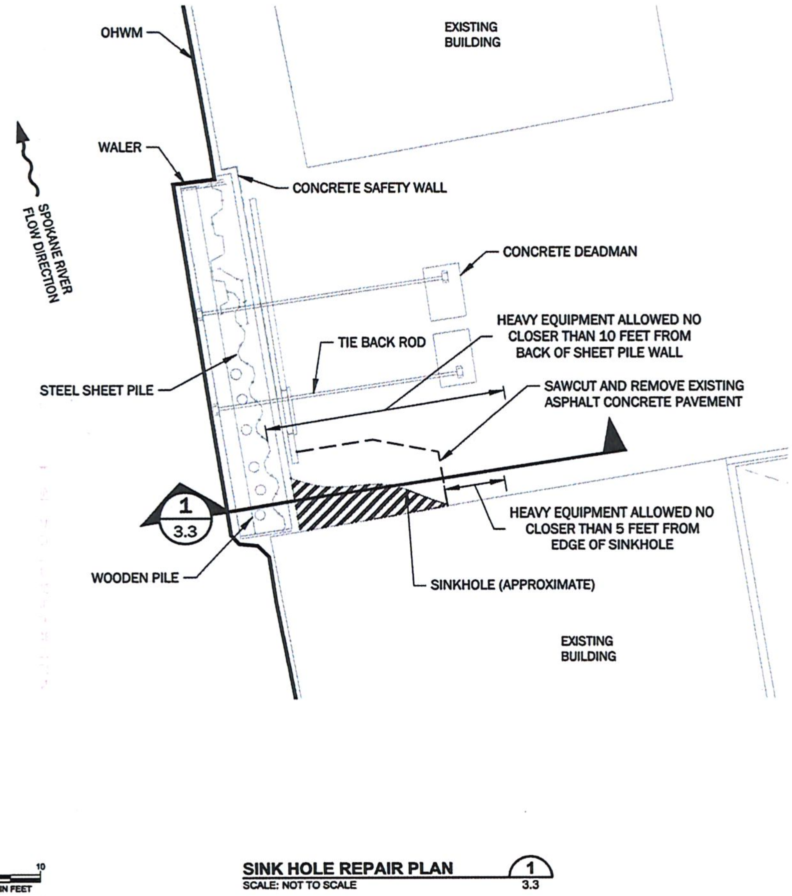
PROPOSED WALL REPAIR

DRAWING NUMBER: 3.2
SHEET: 5 OF 9

SINKHOLE REPAIR SPECIFICATIONS

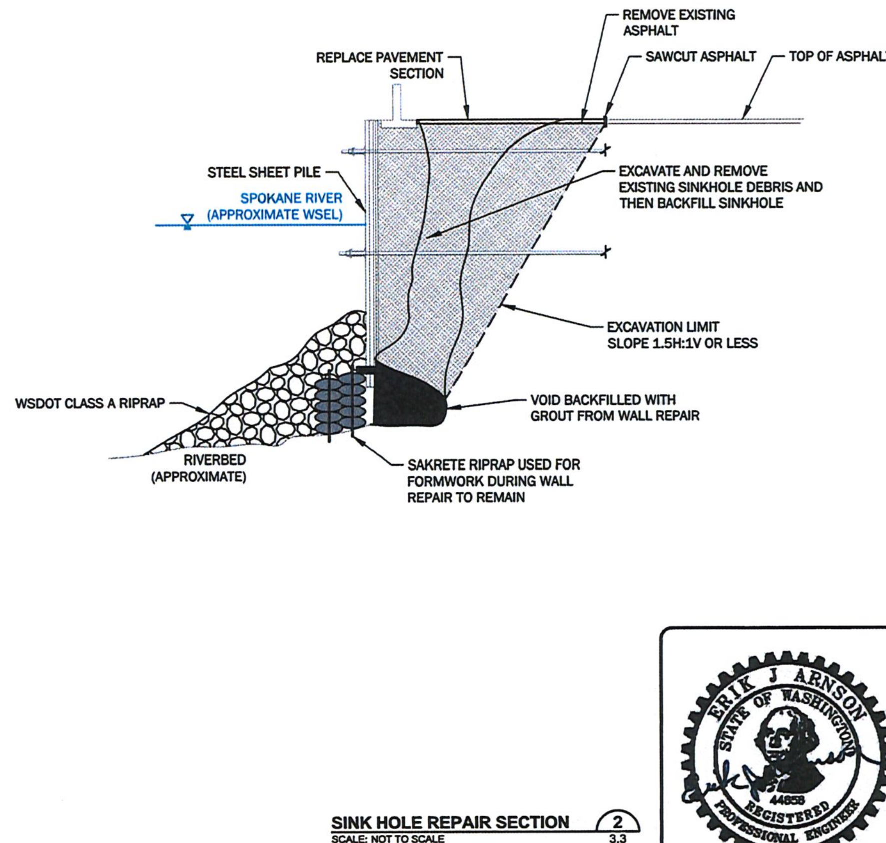
EXECUTION:

1. SINKHOLE REPAIR MAY BEGIN 7 DAYS AFTER GROUT PLACEMENT FOR RETAINING WALL REPAIR.
2. SAWCUT EXISTING ASPHALT CONCRETE PAVEMENT AROUND SINKHOLE TO ALLOW SUFFICIENT ROOM FOR EXCAVATION.
3. EXCAVATE AND REMOVE SOIL AND DEBRIS (BROKEN ASPHALT, RIPRAP, CONCRETE BAGS, ETC) BACKFILL TO EXPOSE SAND AND GRAVEL FILL. MAINTAIN HEAVY EQUIPMENT SETBACK DISTANCES DURING EXCAVATION. EXCAVATION MAY EXTEND BELOW THE EXISITNG WATER LEVEL.
4. IF EXCAVATION EXPOSES GAPS OR OPENINGS TO THE RIVER BETWEEN THE END OF THE SHEET PILE WALL AND THE EXISTING BUILDING, PLACE PLASTIC SHEETING, SEPARATION FABRIC OR OTHER BARRIERS TO PREVENT BACKFILL FROM LEAKING INTO THE RIVER.
5. BACKFILL THE SINKHOLE WITH PEA GRAVEL OR CONTROLLED DENSITY FILL (LEAN CONCRETE).
   A. PEA GRAVEL MAY BE PLACED IN 12 INCH LIFTS. EACH LIFT OF PEA GRAVEL SHOULD BE DENSIFIED USING VIBRATORY COMPACTION.
   B. CONTROLLED DENSITY FILL SHOULD HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 100 PSI.
6. FOLLOWING BACKFILLING, REPLACE PAVEMENT SECTION. REPLACEMENT PAVEMENT SECTION SHOULD MATCH EXISTING PAVEMENT SECTION OR CONSIST OF 2 INCHES OF HMA OVER 6 INCHES OF CSBC, WHICHEVER IS GREATER. CSBC SHOULD BE COMPACTED TO 95 PERCENT OF THE MDD PER ASTM D1557.



OHWM
EXISTING BUILDING
WALER
SPOKANE RIVER FLOW DIRECTION
CONCRETE SAFETY WALL
CONCRETE DEADMAN
TIE BACK ROD
HEAVY EQUIPMENT ALLOWED NO CLOSER THAN 10 FEET FROM BACK OF SHEET PILE WALL
STEEL SHEET PILE
SAWCUT AND REMOVE EXISTING ASPHALT CONCRETE PAVEMENT
1
3.3
HEAVY EQUIPMENT ALLOWED NO CLOSER THAN 5 FEET FROM EDGE OF SINKHOLE
WOODEN PILE
SINKHOLE (APPROXIMATE)
EXISTING BUILDING
N
0
5
10
GRAPHIC SCALE IN FEET

SINK HOLE REPAIR PLAN (1 / 3.3)
SCALE: NOT TO SCALE



REMOVE EXISTING ASPHALT
REPLACE PAVEMENT SECTION
SAWCUT ASPHALT
TOP OF ASPHALT
STEEL SHEET PILE
EXCAVATE AND REMOVE EXISTING SINKHOLE DEBRIS AND THEN BACKFILL SINKHOLE
SPOKANE RIVER (APPROXIMATE WSEL)
EXCAVATION LIMIT SLOPE 1.5H:1V OR LESS
WSDOT CLASS A RIPRAP
VOID BACKFILLED WITH GROUT FROM WALL REPAIR
RIVERBED (APPROXIMATE)
SAKRETE RIPRAP USED FOR FORMWORK DURING WALL REPAIR TO REMAIN

SINK HOLE REPAIR SECTION (2 / 3.3)
SCALE: NOT TO SCALE

ERIK J ARNSON
STATE OF WASHINGTON
44858
REGISTERED PROFESSIONAL ENGINEER
12/20/2021

NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 12/20/2021

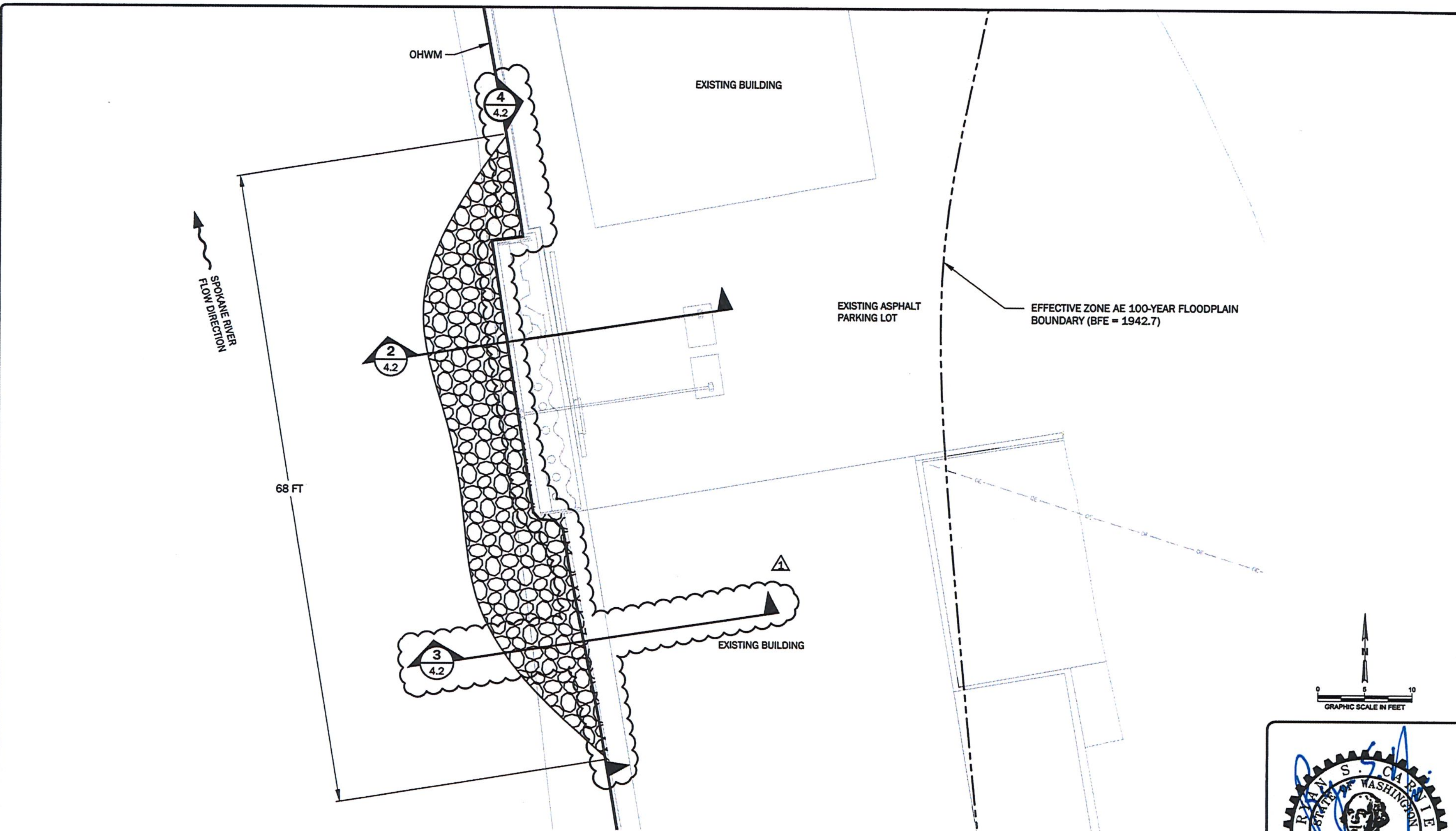
GEOENGINEERS
WWW.GEOENGINEERS.COM

PREPARED FOR: KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON
PROPOSED SINK HOLE REPAIR

DRAWING NUMBER: 3.3
SHEET: 6 OF 9

Plotted: 12/20/2021, 13:21 | cstickel \\geoengineers.com\WAN\Projects\7\783904\6\CAD\01\Bank Stabilization Trentwood\v04_[IFC]\783904600_Sht 6_3.3 [PROPOSED SINK HOLE REPAIR].dwg



BANK STABILIZATION PLAN

RYAN S. CARNIE
STATE OF WASHINGTON
52457
REGISTERED
PROFESSIONAL ENGINEER
04/28/2022

Plotted: 04/27/2022, 18:11 | hmara \\geoengineers.com\WAN\Projects\7\7839046\CAD\01\Bank Stabilization Trentwood\v04_R01 [IFC]\783904600_Sht 7_4.1 [PROPOSED STABILIZATION PLAN].dwg

NO.	DATE	BY	ISSUE / DESCRIPTION
1	04/28/22	RSC	SPOKANE VALLEY COMMENT RESPONSE

DESIGNED BY:	JAP
DRAWN BY:	HCM
APPROVED BY:	RSC
REVISION NO.:	—
DATE:	4/28/2022

GEOENGINEERS
WWW.GEOENGINEERS.COM

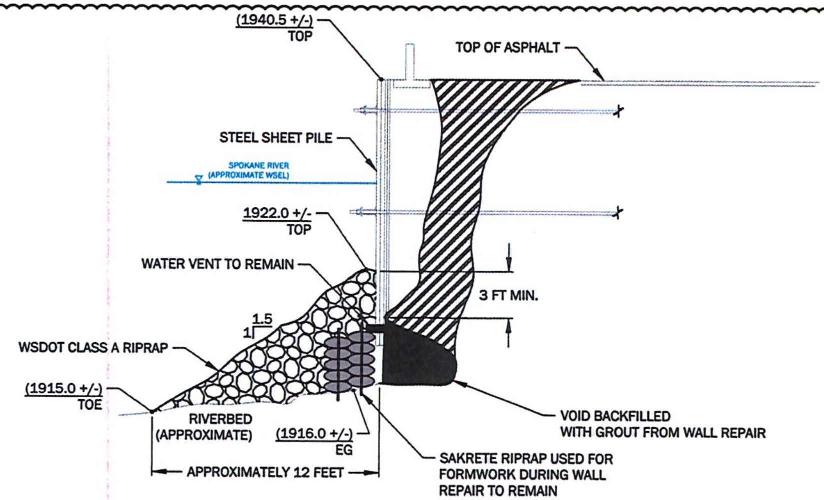
PREPARED FOR:
KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

PROPOSED STABILIZATION PLAN

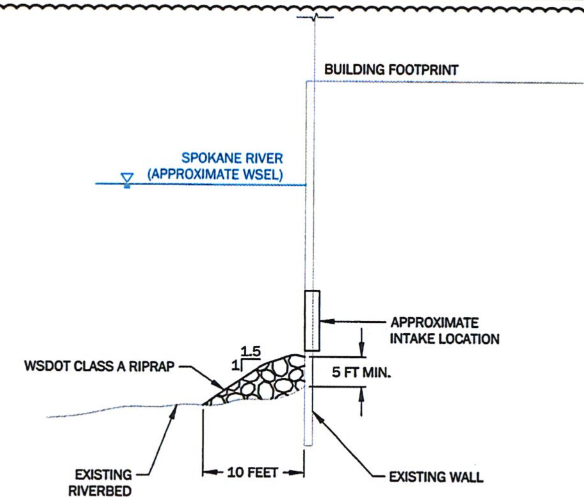
DRAWING NUMBER:
4.1
SHEET: 7 OF 9

Plotted: 04/27/2022, 18:11 | hmara \\geoengineers.com\WAN\Projects\7\7839046\CAD\01\Bank Stabilization Trentwood\v04_R01 [IFC]\783904600_Sht 8_4.2 [PROPOSED STABILIZATION SECTION].dwg

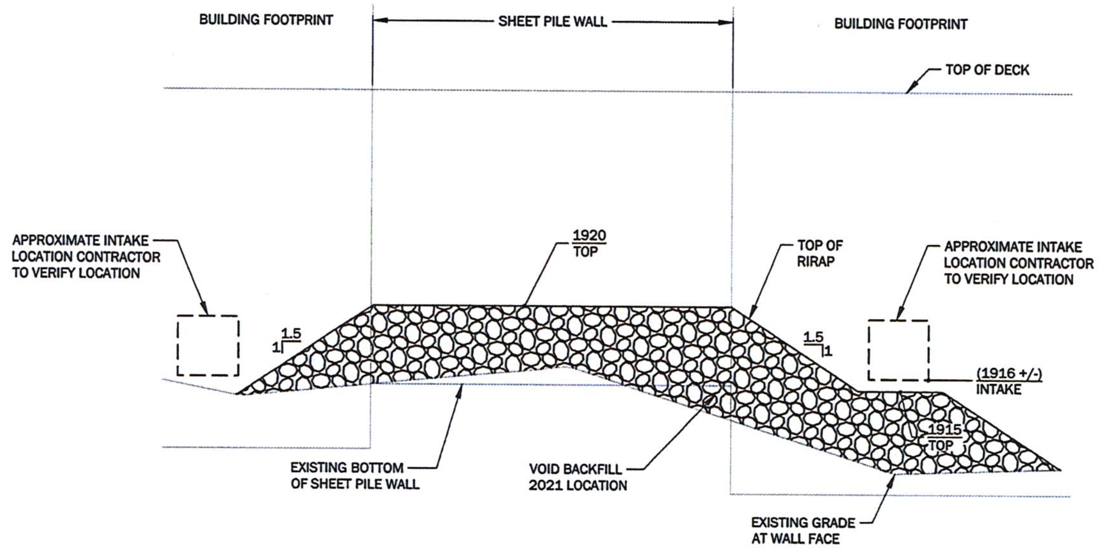


(1940.5 +/-)
TOP
TOP OF ASPHALT
STEEL SHEET PILE
SPOKANE RIVER (APPROXIMATE WSEL)
1922.0 +/-
TOP
WATER VENT TO REMAIN
3 FT MIN.
1.5
1
WSDOT CLASS A RIPRAP
(1915.0 +/-)
TOE
RIVERBED (APPROXIMATE)
(1916.0 +/-)
EG
VOID BACKFILLED WITH GROUT FROM WALL REPAIR
SAKRETE RIPRAP USED FOR FORMWORK DURING WALL REPAIR TO REMAIN
APPROXIMATELY 12 FEET

PROPOSED BANK STABILIZATION SECTION (2 / 4.1)
SCALE: NOT TO SCALE



PROPOSED BANK STABILIZATION SECTION (3 / 4.1)
SCALE: NOT TO SCALE



BUILDING FOOTPRINT
SHEET PILE WALL
BUILDING FOOTPRINT
TOP OF DECK
APPROXIMATE INTAKE LOCATION CONTRACTOR TO VERIFY LOCATION
1920
TOP
TOP OF RIRAP
APPROXIMATE INTAKE LOCATION CONTRACTOR TO VERIFY LOCATION
1.5
1
1.5
1
(1916 +/-)
INTAKE
1915
TOP
EXISTING BOTTOM OF SHEET PILE WALL
VOID BACKFILL 2021 LOCATION
EXISTING GRADE AT WALL FACE

PROPOSED RIPRAP AT FACE OF WALL (4 / 4.1)
SCALE: NOT TO SCALE

NO.	DATE	BY	ISSUE / DESCRIPTION
1	04/28/22	RSC	SPOKANE VALLEY COMMENT RESPONSE

DESIGNED BY:	JAP
DRAWN BY:	HCM
APPROVED BY:	RSC
REVISION NO.:	—
DATE:	4/28/2022

GEOENGINEERS
WWW.GEOENGINEERS.COM

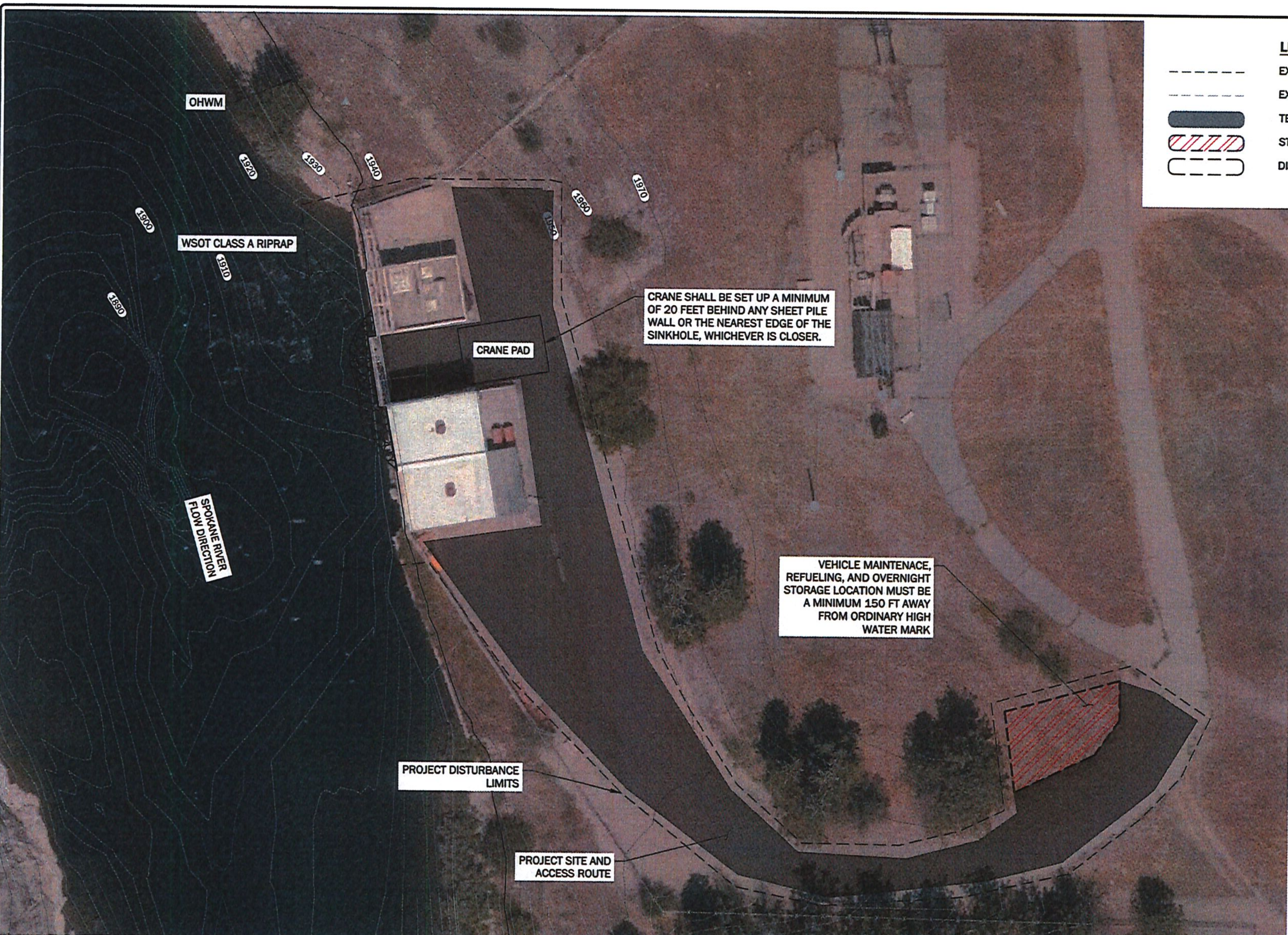
PREPARED FOR:
KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

PROPOSED STABILIZATION SECTION

RYAN S. CARNIE
STATE OF WASHINGTON
52457
REGISTERED PROFESSIONAL ENGINEER
04/28/2022

DRAWING NUMBER: **4.2**
SHEET: 8 OF 9



LEGEND

- EXISTING MAJOR CONTOUR LINE
- EXISTING MINOR CONTOUR LINE
- TEMPORARY ACCESS ROUTE
- STAGING AND STOCKPILE LOCATION
- DISTURBANCE LIMITS

N

0 20 40
GRAPHIC SCALE IN FEET

RYAN S. CARNIE
STATE OF WASHINGTON
52457
REGISTERED
PROFESSIONAL ENGINEER
04/28/2022

NO.	DATE	BY	ISSUE / DESCRIPTION
1	04/28/22	RSC	SPOKANE VALLEY COMMENT RESPONSE

DESIGNED BY: JAP
DRAWN BY: HCM
APPROVED BY: RSC
REVISION NO.: —
DATE: 4/28/2022

GEOENGINEERS
WWW.GEOENGINEERS.COM

PREPARED FOR:
KAISER ALUMINUM

KAISER ALUMINUM TRENTWOOD PLANT - SHEET PILE WALL REPAIR
SPOKANE VALLEY, WASHINGTON

CONSTRUCTION STAGING, ACCESS AND ESC PLAN

DRAWING NUMBER: 5.1
SHEET: 9 OF 9

Plotted: 04/27/2022, 18:12 | hmara \\geoengineers.com\WAN\Projects\7\7839046\CAD\01\Bank Stabilization Trentwood\v04_R01 [IFC]\783904600_Sht 9_5.1 [CONSTRUCTION STAGING, ACCESS AND ESC PLAN].dwg