



**City of Bellevue  
Development Services Department  
Land Use Staff Report**

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**Proposal Name:** I-90 - Fish Passage

**Proposal Address:** I-90, Eastgate Way, and SE 36th St between 13291 & 13451 SE 36th Street and 13212 and 13300 Eastgate Way for work on Sunset Creek

**Proposal Description:** Land Use approval of a Critical Areas Land Use Permit to remove a fish barrier on Sunset Creek, a Type-F stream with an associated 100-year floodplain, below SE 36th Street, I-90, and SE Eastgate Way. The project will replace the fish barrier with bridges and a reconstructed Sunset Creek stream channel below. The City review is related to floodplain impacts only, consistent with RCW 77.55.181(4). Mitigation plantings are proposed to compensate for associated impacts.

**File Number:** 23-121645-LO

**Applicant:** Larry Smith, Atkinson Construction

**Decisions Included:** Critical Areas Land Use Permit (Process II. 20.30P)

**Planner:** Drew Folsom, Land Use Planner

**State Environmental Policy Act Threshold Determination:** **Exempt**  
RCW 77.55.181 - Fish Habitat Enhancement Project (FHEP); RCW 43.21C.0382.

**Director's Decision:** **Approval**  
*Reilly Pittman*  
By: Planning Manager for  
Rebecca Horner  
Development Services Department

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**Application Date:** September 21, 2023  
**Notice of Application Date:** November 2, 2023  
**Decision Publication Date:** January 18, 2023  
**Project Appeal Deadline:** February 1, 2023

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For information on how to appeal a proposal, visit the Development Services Center at City Hall or call (425) 452-6800. Appeal of the Critical Areas Land Use Permit decision must be made to the City of Bellevue City Clerk's Office by 5 p.m. on the date noted above as the appeal deadline.

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### Documents Referenced in File

1. Mitigation Plan and Project Plans, Attached
2. Preliminary Hydraulic Design Report, In File
3. Geotechnical Report, In File

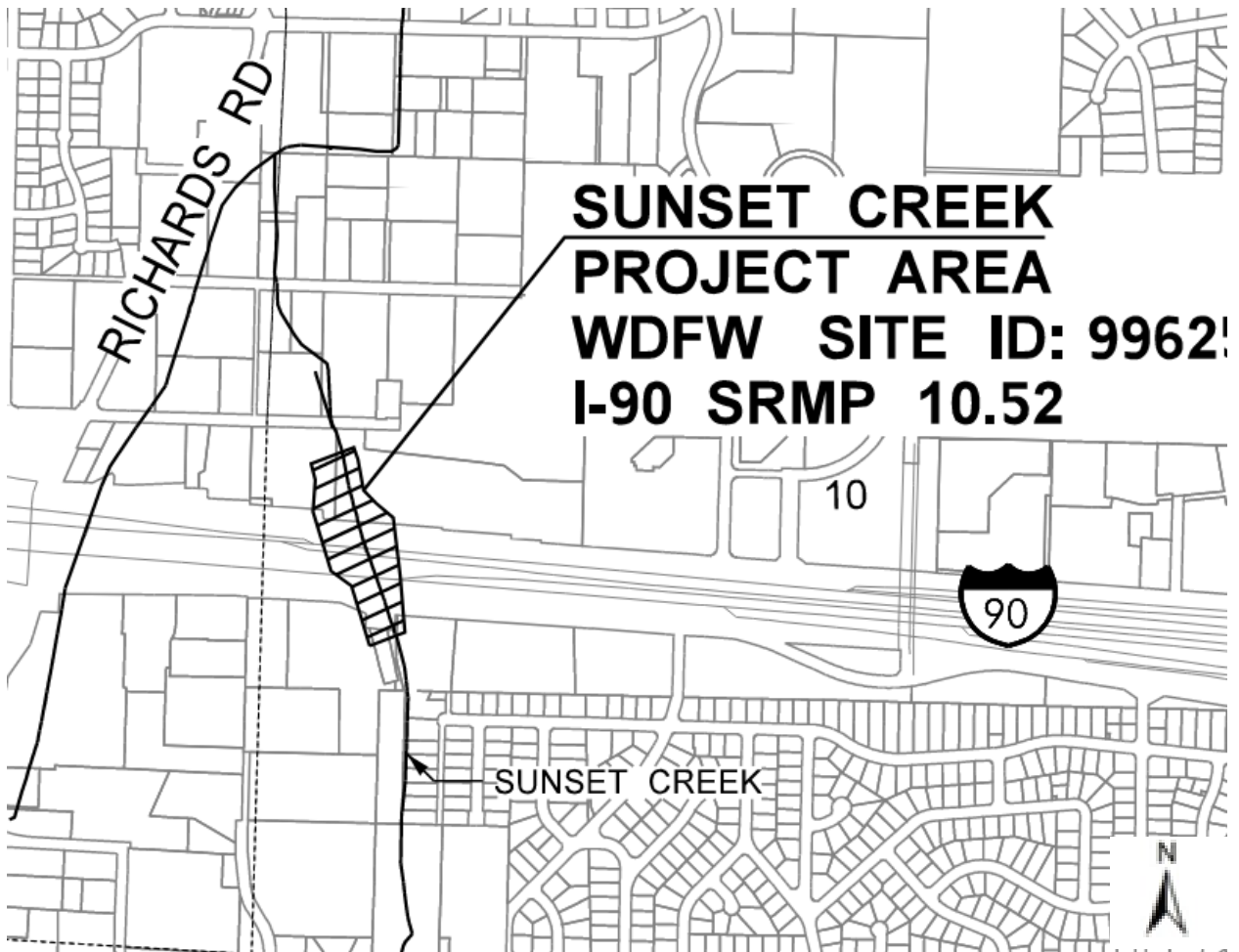
All other documents and materials found in the project file for 23-121645-LO

**I. Proposal Description**

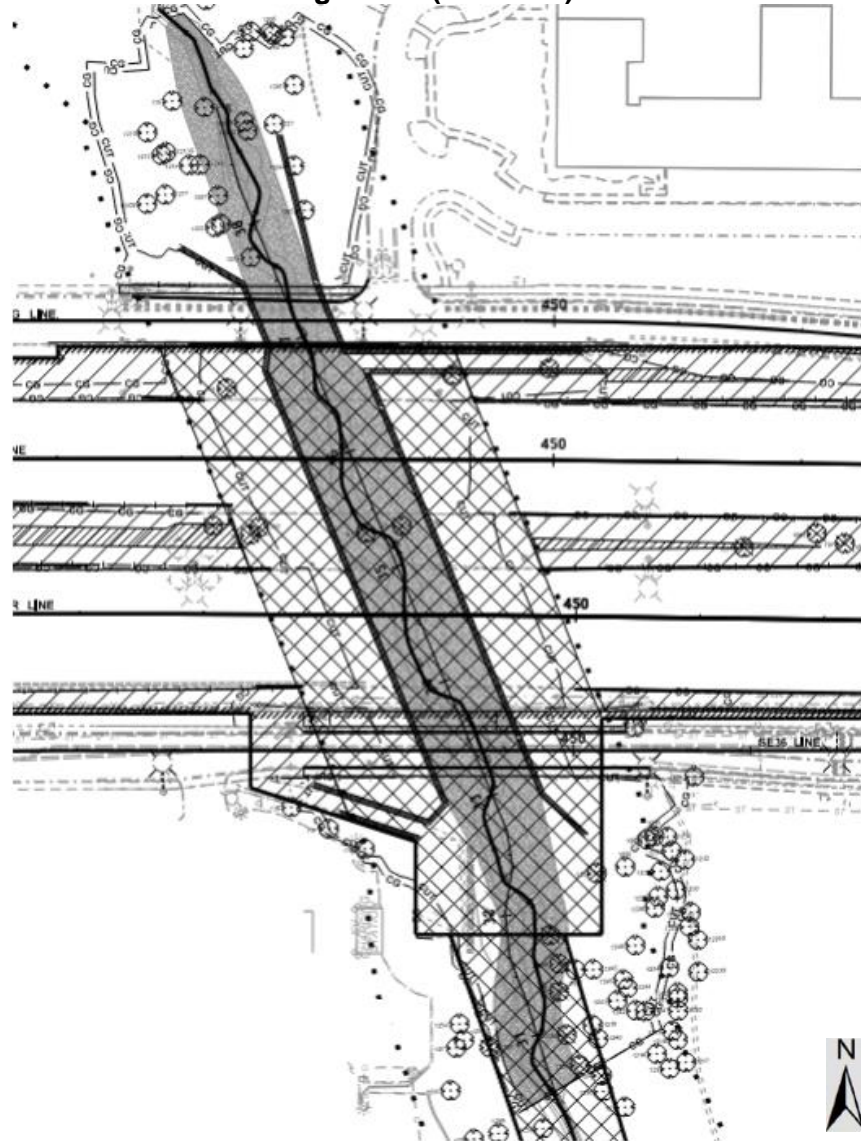
Approval of a Critical Areas Land Use Permit to remove a fish passage barrier on Sunset Creek, a Type-F stream with an associated 100-year floodplain, located below SE 36th Street, I-90, and SE Eastgate Way. Currently, Sunset Creek is conveyed under SE 36th St, I-90, and SE Eastgate Way within multiple large diameter culverts flowing from south to north. The stream is open on either side of I-90 with an above-ground channel. The Washington State Department of Transportation (WSDOT) proposes to remove the culverts and fish barrier by constructing bridges and soil-nail walls to support the roads and provide a restored Sunset Creek stream channel ravine. The stream will be centered between the soil nail walls and will have a ten-foot maintenance path on either side of the stream. Mitigation plantings are proposed to compensate for associated impacts.

Fish Habitat Enhancement Projects (FHEP) accepted by the Department of Ecology are exempt from local Land Use review and permitting per RCW 77.55.181 except for floodplain impacts. The City of Bellevue is the FEMA designated jurisdiction for approval of work in the floodplain. A Critical Areas Land Use permit is required because the project will include work located within a floodplain and this review is related to floodplain impacts only. The project is an allowed activity per LUC 20.25H.055. **See Figures 1A-B below for site area and plans. See reference document 1 for project plans.**

**Figure 1A (Site Area)**



**Figure 1B (Site Plan)**



## **II. Site Description, Zoning, Land Use and Critical Areas**

### **A. Site Description**

The project is located along I-90, Eastgate Way, and SE 36th St near 13291 & 13451 SE 36th Street and 13212 and 13300 Eastgate Way for work on Sunset Creek (project site). Commercial and Office uses are located to the west and east of the site along SE 36th Street. The Humane Society and the Eastgate Housing Campus are located to the west and east of the project site along Eastgate Way.

Sunset Creek, a Type-F stream, and an associated 100-year floodplain are located on the site. The stream is at the base of a forested ravine at the inlet and outlet of the culverted

section which travels beneath SE 36th Street, I-90, and Eastgate Way.

See Figures 2A-C below for project location and current conditions.

Figure 2A

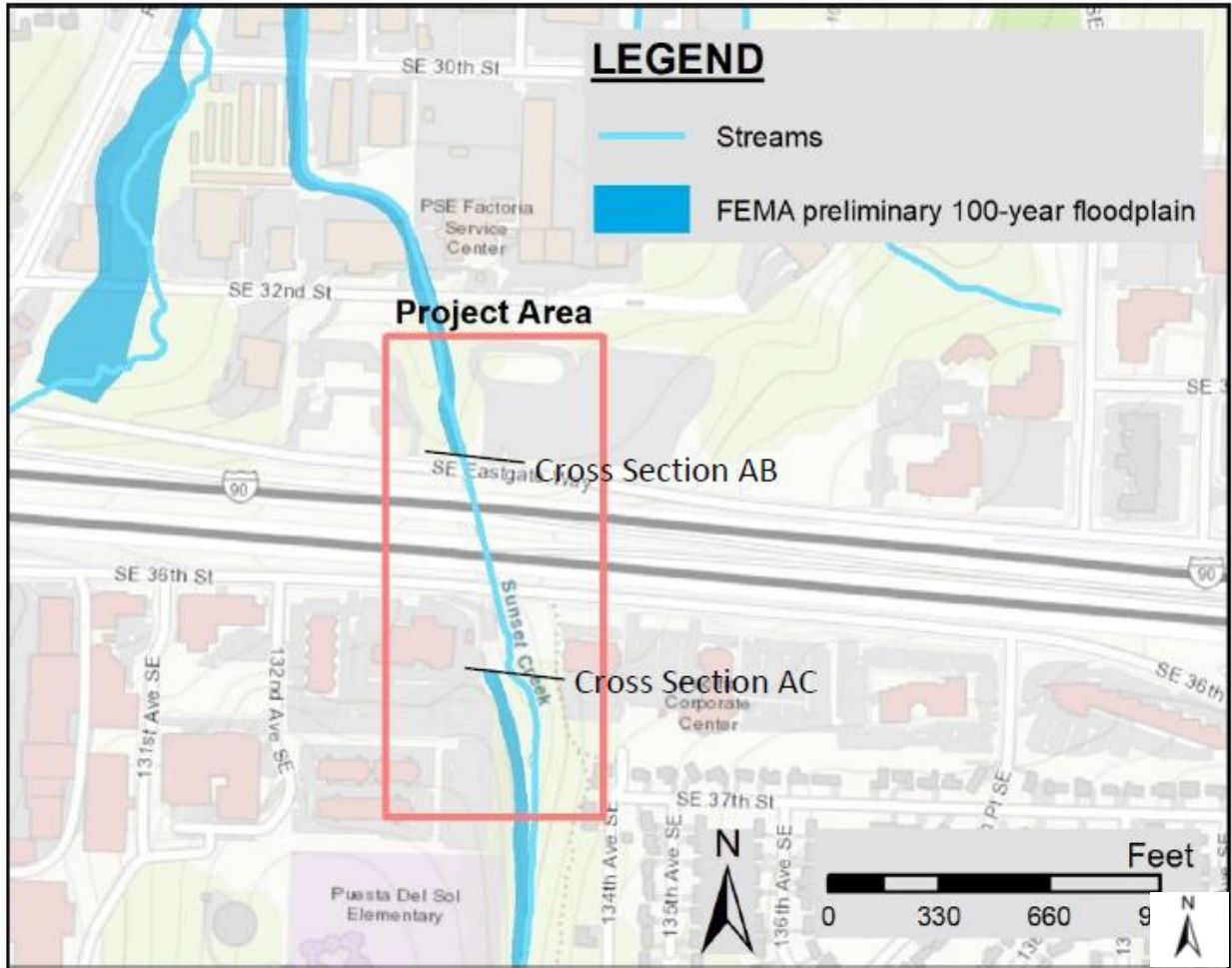
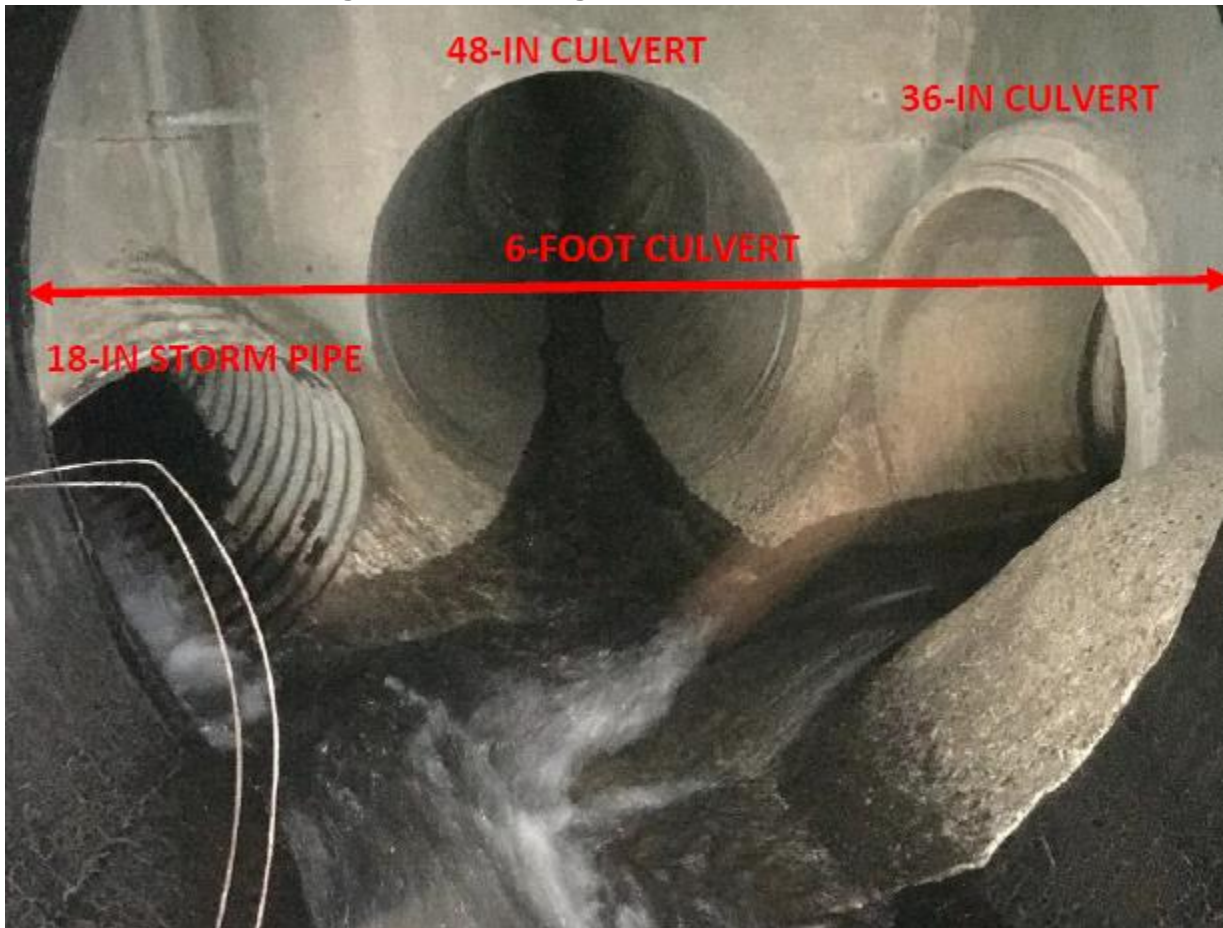


Figure 2B - Existing In-Structure Culverts



**Figure 2C - Existing Culvert Outlet**



## **B. Critical Areas – Functions and Values**

### **i. Streams and Riparian Areas**

Most of the elements necessary for a healthy aquatic environment rely on processes sustained by dynamic interaction between the stream and the adjacent riparian area (Naiman et al., 1992). Riparian vegetation in floodplains and along stream banks provides a buffer to help mitigate the impacts of urbanization (Finkenbine et al., 2000 in Bolton and Shellberg, 2001). Riparian areas support healthy stream conditions.

Riparian vegetation, particularly forested riparian areas, affect water temperature by providing shade to reduce solar exposure and regulate high ambient air temperatures, slowing or preventing increases in water temperature (Brazier and Brown, 1973; Corbett and Lynch, 1985).

Upland and wetland riparian areas retain sediments, nutrients, pesticides, pathogens, and other pollutants that may be present in runoff, protecting water quality in streams (Ecology, 2001; City of Portland 2001). The roots of riparian plants also hold soil and

prevent erosion and sedimentation that may affect spawning success or other behaviors, such as feeding.

Both upland and wetland riparian areas reduce the effects of flood flows. Riparian areas and wetlands reduce and desynchronize peak crests and flow rates of floods (Novitzki, 1979; Verry and Boelter, 1979 in Mitsch and Gosselink, 1993). Upland and wetland areas can infiltrate floodflows, which in turn, are released to the stream as baseflow

Stream riparian areas, or buffers, can be a significant factor in determining the quality of wildlife habitat. For example, buffers comprised of native vegetation with multi-canopy structure, snags, and down logs provide habitat for the greatest range of wildlife species (McMillan, 2000). Vegetated riparian areas also provide a source of large woody debris that helps create and maintain diverse in-stream habitat, as well as create woody debris jams that store sediments and moderate flood velocities.

Sparsely vegetated or vegetated buffers with non-native species may not perform the needed functions of stream buffers. In cases where the buffer is not well vegetated, it is necessary to either increase the buffer width or require that the standard buffer width be restored or revegetated (May 2003). Until the newly planted buffer is established the near-term goals for buffer functions may not be attained.

Riparian areas often have shallow groundwater tables, as well as areas where groundwater and surface waters interact. Groundwater flows out of riparian wetlands, seeps, and springs to support stream baseflows. Surface water that flows into riparian areas during floods or as direct precipitation infiltrates into groundwater in riparian areas and is stored for later discharge to the stream (Ecology, 2001; City of Portland, 2001).

## **ii. Floodplains**

The value of floodplains can be described in terms of both the hydrologic and ecological functions that they provide. Flooding of occurs when either runoff exceeds the capacity of rivers and streams to convey water within their banks, or when engineered stormwater systems become overwhelmed. Studies have linked urbanization with increased peak discharge and channel degradation (Dunne and Leopold 1978; Booth and Jackson 1997; Konrad 2000). Floodplains diminish the effects of urbanization by temporarily storing water and mediating flow to downstream reaches. The capacity of a floodplain to buffer upstream fluctuations in discharge may vary according to valley confinement, gradient, local relief, and flow resistance provided by vegetation. Development within the floodplain can dramatically affect the storage capacity of a floodplain, impact the hydrologic regime of a basin and present a risk to public health and safety and to property and infrastructure.

### **iii. Geologic Hazard Areas**

Geologic hazards pose a threat to the health and safety of citizens when commercial, residential, or industrial development is inappropriately sited in areas of significant hazard. Some geologic hazards can be reduced or mitigated by engineering, design, or modified construction practices. When technology cannot reduce risks to acceptable levels, building in geologically hazardous areas is best avoided (WAC 365-190).

Steep slopes may serve several other functions and possess other values for the City and its residents. Several of Bellevue's remaining large blocks of forest are located in steep slope areas, providing habitat for a variety of wildlife species and important linkages between habitat areas in the City. These steep slope areas also act as conduits for groundwater, which drains from hillsides to provide a water source for the City's wetlands and stream systems. Vegetated steep slopes also provide a visual amenity in the City, providing a "green" backdrop for urbanized areas enhancing property values and buffering urban development.

### **iv. Habitat Associated with Species of Local Importance**

Urbanization, the increase in human settlement density and associated intensification of land use, has a profound and lasting effect on the natural environment and wildlife habitat (McKinney 2002, Blair 2004, Marzluff 2005, Munns 2006), is a major cause of native species local extinctions (Czech et al 2000), and is likely to become the primary cause of extinctions in the coming century (Marzluff et al. 2001a). Cities are typically located along rivers, on coastlines, or near large bodies of water. The associated floodplains and riparian systems make up a relatively small percentage of land cover in the western United States, yet they provide habitat for rich wildlife communities (Knopf et al. 1988), which in turn provide a source for urban habitat patches or reserves. Consequently, urban areas can support rich wildlife communities. In fact, species richness peaks for some groups, including songbirds, at an intermediate level of development (Blair 1999, Marzluff 2005). Protected wild areas alone cannot be depended on to conserve wildlife species. Impacts from catastrophic events, environmental changes, and evolutionary processes (genetic drift, inbreeding, colonization) can be magnified when a taxonomic group or unit is confined to a specific area, and no one area or group of areas is likely to support the biological processes necessary to maintain biodiversity over a range of geographic scales (Shaughnessy and O'Neil 2001). As well, typological approaches to taxonomy or the use of indicators present the risk that evolutionary potential will be lost when depending on reserves for preservation (Rojas 2007). Urban habitat is a vital link in the process of wildlife conservation in the U.S.

### **III. Consistency with Land Use Code Requirements**

#### **A. Critical Areas Requirements LUC 20.25H**

This proposal is an allowed use per 20.25H.055 and, except for floodplain impacts, is exempt from Land Use review and permit requirements under RCW 77.55.181(4).

##### **i. Consistency with LUC 20.25H.180.B – Floodplain Performance Standards**

Finding: The project will occur within the 100-year floodplain associated with Sunset Creek at this location. No structures are proposed within the stream. A bridge structure will be over the stream. Soil nail walls placed in support of the bridge will be located outside the stream. The walls will not encroach on the regulated floodway and are designed to accommodate the forecasted flow as detailed in the provided Preliminary Hydraulic Design analysis. This analysis was reviewed by the City and demonstrates no increase in BFE and noted no impacts to the flood storage capacity as a result of this project. The analysis demonstrated that there will be no adverse impacts to stormwater quality, floodwater storage and conveyance capacity. The FHEP will remove a human-made fish passage barrier and has provided a mitigation plan with native planting. The proposal will result in an improvement to habitat as a result of the project.

### **IV. Public Notice and Comment**

Application Date:	September 21, 2023
Public Notice (500 feet):	November 2, 2023
Minimum Comment Period:	November 16, 2023

The Notice of Application for this project was published in the City of Bellevue Weekly Permit Bulletin and Seattle Times on November 2, 2023. It was mailed to property owners within 500 feet of the project site. The City received a request for information, which was provided. No comments were received at the time of writing this report.

### **V. Summary of Technical Reviews**

#### **A. Clearing and Grading**

The Clearing and Grading Division of the Development Services Department reviewed the proposal for compliance with Clearing and Grading codes and standards and has approved the application.

#### **B. Utilities**

The Utilities Review section of the Development Services Department reviewed the proposal for compliance with Utility codes and standards and has approved the application.

**VI. State Environmental Policy Act (SEPA)**

**Exempt**

Per RCW 77.55.181 - FHEP and RCW 43.21C.0382.

**VII. Decision Criteria**

**20.30P.140 Critical Area Land Use Permit Decision Criteria – Decision Criteria**

The Director may approve, or approve with modifications an application for a Critical Area Land Use Permit if:

- 1. The proposal obtains all other permits required by the Land Use Code;**

**Finding:** Not applicable per RCW 77.55.181 - FHEP.

- 2. The proposal utilizes to the maximum extent possible the best available construction, design and development techniques which result in the least impact on the critical area and critical area buffer;**

**Finding:** Not applicable per RCW 77.55.181 - FHEP.

- 3. The proposal incorporates the performance standards of Part 20.25H to the maximum extent applicable, and ;**

**Finding:** As discussed in Section III of this report, the performance standards of LUC 20.25H are being met or exceeded.

- 4. The proposal will be served by adequate public facilities including street, fire protection, and utilities; and;**

**Finding:** The proposal will be adequately served by public services or facilities.

- 5. The proposal includes a mitigation or restoration plan consistent with the requirements of LUC Section 20.25H.210; and**

**Finding:** The requirements of 20.25H.210 are not applicable per RCW 77.55.181 - FHEP. However, a mitigation planting plan has been submitted.

- 6. The proposal complies with other applicable requirements of this code.**

As discussed in this report, the proposal complies with all other applicable requirements of the Land Use Code.

**VIII. Conclusion and Decision**

After conducting the various administrative reviews associated with this proposal, including Land Use Code consistency, City Code and Standard compliance reviews, the Director of the Development Services Department does hereby **approve** the Critical Areas Land Use Permit for the I-90 - Fish Passage project.

**LWM SPECIFICATIONS AND NOTES:**

- CONTRACTOR TO REVIEW INSTALLATION INTENT AND DISCUSS WITH ENGINEER AS NECESSARY TO ENSURE OBJECTIVES ARE MET. CONTRACTOR TO ENGAGE ENGINEER IN ADVANCE OF INSTALLATION IF LOG CHARACTERISTICS OR INSTALLATION CONSTRAINTS NECESSITATE CHANGES IN THE INSTALLATION INTENT.
- THE PLACEMENT OF INDIVIDUAL LOGS MAY VARY DEPENDING ON SITE CONDITIONS, WITH APPROVAL FROM THE STREAM DESIGN ENGINEER.
- THE STREAM DESIGN ENGINEER, OR THEIR REPRESENTATIVE, MUST BE ON-SITE DURING THE INITIATION OF LWM STRUCTURE INSTALLATION.
- LOGS SHALL BE APPROVED BY DESIGN ENGINEER OR THEIR REPRESENTATIVE PRIOR TO CONSTRUCTION OF STRUCTURES. SALVAGED ON-SITE LOGS MAY BE AVAILABLE FROM SITE CLEARING ACTIVITY.
- ALL IMPORTED LOGS TO BE CONIFERS, AND FREE OF DECAY. RETAIN BARK ON ALL LOGS.
- LOG DIAMETERS TO BE MEASURED AT BREST HEIGHT. DIAMETER AT BREST HEIGHT (DBH) IS MEASURED 4.5 FEET FROM THE BASE OF THE STEM ABOVE THE ROOTWAD.
- LOG LENGTHS TO BE MEASURED END TO END OR ROOT COLLAR TO END.
- ROOTWADS SHALL BE FULLY INTACT AND BE A MIN. OF 2 TIMES THE LOG DBH.
- SLASH SHALL MEET THE WSDOT GENERAL SPECIAL PROVISION FOR WOODY MATERIAL 8-SA5.GR8
- PINNING/PILE LOGS SHALL BE DRIVEN TO REQUIRED DEPTH TO THE EXTENT POSSIBLE. IF MINIMUM EMBEDMENT CANNOT BE MET BY HAMMER OR VIBRATORY DRIVING, CONTRACTOR SHALL AUGUR AS NEEDED TO ACHIEVE MINIMUM EMBEDMENT. IF LARGER AREA OF OVER EXCAVATION IS REQUIRED TO ACHIEVE MINIMUM EMBEDMENT DEPTH, CONTRACTOR SHALL REPLACE AND COMPACT EXCAVATED MATERIAL TO A FIRM CONDITION IN LIFTS NOT EXCEEDING ONE FEET IN THICKNESS. FOR THE STREAMBED MIX AND IN-SITU SEDIMENTS AND 1.5 FEET FOR THE FLOODPLAIN MIX AS DESCRIBED IN THE STREAM AND SEDIMENT MIX INSTALLATION NOTES. BACKFILL SHALL MAINTAIN THE MINIMUM REQUIREMENTS FOR STREAMBED AND FLOODPLAIN DEPTHS.

**LWM STAKEOUT POINT TABLE NOTES:**

- LWM ID USES A LETTER FOR THE STRUCTURE TYPE WITH AN INDEX NUMBER PREFIX FOR EACH STRUCTURE COUNTING FROM DOWNSTREAM TO UPSTREAM.
- LOG SIZING NOMENCLATURE DEFINES THE DBH IN INCHES FOLLOWED BY THE LENGTH IN FEET. PREFIXES OF R OR LP DENOTE A ROOTWAD OR LOG PILE RESPECTIVELY. FOR EXAMPLE, A 24 INCH DBH, 30 FOOT-LONG LOG WITH A ROOTWAD WOULD BE DEFINED AS: "R-24IN-30FT".

**LWM STAKEOUT POINT TABLE**

TYPE	SP(1)	EASTING	SP(2)	EASTING	MATERIAL	TYPE	SP(1)	EASTING	SP(2)	EASTING	MATERIAL	TYPE	SP(1)	EASTING	SP(2)	EASTING	MATERIAL	
	NORTHING		NORTHING		(PREFIX-DBH-LENGTH)		NORTHING		NORTHING		(PREFIX-DBH-LENGTH)		NORTHING		NORTHING		(PREFIX-DBH-LENGTH)	
A01 (1)	214653	1312383	214659	1312379		C01	214810	1312339	214820	1312356		E01	214784	1312360	214808	1312354		
A01 (2)	214677	1312395				C02	214759	1312359	214771	1312382		E02	214448	1312447	214473	1312450		
A01 (3)	214680	1312390	214675	1312383		C03	214751	1312386	214743	1312362		E03	214411	1312447	214435	1312442		
A01 (4)	214661	1312390				C04	214620	1312400	214628	1312420		E04	214271	1312499	214291	1312485		
A02 (1)	214404	1312485	214411	1312485		C05	214528	1312441	214533	1312416		E05	214142	1312548	214166	1312543		
A02 (2)	214412	1312459				C06	214472	1312441	214470	1312462		E06	214103	1312589	214079	1312593		
A02 (3)	214418	1312462	214420	1312473		C07	214394	1312493	214379	1312479		F01	214804	1312356				
A02 (4)	214405	1312473				C08	214307	1312485	214307	1312507		F02	214734	1312377				
A03 (1)	214269	1312532	214275	1312531		C09	214298	1312503	214294	1312482		F03	214642	1312390				
A03 (2)	214277	1312504				C010	214247	1312526	214257	1312545		F04	214498	1312448				
A03 (3)	214283	1312508	214285	1312519		C011	214207	1312539	214211	1312559		F05	214425	1312453				
A03 (4)	214270	1312519				C012	214153	1312537	214162	1312561		F06	214317	1312490				
A04 (1)	214173	1312535	214179	1312532		C013	213943	1312567	213951	1312591		F07	214097	1312573				
A04 (2)	214193	1312555				D01 (1)	214698	1312402	214696	1312380		F08	214017	1312579				
A04 (3)	214198	1312546	214194	1312538		D01 (2)	214696	1312396	214683	1312415								
A04 (4)	214186	1312543				D01 (3)	214681	1312405	214711	1312405								
A05 (1)	214108	1312574	214116	1312575		D01 (4)	214712	1312391	214704	1312375								
A05 (2)	214123	1312549				D01 (5)	214722	1312370	214726	1312392								
A05 (3)	214128	1312556	214127	1312565		D02 (1)	214556	1312439	214555	1312418								
A05 (4)	214112	1312562				D02 (2)	214554	1312432	214540	1312451								
A06 (1)	213982	1312560	213989	1312558		D02 (3)	214540	1312437	214570	1312441								
A06 (2)	213998	1312581				D02 (4)	214572	1312427	214565	1312410								
A06 (3)	214006	1312573	214002	1312564		D02 (5)	214581	1312407	214586	1312430								
A06 (4)	213989	1312568				D03 (1)	214337	1312479	214334	1312498								
B01 (1)	214601	1312410	214606	1312403		D03 (2)	214334	1312488	214316	1312473								
B01 (2)	214620	1312413				D03 (3)	214321	1312483	214346	1312472								
B02 (1)	214508	1312446	214517	1312448		D03 (4)	214354	1312488	214353	1312506								
B02 (2)	214522	1312433				D03 (5)	214368	1312502	214368	1312482								
B03 (1)	214481	1312445	214489	1312438		D04 (1)	214048	1312586	214048	1312563								
B03 (2)	214501	1312447				D04 (2)	214044	1312577	214028	1312593								
B04 (1)	214431	1312455	214442	1312462		D04 (3)	214028	1312581	214055	1312592								
B04 (2)	214448	1312443				D04 (4)	214060	1312575	214061	1312561								
B05 (1)	214224	1312539	214225	1312534		D04 (5)	214077	1312565	214074	1312587								
B05 (2)	214237	1312540																
B06 (1)	213966	1312573	213969	1312577														
B06 (2)	213979	1312568																

**SPECIFICATION SOURCES:**



- ALL MATERIAL AND CONSTRUCTION SPECIFICATIONS COME FROM EITHER THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION M 41-10 (2023) OR THE WSDOT GENERAL SPECIAL PROVISIONS SECTION 8-SA4.FR8 - WATER CROSSINGS (OCTOBER 3, 2022), SECTION 8-SA5.GR8 - WOODY MATERIAL (OCTOBER 3, 2022).

**STREAM SEDIMENT MIX AND INSTALLATION NOTES:**

- ANY MATERIAL EXCAVATED BELOW THE STREAMBED OR FLOODPLAIN MIXES SUBGRADE ELEVATION FOR WALL CONSTRUCTION, SEWER CONSTRUCTION, OR OTHER REASON SHALL BE BACKFILLED WITH MATERIAL MEETING SPECIFICATION FOR COMMON BORROW (STD. SPEC. 9-03.14(3)). STREAM AREA SUBGRADE BACKFILL SHALL BE INSTALLED IN 18-INCH LIFTS AND COMPACTED USING STD. SPEC. 2-03.3 (14)C METHOD A.
- PRIOR TO THE PLACEMENT OF STREAMBED AND FLOODPLAIN MIXES, ANY AREA THAT WAS NOT BACKFILLED PER NOTE 1 SHALL ALSO BE COMPACTED PER STD. SPEC. 2-03.3(14)C METHODS A. IF UNSUITABLE MATERIAL (STD. SPEC. 7-09.3 (8)) IS FOUND THE UNSUITABLE MATERIAL SHALL BE REMOVED TO A DEPTH OF 1.5 FT AND BACKFILLED WITH FLOODPLAIN MIX.
- STREAMBED MIX SHALL BE PLACED IN 12 INCH LIFTS AND FLOODPLAIN MIX IN 18 INCH LIFTS IN SUCH A WAY TO PREVENT MATERIAL SEGREGATION. STREAMBED AND FLOODPLAIN AGGREGATES SHALL BE THOROUGHLY BLENDED BEFORE PLACEMENT.
- STREAMBED SEDIMENT, COBBLES, AND BOULDERS SHALL BE SEPARATELY TESTED AND ACCEPTED PRIOR TO BLENDING ACTIVITIES.
- EACH LIFT OF STREAMBED AND FLOODPLAIN MIX SHALL BE COMPACTED TO BE UNIFORMLY DENSE AND UNYIELDING BY TRACK WALKING OR BUCKET PACKING THE PLACED MATERIAL WITH LARGE HEAVY EQUIPMENT. WATER SHALL BE ADDED IF NECESSARY FOR OPTIMUM CONSOLIDATION OF THE STREAMBED AND FLOODPLAIN. TRACK WALKING AND BUCKET PACKING SHALL OCCUR PRIOR TO WASHING IN THE STREAMBED SAND.
- FOR EACH LIFT OF STREAMBED SEDIMENT IN THE MAIN CHANNEL, WASH IN STREAMBED SAND TO FILL THE VOIDS PER WSDOT GENERAL SPECIAL PROVISIONS 8-SA4.FR8: PLACING BLENDED STREAMBED AGGREGATES. TEST THAT THE STREAM LOW FLOW RATE OF 30 GALLONS PER MINUTE IS CONVEYED ABOVE EACH MAIN CHANNEL LIFT.
- EXCAVATIONS FOR LWM WITHIN THE MAIN CHANNEL SHALL OCCUR PRIOR TO WASHING IN OF STREAMBED SAND TO AVOID DISTURBING THE FINISHED SEALED BED.
- NATIVE STREAMBED AGGREGATES MAY BE AVAILABLE FROM THE EXISTING STREAMBED EXCAVATION LIMITS. COMPONENTS OF THE EXCAVATED STREAMBED WHICH MEET THE CRITERIA FOR THE SPECIFIC MATERIAL MAY BE USED TO SUPPLEMENT IMPORTED STREAMBED AGGREGATES AND MAY BE USED UPON VISUAL ACCEPTANCE BY THE ENGINEER.

STREAMBED MIX SPECIFICATIONS		
STREAMBED SEDIMENT	9-03.11(1)	50%
12-INCH STREAMBED COBBLE	9-03.11(2)	50%

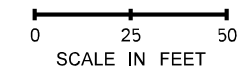
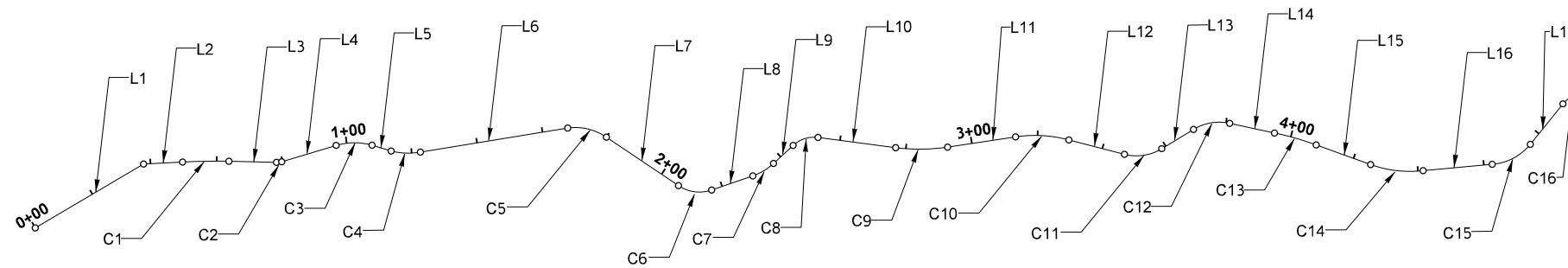
FLOODPLAIN MIX SPECIFICATIONS		
STREAMBED SEDIMENT	9-03.11(1)	30%
12-INCH STREAMBED COBBLE	9-03.11(2)	50%
TYPE 1 STREAMBED BOULDERS	9-03.11(3)	20%

FILE NAME	c:\pwworking\jacobs_b&l\jg_ex-leach\mid0508250\C9750 SUNSET CREEK_PS_SR_G201.dgn			REGION NO.	STATE	FED.AID PROJ.NO.		<h1 style="margin: 0;">PRELIMINARY</h1> <p style="margin: 0;">FOR CONSTRUCTION</p>		<p style="margin: 0; text-align: center;"><b>I-90, SR 161, SR 202 &amp; SR 203</b> <b>FISH PASSAGE</b> <b>SUNSET CREEK</b></p>	PLAN REF NO
TIME	2:20:43 PM			10	WASH	G201					
DATE	12/5/2023			JOB NUMBER		SHEET					
PLOTTED BY	Mikel			CONTRACT NO.		OF					
DESIGNED BY	S. SHELDON, J. SIEGEL			C9750		SHEETS					
ENTERED BY	M. LEACH			LOCATION NO.							
CHECKED BY	R. SHEEAN										
PROJ. ENGR.	M. ASKARIAN			REV A - PRELIMINARY REVIEW							
REGIONAL ADM.	B. NIELSEN			10/11/2023							
				DATE							
				BY							
				SAS							
				REVISION							

**SUNSET GENERAL STREAM RESTORATION NOTES**

ELEMENT	TYPE	NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	THETA
TANGENT	P.O.B.	L1	0+00.00	214835.548	1312327.724			
TANGENT	P.I.	L2	0+37.92	214808.713	1312354.513		37.92	
ARC	P.C.	C1	0+49.70	214797.480	1312358.061		11.78	
ARC	P.I.		0+56.69	214790.809	1312360.169	187.98	13.99	4°15'45"
TANGENT	P.T.	L3	0+63.68	214784.000	1312361.774		14.35	
ARC	P.C.	C2	0+78.04	214770.030	1312365.068			
ARC	P.I.		0+78.85	214769.240	1312365.254	5.128	1.61	17°59'14"
TANGENT	P.T.	L4	0+79.65	214768.546	1312365.675		17.12	
ARC	P.C.	C3	0+96.77	214753.908	1312374.560			
ARC	P.I.		1+02.44	214749.063	1312377.500	19.015	11.02	33°11'48"
TANGENT	P.T.	L5	1+07.79	214743.398	1312377.308		5.99	
ARC	P.C.	C4	1+13.77	214737.416	1312377.105			
ARC	P.I.		1+18.28	214732.911	1312377.053	19.727	8.86	25°43'51"
TANGENT	P.T.	L6	1+22.63	214728.830	1312378.961		45.02	
ARC	P.C.	C5	1+67.65	214687.638	1312397.119			
ARC	P.I.		1+74.11	214681.682	1312399.632	16.346	12.31	43°09'29"
TANGENT	P.T.	L7	1+79.96	214675.617	1312397.391		26.21	
ARC	P.C.	C6	2+06.17	214650.888	1312388.697			
ARC	P.I.		2+11.79	214645.592	1312386.835	11.307	10.42	52°48'27"
TANGENT	P.T.	L8	2+16.59	214640.908	1312389.929		13.17	
ARC	P.C.	C7	2+29.76	214629.918	1312397.186			
ARC	P.I.		2+33.50	214626.801	1312399.244	17.833	7.36	23°39'23"
TANGENT	P.T.	L9	2+37.13	214624.772	1312402.379		8.03	
ARC	P.C.	C8	2+45.16	214620.427	1312409.135			

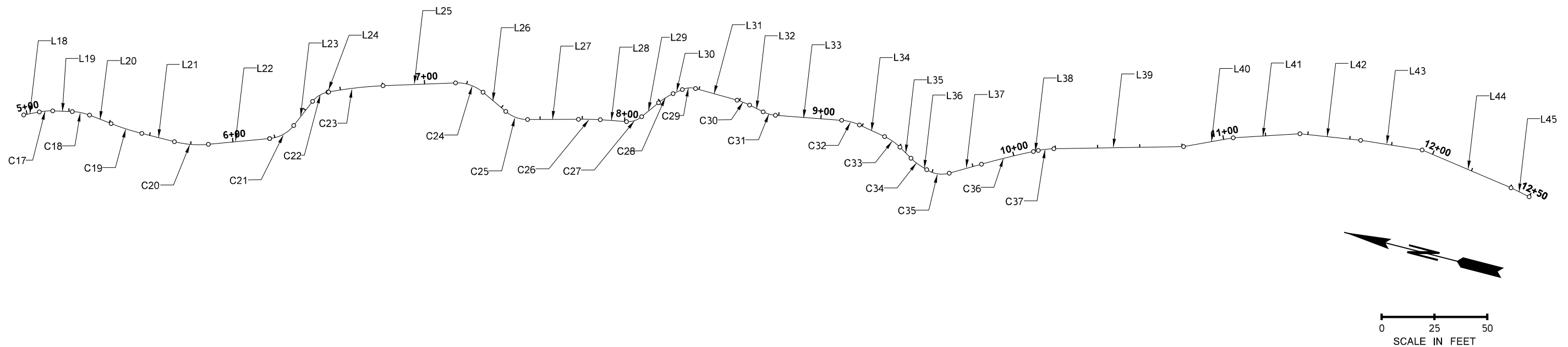
ELEMENT	TYPE	NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	THETA
ARC	P.I.		2+49.47	214618.085	1312412.755	9.256	8.07	49°57'17"
TANGENT	P.T.	L10	2+53.23	214613.807	1312413.291		23.69	
ARC	P.C.	C9	2+76.92	214590.295	1312416.224			
ARC	P.I.		2+84.82	214582.463	1312417.205	56.112	15.68	16°00'51"
TANGENT	P.T.	L11	2+92.61	214575.206	1312420.308		20.72	
ARC	P.C.	C10	3+13.33	214556.154	1312428.456			
ARC	P.I.		3+21.56	214548.568	1312431.662	39.872	16.24	23°20'28"
TANGENT	P.T.	L12	3+29.57	214540.333	1312431.600		17.30	
ARC	P.C.	C11	3+46.87	214523.036	1312431.573			
ARC	P.I.		3+53.08	214516.822	1312431.588	14.634	11.75	46°00'54"
TANGENT	P.T.	L13	3+58.62	214512.518	1312436.070		11.16	
ARC	P.C.	C12	3+69.78	214504.728	1312444.058			
ARC	P.I.		3+75.74	214500.575	1312448.332	15	11.35	43°20'16"
TANGENT	P.T.	L14	3+81.12	214494.621	1312448.591		13.85	
ARC	P.C.	C13	3+94.97	214480.788	1312449.193			
ARC	P.I.		4+01.50	214474.263	1312449.477	94.343	13.04	7°55'15"
TANGENT	P.T.	L15	4+08.01	214467.761	1312448.859		17.48	
ARC	P.C.	C14	4+25.49	214450.364	1312447.205			
ARC	P.I.		4+33.68	214442.203	1312446.518	36.341	16.11	25°23'58"
TANGENT	P.T.	L16	4+41.60	214434.537	1312449.398		20.90	
ARC	P.C.	C15	4+62.49	214414.878	1312456.491			
ARC	P.I.		4+69.54	214408.230	1312458.832	16.861	13.35	45°22'17"
TANGENT	P.T.	L17	4+75.85	214405.225	1312465.207		15.70	
ARC	P.C.	C16	4+91.54	214398.737	1312479.499			
ARC	P.I.		4+95.11	214397.246	1312482.745	9.934	6.86	39°33'29"



FILE NAME: c:\pwork\ing\jacobs_b&l\leg_ex-leachmid0508250\C9750 SUNSET CREEK_PS_SR_G202.dgn		REGION NO. STATE		FED.AID PROJ.NO.			<h1>PRELIMINARY</h1>		<b>I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</b>	PLAN REF NO
TIME: 6:19:11 AM	DATE: 12/6/2023	10	WASH		G202					
PLOTTED BY: MikeL	DESIGNED BY: S. SHELDON, J. SIEGEL	JOB NUMBER		LOCATION NO.				<b>STREAM RESTORATION GENERAL NOTES</b>	SHEET	
ENTERED BY: M. LEACH	CHECKED BY: R. SHEEAN	CONTRACT NO.		C9750					OF	
PROJ. ENGR. M. ASKARIAN	REGIONAL ADM. B. NIELSEN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS	BY				SHEETS	

ELEMENT	TYPE	NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	THETA
TANGENT	P.T.	L18	4+98.40	214394.029	1312484.299		7.60	
ARC	P.C.	C17	5+06.00	214387.185	1312487.605			
ARC	P.I.		5+09.18	214384.319	1312488.990	27.018	6.34	13°26'07"
TANGENT	P.T.	L19	5+12.34	214381.211	1312489.670		9.23	
ARC	P.C.	C18	5+21.57	214372.196	1312491.643			
ARC	P.I.		5+25.80	214368.057	1312492.549	25.028	8.39	19°13'02"
TANGENT	P.T.	L20	5+29.96	214363.850	1312492.042		11.00	
ARC	P.C.	C19	5+40.96	214352.931	1312490.727			
ARC	P.I.		5+48.61	214345.330	1312489.811	120.724	15.29	7°15'26"
TANGENT	P.T.	L21	5+56.25	214337.674	1312489.863		15.92	
ARC	P.C.	C20	5+72.16	214321.760	1312489.970			
ARC	P.I.		5+80.32	214313.603	1312490.025	47.596	16.16	19°27'01"
TANGENT	P.T.	L22	5+88.32	214305.929	1312492.794		29.18	
ARC	P.C.	C21	6+17.50	214278.482	1312502.695			
ARC	P.I.		6+24.56	214271.843	1312505.091	16.4	13.33	46°34'32"
TANGENT	P.T.	L23	6+30.83	214269.018	1312511.559		14.55	
ARC	P.C.	C22	6+45.39	214263.195	1312524.897			
ARC	P.I.		6+49.87	214261.399	1312529.009	11.93	8.58	41°13'13"
TANGENT	P.T.	L24	6+53.97	214257.340	1312530.919		0.37	
ARC	P.C.	C23	6+54.34	214257.003	1312531.077			
ARC	P.I.		6+67.33	214245.246	1312536.607	177.988	25.94	8°20'59"
TANGENT	P.T.	L25	6+80.28	214232.812	1312540.372		34.37	
ARC	P.C.	C24	7+14.65	214199.919	1312550.329			
ARC	P.I.		7+22.02	214192.863	1312552.465	18.884	14.06	42°39'12"
TANGENT	P.T.	L26	7+28.70	214186.226	1312549.255		14.06	
ARC	P.C.	C25	7+42.76	214173.542	1312543.192			
ARC	P.I.		7+48.66	214168.250	1312540.582	15.866	11.30	40°48'00"
TANGENT	P.T.	L27	7+54.06	214162.539	1312542.064		24.10	
ARC	P.C.	C26	7+78.16	214139.244	1312548.230			
ARC	P.I.		7+83.33	214134.263	1312549.614	132.284	10.34	4°28'34."
TANGENT	P.T.	L28	7+88.49	214129.189	1312550.606		12.45	
ARC	P.C.	C27	8+00.94	214116.951	1312552.877			
ARC	P.I.		8+04.98	214112.978	1312553.614	10.12	7.69	43°32'06"
TANGENT	P.T.	L29	8+08.63	214110.606	1312556.885		10.43	
ARC	P.C.	C28	8+19.06	214104.483	1312565.327			

ELEMENT	TYPE	NUMBER	STATION	NORTHING	EASTING	RADIUS	LENGTH	THETA
ARC	P.I.		8+23.13	214102.088	1312568.629	30.581	8.11	15°11'40"
TANGENT	P.T.	L30	8+27.17	214098.912	1312571.188		4.82	
ARC	P.C.	C29	8+31.98	214095.160	1312574.210			
ARC	P.I.		8+35.30	214092.574	1312576.294	9.112	6.37	40°03'24"
TANGENT	P.T.	L31	8+38.35	214089.253	1312576.224		20.45	
ARC	P.C.	C30	8+58.80	214068.812	1312575.795			
ARC	P.I.		8+61.98	214065.632	1312575.728	33.429	6.34	10°52'19"
TANGENT	P.T.	L32	8+65.14	214062.521	1312575.062		7.19	
ARC	P.C.	C31	8+72.33	214055.495	1312573.559			
ARC	P.I.		8+75.40	214052.491	1312572.917	15.631	6.07	22°14'08"
TANGENT	P.T.	L33	8+78.39	214049.468	1312573.459		31.44	
ARC	P.C.	C32	9+09.84	214018.517	1312579.006			
ARC	P.I.		9+14.27	214014.157	1312579.787	23.969	8.76	20°56'27"
TANGENT	P.T.	L34	9+18.60	214009.806	1312578.959		13.18	
ARC	P.C.	C33	9+31.77	213996.834	1312576.638			
ARC	P.I.		9+36.23	213992.455	1312575.804	27.222	8.84	18°36'07"
TANGENT	P.T.	L35	9+40.61	213988.570	1312573.617		7.37	
ARC	P.C.	C34	9+47.98	213982.230	1312569.858			
ARC	P.I.		9+51.21	213979.422	1312568.277	31.518	6.42	11°40'36"
TANGENT	P.T.	L36	9+54.41	213976.351	1312567.297		2.85	
ARC	P.C.	C35	9+57.25	213973.618	1312566.509			
ARC	P.I.		9+63.18	213968.020	1312564.558	12.81	11.11	49°40'12"
TANGENT	P.T.	L37	9+68.36	213962.909	1312567.563		15.82	
ARC	P.C.	C36	9+84.18	213949.195	1312575.449			
ARC	P.I.		9+96.86	213938.257	1312581.880	341.41	25.37	4°15'24"
TANGENT	P.T.	L38	10+09.54	213926.872	1312587.481		2.34	
ARC	P.C.	C37	10+11.88	213924.777	1312588.512			
ARC	P.I.		10+15.59	213921.444	1312590.151	39.532	7.41	10°44'07"
TANGENT	P.T.	L39	10+19.28	213917.864	1312591.142		61.41	
TANGENT	P.I.	L40	10+80.70	213858.673	1312607.514		23.93	
TANGENT	P.I.	L41	11+04.63	213836.916	1312617.485		31.63	
TANGENT	P.I.	L42	11+36.26	213806.842	1312627.288		28.89	
TANGENT	P.I.	L43	11+65.15	213778.251	1312631.443		29.44	
TANGENT	P.I.	L44	11+94.59	213748.957	1312634.365		45.77	
TANGENT	P.I.	L45	12+40.36	213703.698	1312627.532		9.64	
TANGENT	P.O.E.		12+50.00	213694.260	1312625.577			

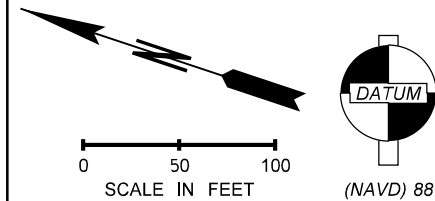
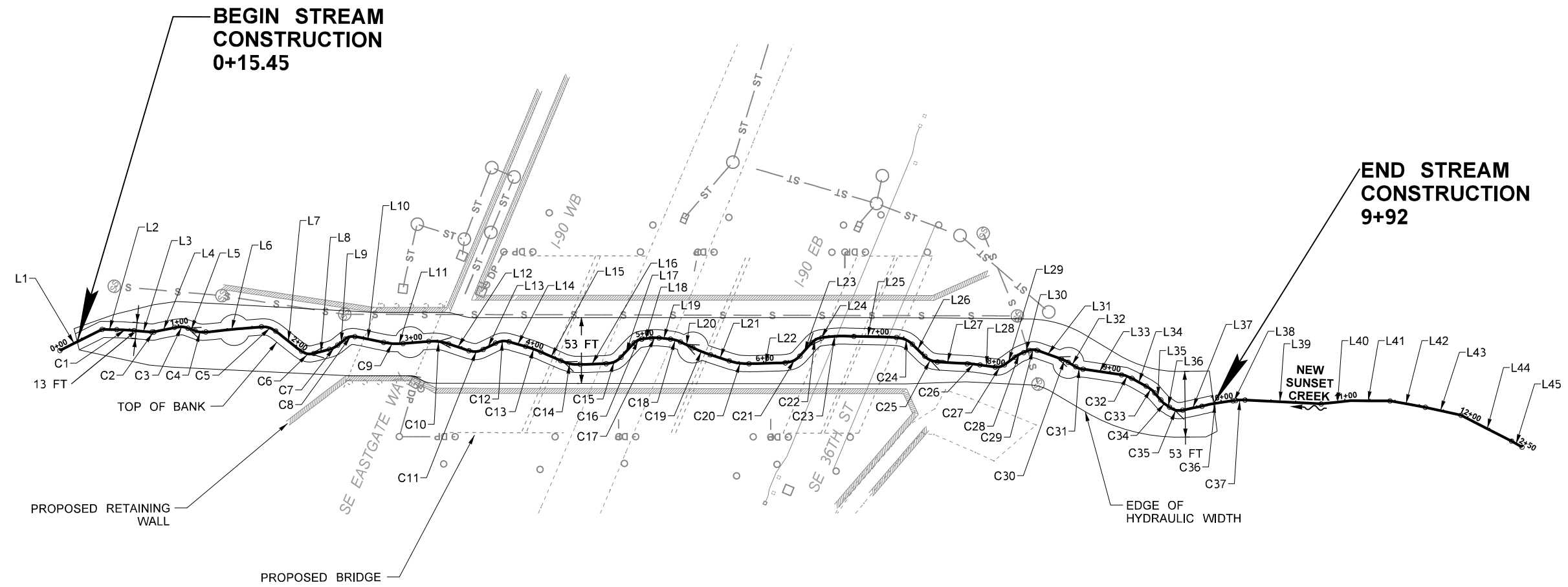


FILE NAME: c:\pwork\ing\jacobs_b&l\jg_ex-leach\mid0508250\C9750 SUNSET CREEK_PS_SR_G203.dgn		REGION NO. STATE		FED.AID PROJ.NO.			<h1>PRELIMINARY</h1>		<b>I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</b>	PLAN REF NO
TIME: 6:23:03 AM	DATE: 12/6/2023	10	WASH		G203					
PLOTTED BY: MikeL	DESIGNED BY: S. SHELDON, J. SIEGEL	JOB NUMBER		LOCATION NO.			<b>SUNSET GENERAL STREAM RESTORATION NOTES</b>	SHEET		
ENTERED BY: M. LEACH	CHECKED BY: R. SHEEAN	CONTRACT NO. C9750						OF		
PROJ. ENGR. M. ASKARIAN	REGIONAL ADM. B. NIELSEN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS	BY	SHEETS				



**NOTES:**

1. SEE SHEETS G202 & G203 FOR STREAM RESTORATION ALIGNMENT LINE AND CURVE TABLES.



FILE NAME		c:\pwworking\jacobs_b\l\eg_ex-leach\mid0508250\C9750 SUNSET CREEK_PS_SR_AL01.dgn		REGION NO.	STATE	FED.AID PROJ.NO.		<h1>PRELIMINARY</h1>	<p>Washington State Department of Transportation</p>	<p>I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</p>	PLAN REF NO
TIME	2:43:43 PM			10	WASH						AL01
DATE	12/5/2023			JOB NUMBER							SHEET
PLOTTED BY	MikeL			CONTRACT NO.							OF
DESIGNED BY	S. SHELDON, J. SIEGEL			LOCATION NO.							SHEETS
ENTERED BY	M. LEACH										
CHECKED BY	R. SHEEAN										
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS							
REGIONAL ADM.	B. NIELSEN	REVISION	DATE	BY	C9750						
										<p>STREAM RESTORATION ALIGNMENT PLAN</p>	

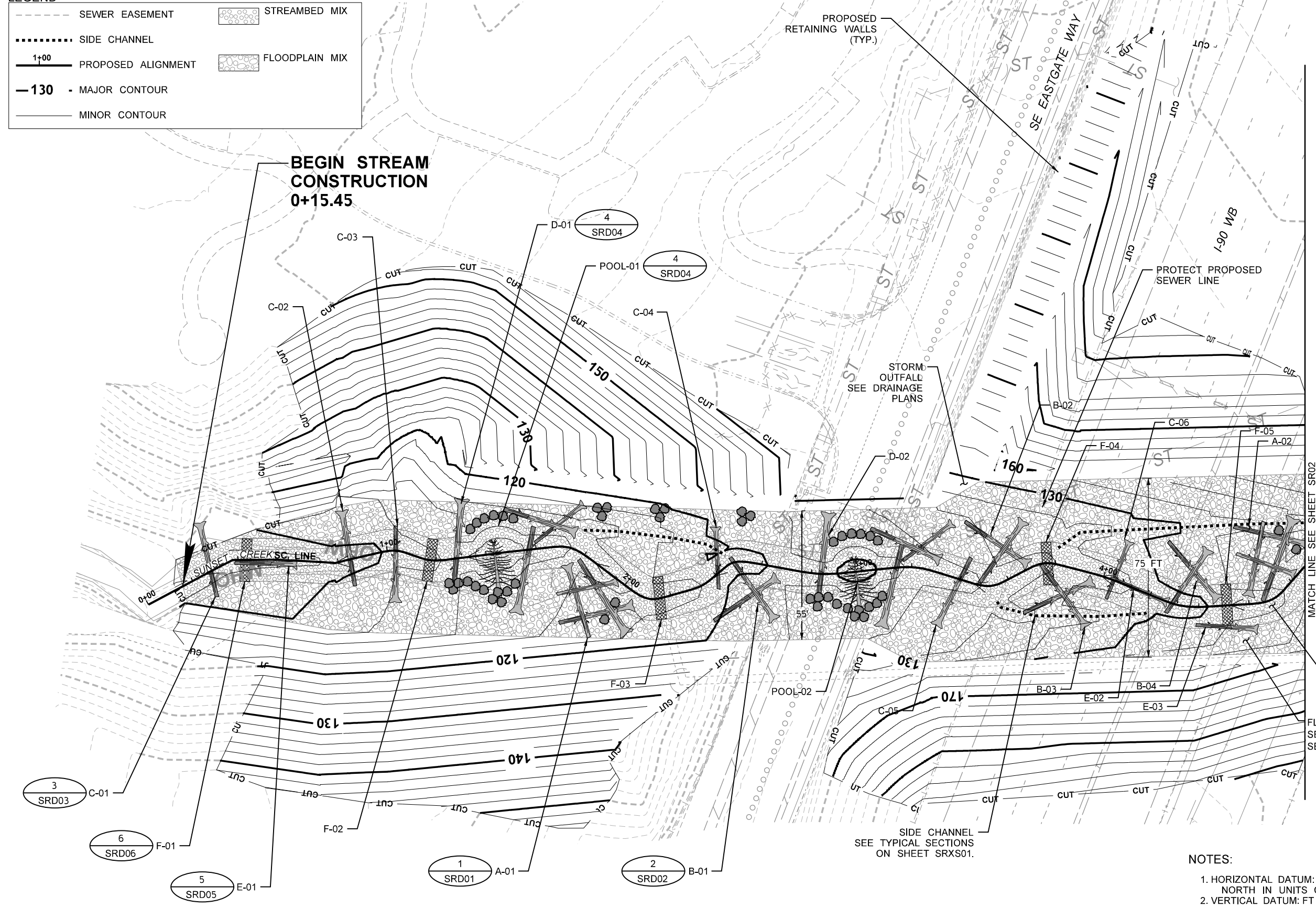


**LEGEND**

	SEWER EASEMENT		STREAMBED MIX
	SIDE CHANNEL		FLOODPLAIN MIX
	PROPOSED ALIGNMENT		
	MAJOR CONTOUR		
	MINOR CONTOUR		

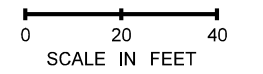
**NOTES:**

1. STREAM PLAN IS INTENDED TO SHOW LVM STRUCTURE LOCATIONS AND ARRANGEMENT. SEE SRD01 - SRD06 FOR LVM STRUCTURE DETAILS AND INSTALLATION NOTES.
2. SEE SHEET SRAL01 FOR CHANNEL CENTERLINE CONTROL. CONSTRUCT LOW FLOW CHANNEL AS DIRECTED BY ENGINEER IN THE FIELD.
3. PROPOSED GRADING OUTSIDE OF NEW STREAM CHANNEL, FLOODPLAIN, AND STREAM EMBANKMENTS SHOWN FOR CLARITY ONLY. SEE BRIDGE AND WALL GRADING SHEETS CG01-CG02.
4. ALL STREAM SLOPES SHALL NOT BE STEEPER THAN 2:1 UNLESS OTHERWISE NOTED.
5. SEE STRUCTURAL PLANS FOR BRIDGE AND WALL DESIGN
6. SEE LANDSCAPE PLANS FOR SOIL AMENDMENT, FASCINES, AND PLANTING REQUIREMENTS.
7. SEE STREAMBED AND FLOODPLAIN MIX SPECIFICATIONS AND INSTALLATION NOTES ON SHEET G201
8. SEE DRAINAGE SHEETS FOR NEW AND ABANDONED STORM INFRASTRUCTURE
9. SEE SEWER SHEETS FOR NEW AND ABANDONED SEWER INFRASTRUCTURE WITHIN THE STREAM.
10. REMOVE ALL EXISTING MAN-MADE DEBRIS WITHIN IN STREAM CONSTRUCTION LIMITS. INCLUDES EXISTING ANGULAR ROCK, CONCRETE SLABS, AND OTHER BANK ARMORING.



**NOTES:**

1. HORIZONTAL DATUM: WA STATE PLAN NORTH IN UNITS OF US SURVEY FEET.
2. VERTICAL DATUM: FT (NAVD88)



FILE NAME	c:\pwork\ing\jacobs_b&l\eg_ex-leach\mid0508250\C9750 SUNSET CREEK_PS_SR01.dgn		
TIME	6:50:07 AM		
DATE	12/6/2023		
PLOTTED BY	MikEL		
DESIGNED BY	S. SHELDON, J. SIEGEL		
ENTERED BY	M. LEACH		
CHECKED BY	R. SHEEAN		
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023
REGIONAL ADM.	B. NIELSEN	REVISION	DATE BY

REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.	LOCATION NO.	
C9750		

**PRELIMINARY**



FOR CONSTRUCTION

Washington State  
Department of Transportation

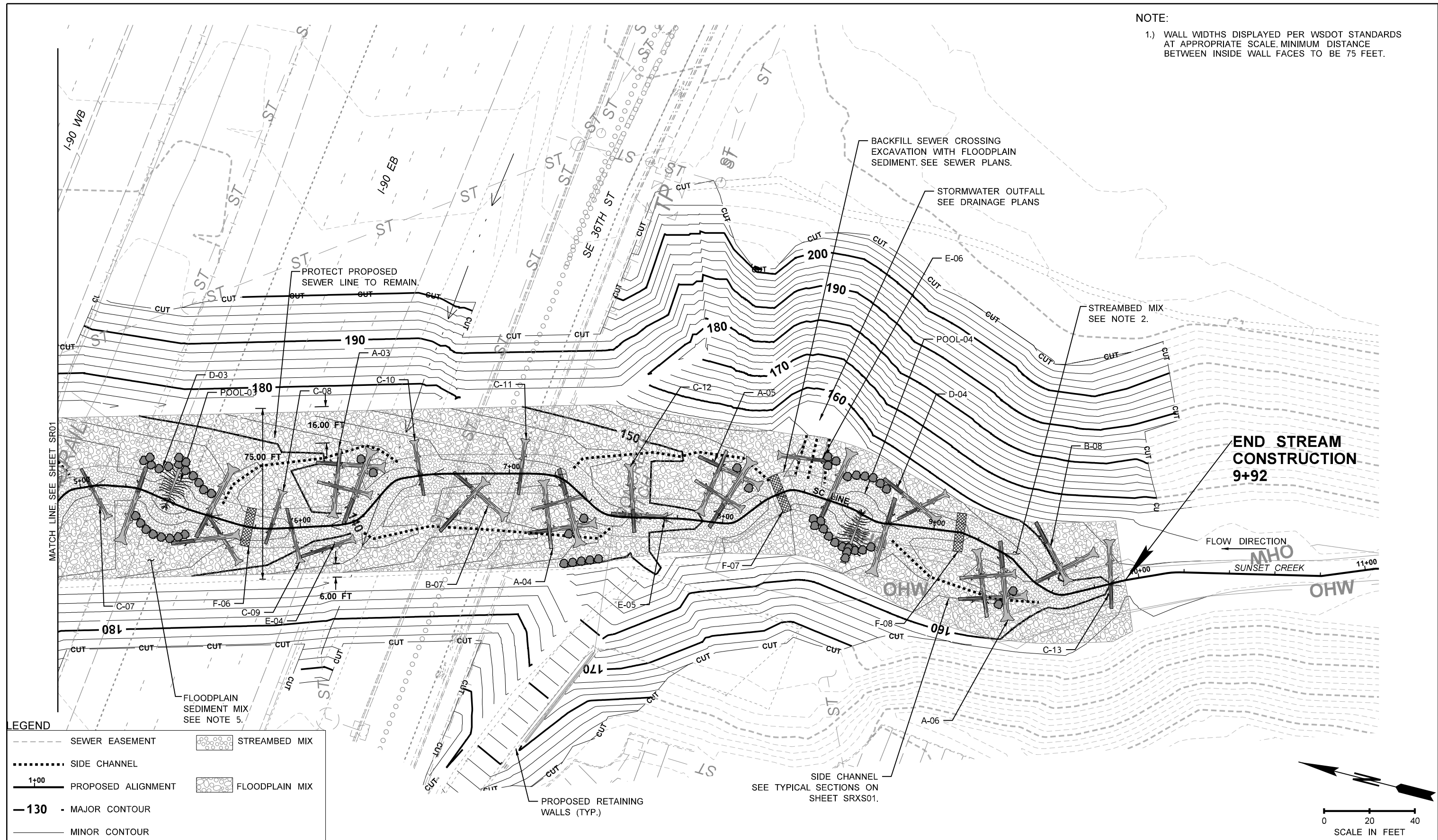
**ATKINSON / Jacobs**  
CONSTRUCTION

I-90, SR 161, SR 202 & SR 203  
FISH PASSAGE  
SUNSET CREEK

**STREAM RESTORATION PLAN**

PLAN REF NO	SR01
SHEET	
OF	
SHEETS	

NOTE:  
 1.) WALL WIDTHS DISPLAYED PER WSDOT STANDARDS AT APPROPRIATE SCALE. MINIMUM DISTANCE BETWEEN INSIDE WALL FACES TO BE 75 FEET.



LEGEND

--- SEWER EASEMENT	◻ STREAMBED MIX
..... SIDE CHANNEL	◻ FLOODPLAIN MIX
1+00 PROPOSED ALIGNMENT	
-130 MAJOR CONTOUR	
MINOR CONTOUR	

FILE NAME	c:\pwork\ing\jacobs_b&l\eg_ex-leach\mid0508250\C9750 SUNSET CREEK_PS_SR02.dgn		
TIME	6:47:32 AM		
DATE	12/6/2023		
PLOTTED BY	MikEL		
DESIGNED BY	S. SHELDON, J. SIEGEL		
ENTERED BY	M. LEACH		
CHECKED BY	R. SHEEAN		
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023
REGIONAL ADM.	B. NIELSEN	REVISION	DATE

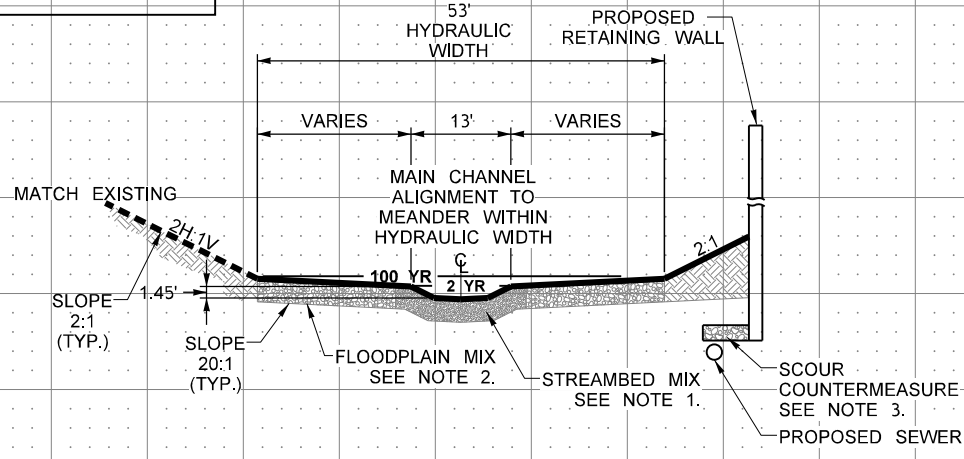
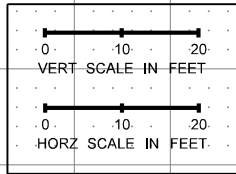
REGION NO.	STATE	FED.AID PROJ.NO.
10	WASH	
JOB NUMBER		
CONTRACT NO.	LOCATION NO.	
C9750		

**PRELIMINARY**  
 FOR CONSTRUCTION



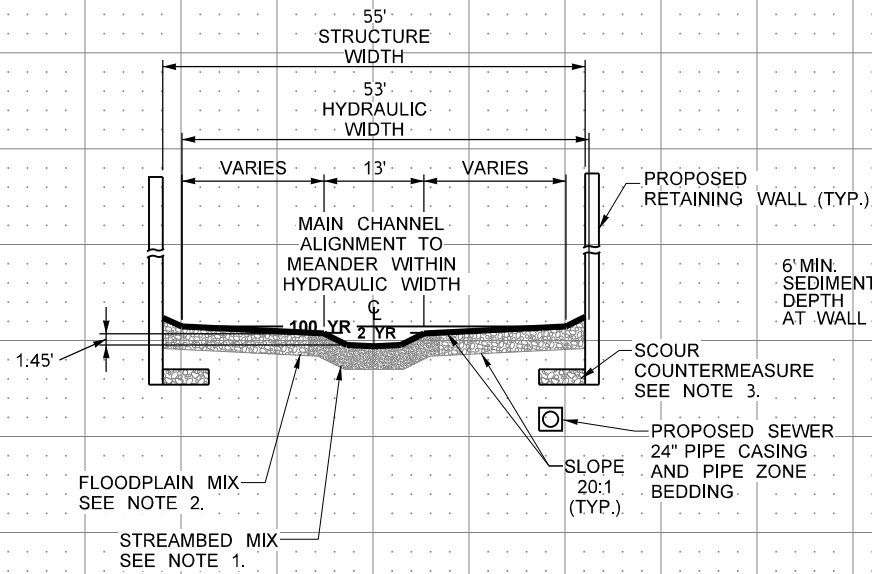
I-90, SR 161, SR 202 & SR 203  
 FISH PASSAGE  
 SUNSET CREEK  
 STREAM RESTORATION PLAN

PLAN REF NO  
**SR02**  
 SHEET  
 OF  
 SHEETS



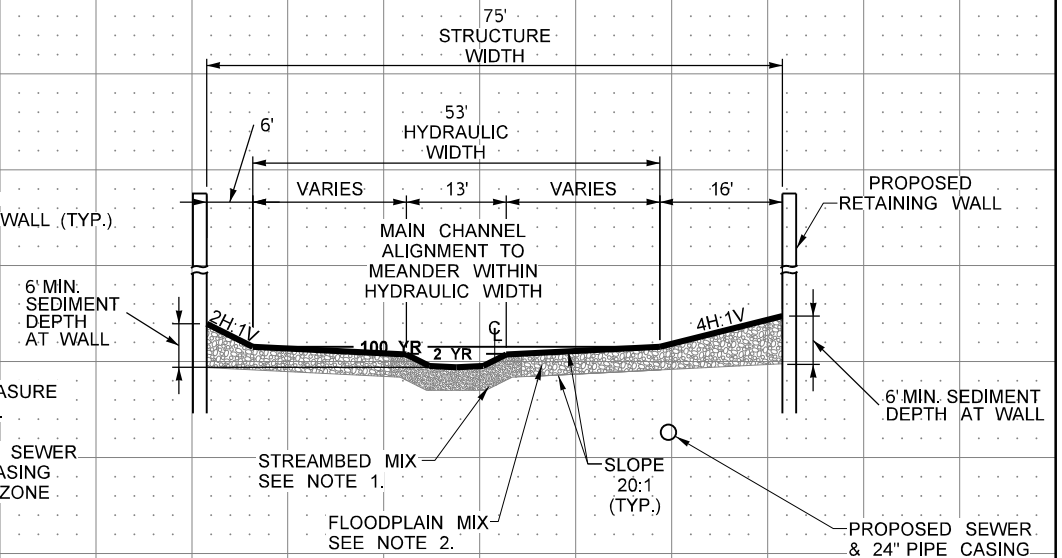
**SUNSET CREEK SECTION A**

STA. 0+15 TO STA. 2+21  
DOWNSTREAM OF EASTGATE WAY  
(LOOKING DOWNSTREAM)



**SUNSET CREEK SECTION B**

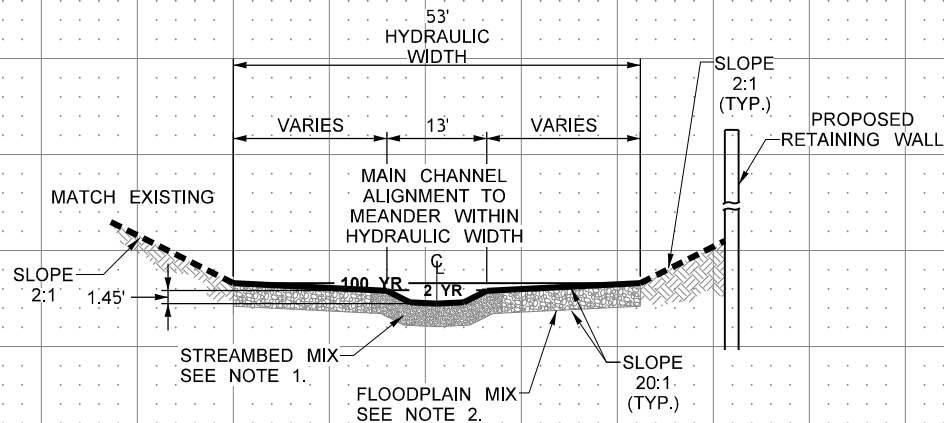
STA. 2+21 TO STA. 3+35  
WITHIN EASTGATE WAY  
(LOOKING DOWNSTREAM)



**SUNSET CREEK SECTION C**

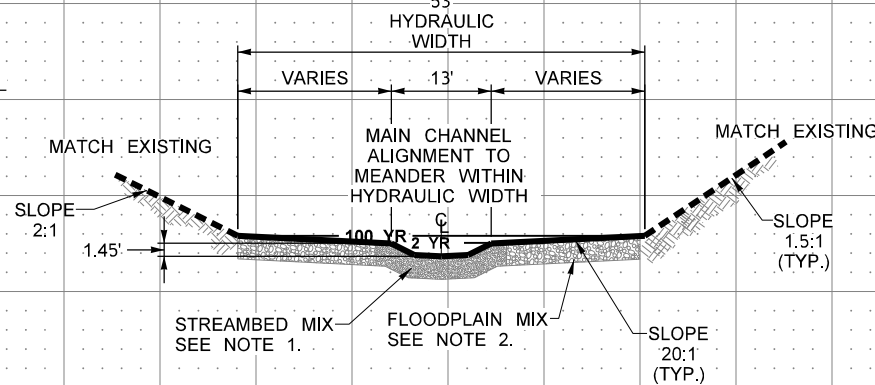
STA. 3+35 TO STA. 7+30  
WITHIN I-90 WB, I-90 EB, AND SE 36TH ST.  
(LOOKING DOWNSTREAM)

**MAIN CHANNEL NOTE:**  
MAIN CHANNEL SECTION AND BANK SLOPES WILL REQUIRE ALTERATION AROUND LWM AND OTHER CHANNEL COMPLEXITY FEATURES. MAINTAIN MINIMUM 8' BOTTOM WIDTH AT ALL LOCATIONS. STREAMBED MIX EXTENDS 2' BEYOND THE TOP OF BANK ON EACH SIDE FOR A TOTAL 17' WIDTH. USE FLOODPLAIN MIX FOR ALL OTHER STREAM AREAS.



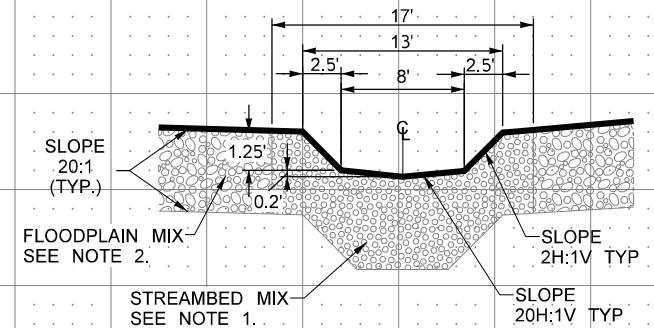
**SUNSET CREEK SECTION D**

STA. 7+30 TO STA. 7+87  
TRANSITION UPSTREAM OF 36TH ST.  
(LOOKING DOWNSTREAM)

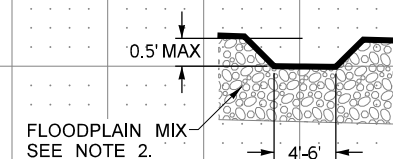


**SUNSET CREEK SECTION E**

STA. 7+87 TO STA. 9+92  
UPSTREAM OF 36TH ST.  
(LOOKING DOWNSTREAM)



**MAIN CHANNEL DETAIL**  
NTS



**SIDE CHANNEL DETAIL**  
NTS

**SIDE CHANNEL NOTE:**  
SIDE CHANNEL NOTE: SIDE CHANNEL LOCATIONS SHOWN IN SHEET SR1 AND SR2. SIDE CHANNEL WIDTH AND LOCATION WILL REQUIRE ALTERATION AROUND LWM AND OTHER CHANNEL COMPLEXITY FEATURES. SIDE CHANNELS ARE MINOR FEATURES WITH A MAXIMUM DEPTH OF 6".

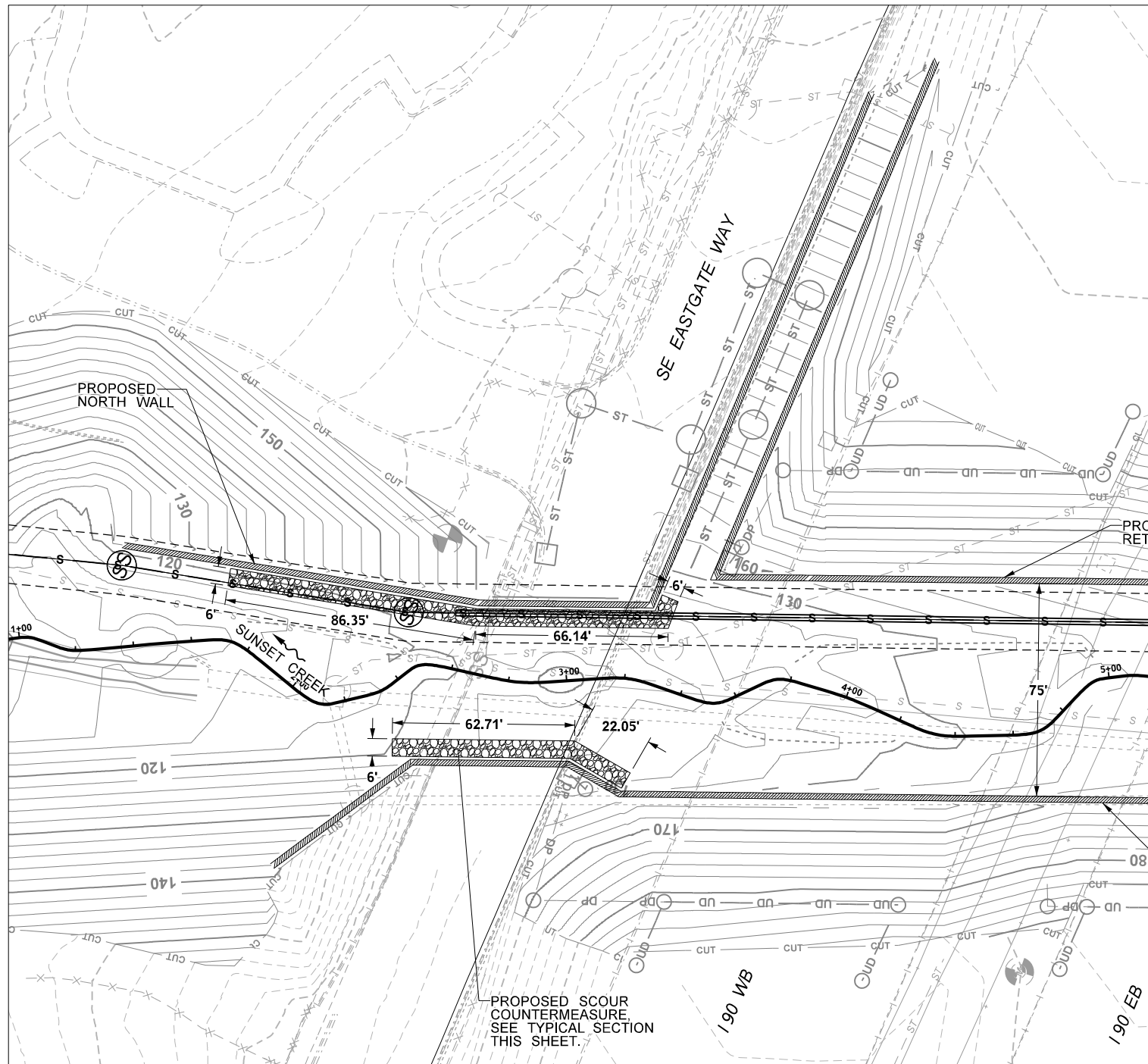


(NAVD) 88

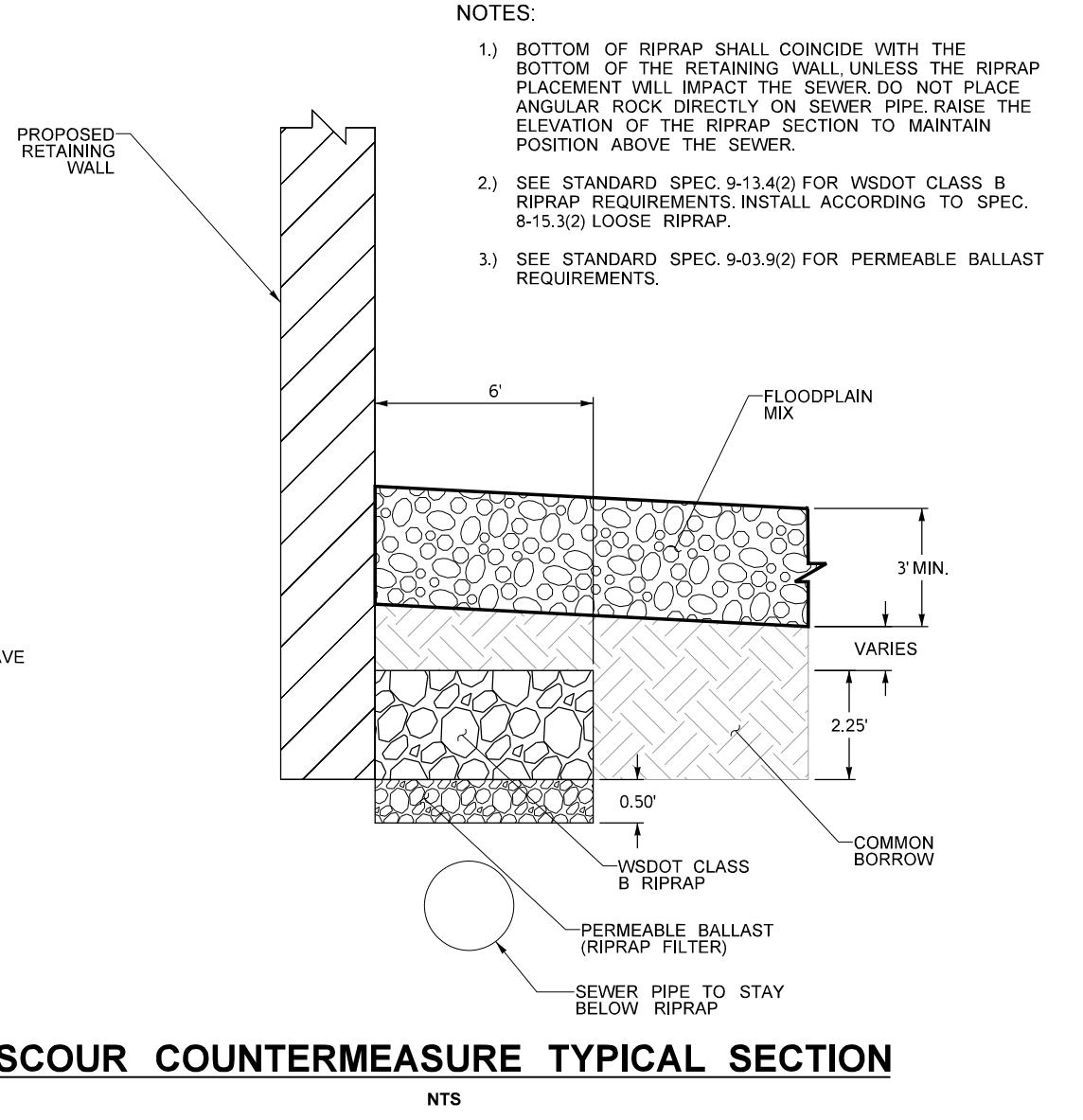
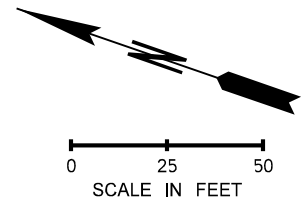
**NOTES:**

- 1.) STREAMBED MIX SHALL BE A MINIMUM OF 3' DEEP. SEE STREAMBED MIX SPECIFICATION AND INSTALLATION NOTES ON SHEET G201.
- 2.) FLOODPLAIN MIX SHALL BE A MINIMUM OF 3' DEEP WITHIN THE HYDRAULIC WIDTH AND 6' DEEP AT THE WALLS IN SECTION C. SEE FLOODPLAIN MIX SPECIFICATIONS AND INSTALLATION NOTES ON SHEET G201.
- 3.) SEE SCOUR COUNTERMEASURE DETAIL SHEET SC01.

FILE NAME	c:\pwork\ing\jacobs_b&l\jg_ex-leach\mid0508250\C9750 SUNSET CREEK_XS_SR_SX01.dgn			REGION NO.	STATE	FED.AID PROJ.NO.		<p><b>PRELIMINARY</b></p> <p>NOT FOR CONSTRUCTION</p>	<p>Washington State Department of Transportation</p>	<p>I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</p>	PLAN REF.NO.	SRXS01
TIME	6:57:52 AM			10	WASH	JOB NUMBER					SHEET	OF
DATE	12/6/2023			CONTRACT NO.	C9750	LOCATION NO.		ATKINSON / Jacobs		TYPICAL SECTIONS		
PLOTTED BY	MikeL											
DESIGNED BY	S. SHELDON, J. SIEGEL											
ENTERED BY	M. LEACH											
CHECKED BY	R. SHEEAN											
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS								
REGIONAL ADM.	B. NIELSEN	REVISION	DATE	BY								



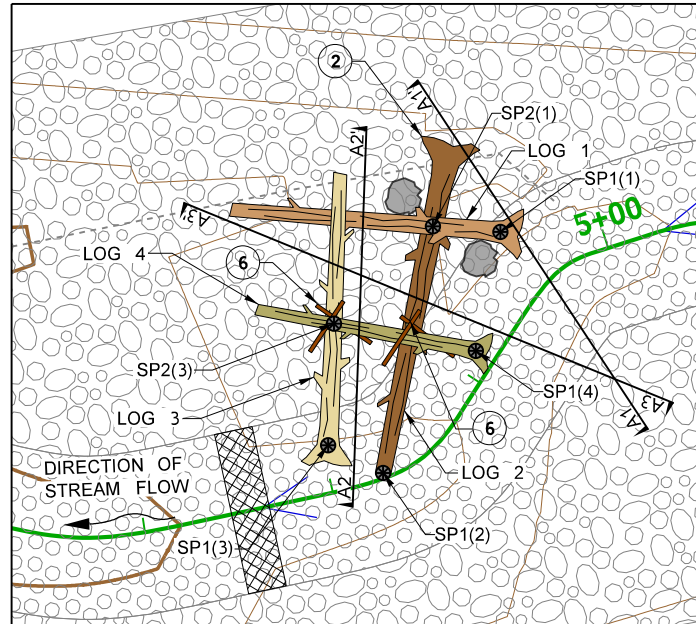
**SCOUR COUNTERMEASURE PLAN VIEW**



**SCOUR COUNTERMEASURE TYPICAL SECTION**

- NOTES:
- 1.) BOTTOM OF RIPRAP SHALL COINCIDE WITH THE BOTTOM OF THE RETAINING WALL, UNLESS THE RIPRAP PLACEMENT WILL IMPACT THE SEWER. DO NOT PLACE ANGULAR ROCK DIRECTLY ON SEWER PIPE. RAISE THE ELEVATION OF THE RIPRAP SECTION TO MAINTAIN POSITION ABOVE THE SEWER.
  - 2.) SEE STANDARD SPEC. 9-13.4(2) FOR WSDOT CLASS B RIPRAP REQUIREMENTS. INSTALL ACCORDING TO SPEC. 8-15.3(2) LOOSE RIPRAP.
  - 3.) SEE STANDARD SPEC. 9-03.9(2) FOR PERMEABLE BALLAST REQUIREMENTS.

FILE NAME: c:\pwork\ing\jacobs_b&l\leg_ex-leach\mid0508250\C9750 SUNSET CREEK_PS_SR_SC01.dgn		REGION NO.:	STATE:	FED.AID PROJ.NO.:			I-90, SR 161, SR 202 & SR 203 FISH PASSAGE SUNSET CREEK	PLAN REF NO:
TIME: 6:39:16 AM	DATE: 12/6/2023	10	WASH					SC01
PLOTTED BY: MikeL	DESIGNED BY: S. SHELDON, J. SIEGEL	JOB NUMBER:				STREAM SCOUR COUNTERMEASURES	SHEET	
ENTERED BY: M. LEACH	CHECKED BY: R. SHEEAN	CONTRACT NO.:		C9750			OF	
PROJ. ENGR. M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS				SHEETS	
REGIONAL ADM. B. NIELSEN	REVISION	DATE	BY					

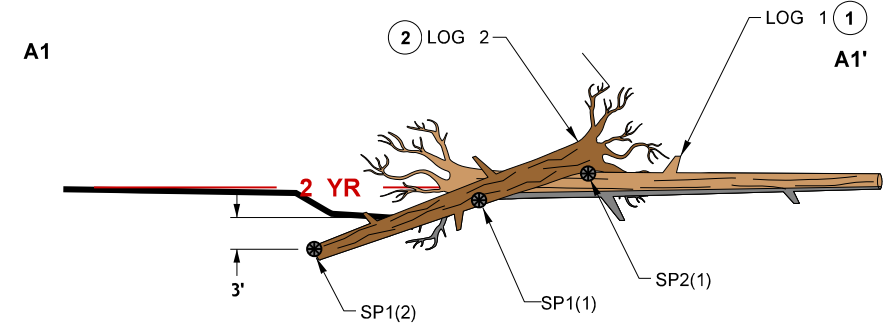


### TYPE A LWM PLAN VIEW

SCALE: 1" = 20'

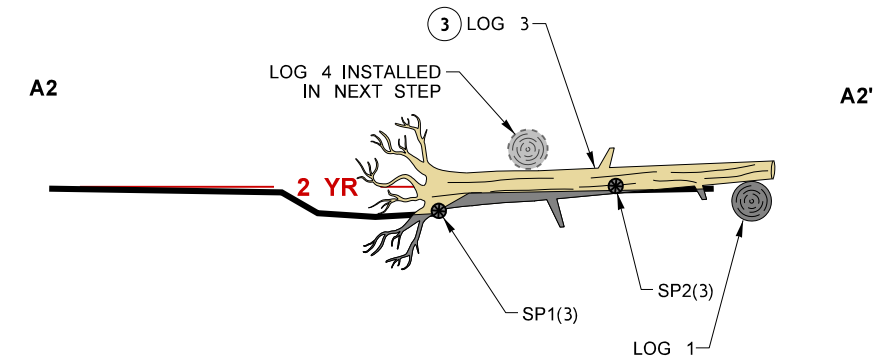
### TYPE A LWM INSTALLATION NOTES

- ① LOG 1 SHALL BE INSTALLED EMBEDDED INTO THE STREAMBED AND FLOODPLAIN WITH THE BOTTOM OF THE COLLAR OF THE ROOTWAD INSTALLED AT THE THALWEG ELEVATION AT SP1(1) AS SHOWN IN SECTION A1-A1'. THE DIRECTION OF THE LOG INSTALLATION WILL PASS THROUGH SP2(1) AS SHOWN IN THE PLAN VIEW.
- ② LOG 2 WILL BE INSTALLED WITH THE TOP OF THE STEM BURIED 3' BELOW THE STREAMBED AT SP1(2) AS SHOWN IN SECTION A1-A1'. THE LOG SHALL BE ANGLED TO REST ON TOP OF LOG 1 AT SP2(1). FOLLOWING THE INSTALLATION OF LOG 2, 2 HALF-EMBEDDED TYPE 2 BOULDERS SHOULD BE ADDED AT THE INTERSECTION OF LOG 2 AND LOG 1 AS SHOWN IN THE PLAN AND ISOMETRIC VIEW.
- ③ LOG 3 SHALL BE INSTALLED EMBEDDED INTO THE STREAMBED AND FLOODPLAIN WITH THE BOTTOM OF THE COLLAR OF THE ROOTWAD INSTALLED AT THE THALWEG ELEVATION AT SP1(3) AS SHOWN IN SECTION A2-A2'. THE DIRECTION OF THE LOG 3 INSTALLATION WILL PASS THROUGH SP2(3) AND THE TIP OF LOG 3 SHOULD BE ON TOP OF LOG 1 AS SHOWN IN THE PLAN VIEW.
- ④ LOG 4 SHALL BE INSTALLED WITH THE ROOTWAD RESTING ON THE CHANNEL AT SP1(4) AS SHOWN IN SECTION A3-A3'. THE LOG SHALL BE RESTING ON TOP OF LOGS 2 AND 3 AND ANGLED TO PASS OVER SP2(3).
- ⑤ EXCAVATED SEDIMENT SHOULD BE BACKFILLED AND COMPACTED AROUND LOGS TO GRADING SURFACE FOLLOWING INSTALLATION.
- ⑥ PAIRS OF ANGLED PILES WILL BE POUNDED DIAGONALLY TO PIN LOG 4 WHERE IT CROSSES LOG 2 AND LOG 3. SEE GENERAL SPECS ON SHEET G201 FOR PILE INSTALLATION NOTES.



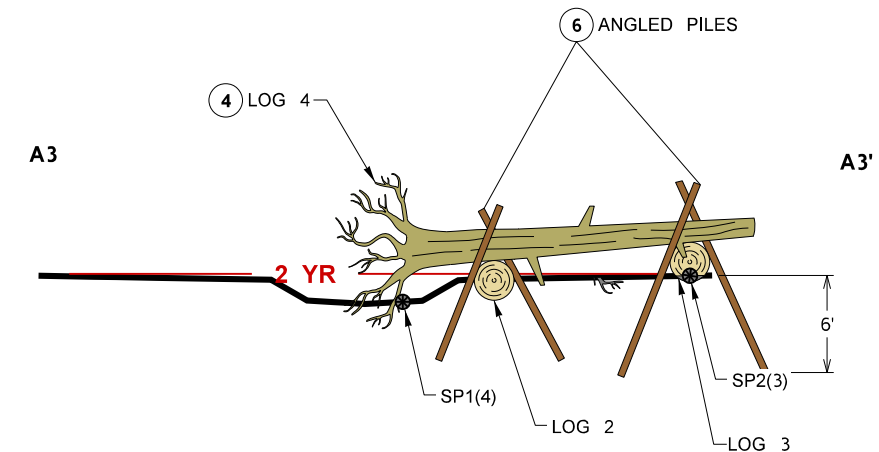
### SECTION A1-A1' DETAILS FACING DOWNSTREAM

NTS



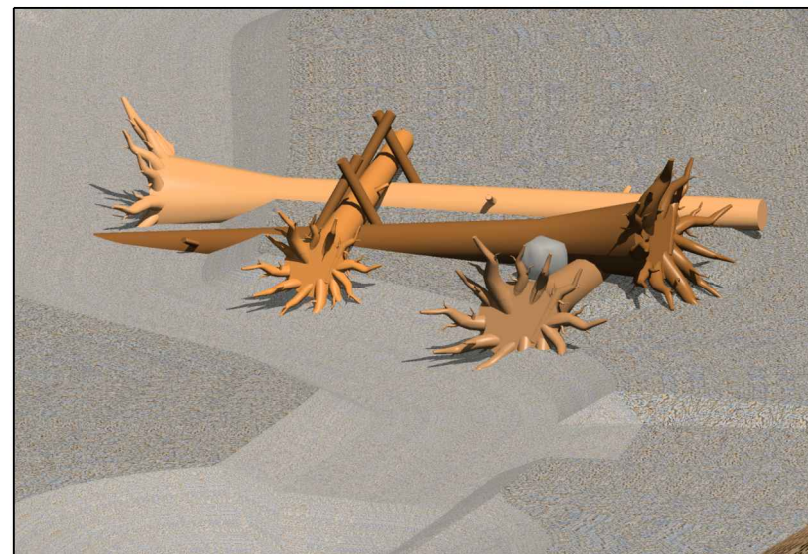
### SECTION A2-A2' DETAILS FACING DOWNSTREAM

NTS



### SECTION A3-A3' DETAILS FACING DOWNSTREAM

NTS



### TYPE A ISOMETRIC VIEW

NTS

#### TYPE A STRUCTURAL MATERIAL QUANTITIES

NAME	MATERIAL	NO.	UNIT
LOG 1 & 3	R-24IN-30FT	2	EA
LOG 2	R-28IN-30FT	1	EA
LOG 4	R-18IN-25FT	1	EA
LOG PILES	P-08IN-12FT	4	EA
BOULDERS	TYPE 2	2	EA

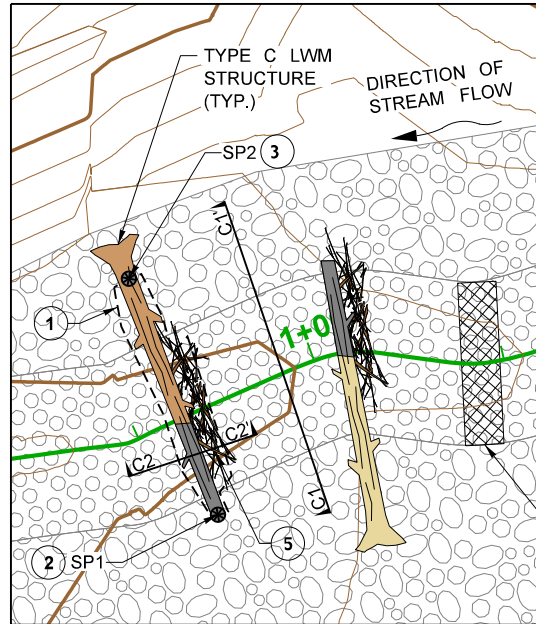
### 1 TYPE A LWM DETAIL

SR01 AND SR02

NTS

FILE NAME	c:\pwworking\jacobs_b\lex-mailload\0508250\C9750 SUNSET CREEK_DE_SR01.dgn			REGION NO.	STATE	FED.AID PROJ.NO.			I-90, SR 161, SR 202 & SR 203 FISH PASSAGE SUNSET CREEK	PLAN REF NO
TIME	12:19:52 PM			10	WASH					SRD01
DATE	11/6/2023			JOB NUMBER						SHEET
PLOTTED BY	AndrewM			CONTRACT NO.	C9750	LOCATION NO.				OF
DESIGNED BY	S. SHELDON, J. SIEGEL									
ENTERED BY	M. LEACH									
CHECKED BY	R. SHEEAN									
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS						
REGIONAL ADM.	B. NIELSEN	REVISION	DATE	BY						
PRELIMINARY CONSTRUCTION								ATKINSON / Jacobs CONSTRUCTION	DESIGN DETAIL TYPE 'A' LWM STRUCTURES	SHEETS





**TYPE C LWM PLAN VIEW**

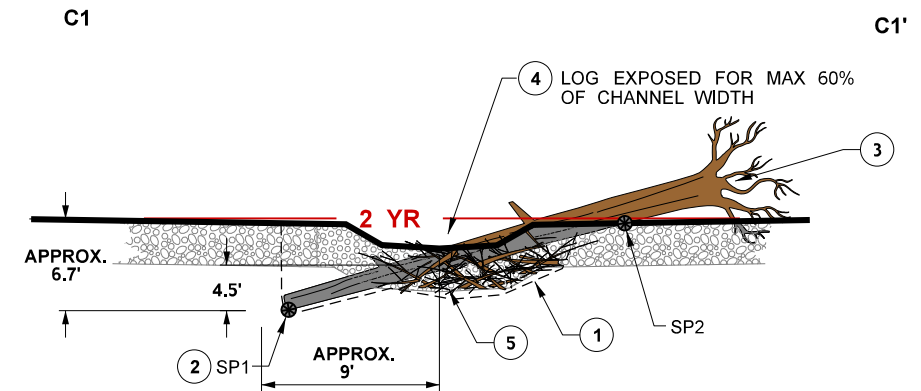
SCALE: 1" = 20'

NOTE: 2 SEPERATE TYPE C STRUCTURES ARE SHOWN IN PLAN AND ISOMETRIC VIEWS REFLECTING THE DIFFERENT SIZE LOGS THAT CAN BE USED.

TYPE F LWM STRUCTURE (TYP.) SEE NOTE 1

**TYPE C LWM INSTALLATION NOTES**

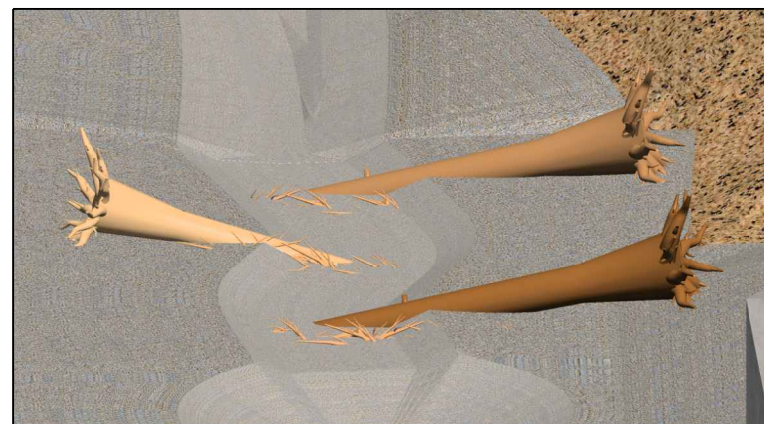
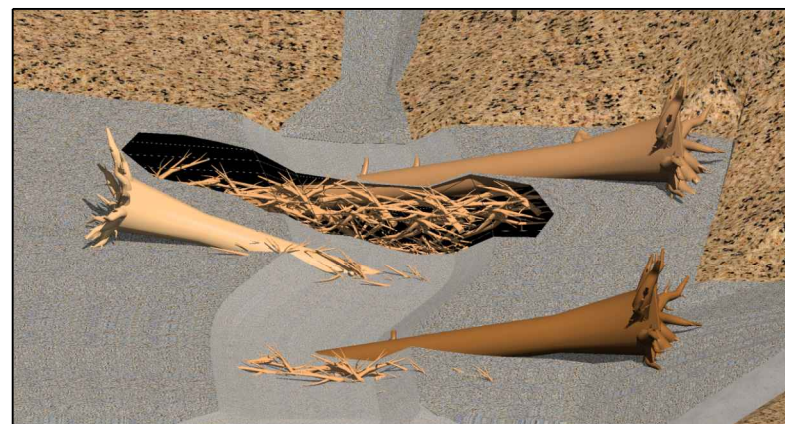
- THIS LWM IS A SINGLE LOG PLACEMENT WHICH MAY CALL FOR A R-24IN-30FT OR R-18IN-25FT LOG. SEE LWM STAKEOUT POINT TABLE ON SHEET G201 FOR THE LOG ID FOR EACH LWM.
- 1 EXCAVATE TRENCH AREA FROM SP1 TO SP2 AS SHOWN IN SECTION C1-C1'. TRENCH SHALL BE 4' WIDE IN CHANNEL AREA AND JUST WIDE ENOUGH TO ACCOMODATE LOG ON FLOODPLAIN AS SHOWN IN PLAN VIEW.
- 2 PLACE THE BOTTOM OF THE TIP OF THE LOG STEM AT SP1 APROX. 9' FROM CHANNEL CENTERLINE. ENSURE BURIAL DEPTH 4.5' BELOW THALWEG DEPTH (APPROX. 6.75' BELOW FINISHED GROUND) AS SHOWN IN SECTION C1-C1'. LOG SHALL BE PLACED AT DOWNSTREAM END OF TRENCH AREA IN CHANNEL AS SHOWN IN PLAN VIEW.
- 3 PLACE THE ROOTWAD ON FLOODPLAIN AT OR BEYOND SP2. SHORTER LOGS MAY NEED ROOTWAD PARTLY KEYED INTO FLOODPLAIN TO MAINTAIN ANGLE.
- 4 THE TRUNK SHALL BE EXPOSED ABOVE FINAL CHANNEL BED SURFACE NO MORE THAN 50% OF CHANNEL WIDTH.
- 5 BACKFILL TRENCH UPSTREAM OF LOG WITH SLASH AND STREAMBED MIX (APROXIMATELY 50% EACH BY VOLUME).
- 6 BACKFILL REMAINING TRENCHED AREAS WITH EXCAVATED MATERIALS AND COMPACT.



**TYPE C LWM SECTION VIEW C1-C1'**

NTS

TYPE C CONSIST OF ONLY ONE LOG SHOWING TWO TYPE C LOGS

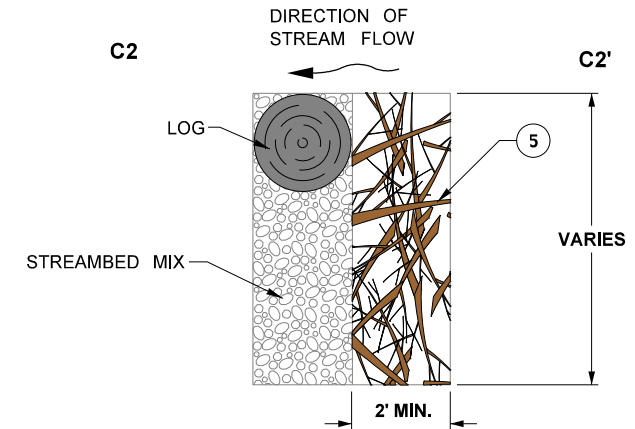


**TYPE C ISOMETRIC VIEW**

NTS

TYPE C STRUCTURAL MATERIAL QUANTITIES

NAME	MATERIAL	NO.	UNIT
LOG 1	R-24IN-30FT OR R-18N-25FT	1	EA
SLASH	SLASH	0.75	CY



**TYPE C LWM SECTION VIEW C2-C2'**

NTS

NOTE:  
1. SEE TYPE F LWM STRUCTURE DETAIL ON SHEET SRD06.

**3 TYPE C LWM DETAIL**  
SR01 AND SR02 NTS

FILE NAME	c:\pwworking\jacobs_b\flex-mall\load\0508250\C9750 SUNSET CREEK_DE_SR03.dgn			REGION NO.	STATE	FED.AID PROJ.NO.			I-90, SR 161, SR 202 & SR 203 FISH PASSAGE SUNSET CREEK	PLAN REF NO
TIME	12:22:07 PM			10	WASH					SRD03
DATE	11/6/2023			JOB NUMBER						SHEET
PLOTTED BY	AndrewM			CONTRACT NO.						OF
DESIGNED BY	S. SHELDON, J. SIEGEL			LOCATION NO.						SHEETS
ENTERED BY	M. LEACH									
CHECKED BY	R. SHEEAN									
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023	SAS						
REGIONAL ADM.	B. NIELSEN	REVISION	DATE	BY						

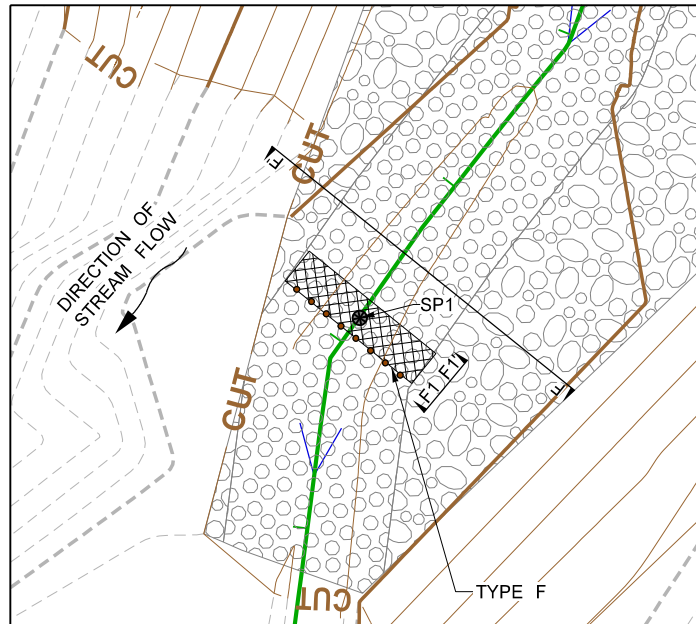
**PRELIMINARY**  
FOR CONSTRUCTION

**ATKINSON / Jacobs**  
CONSTRUCTION

**DESIGN DETAIL TYPE 'C' LWM STRUCTURES**



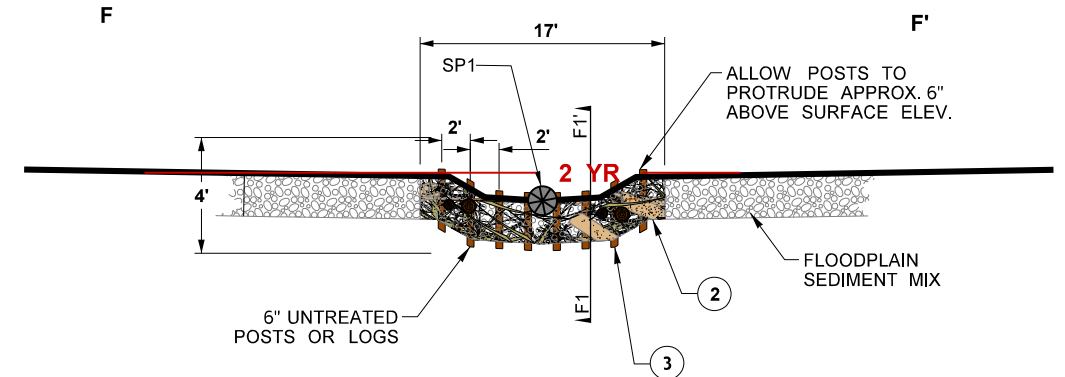




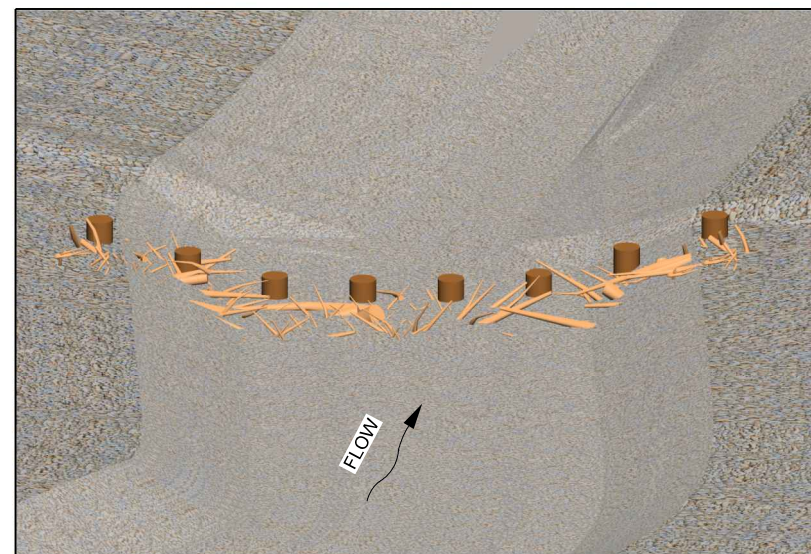
**TYPE F LWM STRUCTURE PLAN VIEW**  
SCALE: 1" = 20'

**TYPE F LWM STRUCTURE INSTALLATION NOTES**

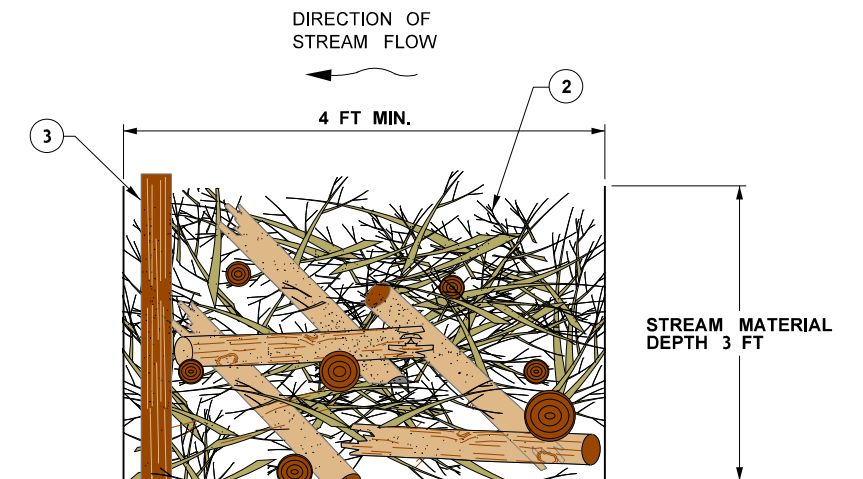
- 1 EXCAVATE 4' WIDE CHANNEL SPANNING TRENCH TO BOTTOM OF STREAMBED MIX.
- 2 FILL TRENCH WITH MIX OF SLASH AND STREAMBED MIX. INTERWEAVE SLASH AND BRANCHES IN VERTICAL AND DIAGONAL DIRECTIONS TO A MINIMUM DEPTH OF 3' BELOW FINISHE DGRADE. (APPROXIMATELY 66% STREAMBED MIX BY VOLUME).
- 3 INSTALL 6" BY 4' MIN. UNTREATED POSTS OR STRAIGHT SALVAGED WOOD AT 2' SPACING AT THE DOWNSTREAM END OF THE STRUCTURE PROTRUDING APPROX. 6" FROM THE STREAMBED FINISH GRADE.



**TYPE F SECTION VIEW F-F' DETAILS**  
**LOOKING DOWNSTREAM**  
NTS



**TYPE F ISOMETRIC VIEW**  
NTS



**TYPE F SECTION VIEW F1-F1'-02**  
**LOOKING TOWARDS BANK**  
NTS

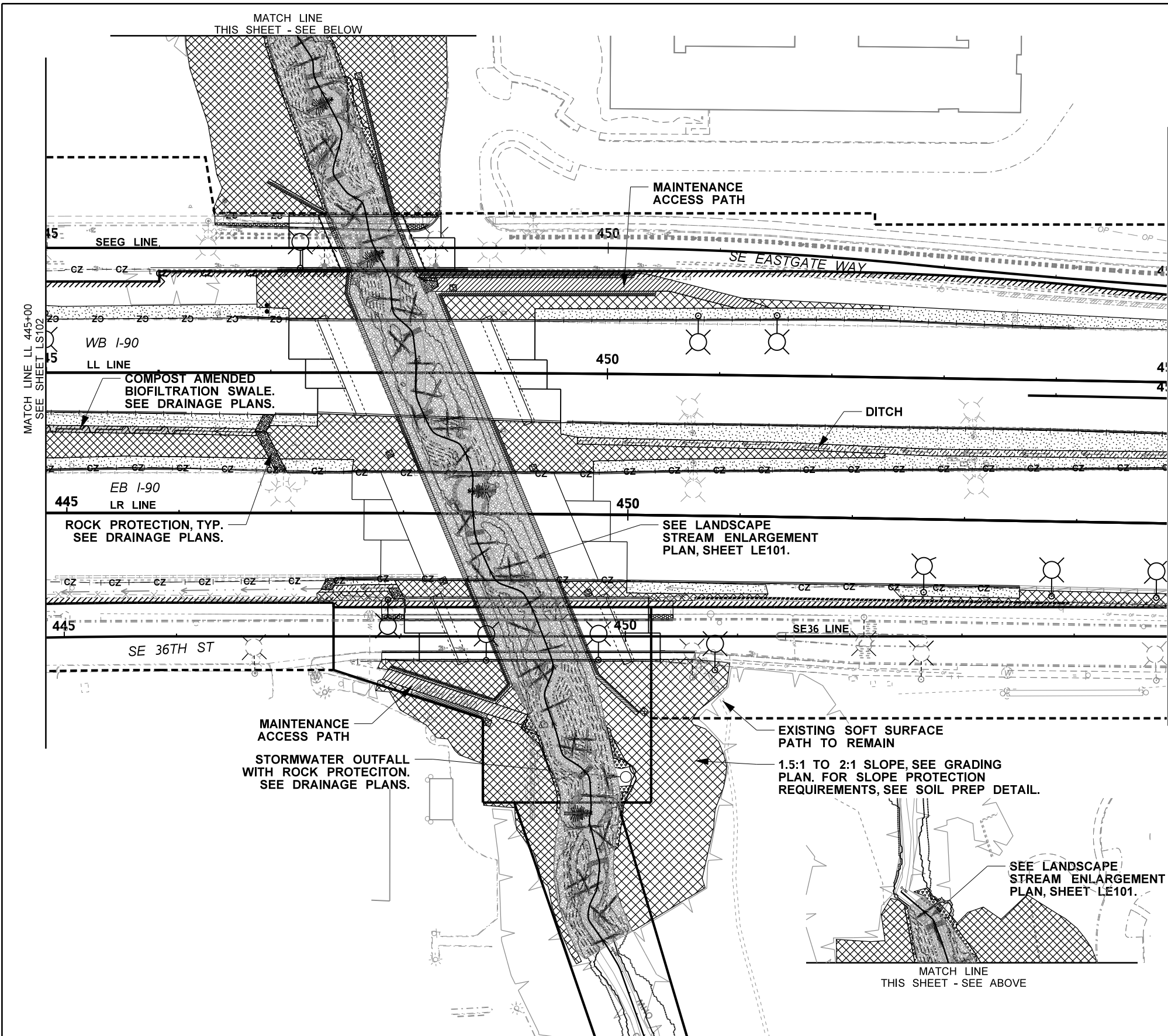
**6 TYPE F LWM STRUCTURE DETAIL**  
SR01 AND SR02 NTS

FILE NAME	c:\pwworking\jacobs_b&lex-mall\load0508250\C9750 SUNSET CREEK_DE_SR06.dgn		
TIME	12:39:52 PM		
DATE	11/6/2023		
PLOTTED BY	AndrewM		
DESIGNED BY	S. SHELDON, J. SIEGEL		
ENTERED BY	M. LEACH		
CHECKED BY	R. SHEEAN		
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	10/11/2023
REGIONAL ADM.	B. NIELSEN	REVISION	DATE BY
REGION NO.	STATE	FED.AID PROJ.NO.	
10	WASH		
JOB NUMBER			
CONTRACT NO.	LOCATION NO.		
C9750			



I-90, SR 161, SR 202 & SR 203  
FISH PASSAGE  
SUNSET CREEK  
  
DESIGN DETAIL TYPE 'F'  
LWM STRUCTURES

PLAN REF NO  
**SRD06**  
  
SHEET  
OF  
SHEETS

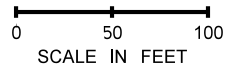


**LANDSCAPE NOTES:**

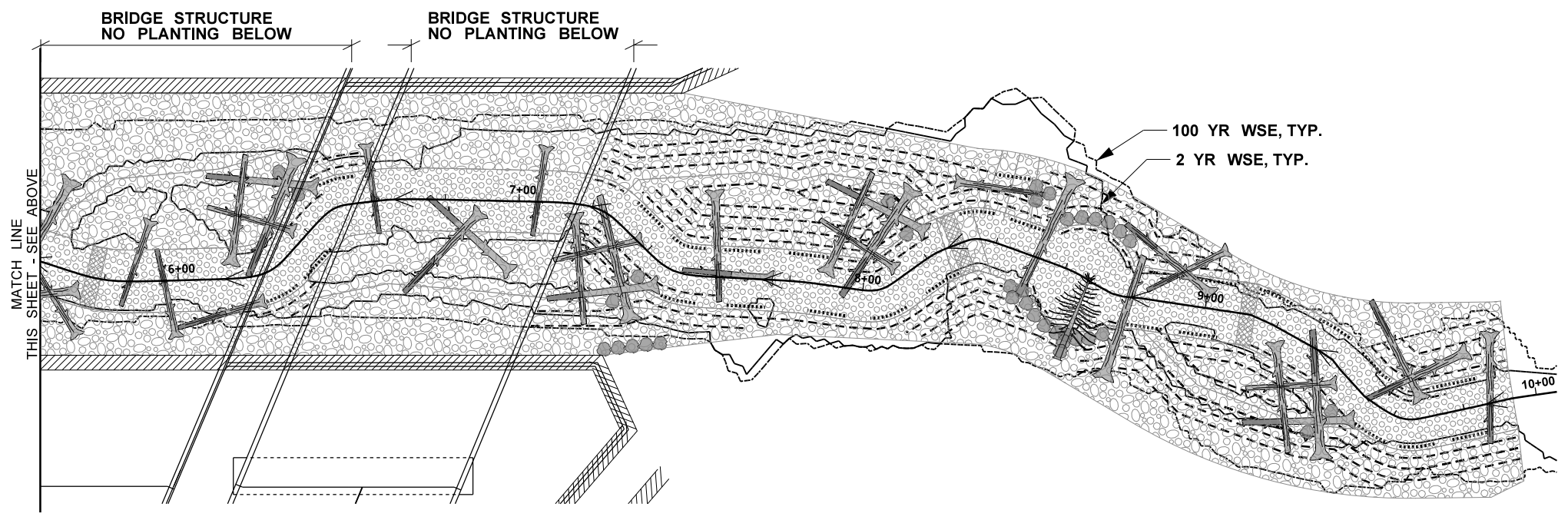
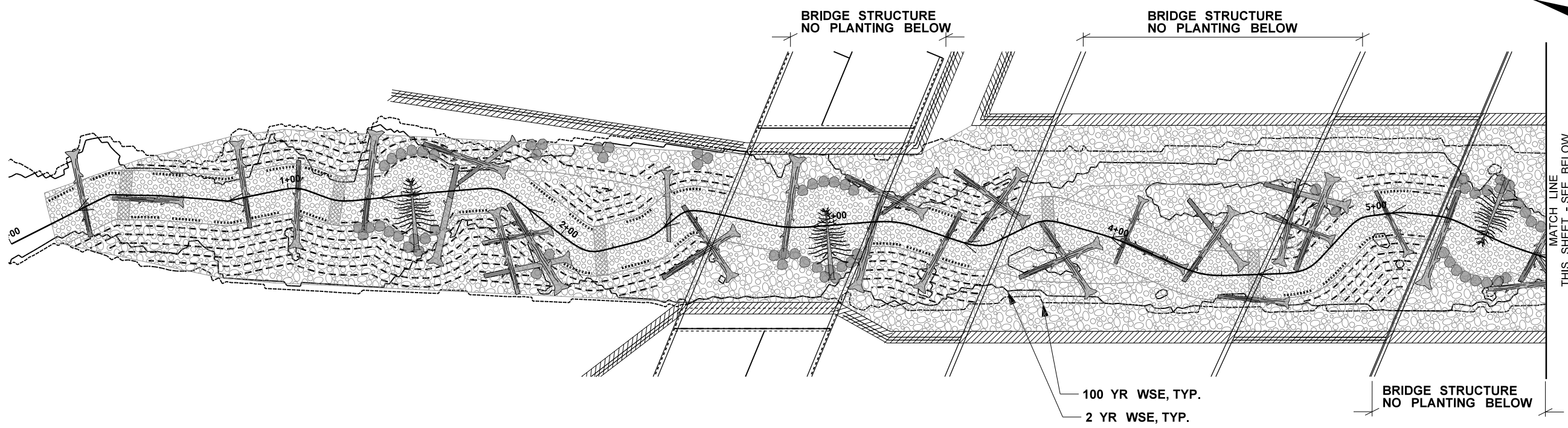
1. SEE LANDSCAPE DETAIL SHEETS FOR PLANT QUANTITIES, NOTES AND PLANT MATERIAL SETBACK CHART.
2. FERNS AND EMERGENTS SHALL BE PLANTED IN GROUPINGS OF 5-12.
3. RANDOMLY MIX SPECIES WITHIN PLANTING AREAS UNLESS OTHERWISE NOTED.
4. FOR SEEDING AREAS, MAINTAIN VEGETATION FREE ZONE OVER ROADWAY GRAVEL EDGE.
5. COORDINATE WITH LOCATIONS OF ALL EXISTING AND NEW ON-SITE UTILITIES PRIOR TO SOIL PREPARATION AND PLANTING WORK.
6. IMPACTS TO EXISTING NATIVE TREES AND SHRUBS AND THEIR ROOT ZONES SHALL BE AVOIDED TO THE GREATEST EXTENT POSSIBLE.
7. HATCH PATTERNS ON THE PLANS MAY BE SHOWN IN A DIFFERENT ORIENTATION THAN SHOWN ON THE LEGEND.

**LEGEND**

- MIX U - UPLAND MIX
- MIX M - MAINTENANCE ACCESS PATH MIX
- MIX R - RIPARIAN MIX
- MIX P - SIDEWALK PLANTER MIX
- MIX S - SEEDING
- MIX B - BIOFILTRATION SWALE & DITCH SEEDING
- FASCINE
- LIVE STAKES
- EXISTING TREE AND TREE PROTECTION ZONE
- SWALE
- OVERHEAD POWER
- LUMINAIRE
- SIGNAGE
- WALL
- EDGE OF ROADWAY
- GUARDRAIL
- FENCE
- WSDOT RIGHT OF WAY
- CITY RIGHT OF WAY
- CLEAR ZONE



FILE NAME: c:\pwworking\jacobs_b&j\eg_floreac\0490162\IC9750_PS_LS103.dgn		REGION NO. 10	STATE WASH	FED.AID PROJ.NO.		<h1 style="margin: 0;">PRELIMINARY</h1> <p style="margin: 0;">NOT FOR CONSTRUCTION</p>	<p style="margin: 0;">Washington State Department of Transportation</p>	<p style="margin: 0;">I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</p>	PLAN REF NO. LS103
TIME: 11:21:53 AM	DATE: 11/21/2023	JOB NUMBER	LOCATION NO.	SHEET OF SHEETS					
PLOTTED BY: FLOREACN	DESIGNED BY: C. FLOREANI	ENTERED BY: C. FLOREANI	CHECKED BY: T. WALKER	CONTRACT NO. C9750	ATKINSON / Jacobs	LANDSCAPE RESTORATION PLAN			
PROJ. ENGR. M. ASKARIAN	REGIONAL ADM. B. NIELSEN	REV A - PRELIMINARY REVIEW	DATE: 11/17/23	BY:					

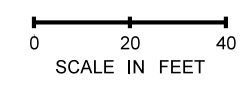


**LEGEND**

- ..... FASCINE
- LIVE STAKES

**LANDSCAPE NOTES:**

1. SEE LANDSCAPE DETAIL SHEETS FOR FASCINE AND LIVE STAKE DETAILS, PLANT QUANTITIES, NOTES AND PLANT MATERIAL SETBACK CHART.
2. SEE STREAM PLANS FOR STREAM DESIGN AND FEATURES, SUCH AS LWM.
3. SEE STRUCTURE PLANS FOR BRIDGE AND WALL DESIGN AND DETAILS.



FILE NAME c:\pwworking\jacobs_b&ijeg_floreacntd0490162\IC9750_PS_LE101.dgn		REGION NO. STATE		FED.AID PROJ.NO.				I-90, SR 161, SR 202 & SR 203 FISH PASSAGE SUNSET CREEK	PLAN REF NO
TIME 1:15:07 PM	DATE 11/21/2023	10	WASH						LE101
PLOTTED BY FLOREACN	DESIGNED BY C. FLOREANI	JOB NUMBER		CONTRACT NO.		Washington State Department of Transportation <b>ATKINSON / Jacobs</b> CONSTRUCTION		SHEET	
ENTERED BY C. FLOREANI	CHECKED BY T. WALKER			LOCATION NO.				OF	
PROJ. ENGR. M. ASKARIAN	REV A - PRELIMINARY REVIEW	11/17/23	BY	C9750		LANDSCAPE STREAM ENLARGEMENT		SHEETS	
REGIONAL ADM. B. NIELSEN	REVISION	DATE							

**PRELIMINARY**

NOT FOR CONSTRUCTION

PLANT SCHEDULE			
SYMBOL/AREA	COMMON NAME	BOTANICAL NAME	PERCENT
MIX U - UPLAND MIX			
2.47 AC	INCENSE CEDAR	CALOCEDRUS DECURRENS	1%
	WESTERN RED CEDAR	THUJA PLICATA	2%
	SITKA SPRUCE	PICEA SITCHENSIS	1%
	DOUGLAS FIR	PSEUDOTSUGA MENZIESII	2%
	WESTERN HEMLOCK	TSUGA HETEROPHYLLA	1%
	BIGLEAF MAPLE	ACER MACROPHYLLUM	2%
	CASCARA	RHAMNUS PURSHIANA	3%
	VINE MAPLE	ACER CIRCINATUM	6%
	BLACK TWINBERRY	LONICERA INVOLUCRATA	8%
	TALL OREGON GRAPE	MAHONIA AQUIFOLIUM	8%
	NOOTKA ROSE	ROSA NUTKANA	8%
	THIMBLEBERRY	RUBUS PARVIFLORUS	8%
	SNOWBERRY	SYMPHORICARPOS ALBUS	26%
	SALAL	GAULTHERIA SHALLON	12%
WESTERN SWORD FERN	POLYSTICHUM MUNITUM	12%	
MIX M - MAINTENANCE ACCESS PATH MIX			
0.11 AC	RED-OSIER DOGWOOD	CORNUS STOLONIFERA	12%
	BALDHIP ROSE	ROSA GYMNOCARPA	12%
	NOOTKA ROSE	ROSA NUTKANA	12%
	THIMBLEBERRY	RUBUS PARVIFLORUS	16%
	SNOWBERRY	SYMPHORICARPOS ALBUS	28%
	SALAL	GAULTHERIA SHALLON	20%
MIX R - RIPARIAN MIX			
0.06 AC	PACIFIC NINEBARK	PHYSOCARPUS CAPITATUS	20%
	SALMONBERRY	RUBUS SPECTABILIS	20%
	SNOWBERRY	SYMPHORICARPOS ALBUS	30%
	LADY FERN	ATHYRIUM FILIX-FEMINA	12%
	SLOUGH SEDGE	CAREX OBNUPTA	6%
	TUFTED HAIRGRASS	DESCHAMPSIA CESPITOSA	6%
	SOFT RUSH	JUNCUS EFFUSUS	6%
MIX P - SIDEWALK PLANTER MIX			
0.01 AC	PINK SEA THRIFT	ARMERIA MARITIMA	20%
	WESTERN SWORD FERN	POLYSTICHUM MUNITUM	80%

MIX S - ROADSIDE POLLINATOR EROSION CONTROL SEED MIX			
SYMBOL/AREA	COMMON NAME	BOTANICAL NAME	LBS OF PLS/ACRE
1.28 AC	WESTERN YARROW	ACHILLEA MILLEFOLIUM	0.3
	COMMON CAMAS	CAMASSIA QUAMASH	5.8
	TUFTED HAIRGRASS	DESCHAMPSIA CESPITOSA	0.8
	BLUE WLDRYE	ELYMUS GLAUCUS	7.0
	SHOWY FLEABANE	ERIGERON SPECIOSUS	0.5
	SPIKE BENTGRASS	AGROSTIS EXARATA	0.2
	PUGET SOUND GUMWEED	GRINDELIA INTEGRIFOLIA	1.4
	MEADOW BARLEY	HORDEUM BRACHYANTHERUM	13.0
	SELF-HEAL	PRUNELLA VULGARIS VAR. LANCEOLATA	1.0
	TOTAL:		



MIX B - BIOFILTRATION SWALE & DITCH EROSION CONTROL SEED MIX				
SYMBOL/AREA	COMMON NAME	BOTANICAL NAME	LBS OF PLS/ACRE	
0.30 AC	CANADA BLUEJOINT	CALAMAGROSTIS CANADENSIS	0.6	
	TUFTED HAIRGRASS	DESCHAMPSIA CESPITOSA	1.3	
	BLUE WLDRYE	ELYMUS GLAUCUS	10.6	
	WESTERN MANNAGRASS	GLYCERIA OCCIDENTALIS	6.2	
	RICE CUTGRASS	LEERSIA ORYZOIDES	3.1	
	LUPINUS BICOLOR	MINIATURE LUPINE	9.8	
	SELF-HEAL	PRUNELLA VULGARIS VAR. LANCEOLATA	1.8	
	ALSIKE CLOVER	TRIFOLIUM HYBRIDUM	1.6	
	TOTAL:			35.0

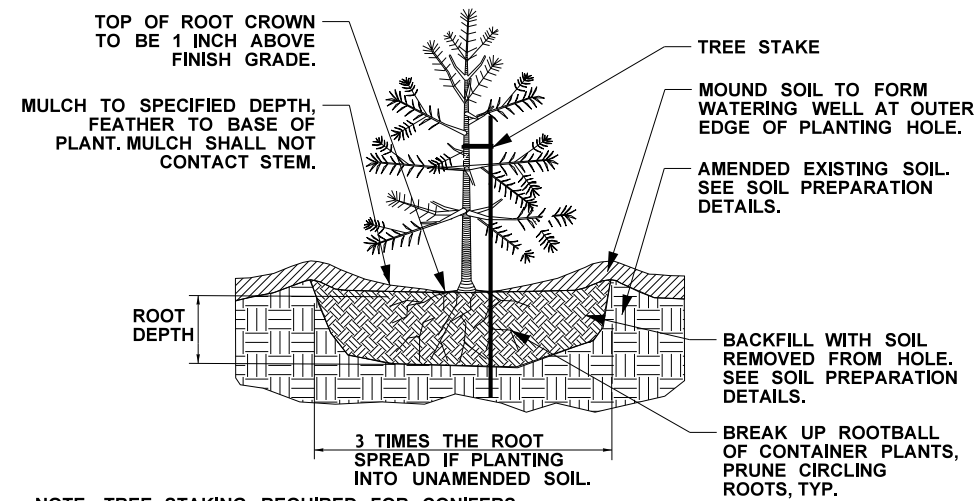
LIVE STAKE MIX	
RED-OSIER DOGWOOD	CORNUS STOLONIFERA
PACIFIC WILLOW	SALIX LASIANDRA
SITKA WILLOW	SALIX SITCHENSIS
FASCINE MIX	
RED-OSIER DOGWOOD	CORNUS STOLONIFERA
SALMONBERRY	RUBUS SPECTABILIS
PACIFIC WILLOW	SALIX LASIANDRA
SITKA WILLOW	SALIX SITCHENSIS

**PLANT MATERIAL SETBACK CHART**

THIS CHART SUPPLEMENTS SECTION 8.02.3(7) OF THE STANDARD SPECIFICATIONS. SETBACKS APPLY UNLESS OTHERWISE ADJUSTED BY ENGINEER DURING PLANT STAKING OR LAYOUT. DISTANCES BELOW ARE TO THE STEM OR TRUNK OF THE PLANT BEING INSTALLED.

	GUARDRAIL BARRIER	EDGE OF ROADWAY	ALL WALLS	FENCE	SIGNS	EXISTING TREE TRUNK	EXISTING VEGETATION MASS	OVERHEAD POWER
GROUND COVER, FERN OR EMERGENT	5'	5'	3'	1.5'	1.5'	5'	5'	-
SMALL SHRUB	5'	10'	5'	3'	6'	5'	5'	-
TALL SHRUB	10'	15'	10'	10'	6'	10'	10'	10'
TREE	15'	20'	15'	10'	15'	15'	10'	20'
BIGLEAF MAPLE	-	80'	15'	10'	15'	15'	10'	20'

FILE NAME c:\pwworking\jacobs_b&ijeg_floreacntd0490162\IC9750_PS_LD101.dgn	TIME 1:20:37 PM	DATE 11/21/2023	PLOTTED BY FLOREACN	DESIGNED BY C. FLOREANI	ENTERED BY C. FLOREANI	CHECKED BY T. WALKER	PROJ. ENGR. M. ASKARIAN	REGIONAL ADM. B. NIELSEN	REV A - PRELIMINARY REVIEW 11/17/23 REVISION	DATE BY	FED.AID PROJ.NO.	CONTRACT NO. C9750	LOCATION NO.		<h1 style="margin: 0;">PRELIMINARY</h1> <p style="margin: 0;">NOT FOR CONSTRUCTION</p>	 <p style="margin: 0;">Washington State Department of Transportation</p>	<p style="margin: 0;">ATKINSON / Jacobs CONSTRUCTION</p>	<p style="margin: 0;">I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</p>	<p style="margin: 0;">LANDSCAPE RESTORATION DETAILS</p>	<p style="margin: 0;">PLAN REF NO LD101</p> <p style="margin: 0;">SHEET OF SHEETS</p>
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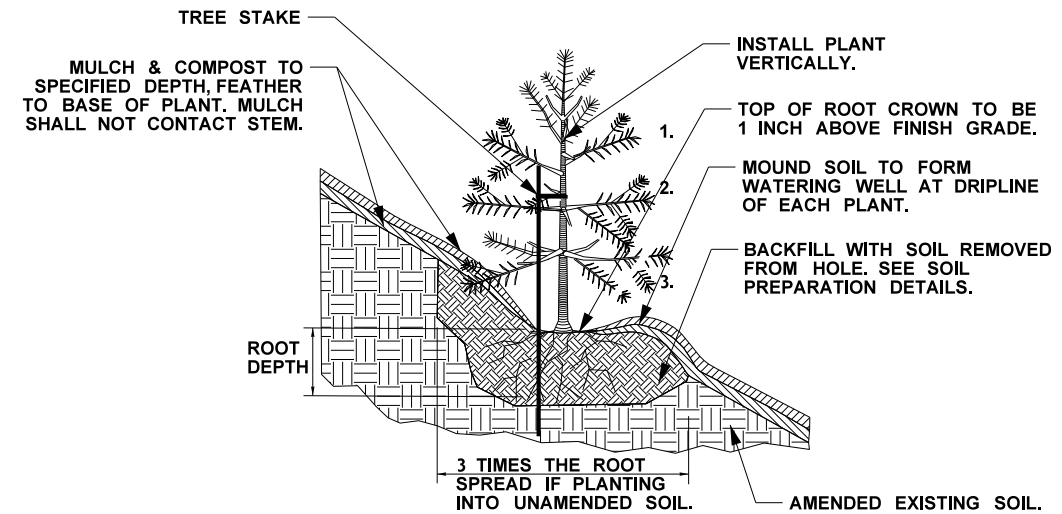


NOTE: TREE STAKING REQUIRED FOR CONIFERS ONLY. STAKE FOR 1 YEAR OR AS DIRECTED BY ENGINEER. ALL STAKES AND TIES SHALL BE REMOVED ONCE ESTABLISHED.

**CONTAINERIZED PLANTING DETAIL**

SECTION VIEW

NOT TO SCALE

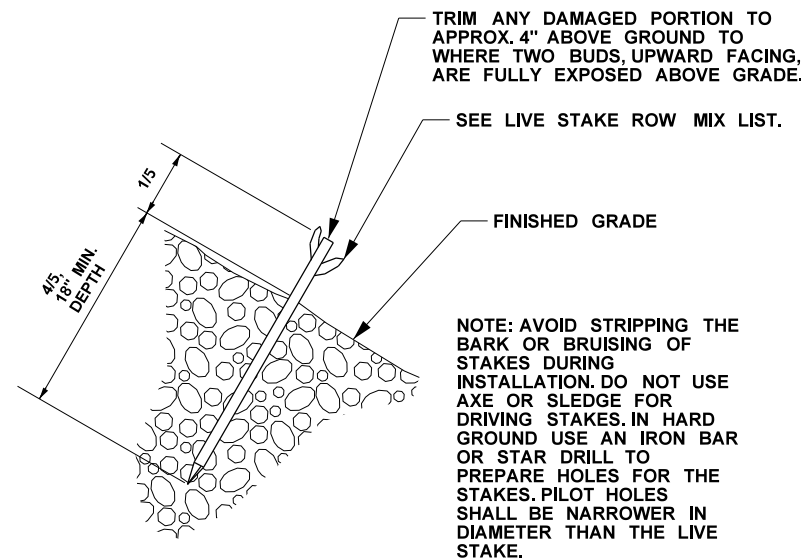


NOTE: TREE STAKING REQUIRED FOR CONIFERS ONLY. STAKE FOR 1 YEAR OR AS DIRECTED BY ENGINEER. ALL STAKES AND TIES SHALL BE REMOVED ONCE ESTABLISHED.

**PLANTING ON SLOPE DETAIL**

SECTION VIEW

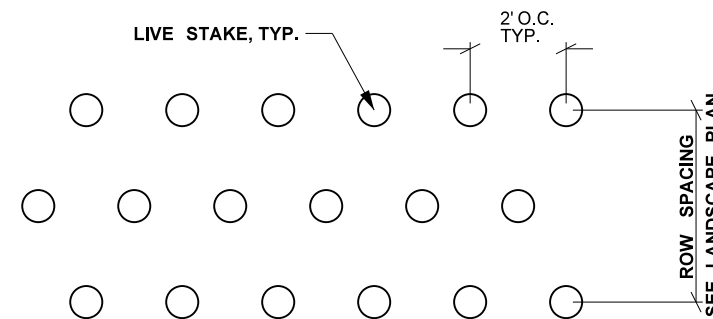
NOT TO SCALE



**LIVE STAKE INSTALLATION**

SECTION VIEW

NOT TO SCALE

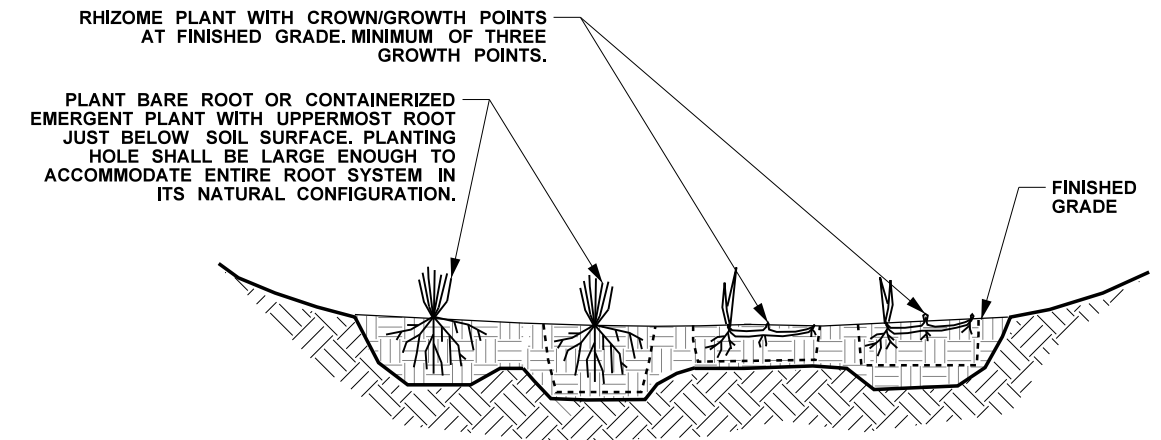


NOTE: SEE PLANT MATERIAL LIST FOR LIVE STAKE ROW MIX.

**LIVE STAKE - INSTALLATION PLAN**

SECTION VIEW

NOT TO SCALE



NOTE: INSTALL TUBERS AND RHIZOMES DIRECTLY INTO SOIL. PLANTING HOLE SHALL BE MADE ONLY LARGE ENOUGH TO ACCOMMODATE ROOT SYSTEM IN ITS NATURAL CONFIGURATION.

**PLANTING DETAIL FOR BARE ROOT EMERGENT, CONTAINERIZED EMERGENT, TUBER OR RHIZOME**

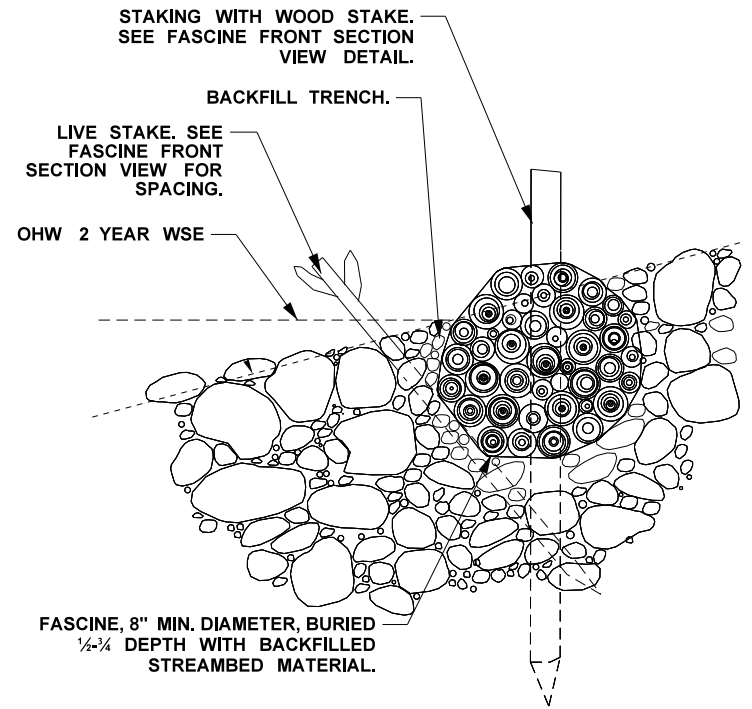
SECTION VIEW

NOT TO SCALE

FILE NAME	c:\pwworking\jacobs_b&ijeg_floreacn\0490162\C9750_PS_LD102.dgn			REGION NO.	STATE	FED.AID PROJ.NO.	<p><b>PRELIMINARY</b></p> <p>NOT FOR CONSTRUCTION</p>	<p>Washington State Department of Transportation</p>	<p>I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</p>	PLAN REF NO
TIME	5:48:32 PM			10	WASH					LD102
DATE	11/15/2023			JOB NUMBER						SHEET
PLOTTED BY	FLOREACN			CONTRACT NO.						OF
DESIGNED BY	C. FLOREANI			LOCATION NO.						SHEETS
ENTERED BY	C. FLOREANI									
CHECKED BY	T. WALKER									
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	11/17/23							
REGIONAL ADM.	B. NIELSEN	REVISION	DATE	BY	C9750					

ATKINSON / Jacobs

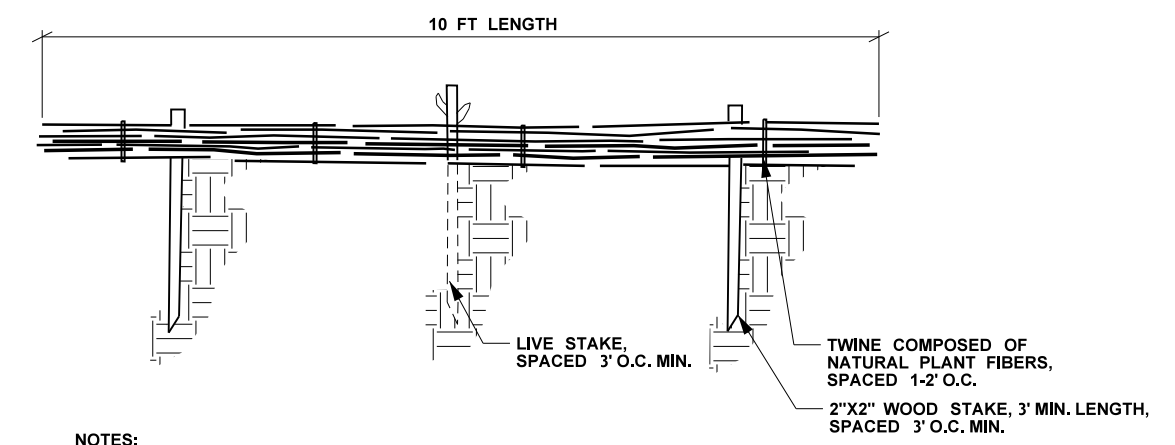
LANDSCAPE RESTORATION DETAILS



- FASCINE INSTALLATION - SEQUENCE OF WORK**
- STEP 1**  
EXCAVATE TRENCH DEEP ENOUGH TO BURY 1/4-1/2 DIAMETER OF FASCINE INTO STREAMBANK.
- STEP 2**  
INSTALL FASCINE IN THE BOTTOM OF THE TRENCH.
- STEP 3**  
ANCHOR FASCINES WITH WOOD PEG AND LIVE STAKE. SEE FASCINE FRONT VIEW DETAIL FOR SPACING.
- STEP 4**  
BACKFILL TRENCH WITH STREAMBED MATERIAL OR SOIL.

**FASCINE - SIDE SECTION VIEW**

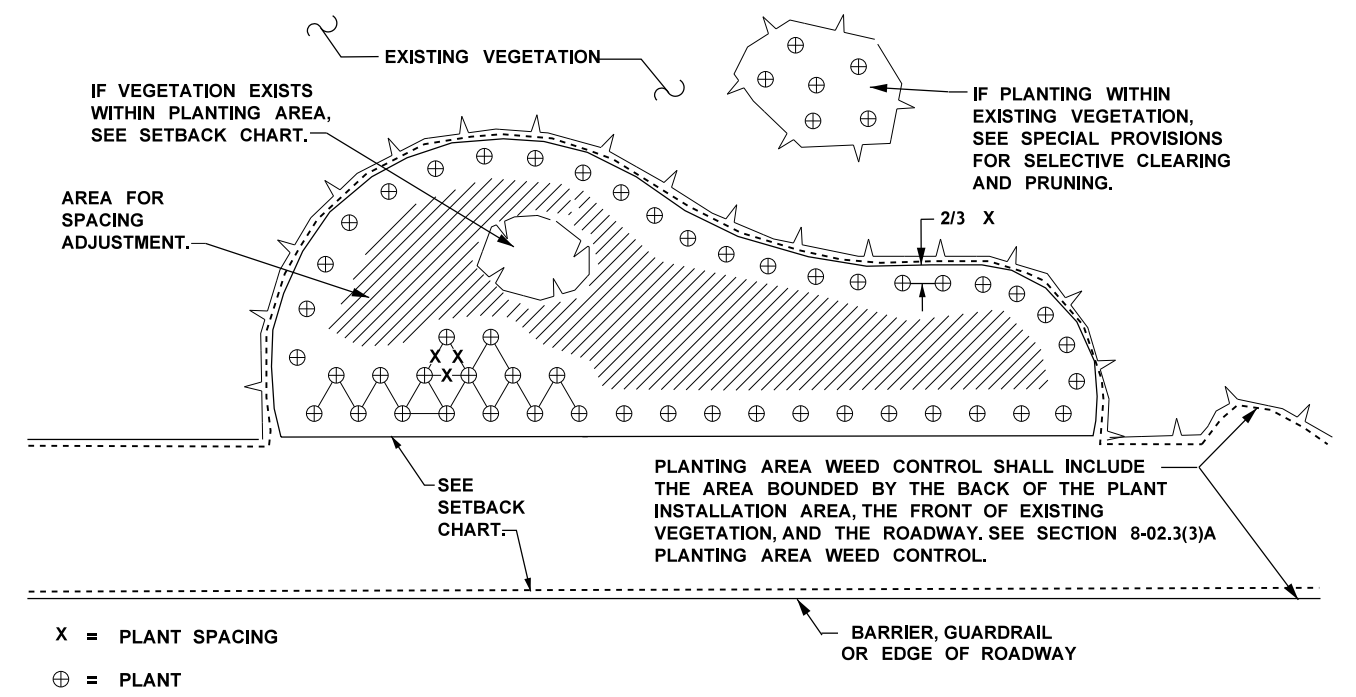
SECTION VIEW NOT TO SCALE



- NOTES:**
- WOOD STAKE AND LIVE STAKE ANCHORS SHALL ALTERNATE AT SPECIFIED SPACING.
  - SEE PLANT MATERIAL LIST FOR LIVE STAKE SPECIES AND SIZE.

**FASCINE - FRONT SECTION VIEW**

SECTION VIEW NOT TO SCALE



**PLANTING AREA LAYOUT, SETBACK, AND WEED CONTROL**

PLAN VIEW NOT TO SCALE

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TIME	6:05:33 PM		
DATE	11/15/2023		
PLOTTED BY	FLOREACN		
DESIGNED BY	C. FLOREANI		
ENTERED BY	C. FLOREANI		
CHECKED BY	T. WALKER		
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	11/17/23
REGIONAL ADM.	B. NIELSEN	REVISION	DATE BY
REGION	10	STATE	WASH
JOB NUMBER			
CONTRACT NO.	C9750		
LOCATION NO.			
FED.AID PROJ.NO.			

**PRELIMINARY**

NOT FOR CONSTRUCTION

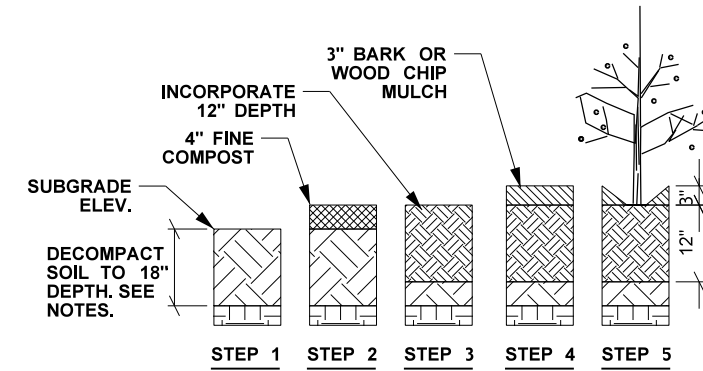


I-90, SR 161, SR 202 & SR 203  
FISH PASSAGE  
SUNSET CREEK

LANDSCAPE RESTORATION DETAILS

PLAN REF NO  
LD103

SHEET  
OF  
SHEETS

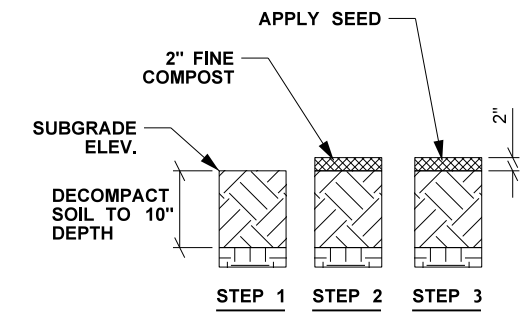


- STEP 0**  
WEED FREE CONDITION. SEE WEED AND PEST CONTROL PLAN, PER WSDOT STANDARD SPECIFICATION 8-02.3(2) AND RFP SECTION 2.15.4.13.
- STEP 1**  
DECOMPACT EXISTING SOIL TO 18" DEPTH (SEE NOTES).
- STEP 2**  
INSTALL 4" FINE COMPOST
- STEP 3**  
INCORPORATE TO 12" DEPTH (SEE NOTES)
- STEP 4**  
IN PLANTING AREAS WITH WOODY PLANTS, INSTALL BARK OR WOOD CHIP MULCH 3" DEPTH.  
FOR SLOPES 2:1 OR STEEPER, INSTALL COMPOST SOCK OR COIR LOG. SEE NOTES.
- STEP 5**  
INSTALL PLANT PER DETAIL AND FEATHER BARK MULCH AWAY FROM PLANT

- NOTES:**
- PRIOR TO SOIL AMENDMENT, PLANTING AREAS SHALL BE WEED FREE AND PLANTING AREAS DECOMPACTED TO 18" DEPTH. FOR PLANTING AREAS THAT WERE PREVIOUSLY PAVED, ROADWAY BASE COURSE SHALL BE REMOVED COMPLETELY PRIOR TO SOIL PREPARATION.
  - SOIL DECOMPACTION AND INCORPORATION OF AMENDMENTS SHALL OCCUR WHEN SATURATED SOILS ARE NOT PRESENT.
  - FOR 2:1 SLOPES, INSTALL PERMANENT/LEAVE IN PLACE COMPOST SOCKS AT A SPACING NO GREATER THAN 10'. FOR SLOPES STEEPER THAN 2:1, INSTALL PERMANENT/LEAVE IN PLACE COIR LOGS OR COMPOST SOCKS AT A SPACING NO GREATER THAN 5'. FOR ADDITIONAL REINFORCEMENT AS NEEDED, BIODEGRADABLE EROSION CONTROL FABRIC MAY ALSO BE APPLIED. ALL MATERIAL SHALL BE COMPOSED OF NATURAL PLANT FIBERS AND INSTALLED IN ACCORDANCE WITH WSDOT STANDARD PLANS AND STANDARD SPECIFICATIONS.
  - COORDINATE SOIL PREPARATION WITH UTILITY LOCATIONS TO AVOID ANY CONFLICT. PROTECT EXISTING UTILITIES AS NEEDED.

**PLANTING AREA SOIL PREPARATION**

SECTION VIEW NOT TO SCALE






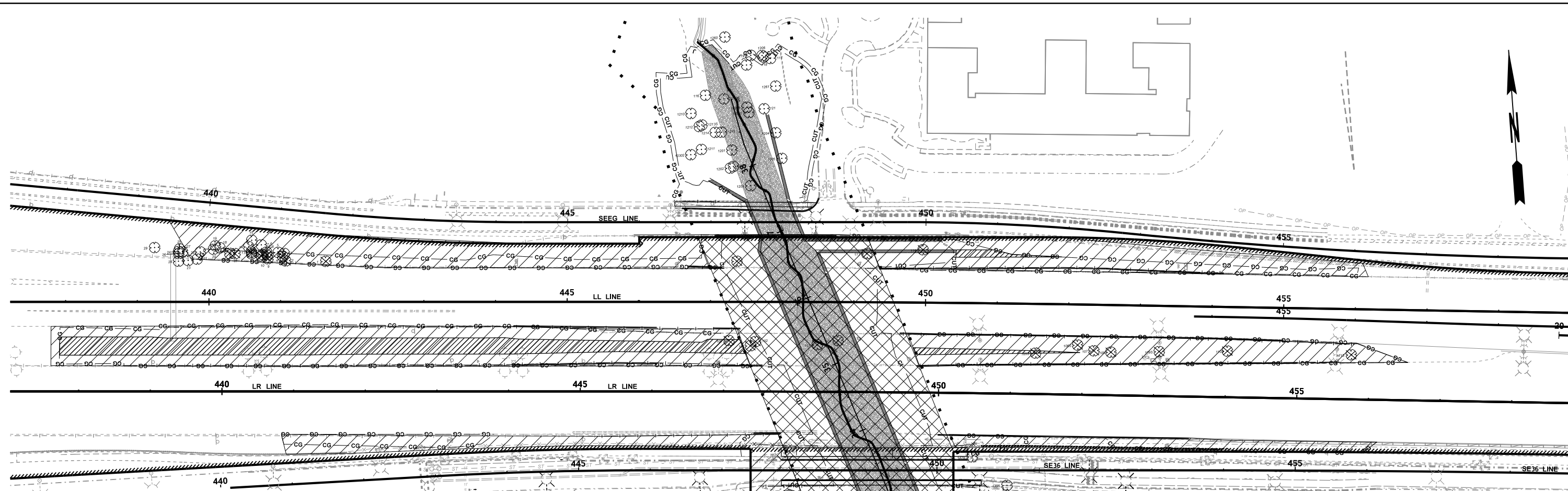
- STEP 0**  
WEED FREE CONDITION. SEE WEED AND PEST CONTROL PLAN, PER WSDOT STANDARD SPECIFICATION 8-02.3(2) AND RFP SECTION 2.15.4.13.
- STEP 1**  
DECOMPACT EXISTING SOIL TO 10" (SEE NOTES)
- STEP 2**  
INSTALL 2" FINE COMPOST
- STEP 3**  
APPLY SEED. SEE SEEDING SCHEDULE.

- NOTES:**
- PRIOR TO SOIL AMENDMENT, SEEDING AREAS SHALL BE WEED FREE AND SEEDING AREAS DECOMPACTED TO 10" DEPTH. FOR SEEDING AREAS THAT WERE PREVIOUSLY PAVED, ROADWAY BASE COURSE SHALL BE REMOVED COMPLETELY PRIOR TO SOIL PREPARATION.
  - SOIL DECOMPACTION AND INCORPORATION OF AMENDMENTS SHALL OCCUR WHEN SATURATED SOILS ARE NOT PRESENT.
  - COORDINATE SOIL PREPARATION WITH UTILITY LOCATIONS TO AVOID ANY CONFLICT. PROTECT EXISTING UTILITIES AS NEEDED.
  - DEFER TO DRAINAGE DETAILS FOR SOIL PREPARATION OVER CABS (COMPOST-AMENDED BIOFILTRATION SWALE).

**SEEDING AREA SOIL PREPARATION**

SECTION VIEW NOT TO SCALE

FILE NAME: c:\pwworking\jacobs_b&ijeg_floreacntd0490162\IC9750_PS_LD104.dgn		REGION NO. STATE		FED.AID PROJ.NO.		 <p><b>PRELIMINARY</b> NOT FOR CONSTRUCTION</p>	 <p>Washington State Department of Transportation</p>	<p>I-90, SR 161, SR 202 &amp; SR 203 FISH PASSAGE SUNSET CREEK</p>	PLAN REF NO
TIME: 6:42:41 PM	DATE: 11/15/2023	10	WASH						LD104
PLOTTED BY: FLOREACN	DESIGNED BY: C. FLOREANI	JOB NUMBER		CONTRACT NO.		 <p>ATKINSON / Jacobs CONSTRUCTION</p>	<p>LANDSCAPE RESTORATION DETAILS</p>	SHEET	
ENTERED BY: C. FLOREANI	CHECKED BY: T. WALKER	CONTRACT NO. C9750		LOCATION NO.				OF	
PROJ. ENGR. M. ASKARIAN	REVISION: REV A - PRELIMINARY REVIEW	DATE: 11/17/23	BY:					SHEETS	
REGIONAL ADM. B. NIELSEN	REVISION	DATE	BY						



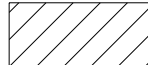












**TREE REMOVAL SUMMARY - WSDOT ROW**

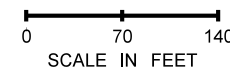
TREE #	SPECIES	DBH	STATUS	NOTES
1	Bigleaf Maple	5	Remove	
2	Bigleaf Maple	6	Remove	
4	Bigleaf Maple	5	Remove	
6	Bigleaf Maple	5	Remove	
9	Bigleaf Maple	5	Remove	
10	Bigleaf Maple	4	Remove	
11	Bigleaf Maple	4	Remove	
12	Bigleaf Maple	6	Remove	
13	Bigleaf Maple	4	Remove	
16	Paper Birch	5	Remove	
17	Paper Birch	4	Remove	
100	Black Cottonwood	7	Remove	
101	Black Cottonwood	6	Remove	STREAM BUFFER
102	Black Cottonwood	6	Remove	STREAM BUFFER
103	Black Cottonwood	6	Remove	STREAM BUFFER
104	Black Cottonwood	7	Remove	STREAM BUFFER
107	Black Cottonwood	6	Remove	
108	Black Cottonwood	9	Remove	
112	Bigleaf maple	10	Remove	
113	Bitter Cherry	8	Remove	
114	Douglas Fir	15	Remove	
125	Bigleaf maple	26	Remove	STREAM BUFFER
135	Western Red Cedar	-	Remove	STREAM BUFFER, DEAD
1237	Douglas Fir	34	Remove	STREAM BUFFER
1238	Western Red Cedar	19	Remove	STREAM BUFFER
1248	Western Red Cedar	23	Remove	STREAM BUFFER
1251	Bigleaf maple	33	Remove	STREAM BUFFER

**TREE DOCUMENTATION SUMMARY - WSDOT ROW**

ROADSIDE AREA	
TOTAL CATEGORY 1 TREES REMOVED - >30" DBH:	0
TOTAL TREE DBH REMOVED:	0
REQUIRED TREE REPLACEMENT (#2 CONT.):	0
TOTAL DBH X 3	0
TOTAL CATEGORY 2 TREES REMOVED - ≥4" TO ≤30" DBH:	18
TOTAL TREE DBH REMOVED:	104
REQUIRED TREE REPLACEMENT (#2 CONT.):	52
TOTAL DBH/2	52
STREAM BUFFER AREA (FUTURE)	
TOTAL CATEGORY 1 TREES REMOVED - ≥30" DBH:	3
TOTAL TREE DBH REMOVED:	98
REQUIRED TREE REPLACEMENT (#2 CONT.):	294
TOTAL DBH X 3	294
TOTAL REQUIRED TREE REPLACEMENT (#2 CONT.):	346

**LEGEND**

-  ROADSIDE AREA IN WSDOT ROW
-  STREAM BUFFER AREA IN WSDOT ROW
-  ROADSIDE TREE REPLACEMENT PLANTING AREA
-  EXISTING TREE
-  EXISTING TREE REMOVED IN WSDOT ROW
-  STREAM BUFFER (FUTURE)
-  OHW - ORDINARY HIGH WATER - EXISTING
-  SWALE
-  WALL
-  EDGE OF ROADWAY
-  GUARDRAIL
-  FENCE
-  WSDOT RIGHT OF WAY



FILE NAME	c:\pwworking\jacobs_b&ijeg_floreacnd0490162\IC9750_PS_TR101.dgn		
TIME	9:58:28 AM		
DATE	11/21/2023		
PLOTTED BY	FLOREACN		
DESIGNED BY	C. FLOREANI		
ENTERED BY	C. FLOREANI		
CHECKED BY	T. WALKER		
PROJ. ENGR.	M. ASKARIAN	REV A - PRELIMINARY REVIEW	11/17/23
REGIONAL ADM.	B. NIELSEN	REVISION	DATE BY
REGION NO.	10	STATE	WASH
JOB NUMBER			
CONTRACT NO.	C9750		
FED.AID PROJ.NO.			
LOCATION NO.			

**PRELIMINARY**  
NOT FOR CONSTRUCTION



I-90, SR 161, SR 202 & SR 203  
FISH PASSAGE  
SUNSET CREEK  
TREE DOCUMENTATION

PLAN REF NO  
**TR101**  
SHEET  
OF  
SHEETS