Biological Assessment

Gamble Island Bridge Replacement Project
Payette County, Idaho and Malheur County, Oregon

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November 29, 2018

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1 EXECUTIVE SUMMARY

The goal of the proposed project is to replace the existing bridges across the Snake River on Gamble Island Road near Nyssa, OR, because the bridges have been found to be in poor condition due to cracks, corrosion, and scour issues. The U.S. Coast Guard has federal nexus due to the Bridge Permit required due to the navigable waterway. The purpose of this Biological Assessment is to assess the effects of the proposed actions on Federally-listed species that occur in the project area.

A bridge inspection report, completed July 12, 2016, indicates both bridges are in poor condition with various cracks, corrosion, and scour issues, which led to the proposal to replace the structures.

The Snake River physa snail—a Federally-endangered species designated by the U.S. Fish and Wildlife Service and protected by the Endangered Species Act—is the only endangered species that occurs in the area that will be impacted by the project (see Table 1). There are no Federally-listed salmonid species that are known to occur in this stretch of the Snake River as declared by the National Oceanic and Atmospheric Administration (NOAA) Fisheries (NOAA Fisheries website). Construction activities will be conducted as to avoid harassing or harming any nesting birds as prohibited by the Migratory Bird Treaty Act of 1918.

The determination for this project is: May Affect, Not Likely to Adversely Affect Snake River physa snails.

Table 1. Summary of determinations for Snake River physa snail.

Common Name	Scientific Name	Status	Determination of Effects	Brief Explanation of Determination
Snake River physa	*Haitia (Physa) natricina*	Endangered	May Affect – Not Likely to Adversely Affect	The Snake River physa occurs in lower densities in its downstream distribution, coinciding with an increase in silt and macrophytes in the lower reaches of the Snake River above the Hells Canyon dam complex. Though there is a chance that harm to these snails may occur, it is unlikely due to the low density and low probability that these snails are in the action area.

2 PROJECT DESCRIPTION

The Gamble Island Bridge Replacement Project is a privately funded project on the Snake River in Payette County, Idaho and Malheur County, Oregon. The proposed project consists of replacing two bridges that carry Gamble Island Road over the Snake River and provide access to private property on Gamble Island (see Figure 1). A bridge inspection report, completed July 12, 2016, indicates both bridges are in poor condition with various cracks, corrosion, and scour issues, which led to the proposal to replace the structures.

Although privately funded, the project is located within and over the Snake River, a navigable waterway under the jurisdiction of the U.S. Coast Guard. Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1976 placed the navigable waters of the Unites States under the control of U.S. Coast Guard to prevent any interference with their navigability by bridges or other obstructions except by express permission of the Unities States. The Gamble Island Bridge Replacement Project will require a Bridge Permit from the U.S. Coast Guard for the modification of an existing bridge across a navigable water of the United States. This Bridge Permit creates a federal nexus with the U.S. Coast Guard acting as the lead federal agency.

2.1 Location

The project area is located in Payette County, Idaho and Malheur County, Oregon northeast of the town of Nyssa, Oregon (Figure 1). At this location, Gamble Island Road crosses two channels of the Snake River at two locations. The bridges are located in the Section 31 of T7 N, R 5W, Nyssa ID-OR.

2.2 Action Area

The action area for this project is defined as 200 feet upstream and 600 feet downstream of areas in the water that may have the riverbed directly disturbed. The action area incorporates disturbance and sediment movement. The action area also includes proposed staging areas, and the construction access approach to the river.

Each of the following actions is presented in the order in which the work will initiate.

2.3 Staging

2.3.1 **Dry Staging**

The staging area for construction activities will comply with a 'No Effect' determination for all endangered species. All Best Management Practices (BMPs) will be followed at the staging area (see BMP Section below). Several areas have been identified as possible sites for staging (see Figure 2).

2.3.2 **River Access**

River access will be from the river bank around the bridge. A temporary access road will be constructed to access the barge or temporary bridge (see Section 2.5, below).

2.4 In-Water Access with Barge or Temporary Work Platforms

Either barges or temporary work platforms will be used to access the river and facilitate construction on the new bridges and demolition on the existing bridges.

2.4.1 **Barge and Boats**

A typical barge is 30 feet x 40 feet with two to four spud piles and can operate in four feet of water. Each spud pile is a steel pipe, typically 24 inches in diameter and 40 feet in

length, which weighs about 6100 pounds and is used for anchoring the barge in place. The spuds are attached to the barge with a spudwell, which hydraulically lifts the spud pile when the barge needs to move. The number of spud piles required is dependent on the river velocity, with a maximum of four spuds required for higher velocities. Each spud pile anchors the barge by the self-weight of the spud. It is assumed that all four spuds will be required to anchor the barge for disturbance estimates.

It is assumed that the barge will need to be anchored at each new pier two times to facilitate construction, and once at each existing pier for demolition. The barge will therefore be anchored 18 times for construction of the new bridges, and 10 times at the existing bridge structures for demolition (to accommodate the eight piers on existing long span bridge and two piers on the short span bridge). Total river bed impacts are estimated to be: 28 times to anchor the barge for new bridge construction and existing bridge demolition x 4 spuds used per anchor event x 6 square feet of impact per spud placement = 672 total square feet of impact.

If a barge is utilized for construction, boats will be used to transport material to and from the barge and the river bank. These will be launched adjacent to the existing long span bridge at the river bank.

2.4.2 **Temporary Work Platforms**

Temporary work platforms will extend from bank to bank, and will be placed in one of two ways:

Option 1 includes the use of 14-inch H-piles, with three piles per bent, and bents placed every 28 feet. There will be a total of 13 bents placed, with a total of 39 H-piles used to support the temporary work platform.

Option 2 includes the use of two 14-inch H-piles at each bank, and bents composed of two pipe piles. Bents will be placed every 40 feet, with a total of nine bents. A total of 18 pipe piles and four H-piles will be used to support the temporary work platform.

Under both options, all piles will be vibrated into the river bed to the required depth, and tested with an impact hammer to ensure proper placement.

To calculate impacts to the river bed, the work platform Option 1 will be used, as it has the greatest number of anchor points and impact. The placement of 39 H-piles will result in 78 square feet of impact to the river bed, with approximately 2 square feet of disturbance per H-pile.

2.5 New Bridge Construction

2.5.1 **Long Span Bridge**

The new long span bridge will consist of a total of seven piers and two abutments, with all seven of the piers below ordinary high water (OHW) (see Appendix 1). Each pier will consist of five steel H-piles connected by horizontal and diagonal bracing, and topped with a cast-in-place reinforced concrete pier cap. Prefabricated steel superstructure spans consisting of a girder and floorbeam system with steel deck will be placed on the pier caps. A two-inch wearing surface will be laid atop the steel deck.

The H-piles for each pier will be driven to a depth of 50 feet using either a vibratory hammer or a diesel hammer. The vibratory or diesel hammer will operate from a barge or temporary platform (see Section 2.5 above). With five H-piles per pier, and a total of seven piers below the OHW, there will be a total of 35 H-piles driven into the substrate

below OHW. Total river bed impacts will be 70 square feet (35 H-piles x 2 square feet of impacts per pile).

The abutments will be constructed by driving six steel HP 14 x 89 H-piles to 50 feet with cast-in-place reinforced concrete caps. Construction of abutments will require up to nine vertical feet of infill.

Once the abutments and piers are completed, prefabricated steel superstructure spans consisting of a girder and floorbeam system with a steel deck will be placed on the pier caps and function as simple spans (not connected) along with a steel bridge rail.

2.5.2 Short Span Bridge

The short span bridge will consist of a total of two piers and two abutments, with both piers below OHW (see Appendix 1). The remaining portions of the short span bridge will be constructed as those for the long span bridge.

As with the long span bridge, the H-piles for each pier will be driven to a depth of 50 feet using a vibratory or diesel hammer. The vibratory or diesel hammer will operate from a barge or temporary bridge. With five H-piles per pier, and a total of two piers below the OHW line, a total of 10 H-piles will be driven into the substrate below OHW.

2.5.3 Pier Caps, Bridge Deck

The next step consists of placing the pier cap forms, reinforcing the pier caps, and then placing the concrete within the pier cap forms. The pier cap forms will either be constructed of wood or steel and contain wet concrete until it hardens to prevent it from entering the river. Steel reinforcement, consisting of rebar, will be tied within the forms before placing the concrete.

Once the forms are constructed, the concrete will be delivered on a truck via the temporary work platforms or barge, and pumped to the pier caps via a boom operating off of a pump truck. The concrete will be within a contained pipe, and closely monitored to ensure no leaking occurs. Once the pier cap concrete has hardened, bearing pads for the prefabricated superstructure spans will be placed on the pier cap.

Cranes operating from the barge, temporary platform, or river bank will lift the prefabricated superstructure spans and place them on the bearing pads atop the pier caps. Elastomeric joints will be placed between the spans and the concrete wearing surface will then be applied atop the deck.

2.5.4 Bank Stabilization

Bank stabilization will consist of placing filter fabric and rip rap along both sides of the river for both bridges. Prior to placement, dewatering will occur with the use of either a temporary cofferdam (e.g. Super Sacks or Porta-Dams) or sheet piles. Filter fabric and rip rap will be placed across irregularly shaped sections around each new abutment (see Appendix 1). The total estimated area to be dewatered below OHW for the long span bridge, which includes the rip rap areas below OHW, is 2,800 square feet on the west bank and 4,000 square feet on the east bank. The total estimated area to be dewatered below OHW for the short span bridge is 1,500 square feet on the west bank and 2,200 square feet on the east bank. The sum of impacts for dewatered areas to place the rip rap will be 10,500 square feet.

2.6 Bridge Removal

Once the new bridges are constructed, the existing bridges will be removed. This will be done with a crane on the temporary work platform or barge. The bridges will be saw-cut in

sections, with the sections removed by crane. The existing H-pile piers will either be saw-cut at the river bed, or vibrated out with a vibratory hammer, and removed. If saw-cut at the river bed, the portion of each H-pile remaining under the substrate will be left in place. No dewatering will occur to remove the H-piles for the existing bridge.

All demolition debris will be contained, collected, and hauled to an upland waste site and disposed of in an appropriate manner.

2.7 Construction Timing

Bridge construction and demolition is planned to occur in two phases, where the first phase involves building the temporary platforms/barge and constructing the new bridge. The second phase involves demolition of the existing bridge and removal of the temporary platforms/barge. The project duration is anticipated to occur over a one-year time period, during low flows.

2.8 Best Management Practices

2.8.1 Erosion and Sediment Control Plan (Including Spill Prevention Plan)

The contractor will be required to prepare an erosion and sediment control plan (ESCP) as part of the project. The ESCP will include a Spill Prevention Plan (SPP) with BMPs and Spill Prevention Measures. The ESCP will be implemented for the entire construction area and during the duration of construction activities.

2.8.2 Temporary Best Management Practices

BMPs utilized may include but are not limited to sediment traps, silt fences, fiber wattles and compost socks.

All material will be removed and disposed of appropriately offsite in compliance with applicable regulations.

2.8.3 Designated Use Areas

- Project Designated Use Areas (Staging, stockpiling, storage areas including materials and equipment, fueling operations, access roads, source sites, waste sites, construction sites, borrow site operations, and equipment/concrete washouts) shall be located in upland area(s) at least a minimum of 150-ft away from any active water feature or water body. The Contractor shall ensure that BMPs and secondary containments are in place to avoid and minimize erosion and sediment impacts as well as capture 125% of the stored petroleum products, concrete/cement materials or other liquids and hazardous materials to be stored onsite.
- Appropriate BMPs will be employed to confine, remove, and dispose of excess concrete, cement, and other mortars or bonding agents, including measures for washout facilities.
- To the extent practicable, BMPs will be used to contain, control and filter stormwater prior to the water entering the river and/or associated wetlands.
- During construction, all erosion controls will be inspected as required by the current sediment and erosion control plan until the soils are stabilized and the temporary sediment erosion control measures are removed.
- If inspection shows the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary. Sediment must be removed from erosion controls once it has reached 1/2 of the exposed height of the control.

2.8.4 **Restoration and Revegetation Efforts**

During all revegetation activities including wetland restoration, no fertilizer shall be applied within 25 feet of the Snake River or connected waterways. Upland seeding shall be stabilized by the application of mulch, tackifiers, or erosion control blanket products. Use of geotextiles or similar materials may be allowed for stabilization of wetland restoration planting. All mulch and soil conditioners used in seeding methods shall be Certified Noxious Weed Free by a state accredited laboratory.

All areas that contain noxious weed seeds and/or plants shall be avoided or treated and weeds removed from the site prior to disturbance or excavation. Chemicals for treating weeds shall be applied no later than ***two*** weeks before seeding applications and all products shall be approved prior to use. Chemical treatments shall be applied by an applicator licensed by the states of Oregon and Idaho.

The Contractor shall hand pull weeds in riparian areas and where feasible. No herbicides shall be applied to areas within 100 feet of a river, water source, or where there is standing or running water. Hand weeding will be accomplished during the seeding operation and prior to applying seed. Prior to the seeding operation, mechanical and chemical methods can be used to control weeds in areas where directed. Spraying herbicide on open water areas and wetlands shall be prohibited. After planting and seeding operations are completed, hand weeding and/or direct blotter application of chemical weed control shall be used.

2.8.5 **Fertilizer Application**

- For fertilizers to be used in revegetation efforts, no fertilizers will be applied below OHW. In areas above OHW that will have fertilizer applied, measures to contain fertilizers will be in place.
- Fertilizers will be applied in a rate and in amounts consistent with manufacturer's specifications.
- Fertilizers will be applied at the appropriate time of the year for the Gamble Island Bridge location, and timed to coincide as closely as possible with the period of maximum vegetation uptake and growth.
- Fertilizers will be applied to avoid excess nutrients to be discharged by heavy rains.

2.8.6 **Hazardous Waste and Materials**

A SPP will be prepared by the construction Contractor prior to project implementation. The purpose of the plan is to prevent discharges of oil, gasoline, cement, epoxy/mortar, or other foreign materials from leaking or spilling into waters from equipment or other construction activities.

2.8.7 **Spill Prevention Plan**

The SPP plan will include notification procedures, specific clean up and disposal instructions for the different products used and/or available on the project site, proposed methods for disposal of spilled material, and employee training for spill containment. The SPP plan will include the Safety and Data Sheets of any hazardous product or material that will be used for the project, including procedures for inventory, storage, handling, and monitoring. The SPP will contain Spill Prevention Measures to minimize exposure (e.g. leakage, spills, or unwanted discharges) from construction equipment of petroleum products, hydraulic/lubrication fluids, radiator fluids, and other liquids in the stream/river channel. These BMPs include the following:

- Fuel and other chemicals including small fuel cans, oil and hydraulic fluid containers, and concrete chemicals will be stored at least 150 feet from any stream channel or wetland or surface waters and must be within containment systems (e.g. containment cells, berms, retention areas, or a similar combination of BMPs). To the extent practicable, all fueling or other chemical liquid transfer shall take place 150 feet from the river channel or other surface waters/wetlands. If this is not possible due to topographic, construction, or other constraints then the Contractor shall assure that BMPs and containments are in place to could capture 125% of stored fuel or other liquid chemicals/materials.
- Equipment/Vehicles used for or in relation to in-stream work shall be fueled and serviced in an established designated use staging area(s) where possible, except for the barges (which are discussed separately in their own section). When not in use, equipment and vehicles shall be parked in designated use staging areas. Staging areas shall be located to avoid delivery of petroleum products, hydraulic fluids, radiator fluids or other liquids to streams or other water bodies.
- All equipment and vehicles operated within 150 feet of any water body will be inspected daily for leaks or accumulations and build ups of petroleum products, hydraulic/lubrication fluids, radiator fluids or other liquids. Accumulations and leaks shall be corrected and repaired before leaving the staging (and refueling) areas. Equipment shall not have damaged hoses, fittings, lines or tanks that have the potential to release pollutants/hazardous materials into the waterways either directly (e.g. stream contact) or indirectly (e.g. land that is part of the project site and sloped in a manner that drains to a waterway). Daily inspections shall be logged/recorded, repairs and corrective actions documented and copies of such documentation made available to the Oregon Department of Environmental Quality (ODEQ), the Idaho Department of Environmental Quality (IDEQ) and other agencies including USFWS upon request.
- Heavy equipment driven in wet portions of a water body to accomplish work shall be cleaned of dirt and petroleum residue prior to the work, and will utilize vegetable based hydraulic oil.
- Excavation equipment buckets may reach out into the water for the purpose of removing or placing fill materials. Only the bucket of the crane/excavator/backhoe may operate in a water body. The main body of the crane/excavator/backhoe shall not enter the water body.
- Stationary equipment such as motors and pumps, located adjacent to a water body, shall be positioned over drip pans.
- Drip pans shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.
- Oil-absorbing floating booms, and other equipment such as absorption pads /"peanuts" appropriate for the size of the river, shall be available on-site during all phases and duration of construction. Booms shall be placed in a location that facilitates an immediate response to potential leakage, spills or other unwanted discharges of petroleum products, hydraulic fluids, radiator fluids or other liquids to streams or other water bodies.
- Absorption pads or spill containment kits capable of containing the amount of hazardous products on site shall be stored at all times in or near machinery, vehicles and equipment to be operated during construction duration.
- Reporting and remediation guidelines required by ODEQ, IDEQ, Occupation Safety and Health Administration (OSHA), and Environmental Protection Agency

(EPA) will be followed. Any spills that are reported to any of these agencies will also be reported to USFWS.

- Fluid leaks will either be repaired or contained within a suitable waste collection device (e.g. drip pads, drip pans).
- When changing hydraulic lines, or making any repairs, care will be taken to keep all fluids from entering a waterbody or soils.
- Oil, fuel, hydraulic and other hazardous fluids that enter any waters will be absorbed by placing absorbent socks downstream of the spill/leak. To contain spills, absorbent pads and socks will be utilized according to manufacturer's recommendations and available for use on site to clean-up all spills/leaks. All fuel, oil, hydraulic and any other hazardous fluid spills/leaks on walking and working surfaces will be cleaned up within 24 hours.
- After completing the clean-up, all absorbent material will be placed in waste drums or in other suitable containers. The used absorbent material will be transported in the suitable containers to an approved waste facility. Soils contaminated from oil spills must also be placed in drums or other suitable containers and hauled to an approved waste facility for disposal in accordance with Oregon State, Idaho State, and Federal regulations. These materials must be removed from the site within 90 days.
- Any solid hazardous materials (e.g. cement, mortar, epoxy etc.) to be used, stored, generated, and maintained within designated use areas shall be placed under cover such as tarpaulins or roofs and within secondary containment until such time they can be utilized in construction or properly transported to and treated at an approved facility for treatment of hazardous materials.

2.8.8 Barges and Boats

- Upon arrival at the river, the barges/boats shall be completely fueled. If it is necessary to refuel the boats/barges in the water, absorbent pads, socks, or similar BMPs will be available to contain spills in the water. They will be implemented according to manufacturer's recommendations and available for use on site to clean up all spills/leaks.
- All equipment used on the boats and barges shall be checked daily, to prevent and repair drips or leaks, and shall be maintained and stored properly to prevent spills into waters.
- Barges and boats will be lined or have a lip to contain spills. They will be outfitted with spill containment kits to contain 125% of the volume of materials aboard.
- Both the barge and any boats used to transport materials to and from the barge shall have invasive species permits and will have been inspected by Oregon State Marine Board and Idaho Department of Agriculture before use.

2.8.9 Over-Water Construction

- When cement is being delivered to the pier caps, it will be delivered to a contained form. During cement delivery, the forms and hoses delivering the cement will be inspected for leaks. If any leaks occur, work with the line will cease, and the form or line will be repaired before work continues.
- All forms used in construction must be approved by a project engineer to ensure they are structurally sound. This step is a quality control/quality assurance step to minimize the risk of cement spilling into the water.
- During bridge demolition or construction any hard materials (e.g. pieces of the bridge during demolition) $\geq$ 12 inches in diameter that fall into the river will be

removed from the river bottom and disposed of in an approved upland location. Smaller pieces < 12 inches in diameter will be left to be incorporated into the channel sediment.

2.8.10 **Off-Site Project Components**

Off-site project components include staging areas, stockpiling, source areas, and waste sites, and will be environmentally cleared. To be consistent with the overall effects determinations for this action, the off-site project components will meet all conditions referenced above in this document and will **not** be located:

- Within snail habitat or within a minimum of a 150-foot distance from any stream, waterbody, or wetland for vehicle staging, cleaning, maintenance, refueling, and fuel storage. Sites outside of this distance do not need additional review as long as the site cannot discharge to any surface waters.

2.8.11 **Resource Agency Notification**

All resource agencies shall be notified at least two weeks prior to work commencing. This includes:

- Oregon Department of Environmental Quality
- Idaho Department of Environmental Quality
- Oregon Department of Lands
- Idaho Department of Lands
- United States Fish and Wildlife Service
- United States Army Corps of Engineers
- United States Coast Guard

3 DESCRIPTION OF SPECIES AND HABITAT

The Snake River physa is the only listed species that occurs in the area that will be impacted by this project and therefore the only species that will be addressed in this document. There are no Federally-listed salmonid species that are known to occur in this stretch of the Snake River as declared by National Oceanic and Atmospheric Administration Fisheries website.

The Snake River physa (*Physa (Haitia) natricina)* (Taylor 1988) was listed as federally Endangered on December 12, 1992 (USFWS 1992). The presumed causes for the decline and consequent listing of the Snake River physa included habitat modification and fragmentation, water withdrawals, increasing water temperatures, decreasing water quality in the Snake River (e.g. lower dissolved oxygen levels, increased sedimentation, and increased pollutants), existing hydroelectric and other impoundments, as well as the range expansion of the invasive New Zealand mudsnail (*Potamopyrgus antipodarum*).

The Snake River physa is believed to have evolved in the Pliocene to Pleistocene lakes and rivers of northern Utah and southeastern Idaho (Taylor 1982). It is a freshwater mollusk found in the middle Snake River in southern Idaho (USFWS website). It has an ovoid shell with 3 to 3.5 whorls that is amber to brown in color. This species can reach a maximum length of approximately 6.5-7.0 millimeters.

Early studies showed that Snake River physa was found in areas with large boulders, highly oxygenated water, swift current, and at deep portions of the river (Taylor 1982, USFWS 1992). More recent work is shifting the understanding of appropriate Snake River physa habitat toward pebble to gravel, possibly pebble to cobble, substrates, with water

velocities sufficient to keep habitat free of fines and macrophytes (Gates and Kerans 2010, USFWS 2013).

The Snake River physa is understudied and the understanding of its biology and ecology remains limited, including its distribution. However, it is known to exist only within the Snake River and the Bruneau River Arm of CJ Strike Reservoir, which connects with the Snake River. Early reports stated the known modern range of the species to be from Grand View, Idaho (River Mile (RM) 487) to the Hagerman Reach of the Snake River (RM 573) (Taylor 1988 and USFWS 1992). A resurgence in surveying the river for Snake River physa since early studies by Taylor has resulted in a dramatic expansion of the species' range to as far downriver as Ontario in Malheur County, Oregon (RM 368) (USFWS website; Keebaugh 2009; Gates et al. 2013; Idaho Power, unpublished data). Finding from Gates and others (Gates et al. 2013), results from Keebaugh (2009), and Idaho Power Company surveys (USFWS 2013) expand the range of the current distribution of the snail from the previously confined area well upstream of the Gamble Island Road Bridges to potentially downstream from the project.

4 ENVIRONMENTAL BASELINE

4.1 Action Area

The action area is located within the area surrounding the Gamble Island Bridges (approximately RM 383) of the Snake River. The action area is approximately 200 feet upstream and 600 feet downstream of the existing bridges (Figure 1). Although the Snake River physa was initially thought to exist only upstream from Grandview, ID based on reports in the early 1980's (Taylor 1982), the presence of these snails has been verified downstream along the Snake River in multiple sites as far downstream as Ontario, Oregon. Recent surveys conducted by Bionomics in 2016 for this project around the existing Gamble Island Road Bridges found suitable habitat in four out of 41 samples (Smith 2016).

4.2 Subpopulation Characteristics

Historically, the Snake River physa were thought extirpated downstream of Grand View, Idaho (Taylor 1988), and the Gamble Island Road Bridges area is well downstream of what USFWS once defined as the modern range of Snake River physa (USFWS 1992). However, river surveys for aquatic snails in 1998 and 2001 located Snake River physa both up- and down-stream of Gamble Island (Idaho Power, Unpublished Data). These locations represent some of the farthest downstream locations of Snake River physa, and indicate a low density of the species in this section of the river. Additionally, recent presence/absence surveys located within the proposed project area did not result in any Snake River physa, and limited amounts of suitable habitat were present (Smith 2016). While the highest densities reported to date—from 40 to 64 individuals per square meter—were found between Minidoka Dam (RM 675) and Milner Reservoir (RM 663), the nearest known locations of Snake River physa from Gamble Island are 17.1 miles upstream (RM 400.1) and 6.1 miles downstream (RM 367.9) (Idaho Power, unpublished data). Both of these samples included low densities of Snake River physa. With these nearest known occurrences and limited suitable habitat within the action area under the Gamble Island Road Bridges, it is unlikely that Snake River physa are under the bridges or even in the action area.

4.3 Factors Affecting Species in the Action Area

Several factors that have impacts on the Snake River physa include substrate composition, water quality, turbidity, water quantity, and velocity.

4.3.1 **Substrate Composition**

Early information on Snake River physa indicated that this species occurred on the undersides of gravel-to-boulder size substrate in swift currents (Taylor 1982 and Taylor 1988). While this is a large range of substrate types, more current research conducted in the Snake River has correlated gravel substrate to Snake River physa presence (Gates and Kerans 2010). These results may indicate a change in substrate use based on the type of substrate available in a given area (Gates and Kerans 2010). In addition, Snake River physa are shown to prefer habitat composed of either a mixed cobble/gravel or pebble/gravel substrate, and avoid areas with macrophyte presence (USFWS 2013). Similar data from another reach of the Snake River below Minidoka Dam (Gates, unpublished—reported in USFWS 2013) showed similar preference of Snake River physa to pebble and gravel substrates.

4.3.2 **Water Quality and Turbidity**

The Snake River physa was thought to require clean, cold, well-oxygenated, swift water with low turbidity (USFWS 1995). However, more recent work suggests the species can persist in wider ranges of water velocity, dissolved oxygen, and temperature than previously thought (Gates and Kerans 2010, USFWS 2013). Increases in sedimentation (e.g. silt)—which can occur due to decreases in water velocity (see Water Volume and Velocity, below)—can eliminate suitable habitat (USFWS 2013). In addition, changes in turbidity and chemicals that might alter pH would likely impact the Snake River physa.

4.3.3 **Water Volume and Velocity**

Taylor (1982) believed much of the habitat for this species was in deep water beyond the range of routine sampling. Living specimens were found on boulders in the deepest accessible part of the Snake River at the margins of rapids, generally at 0.9 meters (3 feet) or more in depth (Taylor 1982). More recent work shows Snake River physa occurring in depths of water ranging from 0.5-3.0 meters (USFWS 2013), and a majority of samples containing Snake River physa specimens being found in the middle 50% of the river channel, in permanently-watered habitat (Gates and Kerans 2010).

Additionally, sufficient water velocity is needed to keep finer sediments suspended and provide suitable habitat for Snake River Physa. Conditions where flow rates are below 1 meter/second allow for macrophyte development due to an increase in finer sediments and thus available nutrients (Chambers et al. 1991; Biggs 1996). Once macrophytes recruit and establish, they can further lower the local water velocities, resulting in increased deposition of fine sediments (citations within Chambers et al. 1991). Snake River physa avoid areas where macrophyte growth and accumulation of silt occurs (Gates and Kerans 2010 and USFWS 2013).

5 EFFECTS ANALYSIS

5.1 Direct and Indirect Effects

Direct effects are defined as those that result from the proposed action and directly or immediately impact the species or habitats. Indirect effects are those that are caused by or will result from the proposed action, are later in time, and reasonably certain to occur. Direct and indirect effects are discussed below and are categorized as short-term and long-term effects to wetted bottom/substrate composition impacts, subpopulation characteristics,

sedimentation/turbidity, and water quality/pH (summarized in Table 2). Effects by construction activity are presented in the same order as in the project description. Effects are organized into the following categories:

- *Wetted Bottom/Substrate Composition Impacts: Any impacts or alteration to river bed or substrates.*
- *Subpopulation Characteristics: Any actions that result in direct mortality on Snake River physa from crushing or other physical harm.*
- *Sedimentation/Turbidity: Actions that result in the release of sediment or cause turbidity.*
- *Chemical: Actions that alter the chemistry of the water, such as a change in pH.*

5.2 Staging

5.2.1 **Dry Staging**

All staging will occur greater than 150 feet from the river. Potential staging areas are identified in Figure 2. With the use of BMPs (outlined in the Project Description Section, above), sediment, oil, gasoline, stored chemicals, cement, etc., will be contained within the staging area(s) and not make it to the river. Both during the project and after the project is completed, the staging area(s) will be subject to all normal weather conditions, including wind and rain. It is possible that during these events, a small level of sediment may go into the river, but the well-established BMPs should reduce and mitigate any such actions.

5.2.2 **River Access**

The temporary work platforms or barges will be accessed from either side of the existing bridge directly adjacent to the bridge (see Figures 1 and 2). These areas will be cleared of riparian vegetation using a bulldozer and have gravel placed on the ground. These activities may cause increased sedimentation. However, the use of BMPs (e.g. silt fences and fiber rolls) will contain much of the sediment and prevent it from entering the river.

After the project is completed, the riparian areas will be restored and re-planted. The gravel will be removed, and native riparian vegetation will be restored. The gravel will be removed with the use of heavy equipment, and the plants will be put in by hand. This will involve the use of hand tools, and the application of fertilizer. Erosion sediment control structures will remain in place until the soils have stabilized, greatly reducing any sedimentation into the river.

- *Wetted Bottom/Substrate Composition Impacts:* Heavy equipment will be operating near but not in the river, and no direct impacts to the river substrate are expected.
- *Subpopulation Characteristics*: No direct harm to individuals is expected to occur from clearing the vegetation, placing gravel, or the restoration efforts.
- *Sedimentation/Turbidity:* The use of a bulldozer at the river's edge to remove vegetation will likely result in some sedimentation, which could indirectly affect Snake River physa. However, the use of BMPs will reduce this to the extent possible, and any impacts are likely to be greatly reduced.
- *Chemical*: No chemical impacts are associated with clearing the vegetation, placing gravel, or the restoration efforts. Fertilizers will not be used below OHW, and BMPs will be in place to prevent discharge from areas planted above OHW.

5.3 In-Water Access (Barge or Temporary Work Platforms)

Either a barge or temporary work platforms will be used for construction activities over the water. The impacts for each action are explained below.

5.3.1 Barges and Boats

Mortality may occur due to use of the barges and boats. Both the barges and boats may contain chemicals, but BMPs shall cover these risks. The main impacts to Snake River physa snails discussed here are during the anchoring of the barges. The anchoring process could directly crush or harm snails and release sediment into the river. The following may impact Snake River physa:

- *Wetted Bottom/Substrate Composition Impacts:* Anchoring the sectional barge for in-stream work: The barge will be anchored to the substrate using four spuds that will be dropped to the river-bottom to anchor the barge. The estimated impact of each spud is six square feet for a total of 24 square feet of impact per time anchored. The barge will be anchored a total of 28 times for new bridge construction and existing bridge demolition. In summary, impacts will be 672 total square feet of river bottom impact.
- *Subpopulation Characteristics*: Direct harm to individuals may occur during the time when the barge is anchored to the river bottom. The spuds that anchor the barge will be lowered onto the river-bottom and the weight of the spud (6100 pounds) will be used to anchor the barge. When this occurs, it may result in crushing and burying snails, snail eggs, or food sources. The total area affected by the anchoring of the barge is estimated at 672 square feet.
- *Sedimentation/Turbidity:* The anchoring process and removal of the anchors will release turbidity plumes, initiated where the spuds are in contact with the substrate (672 square feet total area).
- *Chemical*: No chemical impacts are associated with the anchoring or use of the barge. BMPs will be in place to contain 125% of the spill volume for liquids used on the barge.

5.3.2 Temporary Work Platforms

Mortality may occur from the use of temporary work platforms. As with the barge, chemicals will be contained on the top of the work platform. Anchoring the platform may cause direct harm or mortality to Snake River physa, or result in sedimentation.

- *Wetted Bottom/Substrate Composition Impacts:* Anchoring the temporary work platforms: A maximum of 39 H-piles will be used to anchor the temporary work platforms. This will result in disturbance of 78 square feet of river bottom.
- *Subpopulation Characteristics*: Direct harm to individuals may occur during the time when the temporary work platforms are anchored to the river bottom, and during H-pile removal. The total area estimated to anchor both temporary bridges is 78 square feet.
- *Sedimentation/Turbidity:* Turbidity plumes may occur during both the anchor placement and removal process where the H-piles are in contact with the substrate (78 square feet total area).
- *Chemical*: No chemical impacts are associated with the anchoring or use of the temporary bridge. BMPs will be in place to contain 125% of the spill volume for liquids and solids used on the temporary bridge.

5.4 New Bridge Construction

Construction of the new bridges may result in mortality of Snake River physa snails. Activities for the new bridge construction include placement of the abutments above OHW, and construction of nine piers; seven on the long span bridge and two on the short span bridge.

5.4.1 Long Span Bridge

- *Wetted Bottom/Substrate Composition Impacts:* The new abutments for the long span bridge are above OHW, and will not require any dewatering. Impacts to the substrate will occur during the placement of H-piles at the new pier locations. There will be seven new piers on the long span bridge, each with five H-piles. With two square feet of impact per pile, there will be a total of 70 square feet of river bed impacts from the construction of the long span bridge.
- *Subpopulation Characteristics*: Any individual Snake River physa present in the two square feet around each H-pile could be crushed.
- *Sedimentation/Turbidity:* The area around each H-pile will cause temporary sedimentation or turbidity. This would happen over 70 square feet.
- *Chemical*: No chemical impacts are associated with the long span bridge construction.

5.4.2 Short Span Bridge

- *Wetted Bottom/Substrate Composition Impacts:* The new abutments for the short span bridge are above OHW, and will not require any dewatering. Impacts to the substrate will occur during the placement of H-piles at the new pier locations. There will be two new piers on the short span bridge, each with five H-piles. With two square feet of impact per pile, there will be a total of 20 square feet of river bottom impacts from the construction of the short span bridge.
- *Subpopulation Characteristics*: Any individual Snake River physa present in the 20 total square feet around all of the H-piles could be crushed.
- *Sedimentation/Turbidity:* The area around each H-pile could cause temporary sedimentation or turbidity. This would happen over 20 square feet.
- *Chemical*: No chemical impacts are associated with the long span bridge construction.

5.4.3 Pier Caps, Bridge Deck

The remaining construction activities occur over water, but will not have impacts on Snake River physa. Activities include building pier cap forms from engineer-approved plans using wood and metal, placing concrete (within the contained form), bearing pads, prefabricated superstructure spans, and framing and placing the concrete deck (contained within engineer approved forms). All of these activities have specific BMPs in place to minimize risk of spills, and to contain any spilled cement.

5.5 Bank Stabilization

Bank stabilization involving the placement of filter fabric and rip rap will take place on both the east and west banks of the Snake River around both of the new bridges. The area below OHW enclosed by the cofferdams is estimated to cover an area of 10,500 square feet, and includes the area to place rip rap and filter fabric.

- *Wetted Bottom/Substrate Composition Impacts:* The bank stabilization efforts, which include dewatering, will occur over a total area of 10,500 square feet.

- *Subpopulation Characteristics*: Any individual Snake River physa within this area will be killed from removal of the existing substrate. The total area is calculated at 10,500 square feet.
- *Sedimentation/Turbidity:* The entire area is a potential source for turbidity. Preventative measures (BMPs) will be in place to reduce any sediment yield effects. These BMPs are directed at minimizing sediment from on-shore disturbances, and will not aid in reducing sedimentation in the stream channel. However, the cofferdam itself will act to reduce sedimentation that might occur from heavy machinery in the area.
- *Chemical*: No chemical impacts are associated with the bank stabilization efforts. Any heavy machinery operating in the area will have hydraulic fluids replaced with vegetable-based fluids (see BMPs for complete measures).

5.6 Bridge Removal

The bridge removal process may have impacts to Snake River physa or their habitat. The H-piles will either be removed by saw-cutting or with the use of a vibratory hammer. The vibratory hammer would have greater impacts than saw-cutting, and is analyzed here.

- *Wetted Bottom/Substrate Composition Impacts:* Removal of the piles by the vibratory hammer would result in movement of the sediment in the river bed.
- *Subpopulation Characteristics*: Direct harm to individuals may occur during the removal of the piles. In the unlikely possibility that Snake River physa are present around the base of the piles individual snails would be harmed by the vibrations of the vibratory hammer.
- *Sedimentation/Turbidity:* Some sediment could be released during the vibratory removal of H-piles. This would be short-term, and in the area directly around each pile.
- *Chemical*: No chemical impacts are associated with the removal of the piles.

Table 2. Effects analysis summary matrix.

	Wetted Bottom/Substrate Composition	**Subpopulation Characteristics**	**Sedimentation/ Turbidity**	**Chemical**
Dry Staging	No Impacts	No Impacts	No Impacts	No Impacts
River Access	No Impacts	No Impacts	Degrade (Short Term), Maintain (Long Term)	No Impacts
Barge or Temporary Work Platforms	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	No Impacts
Long Span Bridge Construction	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	No Impacts
Short Span Bridge Construction	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	No Impacts

	Wetted Bottom/Substrate Composition	Subpopulation Characteristics	Sedimentation/ Turbidity	Chemical
Pier Caps, Bridge Deck	No Impacts	No Impacts	No Impacts	No Impacts
Bank Stabilization	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	Degrade (Short Term), Maintain (Long Term)	No Impacts
Bridge Removal	No Impacts	Degrade (Short Term), Maintain (Long Term)	No Impacts	No Impacts

Though Snake River physa surveys were conducted in this area recently (Smith 2016), it is difficult to quantify project impacts on the Snake River physa because the density of individuals in this area, as in many other areas, is unknown. However, available data seem to indicate that few, if any Snake River physa do occur in the area. The recent surveys did not find either live or dead Snake River physa, and showed low quality habitat in 90% of the action area surveyed. In addition, the nearest Snake River physa individuals were found 17.1 miles upstream and 6.1 miles downstream of the project area. This downstream record is among the farthest known downstream occurrences of Snake River physa. The Snake River generally becomes siltier in the lower reaches, including the project area. Higher densities of individuals and most of the occurrences of Snake River physa are known far upriver.

5.7 Wetted Bottom/Substrate Composition Impacts

Degrade (short-term), maintain (long-term).

The substrate in the project area varies across the river, with areas of fine (i.e. silt, sand), medium (i.e. pebble, gravel), coarse (i.e. boulder, bedrock), and a mix of these (e.g. silt, gravel) with no apparent pattern (see data in Smith 2016). Changes in substrate composition will occur at the time of construction in the action area where the disturbance occurs (see Table 3). An estimated 11,262 total square feet of riverbed impacts are expected to occur as a result of the project activities.

Table 3. Summary of river bed impacts.

Project Component	Basis of Calculated Impact Area			Total Square Feet of Impact
Dry Staging	0	0	0	0
River Access	0	0	0	0
Barge*	28 total times anchored for bridge construction and demolition	4 spuds per time anchored	6 square feet of impact per spud	672*

Project Component	Basis of Calculated Impact Area			Total Square Feet of Impact
Temporary Work Platforms*	39 total H-piles	2 square feet of impact per pile	-	78*
Long Span Bridge Construction	35 H piles (5 per pier, with 7 piers)	2 square feet of impact per pile	-	70
Short Span Bridge Construction	10 H piles (5 per pier, with 2 piers)	2 square feet of impact per pile	-	20
Pier Caps, Bridge Deck	0	0	0	0
Bank Stabilization	Areas below OHW to be dewatered	These areas include where rip rap will be placed	-	10,500
Bridge Removal	0	0	0	0
Total Estimated Impacts				**10,668-11,262**

*Either Temporary Work Platforms or a Barge will be used for this project. Impacts for both have been calculated, and a range of impacts is given here.

5.8 Subpopulation Characteristics

Degrade (short-term), maintain (long-term).

The bridge replacement project is expected to begin after all permits and clearances are received. Work is proposed to occur sometime between 2019 and 2020. Based on current knowledge, the bridge replacement will be performed within and adjacent to an area where Snake River physa may occur, but likely in very low densities (see Species Description and Environmental Baseline, pages 7-9).

There is a low chance that Snake River physa may be directly harmed by the proposed project. Incidental take of this species may occur for the entire length of the project, and potentially for a period of time after the project's termination. However, due to the low densities of the Snake River physa in the vicinity, and the low quality habitat through much of the project area, impacts will be insignificant. Any take will be confined to the project action area—the area directly up and downstream where temporary structures will be anchored in the river, and where construction will occur. The downstream limit of the project action area is set at 600 feet downriver of the project. Proposed actions and associated effects are categorized by the type of impact and are discussed below.

5.9 Turbidity and Sediment

Degrade (short-term), maintain (long-term).

As a result of the proposed construction activities, some increased turbidity and sedimentation will occur. Specifically this will occur during a) clearing of vegetation for

the river access points, b) construction of temporary work platforms/anchoring of the barge, c) construction of the new piers, and d) bank stabilization measures.

Sediment and turbidity monitoring is required and will be put in place during in-water operations of this project. This monitoring will occur upstream and downstream of the project area. If construction results in an increase over background turbidity greater than 50 NTU instantaneously or 25 NTU over ten consecutive days, construction shall be ceased until levels return to below 25 NTU.

In addition to the several months of construction and demolition, there may be a short period of time over 1-2 months where additional sedimentation from the restoration and staging area occurs. However, some sediment from the movement of equipment and vehicles at staging areas, river access point for the barge/temporary work platforms, and for general construction purposes may disturb small amounts of sediment that may result in sediment runoff. However, shortly after in-stream work is complete (1-2 months), the substrate composition should return to its original state.

5.10 Water Quality and Toxicity

No Measurable Effects.

The use of chemicals on this project is such that any chemicals that would alter water quality or create toxic conditions for Snake River physa will be contained and highly unlikely to make it into the water. The chemicals that are in use on this project that would be harmful if entered into the river include fuel and fluids (e.g. hydraulic fluid) in heavy equipment, wet concrete, and chemicals used or stored on the temporary work platforms/barge.

Fuels and fluids from heavy equipment will be contained by the use of BMPs. Such equipment for use in areas with wetted substrate (i.e. in dewatered areas) will have hydraulic fluids replaced with vegetable-base products, and containment measures available in the case of spills of diesel or gasoline. All equipment will be checked daily for leaks and spills before being used, and heavy equipment will not be stored in the wetted areas unless specifically permitted.

Wet concrete in use will be contained as well. Though delivered over water, it will be delivered in a contained hose. Once delivered to the area on the pier caps and bridge deck, the concrete will be contained by the construction forms.

For all chemicals stored or used on the temporary work platforms or barge, containment measures will be in place to ensure that 125% of the volume of such chemicals may be contained.

6 DETERMINATION OF EFFECTS

6.1 Rationale for Determination

The determination for potential effects of this project on Snake River physa considered the following items: 1) existing condition of habitat; 2) importance of affected habitat to Snake River physa, and 3) the degree of predicted effects of project activities after all appropriate provisions and BMPs are applied.

6.2 Importance of Affected Habitat

Snake River physa in this area are near the downstream-most limit of their range, where densities are lower than in other areas. The nearest known occurrences are 17.1 miles

upstream and 6.1 miles downstream (Idaho Power, unpublished data). No Snake River physa were found in recent surveys of the project area (Smith 2016), and a majority of habitat in the project area is low quality. There is a low likelihood that Snake River physa are found in the project area, and if so, they would be present in very low densities.

6.3 Determination of Effects

There is the potential for some effects, but they are tempered by the low probability that Snake River physa would be present. In-stream work will result in disturbance to the river bed. Direct harm or disturbance to Snake River physa may occur as a result of the release of armored riverbed sediment, the use of barge spuds, and/or falling debris. Additionally, indirect impacts such as changes to water quality, reduction of dissolved oxygen from silt or fine sediments, and alteration of substrate composition may occur. However, project design and BMPs should significantly reduce or eliminate sediments, chemical contaminants, and construction debris from entering the Snake River. The probability that these would impact Snake River physa is discountable, due to the low probability that they are present. Therefore, the determination of effect on the Snake River physa as a result of the proposed project actions is "May Affect, Not Likely to Adversely Affect."

Effects Determination Decision Key for Wildlife:

Are there any listed species in the proposed project area?

NO — No Effect

YES — Go to 2

Will the proposed action have any effect whatsoever on the Snake River physa?

NO — No Effect

YES — Go to 3

Does the proposed action have the potential to result in take of Snake River physa?

There is a negligible (extremely low) probability of take of Snake River physa.
Not Likely to Adversely Affect

7 REFERENCES

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8 PHOTOGRAPHS

Photograph 1: View north at the long span Gamble Island Bridge.

Photograph 2: View north at the short span Gamble Island Bridge.

Photograph 3: View from the western bank of the river at the long span Gamble Island Bridge.

Photograph 4: View from the eastern bank of the river at the long span Gamble Island Bridge.

Photograph 5: View from west bank of the Snake River at vegetation near the long span Gamble Island Bridge.

Photograph 6: View east from the center of the long span Gamble Island Bridge.

Photograph 7: View west at the vegetation near the east bank of the short span Gamble Island Bridge.

Photograph 8: View west at the west bank of the short span Gamble Island Bridge.

Figure 1 – Gamble Island Bridge Replacement Project Overview Map.

Figure 2 – Gamble Island Bridge Action Area and Possible Staging Areas.

Figure 1: Gamble Island Bridge Replacement Project Overview Map

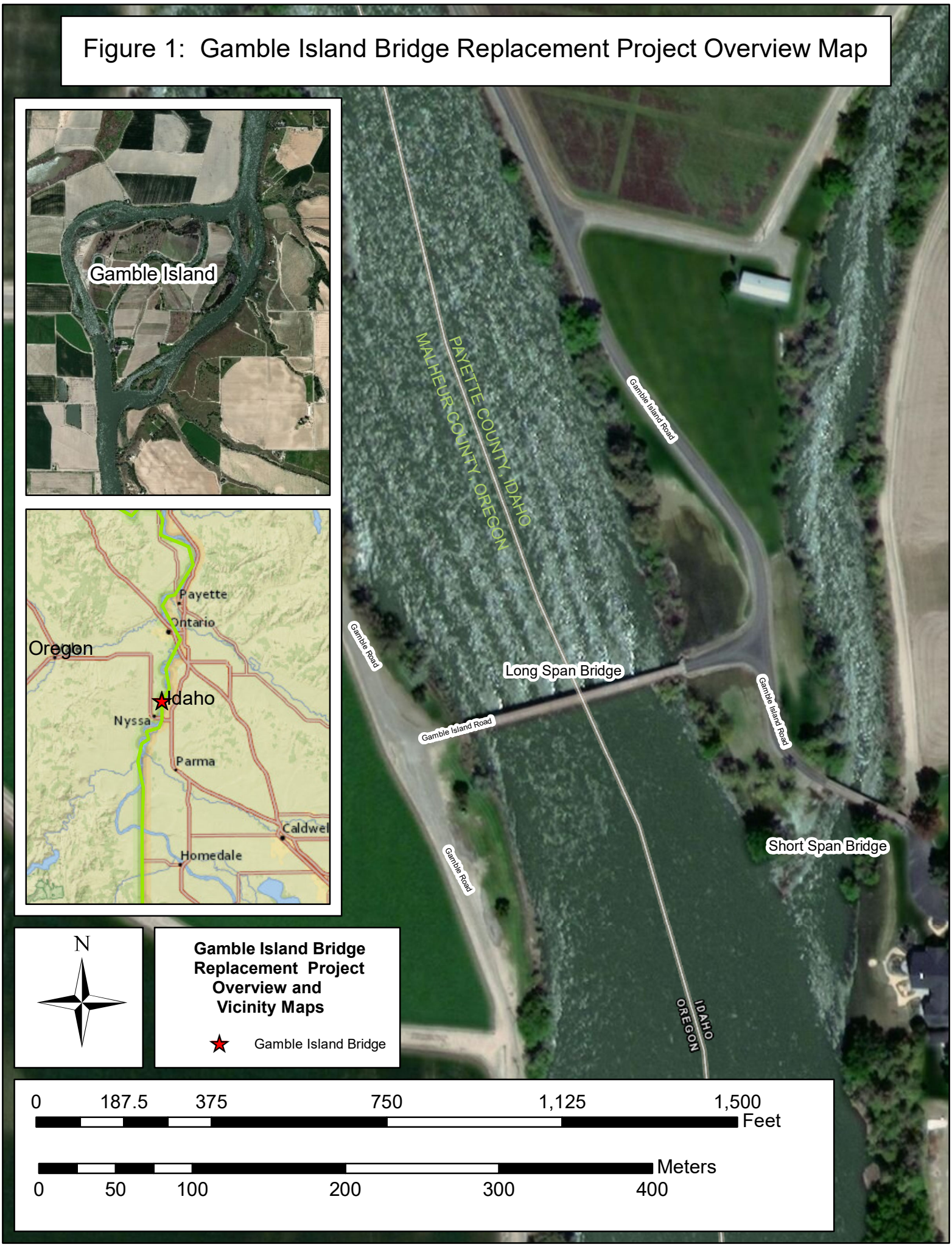


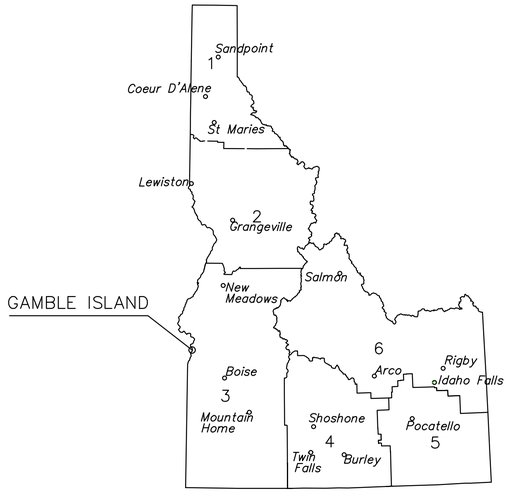

Figure 2: Gamble Island Bridge Action Area and Possible Staging Areas
Arcadia
Snake River
N
In-Stream Action Area
Potential Staging Areas
0 0.125 0.25 0.5 0.75 1
Miles
Kilometers
0 0.1250.25 0.5 0.75 1

Appendix 1 – Engineering Plans

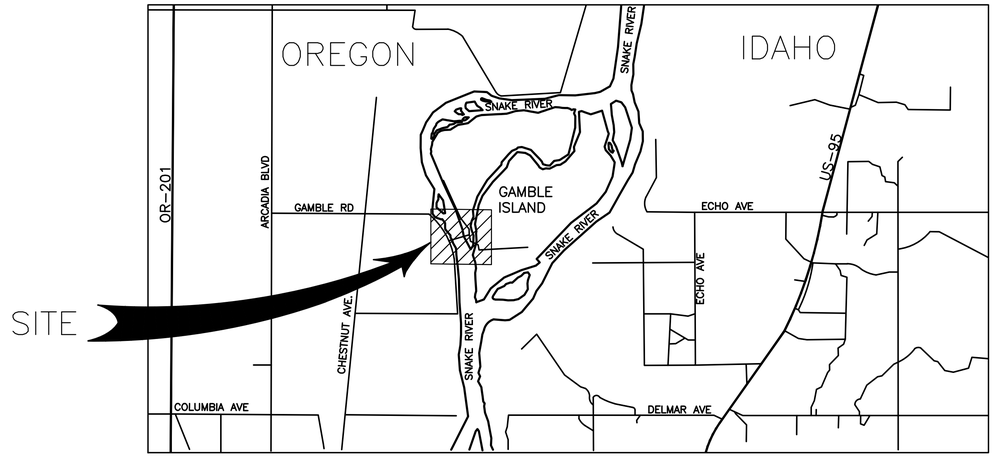
90% CONSTRUCTION PLANS FOR

ALSCOTT BRIDGES ON GAMBLE ISLAND OVER THE SNAKE RIVER

STATE OF IDAHO



LOCATION MAP
NOT TO SCALE



VICINITY MAP
SCALE: 1"= 2000'

GEOTECHNICAL REPORT:

CONTRACTOR TO OBTAIN AND READ THE GEOTECHNICAL REPORT PREPARED BY CARTWRIGHT, PROJECT NUMBER 317011, DATED MARCH 3, 2018 FOR THIS PROJECT, AND ANY ADDENDA TO IT. IN CASE OF ANY CONFLICT WITH THESE PLANS AND SITEWORK SPECIFICATIONS REGARDING PAVING AND EARTHWORK, THE GEOTECHNICAL REPORT WILL GOVERN. ALL PAVING AND EARTHWORK SHALL CONFORM TO THE RECOMMENDATIONS OF THIS REPORT.

EXISTING UTILITY LOCATIONS:

COLLINS ENGINEERS INC. ASSUMES NO RESPONSIBILITY FOR EXISTING UTILITY LOCATIONS (HORIZONTAL OR VERTICAL). THE EXISTING UTILITIES SHOWN ON THIS DRAWING HAVE BEEN PLOTTED FROM THE BEST AVAILABLE INFORMATION. IT IS HOWEVER THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE LOCATION OF ALL UTILITIES PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.

OWNER:

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Know what's below. Call before you dig.

REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION
1		
2		
3		
4		
5		
6		
7		

COVER SHEET

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018

GENERAL NOTES:

1. MATERIALS, CONSTRUCTION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE STATE OF IDAHO TRANSPORTATION DEPARTMENT, "STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION", 2018 EDITION, THE PROJECT PLANS AND SPECIFICATIONS.
2. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR WILL BE RESPONSIBLE FOR CALLING THE UTILITY NOTIFICATION CENTER OF IDAHO AT 811 AND COORDINATING FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING AND UTILITY WORK.
3. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION.
4. THE CONTRACTOR SHALL PROPERLY BARRICADE THE CONSTRUCTION SITE UNTIL CONSTRUCTION IS COMPLETE PER MUTCD STANDARDS.
5. EXCEPT FOR MATERIALS DESIGNED TO BE RELOCATED ON THIS PLAN, ALL OTHER CONSTRUCTION MATERIALS SHALL BE NEW.
6. NO WORK SHALL BE BACKFILLED UNTIL THE CONSTRUCTION HAS BEEN INSPECTED AND APPROVED FOR BACKFILLING BY THE OWNERS REPRESENTATIVE.
7. ALL WORK AND MATERIALS WILL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNERS REPRESENTATIVE.
8. SHOP DRAWINGS AND MATERIAL SPECIFICATIONS SHALL BE SUBMITTED TO OWNER/ENGINEER FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF MATERIAL. PLEASE ALLOW 15 WORKING DAYS FOR APPROVAL.
9. ALL WORK SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL APPLICABLE LAWS AND REGULATIONS.
10. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES. CONTRACTOR SHALL PROVIDE ALL WORK AND MATERIALS AS SHOWN ON THESE PLANS.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY OF HIS OWN PERSONNEL, ALL VISITORS TO THE SITE, AND THE GENERAL PUBLIC INCLUDING, BUT NOT LIMITED TO, TRENCH EXCAVATION AND SHORINGS, TRAFFIC CONTROL, AND SECURITY NOT LIMITED TO NORMAL WORKING HOURS.
12. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL SITE IMPROVEMENTS (INCLUDING BUT NOT LIMITED TO: UTILITIES, STRUCTURES, PAVING, LANDSCAPING, ETC.) SUCH THAT NO DAMAGE IS DONE TO SITE IMPROVEMENTS (I.E.: SAWCUTTING NEW PAVEMENT). SITE IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
13. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE THAT A PRIOR UNIDENTIFIED SITUATION IS PRESENT, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
14. THE CONTRACTOR SHALL REMOVE ALL DEBRIS RESULTING FROM WORK UNDER THIS CONTRACT TO AN APPROVED DUMP SITE.
15. USE ONLY DIMENSIONS PROVIDED ON THESE PLANS. DO NOT SCALE DRAWINGS. INFORM ENGINEER OF ANY DISCREPANCIES AND/OR MISSING INFORMATION.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS TO ADJACENT PARCELS DURING ALL HOURS OF OPERATION FOR THE BUSINESSES LOCATED ON THOSE PARCELS.

GRADING:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS. ANY PROPERTY CORNERS DISTURBED OR DAMAGED BY GRADING ACTIVITIES SHALL BE RESET BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF IDAHO, AT THE CONTRACTORS EXPENSE.
2. THE CONTOUR LINES AND ELEVATIONS SHOWN ARE TO FINISH GRADE FOR SURFACE OF PAVEMENT OR FINISHED GRADE. ALL SPOT ELEVATIONS SHOWN ARE TO FINISHED GRADE UNLESS OTHERWISE INDICATED. REFER TO TYPICAL SECTIONS FOR DEPTHS OF MATERIALS.
3. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN ONE FOOT VERTICAL IN 2 FEET HORIZONTAL OR TO EXISTING WHICH EVER IS SLOPED LESS.
4. CONTRACTOR SHALL COORDINATE TESTING ACTIVITIES WITH THE GEOTECHNICAL ENGINEER.
5. ALL GRADING, COMPACTION, AND PAVEMENT CONSTRUCTION WILL BE IN ACCORDANCE WITH RECOMMENDATIONS FROM THE GEOTECHNICAL INVESTIGATION AND ENGINEERS RECOMMENDATIONS.

FOUNDATION NOTES:

1. STRUCTURAL FOUNDATION DESIGN FOR THIS PROJECT IS BASED ON THE RECOMMENDATIONS OF CARTWRIGHT NORTHWEST.
2. EXCAVATION AND FILL: ALL FILL, FROM ON-SITE OR IMPORTED FROM OFF-SITE, SHALL BE TESTED AND APPROVED BY THE OWNER PRIOR TO USE IN EMBANKMENT ON THE PROJECT.
3. ALL BACKFILL SHALL BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY FOR THE MATERIAL AND MOISTURE CONDITIONED TO 2% OF THE OPTIMUM MOISTURE CONTENT, AS DETERMINED BY TESTS MADE IN CONFORMANCE WITH ASTM D698 (STANDARD PROCTOR COMPACTION METHOD). BACKFILL SHALL NOT BE PLACED IN STANDING WATER NOR SHALL SNOW, ICE OR FROZEN EARTH BE INCORPORATED IN THE FILL.
4. FROZEN MATERIALS SHALL NOT BE USED IN CONSTRUCTION OF EMBANKMENTS. IN ADDITION, EMBANKMENT MATERIAL SHALL NOT BE PLACED ON TOP OF FROZEN MATERIAL.

DESIGN NOTES:

1. DESIGN SPECIFICATIONS IN ACCORDANCE WITH : "AASHTO LRFD BRIDGE DESIGN SPECIFICATION" 8TH EDITION, AND AASHTO / AWS "BRIDGE WELDING CODE" D1.5.

2. DESIGN PROCEDURES RAILING CONFORMS TO TL-1. DESIGN SPEED IS 15 MPH.

3. DESIGN LOADS:

3.1.	PERMANENT LOADS		
	DC	UNIT WEIGHT OF REINFORCED CONCRETE	0.15 kcf
		UNIT WEIGHT OF STRUCTURAL STEEL	0.49 kcf
		METAL DECK FORMS	0.017 ksf
	DW	INITIAL WEARING SURFACE	0.08 ksf
		FUTURE WEARING SURFACE	0 ksf
		UTILITIES	0.01 klf
	EV	UNIT WEIGHT OF SOIL	0.135 kcf
	EH	ACTIVE PRESSURE	0.045 kcf
		AT REST PRESSURE	0.034 kcf
3.2.	TRANSIENT LOADS		
	LL	HL-93	
	IM	DYNAMIC ALLOWANCE APPLIED TO TRUCK & TANDEM	
	LS	LIVE LOAD SURCHARGE AT ABUTMENT	4.0 feet
		LIVE LOAD SURCHARGE AT WING WALL	4.0 feet
	TU	UNIFORM TEMPERATURE RANGE	-30° F TO 120° F
		BASE SETTING TEMPERATURE	60° F
3.3.	EXTREME EVENT LOADS		
	EQ	SITE CLASS	C
		SHORT PERIOD SPECTRAL RESPONSE ACCELERATION, S_S	0.296 g
		ONE SECOND PERIOD SPECTRAL RESPONSE ACCELERATION, S_1	0.107 g
		PEAK HORIZONTAL GROUND ACCELERATION	0.12 g
	CT	VEHICULAR COLLISION FORCE	600 k
	IC	ICE CRUSHING STRENGTH	8 ksf
		ICE THICKNESS	0.33 feet

INCIDENTAL ITEMS:

1. ALL ITEMS SHOWN OR NOTED ON THE PLANS WHICH ARE NOT SPECIFICALLY BID ITEMS ARE CONSIDERED INCIDENTAL ITEMS. THE COST OF FURNISHING AND INSTALLING ALL INCIDENTAL ITEMS WILL NOT BE PAID FOR SEPERATELY BUT SHALL BE INCLUDED IN THE UNIT PRICE BID FOR OTHER ITEMS, UNLESS NOTED OTHERWISE.

STRUCTURAL NOTES:

CONTRACTOR TO PROVIDE THE ENGINEER WITH SHOP DRAWINGS AND CALCULATIONS FOR THE PREFABRICATED BRIDGE. NO FABRICATION CAN BEGIN UNTIL THE SHOP DRAWINGS AND CALCULATIONS ARE APPROVED BY THE ENGINEER. ALLOW 15 DAYS FOR SHOP DRAWING APPROVAL. SHOP DRAWINGS AND CALCULATIONS MUST BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF IDAHO.

1. DESIGN DATA:

   A. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 8TH EDITION.
   B. DESIGN METHOD: LOAD AND RESISTANCE FACTOR DESIGN
   C. LIVE LOAD: HL-93
   D. CLASS 40 CONCRETE: f'_c = 4000 PSI AT 28 DAYS
   E. REINFORCING STEEL: f_y = 60,000 PSI

2. PRE-ENGINEERED BRIDGE:

   A. THE PRE-ENGINEERED BRIDGE SHALL BE PURCHASED BY AND DELIVERED TO THE SITE BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ERECTION AND PLACEMENT OF THE BRIDGE.
   B. ANCHOR BOLTS FOR BRIDGES SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.
   C. THE ABUTMENT DIMENSION DEPICTED AS "STEP" IS DEFINED AS THE DISTANCE FROM THE TOP OF THE WEARING SURFACE TO THE BEARING SEAT ELEVATION. ANY CHANGE TO THE STEP DIMENSION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

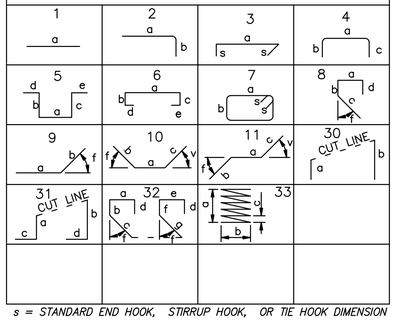
3. CONCRETE NOTES:

   A. THE CONTRACTOR SHALL SUBMIT A CONCRETE MIX DESIGN FOR EACH CLASS OF CONCRETE BEING PLACED ON THE PROJECT. CONCRETE SHALL NOT BE PLACED ON THE PROJECT BEFORE THE CONCRETE MIX DESIGN REPORT HAS BEEN REVIEWED AND APPROVED BY THE OWNER / ENGINEER.
   B. CONCRETE ABUTMENTS, CAPS AND WINGWALLS - CLASS 40A F'C = 4.00 KSI.
   C. ALL EXPOSED CONCRETE EDGES SHALL HAVE A ¾" CHAMFER, UNLESS DESIGNATED OTHERWISE IN THE PLANS.
   D. ALL EXPOSED CONCRETE SURFACES SHALL RECEIVE AN ORDINARY SURFACE FINISH OR RUBBED SURFACE FINISH AS DEFINED BY ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.
   E. ALL FALSEWORK AND FORMS TO FOLLOW ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.
   F. HOT AND COLD WEATHER CONCRETING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH ITD.
   G. STEEL REINFORCEMENT : AASHTO M31, GRADE 60 FY = 60.00 KSI
   H. ALL DIMENSIONS TO REINFORCING STEEL ARE TO CENTERLINE OF BAR UNLESS NOTED OTHERWISE.
   I. THE MINIMUM REINFORCEMENT BAR LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS SHALL BE IN ACCORDANCE WITH ITD. THESE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER
   J. ALL REINFORCING SHALL BE EPOXY COATED UNLESS OTHERWISE NOTES. (N) SHALL DENOTE A NON-EPOXY COATED BAR.
   K. ALL REINFORCING SHALL HAVE 2" COVER, UNLESS DESIGNATED OTHERWISE IN THE PLANS.
   L. CONCENTRATIONS OF WATER-SOLUBLE SULFATES WERE MEASURED TO BE 0.03 PERCENT. THE CONCRETE SULFATE EXPOSURE FOR THIS PROJECT IS CLASS 0.

4. STEEL NOTES:

   A. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS:
      PLATES AND STRUCTURAL STEEL SHAPES: ASTM A588 OR A709W GR 50
      ANCHOR BOLTS: ASTM F1554

BAR BEND DIAGRAMS

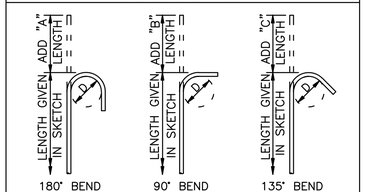


s = STANDARD END HOOK, STIRRUP HOOK, OR TIE HOOK DIMENSION

SUBSTRUCTURE BAR WEIGHT

BAR SIZE	LINEAR FEET	POUNDS PER FOOT	TOTAL WEIGHT
#4	1082	0.668	722.78
#5	2375	1.043	2477.13
#6	2119	1.502	3182.74
		TOTAL WEIGHT	6382.65

BEND DETAILS



180° BEND 90° BEND 135° BEND

"L" = LENGTH GIVEN IN SKETCH

BAR SIZE	STANDARD END HOOK DIMENSIONS ALL GRADES D (IN)	A (IN)	B (IN)	STIRRUP AND TIE HOOK DIMENSIONS ALL GRADES D (IN)	B (IN)	C (IN)
#3	2 1/4	5	6	1 1/2	4	4
#4	3	6	8	2	4 1/2	4 1/2
#5	3 3/4	7	10	2 1/2	6	5 1/2
#6	4 1/2	8	12	4 1/2	12	8
#7	5 1/4	10	14	5 1/4	14	9
#8	6	11	16	6	16	10 1/2
#9	9 1/2	15	19			
#10	10 3/4	17	22			
#11	12	19	24			
#14	18 1/4	27	31			
#18	24	36	41			

REINFORCEMENT NOTES

1. ALL BEND DETAILS TO BE ACCORDING TO THE LATEST A.C.I. STANDARD PRACTICE AND AASHTO SPECIFICATIONS.
2. DIMENSIONS SHOWN IN THE "BAR BEND DIAGRAMS" ARE OUT TO OUT OF BEND POINTS OR HOOKS AND/OR END OF BARS UNLESS NOTED OTHERWISE. PIN DIAMETER "D" IS THE SAME FOR ALL BENDS AND HOOKS ON A BAR.
3. NO DEDUCTIONS FOR CURVATURE AT BENDS ARE MADE EXCEPT FOR THE ADJUSTMENTS INCLUDED IN THE ABOVE "ADD LENGTH" DIMENSIONS.
4. "s" INDICATES STIRRUP OR TIE BAR.
5. ALL BARS SHALL CONFORM TO AASHTO M31, GRADE 60
6. THE CONTRACTOR SHALL VERIFY THE QUANTITY, SIZE, AND SHAPE OF THE BAR REINFORCEMENT AGAINST THE STRUCTURE DRAWINGS AND MAKE ANY NECESSARY CORRECTIONS BEFORE ORDERING.

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GENERAL NOTES

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018

PILE NOTES:

MATERIAL SPECIFICATIONS

1. PIER H–PILES SHALL BE HP 14 X 117 AND CONFORM TO ASTM A572 GRADE 50.
2. ABUTMENT H–PILES SHALL BE HP 14 X 89 AND CONFORM TO ASTM A572 GRADE 50.
3. SPLICE PLATES SHALL BE OF THE SAME MATERIAL AS THE PILES.
4. BACKUP PLATES SHALL BE OF THE SAME MATERIAL AS THE PILES. THE BACKUP PLATE SHALL BE AT LEAST 3/8" THICK.
5. ALL H–PILES SHALL HAVE PILE POINTS. PILE POINTS SHALL BE AS FOLLOWS OR AN APPROVED EQUAL:

POINT TYPE	ASSOC. PILE & FITTING	INTERNATIONAL CONSTRUCTION EQUIPMENT	VERSA STEEL	EAGLE FOUNDRY COMPANY / CONST. SUPPLY
	77600–B PART–T–SERIES	HPH–RB SERIES	VS–3000N SERIES	HT–3300

7. AT THE CONTRACTOR'S OPTION, THE FOLLOWING PREFABRICATED SPLICERS MAY BE USED IN PLACE OF THE BUTT–WELDED SPLICE WITH PLATES.

H–PILE SPLICE TYPE	ASSOC. PILE & FITTING	INTERNATIONAL CONSTRUCTION EQUIPMENT	VERSA STEEL	EAGLE FOUNDRY COMPANY / CONST. SUPPLY
	HP–30000	HSA SERIES	VS–400	HS–1000

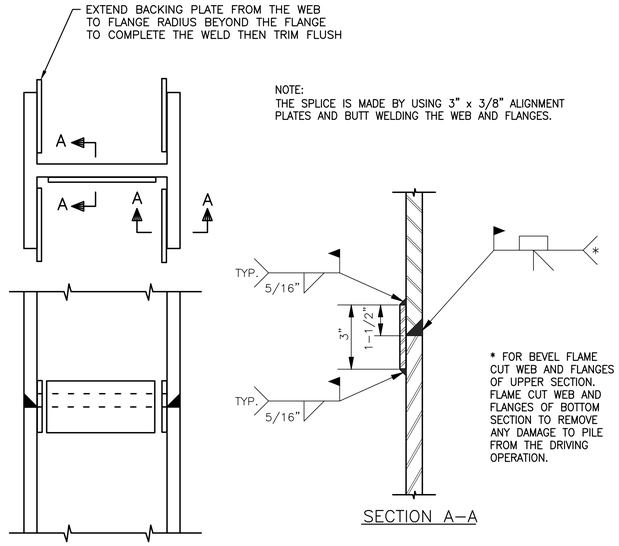
8. QUALIFICATIONS OF WELDERS, MATERIALS. INSPECTION, AND PROCEDURES FOR WELDING SHELL PILES WITH IN O.D. GREATER THAN 18" SHALL CONFORM TO THE CURRENT EDITION OF ANSI/AASHTO/AWS D1.1 WITH 25% OF ALL WELDS ULTRASONIC TESTED (UT).
9. QUALIFICATION OF WELDERS, MATERIALS, INSPECTION, AND PROCEDURES FOR WELDING ALL H–PILE AND SHELL PILES WITH AN O.D. EQUAL TO OR LESS THAN 18" SHALL CONFORM TO THE CURRENT EDITION OF ANSI/AASHTO/AWS D1.1.
10. PROVIDE WELDING QUALIFICATION TESTS TO DEMONSTRATE THE WELDABILITY OF SHELL PILES UNDER FIELD CONDITIONS FOR ALL TYPES OF WELDS TO BE MADE ON THE PILES.
11. ALL PILE POINTS, CUTTING SHOES AND PREFABRICATED SPLICERS SHALL BE ATTACHED BY WELDING IN ACCORDANCE WITH THE CURRENT EDITION OF ANSI/AWS D1.1 WELDING DETAILS AND PROCEDURES SHALL BE SUBMITTED FOR APPROVAL.

DRIVING DATA

1. PROVIDE THE TYPE AND ALL OPERATION SPECIFICATIONS OF THE HAMMER ALONG WITH PROPOSED PILE INSTALLATION PROCEDURE TO THE ENGINEER 15 DAYS PRIOR TO PILE INSTALLATION. TEMPLATES WILL BE REQUIRED DURING PILE DRIVING TO ENSURE PROPER PILE ALIGNMENT.
2. ALL H–PILING SHALL BE DRIVEN TO (REFUSAL) A MINIMUM BEARING CAPACITY OF 225 TONS PER PILE AS DETERMINED BY A WAVE EQUATION ANALYSIS IN ACCORDANCE WITH SECTION 505C.
3. THE RATED ENERGY FOR THE HAMMER USED FOR DRIVING H·PILING IS RECOMMENDED TO BE BETWEEN 45,000 AND 75,000 FOOT–POUNDS. THE RATED ENERGY MAY BE CHANGED IF APPROVED BY THE ENGINEER.
4. IF THE HIGHEST PILE TIP ELEVATION AT THE SUBSTRUCTURE IS NOT OBTAINED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER BEFORE FURTHER PILE DRIVING.

MISCELLANEOUS

1. DRIVE TEST PILES AT ABUTMENTS TO REFUSAL OR 1.5 TIMES THE ESTIMATED PILE PENETRATION, WHICHEVER COMES FIRST. DRIVE TEST PILES AT PIER TO REFUSAL OR TO THE ESTIMATED PILE TIP ELEVATION, WHICHEVER COMES FIRST. MONITOR TEST PILES BY PDA DYNAMIC TESTING, SEE S501–20A. TEST PILING SHALL BECOME A PART OF THE COMPLETED STRUCTURE.
2. PILE TIP ELEVATIONS ARE SHOWN FOR ESTIMATING PURPOSES ONLY.
3. ESTIMATED PILE LENGTH COMPUTED FROM CUT–OFF AND ESTIMATED PILE TIP ELEVATIONS.



H–BEAM PILE BUTT WELDED SPLICE DETAIL
NO SCALE

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PILE NOTES

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018

16

21

POINT #3
N: 819682.95
E: 2300456.04
ELEV.=2173.30
CP-3-S58

MC PER SURVEY
NO. 19-47-0199

IDAHO
OREGON

SNAKE RIVER

GAMBLE ISLAND RD

GAMBLE RD

EXISTING 400' (LONG) BRIDGE

EXISTING 150' (SHORT) BRIDGE

FLOW DIRECTION

POINT #104
N: 819094.23
E: 2301429.70
ELEV.=2170.98
CP-104-SMAG

POINT #106
N: 818910.28
E: 2301564.83
ELEV.=2171.73
CP-106-SMAG

POINT #103
N: 818784.94
E: 2301711.41
ELEV.=2171.64
CP-103-SMAG

POINT #2
N: 818803.68
E: 2301061.73
ELEV.=2172.52
CP-2-S58

EXISTING RESIDENCE

LEGEND

EXISTING		PROPOSED
———	STATE LINE	
———	ORDINARY HIGH WATER	
———	ROADWAY	
5680 / 5679	CONTOURS	

NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING TIE IN POINTS AND MAINTAINING COORDINATION WITH POINTS.
2. IF NEEDED CONTRACTOR IS RESPONSIBLE TO RELOCATE SURVEY POINTS IN ORDER TO MAINTAIN COORDINATION.
3. RELOCATED POINTS WILL BE SET BY A REGISTERED LAND SURVEYOR AND BE A PERMANENT POINT OF RECORD.

SCALE: 1" = 60'
60 40 30 20 10 0 20 40 60

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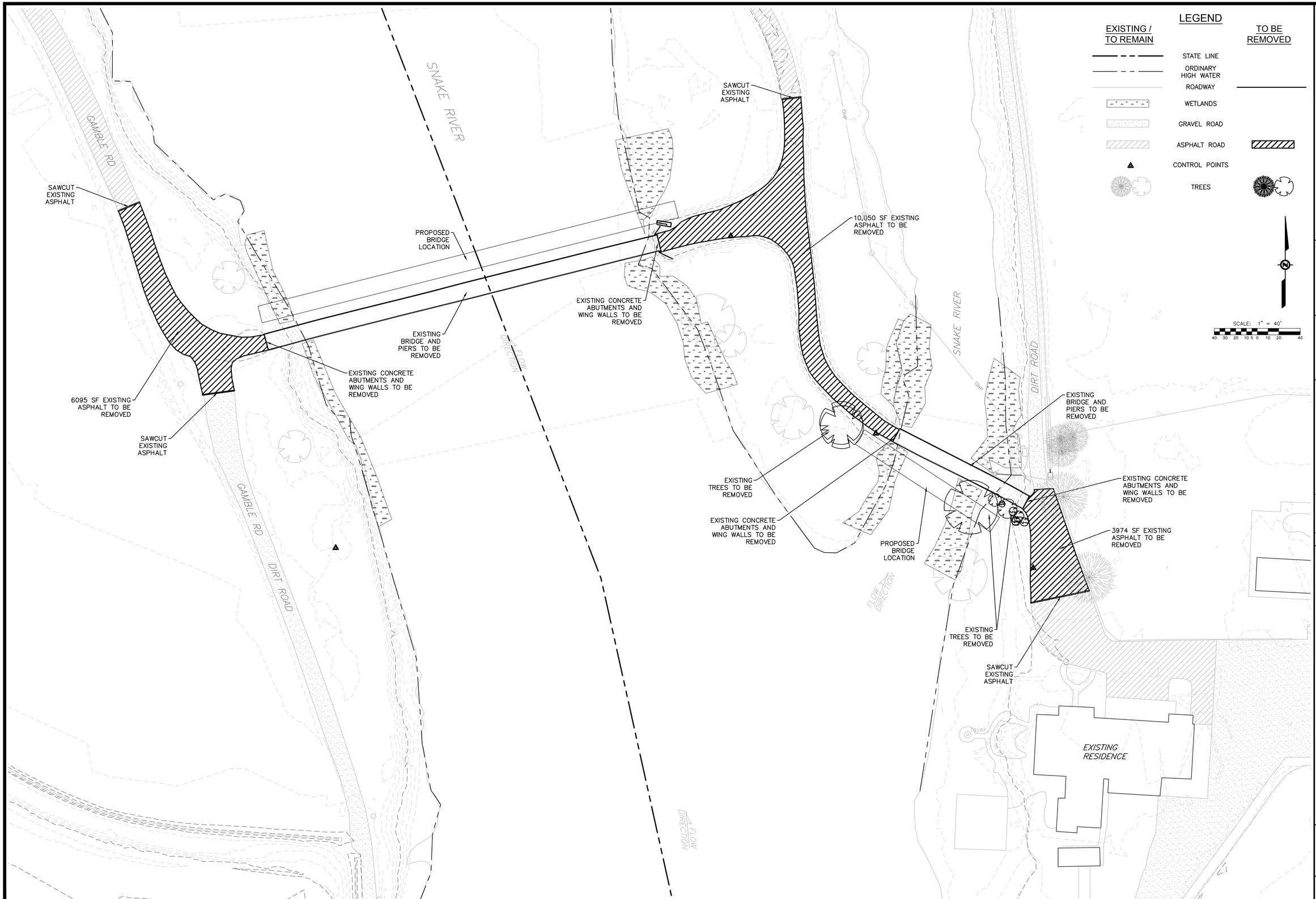
SURVEY CONTROL PLAN

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



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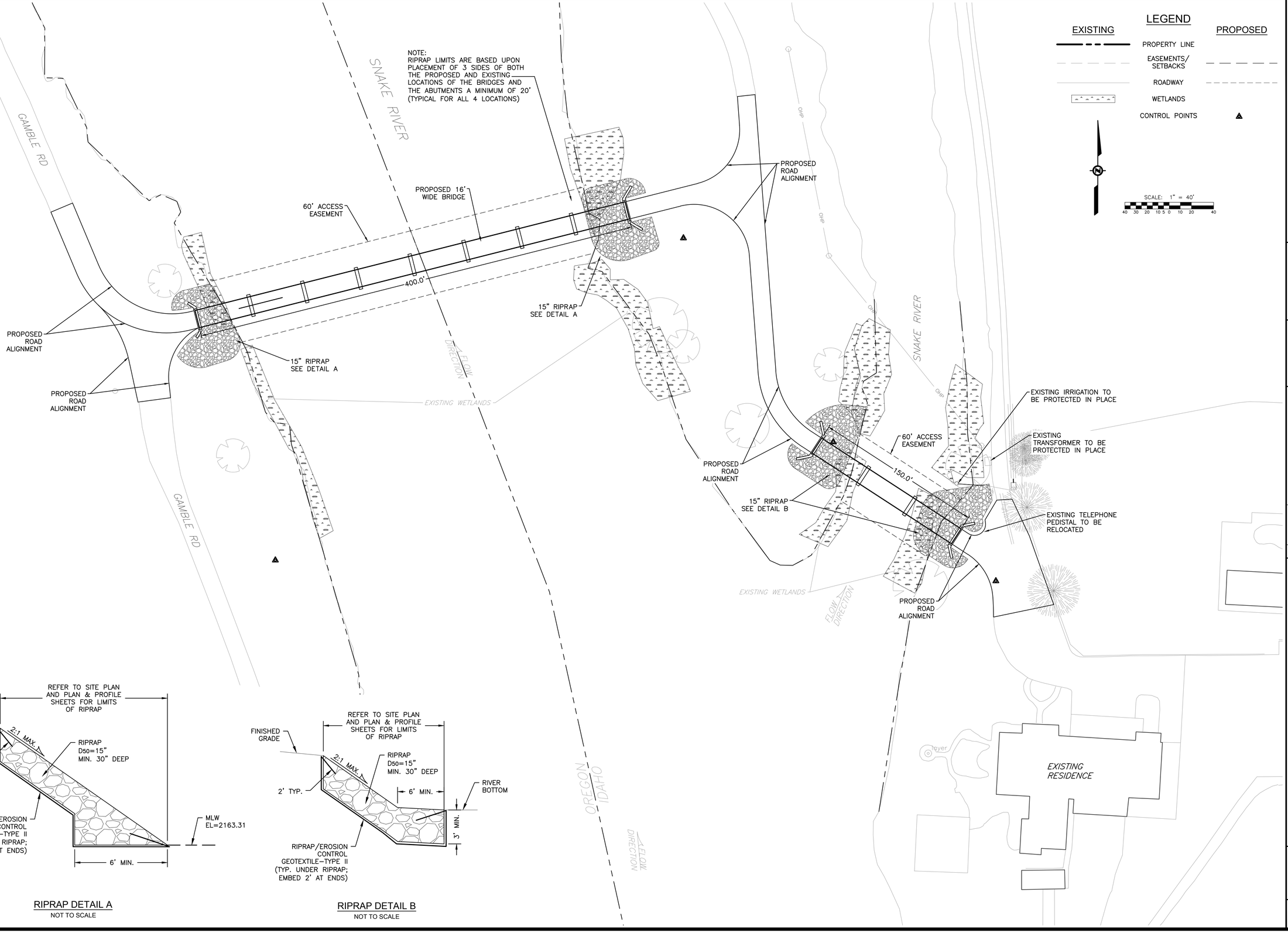
DEMOLITION PLAN

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



RIPRAP DETAIL A
NOT TO SCALE

RIPRAP DETAIL B
NOT TO SCALE

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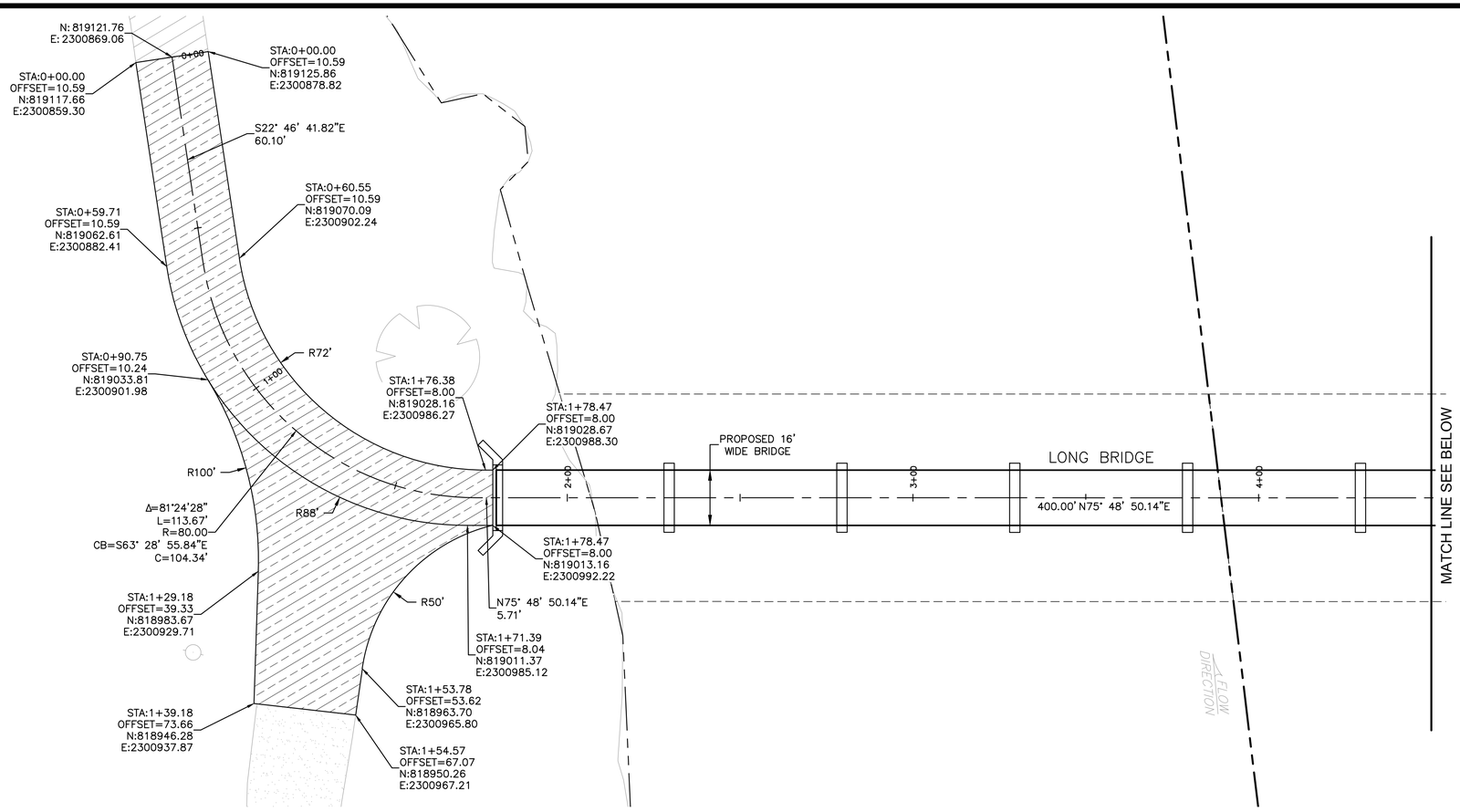
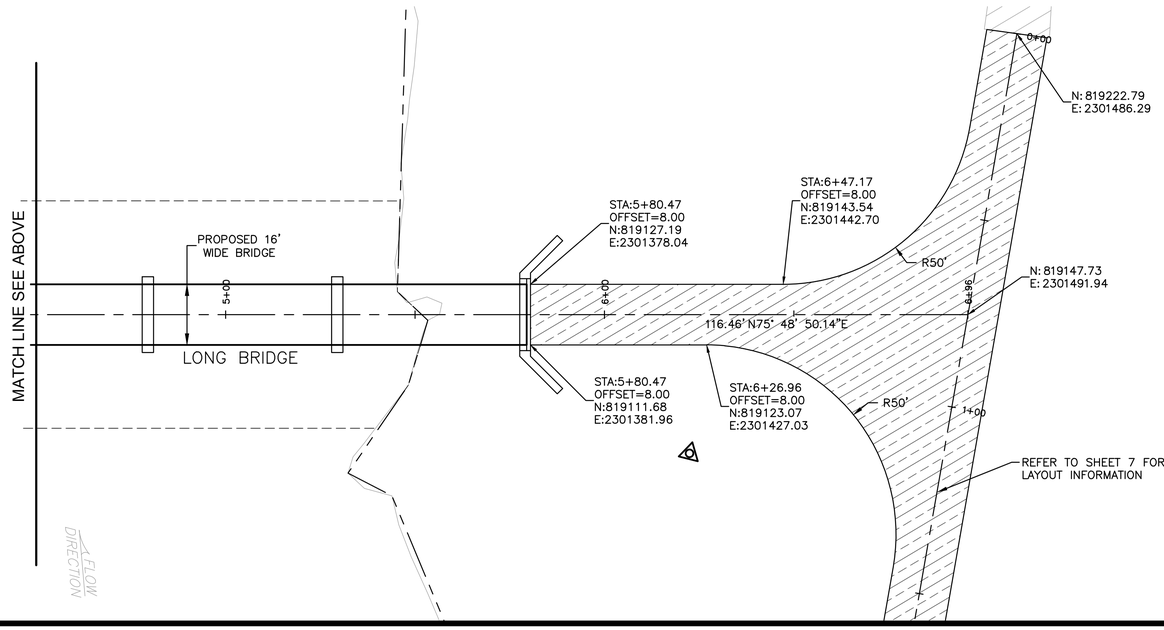
OVERALL SITE PLAN

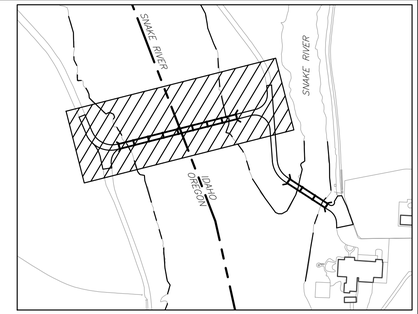
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



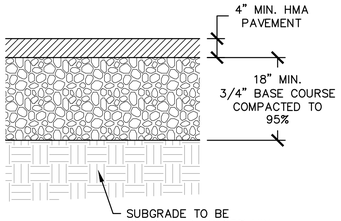




KEY MAP
1" = 250'

LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
	CONTROL POINTS	
	ASPHALT PAVEMENT	
	DIRT ROAD	



TYPICAL PAVEMENT SECTION
NOT TO SCALE

SCALE: 1" = 20'
20 16 12 8 4 0 5 10 20

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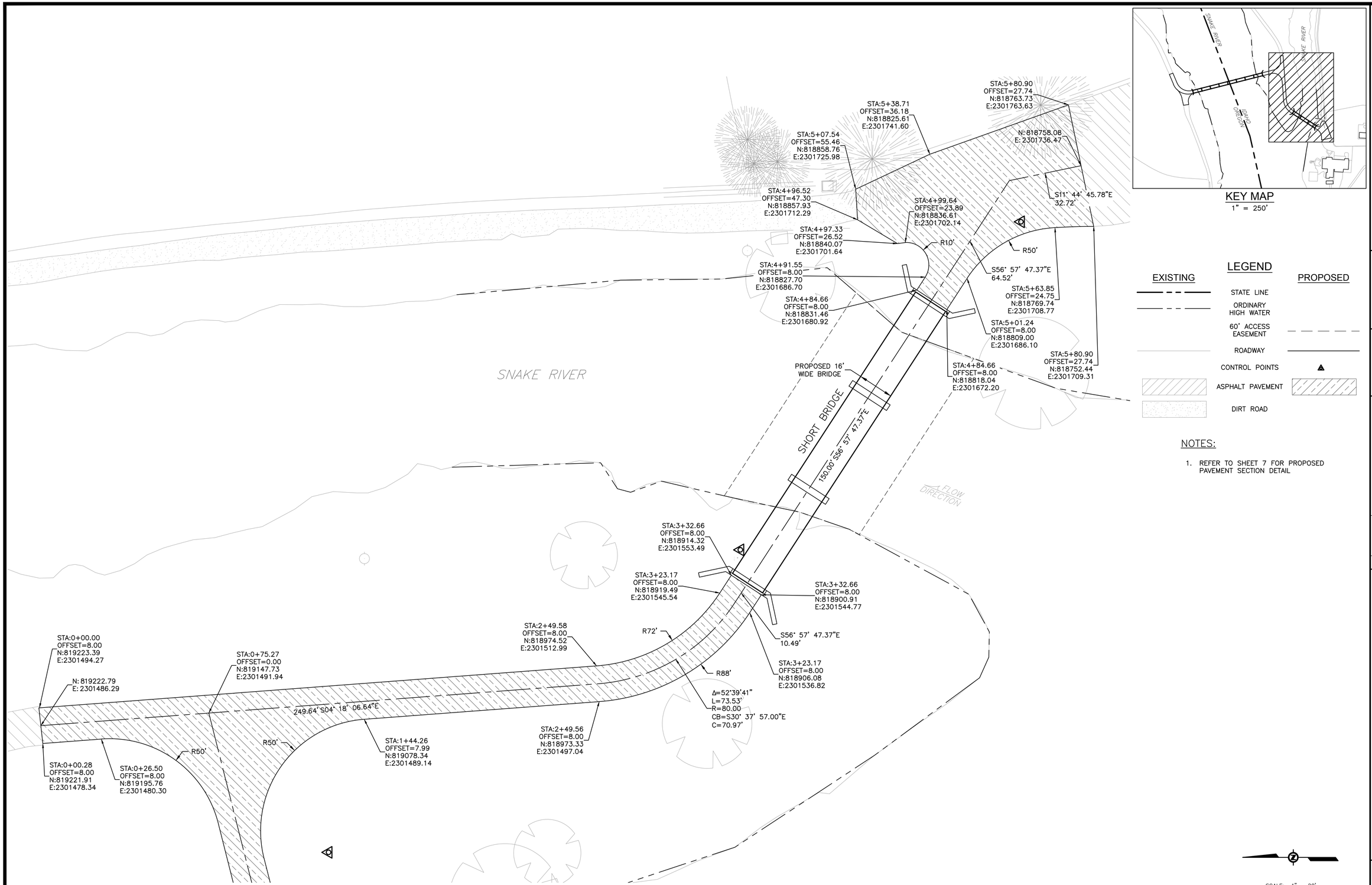
LAYOUT PLAN
LONG BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



KEY MAP
1" = 250'

LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
	CONTROL POINTS	
	ASPHALT PAVEMENT	
	DIRT ROAD	

NOTES:

1. REFER TO SHEET 7 FOR PROPOSED PAVEMENT SECTION DETAIL

SCALE: 1" = 20'
20 16 12 8 4 0 5 10 20

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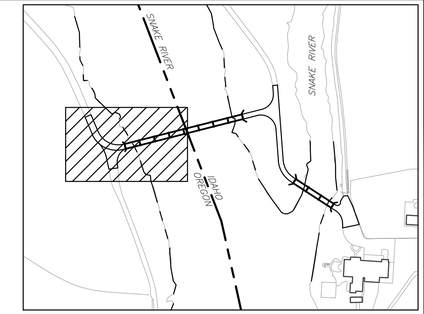
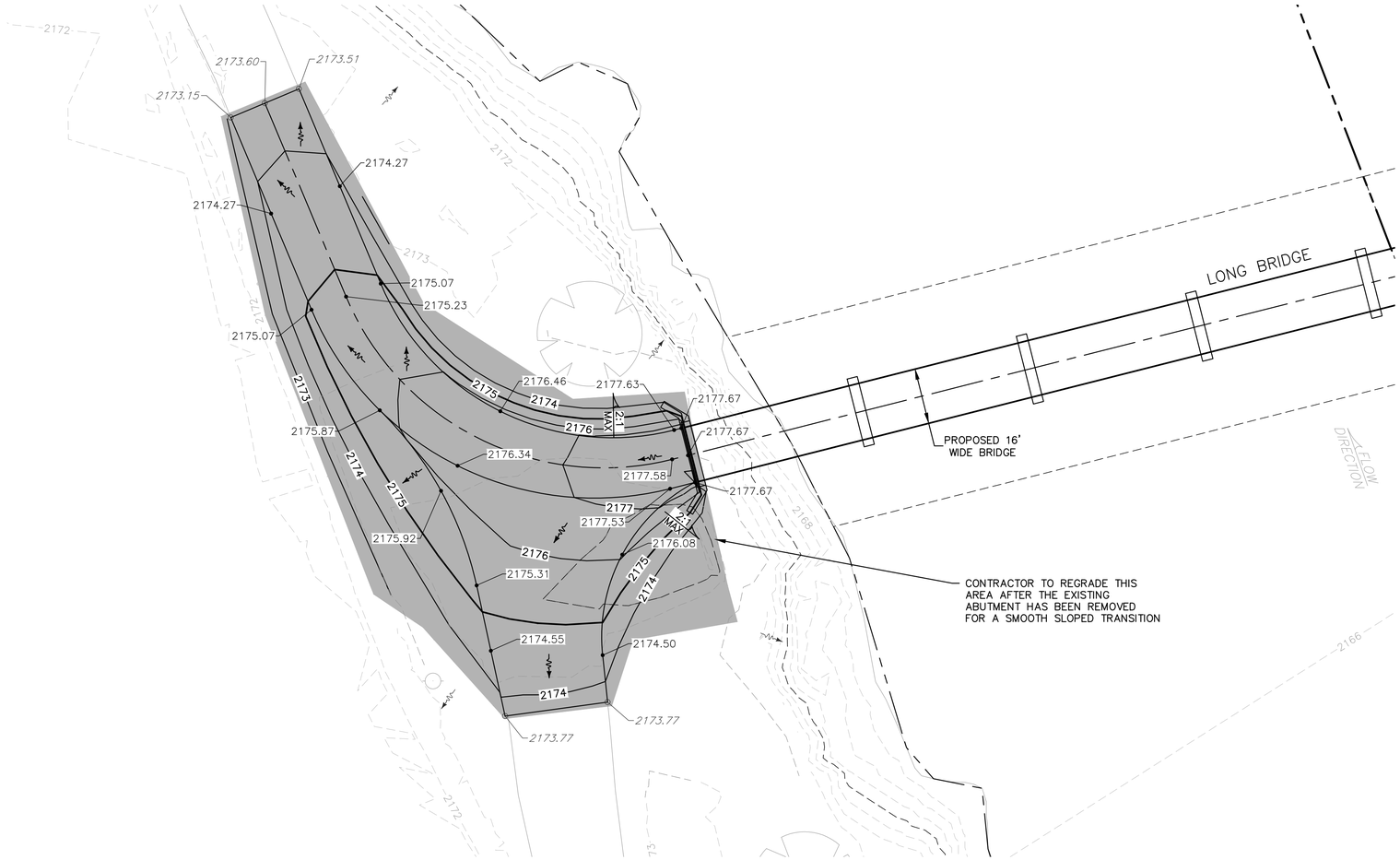
LAYOUT PLAN
SHORT BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018

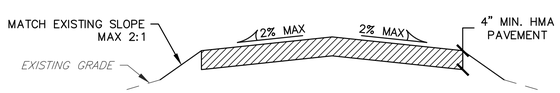


KEY MAP
1" = 250'

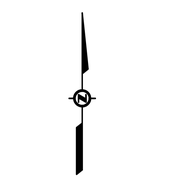


LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
5680 5679	CONTOURS	5680 5679
	WETLANDS	
	APPROXIMATE LIMITS OF GRADING	
	CONTROL POINTS	
	FLOW ARROW	



TYPICAL ROAD SECTION
NOT TO SCALE



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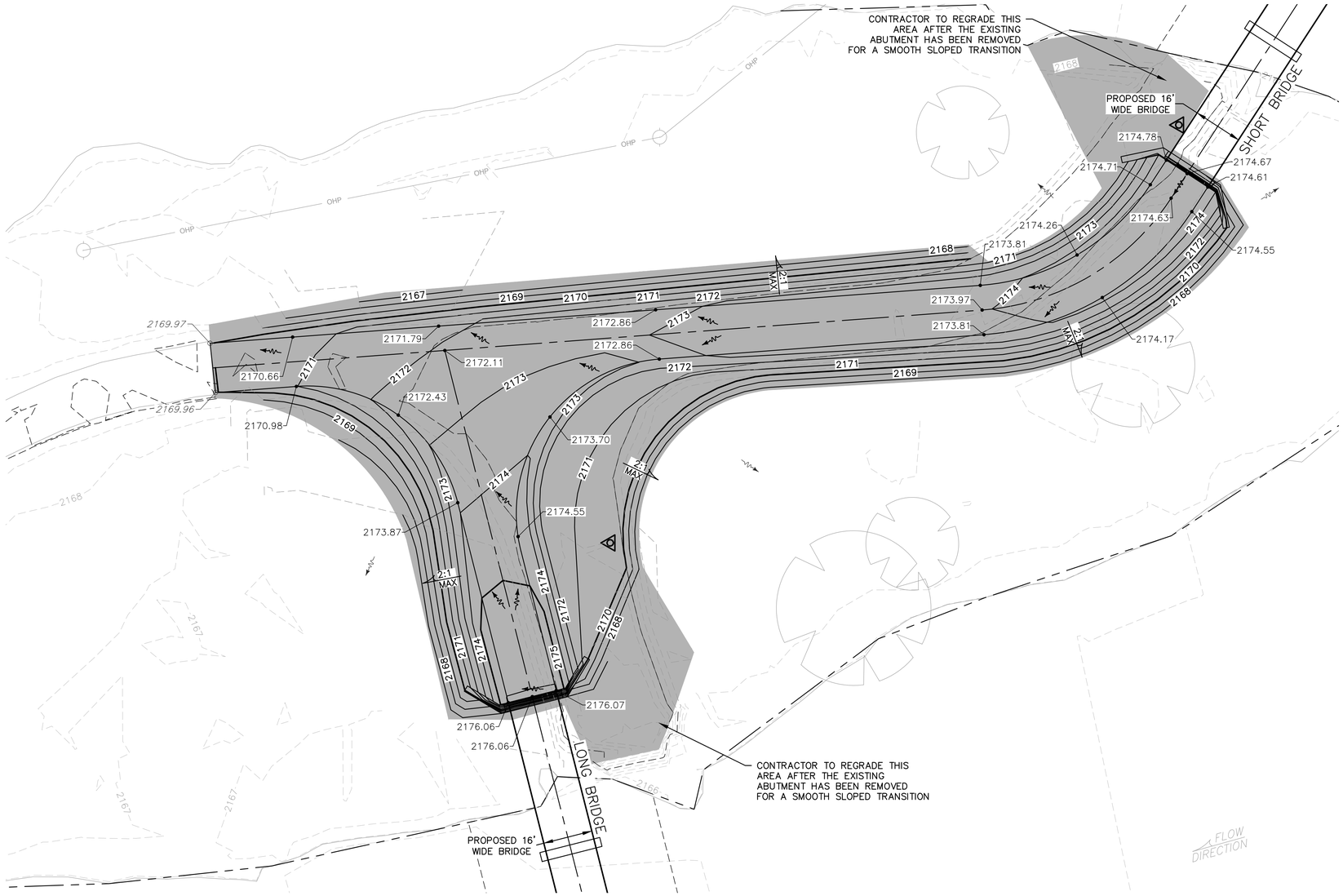
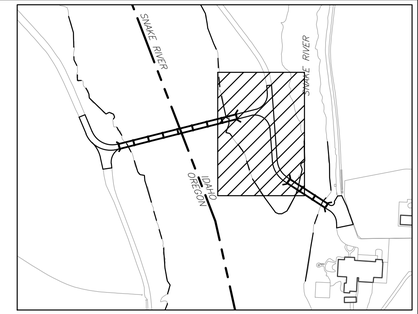
REVISIONS

DETAILED GRADING PLAN
WEST SIDE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018





KEY MAP
1" = 250'

LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
5680 / 5679	CONTOURS	5680 / 5679
	WETLANDS	
	APPROXIMATE LIMITS OF GRADING	
	CONTROL POINTS	
	FLOW ARROW	

SCALE: 1" = 20'
20 16 12 8 4 0 5 10 20

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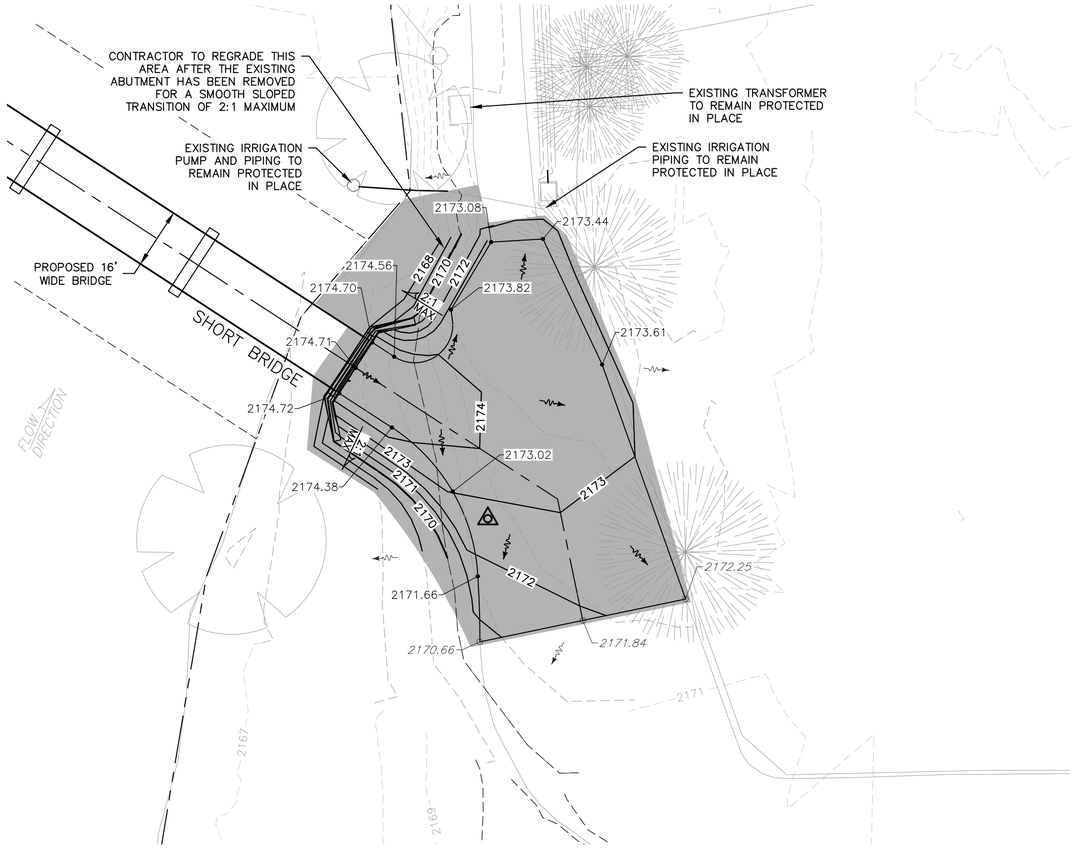
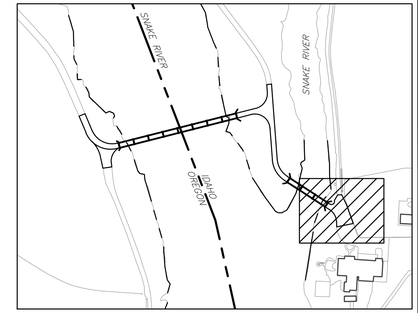
DETAILED GRADING PLAN
CENTER

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018





KEY MAP
1" = 250'

LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
5680 / 5679	CONTOURS	5680 / 5679
	WETLANDS	
	APPROXIMATE LIMITS OF GRADING	
	CONTROL POINTS	
	FLOW ARROW	

SCALE: 1" = 20'
20 16 12 8 4 0 5 10 20

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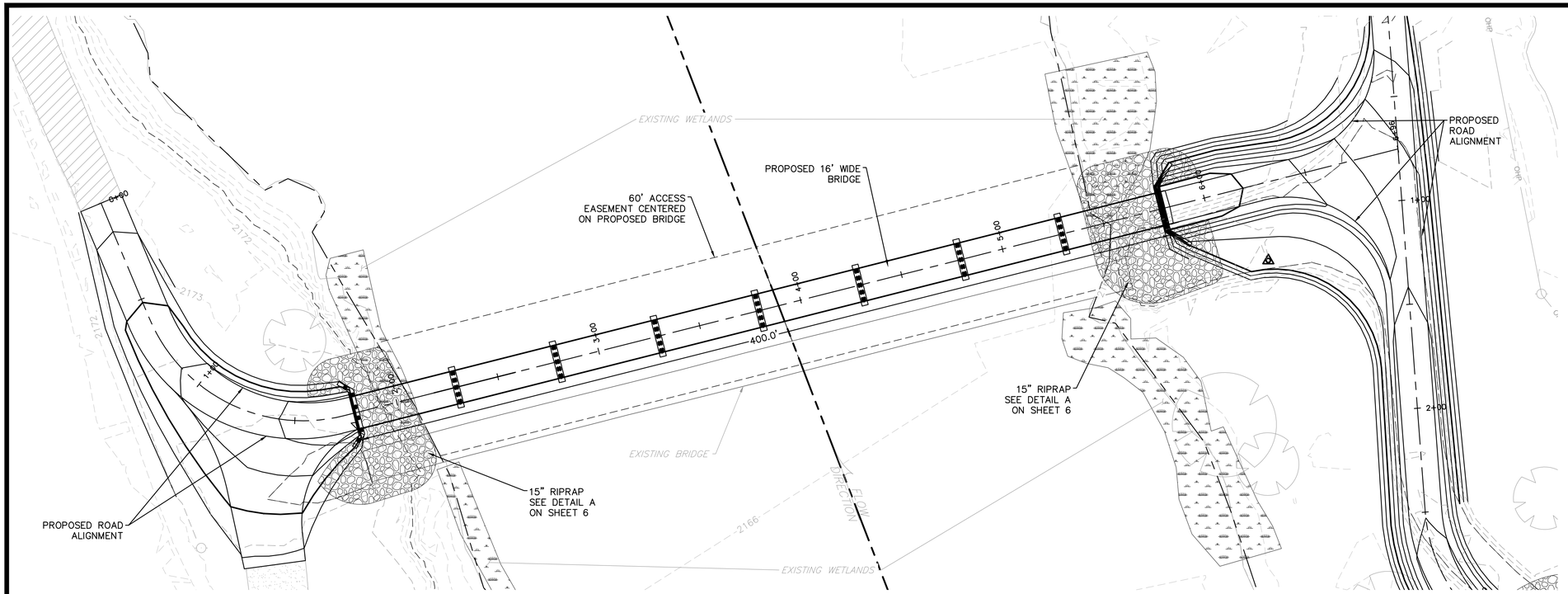
REVISIONS

DETAILED GRADING PLAN
WEST SIDE

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018

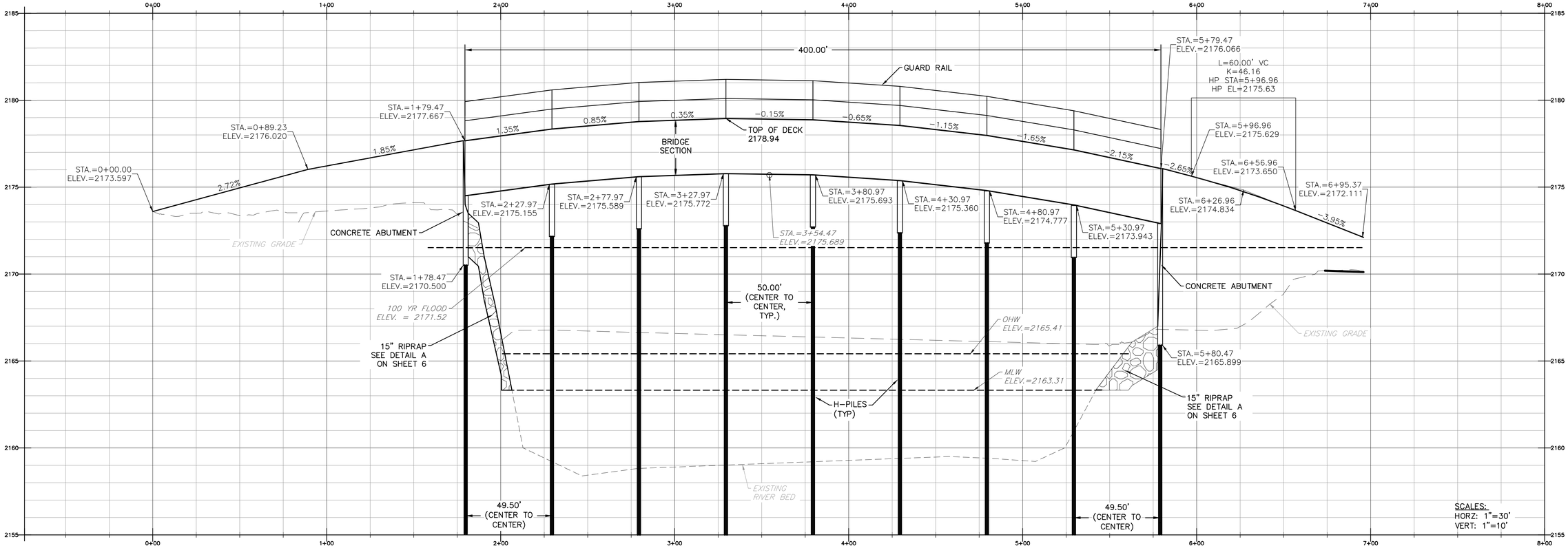


LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
5680 / 5679	CONTOURS	5680 / 5679
	WETLANDS	
	APPROXIMATE LIMITS OF RIPRAP	
	CONTROL POINTS	

NOTES:
1. RIPRAP IS TO BE PLACED A MINIMUM OF 20' AROUND BOTH PROPOSED AND EXISTING BRIDGE LOCATIONSIN ADDITION TO THE SLOPE DOWN TO THE RIVER BED

SCALE: 1" = 30'



SCALES:
HORZ: 1"=30'
VERT: 1"=10'

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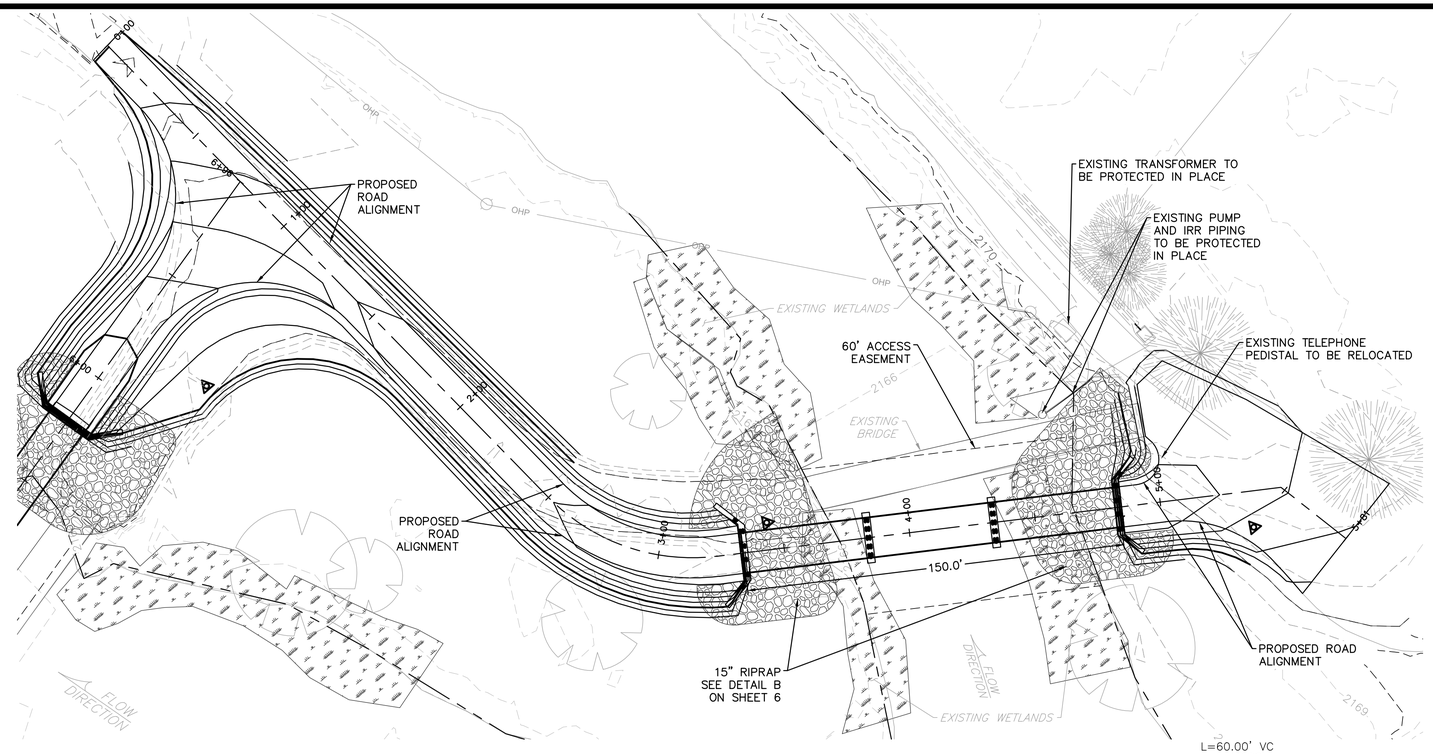
PLAN & PROFILE
LONG BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



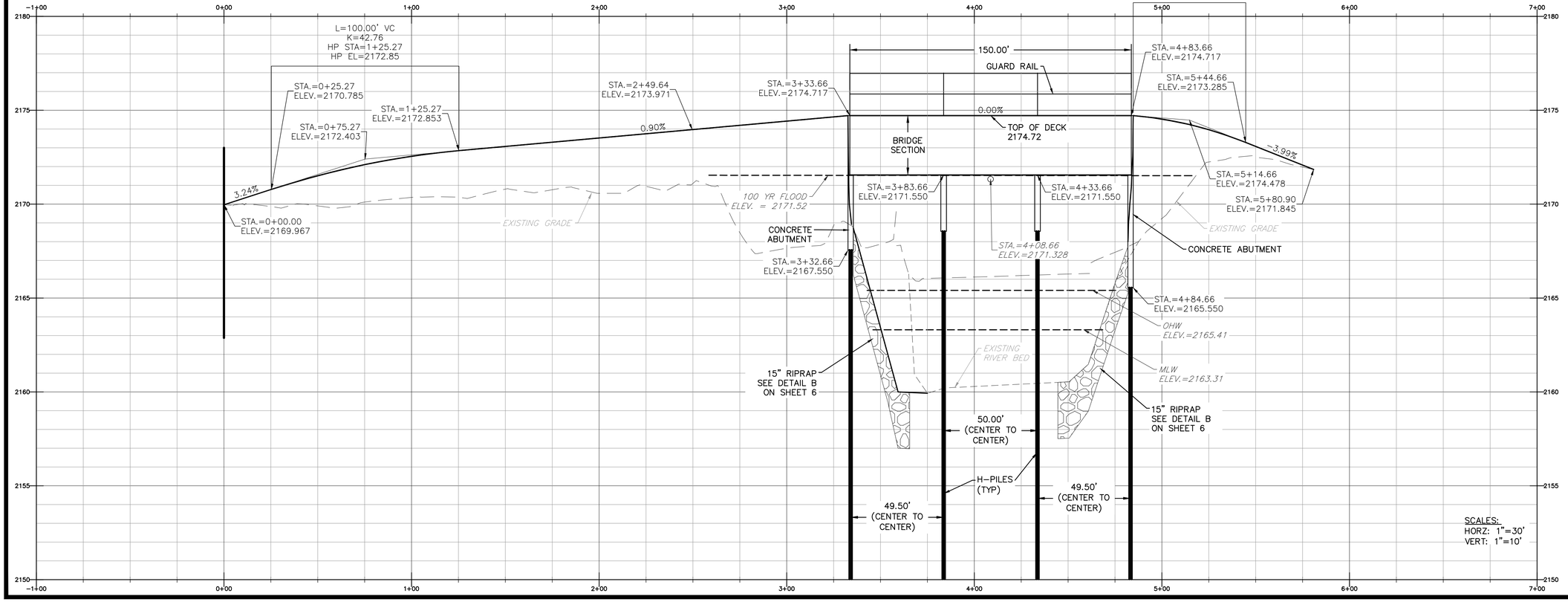
LEGEND

EXISTING		PROPOSED
	STATE LINE	
	ORDINARY HIGH WATER	
	60' ACCESS EASEMENT	
	ROADWAY	
5680 5679	CONTOURS	5680 5679
	WETLANDS	
	APPROXIMATE LIMITS OF RIPRAP	
	CONTROL POINTS	

NOTES:
1. RIPRAP IS TO BE PLACED A MINIMUM OF 20' AROUND BOTH PROPOSED AND EXISTING BRIDGE LOCATIONS IN ADDITION TO THE SLOPE DOWN TO THE RIVER BED

SCALE: 1" = 30'
30 15 12 8 5 2 0 10 20 30

L=60.00' VC
K=18.88
HP STA=4+84.66
HP EL=2174.72



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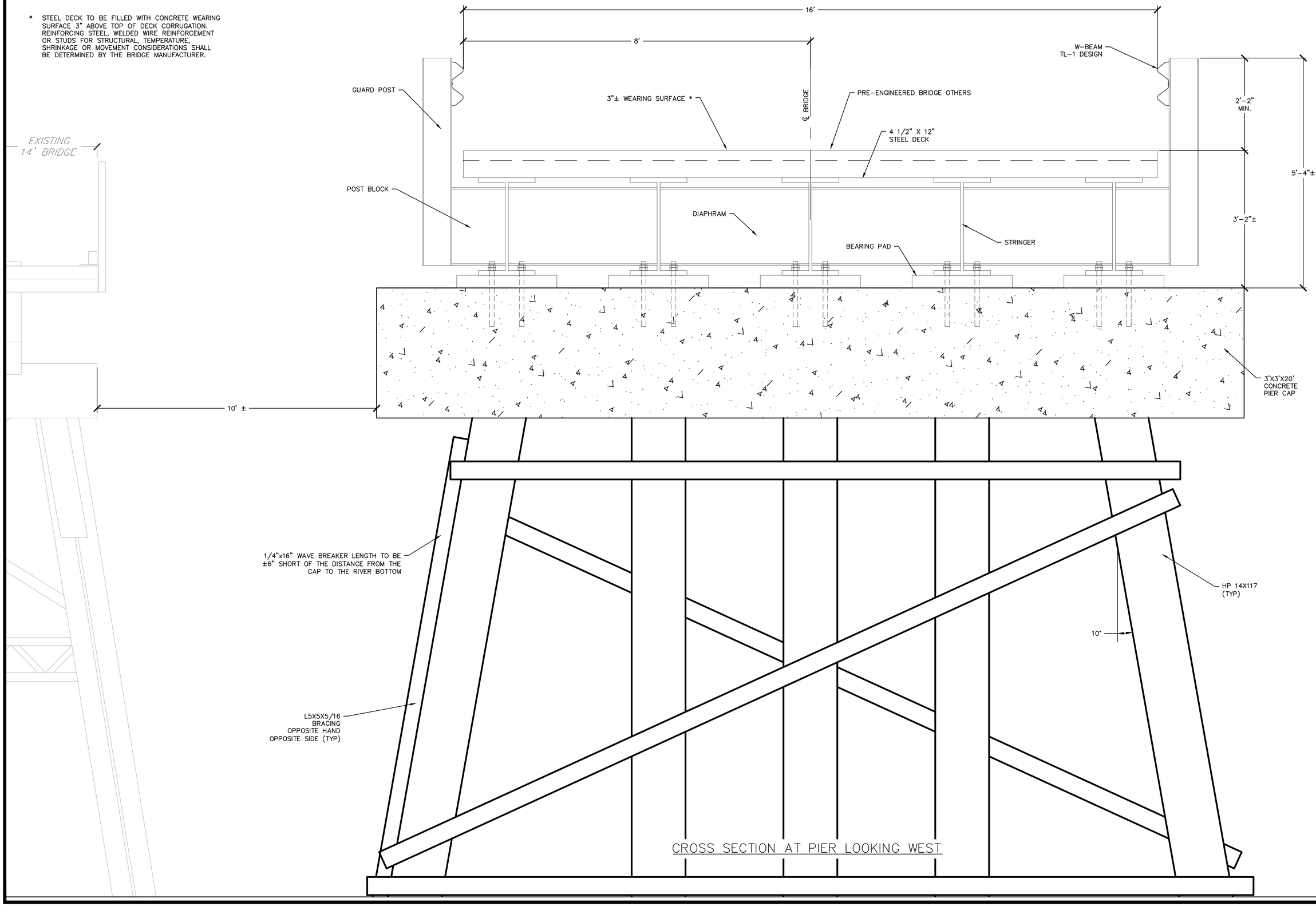
PLAN & PROFILE
SHORT BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018

* STEEL DECK TO BE FILLED WITH CONCRETE WEARING SURFACE 3" ABOVE TOP OF DECK CORRUGATION. REINFORCING STEEL, WELDED WIRE REINFORCEMENT OR STUDS FOR STRUCTURAL, TEMPERATURE, SHRINKAGE OR MOVEMENT CONSIDERATIONS SHALL BE DETERMINED BY THE BRIDGE MANUFACTURER.



CROSS SECTION AT PIER LOOKING WEST

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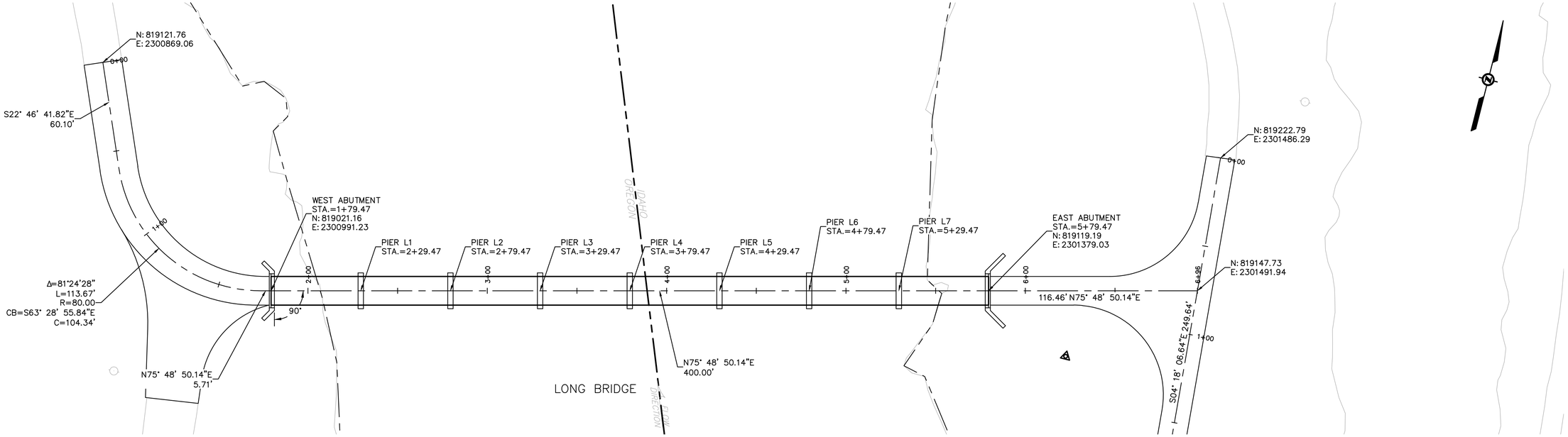
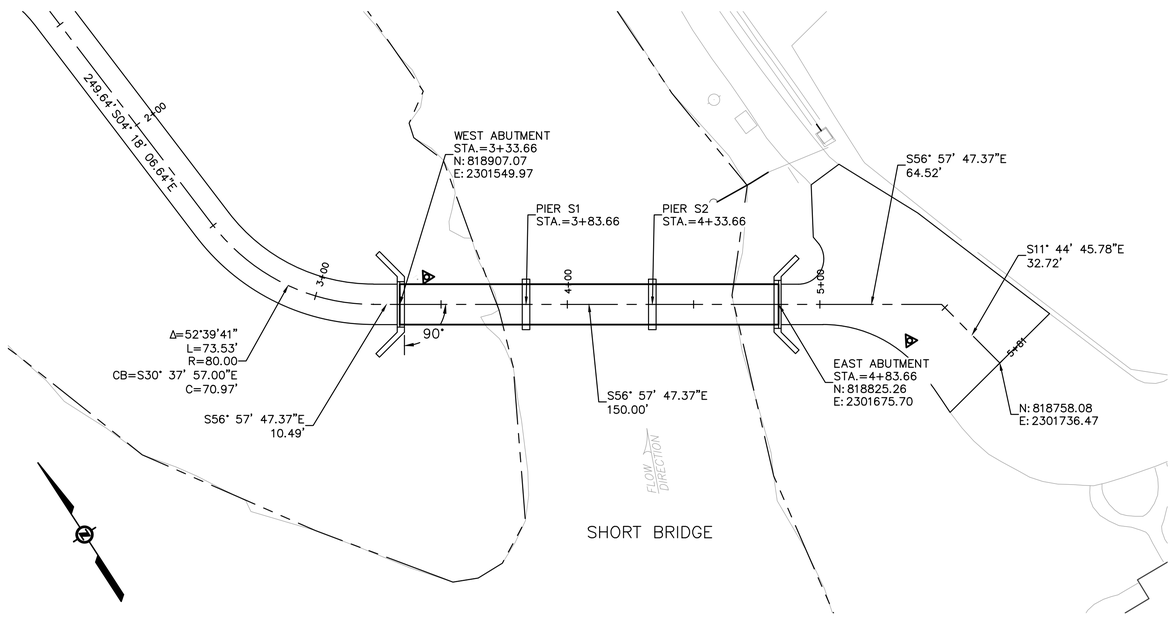
TYPICAL BRIDGE CROSS SECTION

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018





LEGEND

EXISTING		PROPOSED
———	STATE LINE	
—— – ——	ORDINARY HIGH WATER	
———	ROADWAY	———

SCALE: 1" = 30'

30 15 12 8 5 2 0 10 20 30

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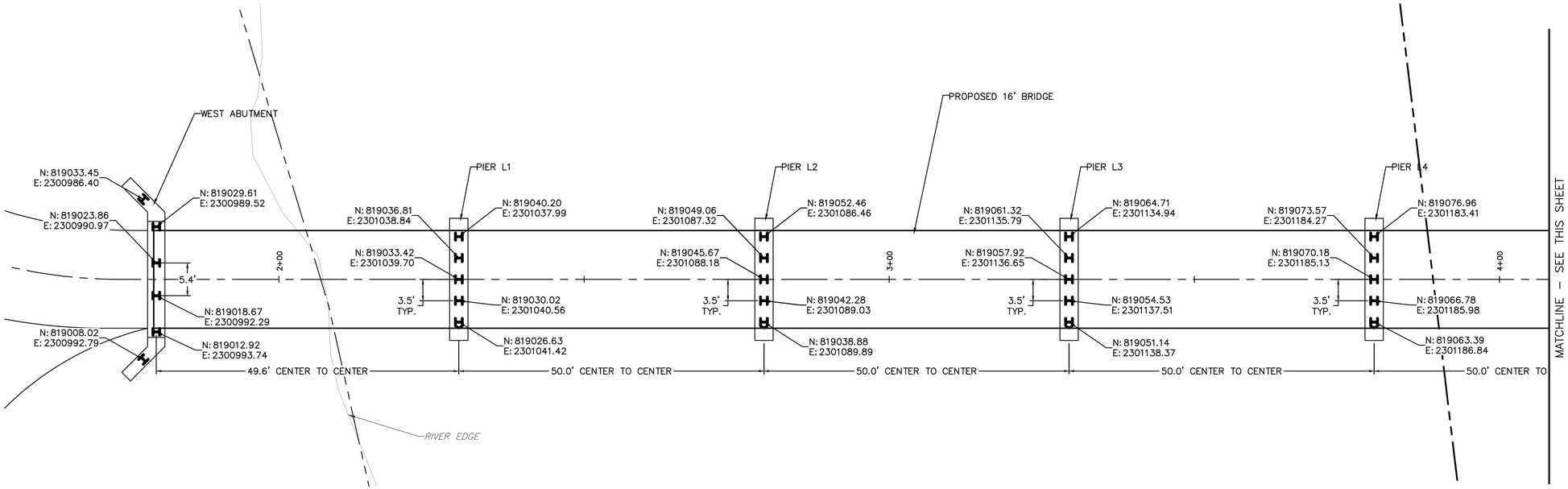
REVISIONS

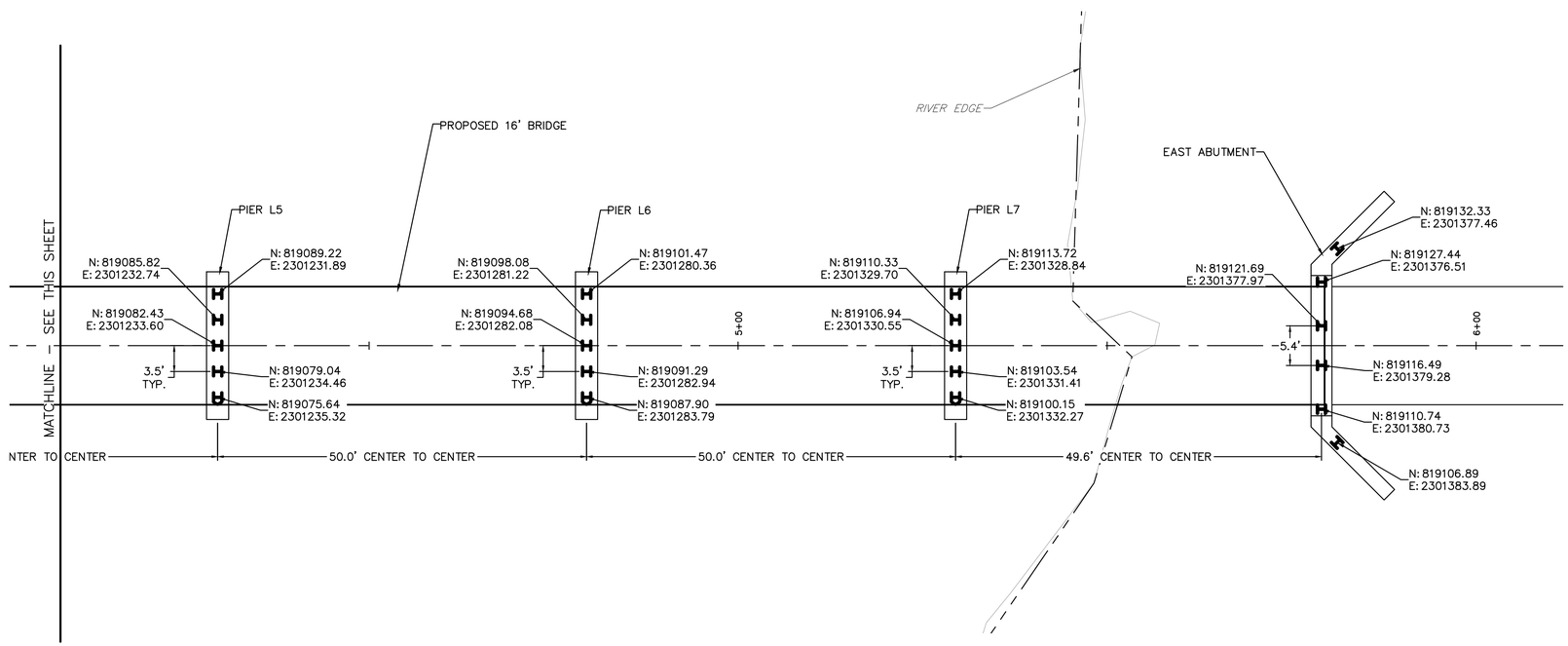
BRIDGE
LOCATION PLAN

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018





LONG BRIDGE PILE SCHEDULE

LOCATION	NO.	ELEVATION		ESTIMATED PILE LENGTH
		PILE CUT–OFF	ESTIMATED PILE TIP	
WEST ABUTMENT	6	2173.00	2109.00	64'–0"
PIER L1 INSIDE	3	2176.15	2109.00	67'–2"
PIER L1 OUTSIDE	2	2176.15	2109.00	67'–11"
PIER L2 INSIDE	3	2176.58	2109.00	67'–7"
PIER L2 OUTSIDE	2	2176.58	2109.00	68'–4"
PIER L3 INSIDE	3	2176.76	2109.00	67'–9"
PIER L3 OUTSIDE	2	2176.76	2109.00	68'–6"
PIER L4 INSIDE	3	2176.69	2109.00	67'–8"
PIER L4 OUTSIDE	2	2176.69	2109.00	68'–5"
PIER L5 INSIDE	3	2176.35	2109.00	67'–4"
PIER L5 OUTSIDE	2	2176.35	2109.00	68'–1"
PIER L6 INSIDE	3	2175.77	2109.00	66'–9"
PIER L6 OUTSIDE	2	2175.77	2109.00	67'–6"
PIER L7 INSIDE	3	2174.93	2109.00	65'–11"
PIER L7 OUTSIDE	2	2174.93	2109.00	66'–5"
EAST ABUTMENT	6	2171.00	2109.00	62'–0"

NOTES:

1. ALL COORDINATES ARE TO THE CENTER OF PILE AT THE TOP OF PILE AND DO NOT ACCOUNT FOR ANY ANGLE.

SCALE: 1" = 10'

10 8 6 4 2 0 5 10

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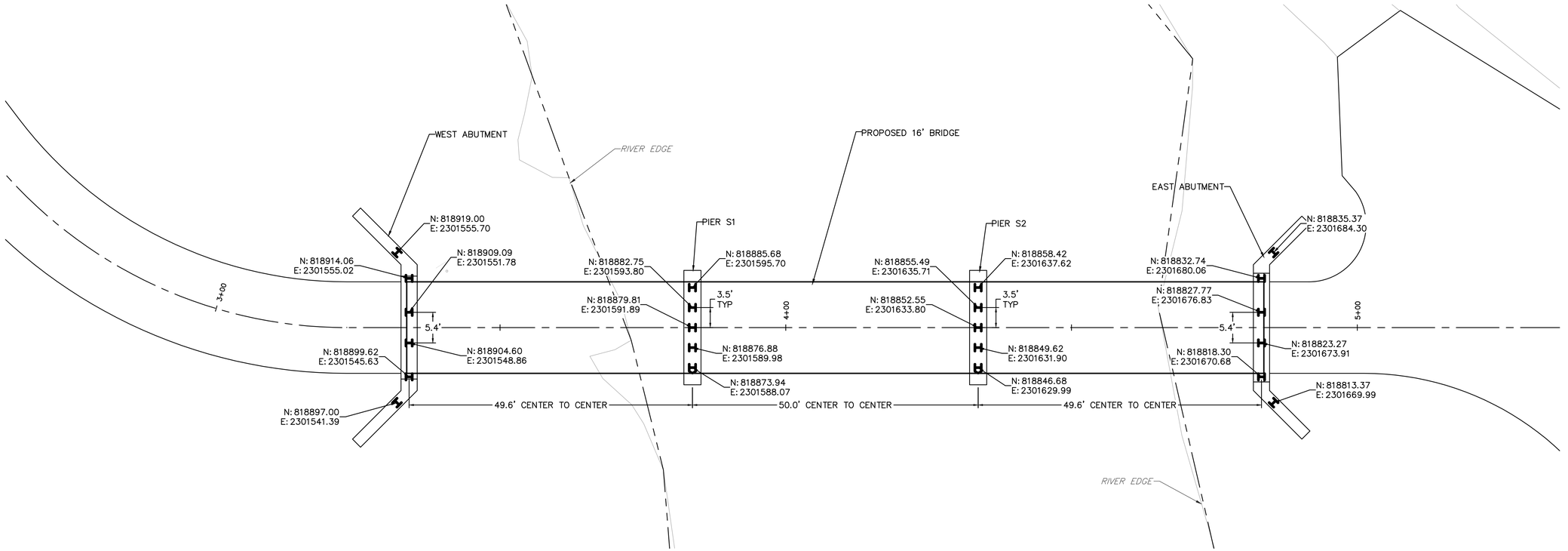
PILE LOCATION PLAN
LONG BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018



SHORT BRIDGE PILE SCHEDULE				
LOCATION	NO.	ELEVATION		ESTIMATED PILE LENGTH
		PILE CUT–OFF	ESTIMATED PILE TIP	
WEST ABUTMENT	6	2170.00	2110.00	60'–0"
PIER S1 INSIDE	3	2172.55	2110.00	62'–7"
PIER S1 OUTSIDE	2	2172.55	2110.00	63'–4"
PIER S2 INSIDE	3	2172.55	2110.00	62'–7"
PIER S2 OUTSIDE	2	2172.55	2110.00	63'–4"
EAST ABUTMENT	6	2170.00	2110.00	60'–0"

NOTES:
1. ALL COORDINATES ARE TO THE CENTER OF PILE AT THE TOP OF PILE AND DO NOT ACCOUNT FOR ANY ANGLE.

SCALE: 1" = 10'
10 8 6 4 2 0 5 10

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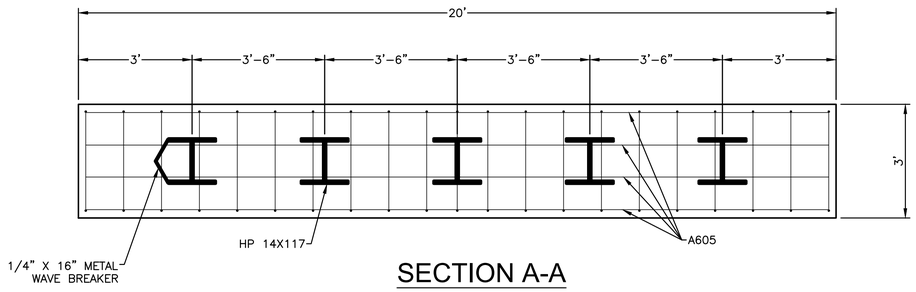
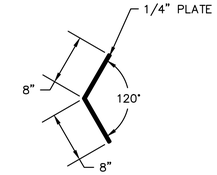
PILE LOCATION PLAN
SHORT BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018

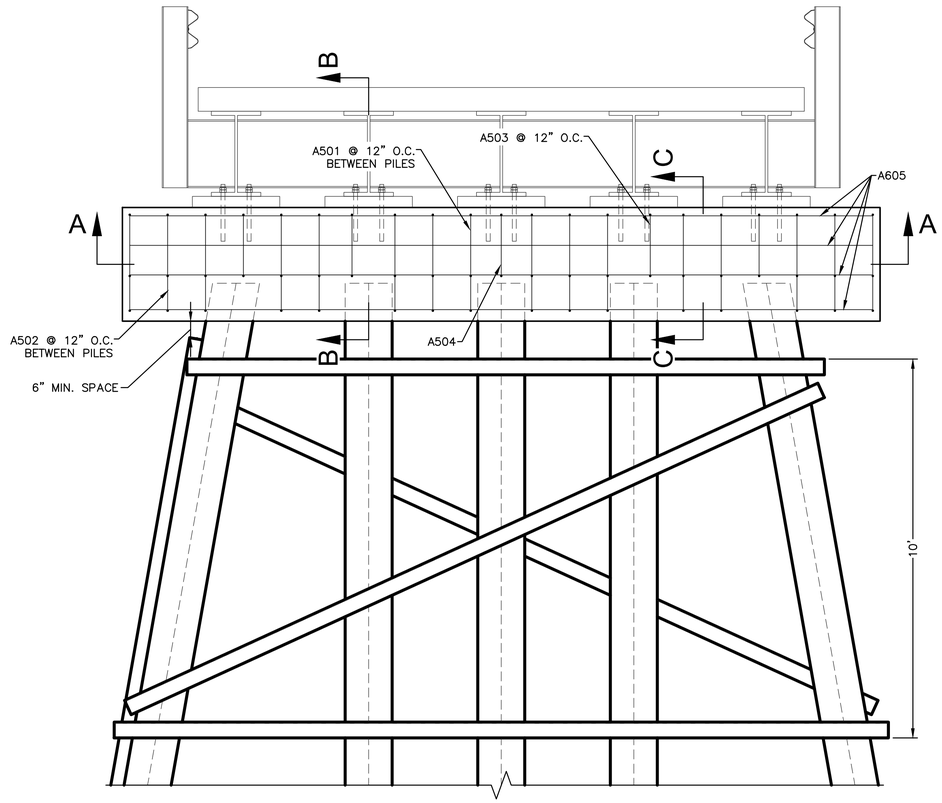


SECTION A-A

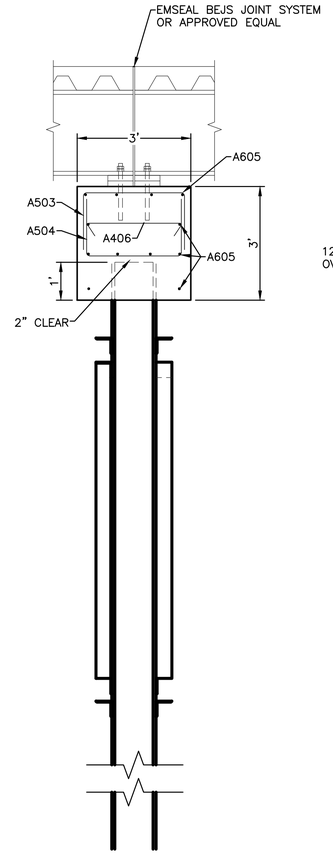


WAVE BREAKER

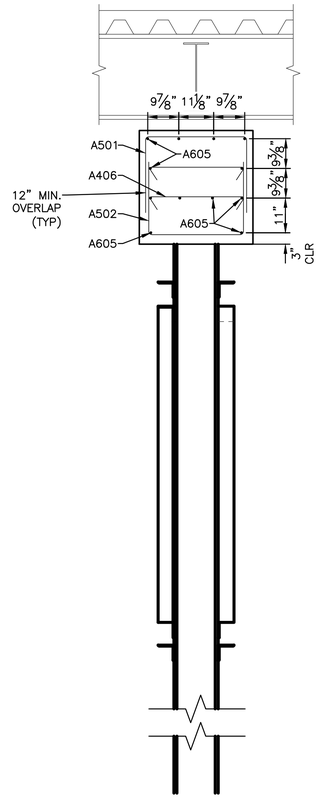
BILL OF BARS				
BAR MARK	NO. REQ'D	LENGTH	BENT	LOCATION
A501	16	6'-8"	YES	TOP STIRRUP
A502	16	6'-4"	YES	BOTTOM STIRRUP
A503	5	5'-8"	YES	TOP STIRRUP OVER PILE
A504	5	5'-6"	YES	BOTTOM STIRRUP OVER PILE
A605	12	19'-8"	NO	LONGITUDINAL
A406	37	3'-2"	YES	STRAPS



TYPICAL BRIDGE PIER SECTION



SECTION B-B



SECTION C-C

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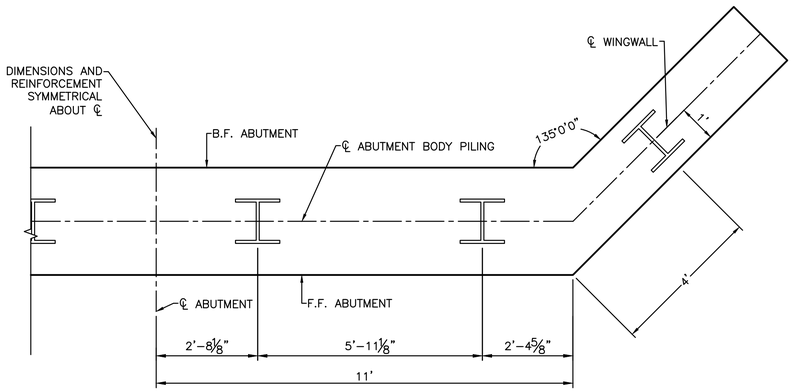
PIER CAP DETAILS

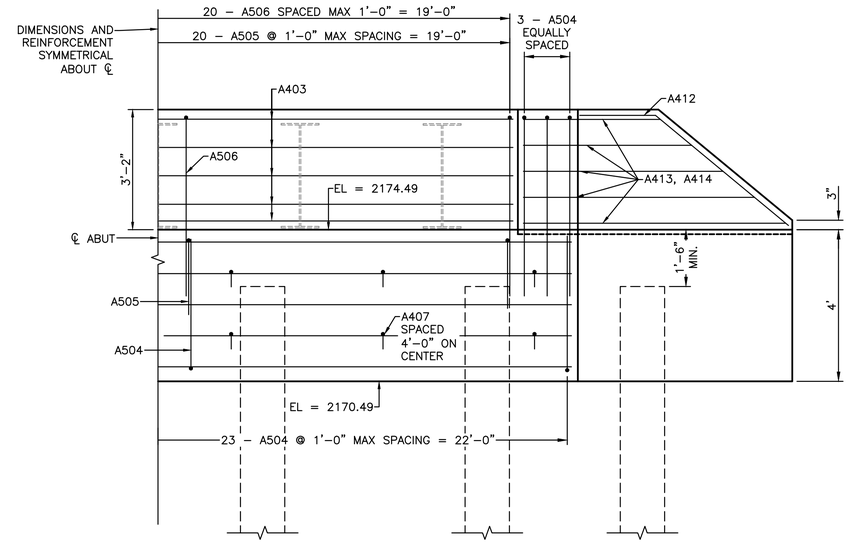
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

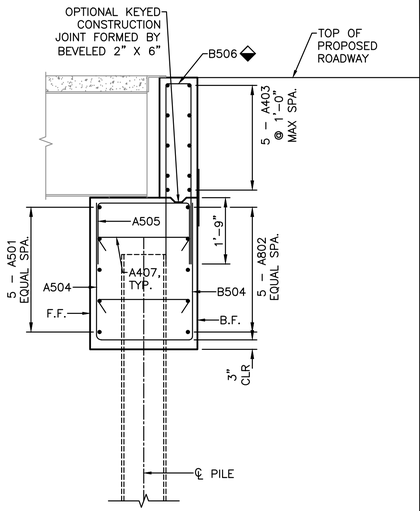
drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



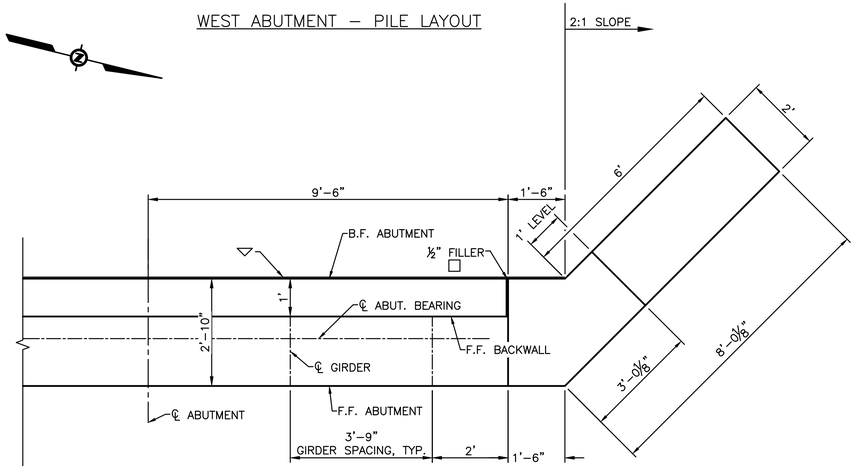
WEST ABUTMENT – PILE LAYOUT



WEST ABUTMENT – ELEVATION VIEW

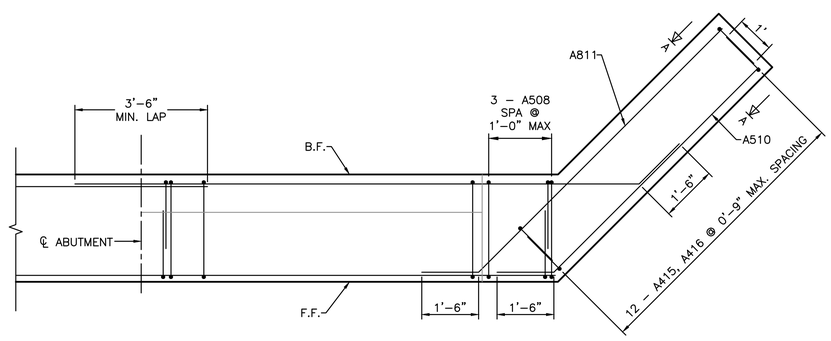


TYPICAL SECTION THRU ABUTMENT BODY



WEST ABUTMENT – PLAN VIEW

SECTION A–A

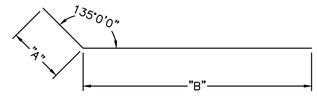


WEST ABUTMENT – PLAN VIEW
SHOWING BAR STEEL REINFORCEMENT

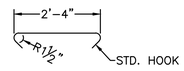
BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
A501		5	21'-10"		ABUTMENT HORIZTONAL - FRONT FACE
A802		10	16'-8"	X	ABUTMENT HORIZTONAL - BACK FACE
A403		10	17'-8"		BACKWALL HORIZONTAL
A504		23	9'-5"	X	ABUTMENT BODY - VERTICAL
A505		26	6'-2"	X	ABUTMENT BODY - VERTICAL
A506		20	9'-11"	X	BACKWALL VERTICAL
A407		12	3'-1"	X	ABUTMENT BODY - TIE
A508		6	11'-8"	X	ABUTMENT CHEEKWALL VERTICAL
A510		10	9'-4"	X	WINGWALL HORIZONTAL - FRONT FACE
A811		10	10'-10"	X	WINGWALL HORIZONTAL - BACK FACE
A412		4	7'-4"	X	WINGWALL HORIZONTAL - TOP BAR
A413		10	9'-4"	X	WINGWALL HORIZONTAL - TAPER F.F.
A414		10	7'-4"	X	WINGWALL HORIZONTAL - TAPER B.F.
A415		24	8'-7"	X	WINGWALL VERTICAL- BOTTOM
A416		24	10'-3"	X	WINGWALL VERTICAL- TOP

LEGEND
- 18" RUBBERIZED WATERPROOFING MEMBRANE
- THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACE OF ½" FILLER WITH NON–STAINING GRAY NON–BITUMINOUS JOINT SEALER.



BAR MARK	DIM "A"	DIM "B"
A802	1'–6"	15'–2"
A510	1'–6"	7'–10"
A811	1'–6"	9'–4"
A412	2'–0"	5'–4"



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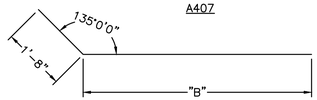
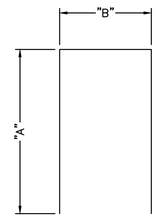


BAR MARK	DIM "B"
A413	7'–8"
A414	5'–8"



BAR MARK	DIM "A"	DIM "B"
A504	3'–7"	2'–5"
A505	2'–0"	2'–5"
A506	4'–9"	0'–8"
A415	3'–7"	1'–7"
A416	4'–5"	1'–7"

BENT BAR DETAILS

COLLINS ENGINEERS, INC.
7976 West Victory Road
Boise, Idaho 83709
voice: (303) 447-2020
fax: (303) 447-9141
web: collinsengr.com

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REVISIONS

REV. NO.	DATE	REVISIONS DESCRIPTION
1		
2		
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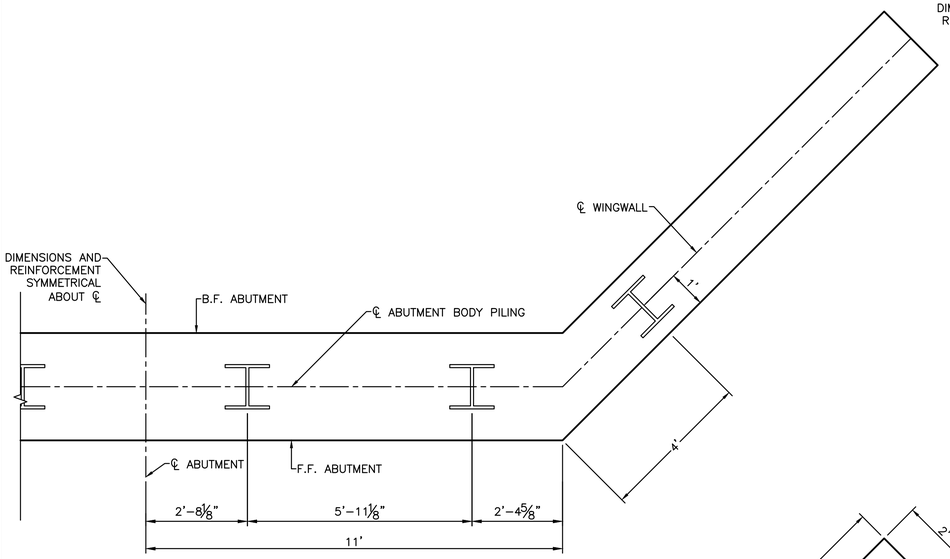
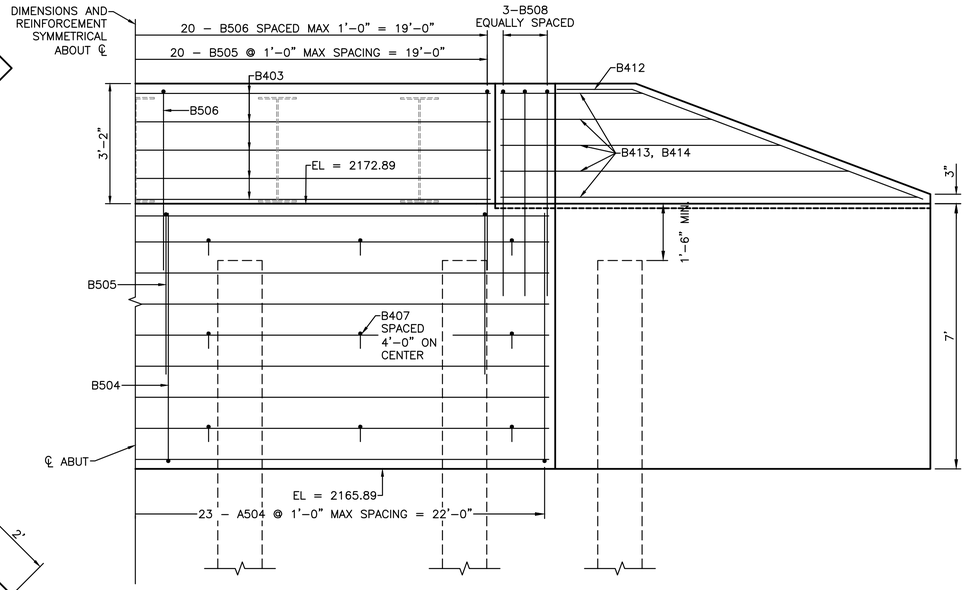
ABUTMENT DETAILS
WEST SIDE – LONG BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

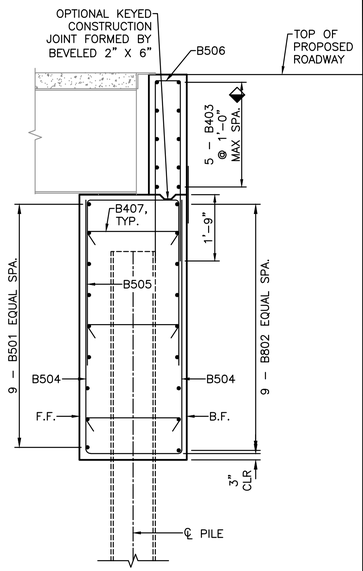
drawn by:	EWT
checked by:	BMF
approved by:	BMF
QA/QC by:	BEW
project no.:	10051.02
drawing no.:	
date:	8/4/2018



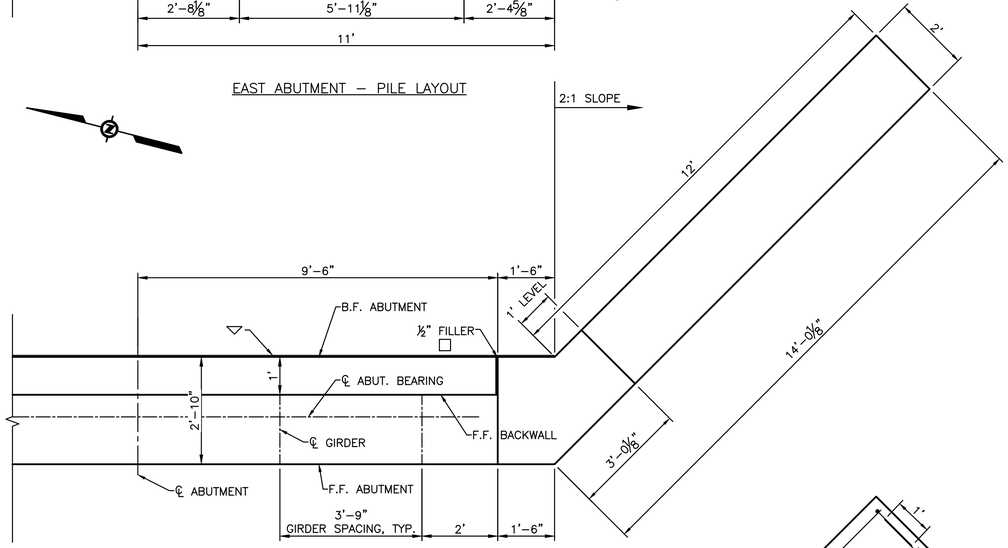
EAST ABUTMENT – PILE LAYOUT



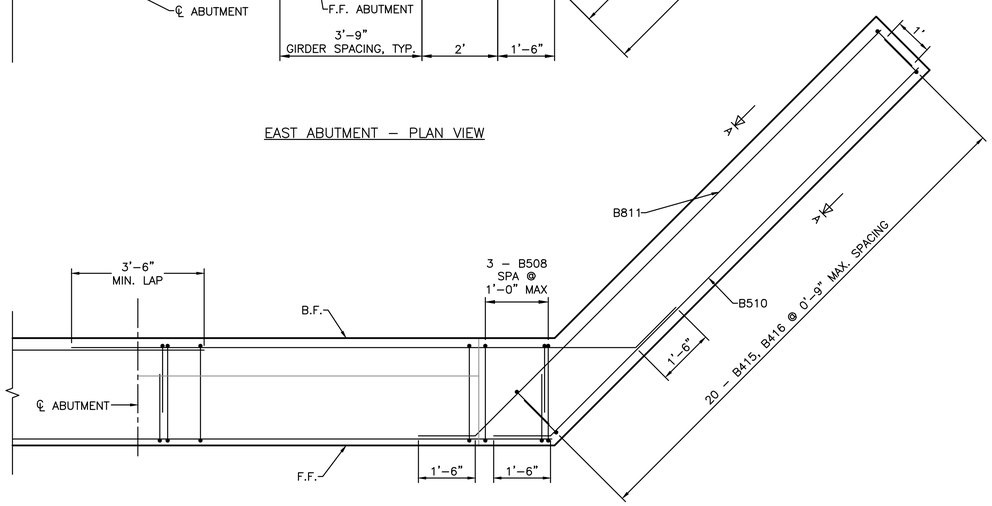
EAST ABUTMENT – ELEVATION VIEW



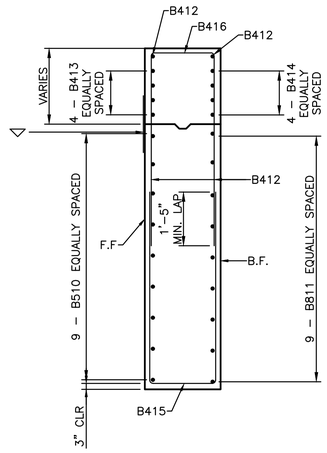
TYPICAL SECTION THRU ABUTMENT BODY



EAST ABUTMENT – PLAN VIEW



EAST ABUTMENT – PLAN VIEW
SHOWING BAR STEEL REINFORCEMENT



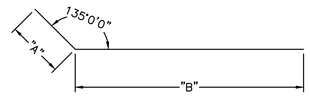
SECTION A–A

LEGEND

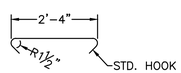
- 18" RUBBERIZED WATERPROOFING MEMBRANE
- THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.
- SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACE OF ½" FILLER WITH NON–STAINING GRAY NON–BITUMINOUS JOINT SEALER.

BILL OF BARS

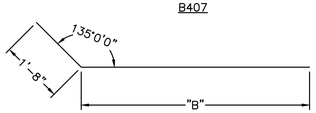
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
B501		9	21'-10"		ABUTMENT HORIZTONAL - FRONT FACE
B802		18	16'-8"	X	ABUTMENT HORIZTONAL - BACK FACE
B403		10	17'-8"		BACKWALL HORIZONTAL
B504		23	15'-4"	X	ABUTMENT BODY - VERTICAL
B505		26	6'-2"	X	ABUTMENT BODY - VERTICAL
B506		20	9'-11"	X	BACKWALL VERTICAL
B407		18	3'-1"	X	ABUTMENT BODY - TIE
B508		6	11'-8"	X	ABUTMENT CHEEKWALL VERTICAL
B510		18	15'-4"	X	WINGWALL HORIZONTAL - FRONT FACE
B811		18	16'-9"	X	WINGWALL HORIZONTAL - BACK FACE
B412		4	12'-9"	X	WINGWALL HORIZONTAL - TOP BAR
B413		10	14'-11"	X	WINGWALL HORIZONTAL - TAPER F.F.
B414		10	12'-11"	X	WINGWALL HORIZONTAL - TAPER B.F.
B415		40	14'-7"	X	WINGWALL VERTICAL- BOTTOM
B416		40	10'-3"	X	WINGWALL VERTICAL- TOP



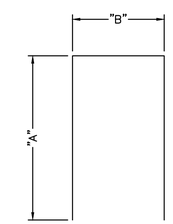
BAR MARK	DIM "A"	DIM "B"
B802	1'–6"	15'–2"
B510	1'–6"	13'–10"
B811	1'–6"	15'–3"
B412	2'–0"	10'–9"



B407



BAR MARK	DIM "B"
B413	13'–3"
B414	11'–3"



BAR MARK	DIM "A"	DIM "B"
B504	6'–7"	2'–5"
B505	2'–0"	2'–5"
B506	4'–9"	0'–8"
B508	4'–9"	2'–5"
B415	6'–7"	1'–7"
B416	4'–5"	1'–7"

BENT BAR DETAILS

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REVISIONS

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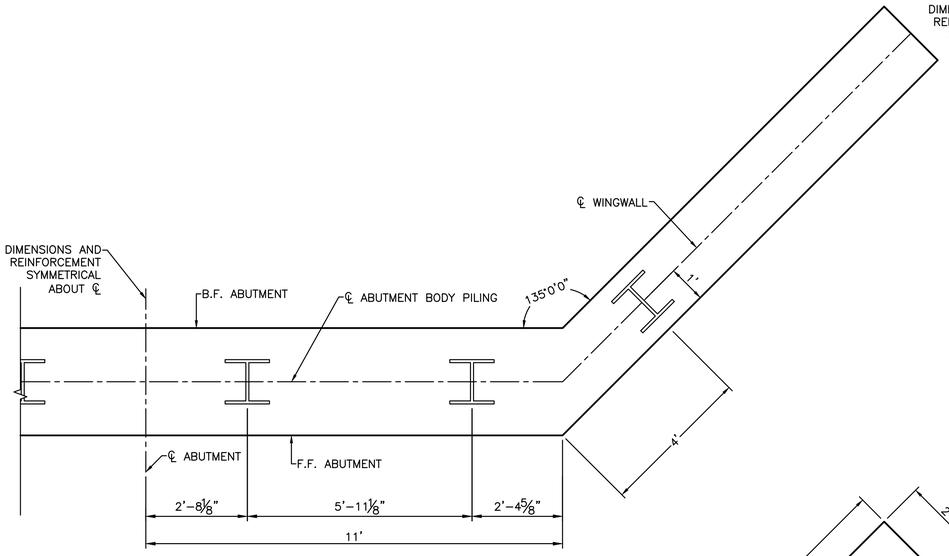
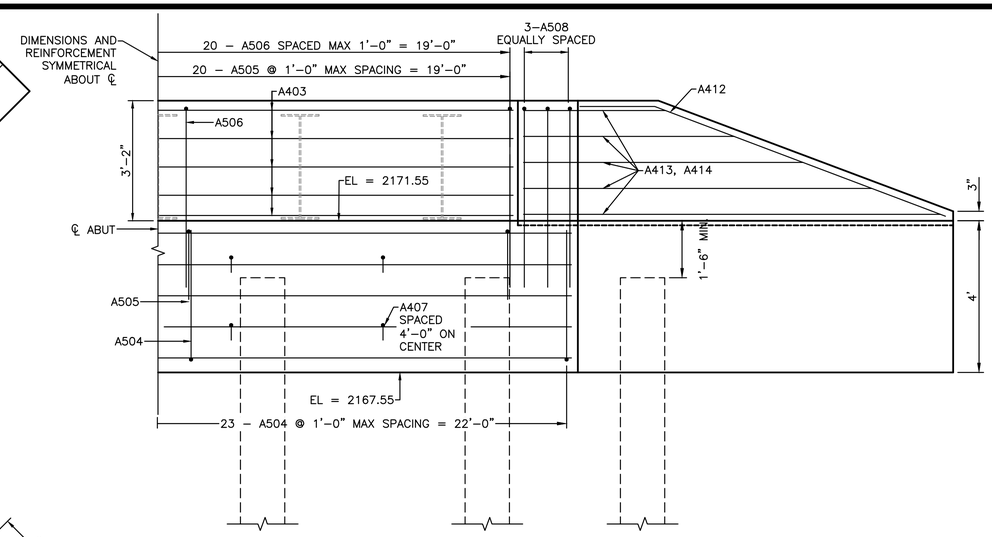
ABUTMENT DETAILS
EAST SIDE – LONG BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

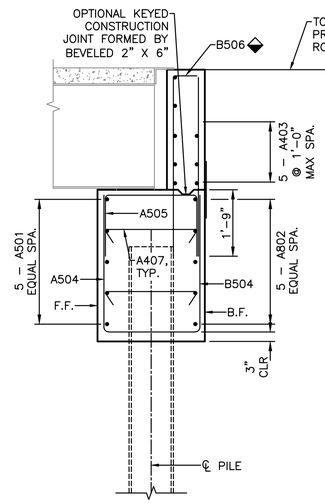
drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018



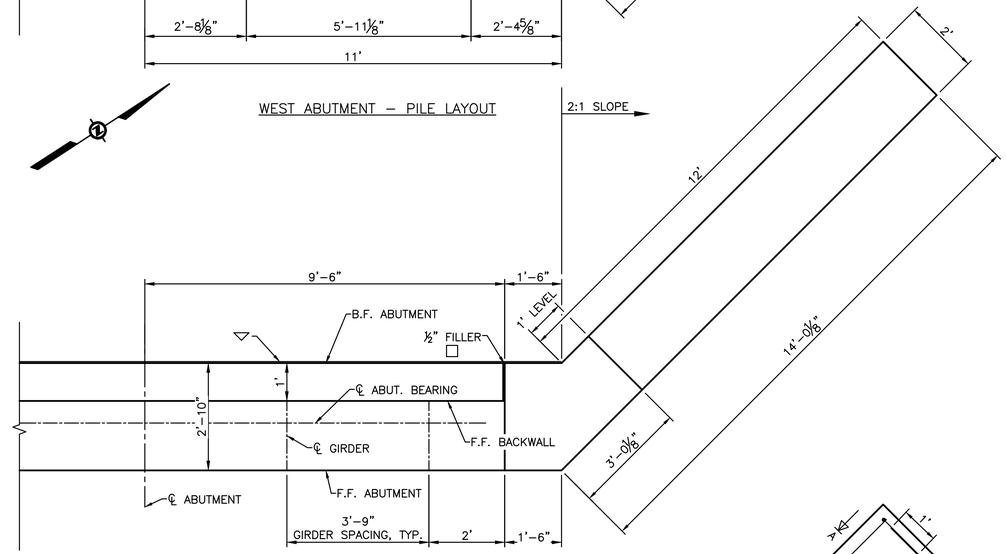
WEST ABUTMENT – PILE LAYOUT



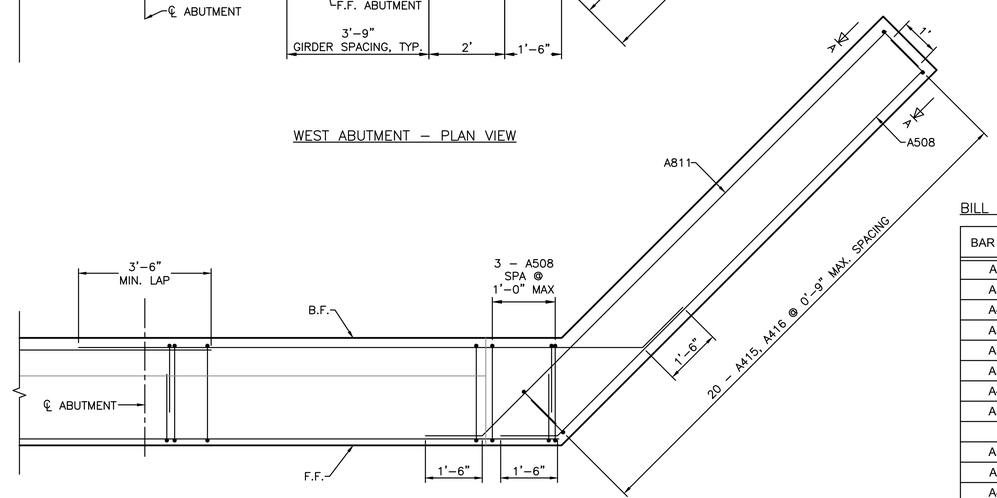
WEST ABUTMENT – ELEVATION VIEW



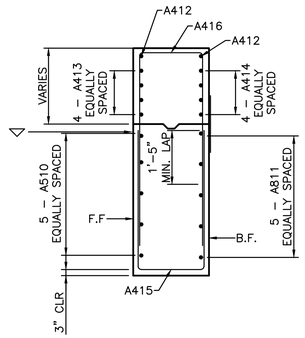
TYPICAL SECTION THRU ABUTMENT BODY



WEST ABUTMENT – PLAN VIEW



WEST ABUTMENT – PLAN VIEW
SHOWING BAR STEEL REINFORCEMENT



SECTION A–A

LEGEND

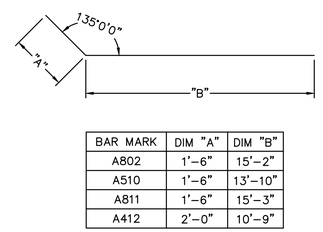
▽ 18" RUBBERIZED WATERPROOFING MEMBRANE

◆ THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.

□ SEAL ALL EXPOSED HORIZONTAL AND VERTICAL SURFACE OF ½" FILLER WITH NON–STAINING GRAY NON–BITUMINOUS JOINT SEALER.

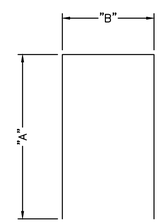
BILL OF BARS

BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
A501		5	21'-10"		ABUTMENT HORIZTONAL - FRONT FACE
A802		10	15'-4"	X	ABUTMENT HORIZTONAL - BACK FACE
A403		10	17'-8"		BACKWALL HORIZONTAL
A504		23	9'-5"	X	ABUTMENT BODY - VERTICAL
A505		26	6'-2"	X	ABUTMENT BODY - VERTICAL
A506		20	9'-11"	X	BACKWALL VERTICAL
A407		12	3'-1"	X	ABUTMENT BODY - TIE
A508		6	11'-8"	X	ABUTMENT CHEEKWALL VERTICAL
A510		10	15'-4"	X	WINGWALL HORIZONTAL - FRONT FACE
A811		10	16'-9"	X	WINGWALL HORIZONTAL - BACK FACE
A412		4	12'-9"	X	WINGWALL HORIZONTAL - TOP BAR
A413		10	14'-11"	X	WINGWALL HORIZONTAL - TAPER F.F.
A414		10	12'-11"	X	WINGWALL HORIZONTAL - TAPER B.F.
A415		40	8'-7"	X	WINGWALL VERTICAL- BOTTOM
A416		40	10'-3"	X	WINGWALL VERTICAL- TOP



BAR MARK	DIM "A"	DIM "B"
A802	1'–6"	15'–2"
A510	1'–6"	13'–10"
A811	1'–6"	15'–3"
A412	2'–0"	10'–9"

BAR MARK	DIM "B"
A413	13'–3"
A414	11'–3"



BAR MARK	DIM "A"	DIM "B"
A504	3'–7"	2'–5"
A505	2'–0"	2'–5"
A506	4'–9"	0'–8"
A508	4'–9"	2'–5"
A415	3'–7"	1'–7"
A416	4'–5"	2'–5"

BENT BAR DETAILS

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7676 West Victory Road
Boise, Idaho 83709
voice: (303) 447-2020
fax: (303) 447-9141
web: collinsengr.com

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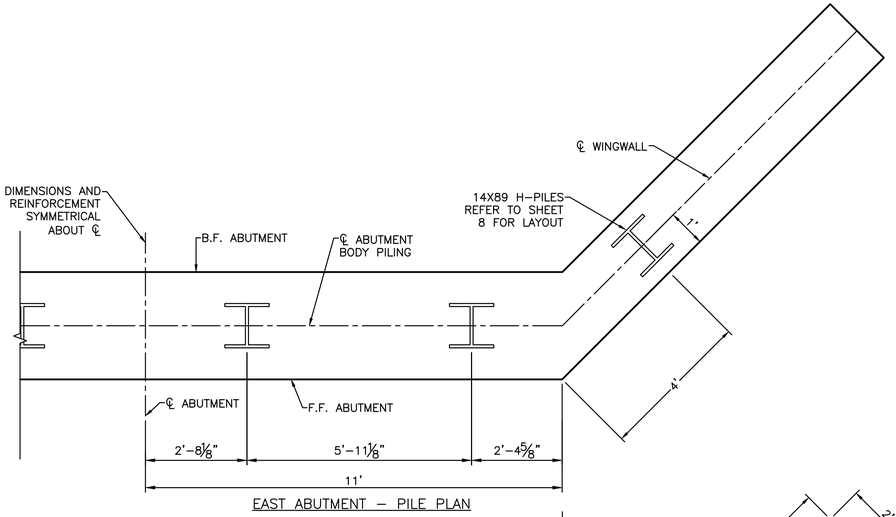
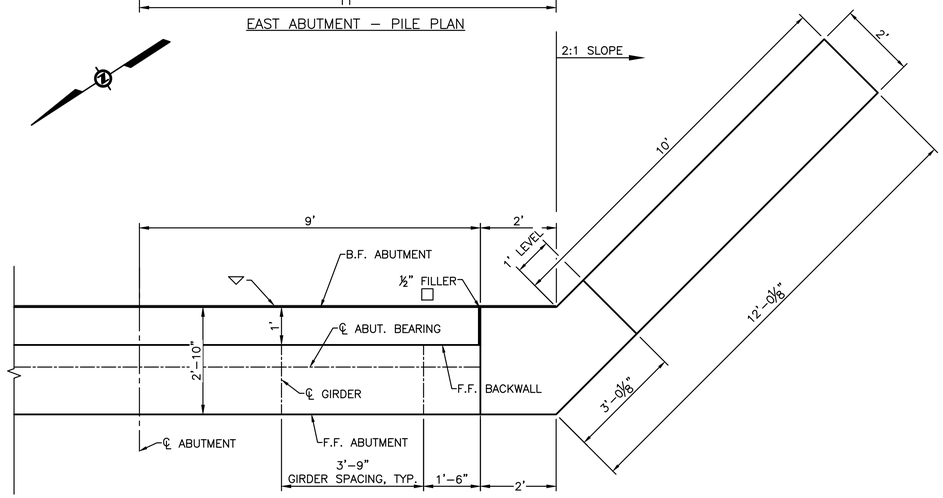
REVISIONS

ABUTMENT DETAILS
WEST SIDE – SHORT BRIDGE
ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON
IDAHO

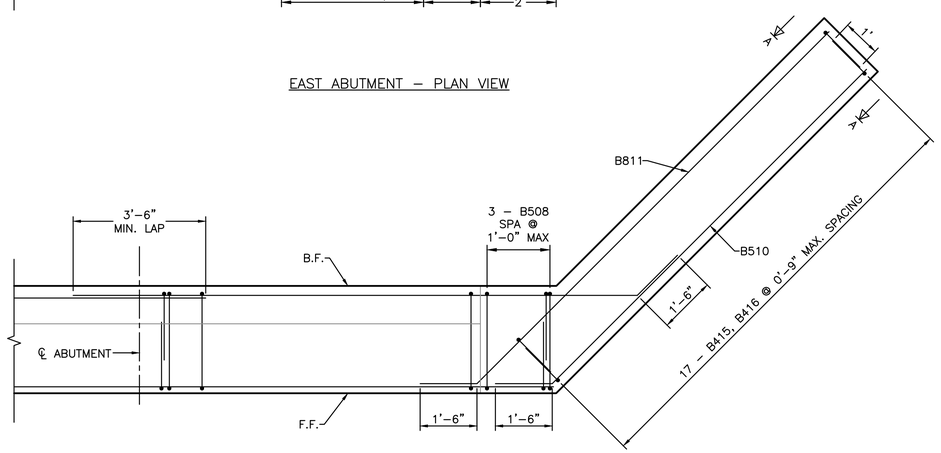
drawn by: EWT
checked by: BMF
approved by: BMF
QA/QC by: BEW
project no.: 10051.02
drawing no.:
date: 8/4/2018



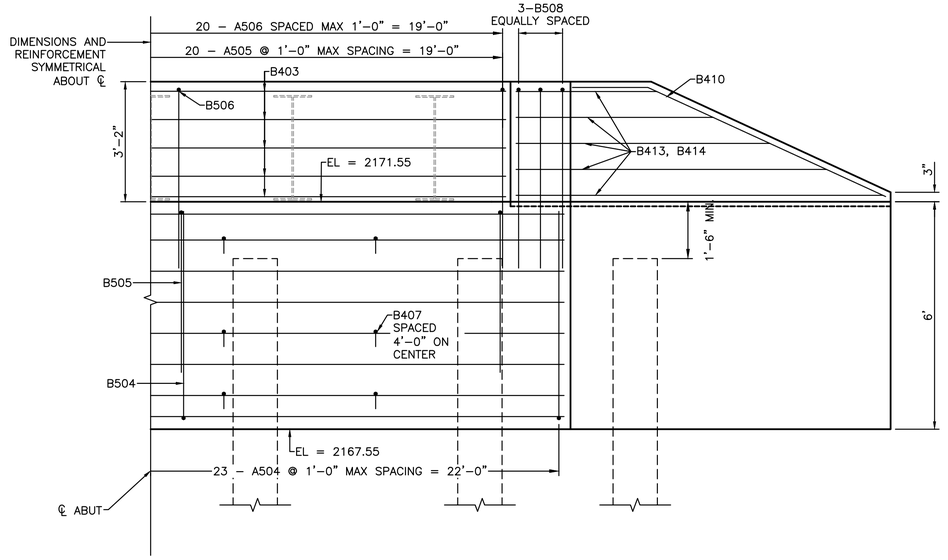
EAST ABUTMENT – PILE PLAN



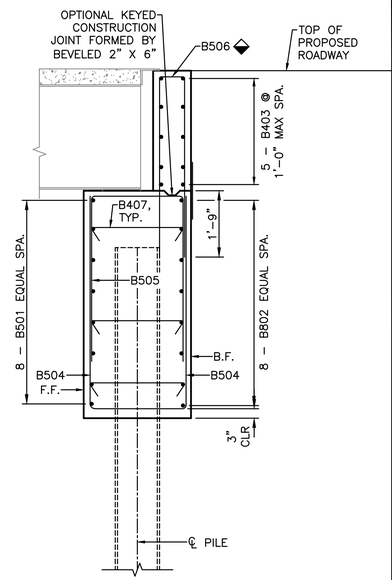
EAST ABUTMENT – PLAN VIEW



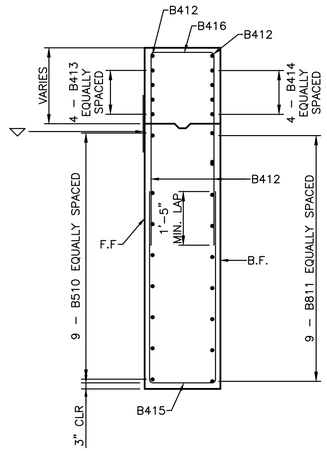
EAST ABUTMENT – PLAN VIEW
SHOWING BAR STEEL REINFORCEMENT



EAST ABUTMENT – ELEVATION VIEW



TYPICAL SECTION THRU ABUTMENT BODY



SECTION A–A

LEGEND

- 18" RUBBERIZED WATERPROOFING MEMBRANE
- THESE BARS MAY BE PLACED AFTER CONCRETE IS POURED, BUT BEFORE INITIAL SET HAS TAKEN PLACE.
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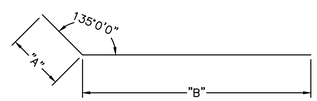
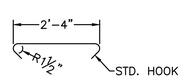
BILL OF BARS

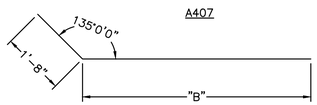
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	LOCATION
B501		8	21'-10"		ABUTMENT HORIZTONAL - FRONT FACE
B802		16	16'-8"	X	ABUTMENT HORIZTONAL - BACK FACE
B403		10	17'-8"		BACKWALL HORIZONTAL
B504		23	13'-4"	X	ABUTMENT BODY - VERTICAL
B505		26	6'-2"	X	ABUTMENT BODY - VERTICAL
B506		20	9'-11"	X	BACKWALL VERTICAL
B407		18	3'-1"	X	ABUTMENT BODY - TIE
B508		6	11'-8"	X	ABUTMENT CHEEKWALL VERTICAL
B510		16	13'-5"	X	WINGWALL HORIZONTAL - FRONT FACE
B811		16	14'-9"	X	WINGWALL HORIZONTAL - BACK FACE
B412		4	11'-0"	X	WINGWALL HORIZONTAL - TOP BAR
B413		10	12'-7"	X	WINGWALL HORIZONTAL - TAPER F.F.
B414		10	10'-7"	X	WINGWALL HORIZONTAL - TAPER B.F.
B415		34	12'-7"	X	WINGWALL VERTICAL- BOTTOM
B416		34	10'-3"	X	WINGWALL VERTICAL- TOP



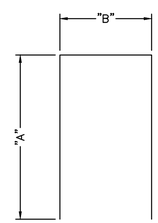
BAR MARK	DIM "A"	DIM "B"
B802	1'–6"	15'–2"
B510	1'–6"	11'–11"
B811	1'–6"	13'–3"
B412	2'–0"	9'–0"



A407



BAR MARK	DIM "B"
B413	10'–11"
B414	8'–11"



BAR MARK	DIM "A"	DIM "B"
B504	5'–7"	2'–5"
B505	2'–0"	2'–5"
B506	4'–9"	0'–8"
B508	4'–9"	2'–5"
B415	5'–7"	1'–7"
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REVISIONS

ABUTMENT DETAILS
EAST SIDE – SHORT BRIDGE

ALSCOTT BRIDGE
GAMBLE ISLAND OVER THE SNAKE RIVER
NEAR NYSSA, OREGON

IDAHO

drawn by: EWT
checked by: BMF
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project no.: 10051.02
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