

WSDOT Fish Passage Projects

Pre-construction Notification for Section 404/10

Project Name: SR 534 Tributary to Carpenter Creek Fish Passage
Permit number: NWS-2021-00902-DOT
Date: 11/4/2021

Authorized agent: Name: Beth Toberer Phone: 360-333-9027
(Coordinator or contact)

Address:
1019 Andis Road
Burlington, WA, 98233

Applicant: Name: Jeff Kamps-Environmental Manager MBA Phone: 360-391-4612
(Manager or other responsible party)

Location of proposed project: Lat: 48.34091737 Long: -122.322040705
Section: 17, 20 Township: 33 North Range: 3 East

WSDOT is applying for coverage under:

- ☒ NWP 14, Linear Transportation Projects (< 0.5 acre loss of waters)
☐ NWP 27, Aquatic Habitat Restoration, Enhancement, and Establishment Activities (> 0.5 acre loss of waters)

Purpose & need

The purpose of this project is to comply with the federal court injunction requiring the State of Washington to correct fish barriers in Water Resource Inventory Areas (WRIAs) 1 through 23 (United States et al. vs. Washington et al. No. C70-9213 Subproceeding No. 01-1 dated March 29, 2013). This project is currently prioritized in WSDOT's Fish Passage Delivery Plan. As a result, aquatic species will gain improved access to 1.56 miles of upstream habitat of which 3,713 square feet is spawning habitat and 16,501 square feet is rearing habitat for salmonids in Tributary to Carpenter Creek (X-Carpenter Creek).

Project description

The Washington State Department of Transportation (WSDOT) proposes to correct two fish barriers on X-Carpenter Creek as it flows under State Route (SR) 534 in Skagit County. The project will replace one 36-inch diameter, 35-foot long cement pipe (Barrier CR2) with a 12-foot wide concrete box culvert that is 12.8 feet high, and 58.8 feet long; and daylight a 229-foot long culvert (Barrier 995265) into newly constructed stream channel. The new stream will cross over an existing liquid petroleum pipeline corridor currently buried eight feet underground; however, no changes to the liquid petroleum pipeline corridor are currently proposed. The project will not add new pollutant generating impervious surfaces to SR 534 and will not include roadway improvements. The project will be constructed to meet engineering design and safety standards.

All work below the Ordinary High Water Mark (OHWM) will take place during the in-water work window prescribed by WDFW in accordance with the Hydraulic Project Approval. Construction of this project is currently planned for 2022. Plant establishment will continue for three years following construction until 2025.

Project work will include:

- Clear and grub work area as needed.
- Relocate a water line on the south side of SR 534 to make room for the new stream.
- Daylight 299 feet of new stream channel south of SR 534 to bypass fish barrier 995265 (east of Conway Hill Road).

- Realign 167 feet of stream channel south of SR 534 to improve stream sinuosity and function (west of Conway Hill Road).
- Permanently fill 280 linear feet of existing stream channel to redirect flow into the new channel realignment west of Conway Hill Road.
- Relocate the existing CR2 crossing location 50 feet eastward to better function with inlet/out stream dynamics.
- Install a stream simulation box culvert with wing walls to facilitate fish passage under SR 534 into the new realigned channel.
- Remove the existing CR2 culvert and permanently fill the removal area to support the existing roadway prism.
- Install new streambeds with gravels and large woody material (LWM) throughout the daylighted and realigned stream channel segments.
- Reconfigure 995265 existing stormwater outlet to discharge above the proposed OHWM of X-Carpenter Creek to continue existing highway drainage patterns.
- Reconstruct the roadway on top of the new stream simulation culvert, along with signing, and striping the roadway, as needed.
- Install guardrail along SR 534 to protect the traveling public.
- Plant new streambanks with willows to stabilize cut slopes.
- Plant remaining streambanks with native woody and emergent vegetation to support stream channel function.

Temporary work to construct the new crossing and stream channel will include:

- Manage traffic with one lane roadway closures and a brief full roadway closure to install the new CR2 crossing.
- Access the work area from SR 534, Conway Hill Road, and upstream/downstream tie in points for the new stream channel.
- Install two temporary stream diversions to protect fish life during construction by isolating the stream channel from the proposed construction work.
- Stabilize exposed soil with temporary seeding and erosion control Best Management Practices (BMPs).

See **Attachment 1**, project drawings, for work details.

The proposed project (RGC 5):

- ☒ Does not involve new or maintenance bank stabilization activities.
- ☐ Will involve new or maintenance bank stabilization activities. Explain:
 - a) The cause of the erosion and the distance of any existing structures from the area(s) being stabilized.
 - b) The type and length of existing bank stabilization within 300 feet of the proposed project.
 - c) A description of current conditions and expected post-project conditions in the waterbody.
 - d) A statement describing how the project incorporates elements avoiding and minimizing adverse environmental effects to the aquatic environment and nearshore riparian area, including vegetation impacts in the waterbody.

The proposed project (RGC 6):

- ☐ Is a bridge (as defined in the Washington State Department of Fish & Wildlife's *Water Crossing Design Guidelines* [2013]).
- ☒ Is not a bridge and was designed using the Washington State Department of Fish & Wildlife's *Water Crossing Design Guidelines* (2013) and meets stream simulation.
- ☐ Is not a bridge and does not meet stream simulation. Explain:
 - a) The existence of extraordinary site conditions.
 - b) How the proposed design will provide equivalent or better fish passage and fisheries habitat benefits than the stream simulation design method.

See **Attachment 2**, monitoring plan, which specifies how the proposed culvert will be assessed over a five-year period from the time of construction completion to ensure its effectiveness in providing passage at all life stages at all flows where the salmonid species would naturally seek passage.

Environmental setting

Land use & soils (See Pages 8 & 9 of the ARAR)

Overall, habitat in the X-Carpenter Creek watershed has been impacted by agricultural, residential and industrial uses. In the project area, streams have been modified into ditches, wetlands farmed, and riparian vegetation and large woody debris removed, resulting in simplified habitat and poor water quality conditions. Tributary to Carpenter Creek was historically capped to increase the fill prism for Conway Elementary School and SR 534 roadside to encapsulate drainage for the safety of students.

A residential network has grown east of Conway School and residential homes with greater than one acre of land lie adjacent to SR 534 in the project area. Easements have been allowed over the years for waterline connections and a liquid petroleum line has been installed about 8 feet below ground in the eastern portion of the study area.

Mapped soils in the study area include Bow gravelly loam, 3-8% slopes (17), Skagit Silt Loam (123), and Sumas silt loam (136); all of which are listed as hydric and suitable for agriculture. Agricultural fields support wetland pastures that have been seeded to provide palatable grasses for livestock and are hayed each year to provide a reliable food source for grazing livestock.

Vegetation (See Page 8 of the ARAR)

In the study area, the landscape includes pasture south of SR 534, which is hayed annually for livestock feed. Pasture grasses include primarily tall fescue (*Schedonorus arundinaceus*), meadow fescue (*Schedonorus pratensis*), redtop (*Agrostis gigantea*), red fescue (*Festuca rubra*), meadow foxtail (*Alopecurus pratensis*), and sweet vernalgrass (*Anthoxanthum odoratum*). Pasture areas include various forbs identified as meadow buttercup (*Ranunculus acris*), creeping buttercup (*Ranunculus repens*), garden vetch (*Vicia sativa*), and tiny vetch (*Vicia hirsuta*). Wet pasture includes clusters of soft rush (*Juncus effusus*), small-fruited bulrush (*Scirpus microcarpus*), and inclusions of reed canarygrass (*Phalaris arundinacea*) primarily along SR 534. Upstream of barrier 995265, pasture abuts the forested buffer of X-Carpenter Creek which supports a small diverse area of upland forest with plantings of Shorepine (*Pinus contorta*), Douglas fir, western red cedar (*Thuja plicata*), quaking aspen (*Populus tremuloides*), Oregon ash (*Fraxinus latifolia*), and baldhip rose (*Rosa gymnocarpa*). In the western portion of the study area, near fish barrier CR2 inlet, the pasture abuts a residential lawn with one European ash (*Sorbus aucuparia*) tree along the property boundary. All of the aforementioned trees are less than 21 inches diameter at breast height.

North of SR 534, the landscape continues to support pasture across the majority of the study area until abutting a fenced portion of the riparian buffer for Carpenter Creek that has been put into the Conservation Reserve Enhancement Program (CREP) program with United States Department of Agriculture. Pasture species are similar to the south side of SR 534, but include also white clover (*Trifolium repens*) and red clover (*Trifolium pratense*).

The remainder of the study area includes highway road fill prism supporting mowed pasture grass, reed canarygrass, common dandelion (*Taraxacum officinale*) and scattered inclusions of low growing red alder saplings, beaked hazelnut, and snowberry shrubs.

Hydrology

Hydrology in the project area includes a series of slope wetlands draining northwest, a culverted portion of X-Carpenter Creek (Fish barrier 995265) under the southbound shoulder of SR 534, a ditched portion of X-Carpenter Creek entering Fish barrier CR2, and the tributary downstream of SR 534. Slope wetlands primarily have surface saturation supported by groundwater and rainfall inputs with surface water ponding in small depressions to depths less than 6 inches. X-Carpenter Creek is a seasonally flowing stream, which receives flashy inputs of stormwater runoff from upstream development during fall, winter and spring, then flow slowly dwindles down to an upstream dry channel during the late spring and summer months. As the stream approaches SR 534, it flattens near the highway and accumulates more base flows from upslope wetlands recharging base flows into the ditched portion of the stream. The tributary drains downstream of SR 534 for 50 feet before exiting the project area and an additional 150 feet before entering Hill Ditch/Carpenter Creek. No construction is planned to occur within the OHWM of Hill Ditch/Carpenter Creek and direct project effects will not extend into this water body during construction.

The historic construction of SR 534 created a hydrologic drainage barrier parallel to northwesterly slope drainage, which impounds water south of the highway and bisects wetlands. Wetlands south of the highway are further separated by Conway Hill Road and wetlands north of the highway are further separated by drains and a maintenance house to service the liquid petroleum line. Fill material and drains are installed along the pipeline that further disrupt hydrological connections through the ground.

See **Attachment 3**, Delineation of wetlands & other waters (WASR/ARAR), for details on the locations and ratings of wetlands, other special aquatic sites, and other waters in the project area.

Are any of the streams in the project area designated as a Section 10 Water by the Corps?

☒ No ☐ Yes, List waters that are Section 10

*For Section 10 waters, include details for all work in or over the water in the project description, impacts, and drawings.

Are any of the streams in the project area a component of a National Wild & Scenic River System?

☒ No ☐ Yes, Identify the river and explain coordination with the US Forest Service.

Impact summary

The proposed project will have the following total direct impacts:

Wetlands: 0.24 acres of permanent
0.23 acres of temporary
0.13 acres converted to stream
Streams: 1,647 square feet and 280 linear feet of permanent
1,481 square feet and 217 linear feet of temporary
0 linear feet loss (feet of loss minus feet of new channel)

The proposed project will have the following total indirect impacts (buffer & shading):

Wetland buffer: 0 acres of permanent
0 acres of temporary
Stream buffer: 0.03 acres of permanent

0.41 acres of temporary

For a detailed breakdown of the project impacts, see:

- ☒ **Attachment 4**, Impact tables.
- ☒ The impact tables in Project drawings on page(s) 3 and 4.

For a description of how disturbed areas will be revegetated (per RGC 13), see:

- ☒ **Attachment 5**, Restoration plan.
- ☒ **Attachment 1**, Project drawings on page(s) 25 and 26.

The project will require restoration of all disturbed ground with native species. Project areas next to the highway will be revegetated with native grass and emergent vegetation. The stream channel slopes will be planted by the WSDOT restoration crew with native woody shrubs, willows, and a native wetland seed mix to control erosion and complement final installations of LWM and stream morphology. Side slopes will be planted by the contractor with native woody plants on cut slopes and WSDOT's restoration crew will perform the remainder of the streamside planting (**Attachment 5**).

Effect summary

Direct effects:

The project will directly impact on site wetlands by cutting and filling the wetland slopes to form stream side slopes and streambed geometry according to the proposed design. The bottom of the cuts will be layered with streambed gravel and existing wetland slope drainage will recharge the new stream channel sections. East of Conway Hill Road, the proposed stream channel will be daylighted by connecting the existing upstream channel through an existing forested stream buffer into the emergent pasture of Wetland 3. Immature trees will be removed in the buffer due to the proposed stream alignment cuts (Photo 1). Cleared vegetation includes one Douglas fir (22-inch diameter breast height) along with immature tree species of shorepine, Oregon ash, quaking aspen, and western redcedar (Photo 1).



Photo 1. Forested buffer next to Wetland 2 that will be partially cleared to create daylighted stream channel south of SR 534.

West of Conway Hill Road, low quality stream channel area will be filled and improved by realigning the stream through Wetland 3 (Photo 2).



Photo 2. Existing stream channel to be filled and realigned through Wetland 3 south of SR 534.

The site was designed using stream simulation design principles to emulate upstream channel geometry and function combined with expected flows determined in the Preliminary Hydraulic Design report. The result will be wetland restoration in lower sinuous topography next to an open stream channel improving functions for water quality, hydrology, and habitat due to the creation of lower depressional areas next to the stream that are vegetated with woody and emergent plants to dissipate flow, capture sediments and pollutants in the adjacent wetlands. Installation of LWM obstructs flow partially and provides decaying matter to the food web to support soil development of macronutrients next to the stream. New low lying wetland areas will also be directly connected to a sinuous stream channel so food web development can lead to a nutrient pathway supportive of fish life. Replacing CR2 with a stream simulation box culvert will allow fish improved access to the new stream channel area. The site has been designed to be forward compatible with the future Skagit County owned culvert replacement for CR3.

Although wetlands will be directly cut and permanently impacted, the result will be improved overall wetland and stream function across the site. There will be no loss of aquatic resources.

Indirect effects:

Indirect impacts include clearing and grubbing existing stream buffer (Photo 1) to connect the existing stream channel to Wetland 2. Overall, indirect effects are expected to be environmentally beneficial due to stream channel restoration with gravel, LWM, and native plants along with restoration of fish access. All permanent wetland impacts will be converted to stream channel and all temporary buffer impacts will be restored with native vegetation.

Mitigation

Avoidance

The project avoids impacts to wetlands and streams by:

- Planning the stream alignment near its historic crossing in the vicinity of onsite wetlands.
- Planning to capture wetland hydrology to the benefit of wetland/stream function.
- Restoring wetland connectivity to support flows for a seasonal wetland/stream complex.
- Avoidance of impacts to some on site trees in the upstream buffer.
- Total avoidance of impacts to riparian plantings in the downstream buffer of Carpenter Creek.
- Total avoidance of impacts to Wetland 1, an Ecology Category II wetland.

Minimization

The project minimizes impacts to wetlands and streams by:

- Clearing, grubbing, and excavating the minimum necessary to construct the project.
- WSDOT Fish Exclusion Protocols and Standards will be implemented throughout the project.
- Performing construction activities during low or no flow conditions, and during the in-water work window identified by WDFW (July 1 to September 30).
- Isolating all in-stream work by utilizing a stream bypass plan and performing fish exclusion.
- Performing all construction activities consistent with the most recent version of the WSDOT Construction Manual, Standard Specifications for Road, Bridge and Municipal Construction.
- Performing all construction activities in compliance with water quality standards (RCW 90.48 and WAC 173-201A) set forth by DOE.
- Require the contractor to adhere to a Temporary Erosion and Sediment Control plan. Temporary BMPs may include but not be limited to stabilized construction entrances, silt fence, straw wattles, compost socks, erosion control blankets, and temporary cofferdams.
- Require the contractor to submit a SPCC plan and implement it during construction.
- Hydro-seeding all temporary riparian vegetation impacts to stabilize soils.

Compensation (>1,000 sf loss of wetlands)-

The project will permanently impact a total of 0.24 acre of onsite wetland and temporarily impact 0.23 acre of onsite wetland, but none of that acreage will be lost. All wetland impacts will occur to emergent wetland pasture habitats. Permanently impacted wetlands will be cut to geometrically form the stream channel design and are expected to seep hydrology to support base flows for the new stream. A 0.13-acre portion of impacted wetland acreage will be converted to flowing stream channel. The remainder of wetland acreage will be restored next to open water habitats. Wetlands will be restored due to improvements to wetland functions of water quality, hydrodynamics, and habitat explained herein.

The proposed project would:

- ☐ Impact mature forested wetlands or other wetlands of high value where functions cannot be fully restored and proposes to compensate for unavoidable impacts. See the mitigation plan, Attachment 6.
- ☐ Includes transportation or other project elements not associated with the barrier replacement and proposes to compensate for unavoidable impacts. See the mitigation plan, Attachment 6.
- ☒ Result in a net increase in aquatic resource functions and services. No compensatory mitigation is proposed. Explain:

The project will restore temporary and permanent wetland impact areas by creating lower topography next to an open stream channel improving functions for water quality, hydrology, and habitat. The proposed cuts to create the new stream channel and banks will provide lower depressional areas next to the stream that are vegetated with native woody and emergent plants species to dissipate flow, and capture sediments and pollutants in the adjacent wetlands as they overtop with varying levels of stream hydrology. Slope wetlands will continue to express water to support vegetation on streambanks and provide base flows to the new stream channel. Installation of LWM obstructs flow partially to create pool habitat and provides decaying matter to support food web development for salmonids. Replacing CR2 with a stream simulation box culvert will allow fish improved access to the new stream habitat and adjacent wetland areas. Overall, aquatic species will gain improved access to 1.56 miles of upstream habitat of which 3,713 square feet is spawning habitat and 16,501 square feet is rearing habitat for salmonids in X-Carpenter Creek.

Tribal Coordination

See **Attachment 7**, Tribal coordination summary, for details on which tribes the project coordinated with and how tribal concerns were resolved.

Other special purpose laws

Federal lead agency: United States Army Corps of Engineers

Endangered Species Act & Essential Fish Habitat (EFH)

US Fish & Wildlife Service (USFWS)

Type of consultation:

- ☐ No effect ☐ Programmatic ☒ Informal ☐ Formal

Date consultation complete: 10/29/2020

National Marine Fisheries Service (NMFS)

Type of consultation:

- ☐ No effect ☐ Programmatic ☐ Informal ☒ Formal ☐ EFH only

Date consultation complete: 10/20/20

See **Attachment 8**, Endangered Species Act & Essential Fish Habitat documentation for the consultation documents and a list of species in the area.

Section 106 of the National Historic Preservation Act

Affect determination:

- ☒ No historic properties affected ☐ No adverse effect ☐ Adverse effect

Date of SHPO/THPO concurrence: 12/14/2020

Memorandum of Agreement (MOA) needed for the project?

- ☐ No ☒ Yes, the Corps provided language for the MOA.

See **Attachment 9**, Section 106 documentation.

Corps Civil Works (33 USC 408)

- ☒ There are no civil works projects in the project area.
- ☐ The project involves work on a Corps civil works project and submitted a written request for section 408 permission from the Corps office.

Section 401 Water Quality Certification (WQC)

Will the project need an extended area of mixing to meet temporary turbidity water quality standards?

- ☒ No.
- ☐ Yes, an Individual Section 401 WQC is required.

WSDOT will monitor water quality during in-water work:

- ☒ Visually
- ☐ Physically
- ☐ Per the Water Quality Monitoring Plan (see Attachment 10)

Tributary to Carpenter Creek is a seasonal stream and is expected to be dry during construction of this project. Temporary stream impacts were extended downstream of SR 534 by 125 feet to terminate immediately landward of the OHWM for Hill Ditch/Carpenter mainstem, which will allow WSDOT to install BMPs in the channel during the re-watering process to manage the stream diversion outlet, if needed, and clean any turbid water so that it remains compliant with the Washington Administrative Code.

If visual monitoring indicates physical monitoring is needed, physical monitoring will be performed. The water quality equipment will be on hand during visual monitoring to take physical samples if needed. If monitoring at the compliance point shows an exceedance, work will be paused and additional BMPs will be implemented to resolve the compliance issue.

The contractor may protect water quality during on-site concrete pouring by:

Concrete work will primarily consist of pre-cast structures that are bolted together and grouted in place. The design involves covering the precast walls with shotcrete fascia to stabilize the wall while lessening the weight of the structure. All concrete work will occur according to WSDOT engineering standards. All concrete work will be performed on site while concrete work is isolated from flowing water and fish life.

The contractor may manage turbidity during the dewatering and the installation and removal of any structures below the Ordinary High Water Mark by:

The contractor will follow a Temporary Erosion and Sediment Control Plan developed for the site to control erosion and prevent sediment laden runoff from reaching any water bodies. The contractor will be required to submit a Spill Control and Countermeasures plan to ensure that contaminants will not reach sensitive areas.

Tributary to Carpenter Creek is an intermittent stream, where portions of the channel have been observed to go completely dry after June of each year upstream and downstream of SR 534 on slopes greater than 1%. West of Conway Hill Road, the stream lies in a flat open ditch that dries up to less than six inches of water during the dry season. Two stream bypasses are currently being planned to bypass flow around the work area during construction. The first bypass will divert upstream flow around the newly proposed stream channel and outlet just upstream of the culvert crossing under Conway Hill Road, south of SR 534. The second bypass will divert outflow from the Conway Hill Road culvert around the proposed

stream realignment and box culvert to outflow north of SR 534 about 50 feet downstream of proposed box culvert outlet.

Both bypasses are likely to be pumped due to varying degrees of topography across the site. Using a system with two bypasses will allow the contractor to work in phases and use portions of the eastbound traffic lane for accessing the work area. It will also allow the contractor to re-water the new stream channel sections in phases to ensure stream channel function in each channel section and control possible turbidity exceedances.

Following construction of the new stream channel segments, WSDOT's contractor will slowly introduce water into the new channel. If necessary, BMPs may be used in the channel to maintain compliance of water quality leaving the work area.

See Project Drawings, Page 23 and 24

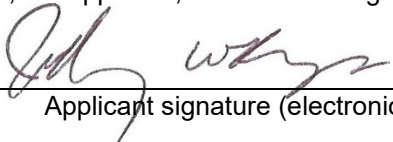
The project team believes the work:

- ☒ Is consistent with the programmatic general and NWP-specific conditions in the WQC for the NWPs and Individual 401 review is not required.
- ☐ Requires an Individual 401 Water Quality Certification. The project will submit the required information to the 401 authority, including Section 401 Request Form and a Draft Water Quality Monitoring Protection Plan.

See Attachment 10: Section 401 WQC documentation for the Pre-filing Meeting Request Form.

Electronic signature

I certify that all the information in this application is complete, true, and accurate to the best of my knowledge and belief. I, the applicant, authorize the agent to act on my behalf on matters related to this application.

 _____ Applicant signature (electronic)	10-13-2021 _____ Date
<i>Beth A Toberer</i> _____ Agent signature (electronic)	11/4/2021 _____ Date

Attachments

The following documents are attached: (check all that apply)

- ☒ 1. Project drawings
- ☒ 2. Monitoring plan
- ☒ 3. Delineation of wetlands and other waters
- ☒ 4. Impact tables
- ☒ 5. Restoration plan
- ☐ 6. Mitigation plan
- ☒ 7. Tribal coordination summary
- ☒ 8. Endangered Species Act & Essential Fish Habitat documentation
- ☒ 9. Section 106 documentation
- ☐ 10. Section 401 WQC documentation

Attachment 4 – Impact details for Section 404/10 & 401 PCN

Project name: SR 534 Tributary to Carpenter Creek Fish Passage

Permit number: **NWS-2021-00902-DOT**

Wetland Impacts						
Type of work ¹	Purpose of work ²	Wetland name ³	Wetland type & rating ⁴	Duration of impact ⁵	Area of impact (sq ft or acres)	Amount of material (CY)
Excavation and place streambed fill material	Conversion to stream and streambank geometry	Wetland 2	Cat III	Permanent	5,342 sf 0.12 ac	953 CY
Disturbance of vegetation/soil surface	Construction access	Wetland 2	Cat III	Temporary	5,072 sf 0.12 ac	0 CY
Excavation and place streambed fill material	Conversion to stream and streambank geometry	Wetland 3	Cat III	Permanent	5,088 sf 0.12 ac	1,188 CY
Disturbance of vegetation/soil surface	Construction access	Wetland 3	Cat III	Temporary	4,883 sf 0.11 ac	0 CY

¹ Use the same language from the project description and drawings. Include verbs like excavate, place fill, clear and grub (mechanized), construct, and install.

² Give the reason(s) why the work is being performed.

³ If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.

⁴ Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System.

⁵ Permanent, Temporary, Long-Term Temporary (if long-term temp, give number of months of impact).

Stream impacts

Type of work ¹	Purpose of work ²	Waterbody name ³	Impact location ⁴	Duration of impact ⁵	Amount of material (CY)	Area of impact (sq ft)	Length of impact (linear ft)
Fill	Move stream channel/form streambanks	X-Carpenter Creek	Existing stream west of Conway Hill Road	Permanent	95 CY	1,500 sf 0.03 ac	240 LF
Fill	Removal of existing CR2 culvert and fill placement under SR 534.	X-Carpenter Creek	Existing CR2 culvert	Permanent	1 CY	105 sf <0.01 ac	N/A
Excavation	Match existing grades downstream of SR 534	X-Carpenter Creek	Downstream of CR2	Permanent	10 CY	47 sf <0.01 acre	10 LF
Fill	Fill inlet of 995265/match existing grades upstream of SR 534	X-Carpenter Creek	Upstream of 995265	Permanent	10 CY	100 sf <0.01 acre	30 LF
Fish exclusion and stream diversion	Stream bypass	X-Carpenter Creek	Existing Channel bed	Temporary	5 CY	1,481 sf 0.03 ac	217 LF

¹ Use the same language from the project description and drawings. Include verbs like excavate, place fill, clear and grub (mechanized), construct, and install.

² Give the reason(s) why the work is being performed.

³ If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.

⁴ Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.

⁵ Permanent, Temporary, Long-Term Temporary (if long-term temp, give number of months of impact).

Attachment 7 - Tribal coordination summary for Section 404/10 & 401 PCN

Project name: SR 534 Tributary to Carpenter Creek Fish Passage
Permit number: **NWS-2021-00902-DOT**

The tables below summarize tribal coordination efforts. This information supports the Corps determination that the permitted activity will not cause more than a minimal adverse effect on tribal rights per Nationwide Permit general condition 17, Tribal Rights.

It is WSDOT's understanding that the Corps will use the information below to make their permit decision and that the information below will not be shared with tribes, agencies, or others without first coordinating with WSDOT.

Applicant, add new copies of the table or delete unused tables as necessary.

Tribe: Upper Skagit	U&A:* Y
Contact name: Rick Hartson	Contact phone: 360.391.8464
Coordination efforts – Briefly explain how and when you coordinated with the tribe.	
WSDOT held a meeting on site in Spring 2019 regarding bankfull measurements of the upstream channel to use when designing the project. On April 23, 2020 Tribal consultation was initiated. On May 26, 2020 a draft PHD was sent to the tribe for review. Finally, WSDOT sent the cultural resources survey to the Tribe. The most recent coordination with the Tribe occurred during a stakeholder meeting for fish passage projects in Skagit County on October 11, 2021.	
Issues/concerns – Explain the issues or concerns the tribe had with the proposed project.	
The initial meeting was focused on reaching bankfull width concurrence and what information should be used as a basis for the project design. The Tribe sent written comments back to WSDOT about the stream design in response to the draft PHD report. No comments were received in response to the cultural resources survey.	
Resolution – For each issue or concern listed above, explain how they were resolved. If not resolved, explain why.	
Bankfull width concurrence was reached and agreed upon to use for the project design. Parties discussed use of hydraulic modelling to design the channel in addition to channel measurements. Tribe agreed with the area of potential affect for the cultural resources survey. Stream design comments from the Tribe were resolved by adding features into the project design, as requested.	

* Does the tribe have usual and accustomed (U&A) treaty rights in the project area? If yes, state "U&A". If no but the tribe is on the Seattle District Corps contact list because they have U&A rights in the county, state "Corps list". If you included the tribe for other reasons, state "other" and explain in the coordination efforts space provided.

Tribe: Skagit River Systems Cooperative (Sauk Suiattle and Swinomish Tribes)	U&A:* Y
Contact name: Stan Walsh	Contact phone: (360) 466-1512
Coordination efforts – Briefly explain how and when you coordinated with the tribe.	
WSDOT held a meeting on site in Spring 2019 regarding bankfull measurements of the upstream channel to use when designing the project. WSDOT engaged in an informal discussion with the Tribal contact on October 2, 2019 about an alternate channel crossing location for the stream simulation box culvert. On April 23, 2020 Tribal consultation was initiated. On May 26, 2020 a draft PHD was sent to the tribe for review. The most recent coordination with the Tribe occurred during a stakeholder meeting on XXX, 2021.	
Issues/concerns – Explain the issues or concerns the tribe had with the proposed project.	
The initial meeting was focused on reaching bankfull width concurrence and what information should be used as a basis for the project design. During the informal discussion, the Tribe expressed concerns about the channel design possibilities providing input about desired streambed sediments and large woody material.	

Resolution – For each issue or concern listed above, explain how they were resolved. If not resolved, explain why.

Yes. SRSC responded affirmatively to the option of installing stream simulation structures, such as a box culvert, sinuous channel, large woody material, and bands of varying sizes of gravel substrate. Tribe agreed with the area of potential affect for the cultural resources survey.

* Does the tribe have usual and accustomed (U&A) treaty rights in the project area? If yes, state "U&A". If no but the tribe is on the Seattle District Corps contact list because they have U&A rights in the county, state "Corps list". If you included the tribe for other reasons, state "other" and explain in the coordination efforts space provided.

Tribe: Stillaguamish Tribe	U&A:* Corps list
Contact name: Kerry Lyste	Contact phone: 360.572.3072
Coordination efforts – Briefly explain how and when you coordinated with the tribe.	
On April 23, 2020 Tribal consultation was initiated and a cultural resources survey was sent to the Tribe.	
Issues/concerns – Explain the issues or concerns the tribe had with the proposed project.	
Tribe responded that the survey was well done. They requested notification of ground disturbance prior to construction.	
Resolution – For each issue or concern listed above, explain how they were resolved. If not resolved, explain why.	
WSDOT will notify the Tribe prior to construction.	

* Does the tribe have usual and accustomed (U&A) treaty rights in the project area? If yes, state "U&A". If no but the tribe is on the Seattle District Corps contact list because they have U&A rights in the county, state "Corps list". If you included the tribe for other reasons, state "other" and explain in the coordination efforts space provided.

Tribe: Lummi Tribe	U&A:*	Corps list
Contact name: Lena Tso	Contact phone:	360.312.2257
Coordination efforts – Briefly explain how and when you coordinated with the tribe.		
On April 23, 2020 Tribal consultation was initiated and a cultural resources survey was sent to the Tribe.		
Issues/concerns – Explain the issues or concerns the tribe had with the proposed project.		
No response was received from the Tribe.		
Resolution – For each issue or concern listed above, explain how they were resolved. If not resolved, explain why.		

* Does the tribe have usual and accustomed (U&A) treaty rights in the project area? If yes, state "U&A". If no but the tribe is on the Seattle District Corps contact list because they have U&A rights in the county, state "Corps list". If you included the tribe for other reasons, state "other" and explain in the coordination efforts space provided.

Tribe: Nooksack Tribe	U&A:*	106 Only
Contact name: Honorable Roswell Cline "Ross"	Contact phone:	360.592.5164
Coordination efforts – Briefly explain how and when you coordinated with the tribe.		

On April 23, 2020 Tribal consultation was initiated and a cultural resources survey was sent to the Tribe.
Issues/concerns – Explain the issues or concerns the tribe had with the proposed project.
No response was received from the Tribe.
Resolution – For each issue or concern listed above, explain how they were resolved. If not resolved, explain why.

* Does the tribe have usual and accustomed (U&A) treaty rights in the project area? If yes, state "U&A". If no but the tribe is on the Seattle District Corps contact list because they have U&A rights in the county, state "Corps list". If you included the tribe for other reasons, state "other" and explain in the coordination efforts space provided.

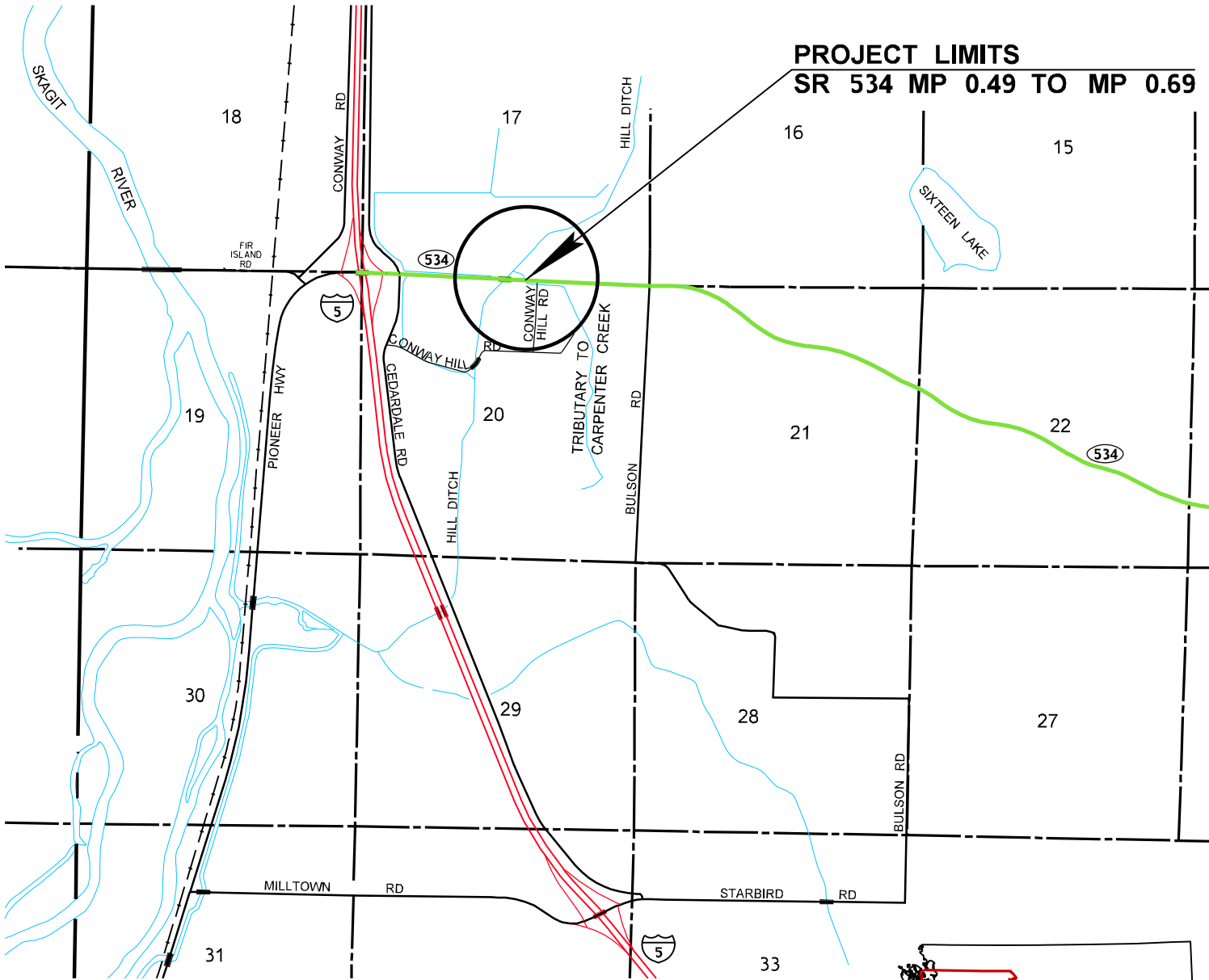
Tribe: Samish Tribe	U&A:*	Corps list
Contact name: Jacquelyn Ferry	Contact phone:	360.293.6404 ext. 126
Coordination efforts – Briefly explain how and when you coordinated with the tribe.		
On April 23, 2020 Tribal consultation was initiated and a cultural resources survey was sent to the Tribe.		
Issues/concerns – Explain the issues or concerns the tribe had with the proposed project.		
No response was received from the Tribe.		
Resolution – For each issue or concern listed above, explain how they were resolved. If not resolved, explain why.		

* Does the tribe have usual and accustomed (U&A) treaty rights in the project area? If yes, state "U&A". If no but the tribe is on the Seattle District Corps contact list because they have U&A rights in the county, state "Corps list". If you included the tribe for other reasons, state "other" and explain in the coordination efforts space provided.

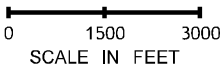
VICINITY MAP
T.33N. R.3E. W.M.
SECTION 17, 20

LAT. 48.34091737
LONG. -122.322040705
WRIA 03

PROJECT LIMITS
SR 534 MP 0.49 TO MP 0.69



DRIVING DIRECTIONS:
NORTHBOUND I-5 (FROM SEATTLE / EVERETT)
FOLLOW I-5 N TO EXIT 221 / SR 534 E TOWARD LAKE MCMURRAY
SOUTHBOUND I-5 (FROM FERNDALE / BELLINGHAM)
FOLLOW I-5 S TO EXIT 221 / SR 534 E TOWARD LAKE MCMURRAY



PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	
PURPOSE: REMOVE FISH PASSAGE BARRIER	REFERENCE: SITE ID- NWS-2021-00902-DOT
PROPOSED: INSTALL CULVERT & STREAM CHANNEL	APPLICANT: WSDOT
LOCATION: SR 534, MP 0.49- MP 0.69	COUNTY: SKAGIT
DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	NEAR: EAST OF CONWAY
ADJACENT PROPERTY OWNERS: SEE ATTACHED	WATER BODY: TRIB TO CARPENTER CR
	DATE: OCT. 2021



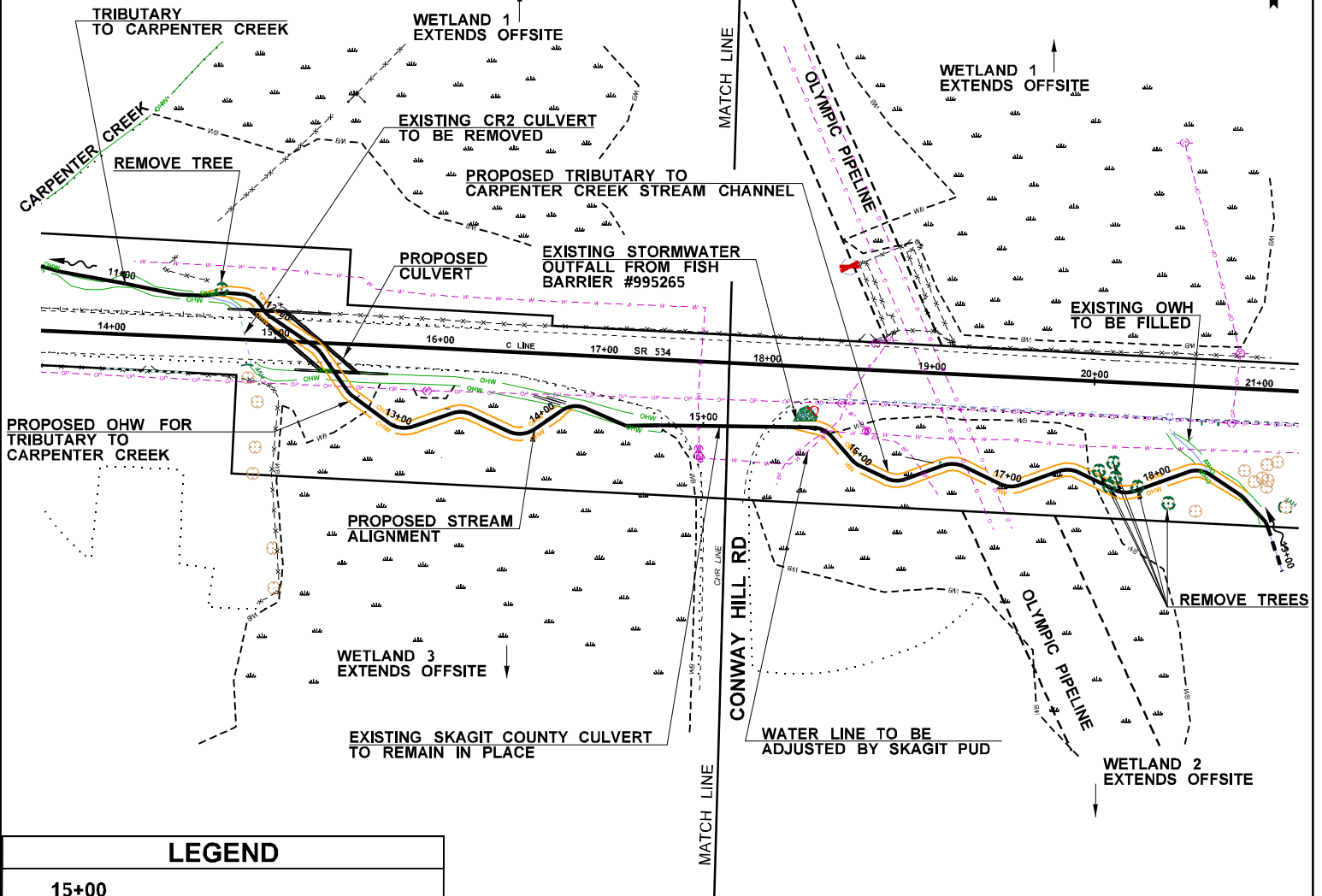
PROJECT DETAIL

SHEET 3
SHEET 14
SHEET 15

SHEET 20
SHEET 22

SHEET 4
SHEET 16
SHEET 17

SHEET 21
SHEET 23



LEGEND

15+00

- CONSTRUCTION ALIGNMENT
- RIGHT OF WAY
- STREAM BUFFER
- EDGE OF PAVED ROADWAY
- W/B WETLAND BOUNDARY
- OHW EXISTING ORDINARY HIGH WATER
- OHW NEW ORDINARY HIGH WATER
- G EXISTING GAS LINE
- OP EXISTING OVERHEAD POWER
- BF EXISTING BURIED POWER
- W EXISTING WATER LINE
- EXISTING POWER POLE
- EXISTING VALVE
- EXISTING TREE
- EXISTING TREE TO BE REMOVED

0 100 200
SCALE IN FEET

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

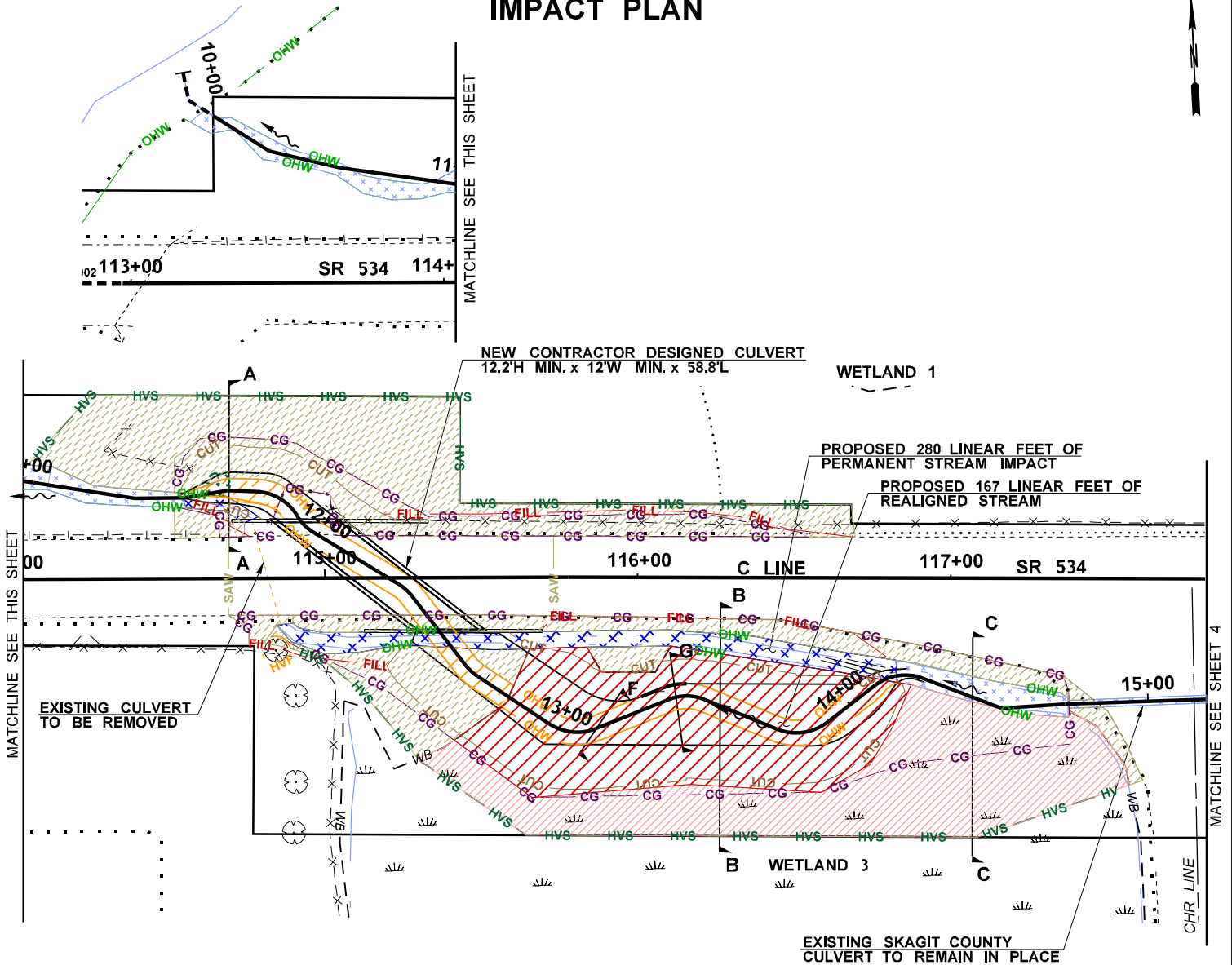
DATE: OCT. 2021



Washington State
Department of Transportation

SHEET: 2 OF: 26

IMPACT PLAN



0 25 50
SCALE IN FEET

LEGEND

15+00	CONSTRUCTION ALIGNMENT	CUT	PROPOSED CUT LINE
---	RIGHT OF WAY	FILL	PROPOSED FILL LINE
- - - - -	PAVED ROAD EDGE	HVF	HIGH VISIBILITY FENCE
- x - x - x -	FENCE	HVS	HIGH VISIBILITY SILT FENCE
- - - - -	EXISTING GUARDRAIL	SCP	SELECTIVE CLEARING & PRUNING
- - - - -	EXISTING CULVERT	CG	CLEARING & GRUBBING
- - - - -	STREAM BUFFER		
- - - - -	WETLAND BUFFER		
- - - - -	EXISTING ORDINARY HIGH WATER LINE		DIRECTION OF FLOW
- - - - -	NEW ORDINARY HIGH WATER LINE		GATE
- - - - -	WETLAND BOUNDARY		EXISTING TREE
- - - - -	WETLAND SYMBOL		EXISTING TREE SAVE AND PROTECT

IMPACTS SUMMARY

SENSITIVE AREA	TRIBUTARY TO CARPENTER CREEK FT.	TRIBUTARY TO CARPENTER CREEK ACRES (SQ.FT.)	WETLAND #2 (SQ.FT.)	WETLAND #3 (SQ.FT.)	LEGEND
DOE CATEGORY / STREAM TYPE					
STREAM PERMANENT IMPACT	280	0.04 (1,647)			
STREAM TEMPORARY IMPACT	217	0.03 (1,481)			
STREAM BUFFER PERMANENT IMPACT		0.03 (1,192)			
STREAM BUFFER TEMPORARY IMPACT		0.41 (17,759)			
WETLAND PERMANENT IMPACT			0.12 (5341)	0.12 (5089)	
WETLAND TEMPORARY IMPACT			0.12 (5072)	0.11 (4883)	

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

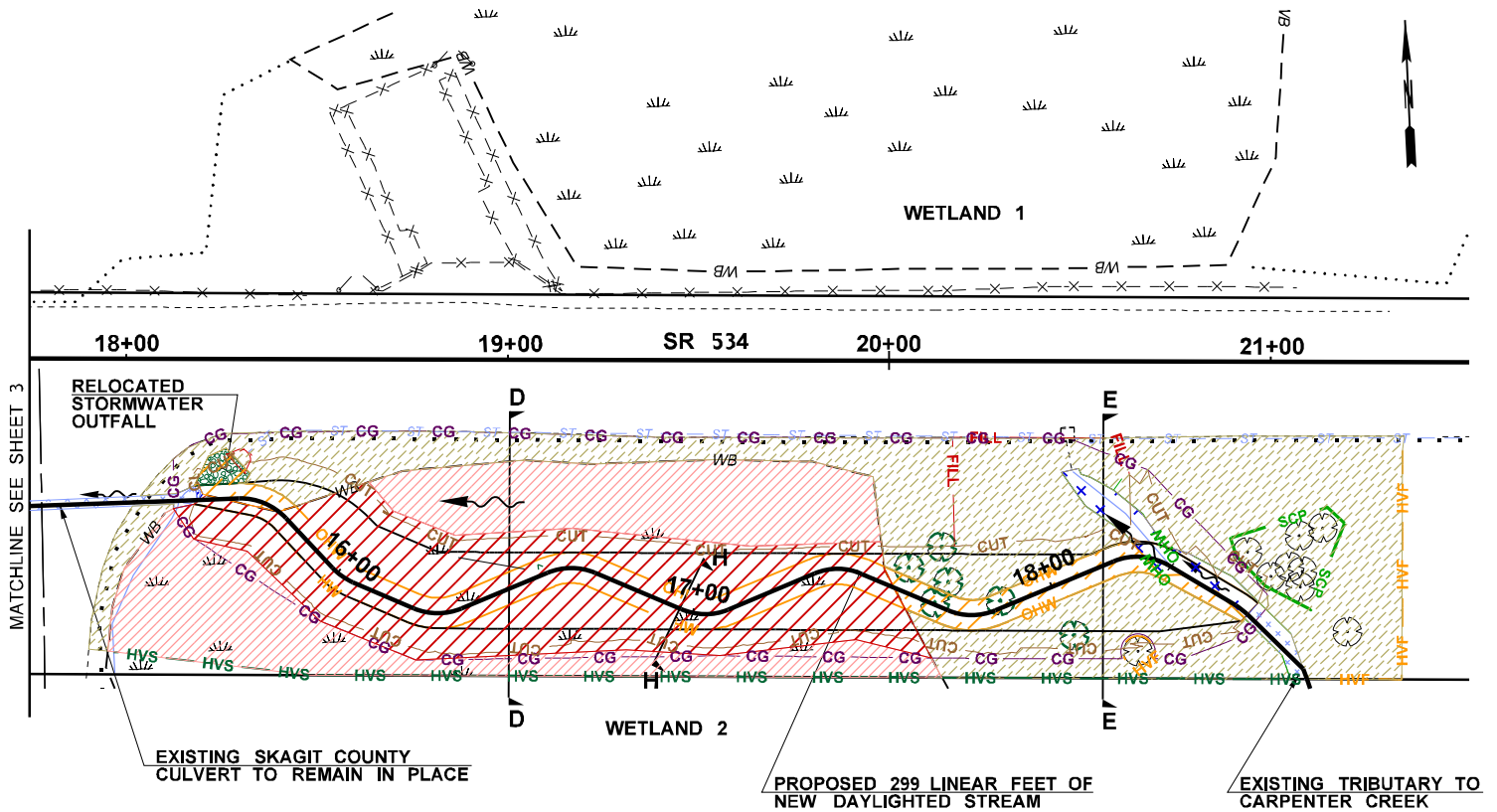
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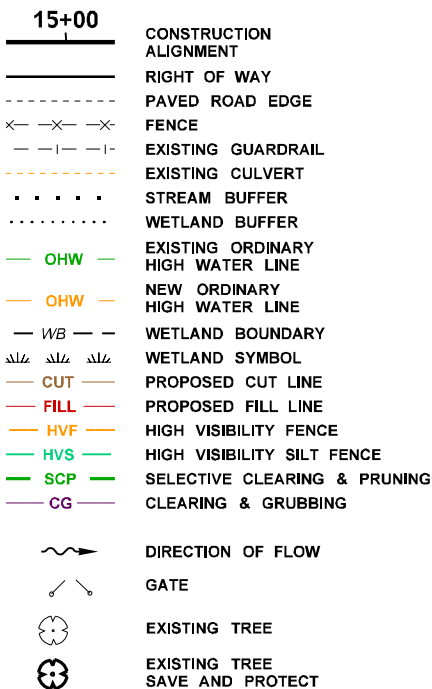
Washington State
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SHEET: 3 OF: 26

IMPACT PLAN

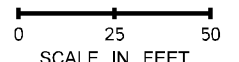


LEGEND



IMPACTS SUMMARY

SENSITIVE AREA	TRIBUTARY TO CARPENTER CREEK FT.	TRIBUTARY TO CARPENTER CREEK ACRES (SQ.FT.)	WETLAND #2 (SQ.FT.)	WETLAND #3 (SQ.FT.)	LEGEND
DOE CATEGORY / STREAM TYPE					
STREAM PERMANENT IMPACT	280	0.04 (1,647)			
STREAM TEMPORARY IMPACT	217	0.03 (1,481)			
STREAM BUFFER PERMANENT IMPACT		0.03 (1,192)			
STREAM BUFFER TEMPORARY IMPACT		0.41 (17,759)			
WETLAND PERMANENT IMPACT			0.12 (5341)	0.12 (5089)	
WETLAND TEMPORARY IMPACT			0.12 (5072)	0.11 (4883)	



PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

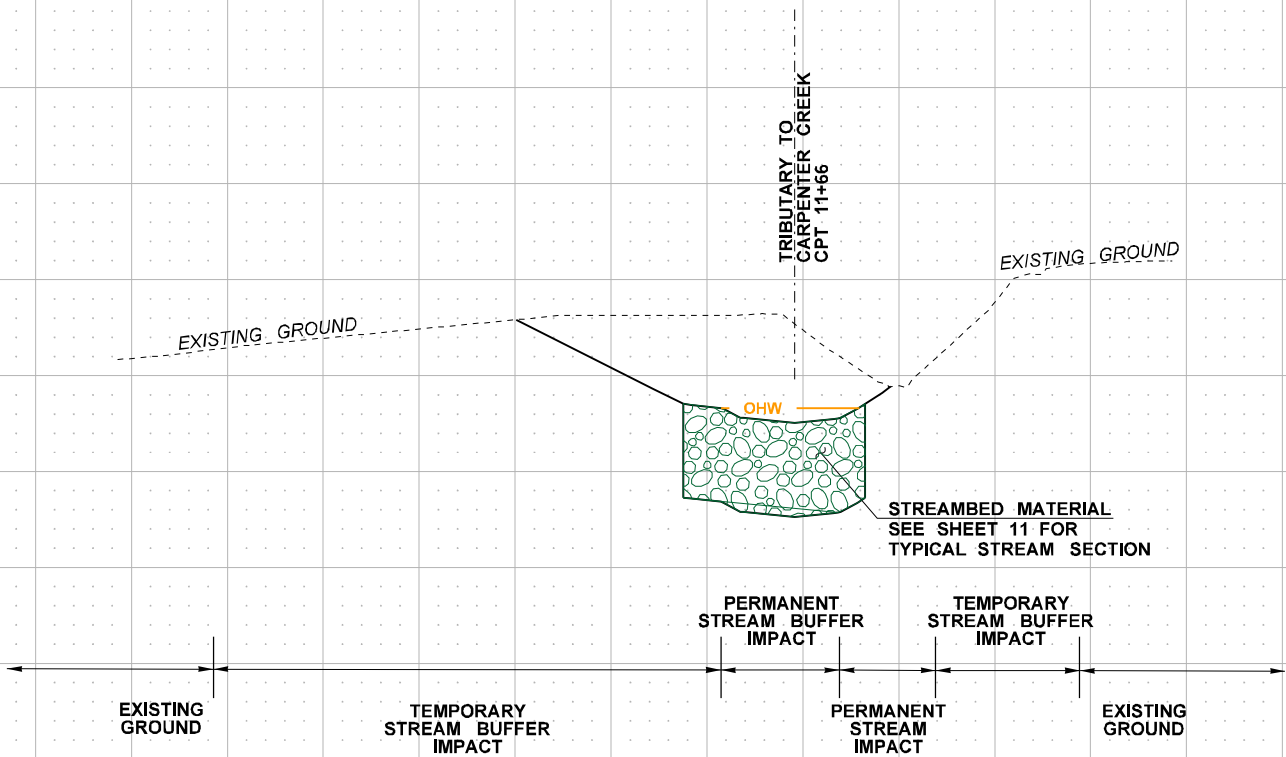
DATE: OCT. 2021



Washington State
Department of Transportation

SHEET: 4 OF: 26

STREAM CROSS SECTIONS



SECTION A-A
STA. CPT 11+66



(NAVD) 88

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

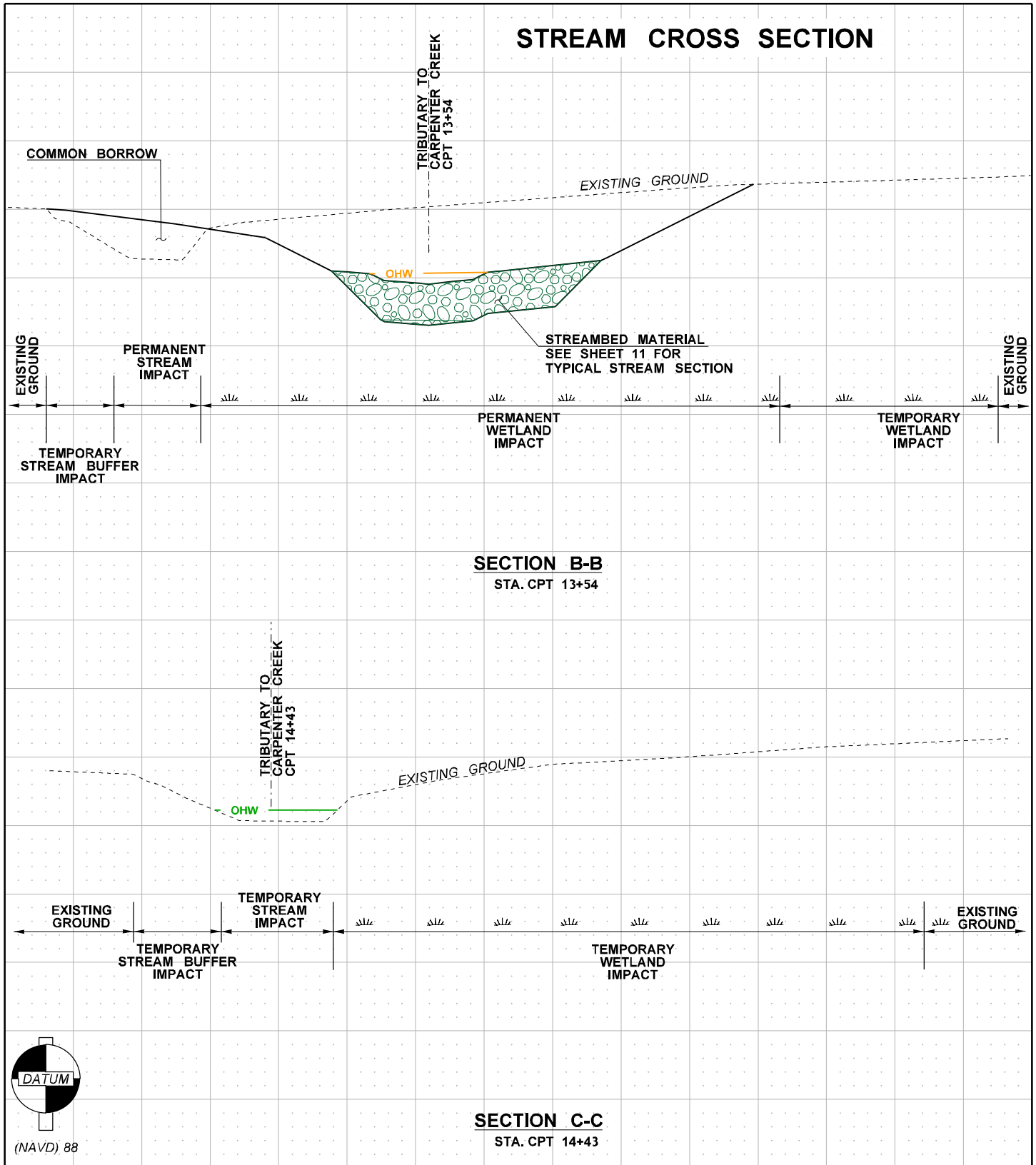
DATE: OCT. 2021



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Department of Transportation

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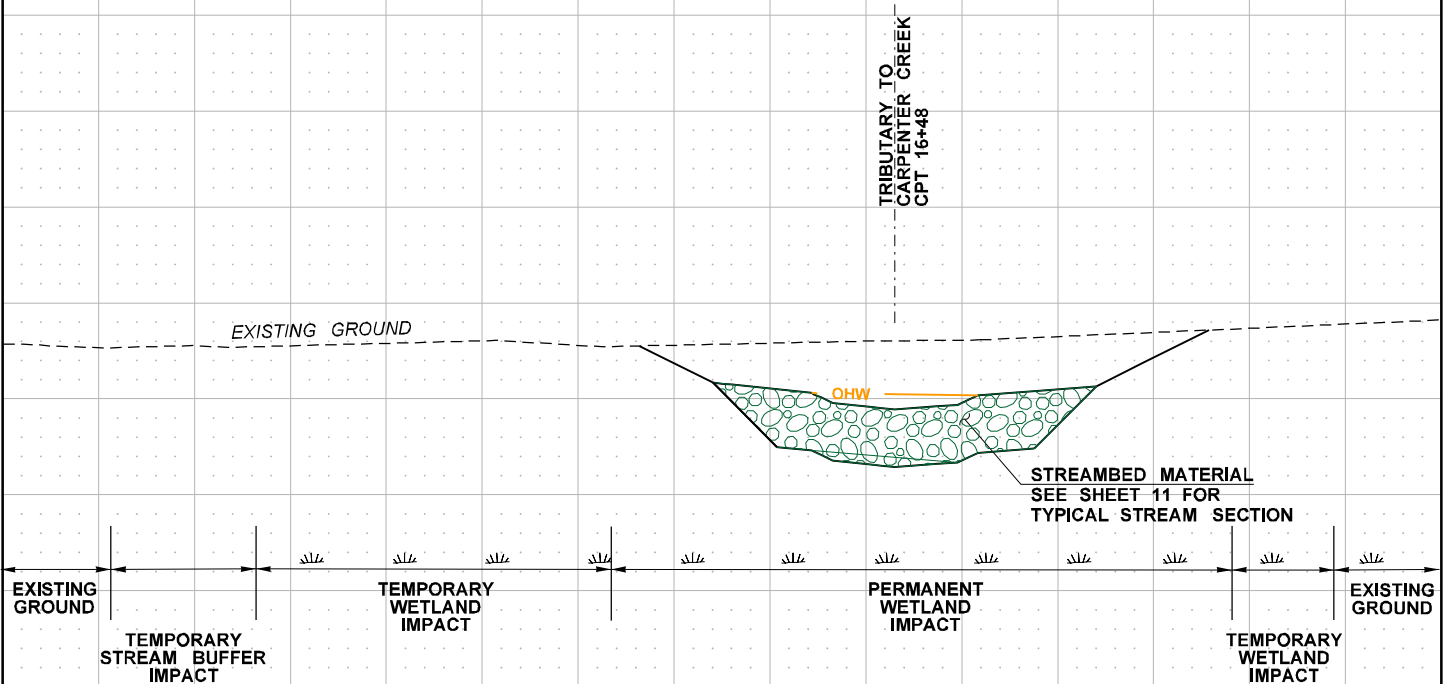
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PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	
PURPOSE: REMOVE FISH PASSAGE BARRIER	REFERENCE: SITE ID- NWS-2021-00902-DOT
PROPOSED: INSTALL CULVERT & STREAM CHANNEL	APPLICANT: WSDOT
LOCATION: SR 534, MP 0.49- MP 0.69	COUNTY: SKAGIT
DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	NEAR: EAST OF CONWAY
ADJACENT PROPERTY OWNERS: SEE ATTACHED	WATER BODY: TRIB TO CARPENTER CR
	DATE: OCT. 2021

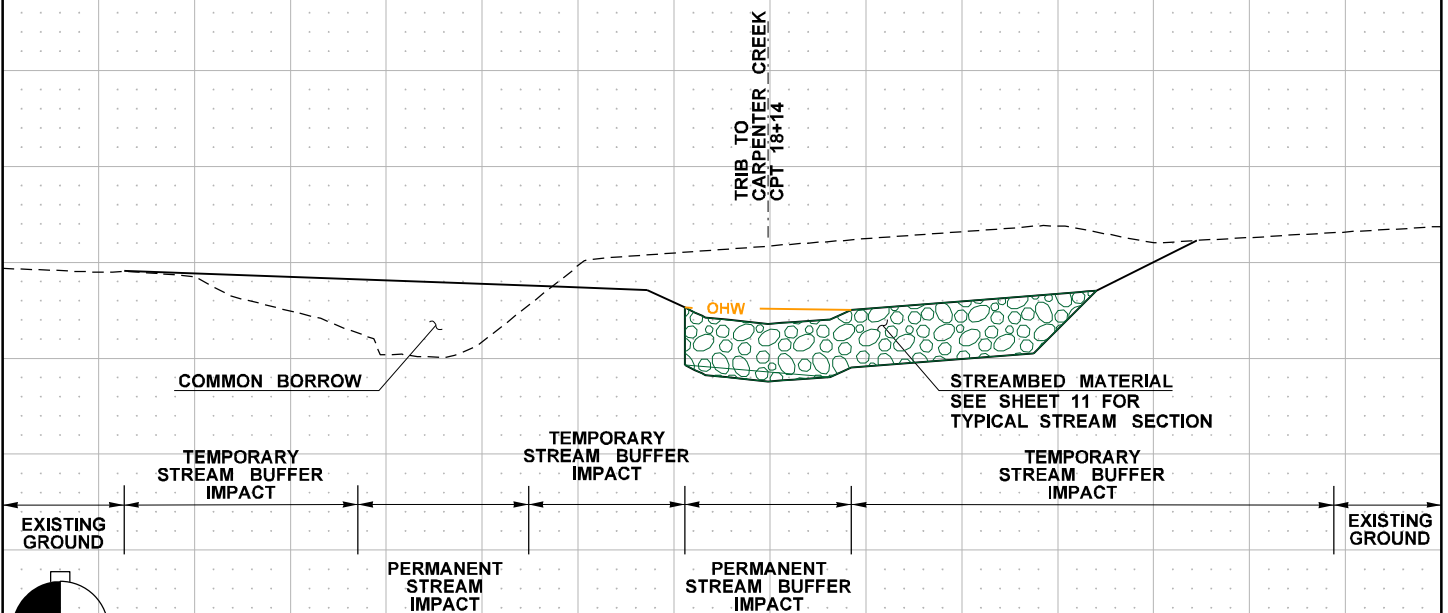
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STREAM CROSS SECTION



SECTION D-D

STA. CPT 16+48



SECTION E-E

STA. CPT 18+14



(NAVD) 88

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

DATE: OCT. 2021



Washington State
Department of Transportation

SHEET: 7 OF: 26

STREAMBED MATERIALS


STREAMBED MATERIAL - % BY VOLUME			
MATERIAL TYPE	STREAMBED SEDIMENT	STREAMBED COBBLES 12"	STREAMBED BOULDER ONE MAN
STREAMBED MATERIAL	55%	45%	
COARSE BAND MATERIAL	30%	60%	10%
SPAWNING BAND MATERIAL	65%	35%	

STREAMBED COBBLES - PERCENT PASSING	
SIZE	12" COBBLES
12"	99 - 100
10"	70 - 90
8"	
6"	
5"	30 - 60
4"	
3"	
1 1/2"	
3/4"	10 MAX.

STREAMBED BOULDERS	
ROCK SIZE	APPROXIMATE SIZE
ONE MAN	12" - 18"
TWO MAN	18" - 28"
THREE MAN	28" - 36"

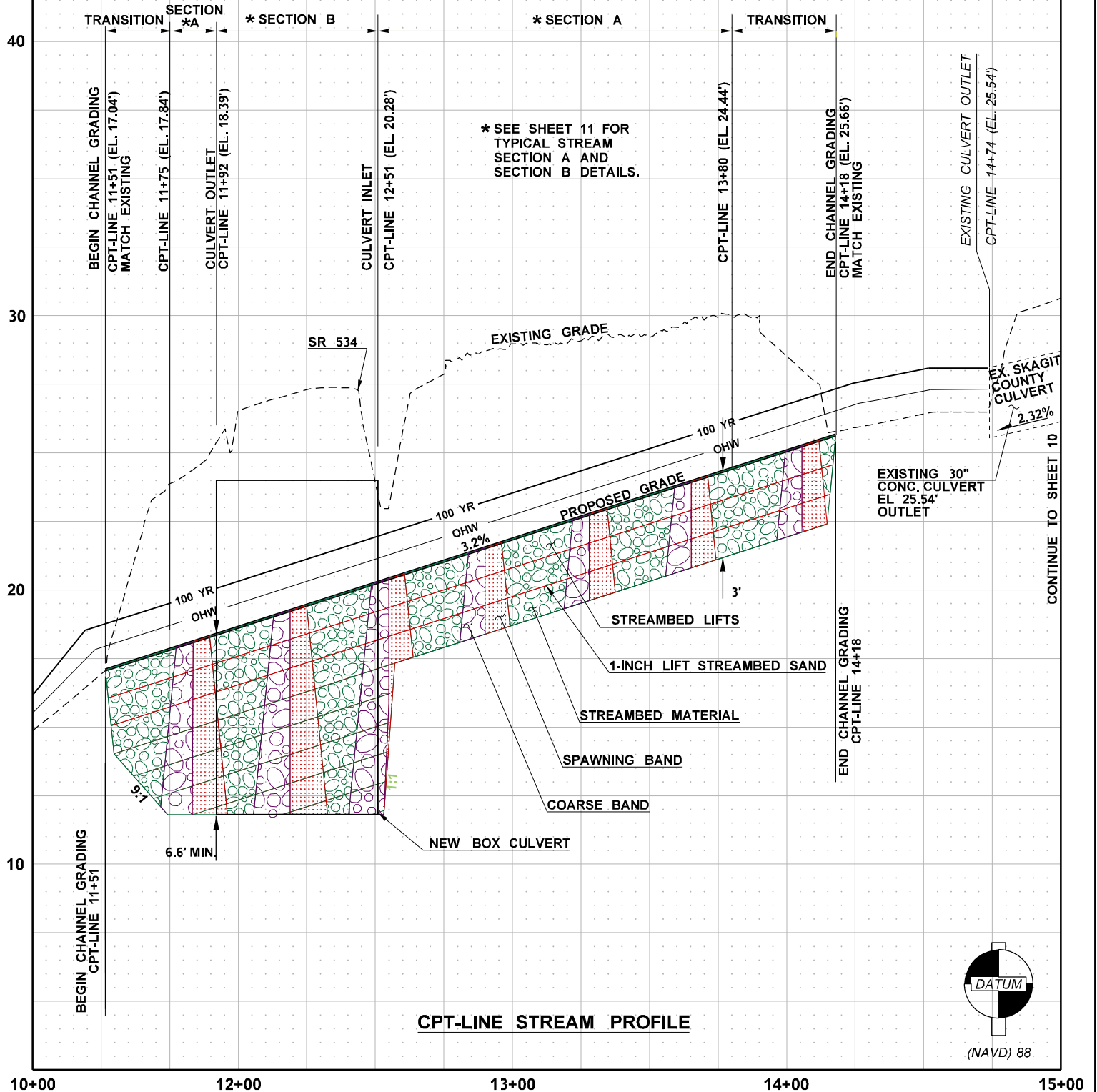
STREAMBED FINE SEDIMENT	
SIEVE SIZE	PERCENT PASSING
NO. 4	99 - 100
NO. 10	46 - 86
NO. 40	26 - 40
NO. 200	10 - 20

STREAMBED SEDIMENT	
SIEVE SIZE	PERCENT PASSING
2 1/2"	99 - 100
2"	85 - 100
1"	50 - 82
1/2"	28 - 68
NO. 40	10 - 20
NO. 200	5 - 10

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE		 Washington State Department of Transportation
PURPOSE: REMOVE FISH PASSAGE BARRIER	REFERENCE: SITE ID- NWS-2021-00902-DOT	
PROPOSED: INSTALL CULVERT & STREAM CHANNEL	APPLICANT: WSDOT	
LOCATION: SR 534, MP 0.49- MP 0.69	COUNTY: SKAGIT	
DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	NEAR: EAST OF CONWAY	
ADJACENT PROPERTY OWNERS: SEE ATTACHED	WATER BODY: TRIB TO CARPENTER CR	
	DATE: OCT. 2021	SHEET: 8 OF: 26

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PROPOSED CHANNEL CENTERLINE PROFILE VIEW



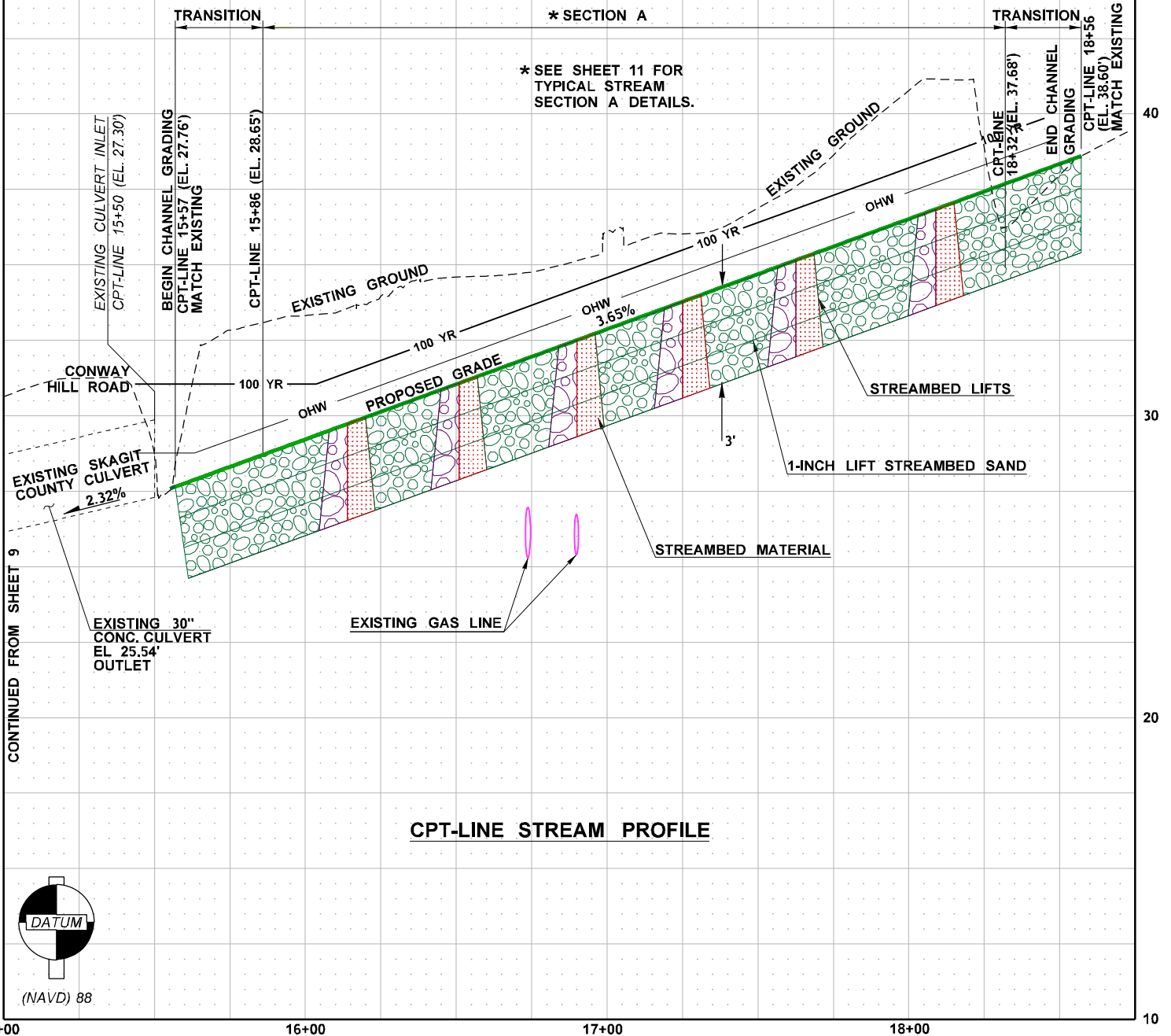
PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	REFERENCE: SITE ID- NWS-2021-00902-DOT
PURPOSE: REMOVE FISH PASSAGE BARRIER	APPLICANT: WSDOT
PROPOSED: INSTALL CULVERT & STREAM CHANNEL	COUNTY: SKAGIT
LOCATION: SR 534, MP 0.49- MP 0.69	NEAR: EAST OF CONWAY
DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	WATER BODY: TRIB TO CARPENTER CR
ADJACENT PROPERTY OWNERS: SEE ATTACHED	DATE: OCT. 2021



Washington State
Department of Transportation

SHEET: 9 OF: 26

PROPOSED CHANNEL CENTERLINE PROFILE VIEW



PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

DATE: OCT. 2021

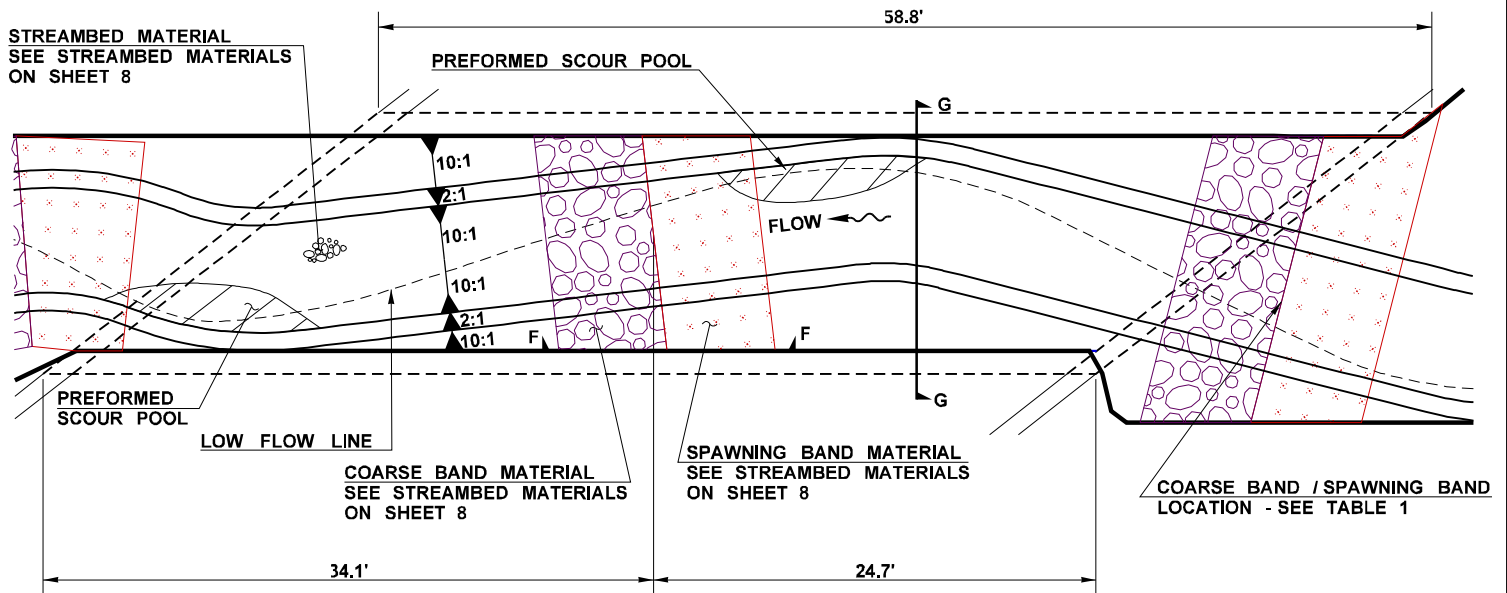


Washington State
Department of Transportation

SHEET: 10 OF: 26

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COARSE BAND / SPAWNING BAND PLAN



COARSE BAND / SPAWNING BAND PLAN
NOT TO SCALE

TABLE 1:

COARSE BAND / SPAWNING BAND LOCATION

CPT-LINE	11+83.40
CPT-LINE	12+18.90
CPT-LINE	12+54.70
CPT-LINE	12+90.00
CPT-LINE	13+28.50
CPT-LINE	13+65.60
CPT-LINE	14+05.70
CPT-LINE	16+13.90
CPT-LINE	16+51.10
CPT-LINE	16+88.30
CPT-LINE	17+25.60
CPT-LINE	17+62.80
CPT-LINE	18+09.20

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

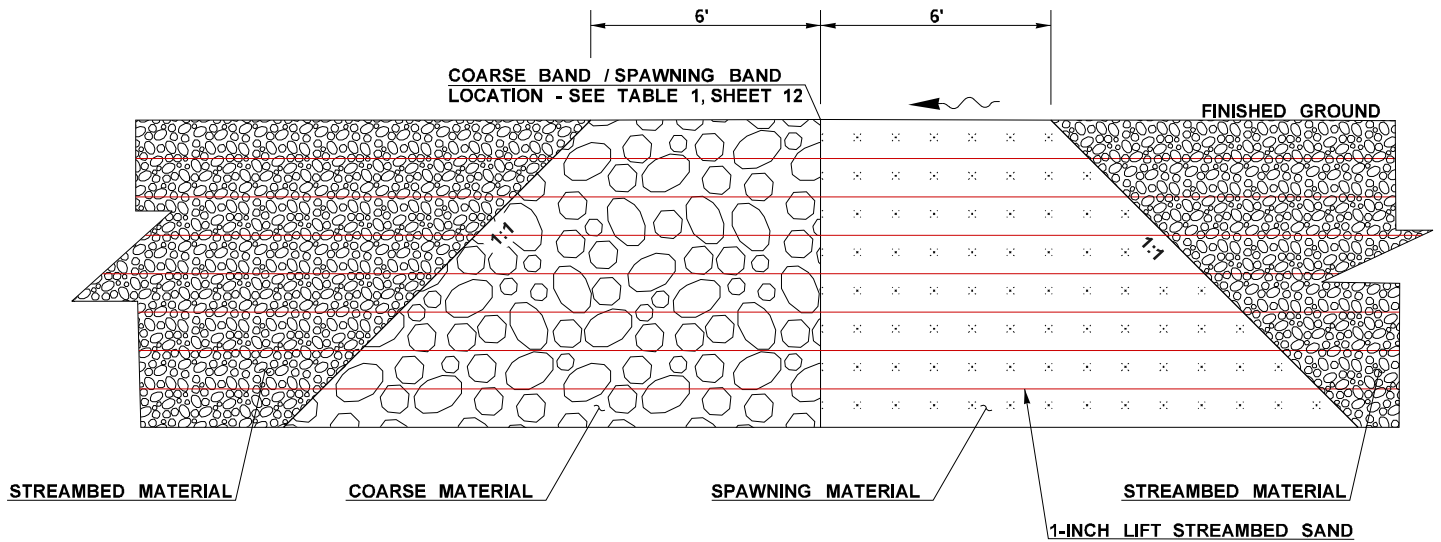
DATE: OCT. 2021



Washington State
Department of Transportation

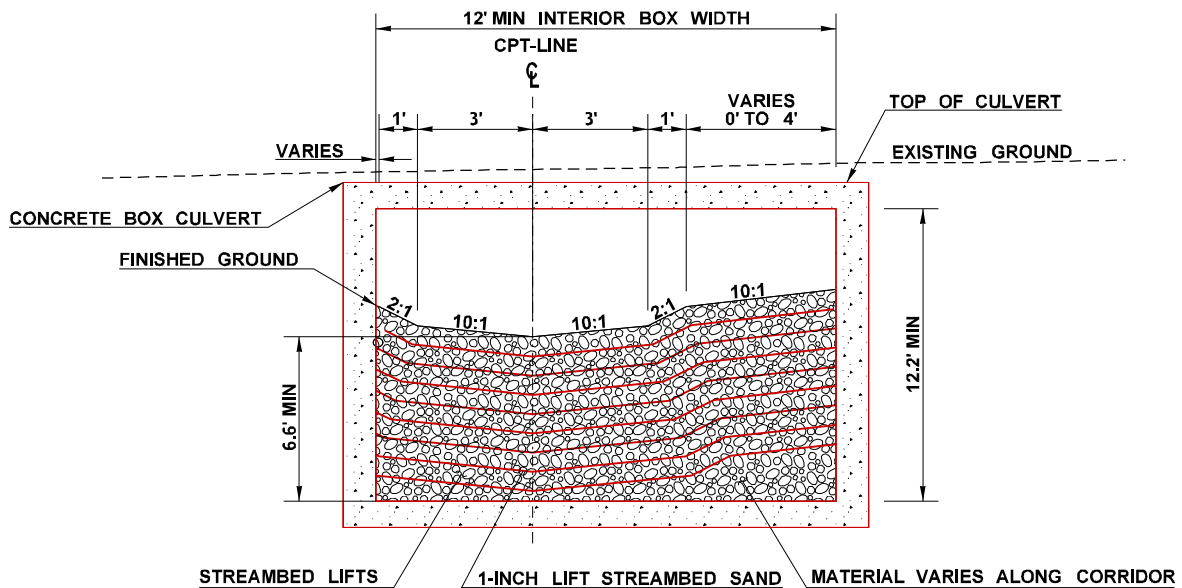
SHEET: 12 OF: 26

COARSE BAND / SPAWNING BAND CROSS SECTIONS



COARSE BAND AND SPAWNING BAND DETAIL

SECTION A-A
NOT TO SCALE



TRIBUTARY TO CARPENTER CREEK TYPICAL CULVERT SECTION

NOT TO SCALE
SECTION B-B

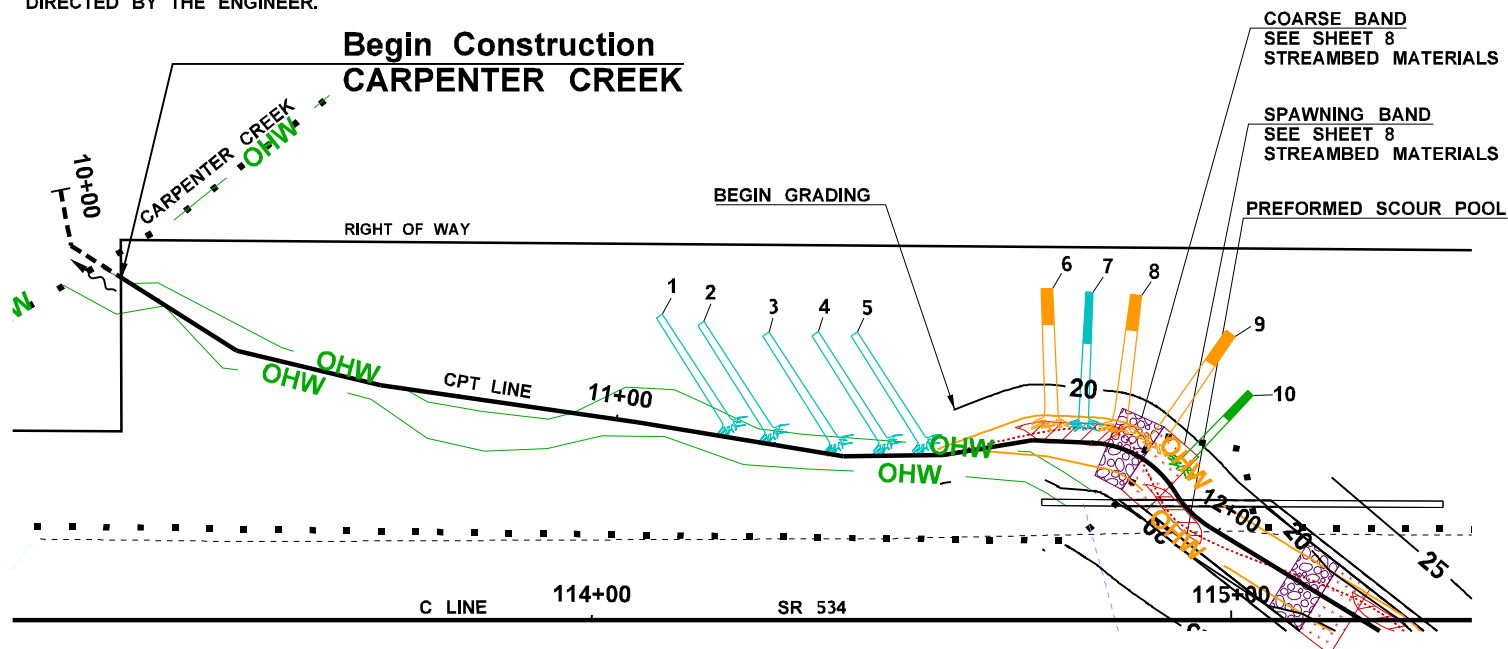
PROJECT NAME:	SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE
PURPOSE:	REMOVE FISH PASSAGE BARRIER
PROPOSED:	INSTALL CULVERT & STREAM CHANNEL
LOCATION:	SR 534, MP 0.49- MP 0.69
DATUM:	HORIZONTAL-PROJECT, VERTICAL-(NAVD)88
ADJACENT PROPERTY OWNERS:	SEE ATTACHED
REFERENCE:	SITE ID- NWS-2021-00902-DOT
APPLICANT:	WSDOT
COUNTY:	SKAGIT
NEAR:	EAST OF CONWAY
WATER BODY:	TRIB TO CARPENTER CR
DATE:	OCT. 2021



Washington State
Department of Transportation

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LOCATIONS AND ORIENTATION OF STREAMBED FEATURES (WOODY MATERIAL, COARSE BANDS, SPAWNING BANDS, LOW FLOW CHANNEL, AND SCOUR POOLS) ARE APPROXIMATE AND SHALL BE STAKED PER PLAN BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. FINAL LOCATION AND ORIENTATION OF THESE STREAMBED FEATURES SHALL BE DIRECTED BY THE ENGINEER.



14+00

CONSTRUCTION ALIGNMENT

RIGHT OF WAY

STREAM BUFFER

EDGE OF PAVED ROADWAY

OHW **EXISTING ORDINARY HIGH WATER**

OHW **NEW ORDINARY HIGH WATER**

PREFORMED SCOUR POOL

LOW FLOW LINE

TYPE A
2.0' DBH @ 20' L

TYPE B
1.5' DBH @ 20' L

TYPE C
1.5' DBH @ 15' L

TYPICAL

	WITH ROOT WAD	WITHOUT ROOT WAD
TYPE A	19	
TYPE B	19	
TYPE C	21	4

LWM NO.	TYPE	IN STREAM FEATURE	ROOTWAD (Y/N)	STATION / OFFSET	ANGLE A (DEG.)	ANGLE B (DEG.)	DISTANCE C (FT)	LOGS TO BE PLACED ABOVE LWM NO.
1	B	RW	Y	CPT 11+17 (2' LT)	315	6	1.3	-
2	B	RW	Y	CPT 11+24 (2' LT)	315	6	1.3	-
3	B	RW	Y	CPT 11+34 (2' LT)	315	6	1.3	-
4	B	RW	Y	CPT 11+42 (2' LT)	315	6	1.3	-
5	B	RW	Y	CPT 11+48 (2' LT)	315	6	1.3	-
6	A	RW	Y	CPT 11+68 (3.5' LT)	270	15	0.3	-
7	B	RW	Y	CPT 11+74 (3.5' LT)	270	15	0.3	-
8	A	RW	Y	CPT 11+78 (3.5' LT)	270	15	0.3	-
9	A	RW	Y	CPT 11+84 (3.5' LT)	270	15	0.3	-
10	C	RW	Y	CPT 11+88 (4' LT)	270	15	0.3	-

A horizontal scale bar with tick marks at 0, 15, and 30. Below the bar is the text "SCALE IN FEET".

DATE: OCT. 2021



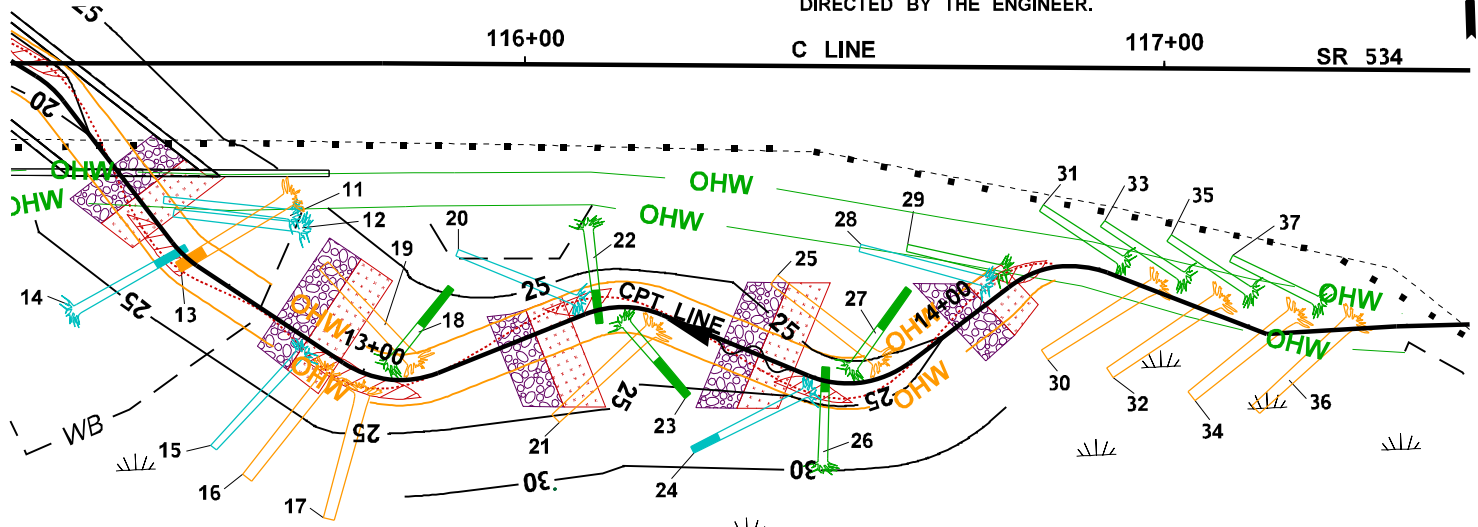
Washington State
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SHEET: 14 OF: 26

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STREAM PLAN & LWM LAYOUT

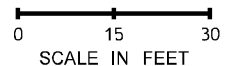
LOCATIONS AND ORIENTATION OF STREAMBED FEATURES (WOODY MATERIAL, COARSE SANDS, SPAWNING SANDS, LOW FLOW CHANNEL, AND SCOUR POOLS) ARE APPROXIMATE AND SHALL BE STAKED PER PLAN BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. FINAL LOCATION AND ORIENTATION OF THESE STREAMBED FEATURES SHALL BE DIRECTED BY THE ENGINEER.



**LARGE WOODY MATERIAL (LWM) LOCATION TABLE
(LWD) TOTALS**

LWM NO.	TYPE	WSDOT TYPE IN STREAM FEATURE	ROOTWAD (Y/N)	STATION / OFFSET	ANGLE A (DEG.)	ANGLE B (DEG.)	DISTANCE C (FT)	LOGS TO BE PLACED ABOVE LWM NO.
11	B	STEM	Y	CPT 12+58 (3' LT)	30	8	0.7	-
12	B	STEM	Y	CPT 12+60 (3' LT)	30	8	0.7	-
13	A	STEM	Y	CPT 12+67 (2' RT)	65	15	-3.0	11, 12
14	B	STEM	Y	CPT 12+66 (1' LT)	260	28	-3.6	-
15	B	RW	Y	CPT 12+90 (2.5' RT)	90	21	0.4	-
16	A	RW	Y	CPT 12+96 (3' RT)	90	20	0.6	-
17	A	RW	Y	CPT 13+01 (3' RT)	90	20	0.6	-
18	C	RW	Y	CPT 13+04 (2.5' LT)	235	-5	0.3	19
19	A	RW	Y	CPT 13+09 (3' LT)	323	0	1.0	-
20	B	RW	Y	CPT 13+36 (2.5' LT)	315	10	0.3	-
21	A	RW	Y	CPT 13+49 (3' RT)	20	0	1.1	-
22	C	STEM	Y	CPT 13+39 (2' RT)	90	30	-3.2	-
23	C	RW	Y	CPT 13+43 (2.5' RT)	110	-5	0.4	21
24	B	RW	Y	CPT 13+75 (2.5' RT)	30	6	0.3	-
25	A	RW	Y	CPT 13+86 (3' LT)	323	0	1.0	-
26	C	STEM	Y	CPT 13+76 (2' LT)	270	30	-3.2	-
27	C	RW	Y	CPT 13+81 (2.5' LT)	235	-5	0.3	25
28	B	RW	Y	CPT 14+08 (3' LT)	320	4	0.4	-
29	C	RW	Y	CPT 14+11 (3' LT)	320	4	0.7	-
30	A	RW	Y	CPT 14+34 (0.8' LT)	45	6	1.2	-
31	C	RW	Y	CPT 14+28 (2.5' LT)	340	7	1.0	-
32	A	RW	Y	CPT 14+44 (2' LT)	45	6	1.2	-
33	C	RW	Y	CPT 14+38 (3.5' LT)	340	7	1.0	-
34	A	RW	Y	CPT 14+57 (2.5' LT)	45	6	1.2	-
35	C	RW	Y	CPT 14+48 (5' LT)	340	7	1.0	-
36	A	RW	Y	CPT 14+67 (1' LT)	45	6	1.2	-
37	C	RW	Y	CPT 14+61 (4.5' LT)	340	7	1.0	-

NOTE:
FOR LEGEND SEE
PREVIOUS SHEET



PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

DATE: OCT. 2021

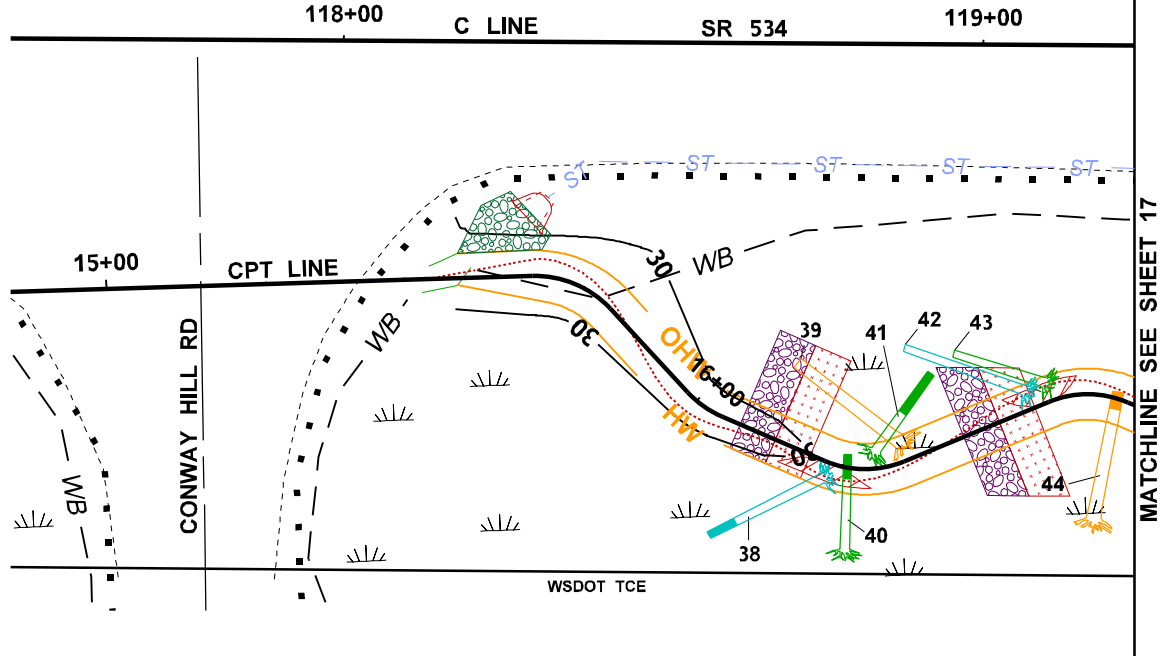


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STREAM PLAN & LWM LAYOUT

LOCATIONS AND ORIENTATION OF STREAMBED FEATURES (WOODY MATERIAL, COARSE BANDS, SPAWNING BANDS, LOW FLOW CHANNEL, AND SCOUR POOLS) ARE APPROXIMATE AND SHALL BE STAKED PER PLAN BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. FINAL LOCATION AND ORIENTATION OF THESE STREAMBED FEATURES SHALL BE DIRECTED BY THE ENGINEER.

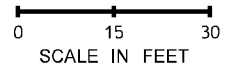


LEGEND



LARGE WOODY MATERIAL (LWM) LOCATION TABLE (LWD) TOTALS

LWM NO.	TYPE	IN STREAM FEATURE	ROOTWAD (Y/N)	STATION / OFFSET	ANGLE A (DEG.)	ANGLE B (DEG.)	DISTANCE C (FT)	LOGS TO BE PLACED ABOVE LWM NO.
38	B	RW	Y	CPT 16+23 (2.5' RT)	30	6	0.3	-
39	A	RW	Y	CPT 16+36 (3' RT)	323	0	1.0	-
40	C	STEM	Y	CPT 16+26 (2' LT)	270	30	-3.2	-
41	C	RW	Y	CPT 16+31 (2.5' LT)	235	-5	0.3	39
42	B	RW	Y	CPT 16+57 (3' LT)	320	4	0.4	-
43	C	RW	Y	CPT 16+60 (3' LT)	320	4	0.7	-
44	A	STEM	Y	CPT 16+70 (1' LT)	290	25	-2.9	-



PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE
 PURPOSE: REMOVE FISH PASSAGE BARRIER
 PROPOSED: INSTALL CULVERT & STREAM CHANNEL
 LOCATION: SR 534, MP 0.49- MP 0.69
 DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88
 ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT
 APPLICANT: WSDOT
 COUNTY: SKAGIT
 NEAR: EAST OF CONWAY
 WATER BODY: TRIB TO CARPENTER CR
 DATE: OCT. 2021

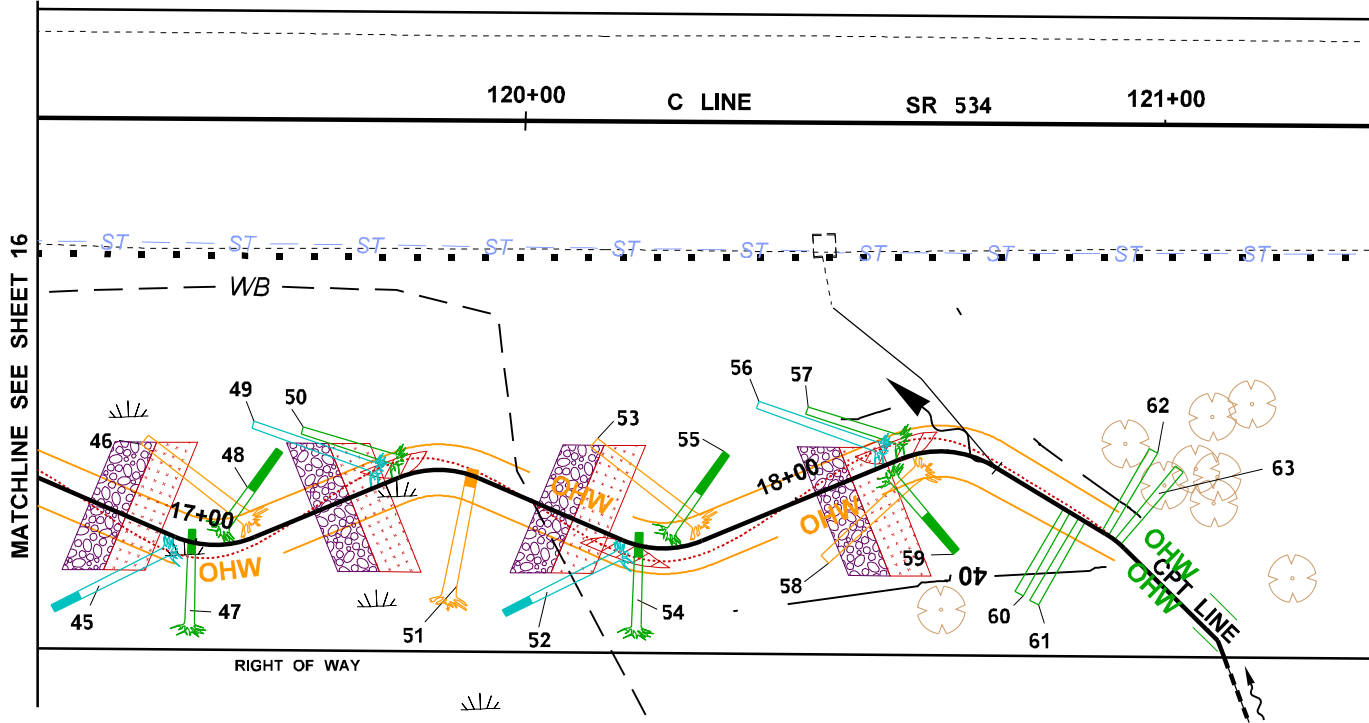


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LOCATIONS AND ORIENTATION OF STREAMBED FEATURES (WOODY MATERIAL, COARSE BANDS, SPAWNING BANDS, LOW FLOW CHANNEL, AND SCOUR POOLS) ARE APPROXIMATE AND SHALL BE STAKED PER PLAN BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. FINAL LOCATION AND ORIENTATION OF THESE STREAMBED FEATURES SHALL BE DIRECTED BY THE ENGINEER.

STREAM PLAN & LWM LAYOUT



LARGE WOODY MATERIAL (LWM) LOCATION TABLE (LWD) TOTALS

LWM NO.	TYPE	IN STREAM FEATURE	ROOTWAD (Y/N)	STATION / OFFSET	ANGLE A (DEG.)	ANGLE B (DEG.)	DISTANCE C (FT)	LOGS TO BE PLACED ABOVE LWM NO.
45	B	RW	Y	CPT 16+96 (2.5' RT)	30	6	0.3	-
46	A	RW	Y	CPT 17+10 (3' LT)	323	0	1.0	-
47	C	STEM	Y	CPT 16+99 (2' LT)	270	30	-3.2	-
48	C	RW	Y	CPT 17+05 (2.5' LT)	235	-5	0.3	46
49	B	RW	Y	CPT 17+31 (3' LT)	320	4	0.4	-
50	C	RW	Y	CPT 17+34 (3' LT)	320	4	0.7	-
51	A	STEM	Y	CPT 17+45 (1' LT)	290	25	-2.9	-
52	B	RW	Y	CPT 17+71 (2.5' RT)	30	6	0.3	-
53	A	RW	Y	CPT 17+84 (3' LT)	323	0	1.0	-
54	C	STEM	Y	CPT 17+73 (2' LT)	270	30	-3.2	-
55	C	RW	Y	CPT 17+79 (2.5' LT)	235	-5	0.3	53
56	B	RW	Y	CPT 18+15 (3' LT)	320	4	0.4	-
57	C	RW	Y	CPT 18+18 (3' LT)	320	4	0.7	-
58	A	RW	Y	CPT 18+20 (3' RT)	20	0	1.1	-
59	C	RW	Y	CPT 18+15 (2.5' RT)	110	-5	0.4	58
60	C	STEM	N	CPT 18+46 (0' RT)	90	-12	-0.4	-
61	C	STEM	N	CPT 18+49 (0' RT)	90	-12	-0.4	-
62	C	STEM	N	CPT 18+53 (0' LT)	270	-20	-0.4	-
63	C	STEM	N	CPT 18+55 (0' LT)	270	-20	-0.4	-

NOTE:
FOR LEGEND SEE
PREVIOUS SHEET

0 15 30
SCALE IN FEET

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

DATE: OCT. 2021

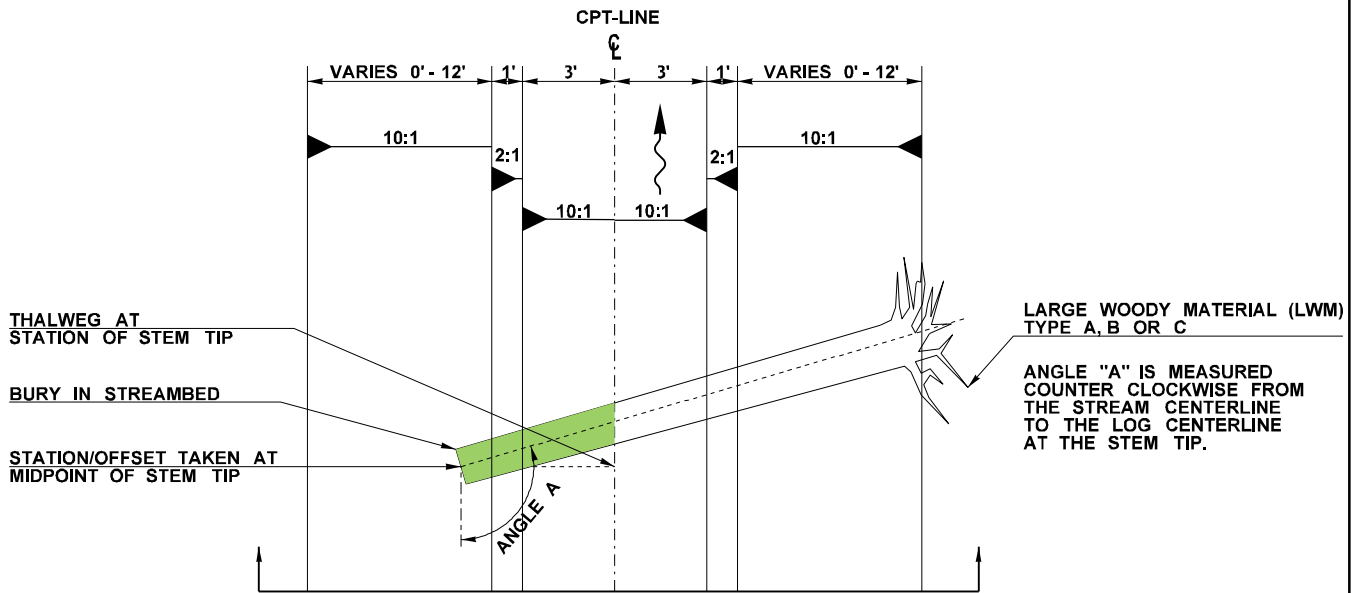


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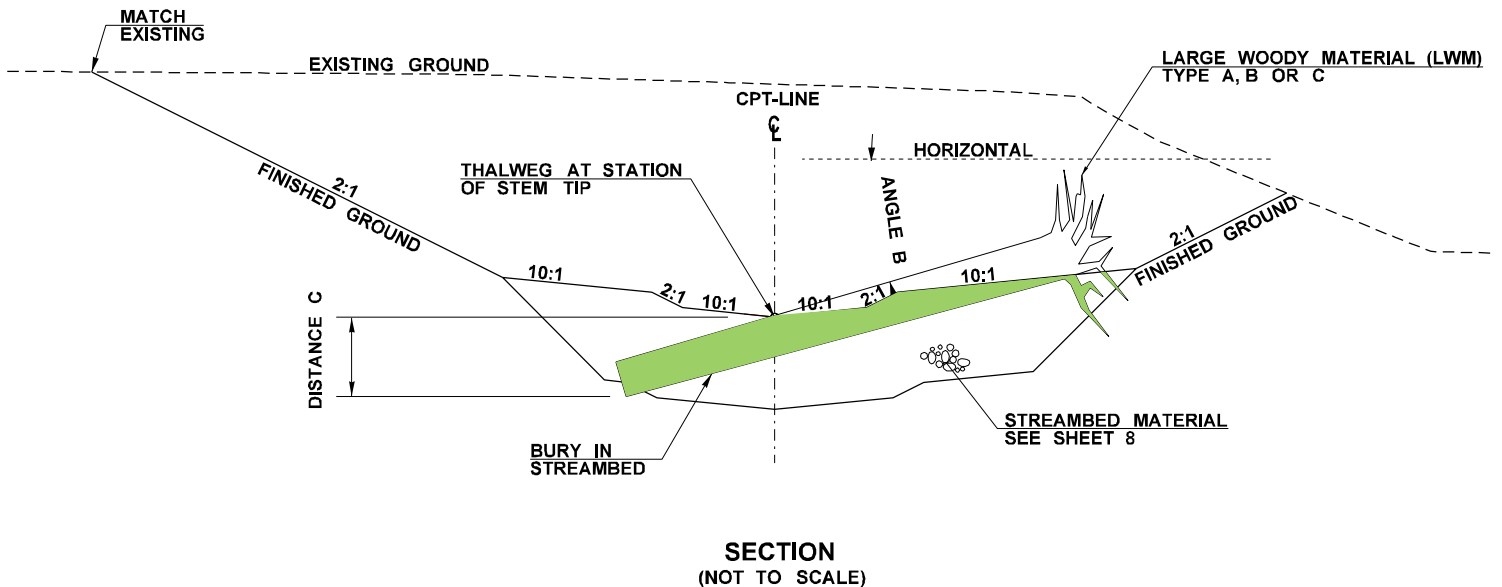
SHEET: 17 OF: 26

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STREAM PLAN & LWM CROSS SECTIONS



TYPICAL LARGE WOODY MATERIAL (LWM) TYPE A, B OR C - STEM TIP IN CHANNEL
(NOT TO SCALE)



NOTE:
FOR STREAM PLAN AND LWM LAYOUT SEE
SHEETS 14-17.

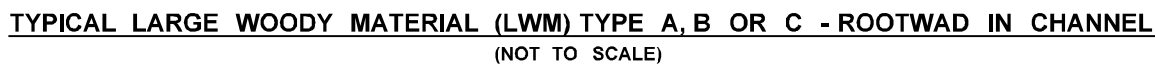
PROJECT NAME:	SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	REFERENCE:	SITE ID- NWS-2021-00902-DOT
PURPOSE:	REMOVE FISH PASSAGE BARRIER	APPLICANT:	WSDOT
PROPOSED:	INSTALL CULVERT & STREAM CHANNEL	COUNTY:	SKAGIT
LOCATION:	SR 534, MP 0.49- MP 0.69	NEAR:	EAST OF CONWAY
DATUM:	HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	WATER BODY:	TRIB TO CARPENTER CR
ADJACENT PROPERTY OWNERS:	SEE ATTACHED	DATE:	OCT. 2021



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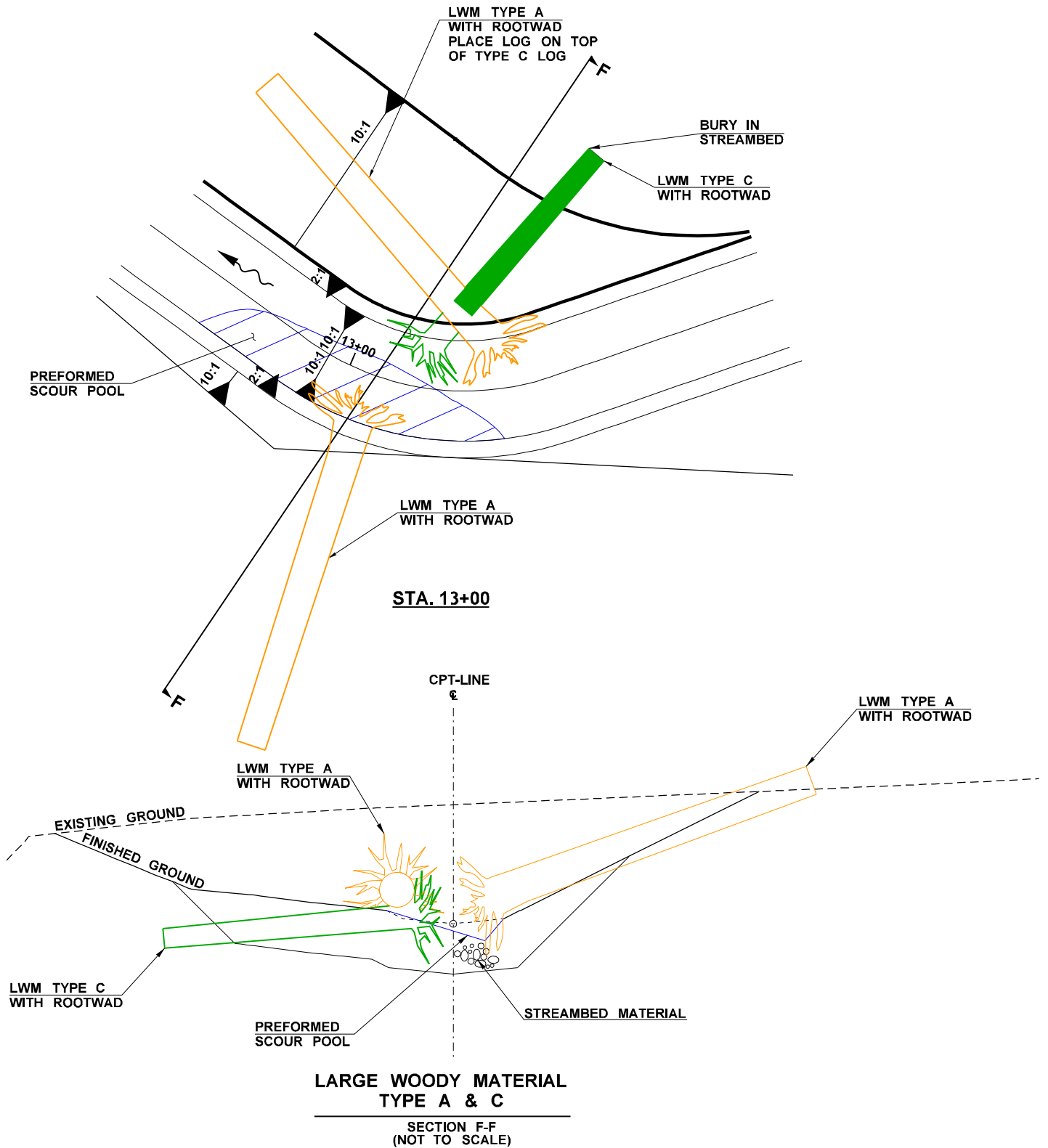
SHEET: 18 OF: 26

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STREAM PLAN & LWM CROSS SECTIONS



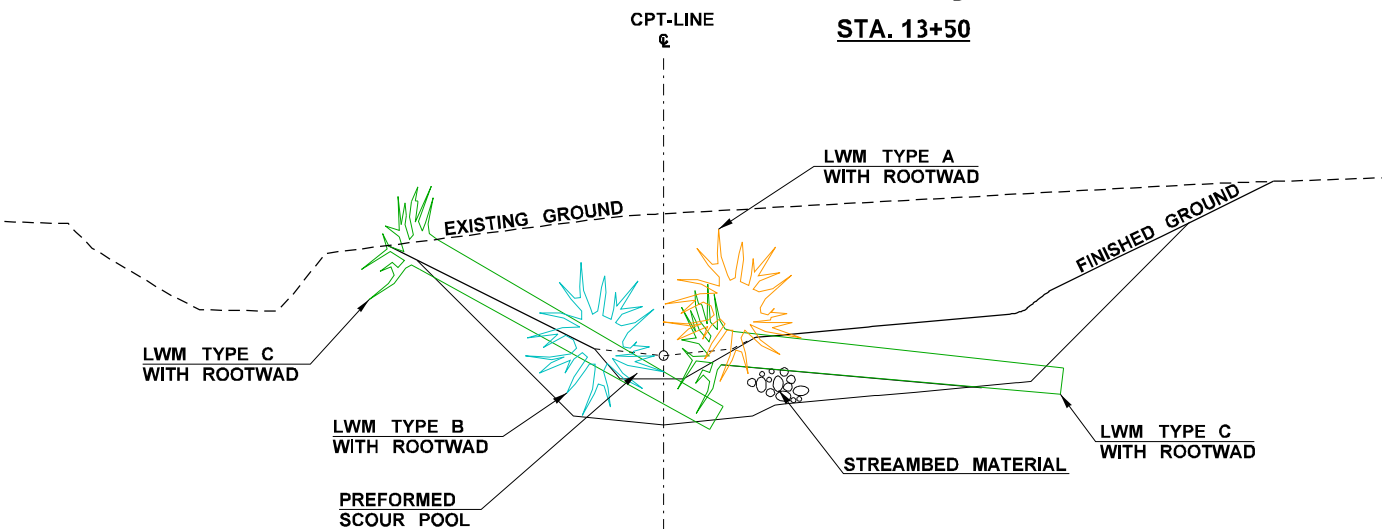
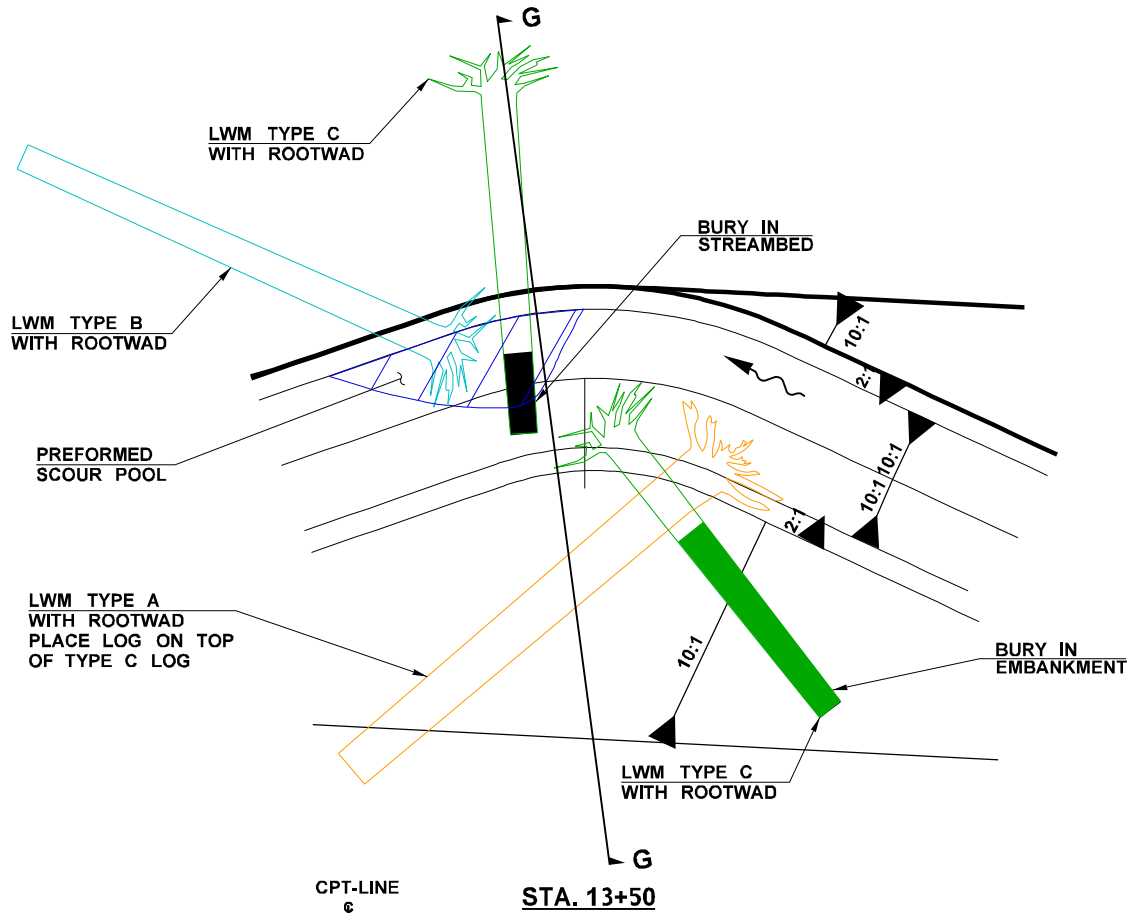
PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	
PURPOSE: REMOVE FISH PASSAGE BARRIER	REFERENCE: SITE ID- NWS-2021-00902-DOT
PROPOSED: INSTALL CULVERT & STREAM CHANNEL	APPLICANT: WSDOT
LOCATION: SR 534, MP 0.49- MP 0.69	COUNTY: SKAGIT
DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	NEAR: EAST OF CONWAY
ADJACENT PROPERTY OWNERS: SEE ATTACHED	WATER BODY: TRIB TO CARPENTER CR
	DATE: OCT. 2021



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STREAM PLAN & LWM CROSS SECTIONS



LARGE WOODY MATERIAL TYPE A, B & C SECTION G-G (NOT TO SCALE)

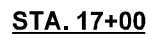
PROJECT NAME:	SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	REFERENCE:	SITE ID- NWS-2021-00902-DOT
PURPOSE:	REMOVE FISH PASSAGE BARRIER	APPLICANT:	WSDOT
PROPOSED:	INSTALL CULVERT & STREAM CHANNEL	COUNTY:	SKAGIT
LOCATION:	SR 534, MP 0.49- MP 0.69	NEAR:	EAST OF CONWAY
DATUM:	HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	WATER BODY:	TRIB TO CARPENTER CR
ADJACENT PROPERTY OWNERS:	SEE ATTACHED	DATE:	OCT. 2021



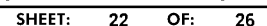
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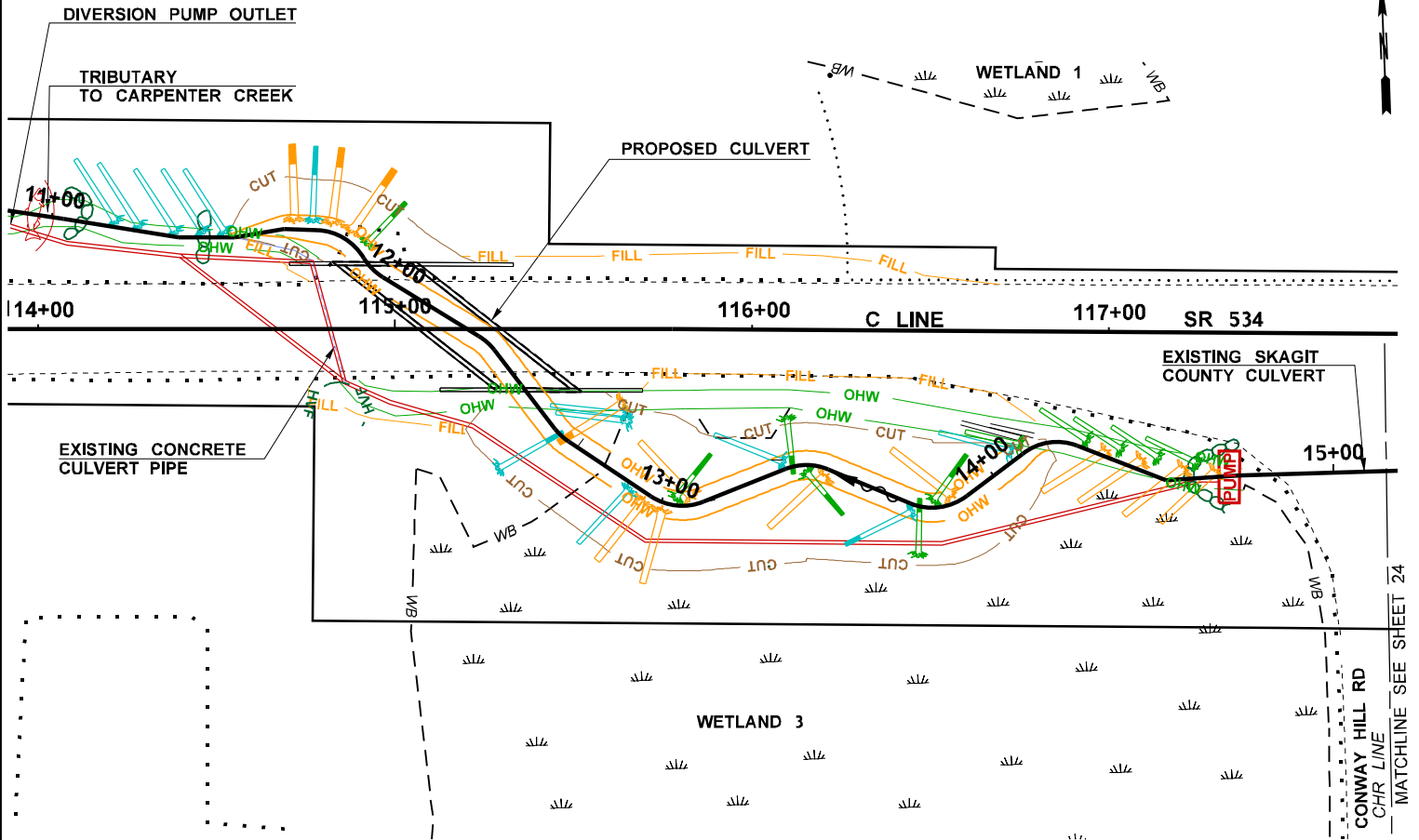
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PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE	
PURPOSE: REMOVE FISH PASSAGE BARRIER	REFERENCE: SITE ID- NWS-2021-00902-DOT
PROPOSED: INSTALL CULVERT & STREAM CHANNEL	APPLICANT: WSDOT
LOCATION: SR 534, MP 0.49- MP 0.69	COUNTY: SKAGIT
DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88	NEAR: EAST OF CONWAY
ADJACENT PROPERTY OWNERS: SEE ATTACHED	WATER BODY: TRIB TO CARPENTER CR
	DATE: OCT. 2021



CONCEPTUAL STREAM DIVERSION PLAN



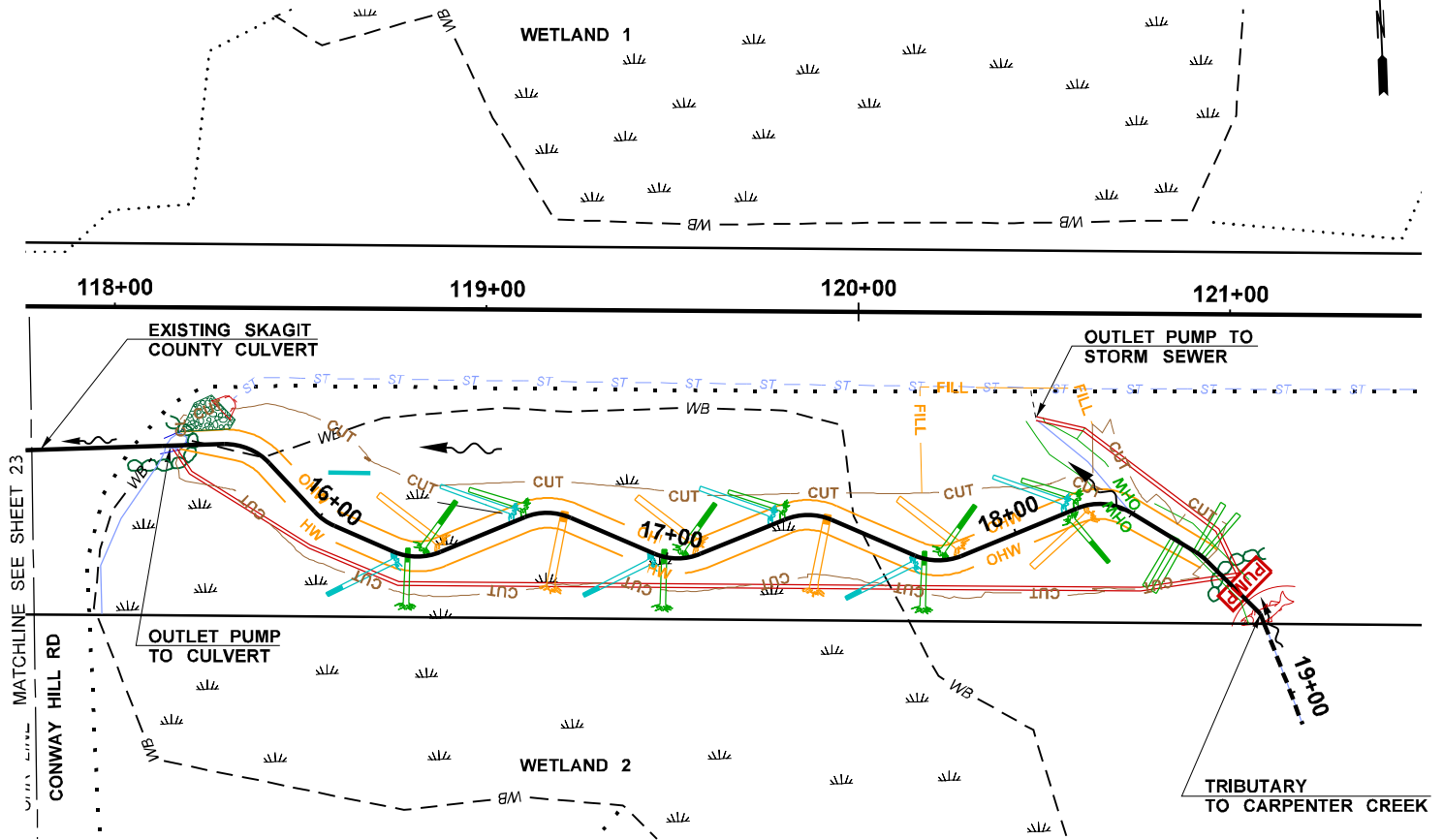
LEGEND

15+00	CONSTRUCTION ALIGNMENT
---	RIGHT OF WAY
- - - - -	EDGE OF PAVEMENT
.	STREAM BUFFER
.	WETLAND BUFFER
- - WB - -	WETLAND BOUNDARY
	WETLAND SYMBOL
— OHW —	EXISTING ORDINARY HIGH WATER LINE
— OHW —	NEW ORDINARY HIGH WATER LINE
— CUT —	PROPOSED CUT LINE
— FILL —	PROPOSED FILL LINE
→	DIRECTION OF FLOW
—	NEW CULVERT
○○○○○	COFFER DAM
— FISH NET —	FISH NET

0 25 50
SCALE IN FEET

PROJECT NAME:	SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE
PURPOSE:	REMOVE FISH PASSAGE BARRIER
PROPOSED:	INSTALL CULVERT & STREAM CHANNEL
LOCATION:	SR 534, MP 0.49- MP 0.69
DATUM:	HORIZONTAL-PROJECT, VERTICAL-(NAVD)88
ADJACENT PROPERTY OWNERS:	SEE ATTACHED
REFERENCE:	SITE ID- NWS-2021-00902-DOT
APPLICANT:	WSDOT
COUNTY:	SKAGIT
NEAR:	EAST OF CONWAY
WATER BODY:	TRIB TO CARPENTER CR
DATE:	OCT. 2021

CONCEPTUAL STREAM DIVERSION PLAN



LEGEND

- 15+00**
- CONSTRUCTION ALIGNMENT
 - RIGHT OF WAY
 - EDGE OF PAVEMENT
 - STREAM BUFFER
 - WETLAND BUFFER
 - WETLAND BOUNDARY
 - WETLAND SYMBOL
 - EXISTING ORDINARY HIGH WATER LINE
 - NEW ORDINARY HIGH WATER LINE
 - PROPOSED CUT LINE
 - PROPOSED FILL LINE
 - DIRECTION OF FLOW
 - NEW CULVERT
 - COFFER DAM
 - FISH NET

0 25 50
SCALE IN FEET

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

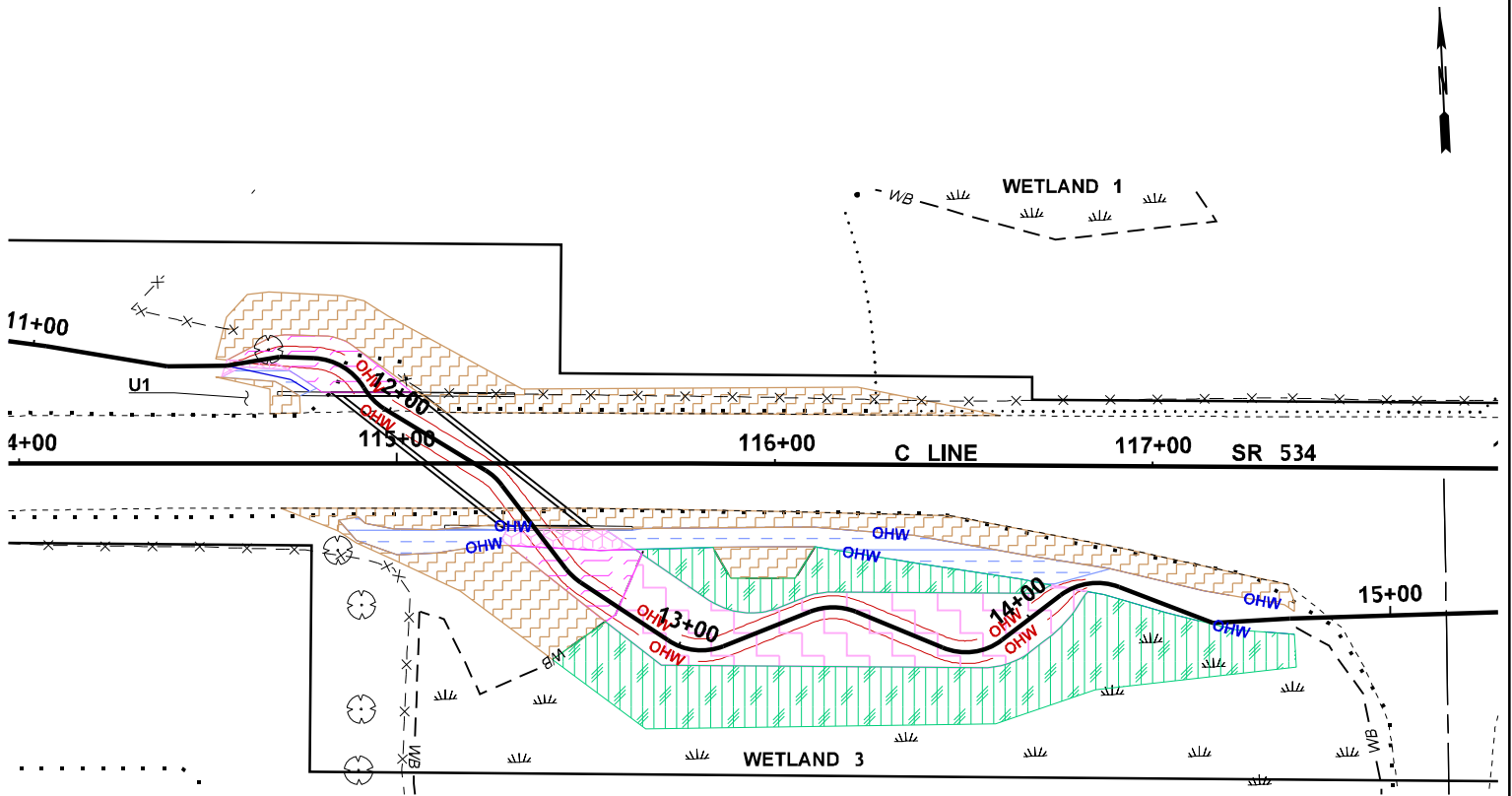
DATE: OCT. 2021



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RESTORATION PLAN



RESTORATION SUMMARY

SENSITIVE AREA	ACRES (SQ.FT.)	WETLAND #2	WETLAND #3	LEGEND
STREAM RESTORATION	0.01 (310)			
CONVERSION BUFFER TO STREAM	0.06 (2,537)			
CONVERSION STREAM TO BUFFER	0.03 (1,266)			
BUFFER RESTORATION	0.18 (7,652)			
WETLAND RESTORATION		0.11 (4,760)	0.09 (4,030)	
CONVERSION WETLAND TO STREAM	0.13 (5,515)			

LEGEND

- WSDOT ROW
- - - EXISTING PAVED
- · · · · STREAM BUFFER
- PROPOSED CULVERT
- - WB - - EXISTING WETLAND
- OHW — EXISTING HIGH WATER MARK
- OHW — NEW HIGH WATER MARK

0 25 50
SCALE IN FEET

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

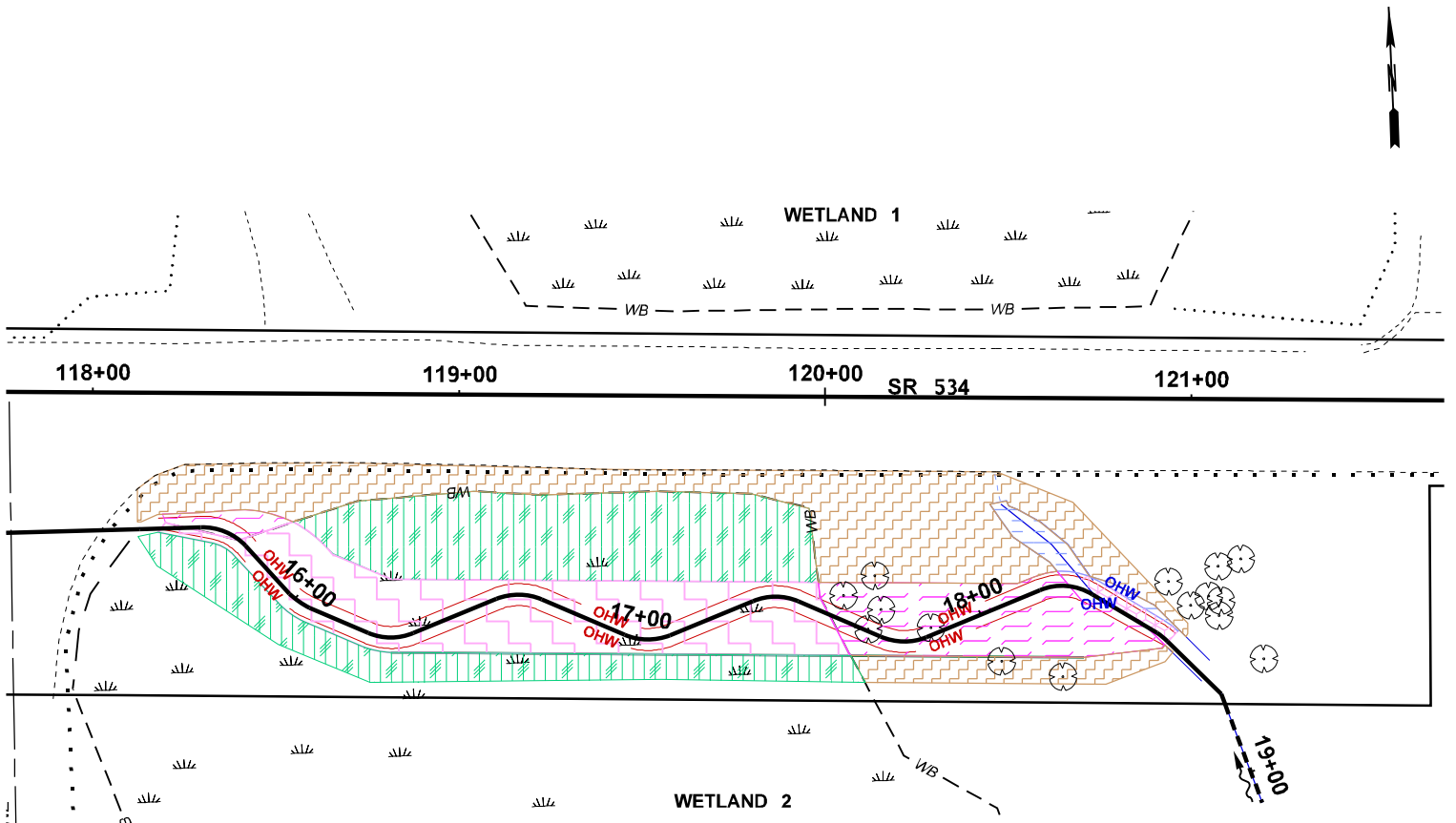
DATE: OCT. 2021



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RESTORATION PLAN



RESTORATION SUMMARY

SENSITIVE AREA	ACRES (SQ.FT.)	WETLAND #2	WETLAND #3	LEGEND
STREAM RESTORATION	0.01 (310)			
CONVERSION BUFFER TO STREAM	0.06 (2,537)			
CONVERSION STREAM TO BUFFER	0.03 (1,266)			
BUFFER RESTORATION	0.18 (7,652)			
WETLAND RESTORATION		0.11 (4,760)	0.09 (4,030)	
CONVERSION WETLAND TO STREAM	0.13 (5,515)			

LEGEND

—	WSDOT ROW
---	EXISTING PAVED
---	EDGE ROADWAY
...	STREAM BUFFER
□	PROPOSED CULVERT
WB	EXISTING WETLAND
OHW	EXISTING HIGH WATER MARK
OHW	NEW HIGH WATER MARK

0 25 50
SCALE IN FEET

PROJECT NAME: SR 534 UNNAMED TRIBUTARY TO CARPENTER CREEK - FISH PASSAGE

PURPOSE: REMOVE FISH PASSAGE BARRIER

PROPOSED: INSTALL CULVERT & STREAM CHANNEL

LOCATION: SR 534, MP 0.49- MP 0.69

DATUM: HORIZONTAL-PROJECT, VERTICAL-(NAVD)88

ADJACENT PROPERTY OWNERS: SEE ATTACHED

REFERENCE: SITE ID- NWS-2021-00902-DOT

APPLICANT: WSDOT

COUNTY: SKAGIT

NEAR: EAST OF CONWAY

WATER BODY: TRIB TO CARPENTER CR

DATE: OCT. 2021



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Department of Transportation

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