Contractor's Bid Package
FOR
White Creek 191 Road Crossing Project:
Bridge Placement

August 13, 2021

Prepared By:

Yakama Nation Fisheries - Klickitat Field Office
P.O. Box 215
Klickitat, WA 98628
Phone: 509-369-3565
FAX: 509-830-0034
E-mail: dlindley@ykfp.org

Critical Dates:

Question &Site Visit Request Deadline:	August 2, 2021 – 5:00 pm
Bid Submission Deadline:	August 13, 2021 – 12:00 pm
Tentative Award Selection:	August 17, 2021
Project Initiation (est):	September 11, 2021
Project Completion (est):	October 30, 2021

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ADVERTISEMENT FOR BIDS

NOTICE IS HEREBY GIVEN that email bid proposals will be received by:
Yakima Klickitat Fisheries Project
David Lindley, dlindley@ykfp.org
Email Subject: White Creek 191 Road X-ing

UNTIL:

12:00 P.M. Pacific Daylight Time on August 13, 2021

No proposals will be accepted after the above-stated time. Immediately following the above stated time, all firms who submit a proposal will receive email verification, and a summary of bid results.

I - GENERAL DESCRIPTION

The **YAKAMA NATION**, **OWNER**, is soliciting bids for construction activities associated with replacement of three undersized culverts with a pre-fabricated bridge from Pacific Bridge and Construction. The project is intended to reconstruct the 191 road-xing of White Creek to alleviate maintenance issues, allow upstream migration of all fish species and age classes, and facilitate the longitudinal movement of wood and sediment across a range of streamflow conditions.

The 191 road x-ing of White Creek is located approximately 2 miles north of the three way junction of the 207, 191 and Klose Butte Roads. (46.142158, -121.077567). The project aims to improve fish passage at two road crossings in the White Creek watershed, a major tributary of the Klickitat River east of Mount Adams that provides critical spawning and rearing habitat for ESA-listed steelhead. The road crossing is located within the Closed Area of the Yakama Reservation. This road crossing is one of the last major known impediments to fish passage in the White Creek watershed. The road is used for Tribal member access to the Closed Area for hunting, fishing, gathering and timber harvest. The crossing is located approximately 1 hour from either Glenwood, WA or White Swan, WA.

The existing crossing is composed of three seven-foot diameter corrugated metal culverts. There are no upstream wing walls at the inlets and both culverts have a small outfall.

II - PROJECT BACKGROUND

White Creek, a tributary of the Klickitat River, and Brush Creek, the largest tributary of White Creek, provide important spawning and rearing habitat for ESA-listed Middle Columbia River steelhead. The White Creek watershed may be the most important spawning and rearing tributary watershed within the Klickitat subbasin. Recent studies by the Yakama Nations Fisheries Program have indicated that, on average, the White Creek drainage accounts for approximately 41% of the observed spawning in the Klickitat subbasin). The White Creek

watershed is in the top tier of priority geographic areas identified in the Klickitat Lead Entity Region Salmon Recovery Strategy.

The limiting factor addressed by this project is fish access to limited critical rearing habitat. The low/no flow period in late summer/early fall presents a population bottleneck for juvenile *O. mykiss* due to stranding and desiccation. Currently, most reaches in the White Creek watershed dry up between July and October. Surface water in late summer is confined to disconnected reaches or individual pools, especially where there is spring flow.

Project Goals

The goal of the project is to provide a road crossing that solves maintenance problems, allows upstream migration of all fish species for all age classes, and facilitates the longitudinal movement of wood and sediment across a wide range of flow conditions.

Project Objective

- Remove existing undersized culverts under FR 191 and replace with a bridge by November 2021

III - CONTRACT OVERVIEW

To achieve a road crossing that solves maintenance needs and provides passage for wood, sediment, peak flows and fish a 29’ x 15’ will be installed (Fig. 1).

Figure 1. Example of type of bridge to be installed (without guard rail).

The contractor will mobilize identified equipment (Section VII) to the site, prepare for bridge delivery either at the site or a suitable location nearby from which the bridge components will be ferried to the project site, unload and stockpile the bridge and abutments delivered by the manufacturer, prepare site, remove existing culverts, prepare bridge location, place bridge and

structural backfill. **Excavators must have a lift capacity to move, abatements, blocks and bridge planks (15,000 pounds).**

The contract will consist of two major components:

1. **Prepare for bridge delivery** either on site by preparing the 191 road from the intersection with the 207 road north to the White Creek crossing (includes brushing and light grading) or by preparing a suitable site for delivery near the project site and hauling the bridge pieces to the site.
2. **Remove existing undersized culverts under FR 191 and replace with a 29' long bridge by 15' wide bridge on 12.5' tall by 15.0' long abutments**. Minor edits to the streambed and banks will be made to align the channel appropriately. Structural bridge plans available on project website.

Additional contract items include: the mobilization of equipment, unloading of bridge and abutments, site preparation, placement of bridge backfill material, grading and placement of stream channel materials, and hauling and placing structural materials (stream simulation material, rock slope protection, and 3/4"' minus).

Additional information can be found in Appendix A, B & C – Map and photos, work specifications, and plansets.

The **OWNER** will furnish the bridge and all associated materials, structural materials (located at rock pits less than 10 miles from site) and provide seed and mulch.

Awarding of the contract shall be based on a combination of price, equipment specified, project proposal and **CONTRACTOR** experience and background. The **OWNER** shall have the **SOLE** discretion and responsibility for choosing the responsive and responsible **CONTRACTOR.**

IV - CONTRACTORS' RESPONSIBILITIES

The **CONTRACTOR** shall be responsible for performing their work in a timely, professional manner, shall abide by all applicable tribal, state, and federal guidelines that govern this project, and shall implement all required permit conditions, see Appendix G.

The **CONTRACTOR** is **solely responsible** for maintaining safe working conditions near his/her equipment and for the safe operation of his/her equipment. If at any time the **CONTRACTOR** or his/her operators determine that instructions given by the **OWNER** would create a potentially unsafe working condition or would jeopardize the equipment, the **OWNER** shall be **immediately** notified of the problem. The **OWNER** will then work with the **CONTRACTOR** to find an acceptable alternative method to complete the required task.

The **CONTRACTOR** shall assume full financial and legal responsibility for any damage caused by their machinery and/or crews including but not limited to the following:

1- Any equipment becoming stuck due to unstable ground or operator error.
2- Any equipment that is damaged due to unstable ground or operator error.
3- Any environmental damage due to hydraulic, lubricant or coolant leaks.
4- Any damage outside the project area to culverts, bridges, paved roads or other property caused during operations.

Payment
Payment shall be considered full compensation for all equipment, labor, tools, materials, and incidentals necessary to complete this work as specified. Payment will be made in accordance with Section XII.

V - CONSTRUCTION OVERSIGHT

The **OWNER or OWNER'S DESIGNEE** shall be available during all construction activities to provide the **CONTRACTOR** with information as required to carry out the **CONTRACT**.

Except as noted in SECTION VI - ACCESS, the **OWNER** shall have full authority to direct **ALL** work. The **OWNER** must preapprove any deviation from specifications or instructions.

VI – SPECIFICATIONS

The **CONTRACTOR** shall propose the major pieces of equipment that are required to complete the work specified.

See EXHIBIT B for detailed specifications.

Industrial Fire Precaution Level (IFPL)

Work shall be conducted in accordance with the current IFPL level. The IFPL of this project is Zone 680. Current IFPL level shall be determined by calling 1-800-527-3305 and/or visiting the following website: https://www.dnr.wa.gov/ifpl

VII - ACCESS

Prior to initiating work the **CONTRACTOR** and the **OWNER** shall review all access routes within the project site. Once the **CONTRACTOR** approves the sites, he/she shall thereafter be **SOLELY** responsible for material delivery, access route preparation and restoration of the access routes. See Section IV – **CONTRACTORS' RESPONSIBILITY** for further requirements.

VIII - CONSTRUCTION SCHEDULE

The work can be initiated as soon as a contract is in place. It is anticipated that work will begin no later than September 13, 2021 and be completed by October 30, 2021.

The **CONTRACTOR** has two weeks from the date when the notice to proceed is received to mobilize and commence work.

IX - INSURANCE

EACH CONTRACTOR shall maintain insurance coverage at their cost from insurers and shall furnish certificates of insurance or self-insurance approved by the **OWNER**, giving evidence of such coverage to the **OWNER**, which satisfies the requirements as set forth in **APPENDIX D.**

X - BID SCHEDULE & SELECTION

SELECTION PROCESS

YKFP will award the Project contract to the responsible bidder whose bid, conforming to all the material terms and conditions of the invitation for bids, is the lowest in price. Provided that if there are multiple responsive low bids from responsible bidders, YKFP will give preference to and select the low bid received from:

(1) A 100% Yakama owned business; or if there are no such bidders, then

(2) A certified Indian owned business that is at least 51% Indian-owned; or if there are no such bidders, then

(3) A non-Indian owned business.

The bidder to whom this contract is awarded must comply with Yakama Nation's Tribal Employment Rights Ordinance (TERO), including all applicable fees and Indian-preference subcontracting and hiring requirements.

Contract award shall be made to the qualified bidder (See conditions above) based on the lowest **responsive** and responsible bid for the **BID SCHEDULE.**

Due to restricted access to the Closed Area of the Reservation s a site walk through is available upon a request basis. If desired, please request a visit by 8/2/21. Additional project information can be found at:

https://yakamafish-nsn.gov/white-creek-191-rd-fish-passage-construction

BIDDERS who wish to discuss the site in greater detail can contact YKFP staff (David Lindley (509-830-0034, dlindley@ykfp.org). Relevant information discussed will be shared with all perspective BIDDERS.

Bids shall be considered **NON-RESPONSIVE** if they fail to provide satisfactory completeness of information requested in the Bid Schedule (Section XIII).

I. Qualified Contractor Bids on the Bid Schedule shall be received in hand no later than 12:00 P.M. Pacific Daylight Time on August 13, 2020. Bids may be emailed to **dlindley@ykfp.org** with the subject line **White Creek 191 Road X-ing.**

II. Immediately following the above stated time, all firms who submit a proposal will receive email verification, and a summary of bid results.

III. Bid awards for the Bid Schedule shall be made no later than August 17, 2021.

PROSPECTIVE CONTRACTOR INQUIRIES

Prospective Contractors may request clarification concerning information contained in this **CONTRACTORS BID PACKAGE** by submitting a written statement or question to the **OWNER** via **E-mail (dlindley@ykfp.org) no later than 5:00 P.M. Pacific Daylight Time, August 2, 2021.** The statement/question shall be answered in writing by the **OWNER no later than 1:00 P.M. Pacific Daylight Time, August 6, 2021.** The **OWNER'S** response shall become an **ADDENDA** to this **BID PACKAGE** and also shall be sent **by E-mail** to all contractors of record that have requested a copy of this **CONTRACTOR'S BID PACKAGE.**

(Note: Prospective Contractors must provide their E-mail addresses to receive subsequent responses. Failure to receive any such ADDENDA(S) shall not relieve such Bidder of fulfilling the modifications contained therein). The Bidder shall be responsible to ascertain prior to submittal of a Bid Proposal that all addenda issued have been received, and are acknowledged on the Bid Schedule.

XI - ADDITIONAL CONDITIONS

In addition to all of the requirements stated herein, and the conditions contained in appendices, **EACH PROPOSED BID** shall also be governed by the additional conditions listed in **APPENDIX E**.

Davis Bacon wage provisions and the Tribal Employment Rights Ordinance apply to this contract.

XII - PAYMENT

Compensation for services shall be provided by the **OWNER** to the **CONTRACTOR** based on a combination of **LUMP-SUM**, **TIME and UNIT** basis as specified in Section XIII.

Each day's work hours for each machine and labor crew shall be tallied at the end of **EACH** work day and submitted to the **DESIGNER** or **OWNER** for verification before the next work day commences. Bills may be submitted for payment bi-weekly or monthly. Payment processing shall be initiated once the **DESIGNER** or **OWNER** has verified that such work has occurred.

Bills may be submitted for payment once the **OWNER** has verified completion. Invoice for work completed in September 2021 shall be submitted to the **OWNER** no later than **9/30/2021** to facilitate YN fiscal year-end reporting.

Ten percent (10%) of the amount billed shall be retained until a **FINAL RELEASE** has been signed by the **CONTRACTOR** and delivered to the **OWNER** and all reclamation/restoration has been completed as outlined above.

XIII - BID SCHEDULE

REFERENCES – list references of individuals with whom you've contracted to perform comparable work in the past

1) Name:_____
   Organization:_____
   Phone Number:_____
   Nature of work:_____
   _____

2) Name:_____
   Organization:_____
   Phone Number:_____
   Nature of work:_____
   _____

MACHINERY – list proposed machinery and equipment to be used:

Machine #1
List the make & model _____

Machine #2
List the make & model _____

Machine #3
List the make & model _____

Machine #4
List the make & model _____

PROPOSAL - briefly describe project approach:

ITEM NO.	SPECIFICATION	ITEM	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL
1	015000	MOBILIZATION AND DEMOBILIZATION	1	LS		
2	015713	TEMPORARY EROSION CONTROL	1	LS		
3	024100	CULVERT DEMOLITION	1	LS		
4	311100	CLEARING AND GRUBBING	1	LS		
5	312316	UNCLASSIFIED EXCAVATION	250	CY		
7	321123	CRUSHED ROCK ROAD SURFACE	1,400	SF		
8	354237	STREAM SUBSTRATE MATERIAL	40	CY		
9	354237	ROCK SLOPE PROTECTION	40	CY		
10	323423	DELIVER MODULAR CONCRETE BRIDGE	1	LS		
11	323423	INSTALL MODULAR CONCRETE BRIDGE	1	LS		
12	015713.01	FIBER ROLL/STRAW WATTLE		LF		
13	329200	SEEDING	1	LS		
					SUBTOTAL	

OPTIONAL BID ITEMS

14	312319	CREEK DIVERSION	1	LS		
15	312316	EXCAVATION - UNSUITABLE MATERIALS	10	CY		
16	312316	ROCK EXCAVATION	10	CY		
17	312316	MISCELLANEOUS CONSTRUCTION	16	HR		
					SUBTOTAL	
					TOTAL	

All prices bid herein shall remain in effect through 10/30/2021.
CONTRACTOR shall be required to comply with the requirements as stated in the attached **CONTRACTOR'S BID PACKAGE**.

CONTRACTOR: _____

ADDRESS: _____

_____

LICENSE NUMBER: _____

BY: _____ _____
(Signature and Title) DATE:

Phone No. _____ FAX No. _____ E-mail _____

APPENDIX A

MAPS/PHOTOS

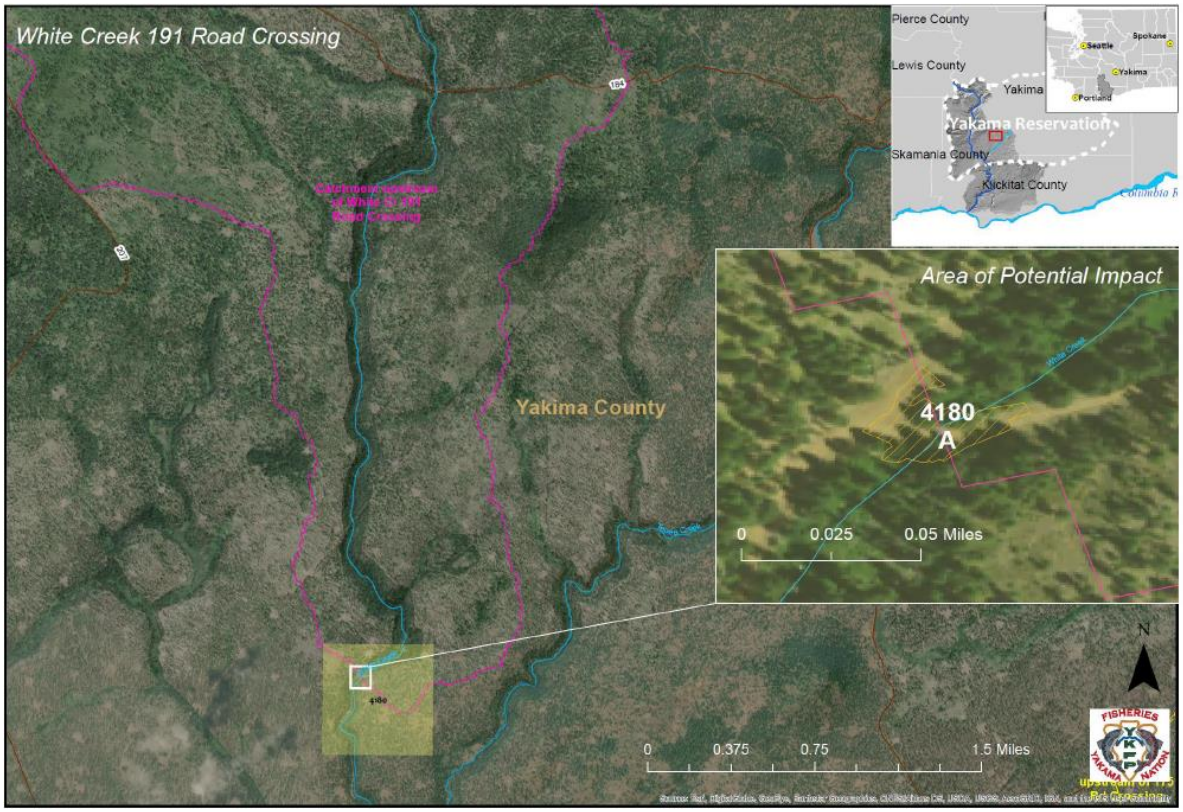

Figure 2. White Creek 191 Road Crossing Location Map.

Figure 3. White Creek 191 Road Crossing current undersized culverts (looking downstream.

Figure 4. Existing culvert outlet, spring 2021, looking upstream.

Figure 5. Aerial view of road crossing, flow from left to right.

APPENDIX B

TECHNICAL SPECIFICATIONS

https://yakamafish-nsn.gov/white-creek-191-rd-fish-passage-construction

Technical Specifications

For

White Creek Road Crossing Improvement Project

Prepared for
Yakama Nation Fisheries

95% Design Submittal

July 21, 2021

FOR USE IN CONNECTION WITH

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, CURRENT EDITION

White Creek Road Crossing Improvement Project
Technical Specifications
95% Submittal

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SECTION 015000
MOBILIZATION

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SECTION 015000
TEMPORARY FACILITIES AND CONTROLS
(A.K.A. MOBILIZATION & DEMOBILIZATION)

1. GENERAL

1.1 DESCRIPTION

A. The work covered by this section consists of the construction facilities and temporary controls, including mobilization and demobilization, as specified, as shown on the Drawings, or as otherwise directed by the Engineer. Work includes traffic control and erosion control items not specifically addressed under other pay items.

B. Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies, and incidentals to the site; for the establishment of all offices, and other facilities necessary for work on the project; and for all other work and operations which must be performed, or costs incurred prior to beginning work, on the various items on the project site.

C. Demobilization shall consist of work and operations necessary to disband all mobilized items and cleanup the site. The removal of all temporary crossings, ramps, access ways, roads, signs, and fencing; dewatering facilities; and temporary facilities or works, and the restoration of surfaces to an equal or better than existing condition shall also be included as part of demobilization.

1.2 RELATED SECTIONS

A. Section 015713, Temporary Erosion Control and BMPs

B. Section 015713.01, Fiber Roll

C. Section 024100, Demolition

D. Section 311100, Clearing and Grubbing

E. Section 312323, Engineered Fill

2. PRODUCTS – NOT USED

3. EXECUTION

3.1 CONTRACTOR'S PLANT AND EQUIPMENT

A. Security. Contractor shall, at all times, be responsible for security of their plant and equipment. Owner shall not be responsible for missing or damaged equipment, tools, or personal belongings.

B. Construction Power and Communication Facilities. Contractor shall be responsible for providing sufficient electrical power and communication facilities to construct the work.

C. Storage Facilities.

1. Provide storage facilities for the protection of materials and supplies from weather, and shall keep the facilities clean and in proper order at all times.
2. Provide a storage area for lubricants, oils, and hazardous materials with sufficient means to contain spills. Facilities, handling, and any required cleanup will comply with all current

local, state, and federal standards. Petroleum products stored on the site shall be secured from vandalism.

D. Sanitary Facilities. Maintain adequate toilet facilities at or near the work site.

E. Solid Waste Handling. Provide sufficient solid waste handling facilities to maintain site in a clean, orderly condition.

F. Water. Contractor shall provide all water necessary for construction and maintenance as specified.

3.2 MOBILIZATION AND DEMOBILIZATION

A. General. Perform mobilization and demobilization activities in accordance with the Drawings, and as specified.

3.3 STAGING AREAS

A. General. Staging areas at the project site are provided for the Contractor's use. By making this area available to the Contractor, the Engineer, and any other person or agency connected with the properties shall in no way be responsible or liable for any activity of the Contractor, subcontractors, or any individual or organization connected with the project.

B. Alternative Staging Areas. Alternative sites must be acceptable to Owner, and the Contractor must make all arrangements for their use at the Contractor's expense, and in accordance with all local, State and Federal regulations.

C. Additional Storage Areas. Should the Contractor require space in addition to that available on-site, the Contractor shall make arrangements for storage of materials and equipment in locations off the construction site, and shall provide the Engineer a copy of the letter of authorization for storage from the Owner.

3.4 HAZARDOUS MATERIALS CONTROL AND SPILL PREVENTION PLAN

A. General. Before starting work on the project, the Contractor shall submit for acceptance by the Engineer a Hazardous Materials Controls and Spill Prevention Plan. The Plan shall include provisions for preventing hazardous materials from contaminating soil or entering water courses and shall establish a Spill Prevention and Countermeasure Plan.

B. Facilities. Provide staging and storage areas for equipment, as required to contain contaminants away from water courses. Provide a contained, locked storage facility for fuels, lubricants, construction chemicals and other hazardous materials and supplies stored at site. If concrete work is proposed, provide a lined pit for concrete washdown, located where spills or overflow cannot enter nearby watercourses or storm drains. The pit shall be located a minimum of 75 feet from any flowing watercourse.

C. Equipment Maintenance. Clean and maintain equipment to prevent any leakage of fuel and lubricants. Establish a designated equipment refueling area. All fueling and maintenance of vehicles and other equipment and staging area shall occur at least 150 feet from any riparian habitat or water body.

D. Spills Countermeasures. Isolate work areas during in-water construction activities by using oil containment booms. Maintain a supply of oil booms, sorbent pads and other supplies to contain and clean spills. Contain and cleanup any hazardous material spills immediately and notify Engineer.

3.5 CONSTRUCTION SITE HOUSEKEEPING

A. Remove rubbish, trash, and debris from site on a regular basis. Transport and dispose of all rubbish and debris in accordance with all local regulations. Maintain staging area in an orderly manner. Cleanup and dispose of all concrete debris and washings when concrete work is complete.

3.6 PROTECTION OF EXISTING IMPROVEMENTS

A. Existing facilities, utilities, and property shall be protected from damage resulting from the Contractor's operations. Roadways and other improved surfaces shall be protected from damage by vehicles with tracks or lugs. Any damage resulting from the Contractor's operations shall be repaired by the Contractor to the condition which existed prior to the damage, and to the satisfaction of the Engineer, at no additional cost to the Owner.

3.7 RESTORATION OF STRUCTURES AND SURFACES

A. Structures, Equipment, and Pipework. The Contractor shall remove such existing structures, equipment, and pipework as may be necessary for the performance of the work, and shall rebuild, or replace, the items thus removed in as good a condition as found. Contractor shall repair any existing structures that were damaged as a result of the Work.

B. Roads. Roadways used by the Contractor for hauling materials, equipment, supplies, etc., shall be cleaned and repaired if the condition of the roadway is damaged, or otherwise affected, due to the Contractor's operations.

3.8 STORAGE OF MATERIALS AND EQUIPMENT

A. Materials and equipment shall be stored to ensure the preservation of their quality and fitness for the work. Stores of equipment and materials shall be located to facilitate inspection. The Contractor shall be responsible for all damages that occur in connection with the care and protection of all materials and equipment, supplied by the Contractor, until completion and final acceptance of the Work by the Owner.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Work under this section will be measured for payment on a lump sum basis.

4.2 PAYMENT

A. The contract lump sum price for Construction Facilities and Temporary Controls, also known as Mobilization and Demobilization, will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for mobilization; demobilization; and temporary facilities and controls.

B. Payment will be made under:

Pay Item	Pay Unit
Mobilization & Demobilization	Lump Sum (LS)

END OF SECTION

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SECTION 015713.01
FIBER ROLL

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SECTION 015713.01
FIBER ROLL

1. GENERAL

1.1 DESCRIPTION

A. Work under this Section includes furnishing all labor, materials, equipment, and incidentals to install, maintain, remove and dispose of Fiber Roll, as shown on the Drawings, as specified herein, or as otherwise directed by the Engineer.

B. Fiber Roll shall be furnished, installed, and maintained at the locations shown on the Drawings and as specified. Fiber Roll shall be installed on excavation and embankment slopes and other disturbed soil areas, active or non-active.

1.2 RELATED SECTIONS

A. Section 015000, Mobilization

B. Section 015713, Temporary Erosion Control and BMPs

C. Section 312316, Stripping and Excavation

D. Section 312319, Dewatering

E. Section 329200, Seeding

1.3 SUBMITTALS

A. Submit to the Engineer, for review, the following manufacturer's data and Certifications:

1. A certificate stating the name of the Fiber Roll manufacturer, product name, style compositions of filaments or yarns and other pertinent information to fully describe the geotextile, along with the manufacturer's certification of compliance with the material specifications contained herein.

2. PRODUCTS

2.1 MATERIALS

A. Fiber Roll (a.k.a. Straw Wattle). Fiber Roll shall be:

1. A pre-manufactured roll made from 100% weed free straw and wrapped in a 100% natural fiber biodegradable tubular 7 oz. Plain Burlap liner. The burlap is Medium Weight Natural Burlap with a 9 X 8 Warp & Fill, and a minimum weight of 7 oz. per square yard. Plastic /biodegradable plastic netting will not be accepted as an alternate.
2. 9-inch rolls shall have a mimimum weight of approximately 1.6 pounds per foot.
3. 12-inch rolls shall have a mimimum weight of approximately 3.8 pounds per foot.

B. Stakes. Wood stakes shall be a minimum of 1" x 1" x 24" for Type 1 installation or a minimum of 1" x 2" x 24" in size for Type 2 installation. Wood stakes shall be untreated fir, redwood, cedar, or pine and cut from sound timber. They shall be straight and free of loose or unsound knots and other defects which would render them unfit for the purpose intended. Metal stakes shall not be used.

3. EXECUTION

3.1 INSTALLATION

A. Fiber Roll shall be installed as follows:

B. Furrows shall be constructed to a depth between three inches and four inches, and to a sufficient width to hold the Fiber Roll. Soil excavated from the trench shall be placed on the uphill or flow side of the roll to prevent water from undercutting the roll. Stakes shall be driven on both sides of the roll at an angle and crossing each other between two and tree inches above the top of the roll at 36 inch spacing along the length of the Fiber Roll and stopped at 12 inches from each end of the rolls. Stakes shall be driven overlap each other.

C. Fiber Roll shall be placed at the spacing shown in the Drawings.

D. The bedding area for the Fiber Roll shall be cleared of obstructions including rocks, clods, and debris greater than one inch in diameter before installation.

E. Fiber Roll shall be installed approximately parallel to the slope contour and the terminus of rows shall be angled up-slope at 45 degrees for a distance of three feet. Where fiber rolls meet, provide an overlap of two feet, with adjacent rolls tightly abutting each other.

F. Fiber Roll shall be installed prior to seeding where used without slope protection fabric.

3.2 MAINTENANCE

A. The Contractor shall inspect all Fiber Roll immediately after each rainfall, and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected by the Contractor.

B. The Contractor shall also make a daily review of the location of Fiber Roll in areas where construction activities have altered the natural contour and drainage runoff to ensure that the Fiber Rolls are properly located for effectiveness. Where deficiencies exist as determined by the Engineer, additional Fiber Rolls shall be installed as directed by the Engineer.

C. Damaged or otherwise ineffective Fiber Roll shall be repaired or replaced promptly. Fiber Roll shall be maintained to disperse concentrated water runoff and to reduce runoff velocities. Split, torn, or unraveling rolls shall be repaired or replaced. Broken or split stakes shall be replaced. Sagging or slumping Fiber Roll shall be repaired with additional stakes or replaced. Locations where rills and other evidence of concentrated runoff have occurred beneath the rolls shall be corrected. Fiber Roll shall be repaired or replaced within 24 hours of identifying the deficiency.

3.3 REMOVAL

A. Fiber Rolls shown on the Drawings shall remain in place after project completion, unless otherwise specified, and be allowed to naturally degrade.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Straw Wattles will be measured by the linear foot of Straw Wattle installed at the locations indicated on the Drawings, as specified, or as directed by the Engineer.

4.2 PAYMENT

A. Straw Wattles will be paid for at the contract price per linear foot, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to install, maintain the Straw Wattles throughout the construction.

B. Straw Wattles required or used on a short-term basis that are not permanently staked in place or are anticipated to be moved on a daily or routine basis (such as areas immediately adjacent to trench excavations, temporary stockpiles, active areas for soil processing/screening operations, spill containment devices, etc.) shall be considered as included in prices paid for the various contract items of work involved, and no additional compensation will be allowed.

C. Payment shall be made under:

Pay Item	Pay Unit
Straw Wattle	Linear Foot (LF)

END OF SECTION

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SECTION 015713
TEMPORARY EROSION CONTROL AND BMPS

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SECTION 015713
TEMPORARY EROSION CONTROL AND BMPS

1. GENERAL

1.1 DESCRIPTION

A. This work shall consist of temporary erosion control and water or air quality control measures, devices, and BMPs that may be shown on the Drawings, and as specified in the Contract Documents, Project Permit(s), Standard Specifications, these Technical Specifications, or as directed by the Engineer during the life of the contract. Temporary erosion control measures and other BMPs will also be required at staging/storage areas utilized during project construction. Said work is intended to provide prevention, control, and abatement of water and air pollution within the limits of the project and to minimize damage to the work, adjacent properties, streams or other bodies of water.

B. Installation and maintenance of temporary erosion control measures, devices and BMPs shall conform to the requirements as shown on the Drawings stated within this section, and Yakama Nation requirements.

1.2 RELATED SECTIONS

A. Section 015000, Mobilization

B. Section 015713.01, Fiber Roll

C. Section 312319, Dewatering

D. Section 312323, Engineered Fill

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.

B. Washington State Department of Transportation (WSDOT) Standard Plans for Road, Bridge, and Municipal Construction, current edition.

C. Washington State Department of Transportation (WSDOT) Temporary Erosion and Sediment Control Manual M 3109, current edition.

D. Washington Administrative Code (WAC), current edition.

1.4 SUBMITTALS

A. Dirt Bag. Submit a material specification for the 'Dirtbag' device, for acceptance of the Engineer, prior to placement in the work.

2. PRODUCTS

A. Dirt Bag. The 'Dirtbag' shall be a commercially manufactured nonwoven geotextile fabric bag (polypropylene or equivalent) intended for such use, with a minimum grab tensile strength of 200 psi in any principal direction (ASTM D4632), and permittivity of 0.05 sec (ASTM D4491). For project area soils (source of sediment in waters) with more than 15% by weight passing a No. 200 sieve the fabric shall have an apparent opening size between 50 and 140, and for project area soils (source of sediment in waters) with less than 15% by weight passing a No. 200 sieve the fabric shall have an apparent opening size between 20 and 50. If no determination can be

readily made in regards to the target area soil characteristics, the more restrictive condition shall prevail. The geotextile fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide an expected usable life comparable to the anticipated construction period; ultraviolet stability shall exceed 70% after 500 hours of exposure (ASTM D4355). The 'Dirtbag' device shall have a fill spout large enough to accommodate a pump four (4) inch discharge hose and attachment straps to secure the hose in place. The 'Dirtbag' device shall be sized to accommodate the applicable flow rates and prohibit release of the target effluent. Location of any 'Dirtbag' device requires acceptance of the Engineer, equipment access for removal and off-site disposal, and the area shall be stable to prevent erosion. Placement of drain rock, fabric, or other suitable substance to create a stable discharge site is the responsibility of the Contractor. Any 'Dirtbag' device shall be fitted with straps strong enough for lifting and the device removed from the Project site and properly disposed of.

3. EXECUTION

3.1 GENERAL

A. Install temporary soil stabilization materials for water pollution control in all disturbed work areas that are considered inactive (i.e. excess of 14 days) or before forecast storm events. Should any temporary erosion control of this nature be required elsewhere as directed by the Engineer and/or regulatory agencies, install them within 48 hours of notification. Where applicable and upon acceptance of the Engineer, furnish and apply/install temporary mulch, temporary hydraulic mulch, temporary erosion control blankets, or temporary covers in conformance with the Standard Specifications and these Technical Specifications. Materials and construction methods shall comply with the Standard Specifications and these Technical Specifications.

3.2 MAINTENANCE

A. Maintain all temporary erosion control measures, devices, and BMPs placed in the work for the duration of the project. Maintenance includes all Manufacturer recommendations, and includes but is not limited to the following:

1. Immediately repair upon discovery damage to any temporary erosion control devices and/or BMPs during the course of the project at the Contractor's expense.
2. Inspect temporary erosion control devices and BMPs routinely, immediately after each rainfall event, and at least daily during prolonged rainfall events. Make required repairs immediately.
3. Inspect construction limit and tree protection fencing daily and repair, secure, and replace as necessary to maintain and preserve its intended purpose.
4. Routinely inspect all signage as required for the project and repair or replace upon discovery of damage, vandalism, and/or missing parts.
5. Should the filter fence fabric decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, replace fabric promptly.
6. Should a sediment log decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, replace sediment log promptly.
7. Replace single or group of gravel bag(s) when the bag material is ruptured or when the yarn has failed, allowing the bag contents to spill out.
8. Routinely inspect stakes and/or rope used to secure a sediment log in place and repair as necessary if found to be loose or ineffective.

9. Repair or replace damaged temporary gravel bag berm (or other measures which require gravel bags per the Project Drawings, Project Permits, these Technical Specifications and the Standard Specifications) on the same day when the damage occurs or is discovered.
10. Remove sediment deposits and other debris when they reach approximately one-half the height of the sediment barrier (or as recommended by the Manufacturer) and dispose of in a manner acceptable to the Engineer, and in conformance with the Standard Specifications.
11. Maintain temporary gravel bag berm (or other measures which require gravel bags per the Project Drawings, Project Permits, these Technical Specifications and the Standard Specifications to provide a sediment holding capacity of approximately one-third the height of the gravel bag berm above the ground. When sediment exceeds this height or when directed by the Engineer, remove and dispose of sediment in a manner acceptable to the Engineer, and in conformance with the Standard Specifications.
12. Remove and dispose of sediment deposits remaining in place after the temporary erosion control measure and/or BMPs is no longer required in a manner acceptable to the Engineer, and in conformance with the Standard Specifications.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Temporary Erosion Control and BMPs will be measured on lump sum basis.

4.2 PAYMENT

A. The lump sum contract price for Temporary Erosion Control and BMPs will include full compensation for the furnishing of all labor, materials, tools, equipment, administrative costs, and incidentals for temporary erosion control measures, devices, and BMPs, provisions and requirements as stated in the Erosion Control Plan, stockpile management, sweeping, and maintenance of all such water pollution control measures that may be shown on the Project Drawings, and as specified in the Contract Documents, Project Permit(s), Standard Specifications, these Technical Specifications, and as directed by the Engineer, and no additional compensation shall be allowed therefore.

B. Payment will be made under:

Pay Item	Pay Unit
Temporary Erosion Control and BMPs	Lump Sum (LS)

END OF SECTION

INDEX
SECTION 024100
DEMOLITION

Paragraph **Page**

SECTION 024100
DEMOLITION

1. GENERAL

1.1 DESCRIPTION

A. Perform all demolition and disposal work as shown on the Drawings, as specified herein, or as otherwise directed by the Engineer.

1.2 RELATED SECTIONS

A. Section 015000, Mobilization

B. Section 311100, Clearing and Grubbing

2. PRODUCTS (Not Used)

3. EXECUTION

3.1 GENERAL

A. Before beginning any work, carefully inspect the work and examine the Drawings and Specifications to determine the extent of the work to be performed. In the company of the Engineer, visit the site and verify the extent of the demolition and other work to be performed.

B. Contact all appropriate utilities and agencies to coordinate and verify all abandonments and relocations.

C. Use of explosives will not be permitted.

D. Materials projecting above-ground shall be cut off at a minimum of one foot below finished grade. Backfill and compact all holes caused by removal of materials. Areas of site not detailed on the Drawings shall be filled and graded to drain, generally matching existing conditions.

E. Rock removed from the site may be re-used if it meets the materials specifications of the work item for which it is proposed.

3.2 PROTECTION OF EXISTING WORK

A. Take all necessary precautions to ensure against damage to existing work to remain in place, or to be salvaged. Any damage to such work shall be repaired or replaced as directed by the Engineer.

B. Construct and maintain shoring, bracing, and supports, as required. Ensure that structural elements are not overloaded and increase structural supports, or add new supports, as may be required as a result of any cutting, removal, or demolition work performed.

3.3 DEMOLITION

A. General. Extent of removal of existing facilities shall be as shown on the Drawings. Materials not identified as being salvaged by Owner shall be removed and disposed.

B. Hazardous Materials. Comply with all local rules, regulations, ordinances, and statues for handling and disposal of hazardous materials encountered.

C. Demolition. Demolish all specified structures in accordance with all local regulations. Completely remove footings, foundation, and above-ground construction as shown on the Drawings. Demolition includes all culverts and other similar permanent improvements specified on the Drawings.

3.4 DEBRIS REMOVAL

A. Remove all trash, rubble and debris generated by demolition activities from the site at the conclusion of construction.

3.5 DISPOSITION OF MATERIALS

A. Salvaged Materials. Salvage of materials for reuse by the Owner shall include removal of the material, equipment, etc., from its present location and transporting, bundling, protecting, cleaning, and storing it in a designated location on the work site, as approved by the Engineer. Items which are specified to be reused, and are damaged during removal or storage, shall be repaired to the Engineer's satisfaction or replaced with new matching materials, at no cost to the Owner.

B. Wasted Materials. Title to all debris to be wasted and demolished materials is vested to the Contractor upon receipt of the Notice-to-Proceed. Contractor shall assume responsibility for any loss or damage to such property after the Notice-to-Proceed. Condition of such material is not guaranteed and the Contractor shall assume all liability for reuse of any such material.

C. Disposal. All materials removed under this section which are not salvaged by the facility owner for reuse or otherwise recycled, shall be disposed of off-site at appropriate disposal areas approved in advance by the Owner. The material shall be removed from the job site before completion of the contract. Material shall not be sold on the site. All loading, hauling, dumping, and disposal fees are the responsibility of the Contractor.

D. Hauling. Debris shall be removed and transported by approved haul routes in a manner as to prevent spillage on streets or adjacent areas.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Demolition work will be measured for payment on a lump sum basis.

4.2 PAYMENT

A. Demolition will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the demolition, salvage, disposal, and reuse of materials, as specified.

B. Payment will be made under:

Pay Item	Pay Unit
Demolition	Lump Sum (LS)

END OF SECTION

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SECTION 311100
CLEARING AND GRUBBING

Paragraph **Page**

SECTION 311100
CLEARING AND GRUBBING

1. GENERAL

1.1 DESCRIPTION

A. The work covered by this section consists of furnishing all labor, equipment, and materials necessary to perform the clearing and grubbing, the removal or disposal of all cleared and grubbed materials, and the filling of all grubbing holes, as specified, as shown on the Drawings, or as directed by the Engineer.

1.2 RELATED SECTIONS

A. Section 015000, Mobilization

B. Section 024100, Demolition and Reuse of Materials

C. Section 312316, Excavation

D. Section 312323, Engineered Fill

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.

2. PRODUCTS (Not Used)

3. EXECUTION

3.1 CLEARING

A. General. All work shall comply with Section 2-01, Clearing, Grubbing, and Roadside Clearance of the Standard Specifications.

B. All trees, stumps, down timber, snags, brush, vegetation, old piling, stone, concrete rubble, abandoned structures, and similar debris shall be cleared within the limits of the construction extents, unless otherwise shown on the Drawings or directed by the Engineer.

C. In areas where grubbing is not required, the clearing operations shall consist of the complete removal of all obstructions above the ground surface.

D. Trees. Where trees are approved by the Owner's Representative for removal, trees shall be felled in such a manner as to avoid damage to trees left standing, to the existing structures and installations, as well as with due regard for the safety of employees and others. Stumps shall be removed to minimum depth of 4 feet, or to a point where remaining roots are less than 1.5 inches in diameter, whichever depth is greater. Trees located beyond the limits for clearing and grubbing that are not marked for removal, shall be protected from damage, as indicated on the Drawings and as specified.

E. Vegetation. Vegetation to be removed shall consist of all heavy growth of brush and woody vegetation, unless shown otherwise on the Drawings or directed by the Engineer.

F. Debris Removal. Abandoned foundations, rip rap, drainage materials, debris, and other unsuitable material and any other debris designated for removal on the Drawings shall be removed and disposed of in accordance with this section. Buried unsuitable debris encountered during excavations shall be removed and disposed of in accordance with Section 312316, Stripping and Excavation.

3.2 GRUBBING

A. General. Grubbing shall consist of the removal of all stumps, roots, buried logs, old piling, old paving, concrete, abandoned utilities, timbers, fencing, and other objectionable matter encountered.

B. Limits. Except as noted on the Drawings, the entire area within the limits of the footprint of proposed culvert replacement shall be thoroughly grubbed.

C. Filling of Holes. All holes caused by grubbing operations, except in borrow areas, shall be excavated with 3 to 1 (horizontal to vertical) side slopes in conformance with Section 312316, Stripping and Excavation. The excavation shall then be backfilled with compacted embankment material in conformance with Section 312323, Engineered Fill.

3.3 DISPOSAL OF DEBRIS

A. Cleared and Grubbed Materials. Except as hereinafter specified or otherwise indicated on the Drawings, all logs, brush, strippings, concrete, asphalt, timbers, slash, and other non-organic debris which are the products of the clearing and grubbing operations shall be disposed of. Remove any or all of the products of clearing and grubbing operations from the site and dispose of the material at other locations or through other sources arranged for, by, and at the expense of the Contractor, in accordance with applicable laws and ordinances.

B. Clean woody plant material products of the clearing and grubbing operations not designated for salvage may be disposed of on site at the location shown on the Drawings, or as specified by the Engineer, subject to approval of the Owner.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Clearing and Grubbing will be measured as a lump sum pay item.

4.2 PAYMENT

A. Clearing and Grubbing will be paid for at the lump sum contract price, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the clearing and grubbing operation as specified, including disposal or salvage of materials, and restoration of ground surfaces.

B. Removal and disposal of buried debris, not encountered during grubbing operations, will be paid for in accordance with Section 312316, Excavation.

C. Payment will be made under:

Pay Item	Pay Unit
Clearing and Grubbing	Lump Sum (LS)

END OF SECTION

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SECTION 312316
STRIPPING AND EXCAVATION

Paragraph **Page**

SECTION 312316
STRIPPING AND EXCAVATION

1. GENERAL

1.1 DESCRIPTION

A. The work covered by this section consists of furnishing all labor, equipment, materials, and performing all operations necessary to complete Stripping and Excavation, as specified, as shown on the Drawings, or as directed by the Engineer. Work includes, but is not limited to the following:

1. Stripping for removal of vegetation and surface organics.
2. Excavation for removal of unsuitable material.
3. Control of groundwater during excavation.
4. Channel Excavation.
5. Other miscellaneous excavation incidental to the construction of the improvements.

B. Over-excavation for placement of RSP and bridge components is not included within this section, but is considered incidental to the work for which it is required.

1.2 RELATED SECTIONS

A. Section 015713.01, Fiber Roll

B. Section 017123.16, Construction Surveying

C. Section 311100, Clearing and Grubbing

D. Section 312323, Engineered Fill

E. Section 321540, Aggregate Base

F. Section 323423, Precast Concrete Bridge

G. Section 329200, Seeding

H. Section 354237, Rock Slope Protection

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.

B. Washington State Department of Transportation (WSDOT) Temporary Erosion and Sediment Control Manual M 3109, current edition.

C. Washington Administrative Code (WAC), current edition

D. Geotechnical Engineering Investigation by:

Geotechnics, LLC
7629 SE Harrison Street
Portland, OR 97215
(503) 730-2469
Job No. XXX
Dated: July XX, 2021

1.4 QUALITY ASSUANCE

A. Comply with all applicable permits and regulations.

B. Contractor shall provide necessary construction staking and references points, as required to meet the specified tolerances for the work.

2. PRODUCTS (Not Used)

3. EXECUTION

3.1 GENERAL

A. The Contractor shall protect existing utilities in performing any excavation work.

B. The Contractor shall comply with all permit conditions in performing any excavation work.

C. Contractor shall perform an independent earthwork estimate for the purpose of preparing bid prices for earthwork. Quantities indicated on the Drawings are approximate estimates provided only for permitting purposes and are not suitable for bidding purposes.

D. The bid price shall include costs for any necessary export and proper disposal of excess or unsuitable earth materials off-site, at locations to be arranged and paid for by the Contractor.

3.2 STRIPPING

A. Stripping. Strip surfaces of excavations and fill foundations of heavy growth of crops, grass, weeds and other vegetation as specified in Section 311100, Clearing and Grubbing. Greater depths of stripping may be necessary in selected areas to remove vegetation, as determined by the Engineer.

B. Unless otherwise specified, the stripped materials shall be disposed of off-site, at locations to be arranged between the Contractor and the Owner's Representative.

3.3 EXCAVATION

A. General. Excavations shall extend into firm, undisturbed native soils. Excavation shall consist of removal of material for embankment foundation preparation, mass excavation and finish grading of the channel and slope improvements, and other miscellaneous excavations to the lines and grades shown on the Drawings, or as directed by the Engineer. In the event that organic materials, yielding sub-grade (pumping) or other deleterious materials are encountered during foundation excavations, they shall be removed as directed by the Engineer.

B. Control of Water. Water control shall be performed in accordance with project permit conditions, and Dewatering, Section 312319 of these Specifications. When water is encountered, either ground water or surface runoff, the Contractor shall furnish, install, maintain, and operate all necessary machinery and equipment required to keep the excavation reasonably free from water, as approved by the Engineer, until the placement of concrete or backfill material has been completed, inspected, and approved, and all danger of flotation and other damage is removed. Water pumped from the excavation shall be disposed of in such manner as will not cause injury to public or private property, or constitute a nuisance or menace to the public, and the disposal method shall be subject to the approval of the Engineer. Water shall be controlled until work is complete.

C. Excess Excavation. Care shall be exercised by the Contractor not to excavate below the grades shown on the Drawings, except as specified herein, and as directed by the Engineer. All excavations in excess of the grades shown on the Drawings which are not directed by the

Engineer shall be backfilled with compacted embankment at the Contractor's expense, per Section 312323, Engineered Fill.

D. Temporary Excavations. With exposure and drying, on-site soils may experience progressive sloughing if excavated near vertical and left un-shored during construction. Engineer suggests that the soils on-site should be considered Type C when applying OSHA regulations.

E. Tolerances. The excavation tolerance shall typically be +0.1 feet to -0.2 feet from the grades shown on the Drawings, except within the low flow channel, where excavation tolerance shall be +0.1 feet to -0.1 feet from the elevations shown on the Drawings.

3.4 UNCLASSIFIED EXCAVATION

A. Unclassified Excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature, which is not otherwise classified and paid for under Excavation of Unsuitables or Rock Excavation described below. Unclassified Excavation includes excavation required to reach finished grade. Over-excavation for the placement of materials (e.g. Stream Simulation Material, Rock Slope Protection, Footings, and Abutments) or the removal of unsuitables, as described below under Excavation of Unsuitables, is not included in Unclassified Excavation.

3.5 EXCAVATION OF UNSUITABLES

A. Excavation of Unsuitables. Areas of unsuitable in-place soils, as determined by the Engineer, may also be encountered. Material shall not be classified as unsuitable solely based on moisture content. Material within the limits of Excavation, as described above under Unclassified Excavation, or within the limits of over-excavation for the placement of materials (e.g. Stream Simulation Material, Rock Slope Protection, Footings, and Abutments) shall not be classified as unsuitable. The Contractor shall anticipate having to over-excavate areas of unsuitables as directed by the Geotechnical Engineer, dispose of these materials, and replace them with Engineered Fill in accordance with Section XXX of the Geotechnical Report. The actual locations of these excavations will be determined in the field by the Engineer. The side slopes of the excavations shall be no steeper than 1 to 1 (horizontal to vertical). The over-excavations shall be backfilled with embankment materials in accordance with Section 312323, Engineered Fill.

B. Disposition of Unsuitable Materials. The excavated materials that are considered unsuitable based solely on moisture content shall be processed as necessary to meet specification requirements for suitability and used as embankment material. Materials which are unsuitable based on organic content will be ordered wasted and shall be disposed of off-site at a location agreed upon by the Owner's Representative.

3.6 ROCK EXCAVATION

A. Rock Excavation. Rock excavation consists of the removal of hard igneous, metamorphic, and/or sedimentary rock in solid beds or masses in original or stratified position which can be removed only by continuous drilling, blasting or the use of pneumatic tools, and all boulders of 5 cubic yards in volume or larger. Material which can be loosened with a pick, frozen materials, soft laminated shale and hardpan, which for convenience or economy is loosened by drilling, blasting, wedging or the use of pneumatic tools, removal of concrete pavement and retaining walls, shall not be classified as rock excavation. When rock is encountered within the limits of the excavation, immediately notify the Owner's Representative and Engineer and do not proceed further until instructions are received and measurements made for the purpose of establishing the volume of rock excavation. Contractor shall note that blasting is not approved

for this project. The need for specialized rock excavating equipment should be anticipated if rock is encountered.

3.7 SOIL OFF-HAUL

A. All excess material excavated at the project site shall be off-hauled and disposed of at a location pre-approved by the Owner's Representative. This includes material generated to reach finished grade and excess material generated during any over-excavation required for project construction. Contractor shall make all arrangements and pay all fees associated with this work.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Stripping. Stripping will not be separately measured for payment.

B. Unclassified Excavation. Unclassified Excavation will be measured by the cubic yard of Unclassified Excavation, based on the Dimensions shown on the Drawings. This is a neat-line quantity and does not take into account the loose volume of the excavated material. Where the dimensions of any portion of the work are revised by the Engineer, or a portion of the work is eliminated, the change will be measured by the cubic yard.

C. Excavation - Unsuitable Materials. Excavation - Unsuitable Materials is an optional bid item for materials that are designated by the Engineer as unsuitable for reuse. This will be measured by the cubic yard of material excavated from the stripped foundation dimensions shown on the Drawings and replaced with Engineered Fill. Measurement will be

D. Rock Excavation. Rock Excavation is an optional bid items for rock surfaces that are designated by the Engineer as meeting the specifications for Rock Excavation. This will be measured by the cubic yard of rock excavation, based on the calculated neat-line quantity from surveyed cross sections before and after the excavation.

E. Miscellaneous Construction. Miscellaneous construction is an optional bid item for other site work to be performed by the Contractor at the direction of the Owner's Representative or Engineer. This will be measured for payment by the hour of time the Contractor's staff and equipment are used for work at the site that is not included in the Drawings or Technical Specifications.

4.2 PAYMENT

A. Stripping. No separate payment will be made for stripping. All costs in connection with this work will be considered incidental to the contract price per cubic yard for Excavation.

B. Unclassified Excavation, measured as specified above, will be paid for at the contract unit price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete Unclassified Excavation, as specified, including mass excavation and finish grading of channel banks and floodplains, to the lines and grades shown on the Drawings.

C. Excavation - Unsuitable Materials, measured as specified above, will be paid for at the contract unit price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the excavation as specified, including dewatering, all handling of materials, and disposal of unsuitable materials.

D. Rock Excavation, measured as specified above, will be paid for at the contract unit price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the Rock Excavation as specified, including dewatering, all handling of materials, and disposal of unsuitable materials.

E. Miscellaneous Construction, measured as specified above, will be paid for at the contract unit price per hour, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and doing all work necessary to complete the Miscellaneous Construction of work not in the Drawings or Technical Specifications as directed by the Owner's Representative or the Engineer.

F. No separate payment will be made for other miscellaneous grading incidental to the work. All costs in connection with this work will be considered incidental to the cost of construction of associated improvement.

G. Mixing and transport of suitable materials for reuse shall be paid for under Engineered Fill, Section 316323.

H. Payment will be made under:

Pay Item	Pay Unit
Unclassified Excavation	Cubic Yard (CY)
Excavation – Unsuitable Materials	Cubic Yard (CY-O)
Rock Excavation	Cubic Yard (CY-O)
Miscellaneous Construction	Hourly (HR-O)

END OF SECTION

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SECTION 312319
DEWATERING

Paragraph **Page**

SECTION 312319
DEWATERING

1. GENERAL

1.1 DESCRIPTION

A. Furnish all labor, materials, equipment, and incidentals necessary to relocate fish (as necessary) and to design, construct, operate, maintain, and remove all cofferdams, diversions, and/or other measures, including pumping, to dewater the construction site and to divert streamflow and other surface waters and groundwater through or around the project area 24 hours a day during the entire field construction period, as shown on the Drawings, as specified, or as directed by the Engineer.

B. Dewatering details on the Drawings (if provided) are schematic. The design and implementation of the Dewatering Plan is solely the responsibility of the Contractor. Contractor shall make their own independent evaluation of water sources (surface and groundwater) in preparing their Dewatering Plan.

C. Dewatering shall comply with all project permit conditions, applicable laws and local ordinances.

1.2 RELATED SECTIONS

A. Section 015713, Temporary Erosion Control and BMPs

B. Section 015713.01, Fiber Roll

C. Section 354237, Rock Slope Protection

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT) Temporary Erosion and Sediment Control Manual M 3109, current edition.

B. Washington Administrative Code (WAC), current edition.

1.4 SUBMITTALS

A. The Contractor shall submit the following for review and approval of the Engineer:

1. A Fish Removal and Dewatering Plan (for if flowing water in the channel is present at any time during construction) listing materials, method of work, equipment to be used, methods for disposal of pumped water, provisions to prevent scour and erosion, and the proposed schedule shall be submitted to the Engineer. Approval of the Engineer shall be required before the Contractor proceeds with water control measures.
2. Product data for:

a. Pumps
b. Silt control filter fabric
c. Washed rock
d. Impervious liners
e. Cofferdam material
f. Other materials used in dewatering
g. Block nets for excluding fish

1.5 QUALITY ASSURANCE

A. Comply with approved Hazardous Materials Control and Spill Prevention Plan, in accordance with Section 015000.

B. Notify Engineer 48 hours in advance of installation of temporary cofferdam(s) or diversion.

C. Notify Engineer 48 hours in advance of removal of temporary cofferdam(s) or diversion.

2. PRODUCTS

2.1 MATERIALS

A. Imported Rock. Use only clean washed gravel. Sand will not be allowed.

B. Dewatering Facilities. Provide and operate dewatering facilities of suitable size and capacity. The use of equipment shall be consistent with the manufacturer's recommendations.

C. Block Nets. Block Nets shall be 1/4 inch opening nylon mesh net.

3. EXECUTION

3.1 GENERAL

A. Contractor is solely responsible for the design, construction, and maintenance and monitoring of the diversion and dewatering facilities. Comply with the Drawings, Specifications, and applicable permit conditions.

3.2 FISH REMOVAL

A. Contractor is responsible for providing Fish Removal by a qualified fisheries biologist as specified on the Drawings and as outlined in the project permits in the event that flowing water is present in the work area at the time of construction.

3.3 SEDIMENT CONTROL

A. General. Comply with the provisions of the Project Permits and the WAC Chapters 173-200 and 173-201A.

B. Materials. Earthen materials shall not be used within the flowing channel, with the exception of clean, washed rock.

C. Cofferdam Construction. During construction of the cofferdam, install silt barrier(s) along the water side of the installation, as necessary to minimize mobilization and entrainment of disturbed soils within the active flowing channel, to a level in accordance with the permit conditions.

D. Discharge of diverted flow. Unless otherwise specified, a diversion must discharge into the same natural drainage way in which its headworks are located. Where feasible, discharge to existing pools or onto bedrock or otherwise erosion resistant surfaces. Construct energy dissipators at diversion outlets, where necessary to prevent scour at point of discharge.

E. Discharge of Seepage/Groundwater. Discharge water from the dewatered construction site either by gravity or pumping in a manner to prevent excessive turbidity from entering the receiving waters and to prevent scour and erosion outside of the construction site. Pumped water should be pre-filtered with a gravel pack around sumps for subsurface flows and a "Dirt Bag" or hay bales around pumps for surface flow.

F. Discharge pumped water into adjacent gravel bars, isolated local depressions, or temporary sediment basins, as shown on the Erosion Control and Dewatering Plan. Where discharging water into the river will create excessive turbidity, route water through a sediment interceptor or other facilities to remove sediment from water.

G. Isolation of Construction Area. Place straw wattles, hay bale barriers, or cofferdams between construction area and flowing river channel, at all locations, as shown on the Erosion Control and Dewatering Plan.

3.4 HAZARDOUS MATERIAL CONTROL

A. General. Comply with the approved Spill Prevention, Control and Countermeasures Plan (SPCC Plan) in accordance with Temporary Water Pollution Prevention, Section 01-07.15.

B. Equipment and Lubricants. Steam-clean all equipment prior to its use. Inspect all equipment for cleanliness and fluid leaks prior to use and monitor during its use. Maintain equipment as required. Equipment refueling shall only take place in a designated, contained area.

C. Isolation of Construction Area. Prior to performing work within flowing water, outside of cofferdams, install oil containment booms downstream of the work area. Maintain booms until completion of the work within the channel is complete.

D. Spills. Maintain a supply of oil spill booms, sorbent pads, and other supplies to contain and clean spills. Comply with approved SPCC Plan should spills occur.

3.5 COFFERDAMS

A. General. The Contractor is solely responsible for the design, construction, maintenance, and monitoring of cofferdams, dikes and other isolation facilities. Cofferdams with an exposed height greater than 10 feet shall be designed by a Professional Engineer registered in the State of Washington, based on available soil data.

B. Configuration. Cofferdam alignments, as shown on the Drawings, reflect the maximum allowable encroachment into the channel. Construct cofferdam alignments as shown or the Drawings, unless otherwise approved by Engineer. Provide cofferdams high enough to account for water surface fluctuations.

C. Secondary Dikes/Seepage Control. Secondary dikes within the isolated construction area can be used to control seepage and groundwater around excavations, provided all dike materials are removed from the exposed channel upon completion, prior to re-watering the work area.

3.6 FLOW BYPASS

A. Capacity. Bypass water around construction site using a cofferdam and bypass pipe as shown on the Drawings or equivalent facility, as approved by the Engineer. The bypass system shall be

capable of passing the flows present at the time construction begins, with a minimum of 12 inches of freeboard (measured vertically from water surface to lowest point on dam). Bypass pipes shall have a minimum diameter of 10 inches to minimize the likelihood of clogging by debris.

B. Storm Events. During the designated period for instream work, the Contractor shall be solely responsible for the integrity of the dewatering system. If rain is predicted, the Contractor shall perform flood fighting activities as directed by the Engineer and regulatory agencies.

C. The diversion system may require adjustment to accommodate the sequence of work. No additional compensation shall be provided for any adjustments, revisions, or reinstallations of diversion elements.

D. The diversion shall result in conditions that allow the required compaction to be achieved and shall prevent sediment-laden water that exceeds the effluent discharge limits from entering the drainage ways.

E. Unless otherwise specified, a diversion must discharge into the same natural drainage way in which its headworks are located.

3.7 DEWATERING

A. General. Remove water from construction area using pumping, well points, drains, or other approved methods. Discharge of water shall comply with 3.3.D. Construction water shall be segregated from seepage water and routed through sediment interceptors or other facilities to remove contaminants and sediment. Excavated slopes in the saturated soils may need to be retained, tied back, or otherwise stabilized. Refer to the Geotechnical Report.

B. Well Points. Well points shall be designed to preclude the loss of fine soil by gravel packing or other suitable means.

C. Pumping Facilities. All pump intakes shall be screened to prevent the entrainment of fish, in accordance with project permit conditions. Pumps and discharge piping shall be suitable for the type of service provided and shall be a sufficient size and capacity to satisfactorily dewater work areas. Engines shall be muffled to avoid excess noise and pump intakes shall be fitted with screens as required.

D. Power Supply. Consider the availability and reliability of power sources for dewatering operation in dewatering system design and make provisions for temporary or backup power supply as deemed necessary. Where the primary diversion is operated by pumping, provide a backup system with automatic controls capable of starting the backup upon failure of the primary system.

E. Groundwater. Dewatering shall maintain water surfaces below the base of temporary excavations or trenches, to allow for visual inspection of the work, if requested by the Engineer. Lower groundwater tables within excavations for structures to a minimum of two (2) feet below foundations or as otherwise required to establish a firm, stable foundation. Control groundwater within excavation until completion of backfill operations.

3.8 WATER LEVELS DURING THE CONSTRUCTION PERIOD

A. The Contractor shall be responsible for making an independent evaluation of site conditions. The Contractor's dewatering plan shall address all potential sources of surface and groundwater, including but not limited to streamflow (natural or managed), backwatering of the channel from downstream blockages, domestic water lines, storm drain outfalls, irrigation tailwater, industrial discharges, seepage, and direct rainfall.

3.9 CLEANUP

A. Thoroughly clean up area to remove debris and contaminated materials. Remove fine sediments and restore disturbed area prior to removal of the dewatering facilities. Clean and round river run gravels or cobbles, if used in cofferdam construction, may be spread in the creek channel in lieu of removal, provided grading will not interfere with facility operation.

3.10 REMOVAL OF DEWATERING FACILITIES

A. Prior to removal of the dewatering facilities, complete the following activities:

1. Complete required tests and inspections.
2. Thoroughly cleanup work site.
3. Perform final walkthrough with Engineer.

B. Prior to removal of cofferdams and diversion, equalize the water surface levels on both sides of the dams.

3.11 REMOVAL OF BLOCK NETS

A. Block Nets shall be removed by the fisheries biologist after the dewatering facilities are removed and the in channel work area is re-watered.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Creek Diversion is an optional bid item to be used at the discretion of the Owner's Representative or the Engineer based on if flowing water is present in the project area at the time of construction, and will be measured on a lump sum basis.

B. Fish Removal is an optional bid item to be used at the discretion of the Owner's Representative or the Engineer based on if fish are present in the project area at the time of construction, and will be measured on a lump sum basis.

C. Dewatering will not be separately measured for payment.

4.2 PAYMENT

A. Creek Diversion will be paid for at the lump sum contract price for Creek Diversion, which price will include payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the diversion operations, as specified, including temporary cofferdams, pumping, silt control, filter fabric, sediment control, erosion control, removal of muck, disposal of materials, and removal of dewatering facilities.

B. Fish Removal will be paid for at the lump sum contract price for Fish Removal, which price will include payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the fish removal operations, as specified.

C. No separate payment will be made for Dewatering . Full compensation for all costs associated with this work, as shown on the Drawings, or as specified, shall be included for related work .

Pay Item	Pay Unit
Creek Diversion	Lump Sum (LS)
Fish Removal	Lump Sum (LS)

END OF SECTION

INDEX
SECTION 312323
ENGINEERED FILL

Paragraph **Page**

SECTION 312323
ENGINEERED FILL

1. GENERAL

1.1 DESCRIPTION

A. The work covered by this section consists of furnishing all plant, labor, and materials, and performing all operations necessary for the construction of Engineered fills, including subgrade preparation, furnishing, loading, and on-site and off-site hauling of materials, processing, screening placement and compaction of Engineered Fill materials, construction of ramps, and other incidental earthwork as may be necessary to complete the Engineered Fills, as specified in the Geotechnical Report, as shown on the Drawings, as specified, or as otherwise directed by the Engineer.

B. All grading shall comply with Sections 2 of the Standard Specifications, and with the recommendations of the Geotechnical Investigation. Prior to beginning work, the Contractor shall be familiar with the geotechnical investigation. In the event of discrepancy between the report and the notes herein, the report shall prevail. It shall be the responsibility of the Contractor to visit the site and make his own interpretations with regard to materials, methods and equipment necessary to perform the work required for this project.

C. Temporary erosion control and BMPs shall be installed and approved by the Engineer prior to beginning Engineered Fill Construction.

D. The Contractor is responsible to locate, identify, and protect all existing utilities from damage.

1.2 RELATED SECTIONS

A. Section 015000, Mobilization

B. Section 015713, Temporary Erosion Control and BMPs

C. Section 017123.16, Surveying

D. Section 311100, Clearing and Grubbing

E. Section 312316, Stripping and Excavation

F. Section 321540, Aggregate Base

G. Section 323423, Precast Concrete Bridge

H. Section 329200, Seeding

1.3 REFERENCES

A. Geotechnical Engineering Investigation by:

Geotechnics, LLC
7629 SE Harrison Street
Portland, OR 97215
(503) 730-2469
Job No. XXX
Dated: July XX, 2021

2. PRODUCTS

2.1 MATERIALS

A. Water. Refer to Section 015000, Mobilization

B. Engineered Fill Materials. To the extent they are needed, all suitable materials from the specified excavations shall be used in the construction of required permanent engineered fill. The suitability of materials for specific purposes will be subject to the approval of the Engineer, in conformance with these specifications.

C. Surplus Materials. All surplus or unsuitable excavated materials will be designated as waste and shall be disposed in accordance with Section 312316, Stripping & Excavation.

D. Imported Engineered Fill. Importing of Engineered Fill material shall be approved by the Geotechnical Engineer and supplied by the Owner. The Contractor shall be responsible for hauling the material from the source location to the project area.

3. EXECUTION

3.1 ENGINEERED FILL CONSTRUCTION

A. General. Compacted Engineered Fill in Engineered Fills shall be placed in the dry and compacted as specified herein.

B. Borrow Areas. Refer to Section 312316, Stripping and Excavation.

C. Subgrade Preparation. Following Clearing and Grubbing, the subgrade surfaces shall be graded to remove surface irregularities and shall be scarified parallel to the axis of the fill and loosened to a minimum depth of 6 inches. The moisture content of the loosened material shall be controlled as specified for the Engineered Fill, and the surface materials of the subgrade shall be compacted and bonded with the first layer of Engineered Fill.

D. Prepared subgrade surface shall be free of loose, uncompacted earth in excess of six inches in depth normal to the slope and shall be at such a moisture content that the Engineered Fill can be compacted against it ensure a good bond between the engineered fill and the subgrade. Subgrade surfaces shall not be steeper than 1 horizontal to 1 vertical.

E. Fill shall not be placed until the required subgrade preparation has been completed and approved by the Geotechnical Engineer.

F. Fill shall not be placed on or in standing water, nor upon a frozen surface, nor shall snow, ice, or frozen material be incorporated in the fill.

G. Compaction. Comply with the recommendations of the Geotechnical Engineering Report and the structural design plans for the Bridge

H. At the discretion of the Engineer, the top 18 inches of fill, within areas specified to receive revegetation treatments, may be compacted to between 80% and 85% of the maximum dry density, to facilitate plant establishment. Prior to seeding, the surface shall be prepared as specified in Section 329200, Seeding.

I. Dressing. Engineered Fill slopes shall be dressed by over-building and cutting back to the required grade. The Contractor may compact the shoulder of each lift during the placement of fill materials to assist in the subsequent dressing of the slopes.

3.2 CROSS SECTIONS AND ZONING OF MATERIALS

A. Standard Engineered Fill Sections. The dimensions, slopes, and zoning of materials shall conform to the sections shown on the Drawings and specified herein.

B. Zoning of Materials. Unless otherwise specified, the Engineered Fill materials shall be homogeneous. The Engineered Fill shall be free of pockets, lenses, streaks, layers, etc. of different materials.

3.3 FINISH

A. The finished grades shall transition naturally into adjacent existing grades to provide a functional and naturalistic finished surface. Due to the complex nature of the project and the desired aesthetic and functional features, not all details can be accurately represented on the Drawings. As a result, the Contractor may be directed by the Engineer to make minor adjustments to finish grades to best achieve these results. These adjustments may include smoothing or rounding conforms, or changing slope angles or daylight points as necessary to conform to the variable geometry inherent in natural topography. Compensation for this work shall be considered as included in the price paid for the various contract items of work involved, and no additional compensation will be allowed.

B. After the placement of the engineered fills and spoils, the sides and top shall be dressed by final passage of compaction equipment or by dragging to give a smooth surface. The surface area shall be graded to provide surface drainage to flow to desired locations.

3.4 ROADS AND RAMPS

A. Maintain Access. At locations where access roads to existing facilities are destroyed because of the work required under this contract, the Contractor shall provide temporary roads, if directed by the Engineer, to give access to fields and buildings during the construction period. Such facilities shall be removed to the extent required by the Engineer.

B. Temporary Haul Roads. Temporary haul roads shall be constructed as required to transport materials from borrow source or excavation to Engineered Fill site. Temporary ramps to be constructed for the Contractors convenience need not comply with these foundation preparation and Engineered Fill construction requirements. Unless otherwise directed by the Engineer, temporary ramps shall be removed prior to completion of the work and original grades restored.

C. Refer to Section 015000, Mobilization, for additional requirements related to establishment of temporary access.

3.5 GRADE TOLERANCES

A. General. Engineered Fills shall be constructed to the net grade and cross section shown on the Drawings.

B. Grade Tolerances. At all points a tolerance of 0.2 (two-tenths) foot above, and 0.1 (zero) foot below the prescribed grade will be permitted in the final dressing, provided that any excess material is so distributed that the crown of the Engineered Fill drains in the desired direction and that there are no abrupt humps or depressions in surfaces. However, this tolerance above grade may be modified at locations where, in the opinion of the Engineer, such modifications will not impair the design or appearance of the project.

3.6 SPECIAL MEASURES

A. Measures and construction methods shall be incorporated as needed and practical that enhances fish and wildlife values. Special attention shall be given to protecting visual resources and maintaining key shade, food, and den trees.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Engineered Fill. Engineered Fill will not be separately measured for payment.

4.2 PAYMENT

A. No separate payment will be made for Engineered Fill. The cost for this work shall be included in contract lump sum price for Precast Concrete Bridge Installation, Section 323423.

END OF SECTION

INDEX
SECTION 321540
AGGREGATE BASE

Paragraph **Page**

SECTION 321540
AGGREGATE BASE

1. GENERAL

1.1 DESCRIPTION

A. The work covered by this section consists of furnishing all plant, labor, and material and performing all operations necessary for placing aggregate base as specified, as shown on the Drawings, or as otherwise directed by the Engineer.

1.2 RELATED SECTIONS

A. Section 312316, Stripping and Excavation

B. Section 312323, Engineered Fill

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.

1.4 PROJECT CONDITIONS

A. Aggregate shall be placed when the atmospheric temperature is above 35 degrees Fahrenheit. Areas of completed base course that are damaged by freezing, rainfall, or other weather conditions shall be corrected to meet specified requirements.

2. PRODUCTS

2.1 MATERIALS

A. Aggregate Base used for the Road Surface will be supplied by the Owner and hauled from the source to the project site by the Contractor.

3. EXECUTION

3.1 PLACING, COMPACTING, AND FINISHING

A. Preparation of Subgrade. Prior to constructing the aggregate base course, the sub-grade shall be cleaned of all foreign substances. The sub-grade then shall be scarified to a depth of 6 inches, moisture conditioned, and compacted. Ruts or soft, yielding spots shall be corrected by loosening and removing soft or unsatisfactory material and by adding approved material, reshaping to line and grade, and recompacting.

B. Grade Control. During construction, the lines and grades including crown and cross slope indicated for the aggregate base course shall be maintained by means of line and grade stakes placed by the Contractor.

C. Placing. The mixed material shall be placed on the prepared subgrade in layers of uniform thickness with a suitable spreader. No layer shall exceed 6 inches or be less than 3 inches when compacted. The layers shall be so placed that when compacted they will be true to the grades or levels required with the least possible surface disturbance. Such adjustments in placing

procedures or equipment shall be made as may be directed to obtain true grades, to minimize segregation and degradation, to adjust the water content, and to insure an acceptable base course.

D. Compaction. Aggregate base course material shall be compacted with mechanical tampers.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Crushed Rock Road Surface will be measured for payment by the square foot, to the nearest 10 square feet

B. Aggregate base for repair of roadways outside of construction footprint that are damaged by construction activities will not be separately measured for payment.

4.2 PAYMENT

A. Crushed Rock Road Surface will be paid for at the contract price per square foot, which price will be payment in full for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in constructing the Crushed Rock Road Surface , including subgrade preparation and subgrade compaction, as shown on the Drawings, and as specified, and as directed by the Engineer.

B. Payment will be made under:

Pay Item	Pay Unit
Crushed Rock Road Surface	Square Foot (SF)

END OF SECTION

INDEX
SECTION 323423
PRECAST CONCRETE BRIDGE

Paragraph **Page**

SECTION 323423
PRECAST CONCRETE BRIDGE

1. GENERAL

1.1 DESCRIPTION

A. The Work covered by this section consists of moving and installing of a precast concrete bridge, abutments, and wingwalls, complete, in place, as specified, as shown on the Plans, and as directed by the Engineer. The precast concrete bridge, precast concrete abutment blocks, connecting steel and hardware shall be supplied by the Owner.

B. Coordinate delivery of the bridge materials with the supplier. The bridge material supplier is Pacific Bridge and Construction of Sandy, Oregon.

Pacific Bridge and Construction
40800 SE Coalman Road
Sandy, OR 97055
503-668-4798

1. Verify road condition requirements with the bridge material supplier and make any necessary road improvements to get materials as close to the project site as possible. The Contractor shall arrange and pay for any necessary hauling of bridge materials from the bridge supplier drop-off location to the project site.

1.2 SUBMITTALS

A. Submit to the Engineer, for review, the following:

1. Geotextile material used in the backfill behind the abutments and wingwalls.

1.3 PRODUCT HANDLING

A. General. Comply with the notes on the Drawings and Bridge Manufacturer's Installation Guidelines.

1.4 QUALITY ASSURANCE

A. Inspection and Acceptance. Owner will inspect and accept bridge.

2. PRODUCTS

2.1 MATERIALS

A. General. Comply with the material specifications listed on the Drawings.

3. EXECUTION

A. Comply with the notes and details on the Drawings.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Deliver Modular Concrete Bridge will be measured for payment on a lump sum basis.

B. Install Modular Concrete Bridge will be measured for payment on a lump sum basis.

C. Engineered Fill, geotextiles, grout, and other materials supplied and installed by the Contractor for the Precast Bridge construction and backfill will not be independently measured for payment.

4.2 PAYMENT

A. Deliver Modular Concrete Bridge will be paid for at the lump sum contract price, which price will be considered payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to deliver the modular concrete bridge components to the staging area from where the Bridge Suppler delivers the materials. This will include making any road improvements to facilitate delivery.

B. Install Modular Concrete will be paid for at the lump sum contract price, which price will be considered payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to furnish and complete installation of the Precast Concrete Bridge, including but not limited to over excavation for abutments and footings, foundation and structural backfill, and installation of Fabricated Concrete Bridge including abutments, wing walls, as specified, as shown on the Drawings, or as directed by the Engineer.

Payment will be made under:

Pay Item	Pay Unit
Deliver Modular Concrete Bridge	Lump Sum (LS)
Install Modular Concrete Bridge	Lump Sum (LS)

END OF SECTION

INDEX
SECTION 329200
SEEDING

Paragraph **Page**

SECTION 329200
SEEDING

1. GENERAL

1.1 DESCRIPTION

A. Work covered under this section consists of furnishing all labor, tools, materials, equipment and incidentals required to perform Seeding and Mulching, as specified, as shown on the Drawings, or as directed by the Engineer.

1. Seed and mulch will be supplied by the Owner for installation by the contractor.

1.2 RELATED SECTIONS

A. Section 015713.01, Fiber Roll

B. Section 312316, Excavation

C. Section 312323, Engineered Fill

2. PRODUCTS – Not Used

3. EXECUTION

3.1 PREPARATION

A. General. Seed the areas disturbed by construction activities, as specified herein or as directed by the Engineer.

B. Debris Removal. Prior to ground surface preparation operations remove and dispose of all wire, rubbish, stones, and other material which might hinder proper grading, and subsequent maintenance.

C. Surface Preparation. Surfaces which are too hard or smooth to accept the seeding, as determined by the Engineer, shall be broken up to a minimum depth of 3 inches, by disking or other methods approved by the Engineer, until the condition of the soil is acceptable. When conditions are such, by reason of excessive moisture or other factors, that satisfactory results are not likely to be obtained, the work shall be stopped and shall be resumed only when directed. Slopes in excess of 25% shall be prepared by track-walking or equivalent method approved by the Engineer.

3.2 APPLICATION OF SEED

A. Existing Features. During seeding operations, care shall be taken to avoid damaging existing facilities, vegetation to remain, or any other items on or around the planting areas.

B. Seeding Areas: Apply seed to areas indicated on the Drawings, or as directed by the Engineer.

C. Time of Seeding: Perform all seeding between October 1st and November 15 of the year construction begins. The seeding operation shall be halted when, in the opinion of the Engineer, conditions of high winds, excessive moisture or other factors are not conducive to satisfactory results. Upon written request of the Contractor, and upon written approval of the Engineer, seeding may be done during off seasons provided that:

1. The resulting stand of grass shall be at least equal to the stand that might be expected from planting during the normal season; and
2. The establishment period shall be lengthened, as required, to produce the above specified stand at no additional cost to the Owner.
3. Perform seeding prior to placement of erosion control fabric, where erosion control fabric is specified.

D. Broadcast Seeding. Seed shall be dry-applied by the following method:

1. Broadcast seed at the rates specified on the Drawings, uniformly by hand, mechanical hand seeder, combination seed spreader and cultipacker, or other approved equipment. Where seed is broadcast by hand or mechanical hand seeder, half the seed shall be sown with the sower moving in one direction, and the remainder sown with the sower moving at right angles to the first sowing. Broadcast seeding shall not be done during windy weather.
2. Rake seed into the soil to achieve a sowing depth of approximately 1/8 inch to 1/4 inch.
3. Following the application of seed, straw mulch shall be pneumatically applied or hand broadcast at the rate of 3,000 pounds per acre (typically 1.5 to 2 tons/acre.

3.3 REPAIR

A. General. When any portion of the ground surface becomes gullied or otherwise damaged following seeding within the period of Contractor's responsibility, repair the affected portion to re-establish the condition and grade of the soil prior to planting and then reseed as specified for initial planting, all at no cost to the Owner.

B. Reseeding. When it becomes evident that the seeding has been unsuccessful, the Engineer will require that these areas be reseeded with the same seed and quantity as specified for the initial seeding. Complete reseeding within fifteen (15) days following notification and these areas shall be maintained by watering, as specified above, until the successful grass is established. Prepare the area to be reseeded as directed by the Engineer, to receive the reseeding.

3.4 FIELD QUALITY CONTROL

A. During the course of work or upon completion of the project, a check of the quantities of materials will be made against the areas treated, and if the minimum rates of application have not been met, the Engineer will require the distribution of additional quantities of those materials to make up the minimum applications specified.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Seeding will be measured for payment on a lump sum basis.

B. Straw Mulch will not be separately measured for payment.

4.2 PAYMENT

A. Seeding will be paid for at the contract lump sum price, which price will include furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the Seeding as specified, as shown on the Drawings, or as directed by the Engineer.

B. No separate payment will be made for straw mulch. All costs in connection with this work will be considered incidental to the cost of Seeding.

C. Payment will be made under:

Pay Item	Pay Unit
Seeding	Lump Sum (LS)

END OF SECTION

INDEX
SECTION 354237
ROCK SLOPE PROTECTION

Paragraph **Page**

SECTION 354237
ROCK SLOPE PROTECTION

1. GENERAL

1.1 DESCRIPTION

A. Work within this section shall include furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in placing, Rock Slope Protection (RSP) and Stream Substrate where shown on the Drawings, as specified herein, or as otherwise directed by the Engineer. Stone protection, rock slope protection, and riprap are interchangeable in these Specifications and Drawings.

B. All loading, transport, temporary stockpiling, processing and mixing of stone materials to achieve designated gradations, washing, on-site hauling, excavation, preparation of sub-grade, placement, embedment, backfill, grading, compaction, finish grading, clean-up, and off-haul and disposal of excess materials needed to install all Rock Slope Protection work, where incorporated in the work, shall be considered as included in the applicable bid item unit price, and no additional compensation will be allowed.

C. The location, alignment, angles, elevations, grades, slopes, dimensions, etc. of the proposed rock structures as described in this section are shown on the Drawings to provide a basis for construction and bidding purposes. The Engineer is expected to make minor revisions and provide direction in the field to fit any varying field conditions. The Contractor shall include all costs for working under the direction of the Engineer in his/her bid for this work, as no additional compensation will be allowed therefore.

D. The Contractor is hereby notified that the Engineer may direct the Contractor to place additional stone materials (not shown on the Drawings) at select locations within the project work treatment areas to fit existing conditions at the time of construction. Any such additional stone materials and placement shall be considered as included in the contract prices paid for the designated stone materials as described elsewhere in these Technical Specifications and no additional compensation shall be allowed for

1.2 RELATED SECTIONS

A. Section 312316, Stripping and Excavation

B. Section 312319, Dewatering

1.3 REFERENCES

A. Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge, and Municipal Construction, current edition.

1.4 QUALITY ASSURANCE

A. Tolerances. Place rock to a vertical tolerance of minus 2 to plus 3 inches.

B. Subgrade Preparation. Prior to placement of rock, Engineer shall verify subgrade preparation, and placement of fabric for rock. Where backing is shown on the Drawings, Engineer shall verify subgrade preparation and backing placement prior to placement of outer rock course.

2. PRODUCTS

2.1 MATERIALS

A. Salvaged Rock Material. Native rock found on site may be salvaged for reuse, subject to compliance with the material requirements for the intended use, and subject to the approval by the Engineer.

B. Imported Rock Material used for the stream channel will be supplied by the Owner and hauled from the source to the project site by the Contractor.

3. EXECUTION

3.1 GENERAL

A. Rounded and smooth gravel, cobbles, and boulders shall not be placed on slopes steeper than 2:1 (horizontal: vertical) unless otherwise directed by the Engineer.

B. All rock materials shall be placed in such a manner as to smoothly conform with adjacent graded areas. Smaller rock shall be chinked into the margins of larger rock placements, as necessary to conform to earthwork and prevent migration of fines from adjacent graded areas into the rock matrix.

3.2 ROCK SLOPE PROTECTION

A. Rock shall be placed in lifts with a thickness not exceeding the D100 of the specified stone. Each lift shall be backfilled to half its depth with "Stream Substrate", prior to placement of the subsequent lift. Backfill shall be placed in a manner that does not interfere with direct rock to rock contact of successive lifts. Backfill shall be placed to match the finished surface of the RSP and water-jetted to fill all voids, as directed by the Engineer.

3.3 STREAM SUBSTRATE

A. Stream Substrate shall be placed to the lines, grades and depths shown on the Drawings, or as directed by the Engineer. Uniformly distribute large stones to produce the required gradation of rock. Prevent contamination of rock materials by excavation and/or earth materials. Subgrade shall be uniform with no soil clumps or rocks greater than two inches.

B. Following placement of the Stream Substrate, the finished surface shall be jetted with water until fines (material with a diameter less than 2mm) have been washed into the interstices of the mix to form a uniform plane of embedment, to the satisfaction of the Engineer. Turbid water resulting from jetting operations shall be pumped to a local depression or other sediment treatment facility, in accordance with the Permits.

4. MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

A. Rock Slope Protection will be measured by the cubic yard calculated to the nearest cubic yard.

B. Stream Substrate Material. Stream Substrate Material will not be separately measured for payment.

C. Excavation and backfill for rock slope protection will not be separately measured for payment.

4.2 PAYMENT

A. Rock Slope Protection, measured as specified above, will be paid for at the contract price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the riprap placement, including subgrade preparation, geotextile fabric, processing work, backing, rock placement, backfill of voids, Planting Tubes, excavation and fill.

B. Stream Substrate Material, measured as specified above, will be paid for at the contract price per cubic yard, which price will be payment in full for furnishing all labor, materials, tools, equipment, and incidentals necessary to complete the riprap placement, including subgrade preparation, geotextile fabric, processing work, backing, rock placement, backfill of voids, Planting Tubes, excavation and fill.

C. No separate payment will be made for excavation and backfill incidental to slope protection work. All costs in connection with this work will be considered incidental to the cost of construction of the associated slope protection work. Where "Stream Substrate" is specified as the backfill material, supply and stockpile of materials shall be considered incidental to the cubic yard price paid for associated Rock Slope Protection work.

D. Payment will be made under:

Pay Item	Pay Unit
Rock Slope Protection	Cubic Yard (CY)
Stream Substrate Material	Cubic Yard (CY)

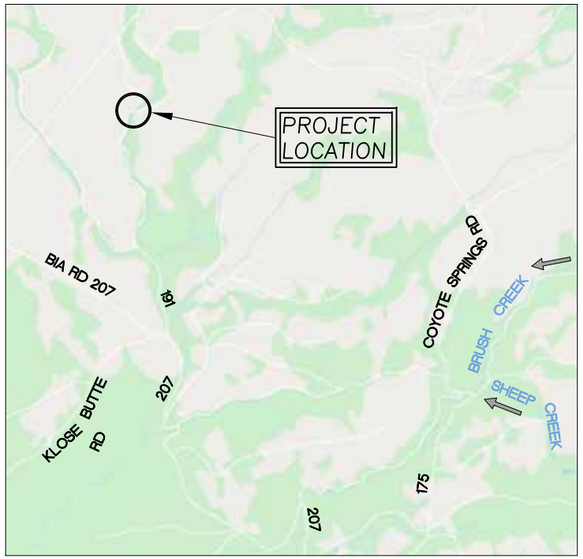
END OF SECTION

APPENDIX C

PLANSETS

WHITE CREEK ROAD CROSSING IMPROVEMENT PROJECT

95% DESIGN SUBMITTAL



VICINITY MAP
N.T.S. (GOOGLE)

REGIONAL MAP
N.T.S. (GOOGLE)

SHEET INDEX

ABBREVIATIONS

AVG.	AVERAGE
CC	CONCRETE
CY	CUBIC YARDS
DIA.	DIAMETER
E	EXISTING
EG	EXISTING GROUND
ELEV.	ELEVATION
DI	DRAINAGE INLET
FG	FINISHED GRADE
FT	FEET
INV	INVERT
MIN	MINIMUM
N	NEW
NIC	NOT IN CONTRACT
N.T.S.	NOT TO SCALE
O.C.	ON CENTER
RC	RELATIVE COMPACTION
RSP	ROCK SLOPE PROTECTION
SPK	SPIKE
SQ.FT.	SQUARE FOOT
T	TREE
T.B.D.	TO BE DETERMINED
TYP	TYPICAL
UNK	UNKNOWN
WSE	WATER SURFACE ELEVATION
YR	YEAR

TREE SPECIES

CW	COTTONWOOD
P	PINE

PROJECT DESCRIPTION

THESE DRAWINGS PROVIDE 95% DESIGN LEVEL DETAILS FOR A FISH PASSAGE IMPROVEMENT PROJECT IN THE WHITE CREEK WATERSHED LOCATED WITHIN YAKAMA TRIBAL LAND IN YAKIMA COUNTY, WASHINGTON.

THE WHITE CREEK FISH PASSAGE IMPROVEMENT PROJECT AT 191 ROAD WILL REPLACE THREE PARALLEL CULVERTS WITH A BRIDGE TO IMPROVE FISH PASSAGE CONDITIONS WHITE CREEK.

WORK SHALL CONSIST OF REMOVAL AND DISPOSAL OF THE EXISTING CROSSINGS AND REPLACEMENT WITH BRIDGE SPANS. THE NEW CREEK BED WILL BE CONSTRUCTED OF NATURAL STREAMBED MATERIAL.

SECTION AND DETAIL CONVENTION

SECTION OR DETAIL IDENTIFICATION (NUMBER OR LETTER)

5
C3

SHEET REFERENCE

GENERAL NOTES

1. TOPOGRAPHIC MAPPING WAS PERFORMED BY:
   WATERWAYS CONSULTING, INC.
   1020 SW TAYLOR STREET, SUITE 380
   PORTLAND, OR 97205
   SURVEY DATE; AUGUST 25, 2020.
2. ELEVATION DATUM:
   WHITE CREEK: AN ASSUMED ELEVATION OF 2,651.40' WAS ESTABLISHED AT SURVEY CONTROL POINT #1 (REBAR) SHOWN ON SHEET C2.
3. BASIS OF BEARINGS: GPS TIES TO NAD83 WASHINGTON STATE PLANE SOUTH US FOOT USING THE LEICA GEOSYSTEMS SMARTNET GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) NETWORK.
4. CONTOUR INTERVAL IS ONE FOOT. ELEVATIONS AND DISTANCES SHOWN ARE IN DECIMAL FEET.
5. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES ARE NOT SHOWN HEREON.
6. THIS IS NOT A BOUNDARY SURVEY. PROPERTY LINES WERE COMPILED FROM RECORD INFORMATION. THE LOCATION OF THESE LINES IS SUBJECT TO CHANGE, PENDING THE RESULTS OF A COMPLETE BOUNDARY SURVEY.
7. ALL CONSTRUCTION AND MATERIALS SHALL CONFORM TO THE 2021 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, ISSUED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (HEREAFTER REFERRED TO AS "STANDARD SPECIFICATIONS").
8. THESE DESIGNS ARE INCOMPLETE WITHOUT THE FINAL STAMPED TECHNICAL SPECIFICATIONS PREPARED BY WATERWAYS CONSULTING, INC. REFER TO TECHNICAL SPECIFICATIONS FOR DETAILS NOT SHOWN HEREON.

*** CALL BEFORE YOU DIG ***

CONTACT UNDERGROUND SERVICE ALERT (USA) PRIOR TO ANY CONSTRUCTION WORK 1-800-424-5555

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH:(503)227-5979 // FAX:(888)819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKAMA NATION FISHERIES

COVER SHEET

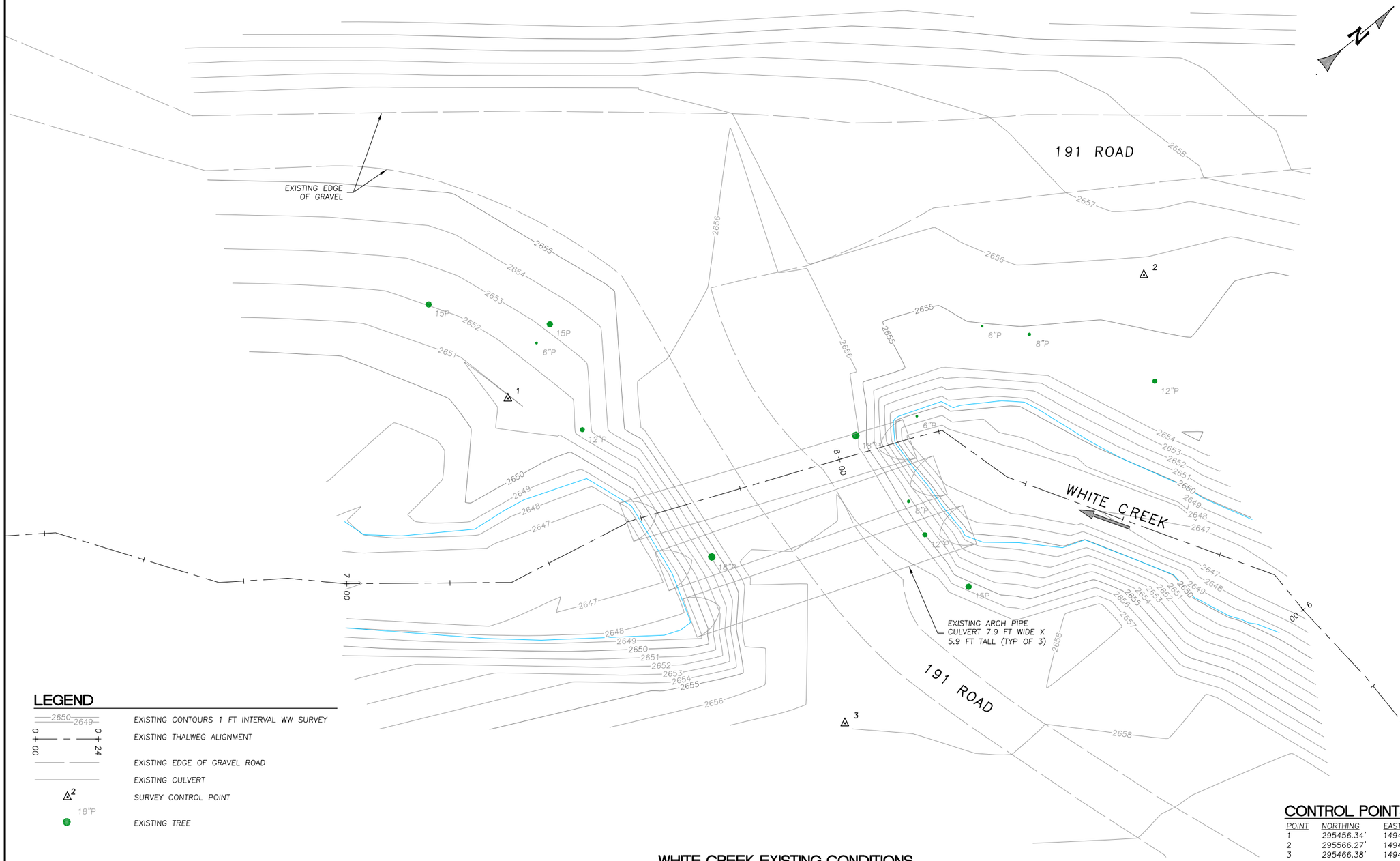
WHITE CREEK
ROAD CROSSING
IMPROVEMENT
95% DESIGN

DESIGNED BY:	J.H.
DRAWN BY:	D.H.
CHECKED BY:	J.H.
DATE:	7/22/2021
JOB NO.:	20-026

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C1 | 1 OF 11

F:\Projects\20-026 Cedar Valley Road Crossings\CAD\0-White Creek\20-026_WC_Cover.dwg — 7/22/2021 12:14 PM



LEGEND

- 2650 / 2649 — EXISTING CONTOURS 1 FT INTERVAL WW SURVEY
- 0+00 — 0+24 — EXISTING THALWEG ALIGNMENT
- EXISTING EDGE OF GRAVEL ROAD
- EXISTING CULVERT
- △2 — SURVEY CONTROL POINT
- 18"P — EXISTING TREE

WHITE CREEK EXISTING CONDITIONS

SCALE: 1" = 10'

CONTROL POINTS

POINT	NORTHING	EASTING	ELEV.	DESC.
1	295456.34'	1494017.68'	2651.40'	REBAR
2	295566.27'	1494077.92'	2655.62'	REBAR
3	295466.38'	1494107.67'	2657.96'	REBAR

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WHITE CREEK EXISTING CONDITIONS

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

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0 — 1"

C2

2 OF 11

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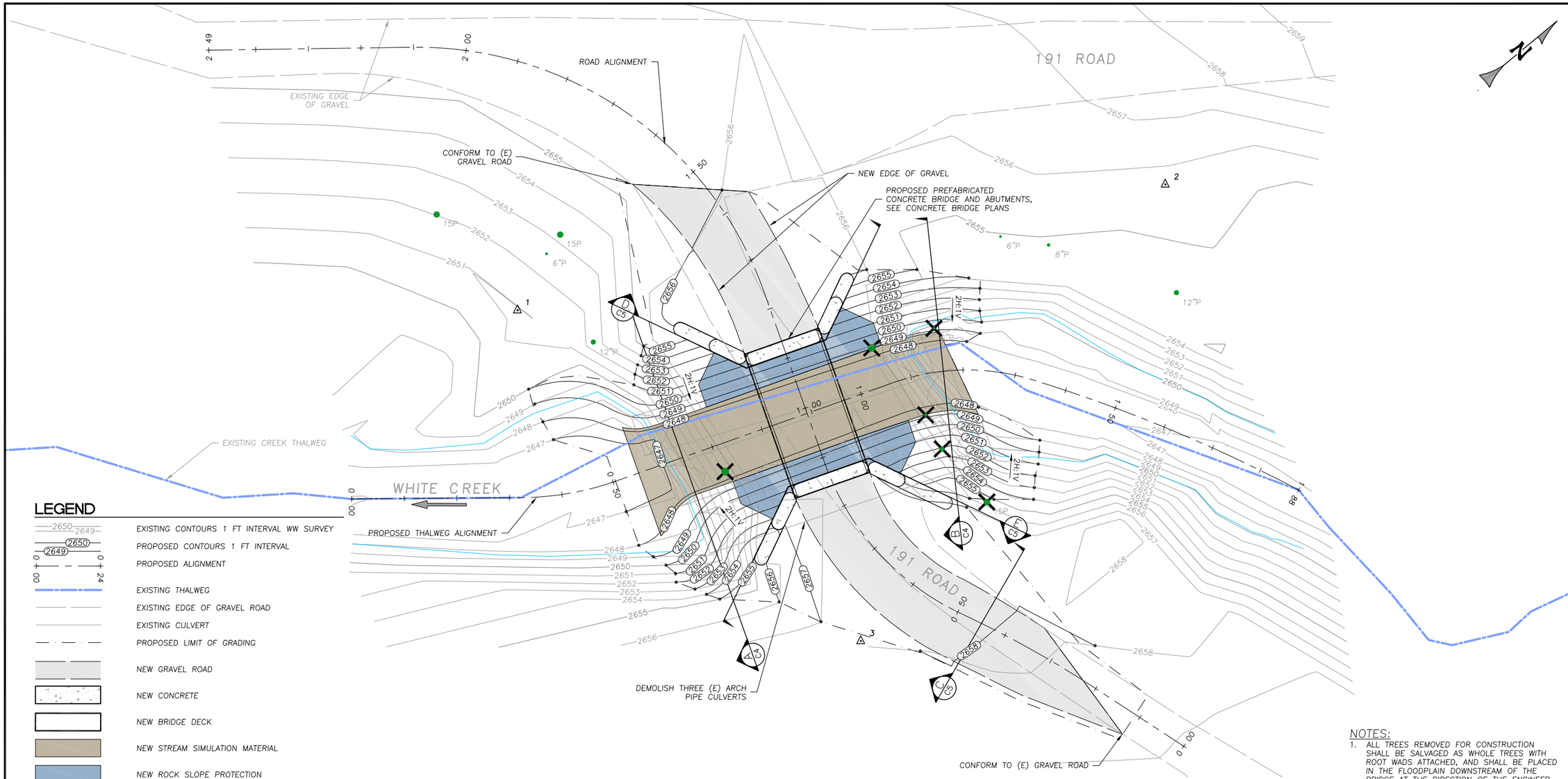
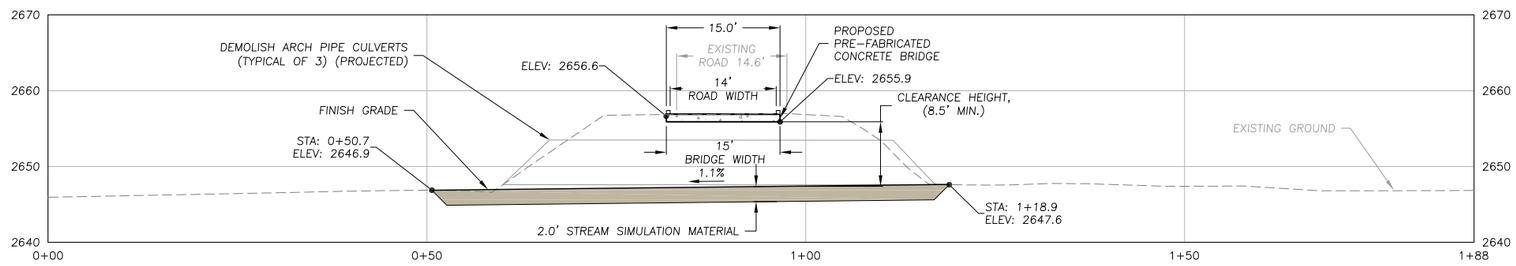


LEGEND

- EXISTING CONTOURS 1 FT INTERVAL WW SURVEY
- PROPOSED CONTOURS 1 FT INTERVAL
- PROPOSED ALIGNMENT
- EXISTING THALWEG
- EXISTING EDGE OF GRAVEL ROAD
- EXISTING CULVERT
- PROPOSED LIMIT OF GRADING
- NEW GRAVEL ROAD
- NEW CONCRETE
- NEW BRIDGE DECK
- NEW STREAM SIMULATION MATERIAL
- NEW ROCK SLOPE PROTECTION
- SURVEY CONTROL POINT
- EXISTING TREE
- EXISTING TREE TO BE REMOVED

WHITE CREEK SITE PLAN

SCALE: 1" = 10'



WHITE CREEK THALWEG PROFILE

SCALE: 1" = 10'

NOTES:

1. ALL TREES REMOVED FOR CONSTRUCTION SHALL BE SALVAGED AS WHOLE TREES WITH ROOT WADS ATTACHED, AND SHALL BE PLACED IN THE FLOODPLAIN DOWNSTREAM OF THE BRIDGE AT THE DIRECTION OF THE ENGINEER.

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WHITE CREEK SITE PLAN

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

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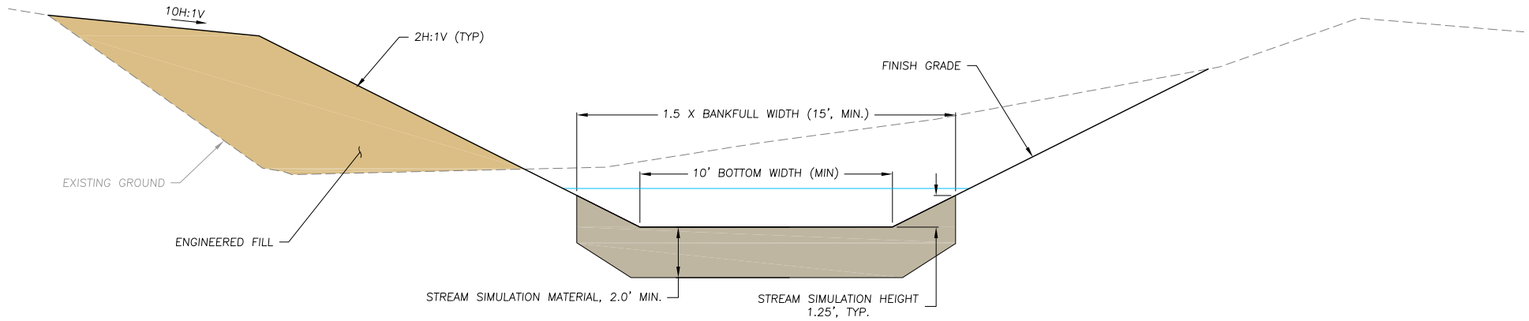
C3

3 OF 11

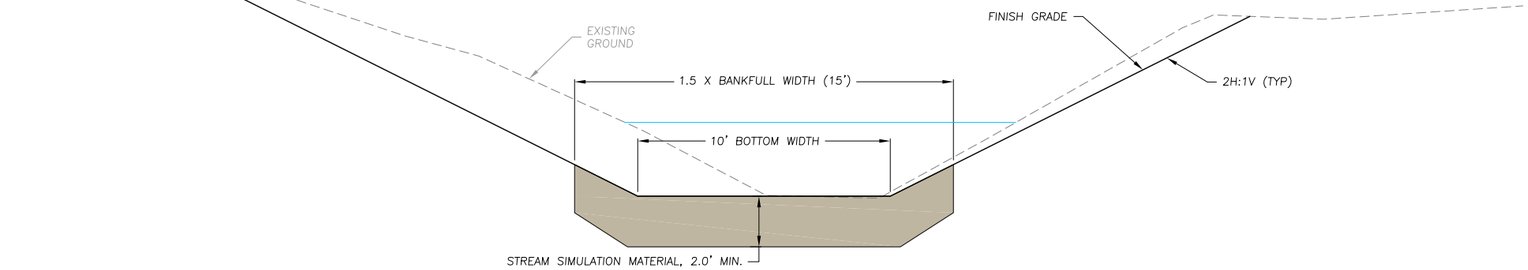


WHITE CREEK TYPICAL CREEK SECTION DOWNSTREAM OF CROSSING

SCALE: 1" = 3'

(A / C3)

WHITE CREEK STREAMBED GRADUATION	
SIZE CLASS	PARTICLE DIAMETER (FT)
D100 =	0.75
D75 =	0.35
D50 =	0.19
D25 =	0.002



WHITE CREEK TYPICAL CREEK SECTION UPSTREAM OF CROSSING

SCALE: 1" = 3'

(B / C3)

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WHITE CREEK SECTIONS

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

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0 1"

C4

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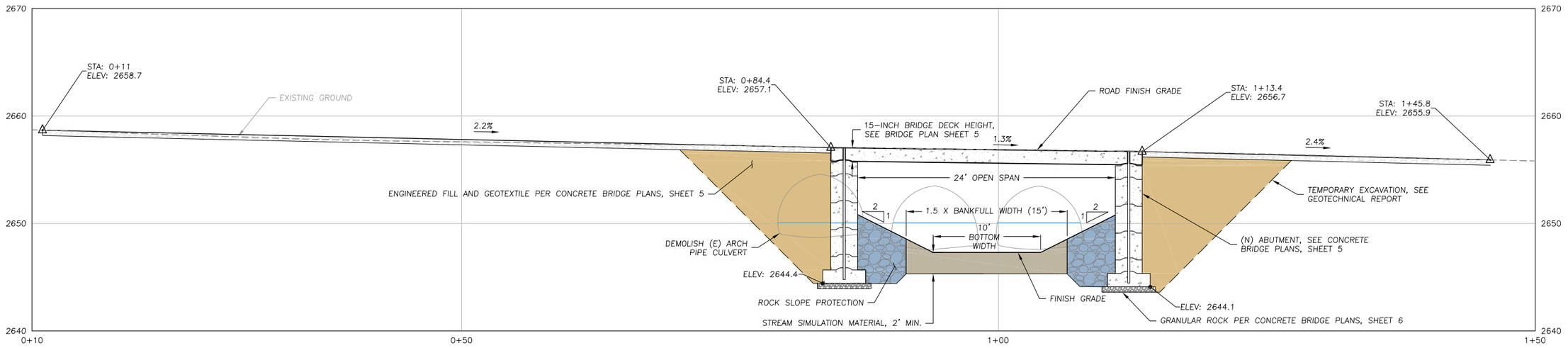
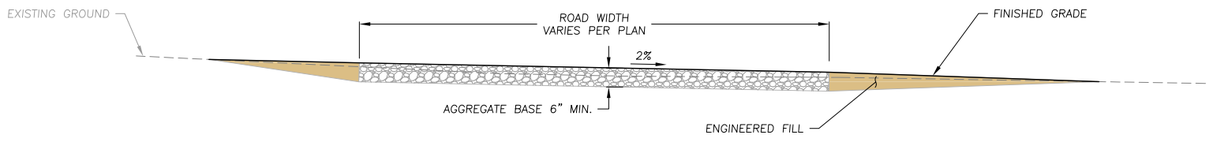
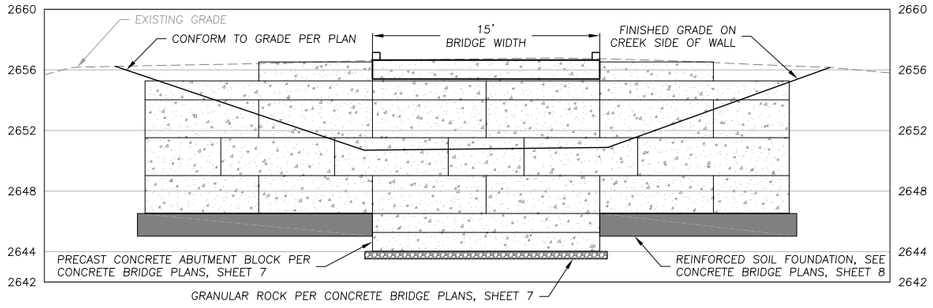


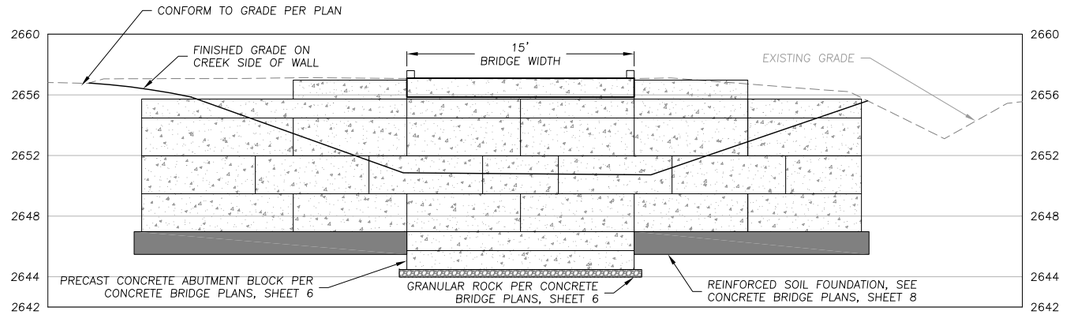
WHITE CREEK ROAD PROFILE
SCALE: 1" = 5'



TYPICAL ROAD SECTION
SCALE: 1" = 2'
(C / C3)



ABUTMENT 2 SECTION
SCALE: 1" = 5'
(D / C3)



ABUTMENT 1 SECTION
SCALE: 1" = 5'
(E / C3)

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YAKAMA NATION FISHERIES

WHITE CREEK ROAD PROFILE AND SECTIONS

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

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BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C5 | 5 OF 11

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LEGEND

- EXISTING THALWEG
- EXISTING EDGE OF GRAVEL ROAD
- EXISTING CULVERT
- NEW STRAW WATTLE
- NEW GRAVEL ROAD
- NEW CONCRETE
- NEW BRIDGE DECK
- TEMPORARY STAGING AREA
- TEMPORARY REFUELING AREA

WHITE CREEK STAGING PLAN

SCALE: 1" = 30'

NOTES:

1. PLACE STRAW WATTLES PARALLEL WITH WITH EXISTING CONTOURS.

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WHITE CREEK STAGING PLAN

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

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0 1"

C6

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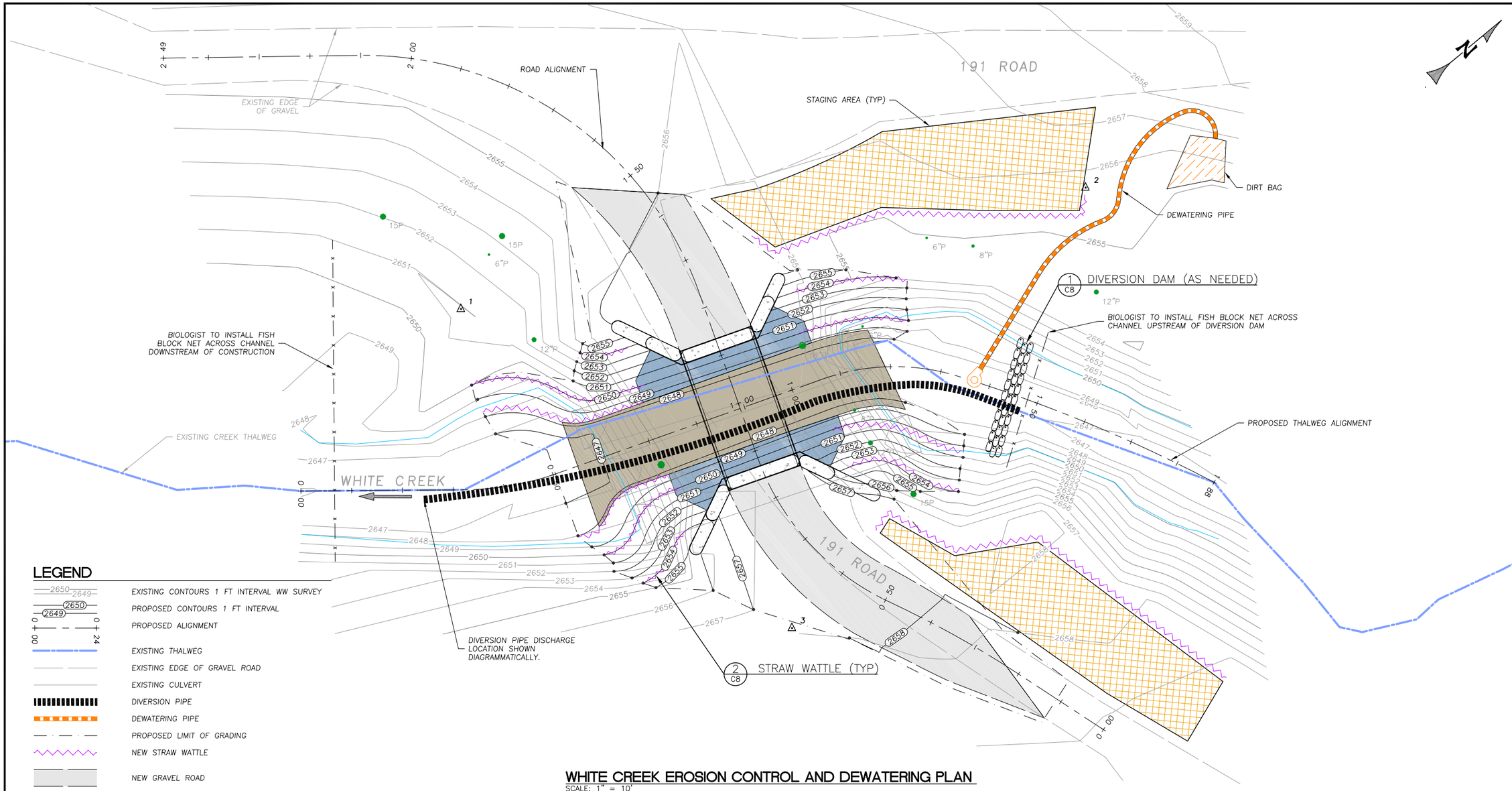

LEGEND

- EXISTING CONTOURS 1 FT INTERVAL WW SURVEY
- PROPOSED CONTOURS 1 FT INTERVAL
- PROPOSED ALIGNMENT
- EXISTING THALWEG
- EXISTING EDGE OF GRAVEL ROAD
- EXISTING CULVERT
- DIVERSION PIPE
- DEWATERING PIPE
- PROPOSED LIMIT OF GRADING
- NEW STRAW WATTLE
- NEW GRAVEL ROAD
- NEW CONCRETE
- NEW BRIDGE DECK
- NEW STREAM SIMULATION MATERIAL
- NEW ROCK SLOPE PROTECTION
- TEMPORARY STAGING AREA
- DIRT BAG
- SURVEY CONTROL POINT
- EXISTING TREE
- GROUNDWATER DEWATERING WELL/PUMP

WHITE CREEK EROSION CONTROL AND DEWATERING PLAN

SCALE: 1" = 10'

CONSTRUCTION SEQUENCING NOTES:

1. FLAG THE FOLLOWING LOCATIONS PRIOR TO CONSTRUCTION.
   - A. ORDINARY HIGH WATER
   - B. ROAD AND STREAM CROSSING ALIGNMENTS
   - C. STAGING, STORAGE AND STOCKPILE AREAS
   - D. LIMITS OF CONSTRUCTION
   - E. TREES AND OTHER VEGETATION WITHIN THE LIMITS OF CONSTRUCTION TO BE PROTECTED.
2. INSTALL TEMPORARY EROSION CONTROL BMPs AROUND THE DOWNSTREAM PERIMENTER OF THE STAGING, STORAGE, STOCKPILE AREAS, AND LIMITS OF CONSTRUCTION.
3. IMPLEMENT THE FOLLOWING DEWATERING AND FISH SALVAGE MEASURES PRIOR TO IN-WATER CONSTRUCTION IF WATER IS PRESENT WITHIN THE CHANNEL.
   - F. ISOLATE UPSTREAM AND DOWNSTREAM ENDS OF THE CHANNEL WITH FISH BLOCK NETS AND PERFORM FISH SALVAGE OPERATIONS.
   - G. INSTALL A SAND BAG BERM AT THE UPSTREAM END OF THE WORK AREA AND DIVERT CREEK FLOW AROUND THE WORK AREA USING A PUMP WITH NMFS APPROVED PUMP IF FLOW IS BELOW 3 CFS, AND WITH A GRAVITY FLOW PIPE IF 3 CS OR GREATER.
   - H. ALL WATER GENERATED FROM DEWATERING ACTIVITIES WITHIN THE WORK AREA SHALL BE PUMPED TO AN UPLAND LOCATION FOR INFILTRATION OR TREATMENT TO WATER QUALITY STANDARDS BEFORE FLOWING BACK INTO THE CREEK.
   - I. MAINTAIN ALL WATER QUALITY INSPECTION REPORTS IN ACCORDANCE WITH PERMITS AND SUBMIT PRIOR TO FINAL PAYMENT.
4. EXCAVATE FOR BRIDGE FOOTINGS AND DEMOLISH EXISTING CULVERTS.
5. INSTALL BRIDGE FOOTINGS, ROCK SLOPE PROTECTION, AND STREAM SUBSTRATE MATERIAL.
6. INSTALL BRIDGE DECK AND APPROACH ROAD FILL.
7. INSTALL PERMANENT EROSION CONTROL MEASURES ON SIDE SLOPES OF ROAD FILL AND REMOVE DEWATERING EQUIPMENT.
8. SEED AND MULCH ALL DISTURBED SOILS OUTSIDE THE NEW ROAD AND STREAMBED SURFACES.
9. DEMOBILIZE FROM THE SITE AND RESTORE THE ACCESS TO PRECONSTRUCTION CONDITIONS.

NOTES:

1. EQUIPMENT REFUELING AREA MUST BE A MINIMUM OF 150-FT FROM WHITE CREEK. SEE SHEET C6.
2. PLACE STRAW WATTLES IN LINE WITH FINISHED GRADE CONTOURS.

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1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH:(503)227-5979 // FAX:(888)819-6847
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PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKAMA NATION FISHERIES

WHITE CREEK EROSION CONTROL AND DEWATERING PLAN

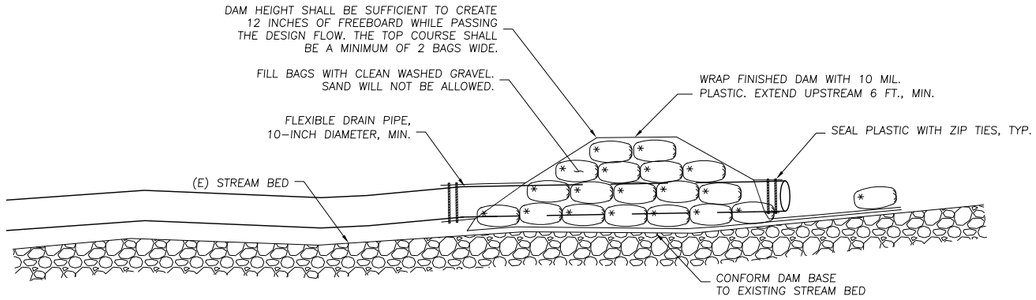
WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

DESIGNED BY: J.H.
DRAWN BY: D.H.
CHECKED BY: J.H.
DATE: 7/22/2021
JOB NO.: 20-026

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

EROSION CONTROL NOTES

1. THE EROSION CONTROL MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS.
2. PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION.
3. IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS.
4. PRESERVE EXISTING VEGETATION WHEN PRACTICAL AND RE-VEGETATE OPEN AREAS. RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED.
5. EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS.
6. APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS.
7. ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS.
8. PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPS SUCH AS: GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ONSITE, OR USE AN EXIT TIRE WASH. THESE BMPS MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES.
9. WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE.
10. USE BMPS TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS; VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS.
11. FUELING ACTIVITIES MUST BE LOCATED A MINIMUM OF 150 FEET FROM ORDINARY HIGH WATER AND SENSITIVE WATERS, INCLUDING WETLANDS.
12. IMPLEMENT THE FOLLOWING BMPS WHEN APPLICABLE: WRITTEN SPILL PREVENTION AND RESPONSE PROCEDURES, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, SPILL KITS IN ALL VEHICLES, REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, MATERIAL DELIVERY AND STORAGE CONTROLS, TRAINING AND SIGNAGE, AND COVERED STORAGE AREAS FOR WASTE AND SUPPLIES.
13. USE WATER, SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL.
14. ONSITE VEHICLE SPEED ON UPAVED SURFACES SHALL BE LIMITED TO 15 MPH.
15. THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE.
16. IF A STORMWATER TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
17. TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR.
18. AT THE END OF EACH WORKDAY SOIL STOCKPILES MUST BE STABILIZED OR COVERED, OR OTHER BMPS MUST BE IMPLEMENTED TO PREVENT DISCHARGES TO SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATERS.
19. CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING WET WEATHER.
20. SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL.
21. WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME.
22. THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS, DRAINAGE WAYS, OR WETLANDS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS.
23. THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE.
24. PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE.
25. PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS AS THEY ARE COMPLETED. DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. HOWEVER, DO REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. PROPERLY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPS.



NOTE: CONTRACTOR MAY USE ALTERNATE DAM DETAIL, SUBJECT TO APPROVAL OF THE ENGINEER AND THE PERMITTING AGENCIES.

DIVERSION DAM PROFILE (1/C7)
SCALE: 1" = 5'

DIVERSION NOTES

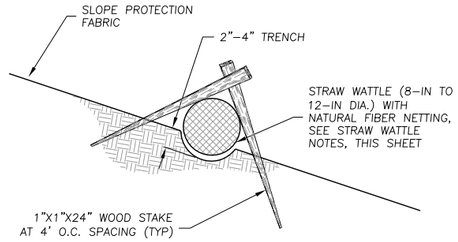
THE DIVERSION PLAN SHOWN IS SCHEMATIC. GENERAL REQUIREMENTS ARE PROVIDED BELOW. THE FULL REQUIREMENTS OF THE DIVERSION AND DEWATERING PLAN ARE SPECIFIED IN THE PROJECT TECHNICAL SPECIFICATIONS.

1. GENERAL
   - 1.1. DEWATER THE PROJECT SITE AS REQUIRED TO FACILITATE IN-STREAM CONSTRUCTION AND TO REDUCE POTENTIAL IMPACTS TO WATER QUALITY DOWNSTREAM OF THE PROJECT SITE.
   - 1.2. CONFIRM THAT A FAVORABLE LONG TERM WEATHER FORECAST (1 WEEK, MIN.) IS OBSERVED PRIOR TO PLACEMENT OF DIVERSION STRUCTURES.
   - 1.3. PRIOR TO PLACEMENT OF DIVERSION STRUCTURE, REMOVE FISH FROM THE PROJECT REACH, IN ACCORDANCE WITH SECTION 2.
   - 1.4. DIVERT FLOW ONLY WHEN THE DIVERSION CONSTRUCTION IS OTHERWISE COMPLETE. FOLLOWING ENGINEER'S APPROVAL OF THE COMPLETED WORK, REMOVE DIVERSION BEGINNING AT THE DOWNSTREAM LIMIT, IN AN UPSTREAM DIRECTION.

2. FISH REMOVAL
   - 2.1. FISH SHALL BE REMOVED FROM THE PROJECT SITE BY A QUALIFIED FISHERIES BIOLOGIST, AUTHORIZED TO PERFORM SUCH ACTIVITIES BY THE NATIONAL MARINE FISHERIES SERVICE AND THE WASHINGTON DEPARTMENT OF FISH AND WILDLIFE.
   - 2.2. BLOCK NETS SHALL BE PROVIDED AND INSTALLED BY THE FISHERIES BIOLOGIST. BLOCK NETS SHALL BE MAINTAINED BY THE CONTRACTOR BOTH UPSTREAM AND DOWNSTREAM OF THE DIVERSION, THROUGHOUT THE PERIOD OF CONSTRUCTION. MAINTENANCE INCLUDES PERIODIC REMOVAL OF ACCUMULATED DEBRIS, AS NECESSARY TO ENSURE FUNCTION. BLOCK NETS SHALL BE REMOVED BY THE FISHERIES BIOLOGIST AFTER THE DIVERSION IS REMOVED AND THE IN CHANNEL WORK AREA IS RE-WATERED.

3. DIVERSION SYSTEM
   - 3.1. INSTALL A SEALED, TEMPORARY DIVERSION DAM CONSTRUCTED USING GRAVEL FILLED BAGS TO CAPTURE AND DIVERT STREAM FLOW UPSTREAM OF THE PROJECT SITE. THE DAM AND METHOD OF SEALING SHALL BE PLACED AT AN APPROPRIATE DEPTH TO CAPTURE SUBSURFACE STREAM FLOW, AS NEEDED TO DEWATER THE STREAMBED. GRAVEL SHALL BE WASHED PRIOR TO PLACEMENT IN BAGS. THE USE OF SAND WILL NOT BE ALLOWED. NO OTHER DIVERSION METHOD SHALL BE USED WITHOUT AUTHORIZATION OF THE ENGINEER. IF AN ALTERNATE DIVERSION METHOD IS PREFERRED BY THE CONTRACTOR, THE CONTRACTOR SHALL SUBMIT A PLAN TO THE ENGINEER FOR APPROVAL, DETAILING THE DESIRED DIVERSION METHOD.
   - 3.2. THE DIVERSION STRUCTURE SHALL BE CONSTRUCTED AS SHOWN ON DETAIL 1 ON SHEET C8 OR AS DIRECTED BY THE ENGINEER IN THE FIELD.
   - 3.3. IN THE EVENT OF A SIGNIFICANT STORM, THE CONTRACTOR SHALL BE PREPARED TO TAKE NECESSARY MEASURES TO INSURE SAFE PASSAGE OF STORM WATER FLOW THROUGH THE PROJECT AREA, WITHOUT DAMAGE TO EXISTING STRUCTURES, OR INTRODUCTION OF EXCESSIVE SEDIMENT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY EROSION CONTROL BMPs.
   - 3.4. THE DIVERSION SHALL BE CAPABLE OF CONVEYING ANTICIPATED FLOWRATES WITH LESS THAN 6 INCHES OF HEAD OVER THE TOP OF PIPE AT THE INLET, AND SHALL BE A MINIMUM DIAMETER OF 10", WITH A MANNING'S ROUGHNESS NOT EXCEEDING .012.

4. DEWATERING OF CONSTRUCTION AREAS
   - 4.1. THE CONTRACTOR SHALL SUPPLY ALL NECESSARY PUMPS, PIPING, FILTERS, SHORING, AND OTHER TOOLS AND MATERIALS NECESSARY FOR DEWATERING. IF A PUMPED SYSTEM IS RELIED UPON TO ENSURE DOWNSTREAM WATER QUALITY, A BACKUP PUMP OF EQUAL CAPACITY SHALL BE PROVIDED AT ALL TIMES AND THE PUMP MUST BE CONTINUOUSLY MONITORED.
   - 4.2. DEWATERING ACTIVITIES WHICH MAY BE REQUIRED FOR CONSTRUCTION PURPOSES SHALL COMPLY WITH WATER QUALITY STANDARDS ISSUED BY WASHINGTON STATE DEPARTMENT OF ECOLOGY.
   - 4.3. DISCHARGE OF WATER FROM THE DEWATERED CONSTRUCTION SITE, EITHER BY GRAVITY OR PUMPING, SHALL BE PERFORMED IN A MANNER THAT PREVENTS EXCESSIVE TURBIDITY FROM ENTERING THE RECEIVING WATERWAYS AND PREVENTS SCOUR AND EROSION OUTSIDE OF THE CONSTRUCTION SITE. PUMPED WATER SHOULD BE PRE-FILTERED WITH A GRAVEL PACK AROUND SUMPS FOR SUBSURFACE FLOWS AND A SILT FENCE AROUND PUMPS FOR SURFACE FLOW. PUMPED WATER SHALL BE DISCHARGED INTO ISOLATED LOCAL DEPRESSIONS, FILTER BAGS, SETTLING (BAKER) TANKS, OR TEMPORARY SEDIMENT BASINS, AS NECESSARY TO MEET WATER QUALITY REQUIREMENTS. WHERE WATER TO BE DISCHARGED INTO BRUSH OR WHITE CREEK WILL CREATE EXCESSIVE TURBIDITY, THE WATER SHALL BE ROUTED THROUGH A SEDIMENT INTERCEPTOR OR OTHER FACILITIES TO REMOVE SEDIMENT FROM WATER.



PERMANENT STRAW WATTLE DETAIL (2/C6,C7)
SCALE: 1" = 1'

STRAW WATTLE NOTES

1. CONSTRUCT TRENCHES TO THE DEPTH SHOWN, AND TO A SUFFICIENT WIDTH TO HOLD THE STRAW WATTLE. INSTALL CROSSED STAKES AT THE ON-CENTER SPACING SHOWN ALONG THE LENGTH OF THE STRAW WATTLE AND STOPPED AT 12 INCHES FROM EACH END OF THE WATTLES. DRIVE STAKES TO BETWEEN TWO AND THREE INCHES ABOVE THE TOP OF THE ROLL.
2. PLACE STRAW WATTLES 10 FEET APART ALONG THE SLOPE FOR SLOPE INCLINATION OF 2H:1V AND STEEPER, AND 15 FEET APART ALONG THE SLOPE FOR SLOPE INCLINATION BETWEEN 2H:1V AND 4H:1V.
3. CLEAR THE BEDDING AREA FOR THE STRAW WATTLES OF OBSTRUCTIONS INCLUDING ROCKS, CLODS, AND DEBRIS GREATER THAN ONE INCH IN DIAMETER BEFORE INSTALLATION.
4. INSTALL STRAW WATTLES APPROXIMATELY PARALLEL TO THE SLOPE CONTOUR. ANGLE THE TERMINUS OF ROWS UP-SLOPE AT 45 DEGREES FOR A DISTANCE OF THREE FEET. WHERE STRAW WATTLES MEET, PROVIDE AN OVERLAP OF 18 INCHES, WITH ADJACENT WATTLES TIGHTLY ABUTTING EACH OTHER.
5. INSTALL PERMANENT STRAW WATTLES PRIOR TO SEEDING WHERE USED WITHOUT SLOPE PROTECTION FABRIC.
6. INSTALL PERMANENT STRAW WATTLES OVER FABRIC (AFTER SEEDING) WHERE SLOPE PROTECTION FABRIC IS TO BE INSTALLED.

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH:(503)227-5979 // FAX:(888)819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKAMA NATION FISHERIES

DETAILS AND NOTES

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

DESIGNED BY:	J.H.
DRAWN BY:	D.H.
CHECKED BY:	J.H.
DATE:	7/22/2021
JOB NO.:	20-026

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C8 | 8 OF 11

GENERAL NOTES

1. NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OR A DESIGNATED REPRESENTATIVE SHALL OBSERVE THE CONSTRUCTION PROCESS, AS NECESSARY TO ENSURE PROPER INSTALLATION PROCEDURES.

2. EXISTING UNDERGROUND UTILITY LOCATIONS:

   A. CALL UNDERGROUND SERVICE ALERT (1-800-424-5555) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.

   B. PRIOR TO BEGINNING WORK, CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.

   C. EXISTING UTILITY LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES AND FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.

   D. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITIES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.

   E. PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POTHOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.

   F. TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.

   G. ON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE CITY BY TELEPHONE AND IN WRITING.

   H. UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.

3. IF DISCREPANCIES ARE DISCOVERED BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.

4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.

5. ALL TESTS, INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR THESE PLANS, SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY. JOB SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE REQUIRED TESTS AND INSPECTIONS ARE PERFORMED.

6. PROJECT SCHEDULE: PRIOR TO COMMENCEMENT OF WORK, SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A DETAILED CONSTRUCTION SCHEDULE. DO NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER. ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL. PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL SAFETY DURING CONSTRUCTION. ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.

9. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.

10. MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL AS-BUILT DEVIATIONS FROM THE CONSTRUCTION AS SHOWN ON THESE DRAWINGS AND SPECIFICATIONS, FOR THE PURPOSE OF PROVIDING THE ENGINEER OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.

11. MAINTAIN THE SITE IN A NEAT AND ORDERLY MANNER THROUGHOUT THE CONSTRUCTION PROCESS. STORE ALL MATERIALS WITHIN APPROVED STAGING AREAS.

12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL PERMIT CONDITIONS, LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS, WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.

13. PROVIDE, AT CONTRACTOR'S SOLE EXPENSE, ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.

14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED.

15. FIELD INSPECTIONS AND OR THE PROVISION OF CONSTRUCTION STAKES DO NOT RELIEVE THE CONTRACTOR OF THEIR SOLE RESPONSIBILITY FOR ESTABLISHING ACCURATE CONSTRUCTED LINES AND GRADES, AS SPECIFIED.

16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL SURVEY MONUMENTS OR PROPERTY CORNERS. DISTURBED MONUMENTS SHALL BE RESTORED BACK TO THEIR ORIGINAL LOCATION AND SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR AT THE SOLE EXPENSE OF THE CONTRACTOR.

17. THE OWNER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF ALL PROPERTY LINES AND EASEMENTS AND CONFIRMING THAT PROPOSED PROJECT ELEMENTS ARE LOCATED ON DISTRICT OWNED LANDS OR ARE COORDINATED WITH OWNERS AND APPROPRIATE PERMISSIONS ARE GRANTED FOR THE WORK.

18. TREE DIMENSIONS: TRUNK DIAMETERS SHOWN REPRESENT DIAMETER AT BREAST HEIGHT (DBH), MEASURED IN INCHES. DBH IS MEASURED 4.5 FT ABOVE GROUND FOR SINGLE TRUNKS AND TRUNKS THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND. THE DBH FOR TREES THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND MAY BE CONSOLIDATED INTO A SINGLE DBH BY TAKING THE SQUARE ROOT OF THE SUM OF ALL SQUARED STEM DBH'S, UNLESS OTHERWISE NOTED. WHERE TREES FORK NEAR BREAST HEIGHT, TRUNK DIAMETER IS MEASURED AT THE NARROWEST PART OF THE MAIN STEM BELOW THE FORK. FOR TREES ON A SLOPE, BREAST HEIGHT IS REFERENCED FROM THE UPPER SIDE OF THE SLOPE. FOR LEANING TREES, BREAST HEIGHT IS MEASURED ON THE SIDE THAT THE TREE LEANS TOWARD. TREES WITH DBH LESS THAN 8" ARE TYPICALLY NOT SHOWN.

    12"P = 12" DBH PINE

19. TREE SPECIES ARE IDENTIFIED WHEN KNOWN. HOWEVER, FINAL DETERMINATION SHOULD BE MADE BY A QUALIFIED BOTANIST. REFER TO THE LEGEND FOR TREE SPECIES SYMBOLS.

20. TREE TRUNK DIMENSIONS MAY BE SHOWN OUT-OF-SCALE FOR PLOTTING CLARITY. CAUTION SHOULD BE USED IN DESIGNING NEAR TREE TRUNKS. THERE ARE LIMITATIONS ON FIELD ACCURACY, DRAFTING ACCURACY, MEDIUM STRETCH AS WELL AS THE "SPREAD" OR "LEANING" OF TREES. REQUEST ADDITIONAL TOPOGRAPHIC DETAIL WHERE CLOSE TOLERANCES ARE ANTICIPATED. INDIVIDUAL TREES ARE NOT TYPICALLY LOCATED WITHIN DRIPLINE CANOPY AREAS SHOWN.

21. APPROXIMATE CENSUS OF TREES TO BE REMOVED:

COMMON NAME	NUMBER
PINE	6

29. CONTRACTOR IS REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

30. THE CONTRACTOR SHALL CONFORM TO THE RULES AND REGULATIONS OF THE CONSTRUCTION SAFETY ORDERS OF THE CALIFORNIA DIVISION OF OCCUPATIONAL SAFETY AND HEALTH PERTAINING TO EXCAVATION AND TRENCHES THE CALIFORNIA CODE OF REGULATIONS TITLE 8, SUBCHAPTER 4 CONSTRUCTION SAFETY ORDERS, ARTICLE 6 EXCAVATION.

31. CULTURAL RESOURCES: IN THE EVENT THAT HUMAN REMAINS AND/OR CULTURAL MATERIALS ARE FOUND, ALL PROJECT-RELATED CONSTRUCTION SHALL CEASE WITHIN A 100-FOOT RADIUS. THE CONTRACTOR SHALLNOTIFY THE YAKAMA NATION IMMEDIATELY.

EARTHWORK NOTES

1. ALL GRADING SHALL COMPLY WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT, AND WITH THE APPLICABLE REQUIREMENTS OF THE SANTA CRUZ COUNTY GRADING ORDINANCE. REFER TO GEOTECHNICAL INVESTIGATION REPORT BY:
   GEOTECHNICS

   7629 SE HARRISON STREET
   PORTLAND, OR 97215
   (503) 730-2469
   JOB No. XXXXX

   PRIOR TO PERFORMING ANY WORK, THE CONTRACTOR SHALL BE FAMILIAR WITH THE GEOTECHNICAL INVESTIGATION. IN THE EVENT OF DISCREPANCY BETWEEN THE REPORT AND THE NOTES HEREIN, THE REPORT SHALL PREVAIL. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE SITE AND MAKE HIS OWN INTERPRETATIONS WITH REGARD TO MATERIALS, METHODS AND EQUIPMENT NECESSARY TO PERFORM THE WORK REQUIRED FOR THIS PROJECT.

2. GRADING SUMMARY:

TOTAL CUT VOLUME =	388.2 CY
TOTAL FILL VOLUME =	25.9 CY
NET (CUT/FILL) =	362.3 CY

   THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE, PREPARED FOR PERMITTING PURPOSES ONLY. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.

   THE CONTRACTOR SHALL PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.

3. PRIOR TO COMMENCING WORK, PROTECT ALL SENSITIVE AREAS TO REMAIN UNDISTURBED WITH TEMPORARY FENCING, AS SHOWN ON THE DRAWINGS, AS SPECIFIED, OR AS DIRECTED BY THE ENGINEER.

4. DO NOT DISTRURB AREAS OUTSIDE OF THE DESIGNATED LIMITS OF DISTURBANCE, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. THE COST OF ALL ADDITIONAL WORK ASSOCIATED WITH RESTORATION AND REVEGETATION OF DISTURBED AREAS OUTSIDE THE DESIGNATED LIMITS OF DISTURBANCE, AS SHOWN ON THE DRAWINGS, SHALL BE BORNE SOLELY BY THE CONTRACTOR.

5. REMOVE ALL EXCESS SOILS TO AN APPROVED DUMP SITE OR DISPOSE OF ON SITE AT A LOCATION TO BE APPROVED BY THE ENGINEER, IN A MANNER THAT WILL NOT CAUSE EROSION.

6. CLEARING AND GRUBBING, SUBGRADE PREPARATION AND EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH DIVISION 2 OF THE STANDARD SPECIFICATIONS, THESE DRAWINGS, AND THE TECHNICAL SPECIFICATIONS.

7. PRIOR TO STARTING WORK ON THE PROJECT, SUBMIT FOR ACCEPTANCE BY THE ENGINEER A HAZARDOUS MATERIALS CONTROLS AND SPILL PREVENTION PLAN. INCLUDE PROVISIONS FOR PREVENTING HAZARDOUS MATERIALS FROM CONTAMINATING SOIL OR ENTERING WATER COURSES, AND ESTABLISH A SPILL PREVENTION AND COUNTERMEASURE PLAN.

9. UNLESS AUTHORIZED BY THE GEOTECHNICAL ENGINEER, THE FOLLOWING MATERIALS SHALL NOT BE INCORPORATED INTO THE WORK:

   A. ORGANIC MATERIALS SUCH AS PEAT, MULCH, ORGANIC SILT OR SOD.

   B. SOILS CONTAINING EXPANSIVE CLAYS.

   C. MATERIAL CONTAINING EXCESSIVE MOISTURE.

   D. POORLY GRADED COURSE MATERIAL

   E. PARTICLE SIZES IN EXCESS OF 6 INCHES.

   E. MATERIAL WHICH WILL NOT ACHIEVE SPECIFIED DENSITY OR BEARING.

10. FINE GRADING ELEVATIONS, CONFORMS, AND SLOPES NOT CLEARLY SHOWN ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD TO DIRECT DRAINAGE TO PROTECTED DRAINAGE CONTROL STRUCTURES OR NATURAL WATERWAYS IN A MANNER THAT SUPPORTS THE INTENT OF THE DESIGN. ALL FINAL GRADING SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.

11. THE TOP 6" OF SUBGRADE UNDER ALL PAVED SURFACES SUBJECT TO VEHICULAR USE SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, IN ACCORDANCE WITH ASTM-D1557. ALL OTHER FILL TO BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY ASTM-D1557 AND SO CERTIFIED BY TESTS AND REPORTS FROM THE CIVIL ENGINEER IN CHARGE OF THE GRADING CERTIFICATION.

12. SPREAD FILL MATERIAL IN LIFTS OF APPROXIMATELY 8 INCHES, MOISTENED OR DRIED TO NEAR OPTIMUM MOISTURE CONTENT AND RECOMPACTED. THE MATERIALS FOR ENGINEERED FILL SHALL BE APPROVED BY A REGISTERED CIVIL ENGINEER. ANY IMPORTED MATERIALS MUST BE APPROVED BEFORE BEING BROUGHT TO THE SITE. THE MATERIALS USED SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.

13. ALL CONTACT SURFACES BETWEEN ORIGINAL GROUND AND RECOMPACTED FILL SHALL BE EITHER HORIZONTAL OR VERTICAL. ALL ORGANIC MATERIAL SHALL BE REMOVED AND THE REMAINING SURFACE SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNLESS DEEPER EXCAVATION IS REQUIRED BY THE ENGINEER.

14. REGULATORY AGENCIES MAY REQUIRE A FINAL GRADING COMPLIANCE LETTER. WE CAN ONLY OFFER THIS LETTER IF WE ARE CALLED TO THE SITE TO OBSERVE AND TEST, AS NECESSARY, ANY GRADING AND EXCAVATION OPERATIONS FROM THE START OF CONSTRUCTION. WE CANNOT PREPARE A LETTER IF WE ARE NOT AFFORDED THE OPPORTUNITY OF OBSERVATION FROM THE BEGINNING OF THE GRADING OPERATION. THE CONTRACTOR MUST BE MADE AWARE OF THIS AND EARTHWORK TESTING AND OBSERVATION MUST BE SCHEDULED ACCORDINGLY. PLEASE CONTACT OUR OFFICE: (503) 227-5979

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 380
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PRELIMINARY
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PREPARED AT THE REQUEST OF:
YAKAMA NATION FISHERIES

NOTES

WHITE CREEK
ROAD CROSSING
IMPROVEMENT
95% DESIGN

DESIGNED BY:	J.H.
DRAWN BY:	D.H.
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BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C9 | 9 OF 11

F:\Projects\20-026 Cedar Valley Road Crossings\CAD\0-White Creek\HP 4 GENERAL CONSERVATION MEASURES (1 OF 2).dwg - 7/22/2021 12:17 PM

HIP 4 GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS

THE ACTIVITIES COVERED UNDER THE HIP ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO ESA-LISTED SPECIES. THE FOLLOWING GENERAL CONSERVATION MEASURES (DEVELOPED IN COORDINATION WITH USFWS AND NMFS) WILL BE APPLIED TO ALL ACTIONS OF THIS PROJECT.

PROJECT DESIGN AND SITE PREPARATION

1. STATE AND FEDERAL PERMITS

1.A. ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION.

1.B. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, USACE CLEAN WATER ACT (CWA) 404 PERMITS, CWA SECTION 401 WATER QUALITY CERTIFICATIONS, AND FEMA NO-RISE ANALYSES.

2. TIMING OF IN-WATER WORK

2.A. APPROPRIATE STATE (OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW), WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW), IDAHO DEPARTMENT OF FISH AND GAME (IDFG), AND MONTANA FISH WILDLIFE AND PARKS (MFWP)) GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.

2.B. CHANGES TO ESTABLISHED WORK WINDOWS WILL BE APPROVED BY REGIONAL STATE BIOLOGISTS AND BPA'S EC LEAD.

2.C. BULL TROUT. FOR AREAS WITH DESIGNATED IN-WATER WORK WINDOWS FOR BULL TROUT OR AREAS KNOWN TO HAVE BULL TROUT, PROJECT PROPONENTS WILL CONTACT THE APPROPRIATE USFWS FIELD OFFICE TO INSURE THAT ALL REASONABLE IMPLEMENTATION MEASURES ARE CONSIDERED AND AN APPROPRIATE IN-WATER WORK WINDOW IS BEING USED TO MINIMIZE PROJECT EFFECTS.

2.D. LAMPREY. WORKING IN STREAM OR RIVER CHANNELS THAT CONTAIN PACIFIC LAMPREY WILL BE AVOIDED FROM MARCH 1 TO JULY 1 FOR REACHES <5,000 FEET IN ELEVATION AND FROM MARCH 1 TO AUGUST 1 FOR REACHES >5,000 FEET. IF EITHER TIMEFRAME IS INCOMPATIBLE WITH OTHER OBJECTIVES, THE AREA WILL BE SURVEYED FOR NESTS AND LAMPREY PRESENCE, AND AVOIDED IF POSSIBLE. IF LAMPREYS ARE KNOWN TO EXIST, THE PROJECT SPONSOR WILL UTILIZE DEWATERING AND SALVAGE PROCEDURES (SEE FISH SALVAGE AND ELECTROFISHING SECTIONS) TO MINIMIZE ADVERSE EFFECTS.

2.E. THE IN-WATER WORK WINDOW WILL BE PROVIDED IN THE CONSTRUCTION PLANS.

3. CONTAMINANTS

3.A. EXCAVATION OF MORE THAN 20 CUBIC YARDS WILL REQUIRE A SITE VISIT AND DOCUMENTED ASSESSMENT FOR POTENTIAL CONTAMINANT SOURCES. THE SITE ASSESSMENT WILL BE STORED WITH PROJECT FILES OR AS AN APPENDIX TO THE BASIS OF DESIGN REPORT.

3.B. THE SITE ASSESSMENT WILL SUMMARIZE:

3.B.1. THE SITE VISIT, CONDITION OF THE PROPERTY, AND IDENTIFICATION OF ANY AREAS USED FOR VARIOUS INDUSTRIAL PROCESSES;

3.B.2. AVAILABLE RECORDS, SUCH AS FORMER SITE USE, BUILDING PLANS, AND RECORDS OF ANY PRIOR CONTAMINATION EVENTS;

3.B.3. INTERVIEWS WITH KNOWLEDGEABLE PEOPLE, SUCH AS SITE OWNERS, OPERATORS, OCCUPANTS, NEIGHBORS, OR LOCAL GOVERNMENT OFFICIALS; AND

3.B.4. THE TYPE, QUANTITY, AND EXTENT OF ANY POTENTIAL CONTAMINATION SOURCES.

4. SITE LAYOUT AND FLAGGING

4.A. CONSTRUCTION AREAS TO BE CLEARLY FLAGGED PRIOR TO CONSTRUCTION.

4.B. AREAS TO BE FLAGGED WILL INCLUDE:

4.B.1. SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;

4.B.2. EQUIPMENT ENTRY AND EXIT POINTS;

4.B.3. ROAD AND STREAM CROSSING ALIGNMENTS;

4.B.4. STAGING, STORAGE, AND STOCKPILE AREAS; AND

4.B.5. NO-SPRAY AREAS AND BUFFERS.

5. TEMPORARY ACCESS ROADS AND PATHS

5.A. EXISTING ACCESS ROADS AND PATHS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER AND LENGTH OF TEMPORARY ACCESS ROADS AND PATHS THROUGH RIPARIAN AREAS AND FLOODPLAINS WILL BE MINIMIZED.

5.B. VEHICLE USE AND HUMAN ACTIVITIES, INCLUDING WALKING, IN AREAS OCCUPIED BY TERRESTRIAL ESA-LISTED SPECIES WILL BE MINIMIZED.

5.C. TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST A LIKELIHOOD OF EXCESSIVE EROSION OR FAILURE. IF SLOPES ARE STEEPER THAN 30%, THEN THE ROAD WILL BE DESIGNED BY A CIVIL ENGINEER WITH EXPERIENCE IN STEEP ROAD DESIGN.

5.D. THE REMOVAL OF RIPARIAN VEGETATION DURING CONSTRUCTION OF TEMPORARY ACCESS ROADS WILL BE MINIMIZED. WHEN TEMPORARY VEGETATION REMOVAL IS REQUIRED, VEGETATION WILL BE CUT AT GROUND LEVEL (NOT GRUBBED).

5.E. AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND REVEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES DECOMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.

5.F. HELICOPTER FLIGHT PATTERNS WILL BE ESTABLISHED IN ADVANCE AND LOCATED TO AVOID TERRESTRIAL ESA-LISTED SPECIES AND THEIR OCCUPIED HABITAT DURING SENSITIVE LIFE STAGES.

6. TEMPORARY STREAM CROSSINGS

6.A. EXISTING STREAM CROSSINGS OR BEDROCK WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.

6.B. TEMPORARY BRIDGES AND CULVERTS WILL BE INSTALLED TO ALLOW FOR EQUIPMENT AND VEHICLE CROSSING OVER PERENNIAL STREAMS DURING CONSTRUCTION. TREATED WOOD SHALL NOT BE USED ON TEMPORARY BRIDGE CROSSINGS OR IN LOCATIONS IN CONTACT WITH OR DIRECTLY OVER WATER.

6.C. FOR PROJECTS THAT REQUIRE EQUIPMENT AND VEHICLES TO CROSS IN THE WET:

6.C.1. THE LOCATION AND NUMBER OF ALL WET CROSSINGS SHALL BE APPROVED BY THE BPA EC LEAD AND DOCUMENTED IN THE CONSTRUCTION PLANS;

6.C.2. VEHICLES AND MACHINERY SHALL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHENEVER POSSIBLE;

6.C.3. NO STREAM CROSSINGS WILL OCCUR 300 FEET UPSTREAM OR 100 FEET DOWNSTREAM OF AN EXISTING REDD OR SPAWNING FISH; AND

6.C.4. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND BANKS RESTORED.

7. STAGING, STORAGE, AND STOCKPILE AREAS

7.A. STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND. STAGING AREAS CLOSER THAN 150 FEET WILL BE APPROVED BY THE EC LEAD.

7.B. NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN 150 FEET IF CLEARLY INDICATED IN THE PLANS THAT AREA IS FOR NATURAL MATERIALS ONLY.

7.C. ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.

7.D. ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE DISPOSED OF OUTSIDE THE 100-YEAR FLOODPLAIN.

8. EQUIPMENT

8.A. MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS).

8.B. EQUIPMENT WILL BE STORED, FUELED, AND MAINTAINED IN AN CLEARLY IDENTIFIED STAGING AREA THAT MEETS STAGING AREA CONSERVATION MEASURES.

8.C. EQUIPMENT WILL BE REFUELED IN A VEHICLE STAGING AREA OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD (THIS MEASURE APPLIES ONLY TO GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS).

8.D. BIODEGRADABLE LUBRICANTS AND FLUIDS WILL BE USED ON EQUIPMENT OPERATING IN AND ADJACENT TO THE STREAM CHANNEL AND LIVE WATER.

8.E. EQUIPMENT WILL BE INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150 FEET OF ANY NATURAL WATER BODY OR WETLAND.

8.F. EQUIPMENT WILL BE THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

9. EROSION CONTROL

9.A. TEMPORARY EROSION CONTROL MEASURES INCLUDE:

9.A.1. TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWNSLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE;

9.A.2. IF THERE IS A POTENTIAL FOR ERODED SEDIMENT TO ENTER THE STREAM, SEDIMENT BARRIERS WILL BE INSTALLED AND MAINTAINED FOR THE DURATION OF PROJECT IMPLEMENTATION;

9.A.3. TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE SEDGE MATS, FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC;

9.A.4. SOIL STABILIZATION UTILIZING WOOD FIBER MULCH AND TACKIFIER (HYDRO-APPLIED) MAY BE USED TO REDUCE EROSION OF BARE SOIL IF THE MATERIALS ARE NOXIOUS WEED FREE AND NONTOXIC TO AQUATIC AND TERRESTRIAL ANIMALS, SOIL MICROORGANISMS, AND VEGETATION;

9.A.5. SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL; AND

9.A.6. ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.

9.B. EMERGENCY EROSION CONTROLS. THE FOLLOWING MATERIALS FOR EMERGENCY EROSION CONTROL WILL BE AVAILABLE AT THE WORK SITE:

9.B.1. A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND

9.B.2. AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

10. DUST ABATEMENT

10.A. THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES.

10.B. WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.

10.C. DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25 FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING MIXED 50:50 WITH WATER.

10.D. APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25 FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).

10.E. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.

10.F. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

11. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES

11.A. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.

11.B. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.

11.C. SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.

11.D. WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.

11.E. ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A TARPAULIN, UNTIL THEY CAN BE PROPERLY TRANSPORTED TO AND DISPOSED OF AT A FACILITY THAT IS APPROVED FOR RECEIPT OF HAZARDOUS MATERIALS.

11.F. PUMPS USED ADJACENT TO WATER SHALL USE SPILL CONTAINMENT SYSTEMS.

12. INVASIVE SPECIES CONTROL

12.A. PRIOR TO ENTERING THE SITE, ALL VEHICLES AND EQUIPMENT WILL BE POWER WASHED, ALLOWED TO FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE.

12.B. WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.

12.C. WADING BOOTS WITH FELT SOLES ARE NOT TO BE USED DUE TO THEIR PROPENSITY FOR AIDING IN THE TRANSFER OF INVASIVE SPECIES UNLESS DECONTAMINATION PROCEDURES HAVE BEEN APPROVED BY THE EC LEAD.

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH:(503)227-5979 // FAX:(888)819-6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKAMA NATION FISHERIES

HIP 4 GENERAL CONSERVATION MEASURES (1 OF 2)

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

DESIGNED BY: J.H.
DRAWN BY: D.H.
CHECKED BY: J.H.
DATE: 7/22/2021
JOB NO.: 20-026

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C10

WORK AREA ISOLATION AND FISH SALVAGE

1. WORK AREA ISOLATION

1.A. ANY WORK AREA WITHIN THE WETTED CHANNEL WILL BE ISOLATED FROM THE ACTIVE STREAM WHENEVER ESA–LISTED FISH ARE REASONABLY CERTAIN TO BE PRESENT, OR IF THE WORK AREA IS LESS THAN 300–FEET UPSTREAM FROM KNOWN SPAWNING HABITATS.

1.B. WORK AREA ISOLATION AND FISH SALVAGE ACTIVITIES WILL COMPLY WITH THE IN–WATER WORK WINDOW.

1.C. DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS AND AREAS (COFFER DAMS, PUMPS, DISCHARGE AREAS, FISH SCREENS, FISH RELEASE AREAS, ETC.).

1.D. WORK AREA ISOLATION AND FISH CAPTURE ACTIVITIES WILL OCCUR DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITIONS APPROPRIATE TO MINIMIZE STRESS AND DEATH OF SPECIES PRESENT.

2. FISH SALVAGE

2.A. MONITORING AND RECORDING WILL TAKE PLACE FOR DURATION OF SALVAGE. THE SALVAGE REPORT WILL BE COMMUNICATED TO AGENCIES VIA THE PROJECT COMPLETION FORM (PCF).

2.B. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING CONDITIONS TO MINIMIZE STRESS TO FISH SPECIES, TYPICALLY PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES WHICH OCCUR IN THE MORNING VERSUS LATE IN THE DAY.

2.C. SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODS, AND CONSERVATION MEASURES SPECIFIED BELOW:

2.C.1. SLOWLY REDUCE WATER FROM THE WORK AREA TO ALLOW SOME FISH TO LEAVE VOLITIONALLY.

2.C.2. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.

2.C.3. BLOCK NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE. BLOCK NETS MAY BE LEFT IN PLACE FOR THE DURATION OF THE PROJECT TO EXCLUDE FISH AS LONG AS PASSAGE REQUIREMENTS ARE MET.

2.C.4. NETS WILL BE MONITORED HOURLY DURING IN–STREAM DISTURBANCE.

2.C.5. IF BLOCK NETS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED AND FREE OF ORGANIC ACCUMULATION. IF BULL TROUT ARE PRESENT, NETS ARE TO BE CHECKED EVERY 4 HOURS FOR FISH IMPINGEMENT.

2.C.6. CAPTURE FISH THROUGH SEINING AND RELOCATE TO STREAMS.

2.C.7. WHILE DEWATERING, ANY REMAINING FISH WILL BE COLLECTED BY HAND OR DIP NETS.

2.C.8. SEINES WITH A MESH SIZE TO ENSURE CAPTURE OF THE RESIDING ESA–LISTED FISH WILL BE USED.

2.C.9. MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.

2.C.10. ELECTROFISH TO CAPTURE AND RELOCATED FISH NOT CAUGHT DURING SEINING PER ELECTROFISH CONSERVATION MEASURES.

2.C.11. CONTINUE TO SLOWLY DEWATER STREAM REACH.

2.C.12. COLLECT ANY REMAINING FISH IN COLD–WATER BUCKETS AND RELOCATED TO THE STREAM.

2.C.13. LIMIT THE TIME FISH ARE IN A TRANSPORT BUCKET.

2.C.14. MINIMIZE PREDATION BY TRANSPORTING COMPARABLE SIZES IN BUCKETS.

2.C.15. BUCKET WATER TO BE CHANGED EVERY 15 MINUTES OR AERATED.

2.C.16. BUCKETS WILL BE KEPT IN SHADED AREAS OR COVERED.

2.C.17. DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.

2.D. SALVAGE GUIDELINES FOR BULL TROUT, LAMPREY, MUSSELS, AND NATIVE FISH.

2.D.1. CONDUCT SITE SURVEY TO ESTIMATE SALVAGE NUMBERS.

2.D.2. PRE–SELECT SITE(S) FOR RELEASE AND/OR MUSSEL BED RELOCATION.

2.D.3. SALVAGE OF BULL TROUT WILL NOT TAKE PLACE WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.

2.D.4. IF DRAWDOWN LESS THAN 48 HOURS, SALVAGE OF LAMPREY AND MUSSELS MAY NOT BE NECESSARY IF TEMPERATURES SUPPORT SURVIVAL IN SEDIMENTS.

2.D.5. SALVAGE MUSSELS BY HAND, LOCATING BY SNORKELING OR WADING.

2.D.6. SALVAGE LAMPREY BY ELECTROFISHING (SEE ELECTROFISHING FOR LARVAL LAMPREY SETTINGS AND LARVAL LAMPREY DRY SHOCKING SETTINGS).

2.D.7. SALVAGE BONY FISH AFTER LAMPREY WITH NETS OR ELECTROFISHING (SEE ELECTROFISHING FOR APPROPRIATE SETTINGS).

2.D.8. REGULARLY INSPECT DEWATERED SITE SINCE LAMPREY LIKELY TO EMERGE AFTER DEWATERING AND MUSSELS MAY BECOME VISIBLE.

2.D.9. MUSSELS MAY BE TRANSFERRED IN COOLERS.

2.D.10. MUSSELS WILL BE PLACED INDIVIDUALLY TO ENSURE ABILITY TO BURROW INTO NEW HABITAT.

3. ELECTROFISHING.

3.A. INITIAL SITE SURVEY AND INITIAL SETTINGS:

3.A.1. IDENTIFY SPAWNING ADULTS AND ACTIVE REDDS TO AVOID.

3.A.2. RECORD WATER TEMPERATURE. ELECTROFISHING WILL NOT OCCUR WHEN WATER TEMPERATURES ARE ABOVE 18 DEGREES CELSIUS.

3.A.3. IF POSSIBLE, A BLOCK NET WILL BE PLACED DOWNSTREAM AND CHECKED REGULARLY TO CAPTURE STUNNED FISH THAT DRIFT DOWNSTREAM.

3.A.4. INITIAL SETTINGS WILL BE 100 VOLTS, PULSE WIDTH OF 500 MICRO SECONDS, AND PULSE RATE OF 30 HERTZ.

3.A.5. RECORDS FOR CONDUCTIVITY, WATER TEMPERATURE, AIR TEMPERATURE, ELECTROFISHING SETTINGS, ELECTROFISHER MODEL, ELECTROFISHER CALIBRATION, FISH CONDITIONS, FISH MORTALITIES, AND TOTAL CAPTURE RATES WILL BE INCLUDED IN THE SALVAGE LOG BOOK.

3.B. ELECTROFISHING TECHNIQUE:

3.B.1. SAMPLING WILL BEGIN USING STRAIGHT DC. POWER WILL REMAIN ON UNTIL THE FISH IS NETTED WHEN USING STRAIGHT DC. GRADUALLY INCREASE VOLTAGE WHILE REMAINING BELOW MAXIMUM LEVELS.

3.B.2. MAXIMUM VOLTAGE WILL BE 1100 VOLTS WHEN CONDUCTIVITY IS <100 MILLISECONDS, 800 VOLTS WHEN CONDUCTIVITY IS BETWEEN 100 AND 300 MILLISECONDS, AND 400 VOLTS WHEN CONDUCTIVITY IS >300 MILLISECONDS.

3.B.3. IF FISH CAPTURE IS NOT SUCCESSFUL USING STRAIGHT DC, THE ELECTROFISHER WILL BE SET TO INITIAL VOLTAGE FOR PDC. VOLTAGE, PULSE WIDTH, AND PULSE FREQUENCY WILL BE GRADUALLY INCREASED WITHIN MAXIMUM VALUES UNTIL CAPTURE IS SUCCESSFUL.

3.B.4. MAXIMUM PULSE WIDTH IS 5 MILLISECONDS. MAXIMUM PULSE RATE IS 70 HERTZ

3.B.5. ELECTROFISHING WILL NOT OCCUR IN ONE AREA FOR AN EXTENDED PERIOD.

3.B.6. THE ANODE WILL NOT INTENTIONALLY COME INTO CONTACT WITH FISH. THE ZONE FOR POTENTIAL INJURY OF 0.5 M FROM THE ANODE WILL BE AVOIDED.

3.B.7. SETTINGS WILL BE LOWERED IN SHALLOWER WATER SINCE VOLTAGE GRADIENTS LIKELY TO INCREASE.

3.B.8. ELECTROFISHING WILL NOT OCCUR IN TURBID WATER WHERE VISIBILITY IS POOR (I.E. UNABLE TO SEE THE BED OF THE STREAM).

3.B.9. OPERATIONS WILL IMMEDIATELY STOP IF MORTALITY OR OBVIOUS FISH INJURY IS OBSERVED. ELECTROFISHING SETTINGS WILL BE REEVALUATED.

3.C. SAMPLE PROCESSING:

3.C.1. FISH SHALL BE SORTED BY SIZE TO AVOID PREDATION DURING CONTAINMENT.

3.C.2. SAMPLERS WILL REGULARLY CHECK CONDITIONS OF FISH HOLDING CONTAINERS, AIR PUMPS, WATER TRANSFERS, ETC.

3.C.3. FISH WILL BE OBSERVED FOR GENERAL CONDITIONS AND INJURIES

3.C.4. EACH FISH WILL BE COMPLETELY REVIVED BEFORE RELEASE. ESA–LISTED SPECIES WILL BE PRIORITIZED FOR SUCCESSFUL RELEASE.

3.D. BULL TROUT ELECTROFISHING:

3.D.1. ELECTROFISHING FOR BULL TROUT WILL ONLY OCCUR FROM MAY 1 TO JULY 31. NO ELECTROFISHING WILL OCCUR IN ANY BULL TROUT OCCUPIED HABITAT AFTER AUGUST 15. IN FMO HABITATS ELECTROFISHING MAY OCCUR ANY TIME.

3.D.2. ELECTROFISHING OF BULL TROUT WILL NOT OCCUR WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.

3.E. LARVAL LAMPREY ELECTROFISHING:

3.E.1. PERMISSION FROM EC LEAD WILL BE OBTAINED IF LARVAL LAMPREY ELECTROFISHER IS NOT ONE OF FOLLOWING PRE–APPROVED MODELS: ABP–2 "WISCONSIN", SMITH–ROOT LR–24, OR SMITH–ROOT APEX BACKPACK.

3.E.2. LARVAL LAMPREY SAMPLING WILL INCORPORATE 2–STAGE METHOD: "TICKLE" AND "STUN".

3.E.3. FIRST STAGE: USE 125 VOLT DC WITH A 25 PERCENT DUTY CYCLE APPLIED AT A SLOW RATE OF 3 PULSES PER SECOND. IF TEMPERATURES ARE BELOW 10 DEGREES CELSIUS, VOLTAGE MAY BE INCREASED GRADUALLY (NOT TO EXCEED 200 VOLTS). BURSTED PULSES (THREE SLOW AND ONE SKIPPED) RECOMMENDED TO INCREASE EMERGENCE.

3.E.4. SECOND STAGE (OPTIONAL FOR EXPERIENCED NETTERS): IMMEDIATELY AFTER LAMPREY EMERGE, USE A FAST PULSE SETTING OF 30 PULSES PER SECOND.

3.E.5. USE DIP NETS FOR VISIBLE LAMPREY. SIENES AND FINE MESH NET SWEEPS MAY BE USED IN POOR VISIBILITY.

3.E.6. SAMPLING WILL OCCUR SLOWLY (>60 SECONDS PER METER) STARTING AT UPSTREAM AND WORKING DOWNSTREAM.

3.E.7. MULTIPLE SWEEPS TO OCCUR WITH 15 MINUTES BETWEEN SWEEPS.

3.E.8. POST–DRAWDOWN "DRY–SHOCKING" WILL BE APPLIED IF LARVAL LAMPREY CONTINUE TO EMERGE. ANODES TO BE PLACED ONE METER APART TO SAMPLE ONE SQUARE METER AT A TIME FOR AT LEAST 60 SECONDS. FOR TEMPERATURES LESS THAN 10 DEGREES CELSIUS, MAXIMUM VOLTAGE MAY BE GRADUALLY INCREASED TO 400 VOLTS (DRY–SHOCKING ONLY).

4. DEWATERING.

4.A. DEWATERING WILL OCCUR AT A RATE SLOW ENOUGH TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.

4.B. WHERE A GRAVITY FEED DIVERSION IS NOT POSSIBLE, A PUMP MAY BE USED. PUMPS WILL BE INSTALLED TO AVOID REPETIVE DEWATERING AND REWATERING.

4.C. WHEN FISH ARE PRESENT, PUMPS WILL BE SCREENED IN ACCORDANCE WITH NMFS FISH SCREEN CRITERIA. NMFS ENGINEERING REVIEW AND APPROVAL WILL BE OBTAINED FOR PUMPS EXCEEDING 3 CUBIC FEET PER SECOND.

4.D. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO THE STREAM CHANNEL AND RIPARIAN VEGETATION.

4.E. E. SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OF INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL AND VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.

TURBIDITY MONITORING

A. RECORD THE READING, LOCATION, AND TIME FOR THE BACKGROUND READING APPROXIMATELY 100 FEET UPSTREAM OF THE PROJECT AREA USING A RECENTLY CALIBRATED TURBIDIMETER OR VIA VISUAL OBSERVATION (SEE THE HIP HANDBOOK TURBIDITY MONITORING SECTION FOR A VISUAL OBSERVATION KEY).

B. RECORD THE TURBIDITY READING, LOCATION, AND TIME AT THE MEASUREMENT COMPLIANCE LOCATION POINT.

B.1. 50 FEET DOWNSTREAM FOR STREAMS LESS THAN 30 FEET WIDE.

B.2. 100 FEET DOWNSTREAM FOR STREAMS BETWEEN 30 AND 100 FEET WIDE.

B.3. 200 FEET DOWNSTREAM FOR STREAMS GREATER THAN 100 FEET WIDE.

B.4. 300 FEET FROM THE DISCHARGE POINT OR NONPOINT SOURCE FOR LOCATIONS SUBJECT TO TIDAL OR COASTAL SCOUR.

C. TURBIDITY SHALL BE MEASURED (BACKGROUND LOCATION AND COMPLIANCE POINTS) EVERY 4 HOURS WHILE WORK IS BEING IMPLEMENTED.

D. IF THERE IS A VISIBLE DIFFERENCE BETWEEN A COMPLIANCE POINT AND THE BACKGROUND, THE EXCEEDANCE WILL BE NOTED IN THE PROJECT COMPLETION FORM (PCF). ADJUSTMENTS OR CORRECTIVE MEASURES WILL BE TAKEN IN ORDER TO REDUCE TURBIDITY.

E. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 8 HOURS), THE ACTIVITY WILL STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND. THE BPA EC LEAD WILL BE NOTIFIED OF ALL EXCEEDANCES AND CORRECTIVE ACTIONS AT PROJECT COMPLETION.

F. IF TURBIDITY CONTROLS (COFFER DAMS, WADDLES, FENCING, ETC.) ARE DETERMINED INEFFECTIVE, CREWS WILL BE MOBILIZED TO MODIFY AS NECESSARY. OCCURRENCES WILL BE DOCUMENTED IN THE PROJECT COMPLETION FORM (PCF).

G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO THE BPA EC LEAD USING THE PROJECT COMPLETION FORM (PCF).

CONSTRUCTION AND POST CONSTRUCTION CONSERVATION MEASURES

1. FISH PASSAGE

1.A. FISH PASSAGE WILL BE PROVIDED FOR ADULT AND JUVENILE FISH LIKELY TO BE PRESENT DURING CONSTRUCTION UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION, THE STREAM IS NATURALLY IMPASSABLE, OR PASSAGE WILL NEGATIVELY IMPACT ESA–LISTED SPECIES OR THEIR HABITAT.

1.B. FISH PASSAGE ALTERNATIVES WILL BE APPROVED BY THE BPA EC LEAD UNDER ADVISEMENT BY THE NMFS HABITAT BIOLOGIST.

2. CONSTRUCTION AND DISCHARGE WATER

2.A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.

2.B. DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.

2.C. CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS, AND OTHER POLLUTANTS.

3. TIME AND EXTENT OF DISTURBANCE

3.A. EARTHWORK REQUIRING IN–STREAM MECHANIZED EQUIPMENT (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING, AND COMPACTING) WILL BE COMPLETED AS QUICKLY AS POSSIBLE.

3.B. MECHANIZED EQUIPMENT WILL WORK FROM TOP OF BANK UNLESS WORK FROM ANOTHER LOCATION WILL RESULT IN LESS HABITAT DISTURBANCE (TURBIDITY, VEGETATION DISTURBANCE, ETC.).

4. CESSATION OF WORK

4.A. PROJECT OPERATIONS WILL CEASE WHEN HIGH FLOW CONDITIONS MAY RESULT IN INUNDATION OF THE PROJECT AREA (FLOOD EFFORTS TO DECREASE DAMAGES TO NATURAL RESOURCES PERMITTED).

4.B. WATER QUALITY LEVELS EXCEEDED. SEE CWA SECTION 401 WATER QUALITY CERTIFICATION AND TURBIDITY MEASURES.

5. SITE RESTORATION

5.A. DISTURBED AREAS, STREAM BANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED TO IMPROVED OR PRE–PROJECT CONDITIONS.

5.B. PROJECT–RELATED WASTE WILL BE REMOVED.

5.C. TEMPORARY ACCESS ROADS AND STAGING WILL BE DECOMPACTED AND RESTORED. SOILS WILL BE LOOSENED IF NEEDED FOR REVEGETATION OR WATER INFILTRATION.

5.D. THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE TO MONITOR AND MAINTAIN THE SITE OVER THE LIFE OF THE PROJECT.

6. REVEGETATION

6.A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.

6.B. A MIX OF NATIVE SPECIES (INVASIVE SPECIES NOT ALLOWED) APPROPRIATE TO THE SITE WILL BE USED TO REESTABLISH VEGETATION, PROVIDE SHADE, AND REDUCE EROSION. REESTABLISHED VEGETATION SHOULD BE AT LEAST 70% OF PRE–PROJECT CONDITIONS WITHIN THREE YEARS.

6.C. VEGETATION SUCH AS WILLOWS, SEDGES, OR RUSH MATS WILL BE SALVAGED FROM DISTURBED OR ABANDONED AREAS TO BE REPLANTED.

6.D. SHORT–TERM STABILIZATION MEASURE MAY INCLUDE THE USE OF NON–NATIVE STERILE SEED MIX (WHEN NATIVE NOT AVAILABLE), WEED–FREE CERTIFIED STRAW, OR OTHER SIMILAR TECHNIQUES.

6.E. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM, WATE BODY, OR WETLAND.

6.F. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.

6.G. INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY THREE YEARS POST–CONSTRUCTION).

7. SITE ACCESS AND IMPLEMENTATION MONITORING

7.A. THE PROJECT SPONSOR WILL PROVIDE CONSTRUCTION MONITORING DURING IMPLEMENTATION TO ENSURE ALL CONSERVATION MEASURES ARE ADEQUATELY FOLLOWED, EFFECTS TO LISTED SPECIES ARE NOT GREATER THAN PREDICTED, AND INCIDENTAL TAKE LIMITATIONS ARE NOT EXCEEDED.

7.B. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL SUBMIT THE PROJECT COMPLETION FORM (PCF) WITHIN 30 DAYS OF PROJECT COMPLETION.

8. CWA SECTION 401 WATER QUALITY CERTIFICATION

8.A. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL COMPLETE AND RECORD WATER QUALITY OBSERVATIONS (SEE TURBIDITY MONITORING) TO ENSURE IN–WATER WORK IS NOT DEGRADING WATER QUALITY.

8.B. DURING CONSTRUCTION, WATER QUALITY PROVISIONS PROVIDED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, WASHINGTON DEPARTMENT OF ECOLOGY, IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY WILL BE FOLLOWED.

STAGED REWATERING PLAN

A. WHEN REINTRODUCING WATER TO DEWATERED AREAS AND NEWLY CONSTRUCTED CHANNELS, A STAGED REWATERING PLAN WILL BE APPLIED.

B. THE FOLLOWING WILL BE APPLIED TO ALL REWATERING EFFORTS. COMPLEX REWATERING EFFORTS MAY REQUIRE ADDITIONAL NOTES OR A DEDICATED SHEET IN THE CONSTRUCTION DETAILS.

B.1. TURBIDITY MONITORING PROTOCOL WILL BE APPLIED TO REWATERING EFFORTS.

B.2. PRE–WASH THE AREA BEFORE REWATERING. TURBID WASH WATER WILL BE DETAINED AND PUMPED TO THE FLOODPLAIN OR SEDIMENT CAPTURE AREAS RATHER THAN DISCHARGING TO FISH–BEARING STREAMS.

B.3. INSTALL SEINE NETS AT UPSTREAM END TO PREVENT FISH FROM MOVING DOWNSTREAM UNTIL 2/3 OF TOTAL FLOW IS RESTORED TO THE CHANNEL.

B.4. STARTING IN EARLY MORNING INTRODUCE 1/3 OF NEW CHANNEL FLOW OVER PERIOD OF 1–2 HOURS.

B.5. INTRODUCE SECOND THIRD OF FLOW OVER NEXT 1 TO 2 HOURS AND BEGIN FISH SALVAGE OF BYPASS CHANNEL IF FISH ARE PRESENT.

B.6. REMOVE UPSTREAM SEINE NETS ONCE 2/3 FLOW IN REWATERED CHANNEL AND DOWNSTREAM TURBIDITY IS WITHIN ACCEPTABLE RANGE (LESS THAN 40 NTU OR LESS THAN 10% BACKGROUND).

B.7. INTRODUCE FINAL THIRD OF FLOW ONCE FISH SALVAGE EFFORTS ARE COMPLETE AND DOWNSTREAM TURBIDITY VERIFIED TO BE WITHIN ACCEPTABLE RANGE.

B.8. INSTALL PLUG TO BLOCK FLOW INTO OLD CHANNEL OR BYPASS. REMOVE ANY REMAINING SEINE NETS.

B.9. IN LAMPREY SYSTEMS, LAMPREY SALVAGE AND DRY SHOCKING MAY BE NECESSARY.

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH:(503)227–5979 // FAX:(888)819–6847
WWW.WATWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
YAKAMA NATION FISHERIES

HIP 4 GENERAL CONSERVATION MEASURES (2 OF 2)

WHITE CREEK ROAD CROSSING IMPROVEMENT 95% DESIGN

DESIGNED BY: J.H.
DRAWN BY: D.H.
CHECKED BY: J.H.
DATE: 7/22/2021
JOB NO.: 20–026

BAR IS ONE INCH ON ORIGINAL DRAWING, ADJUST SCALES FOR REDUCED PLOTS
0 1"

C11 | 11 OF 11

29'-0" Long By 15'-0" Wide Precast Concrete Bridge
White Creek Bridge
Yakima County, Washington

Pacific Bridge And Construction, Inc.

40800 S.E. Coalman Road
P.O. Box 1711
Sandy, Oregon 97055
503-668-4798

Voice: 503-668-4798
Fax: 503-668-6106
WebSite: www.PacBridgeInc.com

To Contact	By Cell Phone	By EMail
Gene Copher	503-789-5362	Gene@PacBridgeInc.com
Steven Copher	971-563-9401	Steven@PacBridgeInc.com

D R A W I N G I N D E X

Sheet	Drawing Title / Description
1	Title Sheet / Drawing Index
2	Bridge Structure General Notes #1
3	Bridge Structure General Notes #2
4	Bridge Layout Plan
5	Longitudinal Section Thru Bridge
6	Transverse Elevation Thru Bridge Showing Elevation Of Abutment 1
7	Transverse Elevation Thru Bridge Showing Elevation Of Abutment 2
8	Wingwall GRS Details "A"
9	Wingwall GRS Details "B"
10	Wingwall GRS Details "C"
11	Wingwall GRS Details "D"
12	Longitudinal Section Of Concrete Planks
13	Miscellaneous Precast Bridge Deck Plank Details
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15	Typical "Standard" Precast Concrete Abutment Blocks Details
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17	Bridge Plank And Abutment Block Details No. 1
18	Bridge Plank And Abutment Block Details No. 2
19	Bridge Footing Precast Concrete Planks

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER

RENEWS: 01-05-2023

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

DESIGNER:	DRAFTER:	CHECKER:	REVIEWER:
Liam Kucey	Liam Kucey	Josh Goodall	Brett Karnes

TITLE: TITLE SHEET / DRAWING INDEX

DRAWING DATE: 4th June 2021

PROJECT NO. 21-3051.07 SHEET 1 OF 19

BY	DATE	REVISION

ACCOMPANIED BY DWGS.

Bridge Structure General Notes #1

GENERAL NOTES

1. These Plans Contain Information Proprietary To Pacific Bridge And Construction, Inc. And Is Being Furnished For The Use Of Waterways Consulting Inc. And Yakama Nation Fisheries Only In Connection With This Project. The Information Contained Herein May Not Be Reused At Other Locations Unless Specifically Authorized By Pacific Bridge And Construction, Inc. And Quincy Engineering, Inc.

DESIGN CRITERIA AND LOADINGS

1. Bridge Structure Designed To Comply With The Latest American Association Of State Highway Officials Design Provisions -- AASHTO LRFD Bridge Design Specifications, Eighth Edition, 2017.

2. Bridge Structure Design Dead Loads
   -- Being The Weight Of All Permanent Bridge Structure Components Plus
      A. Future Asphalt Pavement Wearing Surface Of 3" Thickness Weighing 35 Psf.

3. Live Load Distribution Factors Were Calculated Using A Finite Element Model Of The Structure:
   Exterior Girder Shear 0.61
   Exterior Girder Moment 0.33
   Interior Girder Shear 0.48
   Interior Girder Moment 0.27

4. Vehicular Live Load --
   A. Service and Strength I Limit States:
      "HL-93" Design Truck
   B. Overload Provisions (Strength II Limit States):
      "OR-STP-5BW" Permit Truck

5. Soil Pressure Loadings On Abutments And Wing Walls
   A. Abutment Wall BackFill Soil Design Parameters
      1) Failure State ..... At Rest.
      2) Density ..... 140 Pcf.
      3) Coefficient Of Internal Friction ..... 36 Deg.
   B. Wing Wall BackFill Soil Design Parameters
      1) Failure State ..... Active.
      2) Density ..... 140 Pcf.
      3) Coefficient Of Internal Friction ..... 36 Deg.

6. Seismic Design Is Preformed In Accordance With 2nd Edition Of The "AASHTO Guide Specifications For LFRD Seismic Bridge Design".
   A. 1000 Year Return Period ("No Collapse" Criteria)
      AASHTO/USGS Seismic Site Parameters
      1) Peak Ground Acceleration Coefficient (PGA) 0.223
      2) Site Coefficient For Site Class "D" (Fpga) 1.353

7. Guardrails And/Or Handrails:
   This Bridge Will Be Constructed Without Crash-Test Designed Guardrails And/Or Handrails With The Knowledge And At The Request Of The Owner. By Specifying That This Bridge Be Constructed Without The Life And Property Protections Afforded By Designed Guardrails And/Or Handrails, The Owner Acknowledges And Agrees That The Bridge Structural Engineer-Of-Record And Pacific Bridge And Construction Inc. Accepts No Responsibility And/Or Liability For Injury, Death, Or Property Damage, Due In Whole Or In Part, Because Of The Absence Crash-Test Designed Guardrails And/Or Handrails. .

8. GRS Walls Are Designed Per The Design And Construction Guidelines For Geosynthetic Reinforced Soil Abutments And Intergrated Bridge Systems. FHWA-HRT-17080, June 2018.

SOILS, FOUNDATIONS, AND BACKFILLS

1. Because The Bridge Owner Has Not Provided The Bridge Structural Engineer-Of-Record With A Professionally-Qualified, Site-Specific, Hydraulics Report The Engineer Has Designed The Bridge To Be Compatible With Other On-Site And Imported Soil Properties Identified In The General Notes. The Owner Understands And Agrees That The Bridge Structural Engineer-Of-Record Accepts No Responsibility And/Or Liability For Injury, Death, Or Property Damage, Due In Whole Or In Part, Because The Foundation Design For This Bridge Structure Is Based On Assumed, Unconfirmed Soil Properties, Including Stream Scour.

SOILS, FOUNDATIONS, AND BACKFILLS

2. This Project Has Been Designed Using An Allowable Bearing Capacity = 4000 Psf As Recommended By The Project Geotechnical Engineer.

3. Remove Any Existing Fill, Any Existing Silty, Sand-Silt, Or Clay-Silt Soil, Or Any Soil That Is Loose Or Has Been Disturbed Down To Existing Very Dense Gravel For A Minimum Width Of 5'-0" Extending At Least 6" Beyond Front And Back Faces Of Footing Units.

4. Where Excavation Of Fill And/Or Silt Extends Below Bottom Elevation Of Abutment Blocks, Provide Imported Angular Crushed Rock Base Per Design Plans.

5. Compact Imported Base Material To At Least 95% Relative Compaction.

6. Provide A Non-Woven, Needle-Punched Soil Filter Fabric Of Minimum 4 Ounce Per Square Yard Weight Between Backfill Soil And Back Face Of Abutment Walls And Wing Wall Extensions.
   A. Lap All Joints, Horizontal And Vertical, A Minimum Of 6 Inches.
   B. Install As Shown On Drawings

7. Use Only Free-Draining Granular Material As Backfill Behind Abutment Walls And Wingwalls. Compact Material Placed Behind Walls To 95% Relative Compaction Using Only Light Or Hand-Operated Compaction Equipment.

8. Install Soil In Front Of Abutment Walls Simultaneously With Backfill Behind Abutment Walls To Prevent Unbalanced Lateral Loading Of Abutment Walls. Install Backfill Against Back Face Of Abutment Walls No More Than 6'-0" Above Elevation Of Soil Placed Against Front Face Until After Abutment Wall Vertical Reinforcement Has Been Grouted And Only After Bridge Deck Plank Units Have Been Dowel-Anchored-Grouted To Top Of Abutment Walls At Each End.

STEEL PLATES, PIPES, TUBES, ROLLED SHAPES, BOLTS, PINS, AND WELDS

1. Plate ..... ASTM A36.

2. Pipe ..... ASTM A53/Grade B Or ASTM A501.

3. Rolled Shapes ..... ASTM A992.

4. Structural Bolts ..... ASTM F3125, Grade A325, Type 1.

5. Weld In Conformance With AWS D1.5 By Properly Certified Welders Using E70 Electrodes And AWS Prequalified Procedures.

6. Do Not Weld Members After They Have Been Galvanized.

7. Hot-Dip Galvanize All Steel Components That Are Not Protected Against Atmospheric Corrosion By A Minimum Of 1" Of Concrete Cover.
   A. Provide A Minimum Zinc Coating Of 2.3 Ounces Per Square Foot Per ASTM A123 Or ASTM A385.
   B. Treat Field Drilled Holes, Field Welds, And Abrasions With One Coat Of Pittsburgh "Waterspar" Or "Speedhide" Galvanizing Primer And Two Coats Of "Ironhide" Metal Protective Paint.

8. Paint All Steel Not Encased In Concrete And Only Too Large To Be Hot-Dip Galvanized.
   A. Shop-Apply (3) Paint Coatings Each 2.0 Mil Minimum Dry Thickness
      1st Coat - Rust-O-Crylic "5769 Rust Inhibiting Red Primer".
      2nd Coat - Rust-O-Crylic "5791 White Primer".
      3rd Coat - Rust-O-Crylic "5700 System Top Coat" (Color Per Owner).

STEEL PLATES, PIPES, TUBES, ROLLED SHAPES, BOLTS, PINS, AND WELDS -- CONTINUED

   B. After Completing All Field Welding And Bolting, Field-Apply The Above Painting System Onto All Steel Surfaces Field-Welded, Scratched, Chipped, Or Otherwise Unprotected Against Atmospheric Corrosion.

CONCRETE

1. General
   A. Provide Concrete Complying With ACI 301.
   B. Use Normal Weight (145 pcf +/- 5 pcf) Concrete.
   C. Air-Entrainment Volume ..... 5% +/- 1%.
   D. Provide Concrete Having A Minimum Cement Content Of 6 Sacks Per Cubic Yard.
   E. Cast Concrete Using A Maximum Water/Cement Ratio Of 5½ Gals Per Sack Of Cement.
   F. Do Not Use Any Concrete Unit Having Cracks Over 1/16" Wide.
   G. Fabricate Block "Lugs" And "Recesses" And Plank "Recesses" Such That The Dimensions Detailed For Them On The Drawings Are Achieved To A Tolerance Of +/- 1/16".

2. Precast Bridge Deck Planks
   A. Prestressed Concrete Planks
      1) Interior Plank
         Minimum Strength At 28-Days ..... F'c = 5000 Psi.
         Strength At Removal From Form ... FcRemove = 4000 Psi.
      2) Exterior Plank
         Minimum Strength At 28-Days ..... F'c = 5000 Psi.
         Strength At Removal From Form ... FcRemove = 4000 Psi.
   B. Use Aggregates No Larger Than 1" And No Smaller Than ¾".
   C. Fabricate Plank Units To The Following Dimensional Tolerances:
      1) Length ..... +/- ½".
      2) Width ..... +/- ½".
      3) Thickness ..... +/- ¼".
      4) Twist, As Measured By "Lift" Of Corner, Where The Other (3) Corners Define A Horizontal Plane . +/- ¼".
   D. Supply Plank Units Having The Following Surface Finishes:
      1) Bottom, Sides, And Ends ..... "As-Cast In Steel Forms".
      2) Top Surface ..... Transverse "Rake" Finish. (¼" Wide By ¼" Deep Grooves Spaced At ½" On Center)
   E. Provide Plank And Panel Units Having No "Honeycomb" Voids And No Corner Or Edge Chips Larger Than 1" In Any Direction.

3. Precast Abutment Block Units
   A. Minimum Strength At 28-Days ..... F'c = 3000 Psi.
   B. Minimum Strength At Removal From Form ..... FcRemove = 2000 Psi.
   C. Use Aggregates No Larger Than 3" And No Smaller Than ¾".
   D. Fabricate Units To The Following Dimensional Tolerances:
      1) Overall Width, Length, And Thickness ..... +/- 1/8".
      2) Squareness On All (6) Sides, As Measured By Comparing Lengths Of Face Diagonal Distances .... +/- 1/8".
   E. Supply Units Having "As-Cast In Steel Forms" Finish.
   F. Provide Units Having No "Honeycomb" Voids And No Corner Or Edge Chips Larger Than 2" In Any Direction.

4. Mortars And Grouts
   A. Provide Non-Corrosive Non-Shrink Cementitious Grout By The Euclid Chemical Company An RPM Company. Grout Should Be In Pourable Consistency When Placed In Longitudinal Joints Between Bridge Deck Planks.
      1) Provide Pre-Molded Compressible Back Rods Along Bottom And At Ends Of Joints To Retain Dry Pack.
      2) Fill Longitudinal Joints Flush With Top Surface Of Planks.
   B. Provide Non-Corrosive Non-Shrink Cementitious Grout By The Euclid Chemical Company An RPM Company. Grout Should Be In Fluid Consistency When Placed Between Top Of Top Abutment Block Units And Underside Of Precast Deck Plank Units.
      1) Provide Wood Setting Blocks, Pre-Molded Compressible Backer Rods, And/Or Expandable, Closed-Cell, Expandable Foam Around Perimeter Of Top Abutment Block(s) To Retain Grout.
      2) Fill Vertical Cylindrical Voids
         a) Around Abutment-To-Deck Anchor Dowel Pins.
         b) Around Abutment Block Vertical Post Tensioning Rods.
      3) Vibrate Grout, As Required, To Assure That All Voids Spaces Are Completely Filled.

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DATE	REVISION	BY

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes
TITLE: BRIDGE STRUCTURE GENERAL NOTES #1
PROJECT NO. 21-3051.07
SHEET 2 OF 19
DRAWING DATE: 4th June 2021

ACCOMPANIED BY DWGS.

Bridge Structure General Notes #2

CONCRETE REINFORCING STEEL

1. Provide Deformed Steel Bars Complying With ASTM A615, Grade 60.

2. Provide All Bars Full Length.
   A. Do Not Lap-Splice Any Bar.
   B. Do Not Weld-Splice Any Bar.

3. Position Deck Plank Longitudinal Bars Not Required To Be Full Length Mid-Length Of Deck Planks.

4. Shop-Fabricate All Bars Required To Be Bent.
   A. Cold-Bend All Bars.
   B. Do Not Apply Heat To Any Bar Or "Tack Weld" Any Bar.

5. Provide Minimum Concrete Cover For Reinforcing Bars As Follows:
   A. For All Precast Bridge Deck Plank Units
      1) At Bottom Surface And Sides Of Planks ..... 1" +/- ¼".
      2) At Ends Of Planks ..... 2" +/- ¼".
      3) At Top Surface Of Planks..... 1½" +/- ¼".
   B. For All Precast Reinforced Abutment Block Units
      1) At Top And Bottom Surfaces Of Blocks ..... 2¾" +/- ¼".
      2) At Side Surfaces Of Blocks ..... 2¼" +/- ¼".
      3) At Ends Of Blocks ..... 3" +/- ¼".

6. Position Bars As Shown On The Drawings To The Following Tolerances:
   A. Bar Location As Measured Perpendicular To Bar Length .... +/- ¼".
   B. Bar Location As Measured Parallel To Bar Length ..... +/- ½".
   C. Longitudinal Location Of Bends And Ends Of Bars ..... +/- ½".

SPECIAL INSPECTIONS AND TESTING

1. All Concrete Is Placed Under "Casting Plant" Conditions In Reusable Steel Forms. No Concrete Is Cast On-Site.
   A. Provide Periodic Inspection Of Concrete Reinforcement. And Embedment's For Each Day Concrete Is Cast.
   B. For Each Day Concrete Is Cast. Perform Standard Field Tests On Plastic Concrete And Mold 4 Minimum Standard Cylinders To Be Tested At 28 Days.
   C. Inspection and Testing Reports Will Be Available From Pacific Bridge And Construction, Inc.

GRS WINGWALL SYSTEM

1. Provide GRS Fabric Marifi HP570. If Approved By The Engineer, Another Equivilant Fabric May Be Used.

HORIZONTAL TRANSVERSE RODS FOR PRECAST BRIDGE PLANKS

1. Provide Transverse Tie Rods For Precast Bridge Planks At Elevations And Spacing's As Shown On The Drawings.

2. Use ¾" Grade 75 All-Thread Rebar.

3. Galvanize Transverse Rods, Steel Bearing Plates, And Heavy Hex Nuts To Provide A Minimum Zinc Coating Thickness Of 2.3 Oz./Sq.Ft.

4. Bring Nuts On Each End Of All Rods To Fully "Snug" Condition, Then Tighten Each Nut 1½ Turns.

5. After Nuts Have Been Properly Tightened, Install Lock Nut At Each End Of Rod. Rod Shall Extend ½" Beyond Lock Nut.

6. Note *1: Do Not Tighten Nuts At Ends Of Rods Until Grout In All Longitudinal Joints Has Cured To A Minimum Compressive Strength Of 5000 Psi.

INSTALLATION NOTES

1. General
   A. These Drawings And Bridge Structure General Notes Indicate The Intended Finished Constructed Structure.
   B. Except As Specifically Indicated As "Required" Installation Procedures, Sequences, Means, And Methods Are The Sole Responsibility Of The Installation Contractor.
   C. Plans, Sections, Details, And Bridge Structure General Notes Provided By Quincy Engineering, Inc. Pertain Only To The Bridge Structure. For All Other Project Requirements, Including Stream Channel And Street Improvements, Refer To Engineering Documents Prepared For This Project By Waterways Consulting Inc.
   D. These Installation Notes May Not Be All-Inclusive. Installation Contractor Shall Perform All Work Required To Produce A Properly Constructed Bridge Structure.

2. Prepare Site For Installation Of Bridge
   A. Construct Temporary Dams And Other Required Stream Diversions.
   B. Provide Acceptable Required Dewatering And Sediment Controls.
   C. Install Pumps, Pipes, And Other Required Apparatus.
   D. Install "Required" Signage And Close Road To Traffic.
   E. Remove Existing Culvert, Bridge Structure, And Abandoned Debris.
   F. Remove Existing Trees, Including Root Systems, As Required.
   G. Excavate For Placement Of Abutment And Wing Wall Footing Units.
   H. Obtain Acceptance Of Foundation Bearing Subsurface.
   I. Place And Compact Imported Granular Base For Abutment Footings.
   J. Stability And Safety Of All Temporary Excavations And Structures Are The Sole Responsibility Of The Installation Contractor.

3. Install Abutments
   A. Place Abutment Footing Units Level And At Proper Elevation(s).
   B. Where Necessary, Provide Grout Plug In Bottom Of Grout Holes At Footing Vertical Voids "Required" To Contain Vertical Rebar.
   C. Provide 8" To 10" Diameter Annular Grout Retainage Rings On Top Of Each Abutment Around Vertical Voids To Be Reinforced Using A Well-Bonding Insulating Spray Foam (To Retain Grout When Abutment Vertical Rebar Is Grouted Later).
   D. Stack Abutment Units Plumb Onto Center Of Footings.
      1) Place Fill On Front And Back Sides Of Abutments.
      2) Limit Differential Height Of Fills On Front And Back Sides Of Abutment Walls To A "Required" Maximum Of 6'-0".
      3) Limit Weight Of Any Construction Equipment To 4000 Pounds Within 4'-0" Of Nearest Face Of Abutment Walls Until Plank-To-Abutment Dowel Connections Are Full Strength.

4. Install Vertical Rebar In Abutment From Bottom Of The Bridge Plank To Bottom Of Footing Units. Fully Grout (Under Pressure If Required) Voids Around Vertical Rebar To Top Of The Abutment Blocks.

5. Complete All Stream Channel Work To Occur Between Abutments As Specified By The Project Requirements.

6. Place Precast Concrete Bridge Plank Units
   A. Place Continuous Wood Bearing Strips Along Top Front Edge Or Top Back Edge Of Top Abutment Units.
   B. Note That It Is "Required" That Deck Plank Units Be Lifted By Lifting Loops At The Ends Of The Plank.
   C. Use Only Proper Lifting Techniques Such As Spreader Bars, Etc.
   D. Set Precast Deck Planks.
   E. Install Premolded Compressible Backing Rod Full Length At Bottom And Vertically At Each End Of All Longitudinal Grout Joints.
   F. Thread PVC Sleeves Thru Transverse Tie Rod Voids.
   G. Fully Grout All Longitudinal Joints Full Depth And Full Length.
   H. Allow Longitudinal Joint Grout In All Joints To Cure A "Required" Minimum Of 4 Hours. Keep grout moist during curing.

7. Install Premolded Compressible Backer Rods Continuous Along (3) Edges Of Top Abutment Blocks (Under Deck Planks).

8. Install Rebar Dowels And/Or Verticals At Each End Of Planks Down Into Pre-Formed And/Or Field-Drilled Holes In Abutment Block Units.

INSTALLATION NOTES -- CONTINUED

9. Fully Grout (Under Pressure If Required) Voids Around Vertical Rebar And Simultaneously Fill Voids Under Deck Planks At Top Of Abutments. Allow Grout To Cure A Minimum Of 4 Hours.

10. Install And Fully Tighten Transverse Tie Rods As "Required".

11. Remove 4" (Minimum) Lengths Of Backer Rods Under Ends Of Planks At 2'-0" (Maximum) Intervals To Confirm Grout Void Has Been Filled. Confirming That At Least 80% Of The Length Of The Grout Edge Has Full Contact Along Both The Top And Bottom Joint Surfaces.

12. Install Guardrail Systems If Required.

13. Complete Stream Channel, Roadway, And Other Work As "Required" And Specified In Contract Documents.

CONCRETE PRESTRESSING STRAND

1. Provide Uncoated 7-Wire, Grade 270, Low-Relaxation Prestress Strand Conforming To ASTM A416, Including Current Supplements Of 1/2" Diameter And Cross-Sectional Area 0.151 Sq.In.

2. Do Not Use Any Portion Of Strand Having Scratches, Gouges, Nicks, Or Any Other Abrasion, Or Any Portion Of Strand Previously Gripped By Jacking Chucks.

3. Run Strand Straight Between Jacking Chucks -- Do Not Harp Strands.

4. Jack Each 1/2" Diameter Strand To A Force Of 31,000 Lbs (75% Of Breaking Strength).

5. Confirm Jacking Force By Measuring Stretch Of Strand As It Is Jacked.
   A. Strain At Initial Jacking Force = 0.00711 In/In.
   B. Example: For A Distance Of 64'-4" Between Jacking Chucks And A Computed Shortening Of The Self-Stressing Forms Of 1/4", The Stressing Jack Will Move 5.75" Relative To The Bulkhead.

6. Recommended Jacking Sequence:
   A. Apply Initial Jacking Force Of 5000 Lbs To Each Strand. To Seat Jacking Chucks (Will Stretch Strand 7/8").
   B. Starting With Center Strands, Sequentially Stress Each Strand.
   C. After Stressing All Strands, Confirm That The Required 31,000 Lb Force Has Been Achieved In Each Strand. (Center Strands May Require Additional Jacking.)
   D. After Concrete Has Attained Its Required Release Strength De-Tension Strands In Reverse Order Of Stressing The Strands.

7. Prior To Moving Prestressed Concrete Unit From Manufacturing Plant Provide Corrosion Protection By Thoroughly Coating Ends Of Strands With A Self-Adhesive, Asphalt-Based, Corrosion Preventive Mastic (Henry "HE209 - Elastomeric" And "#104 Asphalt Primer", If Required).

SHIPPING AND HANDLING

1. Precast Bridge Planks Shall Only Be Picked By Lifting Loops At The Ends Of The Plank. Contractor Shall Use Equipment Such That The Attachment To The Lifting Loops Remain Vertical Or No More Than 20° From Vertical.

2. Inspect Lifting Loops For Damage Prior To Picking Up Planks. If Damage Has Occurred To Lifting Loops Do Not Proceed Without Engineers Approval.

3. During Shipping Or Storage Of The Planks Place Wood Blocking Under The Plank Directly Under The Lifting Loops At Each End Of The Plank.

JOSHUA K. GOODALL — STATE OF WASHINGTON — 51303 — REGISTERED PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DATE	REVISION	BY

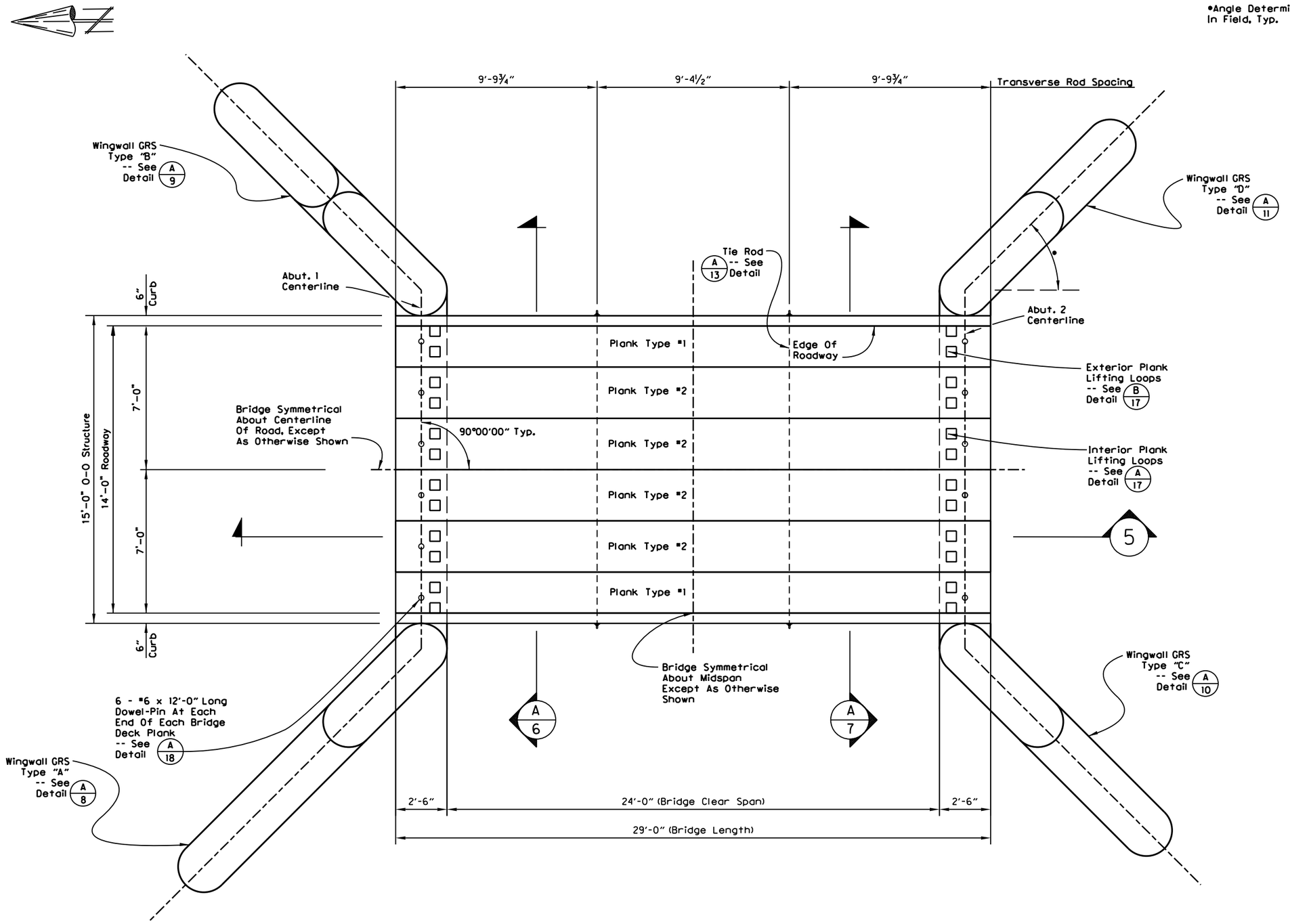
DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

TITLE: BRIDGE STRUCTURE GENERAL NOTES #2

PROJECT NO. 21-3051.07
SHEET 3 OF 19
DRAWING DATE: 4th June 2021

ACCOMPANIED BY DWGS.

•Angle Determined In Field, Typ.



4 Bridge Layout Plan

1" = 5'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

PROJECT: White Creek Bridge

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QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

DESIGNER:	DRAFTER:	CHECKER:	REVIEWER:
Liam Kucey	Liam Kucey	Josh Goodall	Brett Karnes

TITLE: BRIDGE LAYOUT PLAN

DRAWING DATE: 4th June 2021

PROJECT NO. 21-3051.07 SHEET 4 OF 19

△	DATE	REVISION	BY

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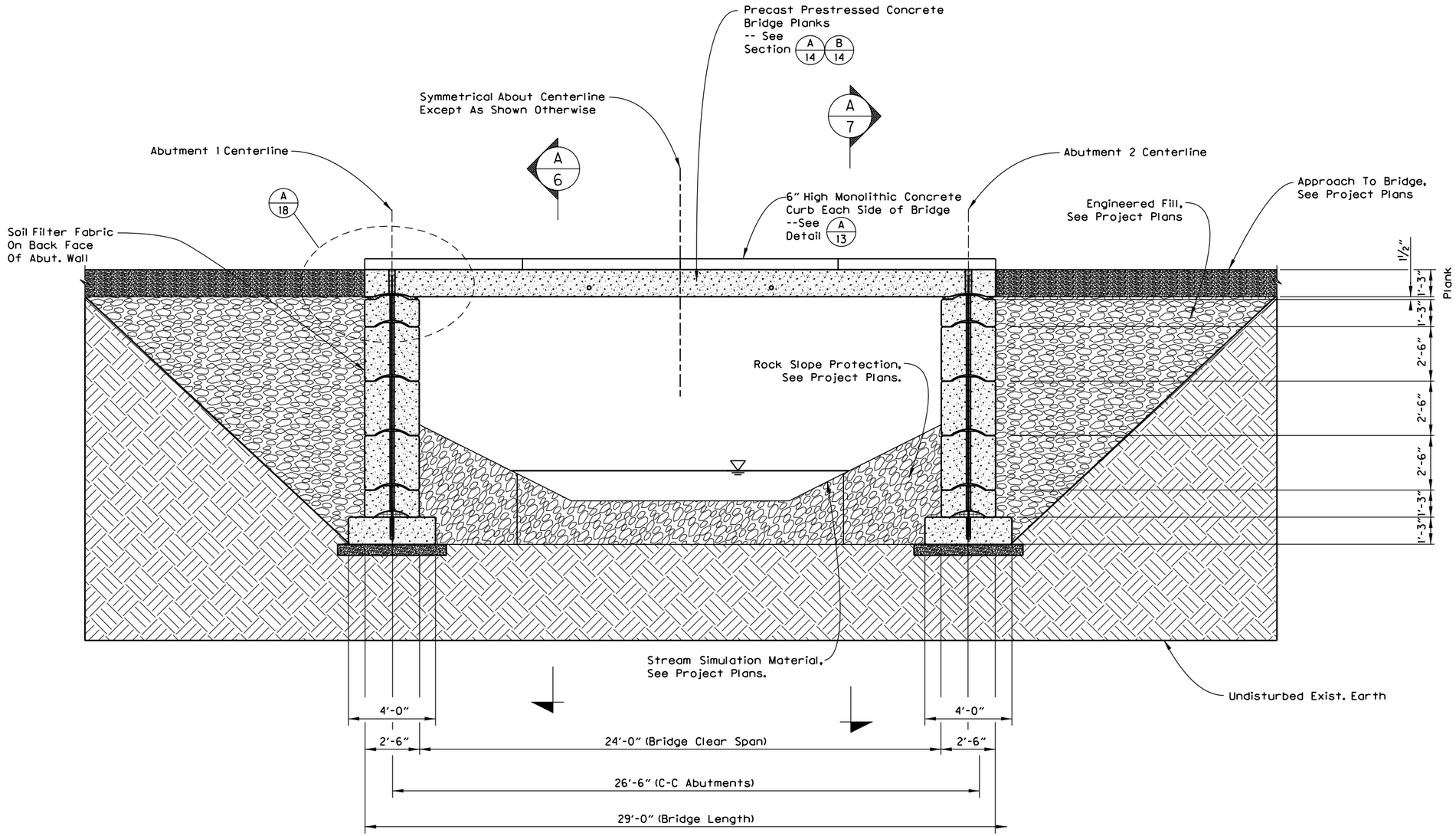

Note:
Structure Shown Flat. For Slope And Elevation, See Project Plans.

5 Longitudinal Section Thru Bridge Structure

3/16" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

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QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

DESIGNER:	DRAFTER:	CHECKER:	REVIEWER:
Liam Kucey	Liam Kucey	Josh Goodall	Brett Karnes

TITLE: LONGITUDINAL SECTION THRU BRIDGE

DRAWING DATE: 4th June 2021
PROJECT NO. 21-3051.07
SHEET 5 OF 19

BY	REVISION	DATE

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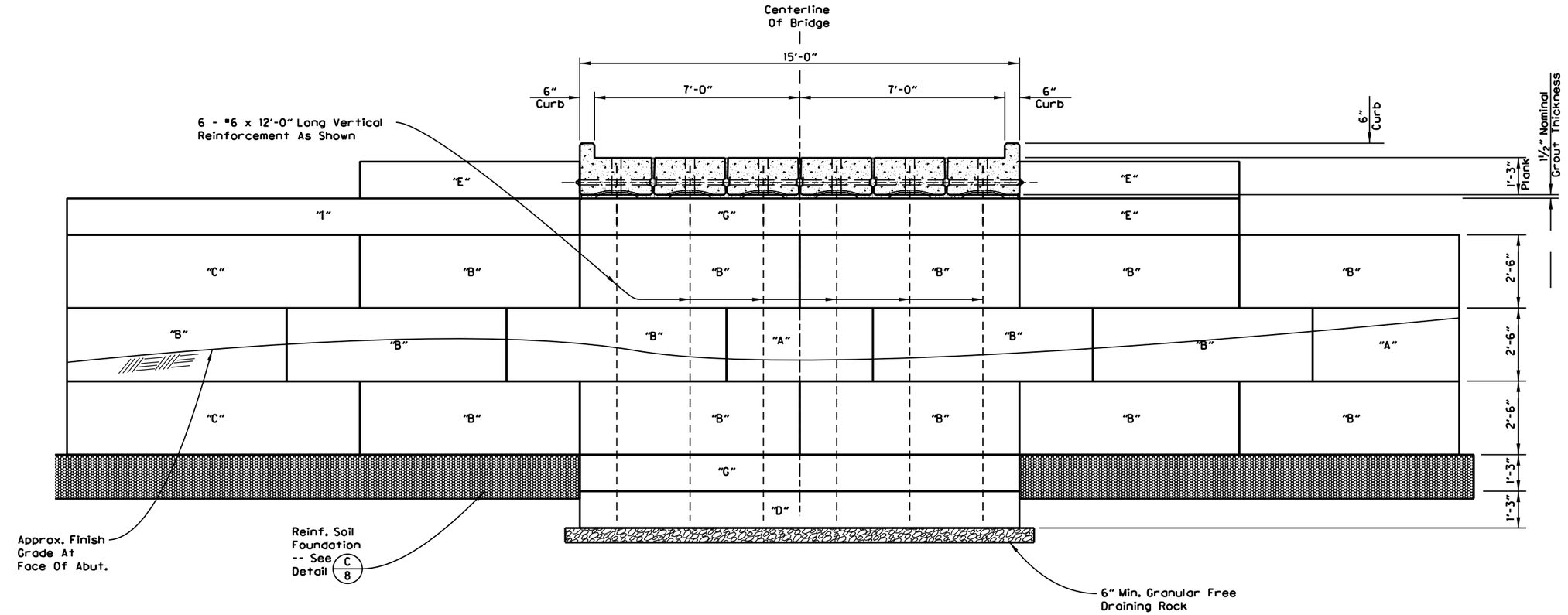


A/6 Elevation Of Abutment 1

1/4" = 1'-0"

Precast Concrete Abutment Block Schedule

Unit Mark	Total Count	Unit Type	Reference	Dimension (1)			End Shape		Reinf Bars	Notes
				Length	Height	Width	Left	Right		
"A"	2	Standard	Detail "A/15"	5'-0"	2'-6"	2'-6"	Round	Round	None	(1)
"B"	14	Standard	Detail "A/15"	7'-6"	2'-6"	2'-6"	Round	Round	None	(1)
"C"	2	Standard	Detail "A/15"	10'-0"	2'-6"	2'-6"	Round	Round	None	(1)
"D"	1	Footing	Detail "A/19"	15'-0"	1'-3"	2'-6"	Square	Square	Yes	(1)
"E"	3	Mono	Detail "A/16"	7'-6"	1'-3"	2'-6"	Round	Round	Yes	(1)
"G"	2	Mono	Detail "A/16"	15'-0"	1'-3"	2'-6"	Square	Square	Yes	(1)
"I"	1	Mono	Detail "A/16"	17'-6"	1'-3"	2'-6"	Round	Round	Yes	(1)

Schedule Notes:
(1) These Units Are Reversible As Required By Project Layout (Left-To-Right).

B/6 Abutment Block Schedule

No Scale

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

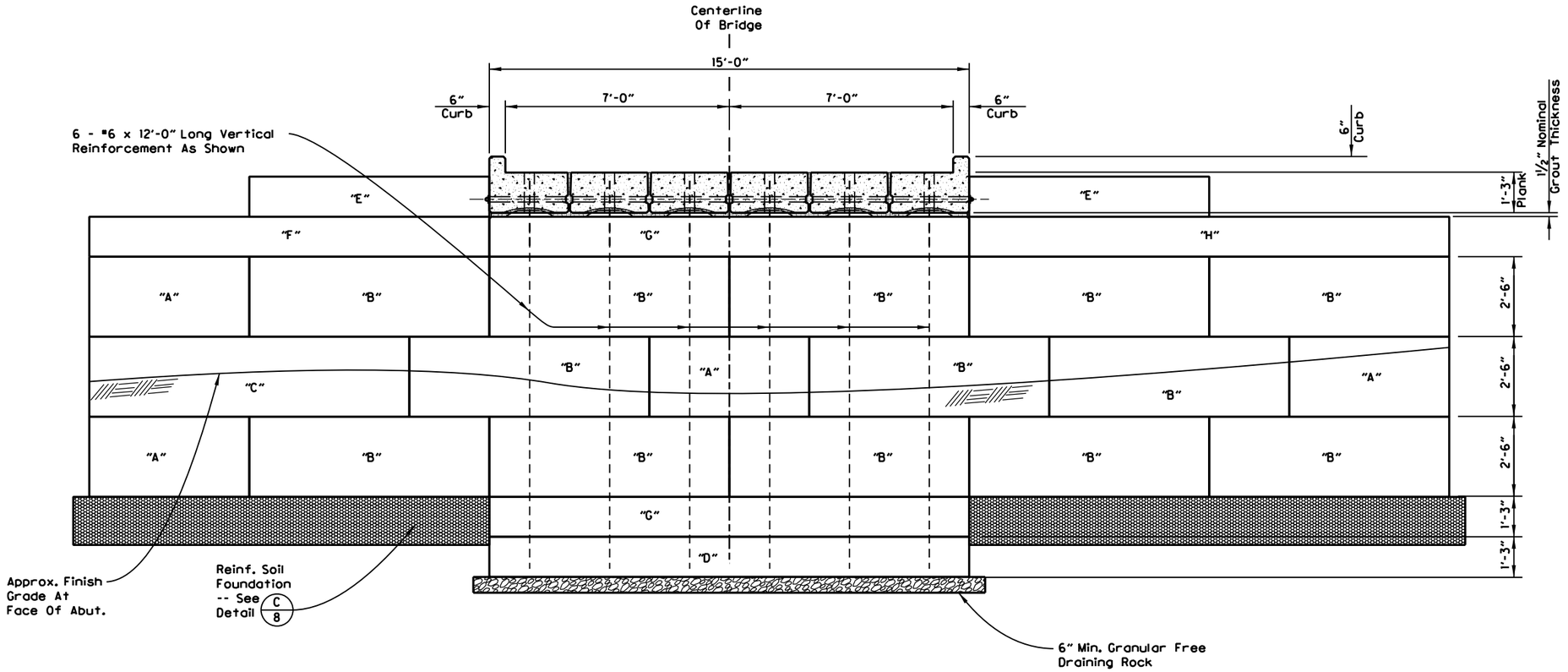
TITLE: TRANSVERSE ELEVATION THRU BRIDGE
SHOWING ELEVATION OF ABUTMENT 1

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

DRAWING DATE: 4th June 2021
PROJECT NO. 21-3051.07
SHEET 6 OF 19

DATE	REVISION	BY

ACCOMPANIED BY DWGS.



A/7 Elevation Of Abutment 2

1/4" = 1'-0"

Precast Concrete Abutment Block Schedule

Unit Mark	Total Count	Unit Type	Reference	Dimension (1)			End Shape		Reinf Bars	Notes
				Length	Height	Width	Left	Right		
"A"	4	Standard	Detail "A/15"	5'-0"	2'-6"	2'-6"	Round	Round	None	(1)
"B"	13	Standard	Detail "A/15"	7'-6"	2'-6"	2'-6"	Round	Round	None	(1)
"C"	1	Standard	Detail "A/15"	10'-0"	2'-6"	2'-6"	Round	Round	None	(1)
"D"	1	Footing	Detail "A/19"	15'-0"	1'-3"	4'-0"	Square	Square	Yes	(1)
"E"	2	Mono	Detail "A/16"	7'-6"	1'-3"	2'-6"	Round	Round	Yes	(1)
"F"	1	Mono	Detail "A/16"	12'-6"	1'-3"	2'-6"	Round	Round	Yes	(1)
"G"	2	Mono	Detail "A/16"	15'-0"	1'-3"	2'-6"	Square	Square	Yes	(1)
"H"	1	Mono	Detail "A/16"	15'-0"	1'-3"	2'-6"	Round	Round	Yes	(1)

Schedule Notes:
(1) These Units Are Reversible As Required By Project Layout (Left-To-Right).

B/7 Abutment Block Schedule

No Scale

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

TITLE: TRANSVERSE ELEVATION THRU BRIDGE
SHOWING ELEVATION OF ABUTMENT 2

PROJECT NO. 21-3051.07
SHEET 7 OF 19
DRAWING DATE: 4th June 2021

	DATE	REVISION	BY
1			

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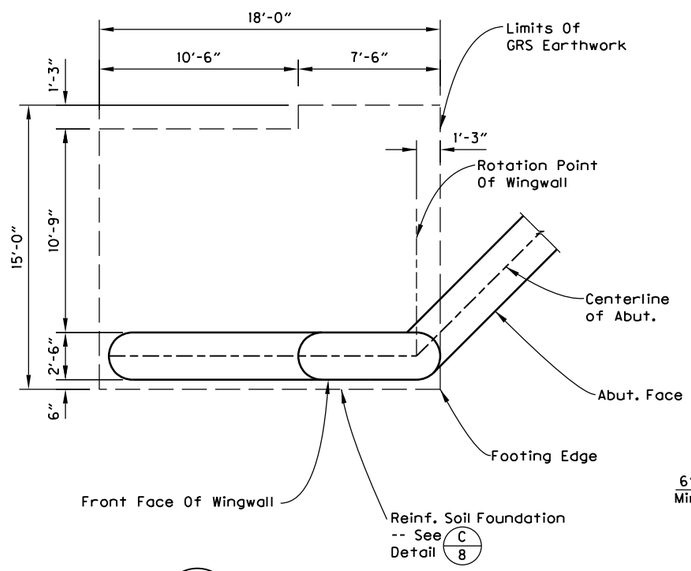
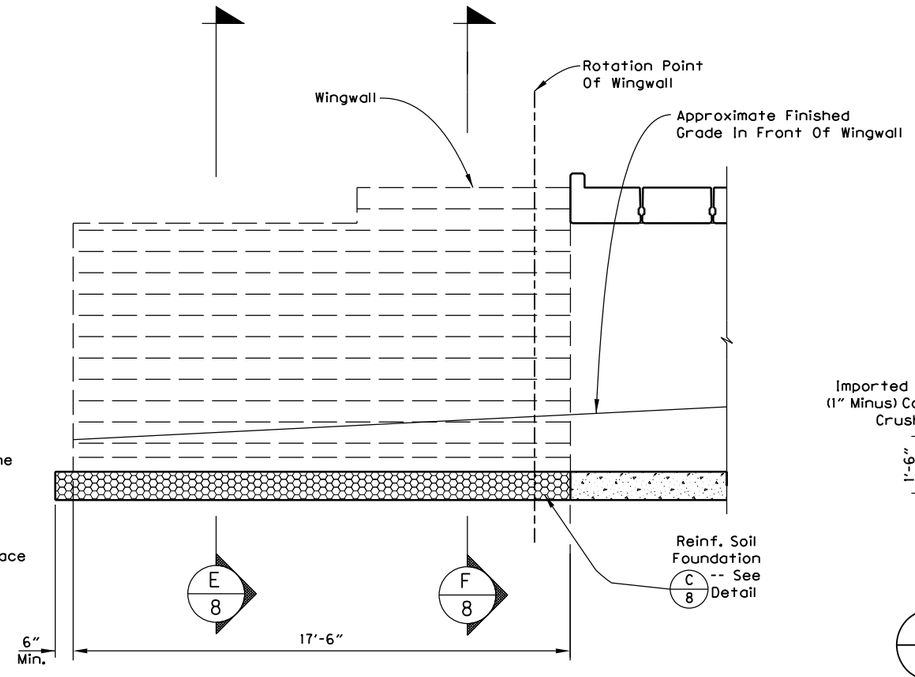
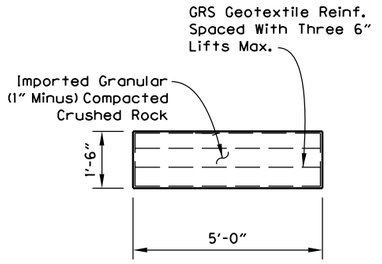


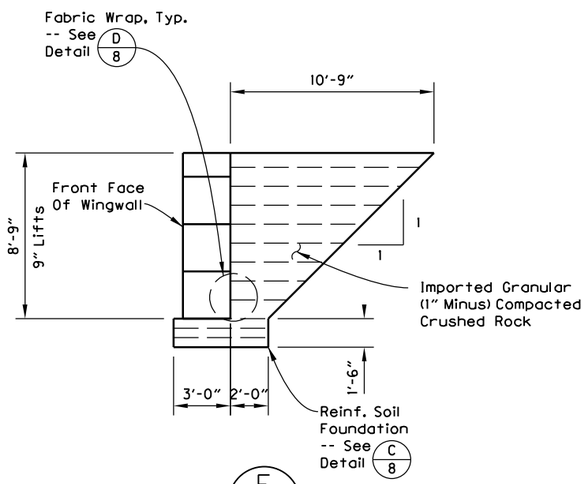
A/8 GRS Wingwall Plan View
1/8" = 1'-0"



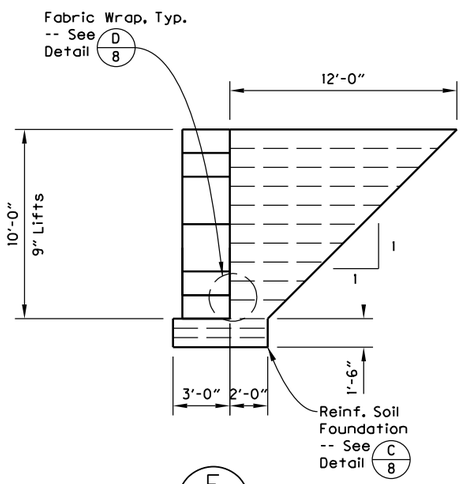
B/8 GRS Wingwall Elevation View
3/16" = 1'-0"



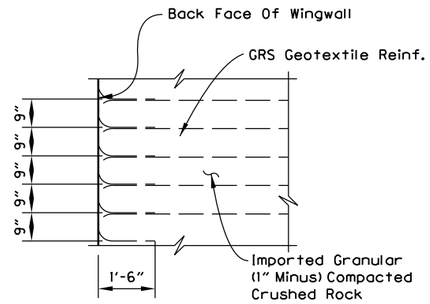
C/8 Reinforced Soil Foundation Detail
1/4" = 1'-0"



E/8 Section
1/8" = 1'-0"



F/8 Section
1/8" = 1'-0"



D/8 Fabric Wrap Detail
1/4" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes
PROJECT NO. 21-3051.07
SHEET 8 OF 19
DRAWING DATE: 4th June 2021

TITLE: WINGWALL GRS DETAILS "A"

DATE	REVISION	BY

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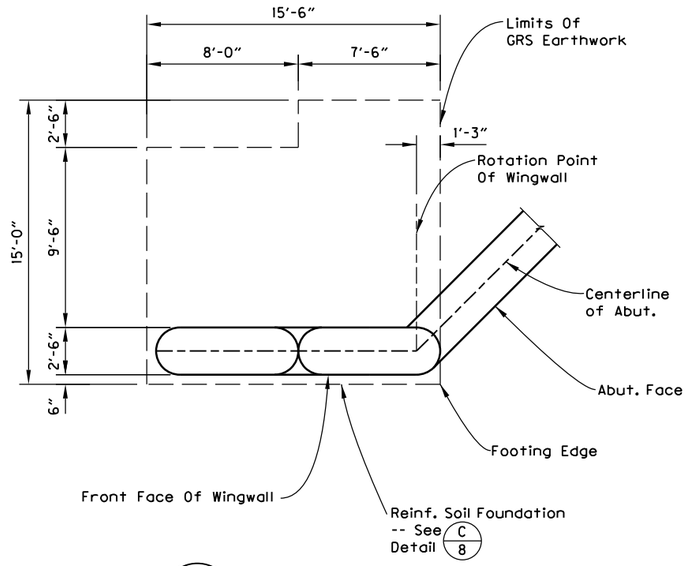
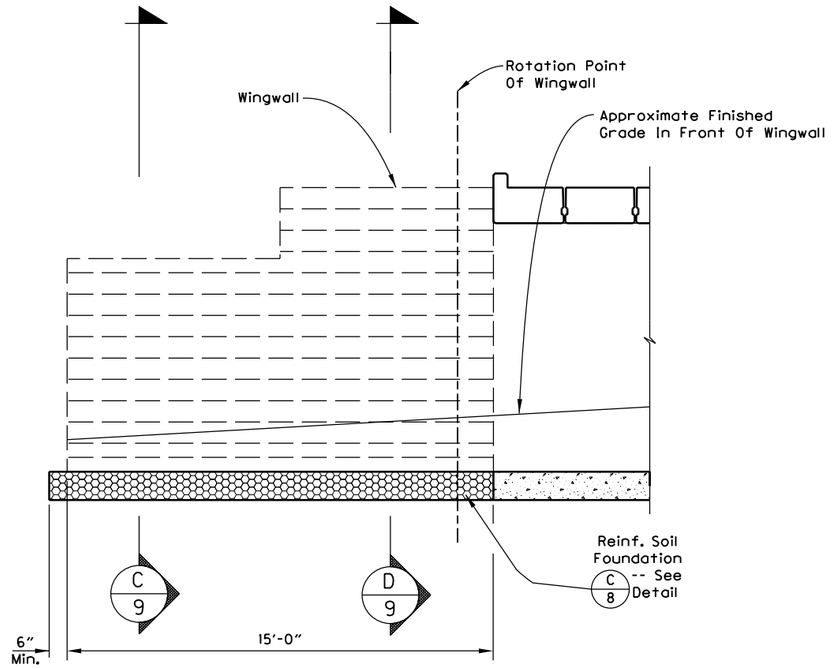


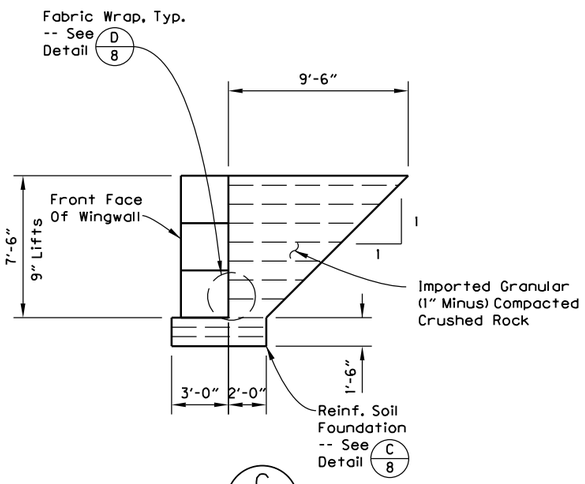
A/9 GRS Wingwall Plan View

1/8" = 1'-0"



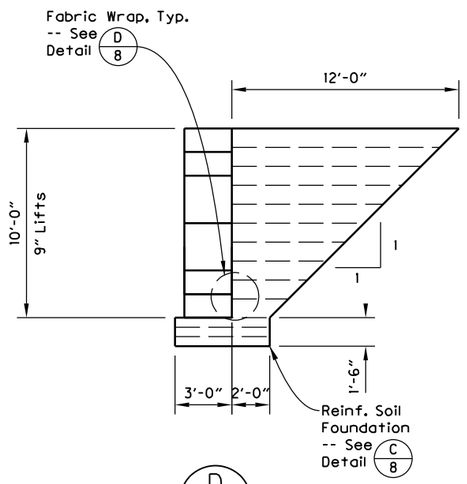
B/9 GRS Wingwall Elevation View

3/16" = 1'-0"



C/9 Section

1/8" = 1'-0"



D/9 Section

1/8" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996

VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge

CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

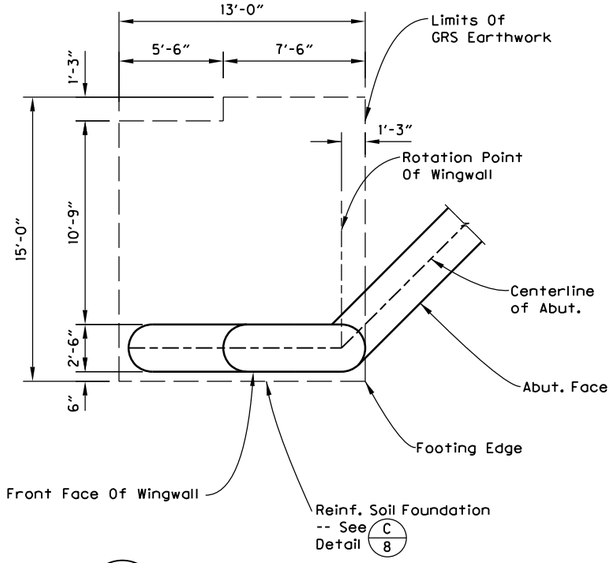
TITLE: WINGWALL GRS DETAILS "B"

PROJECT NO. 21-3051.07
SHEET 9 OF 19

DRAWING DATE: 4th June 2021

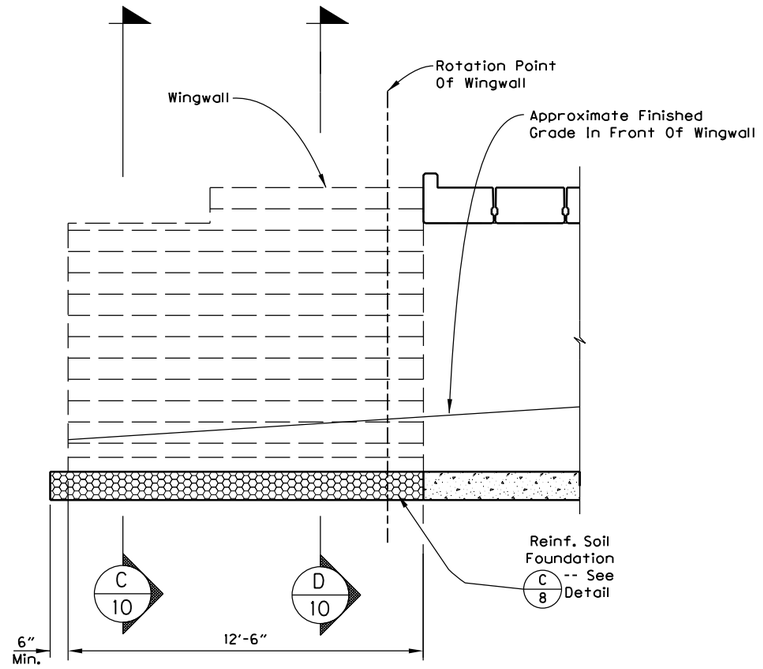
DATE	REVISION	BY

ACCOMPANIED BY DWGS.



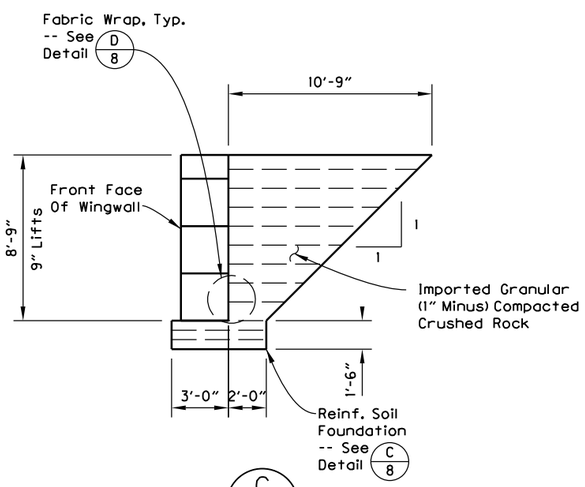
A/10 GRS Wingwall Plan View

1/8" = 1'-0"



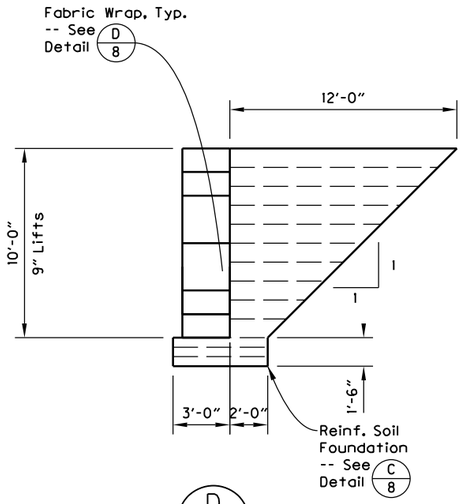
B/10 GRS Wingwall Elevation View

3/16" = 1'-0"



C/10 Section

1/8" = 1'-0"



D/10 Section

1/8" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge

CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

TITLE: WINGWALL GRS DETAILS "C"

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

DRAWING DATE: 4th June 2021

PROJECT NO. 21-3051.07

SHEET 10 OF 19

	DATE	REVISION	BY
1			

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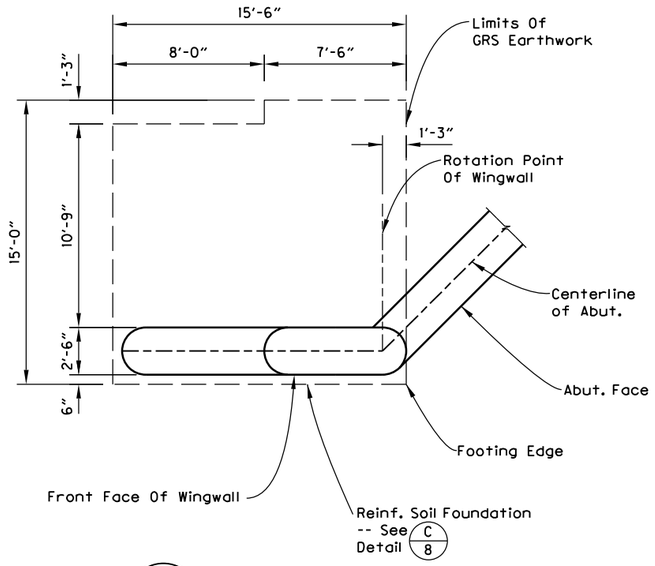
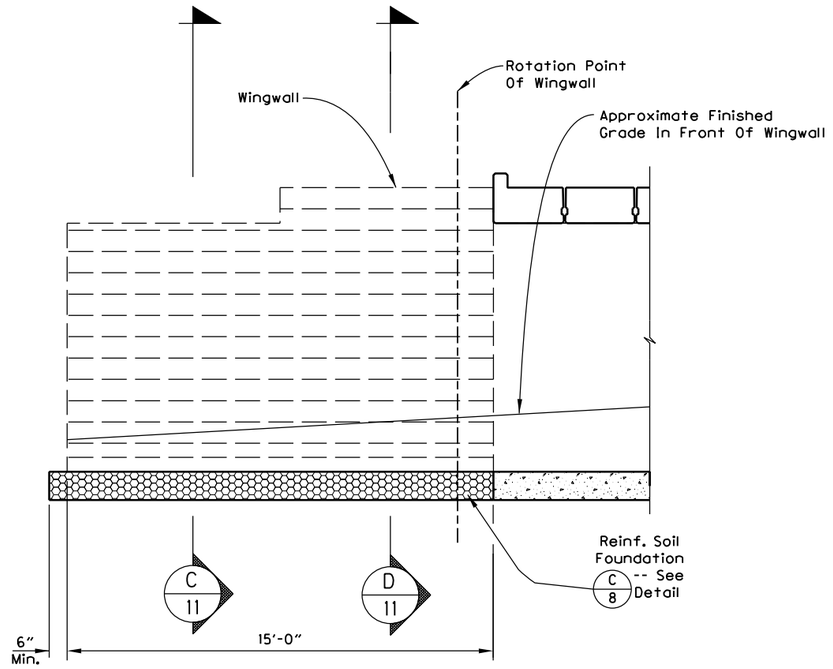


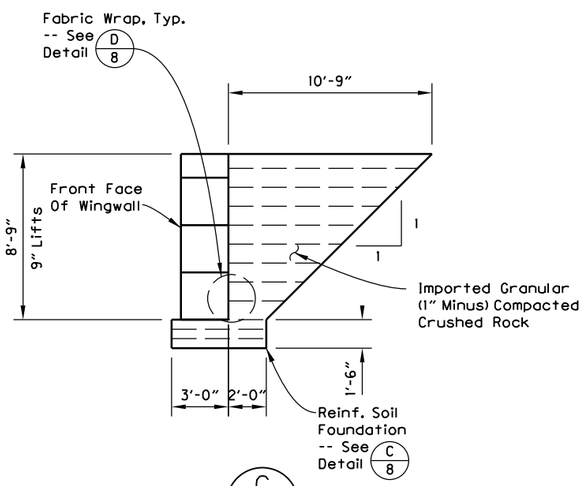
A/11 GRS Wingwall Plan View

1/8" = 1'-0"



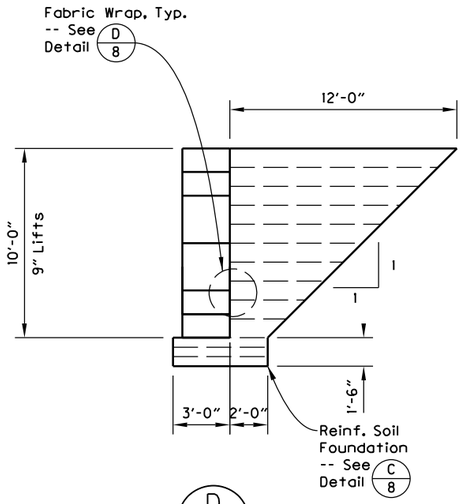
B/11 GRS Wingwall Elevation View

3/16" = 1'-0"



C/11 Section

1/8" = 1'-0"



D/11 Section

1/8" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge

CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DRAFTER:	DESIGNER:	CHECKER:	REVIEWER:
Liam Kucey	Liam Kucey	Josh Goodall	Brett Karnes

TITLE: WINGWALL GRS DETAILS "D"

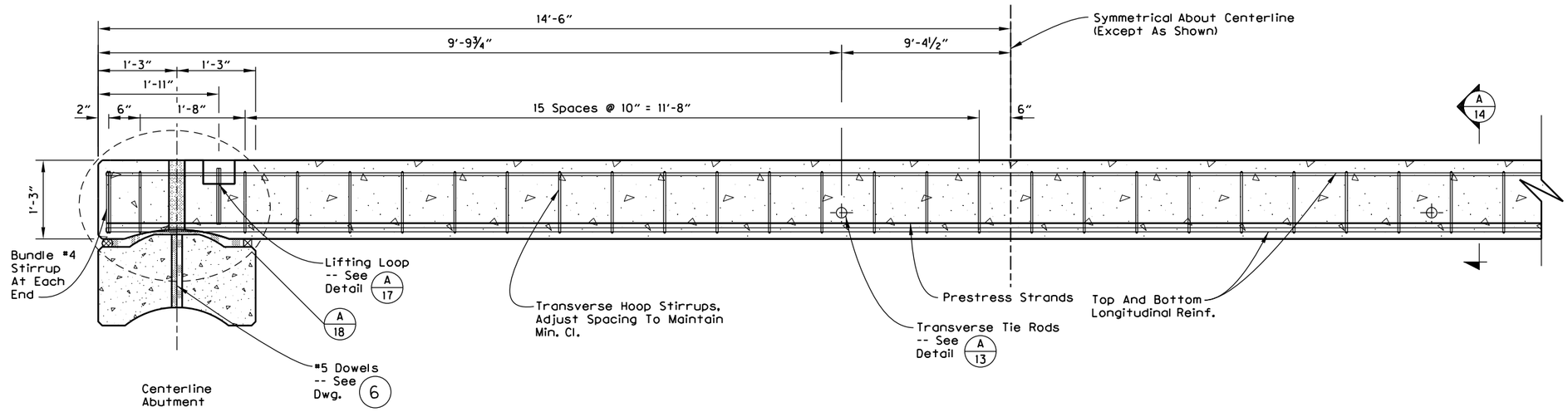
DRAWING DATE: 4th June 2021

PROJECT NO. 21-3051.07

SHEET 11 OF 19

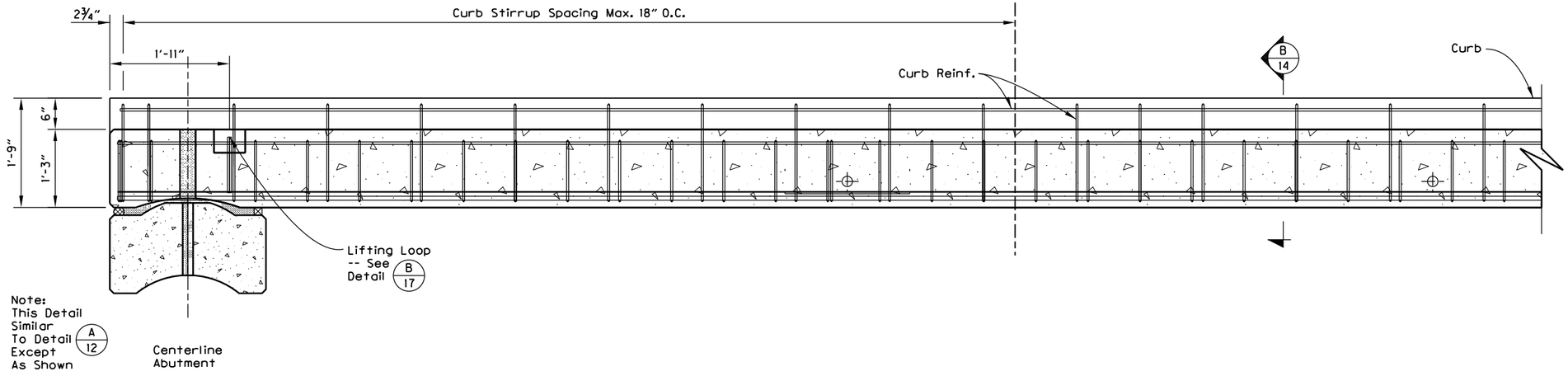
DATE	REVISION	BY

ACCOMPANIED BY DWGS.



A 12 Longitudinal Section Of Concrete Interior Plank -- Type "2"

½" = 1'-0"



B 12 Longitudinal Section Of Concrete Edge Plank -- Type "1"

½" = 1'-0"

Notes:
1. Structure Shown Flat, For Slope, See Project Plans.
2. All Longitudinal Reinforcing Bars Extend Full Length Of Plank.
3. Adjust Main Stirrups As Required To Place Transverse Tie Rods. Do Not Exceed Maximum Stirrup Spacing Shown (Add Additional Stirrups If Necessary)

C 12

Precast Concrete Bridge
Deck Plank Dimensions Schedule

Unit Mark	Total Count	Detail	Main Stirrup Number	Curb Stirrup Number	Extra Guardrail Stirrup	Unit Weight
2	4	A/14	38	N/A	N/A	14 kips
1	2	B/14	38	20	N/A	15 kips

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

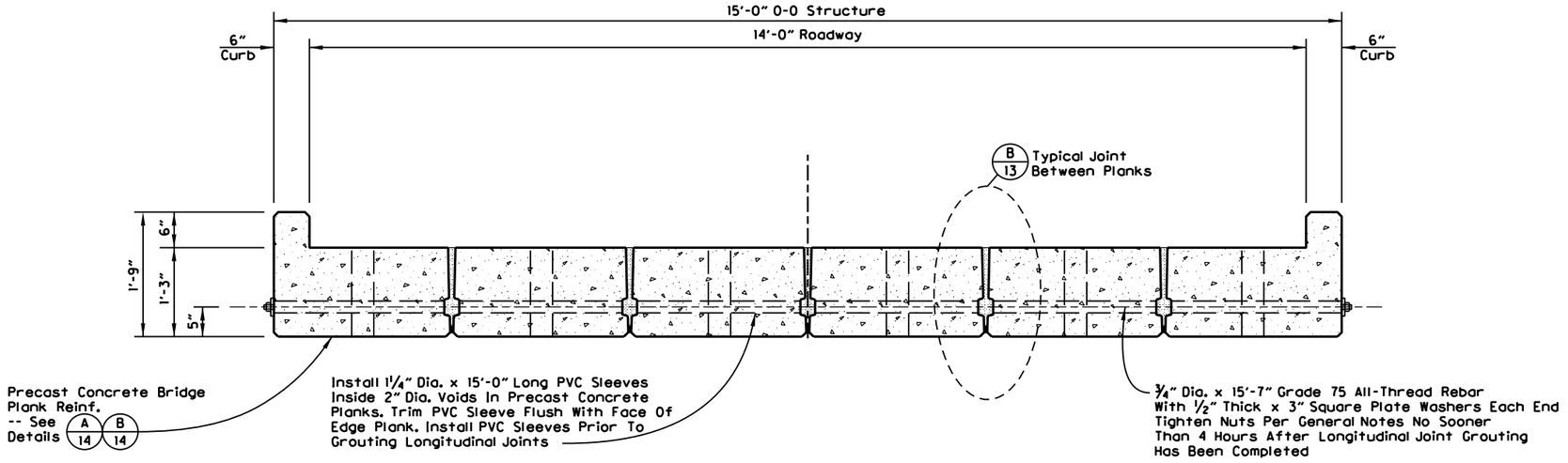
DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

TITLE: LONGITUDINAL SECTION OF CONCRETE PLANKS

PROJECT NO. 21-3051.07
SHEET 12 OF 19
DRAWING DATE: 4th June 2021

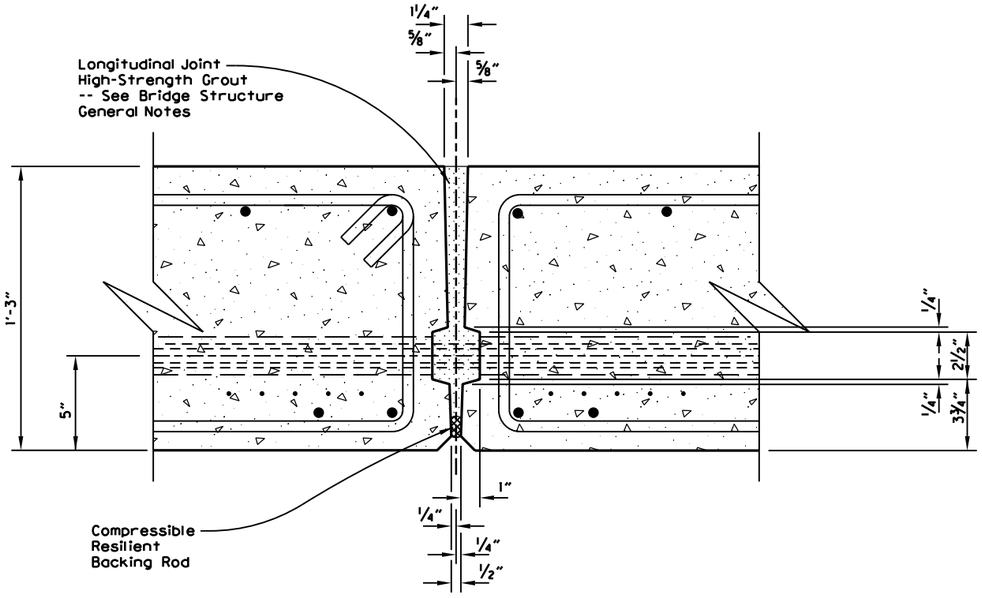
DATE	REVISION	BY

ACCOMPANIED BY DWGS.



A/13 Typical Transverse Tie Rod Across Full Width Of Precast Concrete Plank Bridge Deck

¾" = 1'-0"



B/13 Typical Longitudinal Key Joint Between 15" Thick Precast Concrete Bridge Planks

1½" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge

CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DATE	REVISION	BY

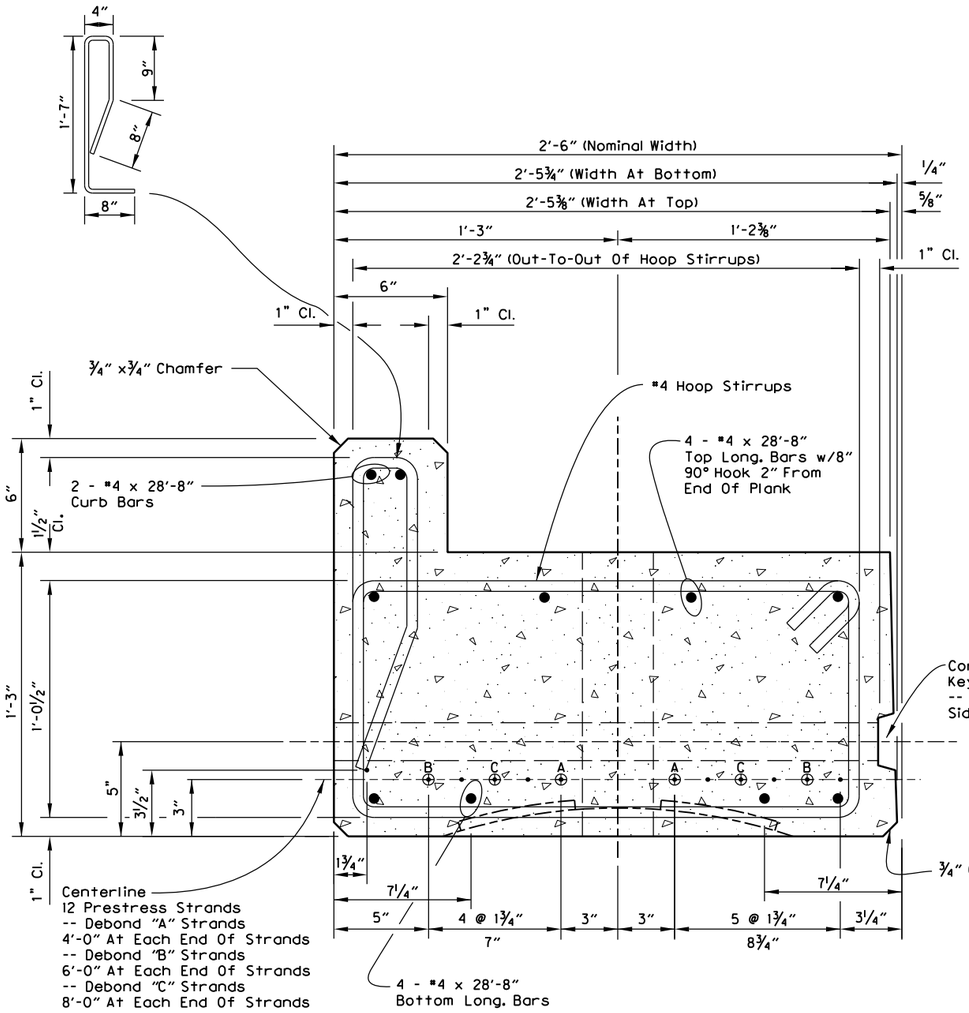
DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes

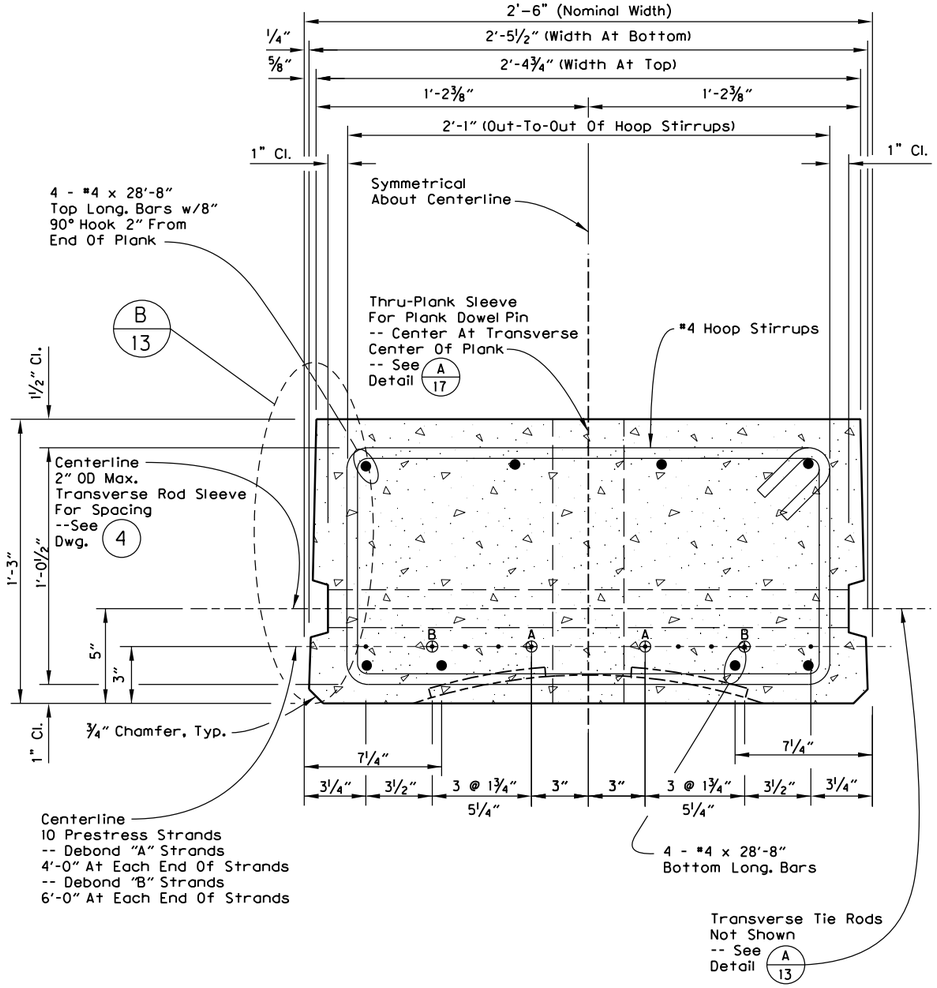
TITLE: MISCELLANEOUS PRECAST BRIDGE DECK PLANK DETAILS

DRAWING DATE: 4th June 2021
PROJECT NO. 21-3051.07
SHEET 13 OF 19

ACCOMPANIED BY DWGS.

Legend:
⊕ Debonded Strand





Note:
-- Similar To Detail B/14 Except As Shown

A/14 Transverse Section Thru Prestressed Edge (Curb) Planks
1½" = 1'-0"

B/14 Transverse Section Thru Prestressed Interior Planks
1½" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

TITLE: TRANSVERSE PRECAST CONCRETE BRIDGE DECK PLANK SECTIONS

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes
PROJECT NO. 21-3051.07
SHEET 14 OF 19
DRAWING DATE: 4th June 2021

DATE	REVISION	BY

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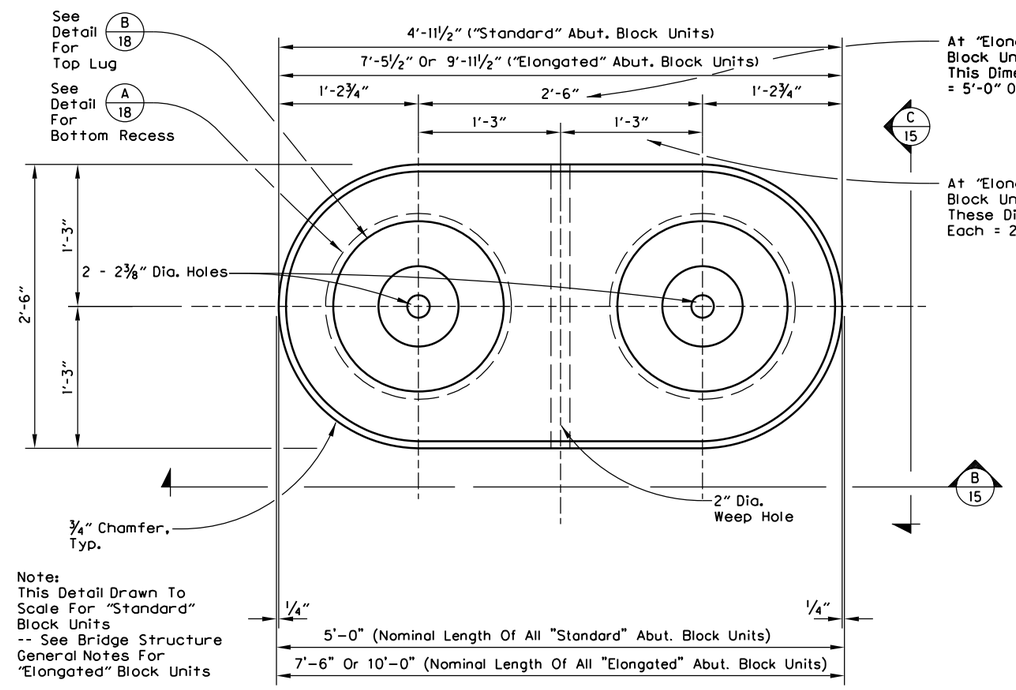
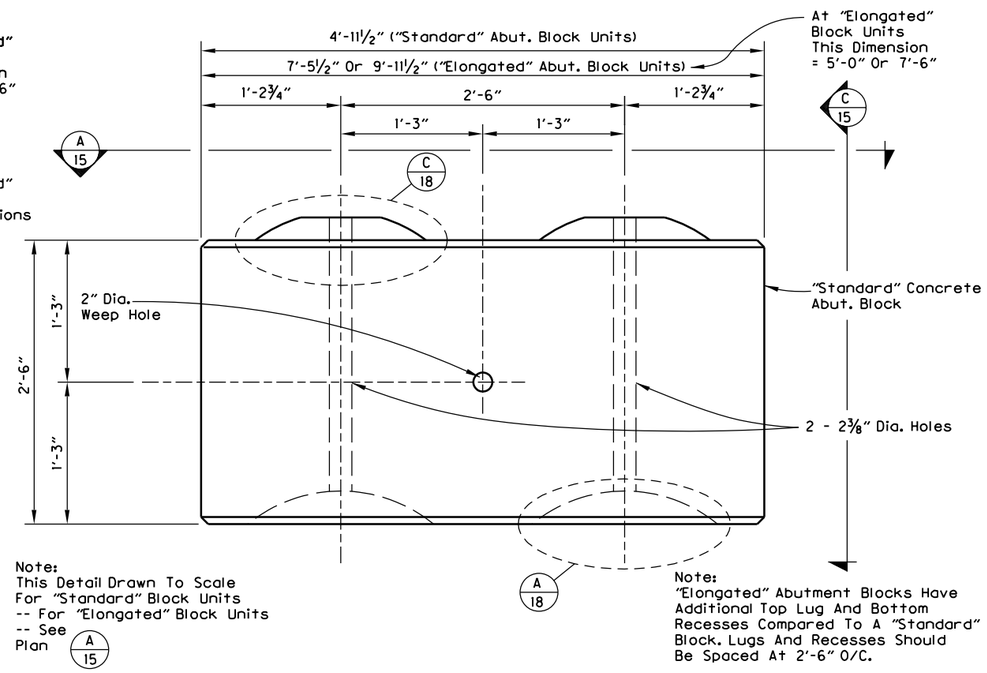


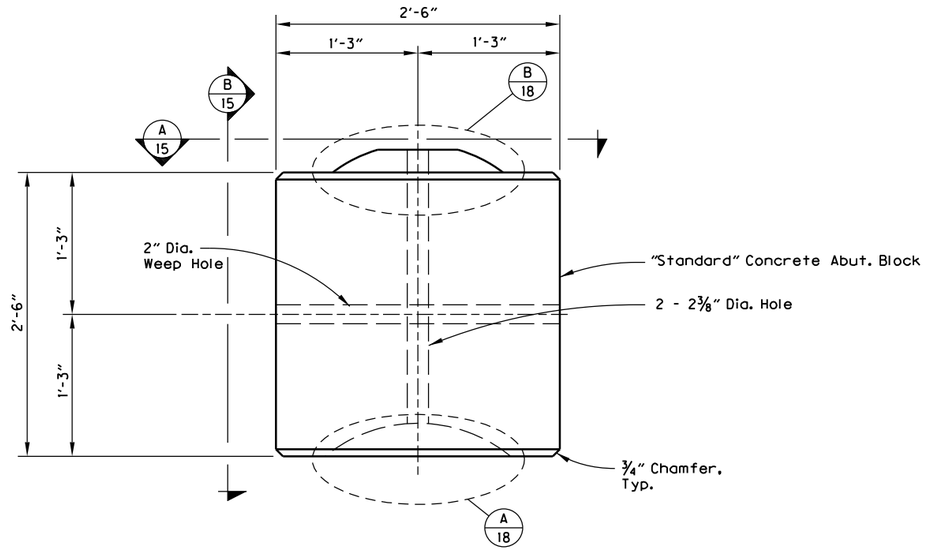
A 15 Top View Of "Standard" And "Elongated" Abutment Blocks

¾" = 1'-0"



B 15 Front View Of "Standard" And "Elongated" Abutment Blocks

¾" = 1'-0"



C 15 Side View Of "Standard" Abutment Block

¾" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

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QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge

CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DESIGNER:	DRAFTER:	CHECKER:	REVIEWER:
Liam Kucey	Liam Kucey	Josh Goodall	Brett Karnes

TITLE: TYPICAL "STANDARD" PRECAST CONCRETE ABUTMENT BLOCK DETAILS

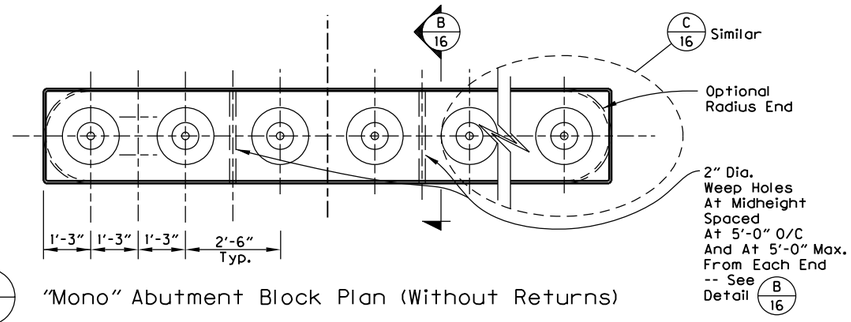
DRAWING DATE: 4th June 2021

PROJECT NO. 21-3051.07

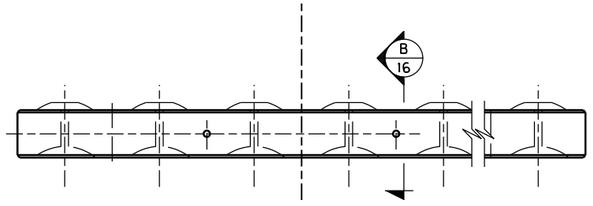
SHEET 15 OF 19

BY	DATE	REVISION

ACCOMPANIED BY DWGS.

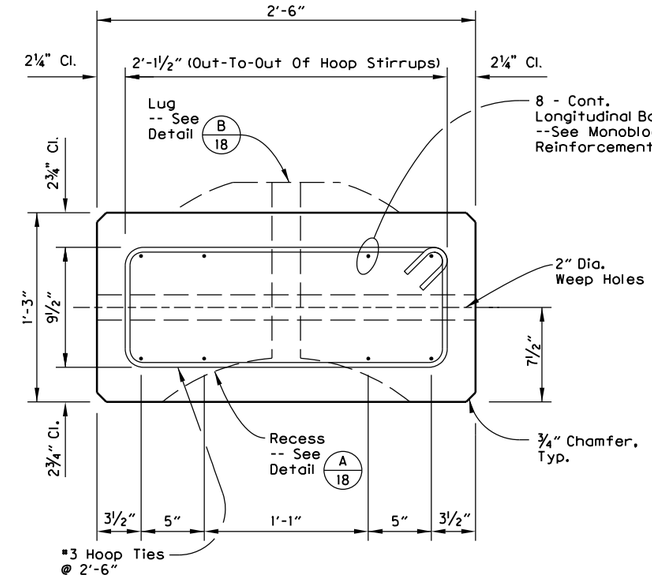


2/A "Mono" Abutment Block Plan (Without Returns)



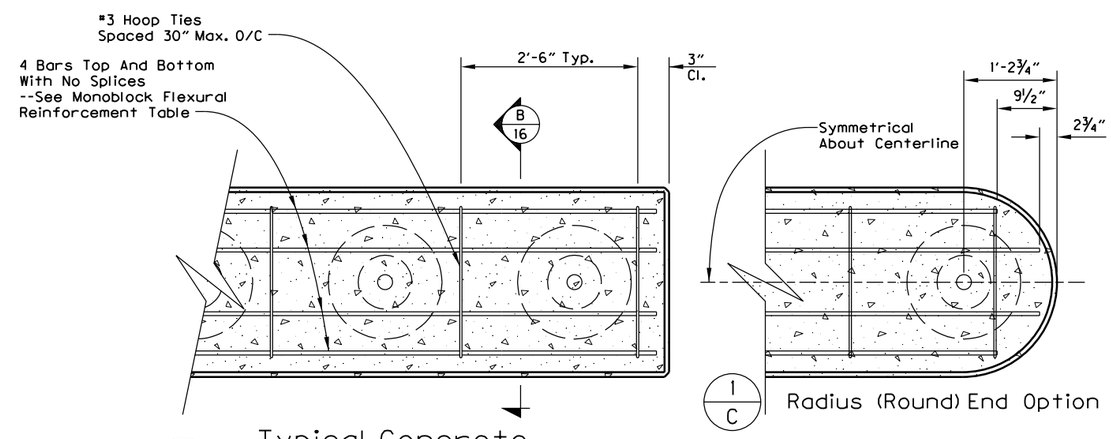
1/A Typical "Mono" Abutment Block Elevation

A/16 Plans And Elevation
Of Modular Concrete "Mono" Abutment Block Units
1/4" = 1'-0"



B/16 Typical Section Thru "Mono" Abutment Block
1" = 1'-0"

Monoblock Flexural Reinforcement	
Block Length	Bar Size
L ≤ 15'-0"	#4
15'-0" < L ≤ 22'-6"	#5
L > 22'-6"	#6



C/16 Typical Concrete
Mono Abutment Block Reinforcing
1/2" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

TITLE: TYPICAL "MONO" PRECAST CONCRETE ABUTMENT BLOCK DETAILS

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes
DRAWING DATE: 4th June 2021
PROJECT NO. 21-3051.07
SHEET 16 OF 19

DATE	REVISION	BY

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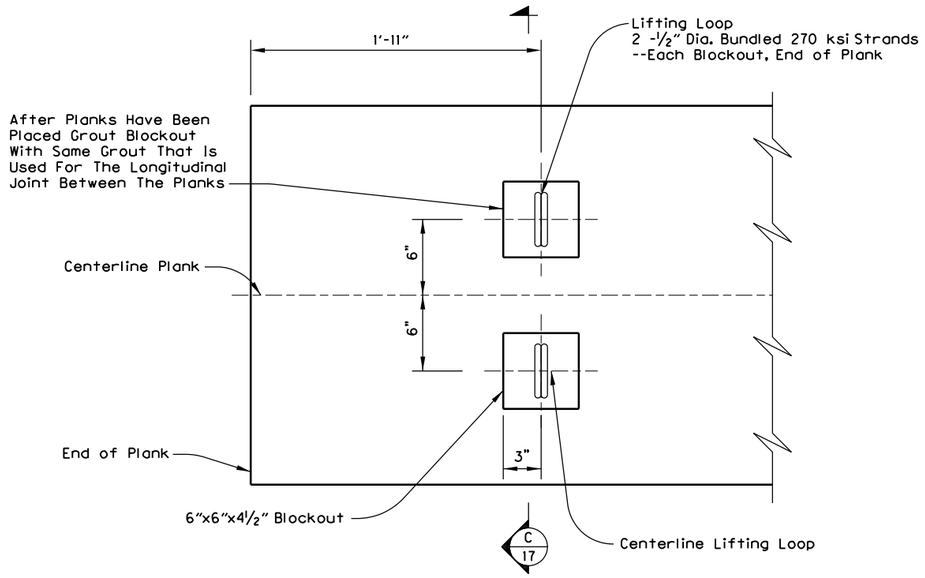
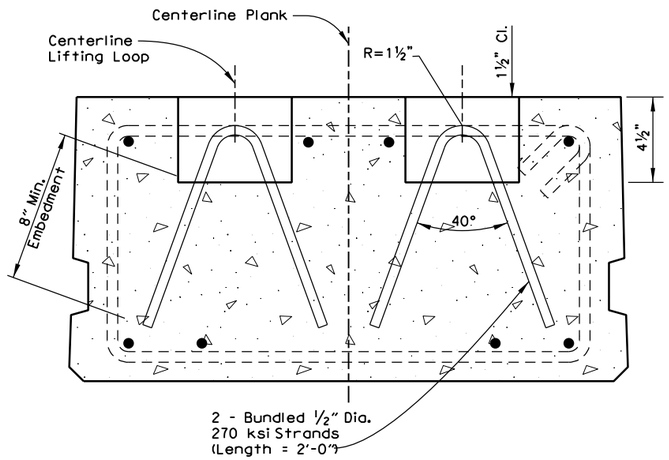
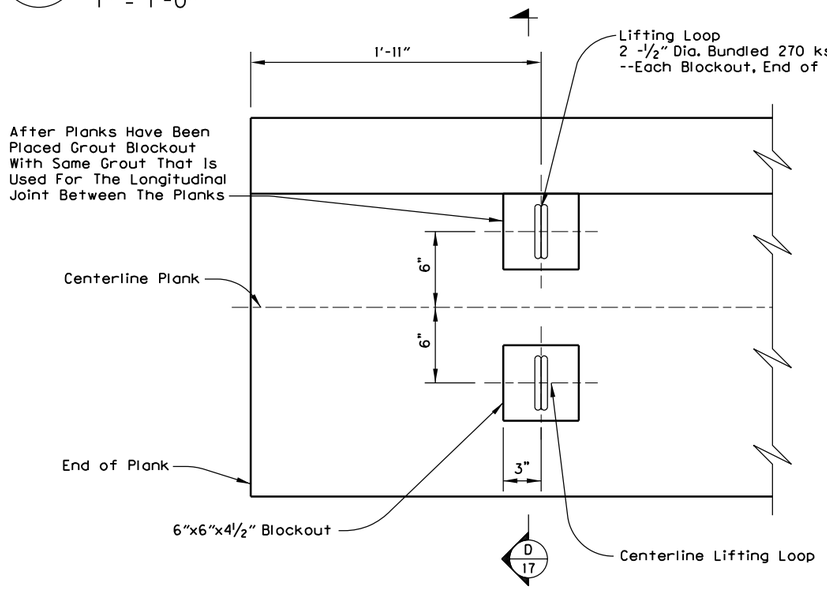


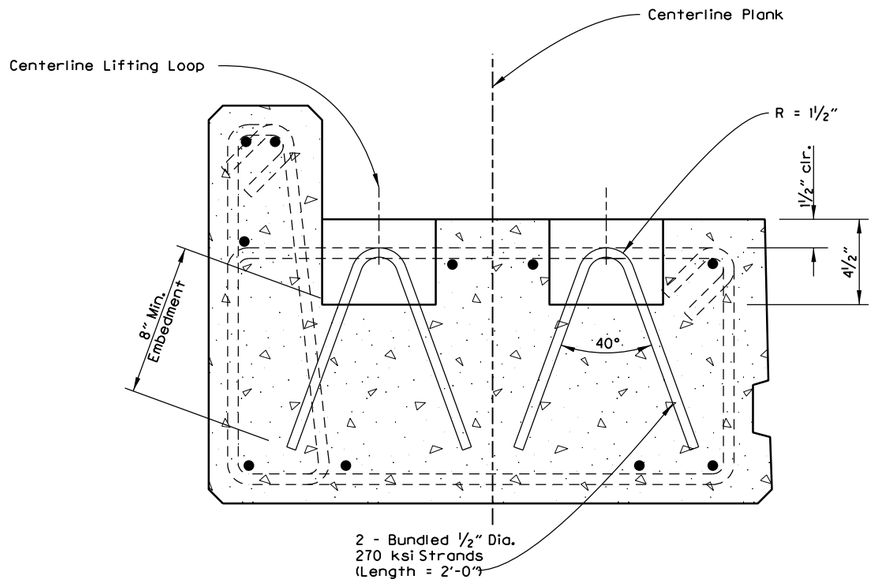
A 17 Lifting Loop Plan View
Interior Plank
1" = 1'-0"



C 17 Lifting Loop Section View
Interior Plank
1½" = 1'-0"



B 17 Lifting Loop Plan View
Exterior Plank
1" = 1'-0"



D 17 Lifting Loop Elevation View
Exterior Plank
1½" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

TITLE: ABUTMENT BLOCK DETAILS #1

DESIGNER: Liam Kucey
DRAWN: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes
PROJECT NO. 21-3051.07
SHEET 17 OF 19
DRAWING DATE: 4th June 2021

DATE	REVISION	BY

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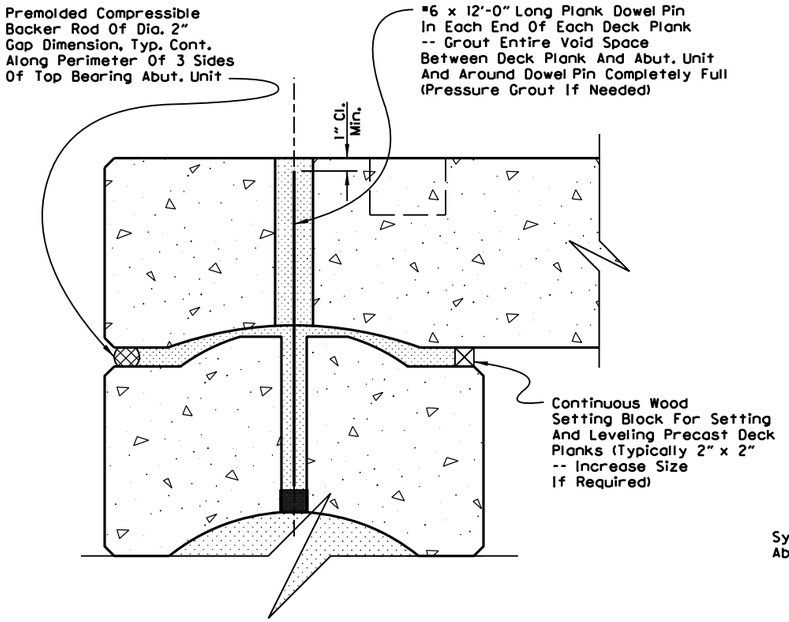
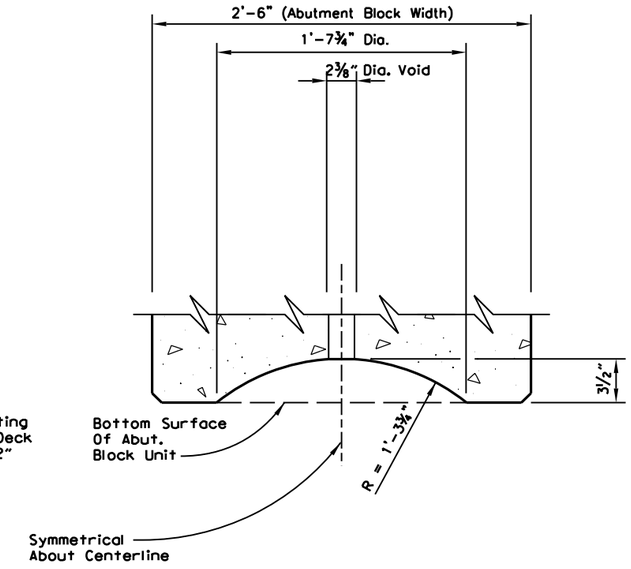
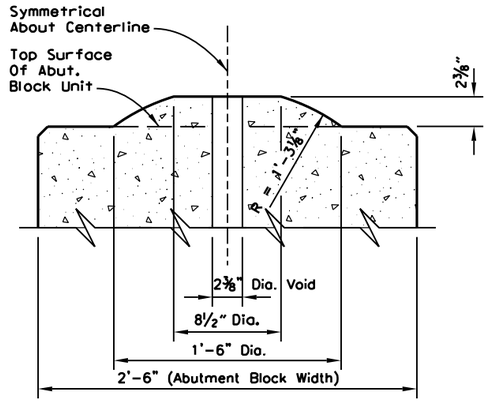


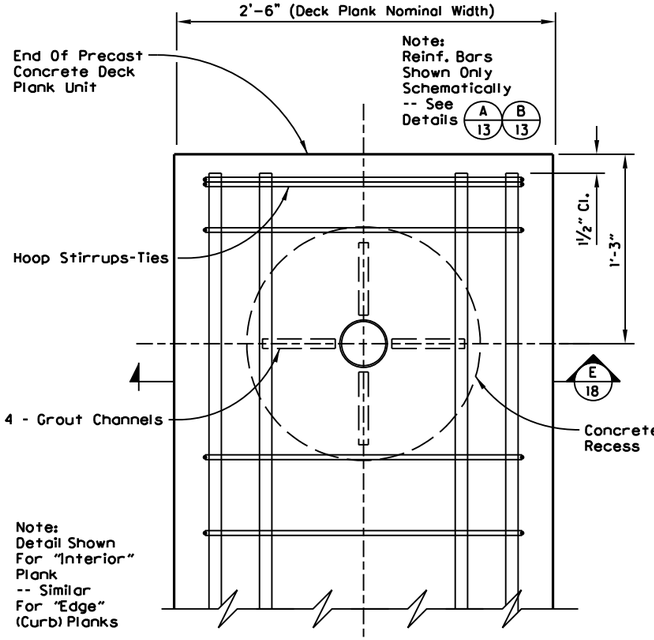
A/18 Bridge Plank To Abutment Connection
1" = 1'-0"



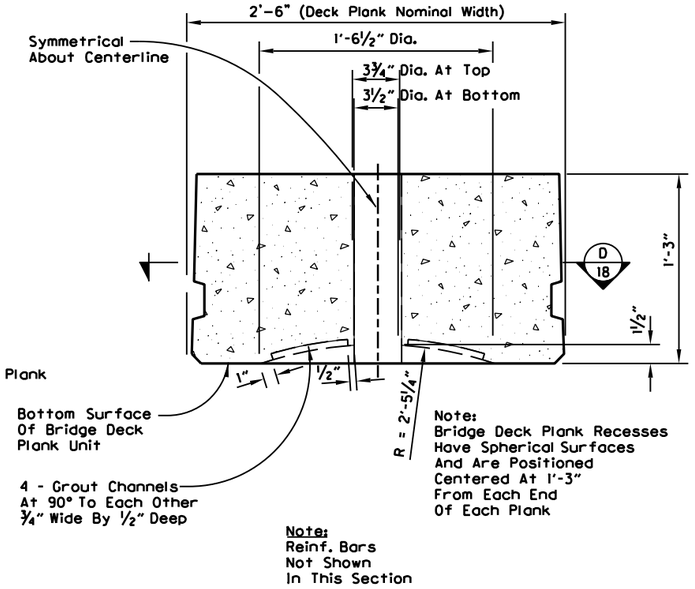
B/18 Typical Abutment Block Recess On Bottom Of All Abutment Blocks
1" = 1'-0"



C/18 Typical Abutment Block Lug On Top Of All Abutment Blocks
1" = 1'-0"



D/18 Plan View Of Recess At Each End On Bottom Of Each Deck Plank Unit
1" = 1'-0"



E/18 Typical Recess At Each End On Bottom Of Each Deck Plank Unit
1" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
digitally signed
51303
REGISTERED
PROFESSIONAL ENGINEER

RENEWS: 01-05-2023

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

PROJECT: White Creek Bridge
CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

DATE	REVISION	BY

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
CHECKER: Josh Goodall
REVIEWER: Brett Karnes
PROJECT NO. 21-3051.07
SHEET 18 OF 19
DRAWING DATE: 4th June 2021

TITLE: BRIDGE PLANK AND ABUTMENT DETAILS #2

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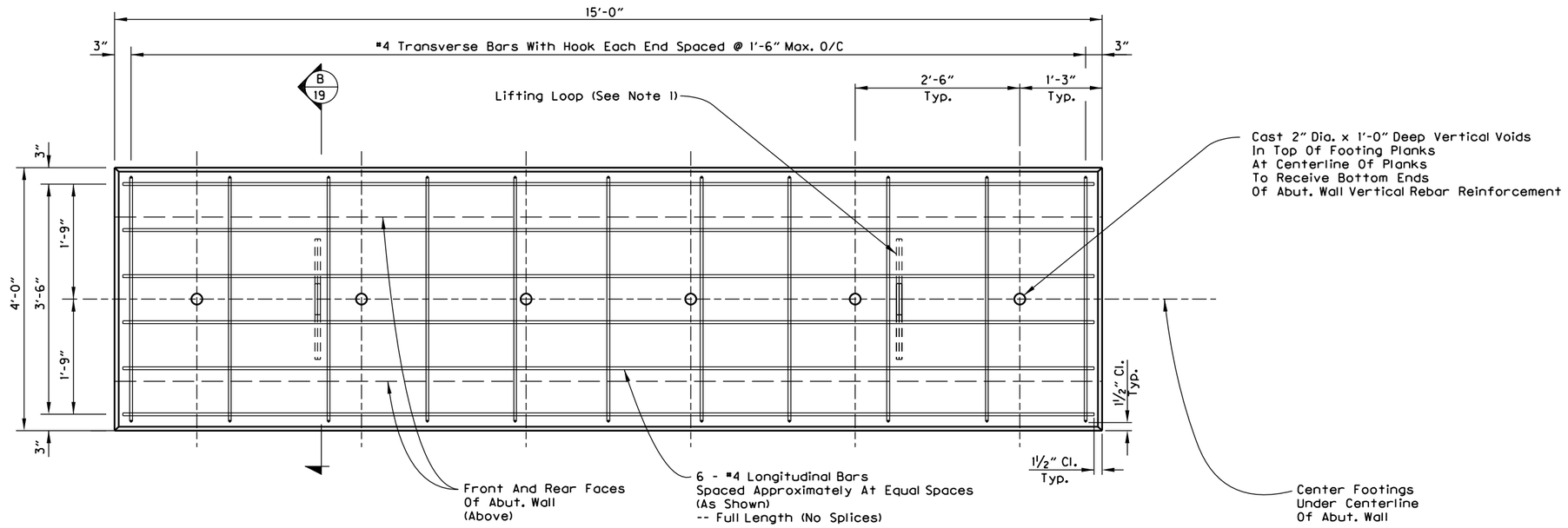


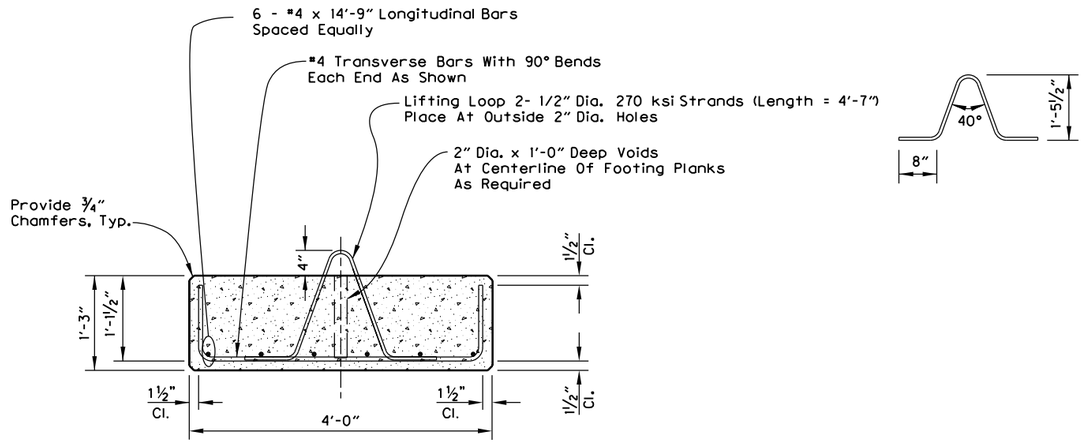
A
19

Plan View - Precast Concrete Footing Planks

½" = 1'-0"

Note:

1. After Placement of Footing Plank Cut Lifting Loop Flush With Top Of Concrete. If Another Abutment Block Is Placed Over The Top Of Lifting Loop The Abutment Block Recess Shall Be Grouted. If No Abutment Block Is Placed Above Lifting Loop Remove Lifting Loop 1½" Below Top Of Concrete And Fill Void With Grout.



B
19

Section View
Precast Concrete Footing Planks

½" = 1'-0"

JOSHUA K. GOODALL
STATE OF WASHINGTON
51303
REGISTERED
PROFESSIONAL ENGINEER
digitally signed

RENEWS: 01-05-2023

PROJECT: White Creek Bridge

CLIENT: Pacific Bridge And Construction, Inc. -- Sandy, Oregon -- 503-668-4798

QUINCY ENGINEERING, INC
670 Hawthorne AVE SE, Suite 110
Salem, OR 97301 - 4996
VOICE: 503-763-9995
FAX: 503-763-9981
EMAIL: JOSHG@QUINCYENG.COM

DATE	REVISION	BY

DESIGNER: Liam Kucey
DRAFTER: Liam Kucey
REVIEWER: Brett Karnes
CHECKER: Josh Goodall

TITLE: BRIDGE FOOTING
PRECAST CONCRETE PLANKS

DRAWING DATE: 4th June 2021

PROJECT NO. 21-3051.07

SHEET 19 OF 19

ACCOMPANIED BY DWGS.

APPENDIX D

POLLUTION PREVENTION

POLLUTION PREVENTION: TESC and SPCC PLANS and IMPLEMENTATION

Description

This work shall provide for preparation, implementation, and removal of a Temporary Erosion Sediment Control (TESC) plan and for the preparation and implementation of a Spill Prevention Control and Countermeasure (SPCC) plan in accordance with specifications in Exhibit B, page 3.

1. The Contractor shall submit a TESC for the project to the Owner for approval. The TESC must satisfy the requirements of the Washington Department of Ecology NPDES Stormwater General Permit for Construction Activity and all other applicable permits. The TESC included in the Drawings and described herein is intended to provide a baseline for sediment and erosion control and does not ensure that the standards established by any applicable permits will be met. The Contractor may use these measures or alternative measures of his own design to ensure satisfactory performance and that the erosion control requirements of all applicable permits are met. The contractor shall be named as the permit holder. The contractor shall be responsible for implementing, inspecting and filing reports, maintaining, replacing, and removing TESC and SPCC measures. The plan shall include the name, address and 24-hour contact number of the person responsible for erosion prevention and sediment control measures.

2. A spill Containment Kit shall be on site and crews shall be trained in its use. Measurement "TESC, SPCC Plan and Implementation," including the above amendments to the item will be measured by lump sum.

APPENDIX E

Glossary of Terms

CONTRACTOR	Contractor to be selected for the performance of work under this Bid Package.
Contractor Responsibilities	See Section II of this Contractor's Bid Package.
Equipment Requirements	See Section IV of this Contractor's Bid Package.
FINAL RELEASE	See last page of this Contractor's Bid Package.
Fish Window	The in-water work window specified under "Timing Limitations" in the YN Hydraulic Project Approval, shall apply.
Indian Preference Requirements	See Appendix E.
Mobilization	Arrival of all equipment and personnel at work site in working order.
OWNER	Yakama Nation
Permits	Tribal permits that list conditions under which the work can be performed. These include, but are not necessarily limited to, the permits identified in Appendix F.
Personnel Requirements	See Section IV of this Contractor's Bid Package.

APPENDIX F

Insurance Requirements and Other Documents Requiring Execution

1. Required Insurance: Contractor, at its sole cost and expense (including the cost of all deductibles), shall procure and maintain in force while performing services for Yakama Nation the following insurance:

   a. Workers Compensation Insurance, covering applicable statutory benefits in the State where the work is being performed; Employer's Liability Insurance in an amount of not less than $1,000,000 and (when applicable) the policy will be endorsed to cover benefits.

   b. Commercial General Liability Insurance, on a per occurrence basis, endorsed to cover on the premises operations, products/completed operations, personal injury and the contractual indemnity obligations of this agreement with limits of not less than $2,000,000 per occurrence.

   c. Automobile Liability Insurance, including Liability insurance coverage for vehicles which may be used by Contractor in connection with this contract, with Limits of Liability of not less than $1,000,000 per occurrence.

   d. Should the Services supplied under this Agreement include waste disposal operations, Pollution or Environmental Impairment Liability Insurance, with limits of not less than $1,000,000 per occurrence. Should Federal, State or local regulatory body require insurance with higher limits, then such requirements shall apply in lieu of the specified $1,000,000 limits.

   The Workers Compensation/Employers Liability Insurance Policy will be endorsed to waive all rights of subrogation against the Yakama Nation.

   The aforesaid policies will be endorsed to provide the Yakama Nation thirty (30) days written notice prior to cancellation or reduction in coverage required by this agreement. The insurance policy shall be issued by insurance companies with a Bests rating of 'B' or better or equivalent and shall be subject to Buyer's approval, such approval not to be unreasonably withheld.

   Contractor shall require all Subcontractors performing services under this contract to maintain in force insurance of the types and amounts specified herein.

2. Other Documents Requiring Execution: The bidder must comply with these conditions and must submit with their bid the following signed documents:

   a. Insurance Certificates: Prior to the execution of the Contract, the Bidder shall furnish in a form satisfactory to the Yakama Nation Insurance Certificates covering the faithful performance of the Contract and the payment of all obligations arising thereunder.

   b. Power of Attorney: Attorneys-in-fact who sign Bid Bonds or Contract Bonds must file with each bond a certified and effectively dated copy of the Power of Attorney

APPENDIX G

Additional Conditions

I. Tribal Employment Rights Ordinance (TERO)

Contractor shall not discriminate in the performance of this agreement against any person because of handicap, race, age, religion or gender. Contractor will take affirmative action to ensure that applicants are employed and that employees are treated during employment without regard to their handicap, race, age, religion or gender.

Notwithstanding the above paragraph, contractor shall comply with the Yakama Nation Tribal Employment Rights Ordinance (TERO) and, to the extent feasible and consistent with the efficient performance of this agreement, shall provide employment and training opportunities to Indians that are not fully qualified to perform under this agreement. Further, contractor may be required to submit a TERO compliance plan. For specific details on TERO compliance, the bidder should contact the Yakama Nation TERO Director, P.O. Box 151, Toppenish, Washington, 98948 (Telephone 509-865-5121 ext. 479).

APPENDIX H

Permits

Permit List

Local, State, and Federal permits that govern the performance of the work include but are not necessarily limited to the following:

NOAA Fisheries/USFWS	HIP III
Tribal Historic Preservation Office	SEC 106
Yakama Nation	Hydraulic Permit
Bonneville Power Administration	National Environmental Policy Act
US Army Corps of Engineers	404 Permit

APPENDIX I

RELEASE

That_____

of_____, hereinafter called CONTRACTOR, hereby acknowledges receipt of payment by

_____of_____

_____, hereinafter called OWNER, of the

total sum of _____($_____) and does hereby accept such sum in full payment, satisfaction and discharge of all amounts due and owing to the CONTRACTOR under that certain contract between the CONTRACTOR and the OWNER dated _____, and any amendments, changes, or additions thereto and for all extra work in connection with said contract, or arising out of or in connection with

_____

_____

_____

In consideration of said payment and other good and valuable consideration, CONTRACTOR hereby releases and forever discharges the OWNER, his officers, agents, servants, and employees of and from any and all claims, demands, actions, causes of action, obligations, and liabilities of every kind and character whatsoever, in law or equity, arising from this Agreement, which CONTRACTOR may have or assert against the OWNER, his officer, agents, servants, and employees.

In further consideration of said payment and other good and valuable consideration, CONTRACTOR hereby undertakes and agrees to indemnify and hold harmless the OWNER, his officers, agents, servants, and employees, of and from any and all claims, demands actions, and causes of actions for damages to property or injury to persons, debts, liens, obligations, and liabilities of every kind and character whatsoever, in law and equity, which any person or persons, corporation, partnership, or association may have or assert against the OWNER, his officers, agents, servants, and employees, arising out of, resulting from, or in connection with the performance of said work by CONTRACTOR, or any act or omission by CONTRACTOR in the performance of the aforesaid Agreement.

_____ _____ _____

CONTRACTOR LICENSE NUMBER DATE