

CITY OF SCAPPOOSE LAND USE DECISION AND STAFF REPORT

- Request:** Approval of an application for A Sensitive Lands Development Permit – Flooding (SLDP2-18) and a Sensitive Lands Development Permit – Riparian Corridor (SLDP3-18) to allow for a South Scappoose Creek restoration project, to include: bank stabilization, establishment of a native plant riparian buffer, laying back the banks, creating inset floodplains, and reconnecting abandoned off-channel areas.
- Location:** The site is located along the western bank of South Scappoose Creek in Veteran’s Park at 52590 Captain Roger Kucera Way (Columbia County Assessor’s Map No. 3212-BC-00100) , and along the western bank of South Scappoose Creek just south of Veteran’s Park (Columbia County Assessor’s Map No. 3212-CB-00401, 3212-CB-00100, 3212-CB-00200, 3212-CB-03200, and 3212-CB-03101). See attached Vicinity Map (**Exhibit 1**).
- Applicant:** Scappoose Bay Watershed Council
- Owners:** Buxton Family Investments LLC – 3212-CB-00401
City of Scappoose – 3212-BC-00100
Michael Sills – 3212-CB-00100
John Shull – 3212-CB-00200
Roman and Patricia Hesch – 3212-CB-03200
Shirley Fishbaugh – 3212-CB-03101

EXHIBITS

1. Vicinity Map
2. Floodplain diagram
3. Excerpt from Scappoose Riparian Inventory – Figure 5B
4. Applicant’s narrative and Application
5. Creek Restoration Plans
 - A. Project Overview, Sheet C2
 - B. Unnamed Tributary Grading Plan and Profile, Sheet C3
 - C. Grading Plan, Sheet C4
 - D. Grading Plan, Sheet C5
 - E. Grading Plan, Sheet C6
 - F. Grading Plan, Sheet C7
 - G. Grading Plan, Sheet C8
 - H. Sections, Sheet C9
 - I. Bank Log Structure and Details, Sheet C10
 - J. Side Channel Log Structure Details, Sheet C11
 - K. Notes, Sheet C12
 - L. Erosion and Sediment Control Plan, Sheet EC1
 - M. Access and Staging Plan, Sheet EC2

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- N. Veteran's Existing Conditions Plan, Sheet EC3
- O. Buxton Property Existing Conditions Plan, Sheet EC4
- P. Veteran's Park Seeding and Erosion Control Plan, Sheet EC5
- Q. Buxton Property Seeding and Erosion Control Plan, Sheet EC6
- R. ESCP Details, Sheet EC7
- S. Affected Properties Project Elements Boundaries, Sheet F1
- 6. Oregon Department of State Lands approval, dated May 22, 2018
- 7. US Army Corps of Engineers Approval, dated April 20, 2018
- 8. Technical Memorandum/No Rise Certificate and Email comment from Jake Hofeld, Waterways, dated May 22, 2018 and May 24, 2018
- 9. Preliminary Basis of Design Report, dated March 5, 2018
- 10. Nationwide 401 Water Quality Certification Approval for NWP-2018-00111, dated April 9, 2018
- 11. HIP 3 Programmatic Response for South Scappoose Creek Restoration Project
- 12. Landowner Agreements with Buxton, Hesch, Fishbaugh, Shull, and Sills
- 13. Wetland Map Buxton Property, dated May 11, 2018
- 14. Email Comment from Dave Stewart- ODFW, dated April 24, 2018
- 15. Comment from City Engineer, Chris Negelspach, dated May 9, 2018 and Applicant's Response, dated May 17, 2018 and May 22, 2018
- 16. Comment from John Shull, dated May 16, 2018 and Applicant's Response, dated May 21, 2018
- 17. Planting Plan Details

OBSERVATIONSBACKGROUND INFORMATION

- In 2000, the Scappoose Bay Watershed Council (SBWC) completed a watershed assessment for the streams and catchments that enter Scappoose Bay. This assessment identified several reaches of stream where past incision had reduced channel - floodplain interaction and impacted the complexity and quality of aquatic habitat. The lower five-mile stretch of South Scappoose Creek in the vicinity of the City of Scappoose was one area identified in the assessment as impaired. In 2009, Swanson Hydrology and Geomorphology developed a restoration planning document that evaluated this stretch of South Scappoose Creek and split the channel into 18 Management Zones (**Exhibit 9, Page 4, Figure 1**), each of which were assigned a prioritization ranking.
- Since completion of the restoration plan, Waterways Consulting, Inc. (Waterways) has been working with the SBWC to plan, design, and assist with the construction of several restoration projects within these Management Zones. Specifically, a bank stabilization project was completed in 2010 in Management Zone O, and a floodplain restoration project was completed in 2011 in Management Zone C at the confluence of North and South Scappoose Creeks.
- In 2013, Waterways was retained by the SBWC to develop a floodplain restoration alternatives analysis for a portion of South Scappoose Creek running through the City of Scappoose within Management Zones F, G, H, and I. The alternative analysis included a description of the restoration objectives, range of potential restoration alternatives, site

South Scappoose Creek Restoration Project

conditions with associated constraints, and estimated construction costs for each of the proposed restoration activities.

- In 2017, the SBWC obtained funding to complete the engineering design, obtain the necessary regulatory permits, and construct the project. Funding for the project was provided by the City of Scappoose, the Oregon Watershed Enhancement Board (OWEB), and the Bonneville Power Administration (BPA).

SITE ANALYSIS

- The subject site consists of the western bank of South Scappoose Creek abutting several tax lots; Veteran's Park at 52590 Captain Roger Kucera Way, an 11.75 acre parcel owned by the City of Scappoose, and a vacant 17.13 acre parcel just south of Veteran's Park owned by Buxton Family Investments LLC are the two tax lots where the majority of the work is taking place. Additionally, there are four other residential parcels which contain a small portion of the western bank of the creek within them.
- The area west of the creek is designated Suburban Residential (SR) on the Comprehensive Plan Map and is zoned Low Density Residential (R-1) south of JP West Road and is designated Public Lands on the Comprehensive Plan Map and is zoned Public Lands Recreation (PL-R) north of JP West Road. The area east of the creek is designated General Residential (GR) on the Comprehensive Plan Map and is zoned Moderate Density Residential (R-4) and Public Lands Utility (PL-U).
- According to Flood Insurance Rate Map # 41009C0444D, dated 11/26/2010, the property is located partially within the regulated floodplain (Zone AE), with a portion within the floodway (see **Exhibit 2**). **Exhibit 3** illustrates that a portion of the site also sits within the riparian corridor, defined as fifty feet from the top of the creek bank.
- Prior to initiating the restoration project, the applicant is requesting Sensitive Lands Development Permits for both floodplain and riparian areas. SBWC's consultants have performed various environmental reviews to evaluate the project in light of national, state, and local regulations and have obtained permits from the Oregon Department of State Lands and the US Army Corps of Engineers (see **Exhibits 6 & 7**). The consultants have also performed the required floodplain analysis to demonstrate that the restoration project in the floodway will not increase the Base Flood Elevation at any point along the creek (see **Exhibit 8**).

APPROVAL AUTHORITY

- The Scappoose Development Code states that the planner may approve, approve with conditions, or deny an application for a Sensitive Lands Development Permit which is not part of an application requiring Planning Commission review.

PUBLIC & PRIVATE AGENCIES AND PUBLIC NOTICE

- The Scappoose City Manager, Chief of Police, City Engineer, Public Works Director and City Planner, and the Department of State Lands has reviewed the proposal. Comments from these agencies are included as exhibits in this staff report.

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- Notice of this request and decision will be mailed to property owners located within 300 feet of the subject site. If no written appeals are received by the end of the appeal period, the decision is final.
- As of the date of this staff report and decision, one written public comment was received (**Exhibit 16**). The applicant provided a response to the property owner and staff sent the reply via email to Mr. Shull (also in **Exhibit 16**).

FINDINGS OF FACT

- 1. The following sections of Title 17 of the Scappoose Municipal Code (Scappoose Development Code) are applicable to this request:**

*Chapter 17.44 R-1 LOW DENSITY RESIDENTIAL**17.44.030 Permitted uses.*

B. In the R-1 zone within the Scappoose Creek Flood Plain, only uses listed in Section 17.84.040 shall be permitted.

*Chapter 17.79 PL-R Public Lands Recreation**17.79.030 Permitted uses.*

In the PL-R zone, only the following uses and their accessory uses are permitted outright, and are subject to the provisions of Chapter 17.120, Site Development Review: A. Public recreation facilities including neighborhood and community parks, park plazas, multi-use trails with associated trail access points and trailheads, campgrounds and other similar uses;

Finding: North of JP West Road the subject site is zoned PL-R, which allows for community parks. This parcel currently contains Veteran's Park. South of JP West Road the subject site is zoned R-1. Since the project site is within the Scappoose Creek floodplain (see **Exhibit 2**), uses must be consistent with Section 17.84.040 (below). Sections 17.44.030 and 17.50.030 are satisfied.

*Chapter 17.84 SENSITIVE LANDS--FLOODING**17.84.040 Permitted Uses.*

B. The following uses shall be permitted in special flood hazard areas and shall require a development permit under this Chapter in addition to any applicable federal, state or county permits:

[...]

8. Public works projects. (Defined as: "Public works projects" refers to projects that are necessary to enhance or maintain general public welfare. Such projects may include, but are not limited to, flood control structures, public buildings, city infrastructures, utilities, parks and projects associated with resource protection.)

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C. A development permit shall be obtained before construction or development begins within any area of special flood hazard or drainageway unless specifically allowed in subsection A of this section. The permit shall apply to all structures including manufactured homes.

Finding: The proposed creek restoration project falls within the permitted use outlined above. The Scappoose Bay Watershed Council is seeking approval of this Sensitive Lands Development Permit prior to beginning construction in the floodplain. Section 17.84.040 is satisfied.

17.84.050 Administration.

H. A special land use permit, requiring planning commission approval, shall be obtained prior to storing or stockpiling buoyant or hazardous materials in a special flood hazard area. (See Section 17.84.210.)

Finding: The Conditions of Approval specify that no storing or stockpiling of buoyant or hazardous material is allowed without prior approval by the Planning Commission. The Scappoose Bay Watershed Council has not requested permission for this type of storage. If the contractor wishes to perform such storage, it would need to apply for permission by the Planning Commission. Section 17.84.050(H) is satisfied.

17.84.140 Standards. *In Zone A, Zone AE, and Zone AO, the following standards are required:*

A. Anchoring.

1. All new construction and substantial improvements shall be anchored to prevent flotation, collapse and lateral movement of the structure.

[...]

B. Construction Materials and Methods.

1. All new construction and substantial improvements shall be constructed with materials and utility equipment resistant to flood damage.

2. All new construction and substantial improvements shall be constructed using methods and practices that minimize flood damage.

[...]

Finding: The standards of Section 17.84.140 do not apply to the proposed creek restoration project due to the fact that for floodplain management purposes Chapter 17.84 limits the definitions of “new construction” and “structure” to walled and roofed buildings, however, the rootwads and logs placed in the creek as part of the restoration efforts would be secured to each other using rebar pins and ballasted by embedding the stem portion of the rootwad into the bank.. Section 17.84.140 is satisfied.

17.84.170 Regulations pertaining to fill. *A. No filling operations of any kind shall be allowed in the floodway.*

South Scappoose Creek Restoration Project

B. No fill in floodway fringe areas shall be allowed unless the net effect of excavation and filling operations (on-site) constitutes no positive change in fill volume, as certified by a registered professional engineer.

C. Fill shall be allowed under city fill permit procedures in shaded Zone X and shall not be regulated by this Chapter.

D. No structure shall be built nor any excavation grading, nor filling shall be done within the one hundred-year flood plain without first meeting the requirements of this chapter regulating construction, alteration, repair and moving of buildings.

Finding: The proposed restoration approach for this project involves a combination of grading inset floodplain benches along the creek, reconnecting abandoned off-channel areas, laying back steep channel banks, and installing several log structures. This project will result in a net removal of approximately 6,200 cubic yards of material from within the floodplain and floodway.

The applicant has submitted a hydraulic analysis prepared by a registered professional engineer certifying that there will not be a rise in the 100 year flood water surface elevations due to this project (**Exhibit 8**). Section 17.84.170 is satisfied.

17.84.180 Floodways. *A. Floodways are established in special flood hazard areas (SFHA) to transport the waters of a one hundred-year flood out of the community as quickly as possible. Encroachments on the floodway generally produce a rise in base flood elevations and contribute to other hydraulic problems. Accordingly, the city prohibits encroachments, including fill, new construction, parking, substantial improvements, and other development unless certification by a registered professional civil engineer is provided demonstrating through hydrologic and hydraulic analyses performed in accordance with standard engineering practice that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.*

B. If subsection A above is satisfied, all new construction and substantial improvements shall comply with all applicable flood hazard reduction provisions of this chapter.

Finding: Exhibits 2 & 5S, depict that the restoration area would be partially located within the floodway. As stated in the Army Corps of Engineers Approval, **Exhibit 7**, the project would restore 0.75 miles of South Scappoose Creek by laying back banks, constructing floodplain benches, and creating side channel reconnections to provide off-channel habitat for ESA-listed salmonids. The project would stabilize the banks at a 4:1 slope and plant to protect from future erosion. Approximately 58 cubic yards of large wood would be placed below the Ordinary High Water Mark (OHWM) of South Scappoose Creek within approximately 0.05 acre (136 linear feet), and approximately 33 cubic yards of large wood would be placed within approximately 0.05 acre of wetland as part of this project.

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Logs would be secured to each other using rebar pins and ballasted by embedding the stem portion of the rootwad into the bank. Live willow stakes would be incorporated vertically and any disturbed areas would be planted/seeded upon completion.

As previously stated, the consultants performed an extensive hydraulics analysis to model the effects of the creek restoration project (see **Exhibit 8**). This project will result in a net removal of approximately 6,200 cubic yards of material from within the floodplain and floodway and will not result in any increase in flood levels during the occurrence of the base flood discharge. Section 17.84.180 is satisfied.

17.84.200 Special regulations for development in the Scappoose Creek floodway fringe (Zones A, AE, and AO). A. Proposed development or substantial improvement in the Scappoose Creek floodway fringe shall conform with applicable general and specific standards in Section 17.84.140, and special standards in Zone AO (Sections 17.84.190 and 17.84.200).

Finding: This site is in Zone AE, which means that Base Flood Elevation is provided on FEMA's flood maps. The discussion above outlines how the project complies with the standards of Section 17.84.140. Section 17.84.200 is satisfied.

17.84.210 Storage, placement or stockpiling buoyant or hazardous materials in flood hazard areas (Zones A, AE, and AO).

A. The transportation of buoyant or hazardous materials (Note: see Section 17.84.015, Definitions) from rising floodwaters contributes to the community's flood hazard. Accordingly, a permit shall be obtained from the planning commission prior to storage, placement or stockpiling in a flood hazard zone (A, AE, AO). The application shall be processed according to Chapter 17.162.

1. In determining whether or not a permit will be granted to store, place or stockpile buoyant or hazardous materials in a flood hazard area, the planning commission shall consider the following:

- a. The nature of the materials (e.g., buoyancy, toxicity, flammability);*
- b. The danger that materials may be swept onto other properties or structures with resulting injury or damage;*
- c. The necessity of locating the materials on the particular site, especially in terms of public benefit;*
- d. The ability of emergency vehicles to reach the site in times of flooding;*
- e. The availability of alternative locations which are less susceptible to flooding;*
- f. The applicant's plan for hazard mitigation;*
- g. The requirements of development, including Section 17.84.200.*

B. The placement, storage or stockpiling of buoyant or hazardous materials in a floodway is prohibited unless it is associated with a short-term public works project. The planning commission must consider the flood potential and establish a time in which the materials must be removed.

Finding: The Conditions of Approval specify that Planning Commission approval would be required prior to placement of buoyant or hazardous materials in the floodplain. If the contractor wishes to perform such storage, it would need to apply for permission by the Planning Commission. Section 17.84.210 is satisfied.

17.84.230 Expiration of approval--Standards for extension of time. A. Approval of a development permit shall be void under any of the following circumstances:

1. Substantial construction of the approved plan has not been completed within a one-year period; or

2. Construction on the site is a departure from the approved plan; or

3. If the start of construction, repair, reconstruction, placement or other improvement is not within 180 days of the permit date (see "start of construction" under 17.84.015 Definitions).

B. The planner may, upon written request by the applicant, grant an extension of the start of construction for 180 days, provided that:

1. No changes are made on the original plan as approved by the approval authority;

2. The applicant can show intent of initiating construction of the site within the extension period; and

3. There have been no changes to the applicable comprehensive plan policies, provisions of this title, Flood Insurance Study, or FIRMS on which the approval was based.

C. Notice of the decision shall be provided to the applicant.

Finding: The Conditions of Approval specify the timelines for which the permit is valid. Section 17.84.230 is satisfied.

Chapter 17.89 SENSITIVE LANDS--FISH AND RIPARIAN CORRIDOR OVERLAY

17.89.030 Applicability of provisions. The sensitive lands - fish and riparian corridor overlay shall apply to the following riparian corridors as shown on the Scappoose Riparian Inventory dated December 1998 and adopted within the city comprehensive plan. The riparian corridor boundary is fifty feet from the top of the bank except as follows:

A. Where the riparian corridor includes all or portions of a significant wetland as identified in the Scappoose Riparian Inventory, the standard distance to the riparian corridor boundary shall be measured from, and include, the upland edge of the wetland; and

B. Except as provided for in subsection A of this section, the measurement of distance to the riparian corridor boundary shall be from the top of bank. The measurement shall be a slope distance. In areas where the top of each bank is not clearly defined, the riparian corridor boundary shall be measured from the ordinary high water level, or the line of nonaquatic vegetation, whichever is most landward.

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Finding: Scappoose Creek supports steelhead and salmon. The creek restoration project falls within 50 feet of the top of the bank of South Scappoose Creek. Therefore, the requirements of Chapter 17.89 apply to the project. Section 17.89.030 is satisfied.

17.89.040 Activities allowed within the fish and riparian corridor. A. The permanent alteration of the riparian corridor by grading or by the placement of structures or impervious surfaces is prohibited. However, certain activities may be allowed within the fifty-foot fish and riparian corridor boundary, provided that any intrusion into the riparian corridor is minimized, and no other options or locations are feasible. A sensitive lands development permit - fish and riparian corridor overlay is necessary to approve the following activities:

[...]

4. The expansion of existing, or creation of new bank stabilization and flood control structures, shall be evaluated by the director and appropriate state natural resource agency staff. Such alteration of the riparian corridor shall be approved only if less invasive or nonstructural methods will not adequately meet the stabilization or flood control needs. [...]

B. Removal of riparian vegetation is prohibited, except for:

1. Removal of non-native vegetation and replacement with native plant species. The replacement vegetation shall cover, at a minimum, the area from which vegetation was removed;

2. Removal of vegetation necessary for the development of approved water-related or water-dependent uses. Vegetation removal shall be kept to the minimum necessary to allow the water-dependent or water-related use; and

3. Trees in danger of falling and thereby posing a hazard to life or property may be felled, following consultation and approval from the community development director (director). The director may require these trees, once felled, to be left in place in the riparian corridor.

Finding: The proposed creek restoration project is a permitted use. A Sensitive Lands Development Permit is required prior to the start of the project. This project will remove invasive species along the project reaches, and will minimize all impacts to native vegetation. The project will avoid locations where stands of native, mature trees occur to the extent possible, and limit impacts to existing, functional riparian areas throughout the restoration site. Native trees, shrubs and forbs will be planted throughout the restored areas.

The proposal includes approximately 7200 native plants, to be planted throughout four planting zones, as described in attached Planting Plan Details. Plant species type and numbers are provided. (see **Exhibit 18**). Section 17.89.040 is satisfied.

17.89.090 Review standards. The following criteria shall be included in review of any application to which the fish and riparian corridor overlay is applicable:

South Scappoose Creek Restoration Project

- A. *In consultation with a representative of the Oregon Department of Fish and Wildlife, the planner shall identify which areas of the site are the most sensitive and susceptible to destruction, and which are the most significant;*
- B. *After consultation with a representative of the Oregon Department of Fish and Wildlife, the planner shall analyze what the effect of proposed development will have on the fish and wildlife, hydrology, water quality, and riparian functions; determine if there will be a significantly adverse impact on the fish and wildlife resource; and, if the fish and wildlife habitat will be adversely impacted, the planner shall investigate if other development proposals could protect the fish and riparian corridor and still reasonably allow permitted activities;*
- C. *The planner may condition the approval of an application to require protection of the habitat, or if the project is unable to mitigate habitat degradation, the planner may deny the application.*

Finding: The Scappoose Bay Watershed Council worked with the Oregon Department of Fish and Wildlife (ODFW) on this project. As discussed in **Exhibit 14**, the creek supports steelhead and salmon, which are classified as threatened under the Endangered Species Act. ODFW has analyzed the effects of the proposed creek restoration project and had the following comments:

- The sections of the creek most sensitive and susceptible to destruction, and the most significant, are those reaches in the upstream area of the project that will include connections to historical side-channel habitats. This is the area where the largest riparian exists and is also most significant. These are the areas where the greatest potential to benefit salmonids and other wildlife species.
- This project is going to greatly improve habitat for ESA-listed salmonids and resident fish and wildlife species. The hydrologic connectivity to off-channel habitats, along with water quality and riparian functions will be enhanced with the restoration project. No adverse effects to instream and riparian habitats, or water quality will occur.

The Oregon Department of State Lands and the US Army Corps of Engineers have both issued approvals (**Exhibits 6 and 7**) with various requirements for habitat protection. As shown on the plans (see **Exhibit 5**), the applicant will perform erosion and sedimentation control during the restoration project. Work within the stream itself is limited to the approved in-water work period, as stated in the US Army Corps of Engineers approval, which starts July 1st and ends September 15th. Section 17.89.090 is satisfied.

Chapter 17.162 PROCEDURES FOR DECISION MAKING--QUASI-JUDICIAL

17.162.090 Approval authority responsibilities.

A. The planner shall have the authority to approve, deny or approve with conditions the following applications:

[...]

7. Sensitive land permits (for applications not subject to planning commission approval) pursuant to Chapter 17.84, Chapter 17.85, Chapter 17.86, and Chapter 17.89; and [...]

South Scappoose Creek Restoration Project

[...]

Finding: The planner has the authority to review and approve these Sensitive Land Development Permits. Section 17.162.090 is satisfied.

DECISION

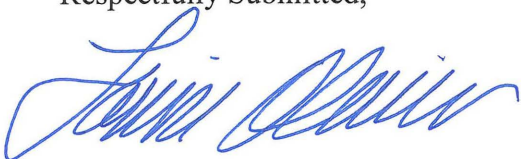
The City Planner, Public Works Director, and City Engineer have reviewed the documents submitted by the applicant. The requirements of the Scappoose Development Code are satisfied by this application. Based on the Findings of Fact, the conclusionary findings for approval, and the materials submitted by the applicant, the proposed Sensitive Lands Development Permits SLDP2-18 and SLDP3-18 are APPROVED, subject to the following Conditions of Approval:

1. In accordance with Scappoose Municipal Code Section 17.84.230, construction shall commence within 180 days of the permit date and shall be substantially complete within one year.
2. Placement of equipment in the floodway shall be restricted to only that equipment which is absolutely necessary for the purposes of the project, as approved by the City Engineer. All other accessory equipment and temporary structures shall be prohibited from the floodway.
3. The applicant shall stake off the wetland boundary (including a 25-foot wetland buffer) and the 100 year floodplain boundary on the Buxton property prior to stockpiling soil and shall ensure that no fill is placed in the wetland, wetland buffer, or 100 year floodplain and shall be included in the 1200C permit.
4. No storage, placement or stockpiling of buoyant or hazardous materials shall be allowed in the floodway or floodplain without prior approval by the Planning Commission.
5. The applicant shall ensure that the restoration project is compliant with all federal, state and local permit approvals.

APPEAL RIGHTS

This decision represents an administrative approval by the City Planner that may be appealed by a person entitled to notice (a surrounding property owner located within 300 feet of the subject site) or a person who demonstrates that he or she is adversely affected or aggrieved by the decision. All related materials are available for review at the Scappoose Community Development Center at 52610 NE 1st Street, Scappoose, OR 97056. Please call (503) 543-7184 to schedule an appointment during office hours (8:00 AM – 5:00 PM). **An appeal of an administrative decision must be filed on forms available at the Community Development Center, 52610 NE 1st Street, Scappoose, OR 97056, including the accompanying \$250 fee, by 5 pm Friday, June 8, 2018.** Any subsequent hearing on an appeal will be confined to information provided within the prior record. If not appealed, the decision of the City Planner is final.

Respectfully Submitted,



South Scappoose Creek Restoration Project SLDP2-18 & SLDP3-18 Vicinity Map

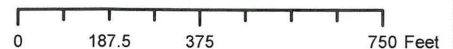
Columbia County Assessor's Map Numbers 3212-CB-00401, 3212-CB-00100, 3212-CB-00200, 3212-CB-03200, and 3212-CB-03101



Scappoose GIS

Legend

-  Streets
-  Taxlots Boundary



National Flood Hazard Layer FIRMette



Exhibit 2

45°45'41.31"N

122°53'17.92"W



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway Zone AE, AO, AH, VE, AR
		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
OTHER AREAS OF FLOOD HAZARD		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		Area of Minimal Flood Hazard Zone X
		Effective LOMRS
GENERAL STRUCTURES		Area of Undetermined Flood Hazard Zone D
		Channel, Culvert, or Storm Sewer
OTHER FEATURES		Levee, Dike, or Floodwall
		Cross Sections with 1% Annual Chance Water Surface Elevation
OTHER FEATURES		Coastal Transect
		Base Flood Elevation Line (BFE)
OTHER FEATURES		Limit of Study
		Jurisdiction Boundary
OTHER FEATURES		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Hydrographic Feature
		Digital Data Available
MAP PANELS		No Digital Data Available
		Unmapped



This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The base map shown complies with FEMA's base map accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **5/24/2018 at 7:26:08 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: base map imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

122°53'40.48"W



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

SLDP08/SLDP3-18 South Scappoose Creek Restoration Project

Sensitive Lands Development Application – City of Scappoose

South Scappoose Restoration Plan – Narrative to support plan design as it supports the standards. March 1, 2018.

Reference: Chapter 17.89, City of Scappoose Municipal Code

Legal Descriptions (from County Assessor):

COLUMBIA County Assessor's Summary Report			
Real Property Assessment Report			
FOR ASSESSMENT YEAR 2017			
February 26, 2018 10:13:07 am			
Account #	28546	Tax Status	NONASSESSABLE
Map #	3N2W12-BC-00100	Acct Status	ACTIVE
Code - Tax #	0101-28546	Subtype	NORMAL
Legal Descr	A HOLIDAY ORCHARD TRACTS Lot - "TRS 2,6,7,8, PT TRS 1,3,4,5"		
Mailing Name	CITY OF SCAPPOOSE	Deed Reference #	2003-608 (SOURCE ID(T): F03 00608)
Agent		Sales Date/Price	06-15-2003 / \$650,000.00
In Care Of		Appraiser	JOELLE LEACH
Mailing Address	33568 E COLUMBIA AVE SCAPPOOSE, OR 97056		
Prop Class	941	MA SA NH	Unit
RMV Class	101	02 00	000 49577-1

COLUMBIA County Assessor's Summary Report			
Real Property Assessment Report			
FOR ASSESSMENT YEAR 2017			
February 26, 2018 10:14:16 am			
Account #	3789	Tax Status	ASSESSABLE
Map #	3N2W12-CB-00401	Acct Status	ACTIVE
Code - Tax #	0101-3789	Subtype	NORMAL
Legal Descr	See Record		
Mailing Name	BUXTON FAMILY INVESTMENTS LLC	Deed Reference #	2014-737
Agent		Sales Date/Price	01-16-2014 / \$7,000.00
In Care Of		Appraiser	MIKE SIMPSON
Mailing Address	P O BOX 503069 WHITE CITY, OR 97503		
Prop Class	100	MA SA NH	Unit
RMV Class	100	02 00	000 2259-1

Project Summary

South Scappoose Creek through the City of Scappoose has been significantly impacted by channel incision and is similar to much of lower South Scappoose Creek. The incision has reduced the frequency of flows accessing the floodplain and increased shear stress on the channel bed and banks. This, in turn, has led to moderate to high levels of bank instability as the channel tries to adjust to the added energy. Localized channel armoring at bridges, both upstream and downstream of the project area appears to have arrested the upstream migration of historic head cuts and created backwater conditions upstream of the bridges. Consequently, further incision of the stream within this project area is unlikely. Instead the channel appears to be going through a widening phase to force the creation of an inset floodplain.

The desired outcome of this project is to increase floodplain interaction, stabilize the banks either actively through bioengineering methods or passively by creating conditions that support native riparian vegetation, and enhancing the existing riparian corridor. Because this reach is within the City of Scappoose, the design needs to meet these goals without increasing flood water surface elevation. Therefore, the proposed restoration approach for this project involves a combination of creating inset floodplains, reconnecting abandoned off-channel areas, and laying back the steep banks to allow for vegetation establishment. In addition, a robust revegetation plan is being proposed to establish a native riparian buffer along the left bank

of the channel ranging from 10 to 150 feet. The project site is located on two parcels within the City of Scappoose (Figure 1).

General Site Description

The contributing drainage area to South Scappoose Creek at the downstream end of the project area is approximately 25 square miles. Management Zone G extends from the northern edge of Veteran's Park to the north of the JP West Road bridge (Figure 2). This reach is also characterized by a highly incised, slightly sinuous channel with moderately unstable banks and two areas of active bank erosion. The right bank floodplain includes pastures/meadows separating medium density residential housing from the channel. A moderate number of mature trees grow along the right bank with only one remaining mature tree growing along the left bank. The left bank floodplain is entirely within Veteran's Park. A small tributary enters into South Scappoose Creek at the northern edge of the park. Substantial incision and active channel/bank erosion of this tributary is evident to approximately 100 feet from the confluence. Just to the north of JP West road along the right and left banks, berms parallel to the bank separate the channel from slight depressional areas.

Management Zone H is located between the JP West bridge to the north and extends south to approximately halfway between JP West Road and EM Watts Road (Figure 3). The stream channel within this reach is more sinuous with moderate bank instability along the left bank and mild to moderate bank instability along the right bank. Residential properties extend up to the edge of the channel along the right bank while the left bank is pasture land out to the edge of the 100-year floodplain with fewer mature trees. In addition to having relatively several contiguous patches of riparian vegetation, the left floodplain also contains multiple depressions which are remnant channels that are only inundated during higher flow events. At the southern edge of this reach, a small intermittent tributary enters one of these depressions creating a seasonal wetland dominated by large Oregon ash trees. There are also several areas of active erosion occurring along the left bank which have been exacerbated by cattle accessing the stream.

Also see Vicinity Map and Site Plans.

Standard 17.89.040 – Allowed Activities; Section A.4: expansion of existing or creation of new bank stabilization...

The project will excavate and lay back bank slopes along approximately 2,400 feet of bank (see Sheets C3 through C7 in plans). The only areas not proposed for bank layback are locations where stands of native, mature trees already occur, which the project will avoid, limiting impacts to existing riparian areas. The slopes will be cut back to a 4H:1V (see Sheet C8 for typical bank layback detail in Plans). Laying back the bank provides benefit in the short term by minimizing active bank erosion while providing more channel capacity during high flow events. Long-term benefits include the ability for plants to establish on the bank, thereby creating aquatic habitat improvement from additional shade, improved inputs of large wood, and long-term bank stabilization. Because the bank lay back does not also include active efforts to stabilize the toe, there may be additional bank erosion that occurs, especially for the first couple of years following construction until vegetation establishes.

These activities are being reviewed by required state and federal agencies; permits and plans have been submitted to the USACE and OR DSL, as well as BPA (funding agency), and approval is pending.

Standard 17.89.040 – Allowed Activities; Section B.1-3: Removal of riparian vegetation...

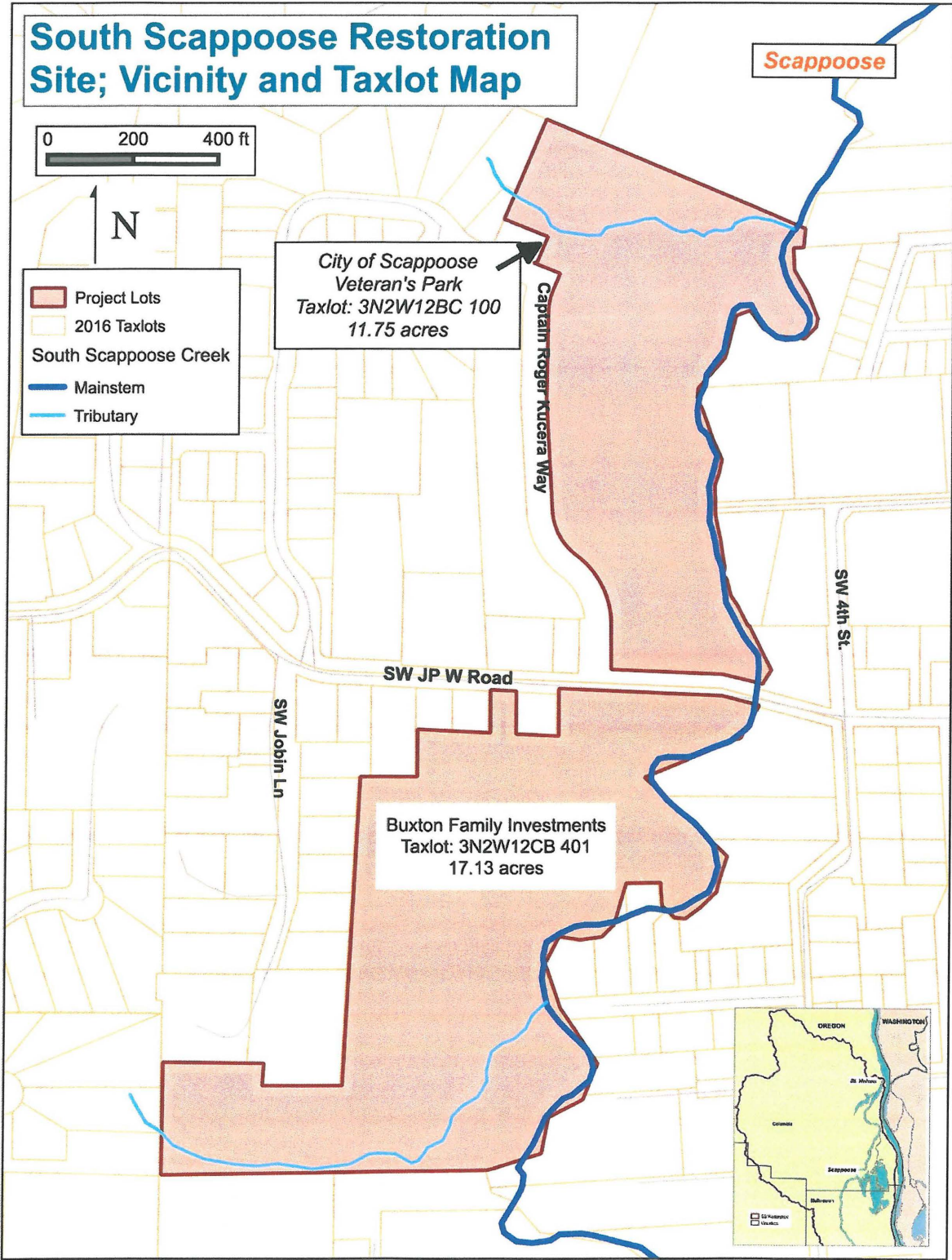
This project will remove invasive species along the project reaches (see Vicinity Map and Plan), and will minimize all impacts to native vegetation. The project will avoid locations where stands of native, mature trees occur to the extent possible, and limit impacts to existing, functional riparian areas throughout the restoration site. Native trees, shrubs and forbs will be planted throughout the restored areas, to a width varying from 5 to 150 feet over the length of the two reaches (see Sheet 12 of the Plans).

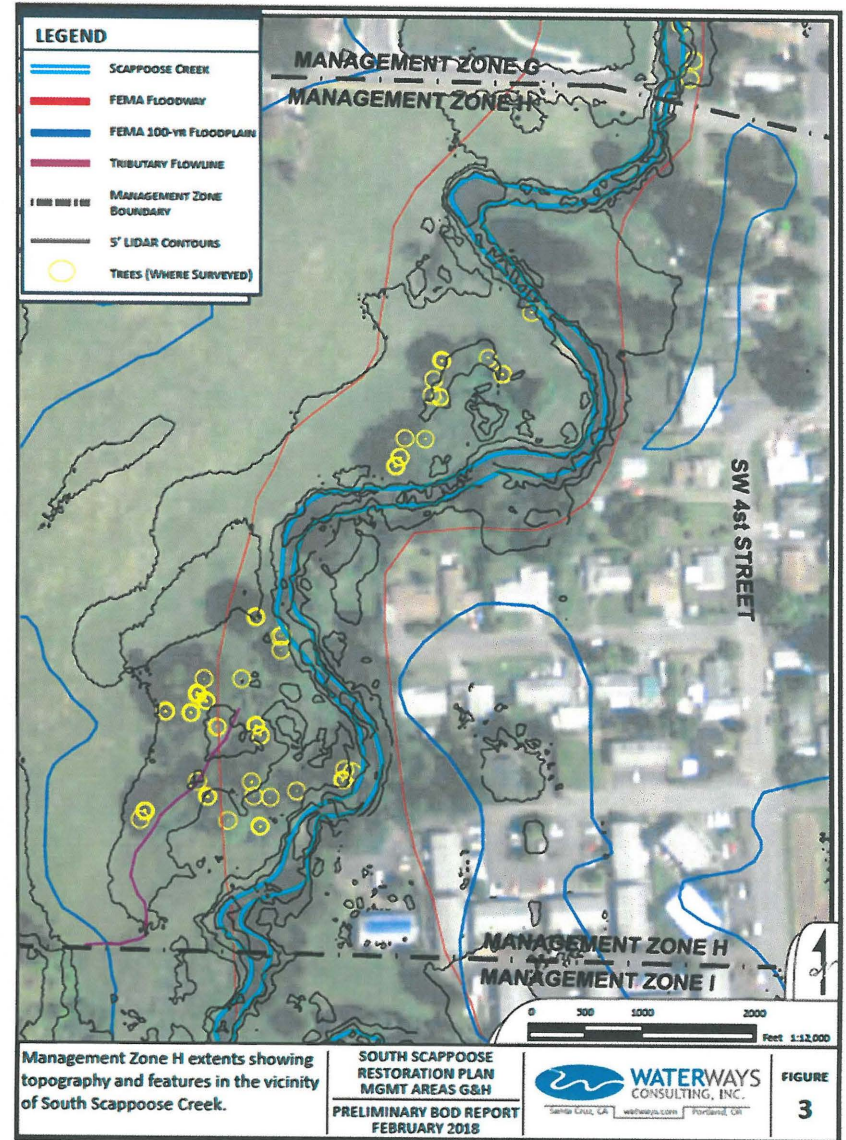
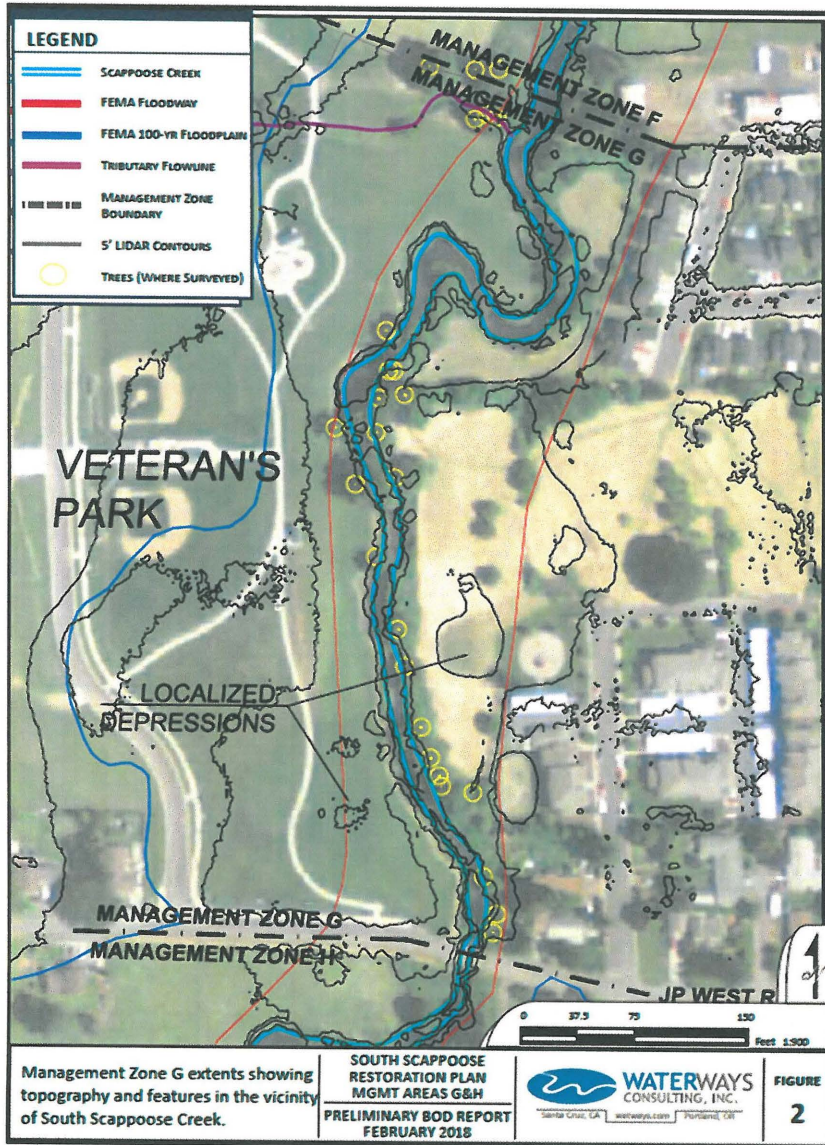
The proposal includes approximately 7200 native plants, to be planted throughout four planting zones, as described in attached Planting Plan Details. Plant species type and numbers are provided.

Standard 17.89.070 – Administration and approval.

The following permits / reviews have been submitted (or completed):

- Joint Permit Application – USACE / OR DSL; submitted (2/20/18), pending review
- ODFW (included in JPA)
- Section 106 and CFR Part 800 Review (complete); see attached DOE Letter
- BPA HIP III Basis of Design; submitted 2/06/18; comments received and under review
- DEQ 1200C; in preparation





CITY OF SCAPPOOSE

Planning Department
 52610 NE 1st Street, Suite 120
 Mailing address: 33568 E. Columbia Avenue, Scappoose, OR 97056
 Phone: (503) 543-7184 fax: (503) 543-5679

CHECK THE TYPE OF APPLICATION YOU ARE APPLYING FOR:			
Development Code/ Comprehensive Plan Text Amendment		Variance (Major or Minor)	
Comprehensive Plan Map Amendment		Sign Permit	
Zone Change		Temporary Commercial Use	
Annexation		Vacation (Street or Easement)	
Subdivision		Public Land Tree Removal	
Partition (Major or Minor)		Type II Home Occupation	
Property Line Adjustment		Determination of Similar Use	
Sensitive Lands Development Permit	X	Modification to Previous Approval	
Site Development Review		Pre-Application Conference	
Conditional Use			

Requirements for each specific type of application will be attached to this form and constitute part of the application packet.

Applicant: Scappoose Bay Watershed Council

Property Owner: City of Scappoose / Buxton Family Investments

Mailing Address: 57420-2 Old Portland Rd

Mailing Address: 33568 E. Columbia Ave, Scappoose OR 97056

PO Box 503069, White City, OR 97503

City Warren State OR Zip 97053

City _____ State _____ Zip _____

Phone: 503-397-7904 Fax: _____

Phone: 503-543-7146 / 541-930-1333
Fax: _____

Email: pat@scappoosebay-wc.org

Email: msykes@cityofscappoose.org / chip.buxton@gmail.com

Property Address or Location: 3N2W12BC 100 / 3N2W12CB 401 SW JP West Road, Scappoose

Columbia County Tax Account Number: 28546 / 3789

A Legal Description of the Property must be attached.

A pre-application conference may be required depending on the type of application. Confirm with City Planner.

I certify that this application and its related documents are accurate to the best of my knowledge. I understand that the signature on this application authorizes the City and its agents to enter upon the subject property to gather information pertinent to this request.

Pat Welle

[Signature]

Signature of Applicant (required)

Signature of Property Owner (required)

To be completed by City Staff:

Date application was submitted: _____ Amount of Fee paid: _____ Receipt Number: _____

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R:\PLANNING\FORMS\APPLICATION FOR LAND USE APPROVAL\UPDATING2.DOC

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Pat Wells
 Signature of Applicant (required)

[Signature]
 Signature of Property Owner (required)

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Pat Wells

Roman A. Hirsch

Signature of Applicant (required)

Signature of Property Owner (required)

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Pat Wells

Shirley Fishbaugh

Signature of Applicant (required)

Signature of Property Owner (required)

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Pat Wells
 Signature of Applicant (required)

Michael Hill
 Signature of Property Owner (required)

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

**PRELIMINARY
 NOT FOR CONSTRUCTION**

PREPARED AT THE REQUEST OF:
**SCAPPOOSE BAY
 WATERSHED COUNCIL**

**PROJECT
 OVERVIEW**

**SOUTH SCAPPOOSE CREEK
 RESTORATION -
 MANAGEMENT ZONES
 G AND H
 100% DESIGN**

DESIGNED BY: J.H.
 DRAWN BY: D.H.
 CHECKED BY: M.W.W.
 DATE: 4/19/18
 JOB NO.: 12-030A

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

C2 2 OF 19

PROJECT OVERVIEW
 SCALE: 1" = 100'

LEGEND

- EXISTING FLOW LINE
- CONTROL POINT
- EXISTING WETLAND AREA

CONTROL POINTS

POINT	NORTHING	EASTING	ELEV.	DESC.
1	771964.50	7593944.86	47.42	REBAR
2	771015.50	7593775.93	50.97	MAG NAIL
3	770989.87	7593949.50	54.46	MAG NAIL
4	771899.85	7593730.41	53.25	REBAR
5	770701.51	7593359.71	53.44	MANHOLE

PRELIMINARY
NOT FOR CONSTRUCTION

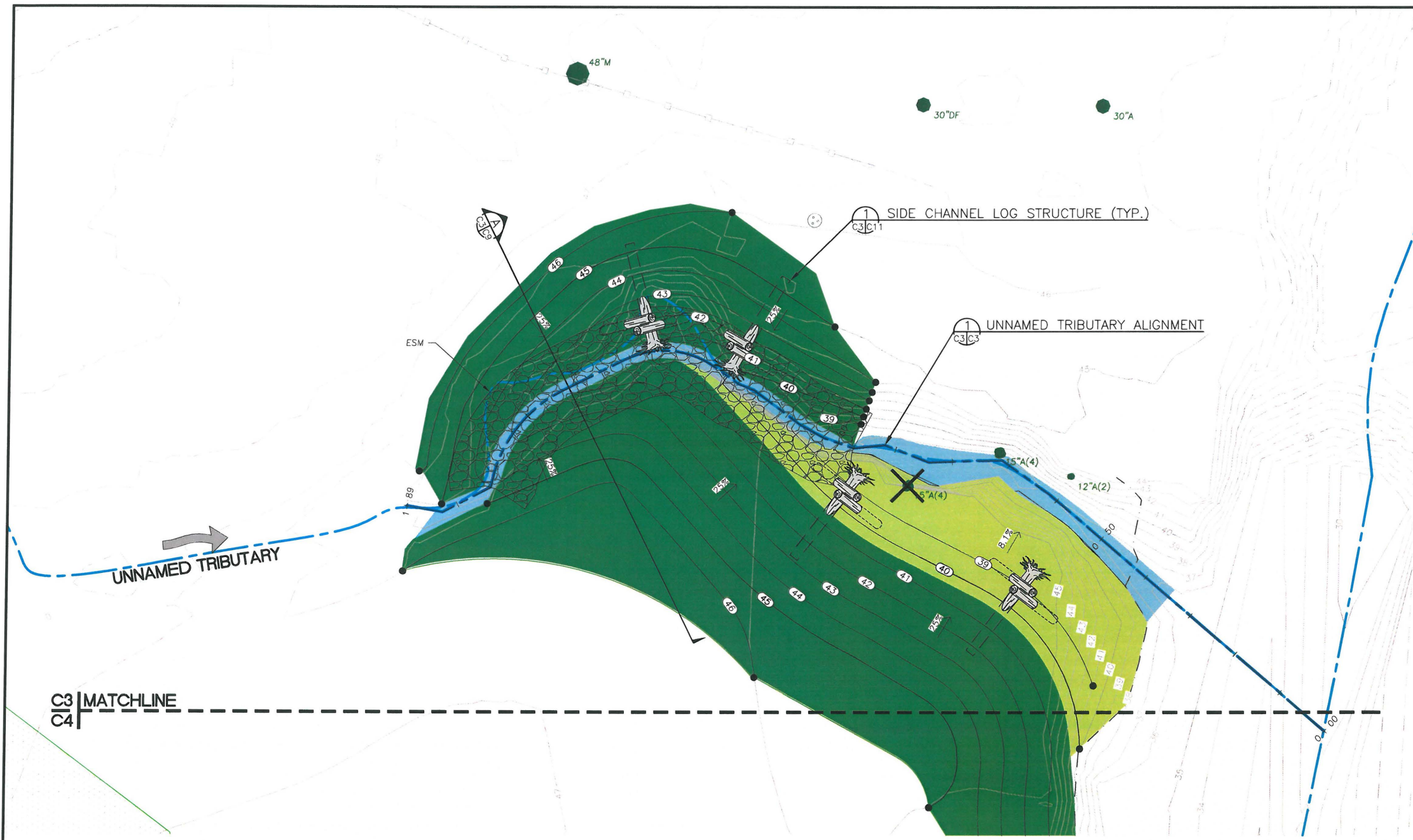
PREPARED AT THE REQUEST OF:
SCAPPOOSE BAY
WATERSHED COUNCIL

UNNAMED TRIBUTARY
 GRADING PLAN
 AND PROFILE

SOUTH SCAPPOOSE CREEK
 RESTORATION -
 MANAGEMENT ZONES
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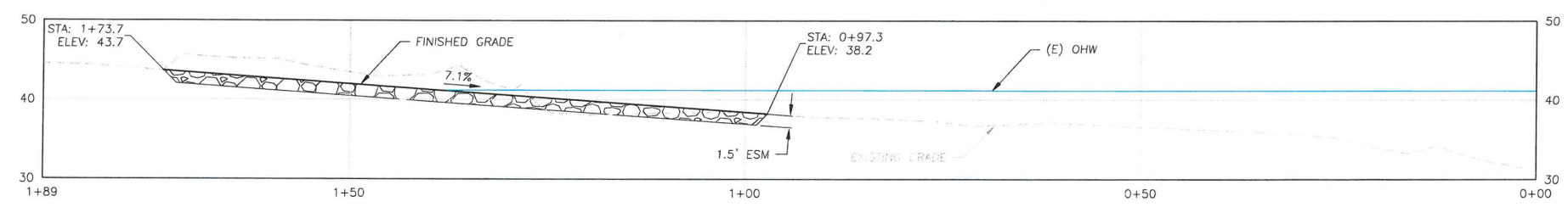
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LEGEND

	(E) GROUND & BATHY SURVEY CONTOURS
	(E) LIDAR CONTOURS
	(N) CONTOURS
	(E) FLOW LINE
	(E) FENCE
	LIMITS OF CONSTRUCTION
	(E) TREE (SIZE AND TYPE)
	(N) CHANNEL BOTTOM
	(N) BANK LAY-BACK
	(E) WETLAND
	(N) LOG STRUCTURE
	(N) FLOODPLAIN BENCH
	(E) MANHOLE
	(N) ESM
	REMOVE (E) TREE

UNNAMED TRIBUTARY GRADING PLAN
 SCALE: 1" = 10'



UNNAMED TRIBUTARY PROFILE
 SCALE: 1" = 10'



LEGEND

	(E) GROUND & BATHY SURVEY CONTOURS
	(E) LIDAR CONTOURS
	(N) CONTOURS
	(E) FLOW LINE
	(E) FENCE
	LIMITS OF CONSTRUCTION
	(E) TREE (SIZE AND TYPE)
	(E) CONCRETE
	(N) BANK LAY-BACK
	(E) WETLAND
	(N) LOG STRUCTURE
	(N) FLOODPLAIN BENCH

GRADING PLAN
SCALE: 1" = 20'

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 360
PORTLAND, OR 97205
PH: (503) 222-5979 / FAX: (503) 222-6847
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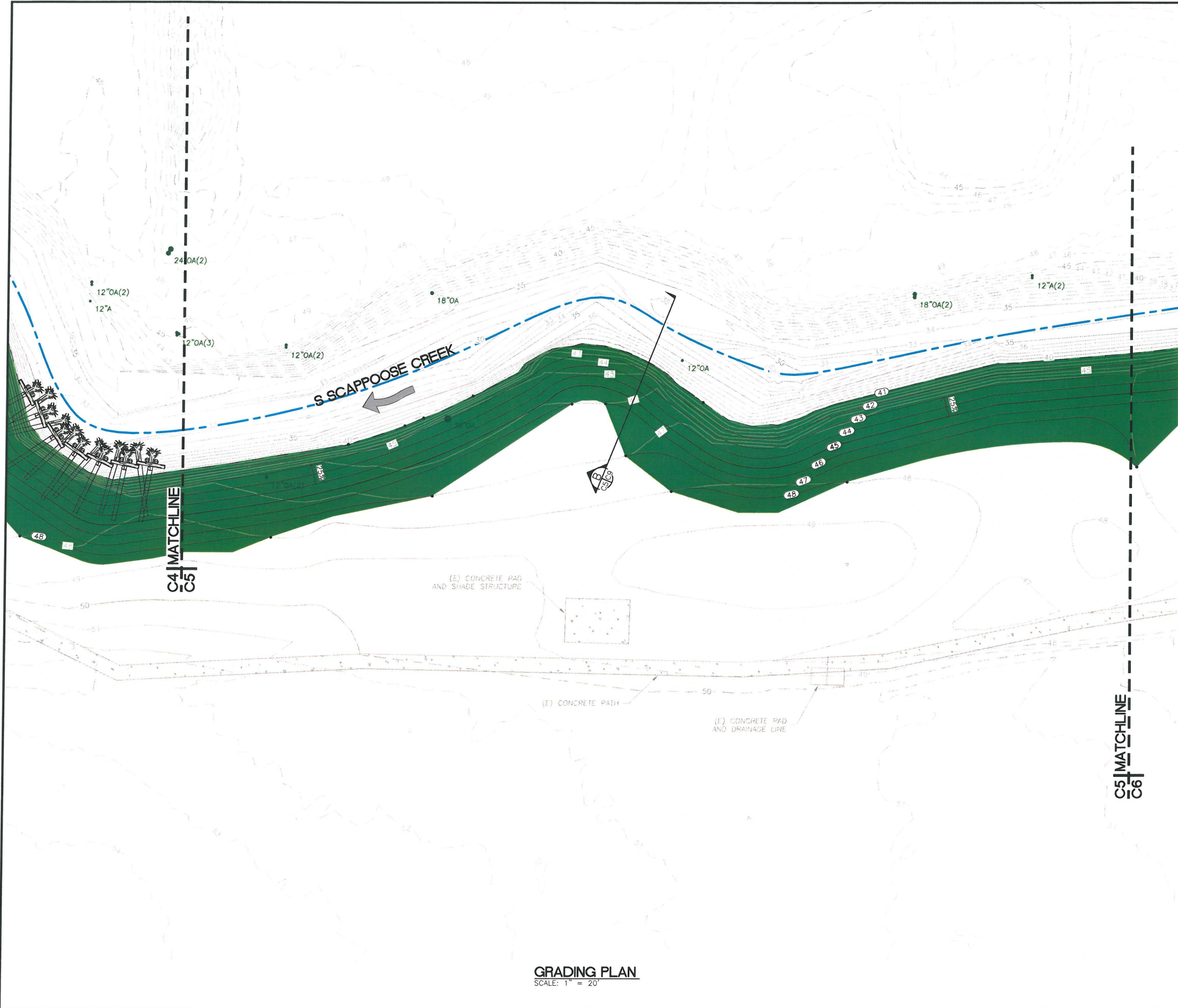
GRADING PLAN

SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H
100% DESIGN

DESIGNED BY: J.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

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

C4 4 OF 19



LEGEND

- (E) GROUND & BATHY SURVEY CONTOURS
- (E) LIDAR CONTOURS
- (N) CONTOURS
- (E) FLOW LINE
- (E) FENCE
- LIMITS OF CONSTRUCTION
- (E) TREE (SIZE AND TYPE)
- (E) CONCRETE
- (N) BANK LAY-BACK

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GRADING PLAN

SOUTH SCAPPOOSE CREEK
RESTORATION -
MANAGEMENT ZONES
G AND H
100% DESIGN

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

0 5 1"
C5 OF 19

GRADING PLAN
 SCALE: 1" = 20'



LEGEND

- (E) GROUND & BATHY SURVEY CONTOURS
- (E) LIDAR CONTOURS
- (N) CONTOURS
- (E) FLOW LINE
- (E) FENCE
- LIMITS OF CONSTRUCTION
- (E) TREE (SIZE AND TYPE)
- (E) CONCRETE
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- (E) WETLAND

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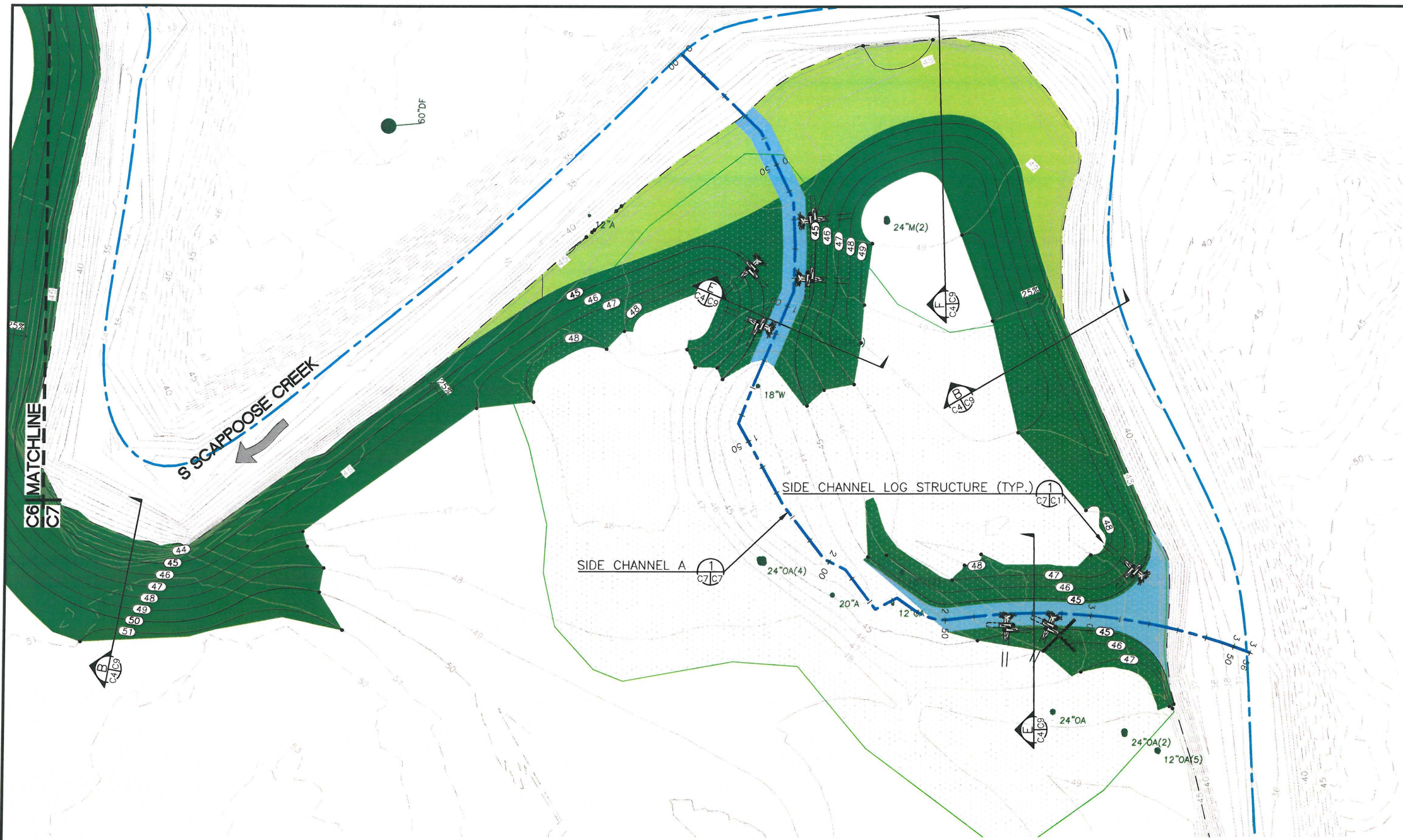
GRADING PLAN

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RESTORATION -
MANAGEMENT ZONES
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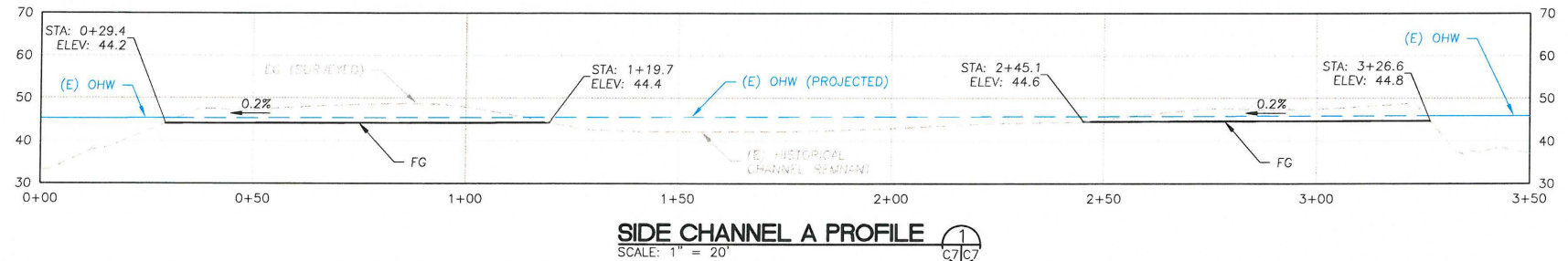
C6 6 OF 19



LEGEND

	(E) SURVEY CONTOURS
	(E) LIDAR CONTOURS
	(N) CONTOURS
	(E) FLOW LINE
	(E) FENCE
	LIMITS OF CONSTRUCTION
	(E) TREE (SIZE AND TYPE)
	(N) SIDE CHANNEL
	(N) CHANNEL BOTTOM
	(N) BANK LAY-BACK
	(E) WETLAND
	(N) SIDE CHANNEL LOG STRUCTURE
	(N) FLOODPLAIN BENCH
	REMOVE (E) TREE

GRADING PLAN
SCALE: 1" = 20'



SIDE CHANNEL A PROFILE
SCALE: 1" = 20'

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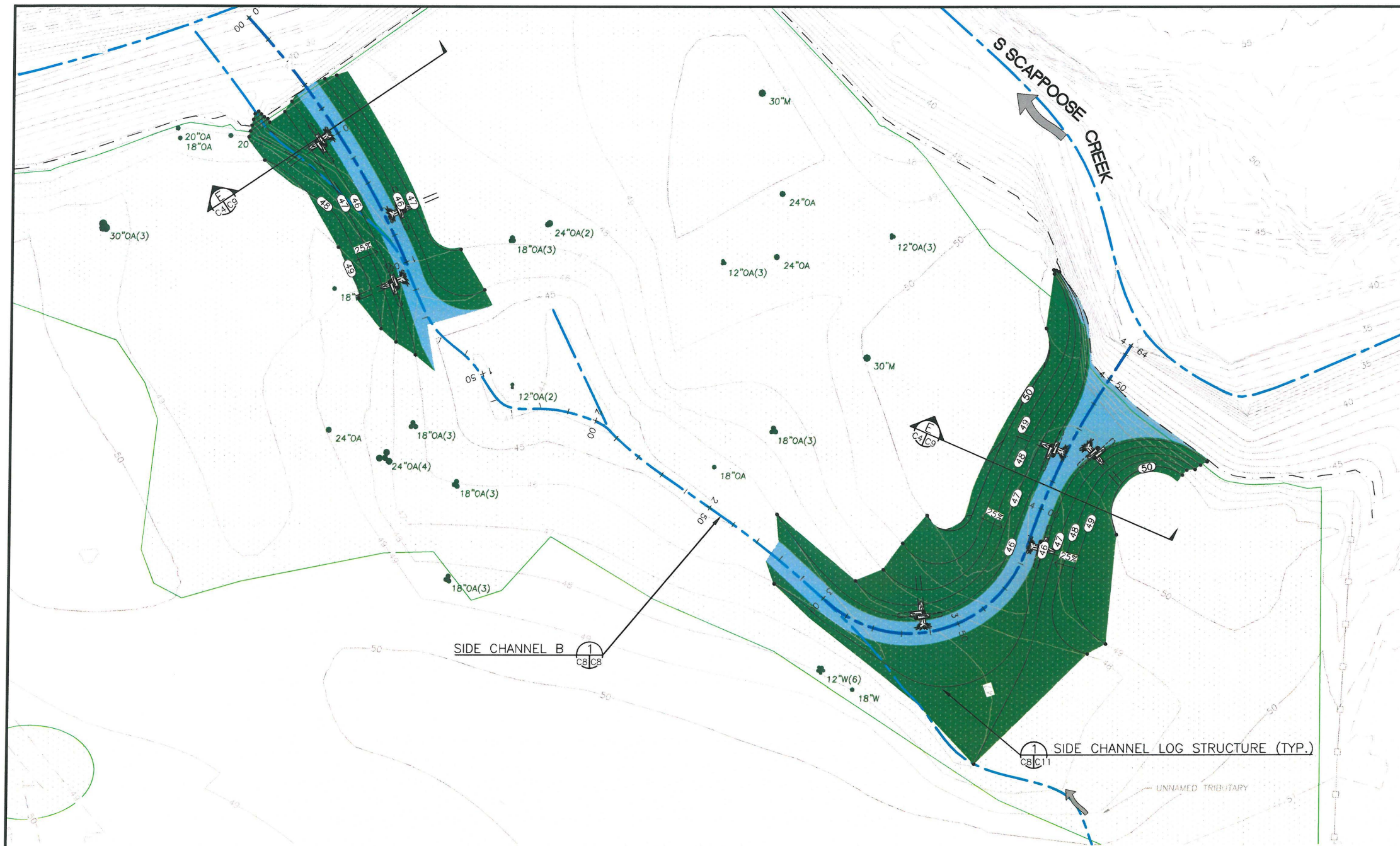
GRADING PLAN

SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H
100% DESIGN

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DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

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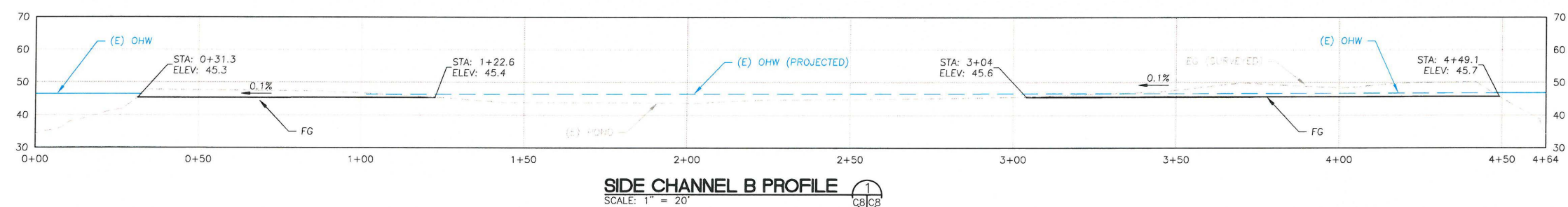
C7
7 OF 19



LEGEND

- (E) SURVEY CONTOURS
- (E) LIDAR CONTOURS
- (N) CONTOURS
- (E) FLOW LINE
- (E) FENCE
- LIMITS OF CONSTRUCTION
- (E) TREE (SIZE AND TYPE)
- (N) SIDE CHANNEL
- (N) CHANNEL BOTTOM
- (N) BANK LAY-BACK
- (E) WETLAND
- (N) SIDE CHANNEL LOG STRUCTURE

GRADING PLAN
SCALE: 1" = 20'



SIDE CHANNEL B PROFILE
SCALE: 1" = 20'

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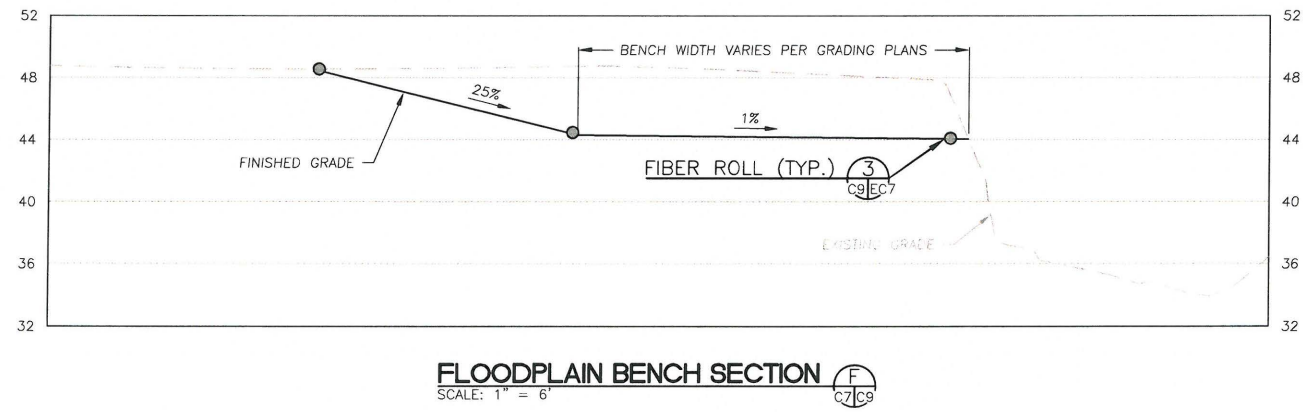
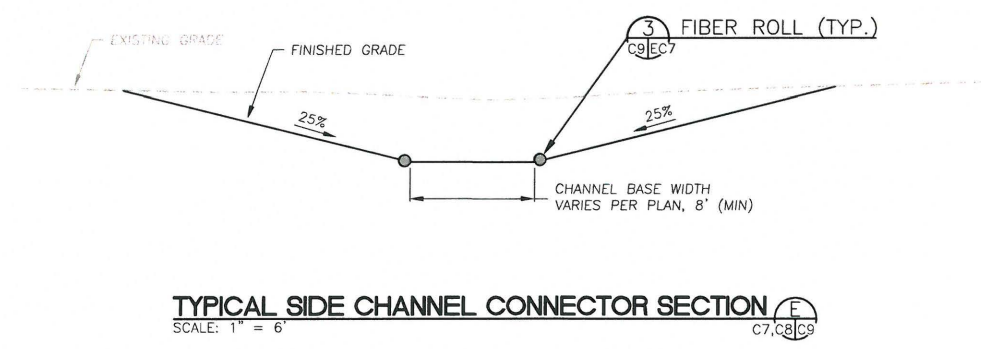
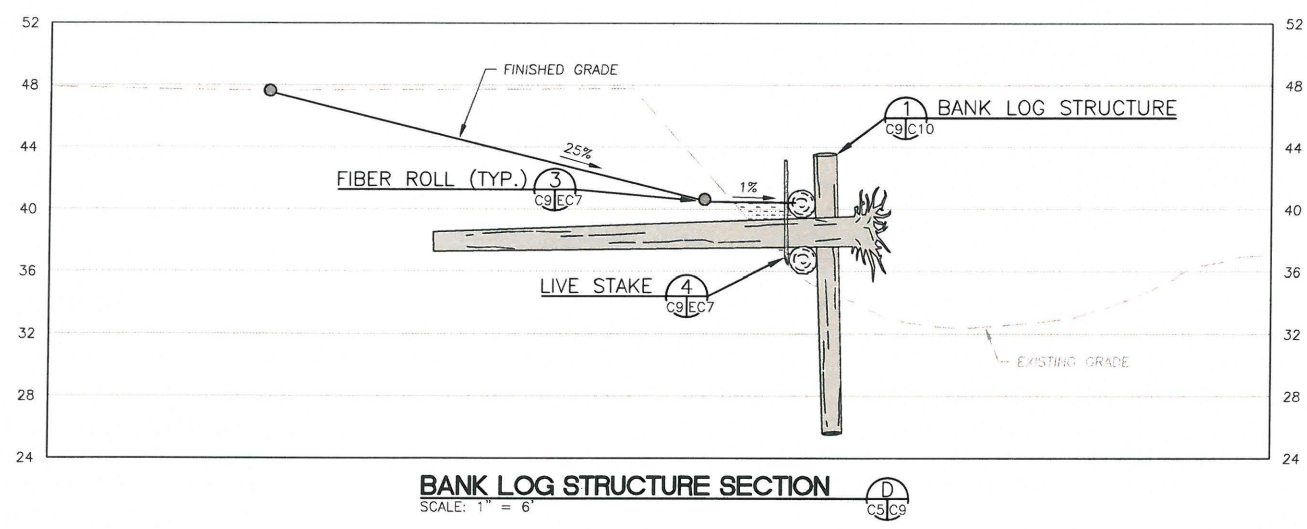
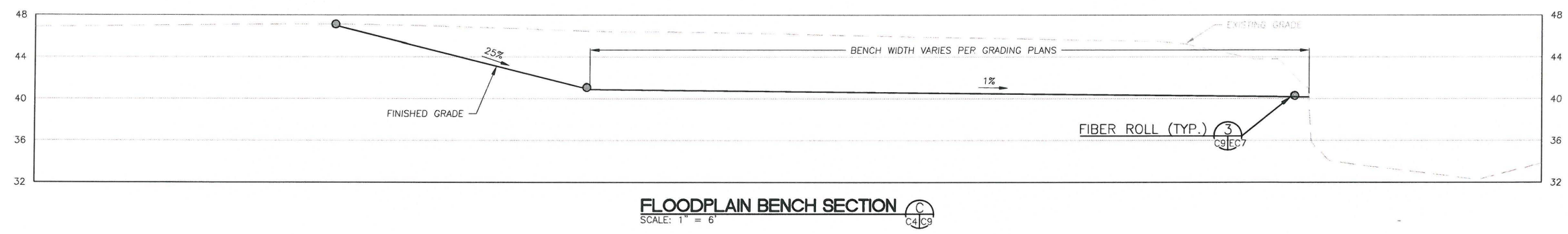
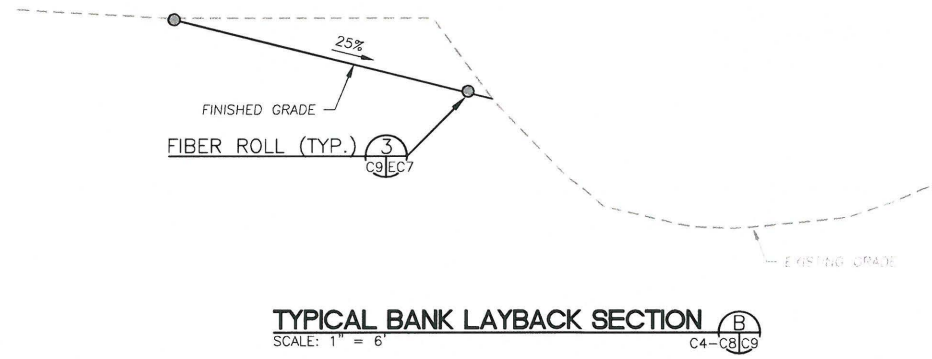
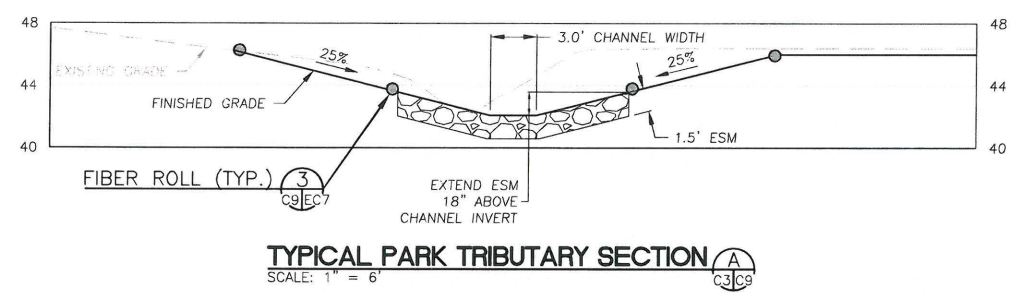
PREPARED AT THE REQUEST OF:
SCAPPOOSE BAY
WATERSHED COUNCIL

GRADING PLAN

SOUTH SCAPPOOSE CREEK
RESTORATION -
MANAGEMENT ZONES
G AND H
100% DESIGN

DESIGNED BY: J.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

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



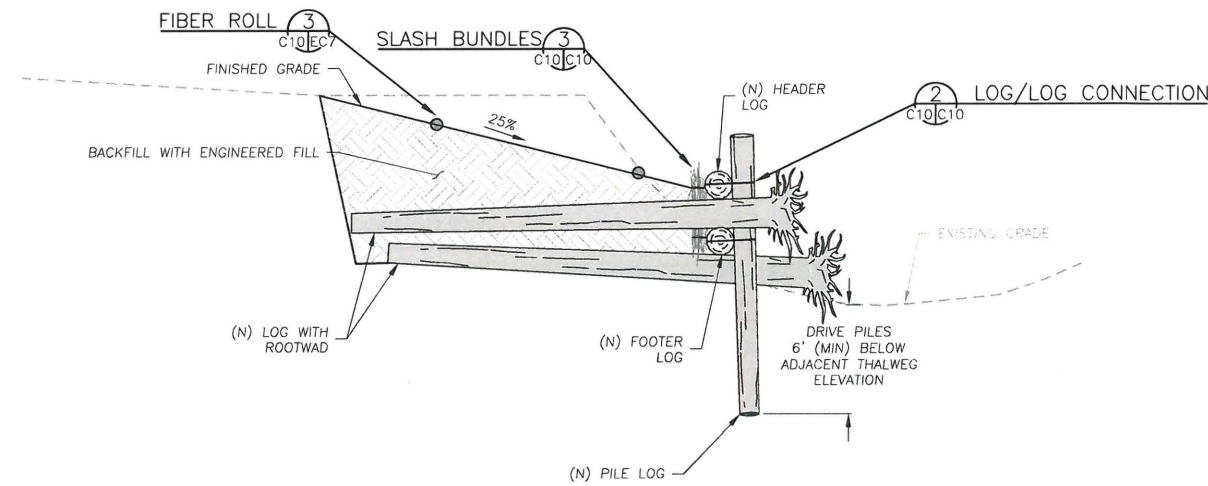
- NOTES:**
- INSTALL TURBIDITY CONTROL BMP'S (SEDIMENT FENCE OR TURBIDITY CURTAIN) AT DIRECTION OF THE ENGINEER FOR EXCAVATION AREAS ADJACENT TO FLOWING CHANNEL TO PREVENT SEDIMENT FROM ENTERING THE WATERWAY.
 - SEED AN MULCH ALL EXPOSED SOILS IMMEDIATELY FOLLOWING EXCAVATION.

BANK LOG STRUCTURE NOTES

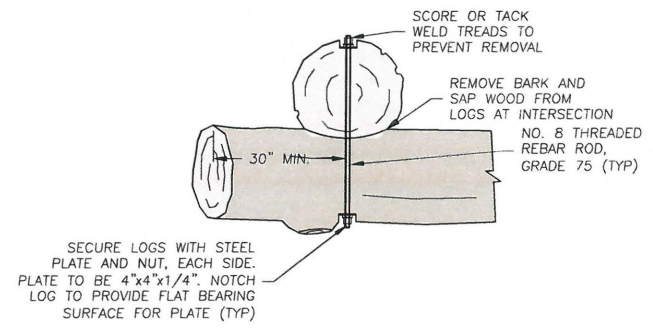
1. **PLACEMENT LOCATIONS:** LOG STRUCTURE LOCATIONS AND DESIGNS ARE SHOWN CONCEPTUALLY DUE TO THE INHERENT VARIABILITY OF THE MATERIAL PROPERTIES. THE DESIGN REQUIRES THAT THE ENGINEER WILL OBSERVE CONSTRUCTION OF THE LOG STRUCTURES TO ENSURE THE INTENT OF THE DESIGN IS MET. OBSERVATIONS MUST INCLUDE LOG AND BOULDER SELECTION, PLACEMENT, AND BACKFILLING. ANY LOG STRUCTURES CONSTRUCTED WITHOUT THE ENGINEER PRESENT ON-SITE MAY RESULT IN REJECTION OF THE WORK BY THE ENGINEER.

2. **LOGS:** LOGS SHALL BE DOUGLAS FIR OR HEMLOCK, SOUND AND FREE OF SIGNIFICANT DECAY. MATERIALS FOR USE IN THE STRUCTURES SHALL MEET THE FOLLOWING SIZE CRITERIA:

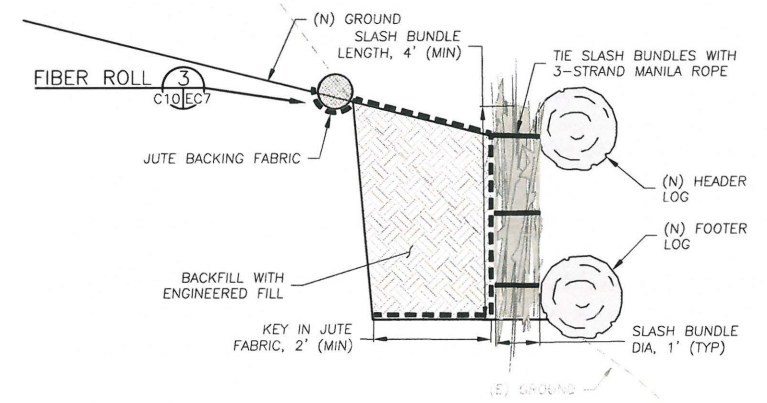
ITEM	DIAMETER	LENGTH	TOTAL COUNT
LOG WITH ROOTWAD	18"-24" (MIN. 18" AT ANY POINT)	25'-30'	13
PILE LOGS	12"-18" (MIN. 12" AT ANY POINT)	20'-25'	14
HEADER/FOOTER LOGS	12"-18" (MIN. 12" AT ANY POINT)	8'-10'	14
LOG/LOG CONNECTIONS			28



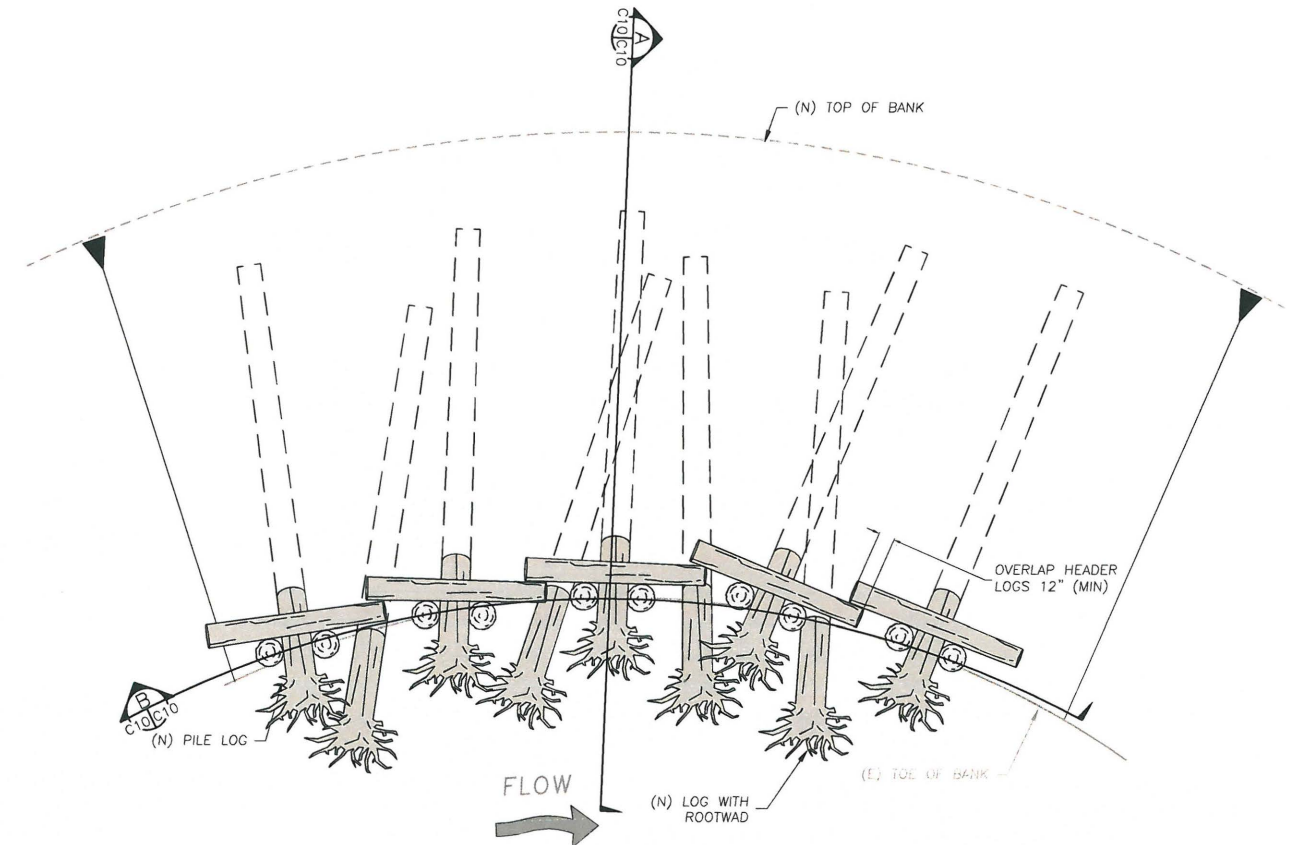
TYPICAL BANK LOG STRUCTURE SECTION
SCALE: 1" = 6'



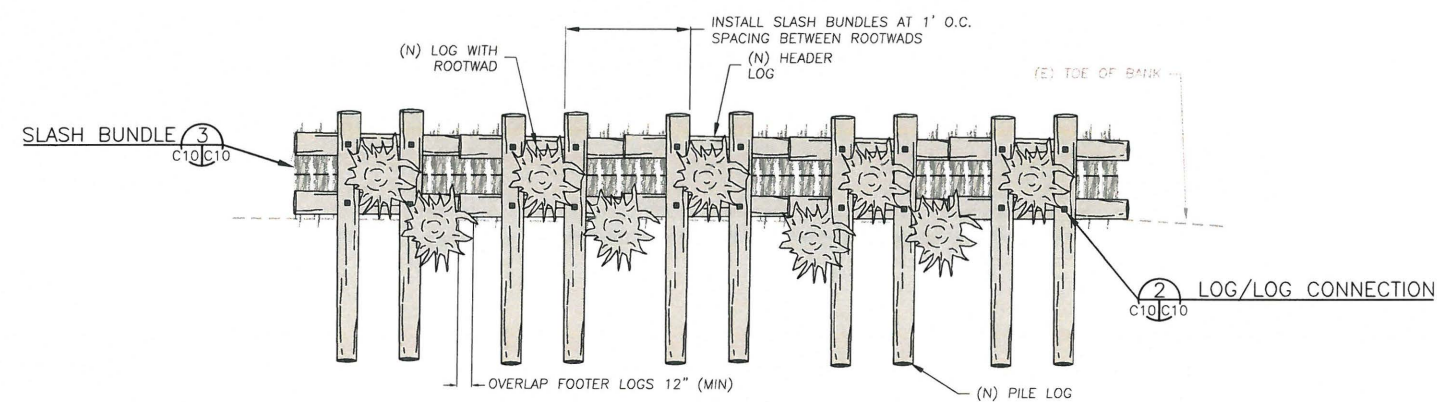
LOG/LOG CONNECTION
SCALE: 1" = 2'



SLASH BUNDLES
SCALE: 1" = 6'



BANK LOG STRUCTURE DETAIL
SCALE: 1" = 6'



TYPICAL BANK LOG STRUCTURE PROFILE
SCALE: 1" = 6'

WATERWAYS CONSULTING INC.
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PORTLAND, OR 97205
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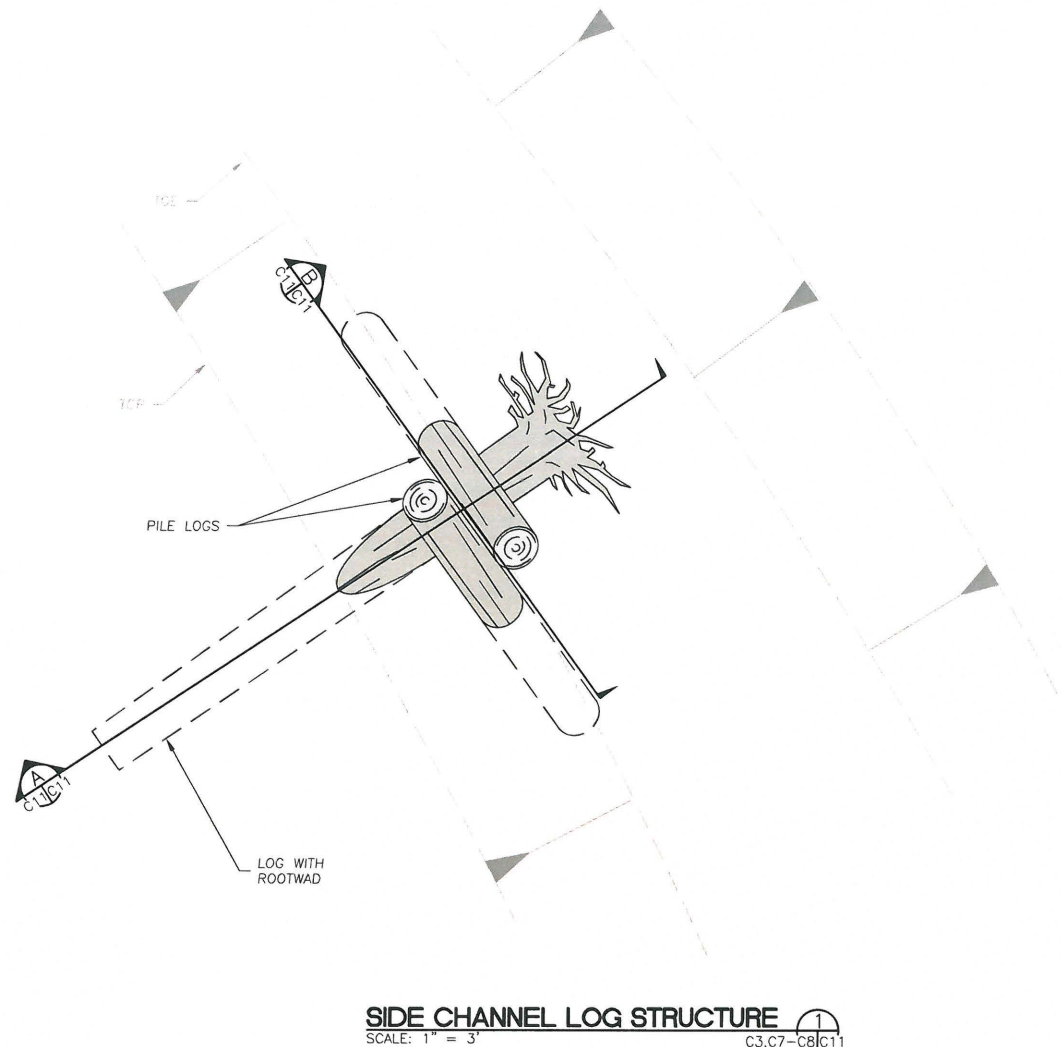
BANK LOG
STRUCTURE
DETAILS

SOUTH SCAPPOOSE CREEK
RESTORATION -
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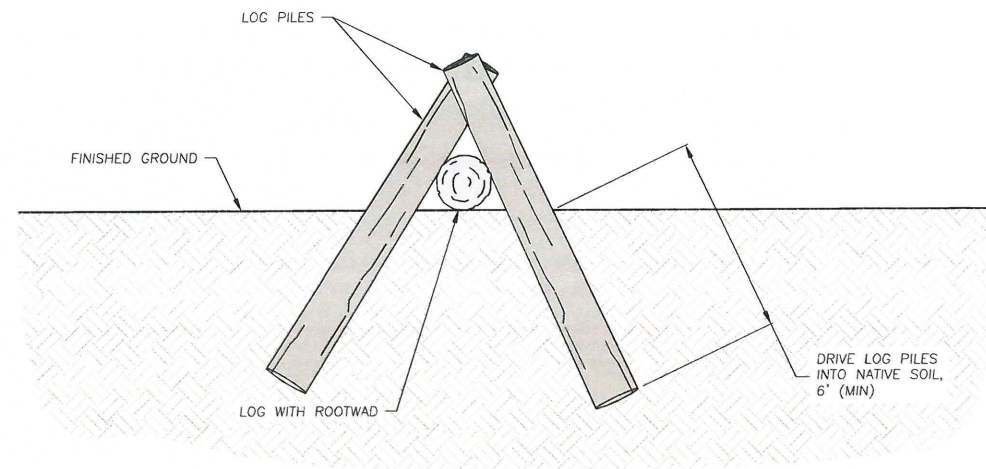
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0 1"

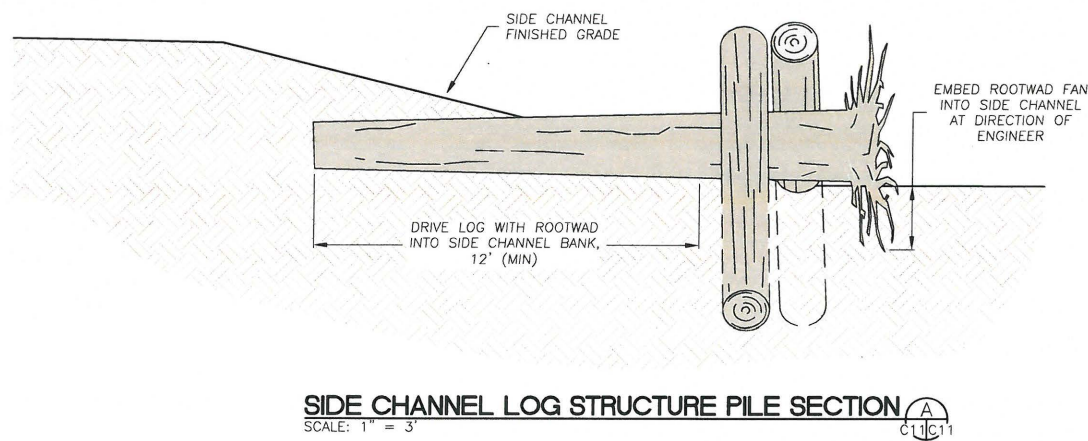
C10 OF 19



SIDE CHANNEL LOG STRUCTURE
SCALE: 1" = 3'
C3,C7-C8/C11



SIDE CHANNEL LOG STRUCTURE PILE SECTION
SCALE: 1" = 3'
C11/C11



SIDE CHANNEL LOG STRUCTURE PILE SECTION
SCALE: 1" = 3'
C11/C11

SIDE CHANNEL LOG STRUCTURE NOTES

1. **PLACEMENT LOCATIONS:** LOG STRUCTURE LOCATIONS AND DESIGNS ARE SHOWN CONCEPTUALLY DUE TO THE INHERENT VARIABILITY OF THE MATERIAL PROPERTIES. THE DESIGN REQUIRES THAT THE ENGINEER WILL OBSERVE CONSTRUCTION OF THE LOG STRUCTURES TO ENSURE THE INTENT OF THE DESIGN IS MET. OBSERVATIONS MUST INCLUDE LOG AND BOULDER SELECTION, PLACEMENT, AND BACKFILLING. ANY LOG STRUCTURES CONSTRUCTED WITHOUT THE ENGINEER PRESENT ON-SITE MAY RESULT IN REJECTION OF THE WORK BY THE ENGINEER.

2. **LOGS:** LOGS SHALL BE DOUGLAS FIR OR HEMLOCK, SOUND AND FREE OF SIGNIFICANT DECAY. MATERIALS FOR USE IN THE STRUCTURES SHALL MEET THE FOLLOWING SIZE CRITERIA:

ITEM	DIAMETER	LENGTH	TOTAL COUNT
LOG WITH ROOTWAD	18"-24" (MIN. 18" AT ANY POINT)	15'-20'	18
PILE LOGS	12"-18" (MIN. 12" AT ANY POINT)	10'-15'	36

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SCAPPOOSE BAY WATERSHED COUNCIL

SIDE CHANNEL LOG STRUCTURE DETAILS

SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H
100% DESIGN

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DRAWN BY: J.H.
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BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

5K

GENERAL NOTES

- NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE ENGINEER OR A DESIGNATED REPRESENTATIVE SHALL OBSERVE THE CONSTRUCTION PROCESS, AS NECESSARY TO ENSURE PROPER INSTALLATION PROCEDURES.
- EXISTING UNDERGROUND UTILITY LOCATIONS:
 - CALL UNDERGROUND SERVICE ALERT (1-800-332-2344) TO LOCATE ALL UNDERGROUND UTILITY LINES PRIOR TO COMMENCING CONSTRUCTION.
 - PRIOR TO BEGINNING WORK, CONTACT ALL UTILITIES COMPANIES WITH REGARD TO WORKING OVER, UNDER, OR AROUND EXISTING FACILITIES AND TO OBTAIN INFORMATION REGARDING RESTRICTIONS THAT ARE REQUIRED TO PREVENT DAMAGE TO THE FACILITIES.
 - EXISTING UTILITY LOCATIONS SHOWN ARE COMPILED FROM INFORMATION SUPPLIED BY THE APPROPRIATE UTILITY AGENCIES AND FROM FIELD MEASUREMENTS TO ABOVE GROUND FEATURES READILY VISIBLE AT THE TIME OF SURVEY. LOCATIONS SHOWN ARE APPROXIMATE. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND DEPTH OF UNDERGROUND UTILITIES.
 - THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE LOCATION AND/OR PROTECTION OF ALL EXISTING AND PROPOSED PIPING, UTILITIES, TRAFFIC SIGNAL EQUIPMENT (BOTH ABOVE GROUND AND BELOW GROUND), STRUCTURES, AND ALL OTHER EXISTING IMPROVEMENTS THROUGHOUT CONSTRUCTION.
 - PRIOR TO COMMENCING FABRICATION OR CONSTRUCTION, DISCOVER OR VERIFY THE ACTUAL DIMENSIONS, SIZES, MATERIALS, LOCATIONS, AND ELEVATIONS OF ALL EXISTING UTILITIES AND POT HOLE THOSE AREAS WHERE POTENTIAL CONFLICTS ARE LIKELY OR DATA IS OTHERWISE INCOMPLETE.
 - TAKE APPROPRIATE MEASURES TO PROTECT EXISTING UTILITIES DURING CONSTRUCTION OPERATIONS. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE COST OF REPAIR/REPLACEMENT OF ANY EXISTING UTILITIES DAMAGED DURING CONSTRUCTION.
 - UPON LEARNING OF THE EXISTENCE AND/OR LOCATIONS OF ANY UNDERGROUND FACILITIES NOT SHOWN OR SHOWN INACCURATELY ON THE PLANS OR NOT PROPERLY MARKED BY THE UTILITY OWNER, IMMEDIATELY NOTIFY THE UTILITY OWNER AND THE CITY BY TELEPHONE AND IN WRITING.
 - UTILITY RELOCATIONS REQUIRED FOR THE CONSTRUCTION OF THE PROJECT FACILITIES WILL BE PERFORMED BY THE UTILITY COMPANY, UNLESS OTHERWISE NOTED.
- IF DISCREPANCIES ARE DISCOVERED BETWEEN THE CONDITIONS EXISTING IN THE FIELD AND THE INFORMATION SHOWN ON THESE DRAWINGS, NOTIFY THE ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BE FULLY INFORMED OF AND TO COMPLY WITH ALL LAWS, ORDINANCES, CODES, REQUIREMENTS AND STANDARDS WHICH IN ANY MANNER AFFECT THE COURSE OF CONSTRUCTION OF THIS PROJECT, THOSE ENGAGED OR EMPLOYED IN THE CONSTRUCTION AND THE MATERIALS USED IN THE CONSTRUCTION.
- ANY TESTS, INSPECTIONS, SPECIAL OR OTHERWISE, THAT ARE REQUIRED BY THE BUILDING CODES, LOCAL BUILDING DEPARTMENTS, OR THESE PLANS, SHALL BE DONE BY AN INDEPENDENT INSPECTION COMPANY. JOB SITE VISITS BY THE ENGINEER DO NOT CONSTITUTE AN OFFICIAL INSPECTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE REQUIRED TESTS AND INSPECTIONS ARE PERFORMED.
- PROJECT SCHEDULE: PRIOR TO COMMENCEMENT OF WORK, SUBMIT TO THE ENGINEER FOR REVIEW AND APPROVAL A DETAILED CONSTRUCTION SCHEDULE. DO NOT BEGIN ANY CONSTRUCTION WORK UNTIL THE PROJECT SCHEDULE AND WORK PLAN IS APPROVED BY THE ENGINEER. ALL CONSTRUCTION SHALL BE CLOSELY COORDINATED WITH THE ENGINEER SO THAT THE QUALITY OF WORK CAN BE CHECKED FOR APPROVAL. PURSUE WORK IN A CONTINUOUS AND DILIGENT MANNER TO ENSURE A TIMELY COMPLETION OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, PERMITTING, INSTALLATION, AND MAINTENANCE OF ANY AND ALL TRAFFIC CONTROL MEASURES DEEMED NECESSARY.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR GENERAL SAFETY DURING CONSTRUCTION. ALL WORK SHALL CONFORM TO PERTINENT SAFETY REGULATIONS AND CODES. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR FURNISHING, INSTALLING, AND MAINTAINING ALL WARNING SIGNS AND DEVICES NECESSARY TO SAFEGUARD THE GENERAL PUBLIC AND THE WORK, AND PROVIDE FOR THE PROPER AND SAFE ROUTING OF VEHICULAR AND PEDESTRIAN TRAFFIC DURING THE PERFORMANCE OF THE WORK. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE PROVISIONS OF OSHA IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.
- CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTION LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL. NEITHER THE PROFESSIONAL ACTIVITIES OF CONSULTANT NOR THE PRESENCE OF CONSULTANT OR HIS OR HER EMPLOYEES OR SUB-CONSULTANTS AT A CONSTRUCTION SITE SHALL RELIEVE THE CONTRACTOR AND ITS SUBCONTRACTORS OF THEIR RESPONSIBILITIES INCLUDING, BUT NOT LIMITED TO, CONSTRUCTION MEANS, METHODS, SEQUENCE, TECHNIQUES OR PROCEDURES NECESSARY FOR PERFORMING, SUPERINTENDING OR COORDINATING ALL PORTIONS OF THE WORK OF CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND APPLICABLE HEALTH OR SAFETY REQUIREMENTS OF ANY REGULATORY AGENCY OR OF STATE LAW.
- MAINTAIN A CURRENT, COMPLETE, AND ACCURATE RECORD OF ALL AS-BUILT DEVIATIONS FROM THE CONSTRUCTION AS SHOWN ON THESE DRAWINGS AND SPECIFICATIONS, FOR THE PURPOSE OF PROVIDING THE ENGINEER OF RECORD WITH A BASIS FOR THE PREPARATION OF RECORD DRAWINGS.
- MAINTAIN THE SITE IN A NEAT AND ORDERLY MANNER THROUGHOUT THE CONSTRUCTION PROCESS. STORE ALL MATERIALS WITHIN APPROVED STAGING AREAS.
- PROVIDE, AT CONTRACTOR'S SOLE EXPENSE, ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLY WITH ALL APPLICABLE PERMIT CONDITIONS AND REQUIREMENTS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING AND LAYOUT, UNLESS OTHERWISE SPECIFIED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL SURVEY MONUMENTS OR PROPERTY CORNERS. DISTURBED MONUMENTS SHALL BE RESTORED BACK TO THEIR ORIGINAL LOCATION AND SHALL BE CERTIFIED BY A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR AT THE SOLE EXPENSE OF THE CONTRACTOR.
- TREE DIMENSIONS: TRUNK DIAMETERS SHOWN REPRESENT DIAMETER AT BREAST HEIGHT (DBH), MEASURED IN INCHES. DBH IS MEASURED 4.5 FT ABOVE GROUND FOR SINGLE TRUNKS AND TRUNKS THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND. THE DBH FOR TREES THAT SPLIT INTO SEVERAL STEMS CLOSE TO THE GROUND MAY BE CONSOLIDATED INTO A SINGLE DBH BY TAKING THE SQUARE ROOT OF THE SUM OF ALL SQUARED STEM DBH'S, UNLESS OTHERWISE NOTED. WHERE TREES FORK NEAR BREAST HEIGHT, TRUNK DIAMETER IS MEASURED AT THE NARROWEST PART OF THE MAIN STEM BELOW THE FORK. FOR TREES ON A SLOPE, BREAST HEIGHT IS REFERENCED FROM THE UPPER SIDE OF THE SLOPE. FOR LEANING TREES, BREAST HEIGHT IS MEASURED ON THE SIDE THAT THE TREE LEANS TOWARD. TREES WITH DBH LESS THAN 8" ARE TYPICALLY NOT SHOWN.

12"P = 12" DBH PINE
- TREE SPECIES ARE IDENTIFIED WHEN KNOWN. HOWEVER, FINAL DETERMINATION SHOULD BE MADE BY A QUALIFIED BOTANIST. REFER TO THE LEGEND FOR TREE SPECIES SYMBOLS.
- TREE TRUNK DIMENSIONS MAY BE SHOWN OUT-OF-SCALE FOR PLOTTING CLARITY. CAUTION SHOULD BE USED IN DESIGNING NEAR TREE TRUNKS. THERE ARE LIMITATIONS ON FIELD ACCURACY, DRAFTING ACCURACY, MEDIUM STRETCH AS WELL AS THE "SPREAD" OR "LEANING" OF TREES. REQUEST ADDITIONAL TOPOGRAPHIC DETAIL WHERE CLOSE TOLERANCES ARE ANTICIPATED. INDIVIDUAL TREES ARE NOT TYPICALLY LOCATED WITHIN DRIPLINE CANOPY AREAS SHOWN.
- WILLOWS TO BE REMOVED SHALL BE TRIMMED, TRANSPLANTED, AND UTILIZED IN THE REVEGETATION PLAN.
- ALL STANDARD STREET MONUMENTS, LOT CORNER PIPES, AND OTHER PERMANENT MONUMENTS DISTURBED DURING THE PROCESS OF CONSTRUCTION SHALL BE REPLACED AND A RECORD OF SURVEY OR CORNER RECORD PER SECTION 8771 OF THE PROFESSIONAL LAND SURVEYORS ACT FILED BEFORE ACCEPTANCE OF THE IMPROVEMENTS BY THE CITY OF SCAPPOOSE. COPIES OF ANY RECORD OF SURVEY OR CORNER RECORDS SHALL BE SUBMITTED TO THE CITY.
- CONTRACTOR IS REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

EARTHWORK NOTES

- GRADING SUMMARY:
 - TOTAL CUT VOLUME = 6,210 CY (CUT MATERIAL SHALL BE STOCKPILED ON THE BUXTON PROPERTY AS SHOWN ON EROSION AND SEDIMENT CONTROL PLANS.)
 - THE ABOVE QUANTITIES ARE APPROXIMATE IN-PLACE VOLUMES CALCULATED AS THE DIFFERENCE BETWEEN EXISTING GROUND AND THE PROPOSED FINISH GRADE, PREPARED FOR PERMITTING PURPOSES ONLY. EXISTING GROUND IS DEFINED BY THE TOPOGRAPHIC CONTOURS AND/OR SPOT ELEVATIONS ON THE PLAN. PROPOSED FINISH GRADE IS DEFINED AS THE DESIGN SURFACE ELEVATION OF WORK TO BE CONSTRUCTED. THE QUANTITIES HAVE NOT BEEN FACTORED TO INCLUDE ALLOWANCES FOR BULKING, CLEARING AND GRUBBING, SUBSIDENCE, SHRINKAGE, OVER EXCAVATION, AND RECOMPACTION, UNDERGROUND UTILITY AND SUBSTRUCTURE SPOILS AND CONSTRUCTION METHODS.
 - PERFORM AN INDEPENDENT EARTHWORK ESTIMATE FOR THE PURPOSE OF PREPARING BID PRICES FOR EARTHWORK. THE BID PRICE SHALL INCLUDE COSTS FOR ANY NECESSARY IMPORT AND PLACEMENT OF EARTH MATERIALS OR THE EXPORT AND PROPER DISPOSAL OF EXCESS OR UNSUITABLE EARTH MATERIALS.
- PRIOR TO COMMENCING WORK, PROTECT ALL SENSITIVE AREAS TO REMAIN UNDISTURBED WITH TEMPORARY FENCING, AS SHOWN ON THE DRAWINGS, AS SPECIFIED, OR AS DIRECTED BY THE ENGINEER.
- DO NOT DISTURB AREAS OUTSIDE OF THE DESIGNATED LIMITS OF DISTURBANCE, UNLESS AUTHORIZED IN WRITING BY THE ENGINEER. THE COST OF ALL ADDITIONAL WORK ASSOCIATED WITH RESTORATION AND REVEGETATION OF DISTURBED AREAS OUTSIDE THE DESIGNATED LIMITS OF DISTURBANCE, AS SHOWN ON THE DRAWINGS, SHALL BE BORN SOLELY BY THE CONTRACTOR.
- REMOVE ALL EXCESS SOILS TO AN APPROVED DUMP SITE OR DISPOSE OF ON SITE AT A LOCATION TO BE APPROVED BY THE ENGINEER, IN A MANNER THAT WILL NOT CAUSE EROSION.
- CLEARING AND GRUBBING, SUBGRADE PREPARATION AND EARTHWORK SHALL BE PERFORMED IN ACCORDANCE WITH SECTION 00320 AND 00330 OF THE STANDARD SPECIFICATIONS, THESE DRAWINGS, AND THE TECHNICAL SPECIFICATIONS.
- PRIOR TO STARTING WORK ON THE PROJECT, SUBMIT FOR ACCEPTANCE BY THE ENGINEER A HAZARDOUS MATERIALS CONTROLS AND SPILL PREVENTION PLAN. THE PLAN SHALL INCLUDE PROVISIONS FOR PREVENTING HAZARDOUS MATERIALS FROM CONTAMINATING SOIL OR ENTERING WATER COURSES, AND SHALL ESTABLISH A SPILL PREVENTION AND COUNTERMEASURE PLAN.
- UNSUITABLE SOIL OR MATERIALS, NOT TO BE INCLUDED IN THE WORK INCLUDE:
 - ORGANIC MATERIALS SUCH AS PEAT, MULCH, ORGANIC SILT OR SOD.
 - SOILS CONTAINING EXPANSIVE CLAYS.
 - MATERIAL CONTAINING EXCESSIVE MOISTURE.
 - POORLY GRADED COURSE MATERIAL, PARTICLE SIZE IN EXCESS OF 6 INCHES.
 - MATERIAL WHICH WILL NOT ACHIEVE SPECIFIED DENSITY OR BEARING.
- FINE GRADING ELEVATIONS, CONFORMS, AND SLOPES NOT CLEARLY SHOWN ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR IN THE FIELD TO DIRECT DRAINAGE TO PROTECTED DRAINAGE CONTROL STRUCTURES OR NATURAL WATERWAYS IN A MANNER THAT SUPPORTS THE INTENT OF THE DESIGN. ALL FINAL GRADING SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER.
- THE TOP 6" OF SUBGRADE UNDER ALL PAVED SURFACES SUBJECT TO VEHICULAR USE SHALL BE COMPACTED TO A MINIMUM OF 95% RELATIVE COMPACTION, IN ACCORDANCE WITH ASTM-D1557. ALL OTHER FILL TO BE COMPACTED TO A MINIMUM OF 90% MAXIMUM DENSITY AS DETERMINED BY ASTM-D1557 AND SO CERTIFIED BY TESTS AND REPORTS FROM THE CIVIL ENGINEER IN CHARGE OF THE GRADING CERTIFICATION.
- FILL MATERIAL SHALL BE SPREAD IN LIFTS OF APPROXIMATELY 8 INCHES, MOISTENED OR DRIED TO NEAR OPTIMUM MOISTURE CONTENT AND RECOMPACTED. THE MATERIALS FOR ENGINEERED FILL SHALL BE APPROVED BY A REGISTERED CIVIL ENGINEER. ANY IMPORTED MATERIALS MUST BE APPROVED BEFORE BEING BROUGHT TO THE SITE. THE MATERIALS USED SHALL BE FREE OF ORGANIC MATTER AND OTHER DELETERIOUS MATERIALS.
- ALL CONTACT SURFACES BETWEEN ORIGINAL GROUND AND RECOMPACTED FILL SHALL BE EITHER HORIZONTAL OR VERTICAL. ALL ORGANIC MATERIAL SHALL BE REMOVED AND THE REMAINING SURFACE SCARIFIED TO A DEPTH OF AT LEAST 12 INCHES, UNLESS DEEPER EXCAVATION IS REQUIRED BY THE ENGINEER.

CONSTRUCTION SCHEDULE / PHASING NOTES

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

CONSTRUCTION PHASING SHALL BE GENERALLY ACCOMPLISHED AS FOLLOWS:

- CONTACT UNDERGROUND SERVICE ALERT (USA) TO LOCATE ALL UNDERGROUND UTILITIES.
- ESTABLISH AN EQUIPMENT STAGING AREA AND ROCKED ENTRANCES AT LOCATIONS SHOWN ON THE ESCP DRAWINGS OR AS APPROVED BY THE ENGINEER. TAKE MEASURES TO ENSURE PEDESTRIAN AND VEHICULAR TRAFFIC SAFETY, PROTECTION OF EXISTING INFRASTRUCTURE, AND ADJACENT LANDSCAPING. THIS PROTECTION SHALL, AT A MINIMUM, CONSIST OF INSTALLATION OF ESA FENCING WHERE SHOWN.
- INSTALL CONSTRUCTION ENTRANCES, FIBER ROLLS, AND OTHER PROJECT BMPS..
- INSTALL TEMPORARY DEWATERING, DIVERSION, EROSION, AND DUST CONTROL MEASURES.
- PERFORM CLEARING AND GRUBBING.
- PERFORM ROUGH GRADING.
- INSTALL PERMANENT EROSION CONTROL MEASURES
- REMOVE TEMPORARY DIVERSION, EROSION AND SEDIMENT CONTROL FEATURES.
- REVEGETATE SITE
- DEMobilize.

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NOTES

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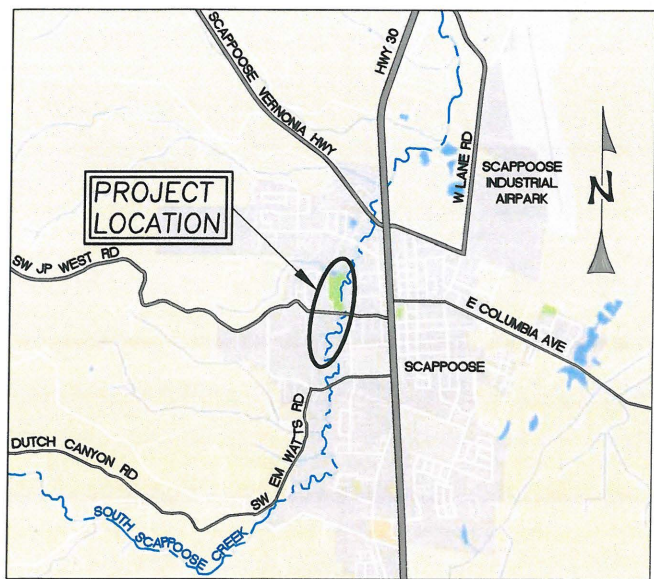
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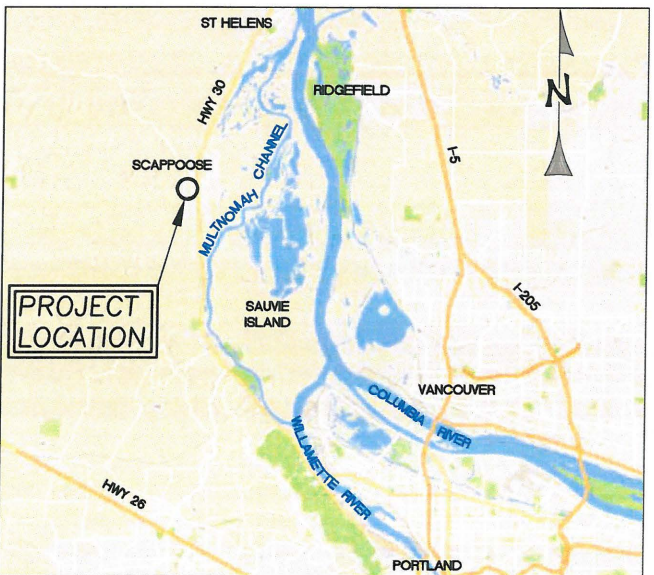
C12 12 OF 19

SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H EROSION AND SEDIMENT CONTROL PLAN (ESCP)

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WWW.WATERWAYS.COM



REGIONAL MAP
N.T.S. (GOOGLE)



VICINITY MAP
N.T.S. (GOOGLE)

DEVELOPER

DEVELOPER/COMPANY: SCAPPOOSE BAY WATERSHED COUNCIL
CONTACT: PAT WELLE
57420 OLD PORTLAND RD
WARREN, OR 97053
PHONE: 503-397-7904

ENGINEERING FIRM

WATERWAYS CONSULTING, INC.
CONTACT: JAKE D. HOFELD, P.E.
1020 SW TAYLOR ST, SUITE 380
PORTLAND, OR 97205
PHONE: 503-227-5979
EMAIL: JAKEH@WATERWAYS.COM

PROJECT LOCATION:

52590 CAPTAIN ROGER KUCERA WAY
SCAPPOOSE, OR 97056
LATITUDE = 45.75828333
LONGITUDE = -122.88388889

PROPERTY DESCRIPTION:

TAX LOTS: LOCATED IN THE SW QUARTER AND NW QUARTER OF SECTION 12, TOWNSHIP 3 N, RANGE 2 W, W.M., CITY OF SCAPPOOSE, COLUMBIA COUNTY, OREGON (COLUMBIA COUNTY WEB MAPS)
TAX LOT 3N2W12CB 100 = 11.75 ACRES
TAX LOT 3N2W12CB 401 = 17.13 ACRES

NARRATIVE DESCRIPTIONS

EXISTING SITE CONDITIONS

THE NORTHERN LOT IS A CITY PARK WITH PAVED WALKWAYS, A BALL PARK, RESTROOM, PARKING LOT, PLAYGROUND, DOG PARK, AND GRASS FIELDS. THE RIPARIAN ZONE IS NEGLIGIBLE AND THE STREAMBANK IS DEEPLY INCISED. THE SOUTHERN LOT IS A COW PASTURE WITH AN UNNAMED TRIBUTARY AND A POND. THERE ARE SECTIONS OF INTACT RIPARIAN ZONES AND THE CREEK IS DEEPLY INCISED IN MOST LOCATIONS.

DEVELOPED CONDITIONS

RESTORED UPLAND, FLOODPLAIN BENCHES, AND OFF-CHANNEL HABITAT.

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE

MASS GRADING (JUNE-SEPTEMBER 2018)

TOTAL DISTURBED AREA

414580 SF (9.52 ACRES)

SITE SOIL CLASSIFICATION:

13 - CLOQUATO SILT LOAM (87%)
63 - WAPATO SILT LOAM (13%)

RECEIVING WATER BODIES:

NEAREST WATER BODY: SOUTH SCAPPOOSE CREEK, WETLANDS, AND UNNAMED TRIBUTARIES

PERMITTEE'S SITE INSPECTOR:

INSPECTOR: DEANNA HUTCHINSON, P.E., CESCL
COMPANY/AGENCY: WATERWAYS CONSULTING, INC.
PHONE: 503-227-5979
FAX: 888-819-6847
E-MAIL: DEANNA@WATERWAYS.COM
DESCRIPTION OF EXPERIENCE: CESCL CERTIFIED WITH CONSTRUCTION AND EROSION CONTROL MEASURE INSPECTION FOR SEVERAL RESTORATION PROJECTS WITHIN OREGON.

ATTENTION EXCAVATORS:

OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6689.

STANDARD EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES:

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

INSPECTION FREQUENCY:

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD	DAILY BETWEEN OCTOBER 1 AND APRIL 30 OR WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. AT LEAST ONCE EVERY TWO (2) WEEKS REGARDLESS OF WHETHER STORMWATER RUNOFF IS OCCURRING BETWEEN MAY 1 AND SEPTEMBER 30.
2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3. INACTIVE PERIODS GREATER THAN FOURTEEN (14) CONSECUTIVE CALENDAR DAYS.	ONCE EVERY TWO (2) WEEKS OR WITHIN 24 HOURS FOLLOWING A STORM EVENT.
4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.

- HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (Schedule A.8.c.i.(3))
- ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEQ 1200-C PERMIT REQUIREMENTS.
- INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEQ'S 1200-C PERMIT REQUIREMENTS.
- RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEQ, AGENT, OR THE LOCAL MUNICIPALITY, DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION. (Schedule B.2.o)

BMP MATRIX FOR CONSTRUCTION

YEAR:	2018					
	BMPs	6	7	8	9	10
STORM DRAIN INLET PROTECTION	X	X	X	X		
CONSTRUCTION ENTRANCE	X	X	X	X		
ORANGE FENCING (SENSITIVE AREAS)	X	X	X	X		
PLASTIC SHEETING	X	X	X	X		
SEDIMENT FENCING	X	X	X	X		
TURBIDITY CURTAIN		X	X	X		
STRAW WATTLES/FIBER ROLLS					X	
SEEDING AND MULCHING					X	X

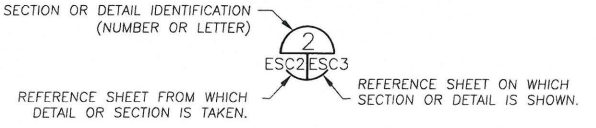
RATIONALE STATEMENT

A COMPREHENSIVE LIST OF AVAILABLE BEST MANAGEMENT PRACTICES (BMP) OPTIONS BASED ON DEQ'S GUIDANCE MANUAL HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN. SOME OF THE ABOVE LISTED BMP'S WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESC PLAN, AN ACTION PLAN WILL BE SUBMITTED.

SHEET INDEX

- EC1 ESCP COVER SHEET
- EC2 ACCESS AND STAGING PLAN
- EC3 VETERAN'S PARK EXISTING CONDITIONS PLAN
- EC4 BUXTON PROPERTY EXISTING CONDITIONS PLAN
- EC5 VETERAN'S PARK SEEDING AND EROSION CONTROL PLAN
- EC6 BUXTON PROPERTY SEEDING AND EROSION CONTROL PLAN
- EC7 ESCP DETAILS

SECTION AND DETAIL CONVENTION



PRELIMINARY NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SCAPPOOSE BAY WATERSHED COUNCIL

ESCP COVER SHEET

SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H 100% EROSION CONTROL PLANS

DESIGNED BY: D.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

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

EC1 OF 19

REV.	DATE	DESCRIPTION	BY



ACCESS AND STAGING PLAN
SCALE: 1" = 100'

LEGEND

- EXISTING FLOW LINE
- PROPERTY BOUNDARY
- LIMITS OF DISTURBANCE
- CONSTRUCTION ACCESS ROUTE
- EXCESS SOIL STOCKPILING AREA
- BOUNDARY FENCE
- FIBER ROLLS
- CONTROL POINT
- EXISTING WETLAND AREA
- CONSTRUCTION ENTRANCE
- STAGING AREA
- NEW RIPARIAN BUFFER

STREAM CONSTRUCTION NOTES

1. STAGING AND STORAGE AREAS FOR EQUIPMENT, MATERIALS, FUELS, LUBRICANTS AND SOLVENTS, SHALL BE LOCATED A MINIMUM OF 150' FROM CATCH BASINS, STREAM AND CHANNEL BANKS. STATIONARY EQUIPMENT SUCH AS MOTORS, PUMPS, GENERATORS, COMPRESSORS, AND WELDERS, LOCATED WITHIN OR ADJACENT TO THE STREAM SHALL BE POSITIONED OVER DRIP PANS. ANY EQUIPMENT OR VEHICLE DRIVEN AND/OR OPERATED OVER OR ADJACENT TO WATER SHALL BE CHECKED AND MAINTAINED DAILY, TO PREVENT LEAKS OR MATERIALS THAT IF INTRODUCED TO WATER COULD BE DELETERIOUS TO AQUATIC LIFE. VEHICLES SHALL BE MOVED AWAY FROM THE STREAM PRIOR TO REFUELING AND LUBRICATION.
2. NO EQUIPMENT NO FUELING, CLEANING OR MAINTENANCE OF VEHICLES OR EQUIPMENT SHALL TAKE PLACE WITHIN ANY AREAS WHERE AN ACCIDENTAL DISCHARGE TO THE RIVER MAY OCCUR; CONSTRUCTION MATERIAL AND HEAVY EQUIPMENT MUST BE STORED OUTSIDE OF THE ORDINARY HIGH WATER MARK.
3. ALL WORK DONE WITHIN THE RIVER SHALL BE COMPLETED IN A MANNER SO AS TO MINIMIZE IMPACTS TO BENEFICIAL USES AND HABITAT; MEASURES SHALL BE EMPLOYED TO MINIMIZE DISTURBANCES ALONG THE CHANNEL THAT WILL ADVERSELY IMPACT THE WATER QUALITY OF THE RIVER.
4. BIODEGRADABLE (NON-PETROLEUM BASED) HYDRAULIC FLUIDS SHALL BE USED IN ALL MACHINERY AND EQUIPMENT USED BELOW THE ORDINARY HIGH WATER MARK AS DIRECTED IN THE FIELD BY THE OWNER'S REPRESENTATIVE.
5. MAINTAIN EXISTING NATURAL BUFFER TO MAXIMUM EXTENT POSSIBLE.

ACCESS AND STAGING AREA NOTES

1. USE ONLY THE APPROVED ACCESS POINTS, AS SHOWN ON THE DRAWINGS. STOCKPILE MATERIALS WITHIN AN EXISTING FLAT AND PREVIOUSLY DISTURBED AREA.
2. THE ACCESS PLAN SHOWN ON THE DRAWINGS IS SCHEMATIC. SUBMIT A SITE ACCESS PLAN FOR APPROVAL BY THE ENGINEER, PRIOR TO MOBILIZATION.
3. CONTAIN THE DOWNSLOPE PERIMETER OF STAGING OR STOCKPILE AREAS WITH FIBER ROLLS OR OTHER PERIMETER CONTROLS AS APPROVED BY THE ENGINEER.
4. STORE, MAINTAIN AND REFUEL ALL EQUIPMENT AND MATERIALS IN A DESIGNATED PORTION OF THE STAGING AREA.
5. ALL STOCKPILES SHALL BE SETBACK A MINIMUM OF 25' FROM ALL WETLANDS SHOWN IN THESE DRAWINGS OR FLAGGED IN THE FIELD.

WATERWAYS CONSULTING INC.
1020 SW TAYLOR STREET, STE. 380
PORTLAND, OR 97205
PH: (503) 227-5879 // FAX: (888) 819-6847
WWW.WATERWAYS.COM

DATE: 5/3/18
REGISTERED PROFESSIONAL ENGINEER
MARK J. HOFELD
OREGON LICENSE NO. 77870PE
EXPIRES: 6/30/2019

PREPARED AT THE REQUEST OF:
SCAPOOSE BAY WATERSHED COUNCIL

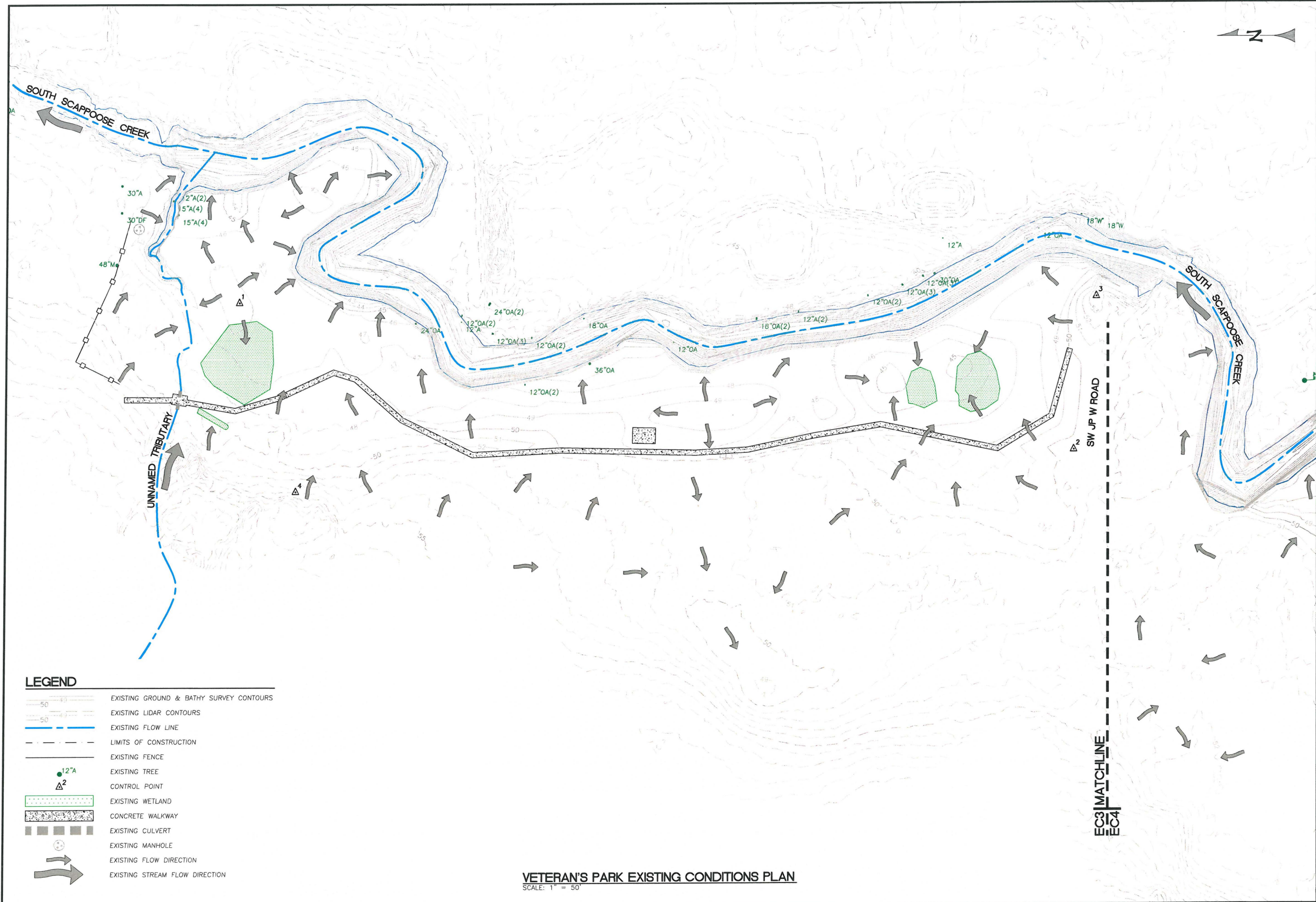
ACCESS AND STAGING PLAN

SOUTH SCAPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H 100% DESIGN SUBMITTAL

DESIGNED BY: J.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 5/3/18
JOB NO.: 12-030A

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

EC2 OF 19



LEGEND

	EXISTING GROUND & BATHY SURVEY CONTOURS
	EXISTING LIDAR CONTOURS
	EXISTING FLOW LINE
	LIMITS OF CONSTRUCTION
	EXISTING FENCE
	EXISTING TREE
	CONTROL POINT
	EXISTING WETLAND
	CONCRETE WALKWAY
	EXISTING CULVERT
	EXISTING MANHOLE
	EXISTING FLOW DIRECTION
	EXISTING STREAM FLOW DIRECTION

VETERAN'S PARK EXISTING CONDITIONS PLAN
SCALE: 1" = 50'

WATERWAYS CONSULTING INC.
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PRELIMINARY
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PREPARED AT THE REQUEST OF:
SCAPPOOSE BAY WATERSHED COUNCIL

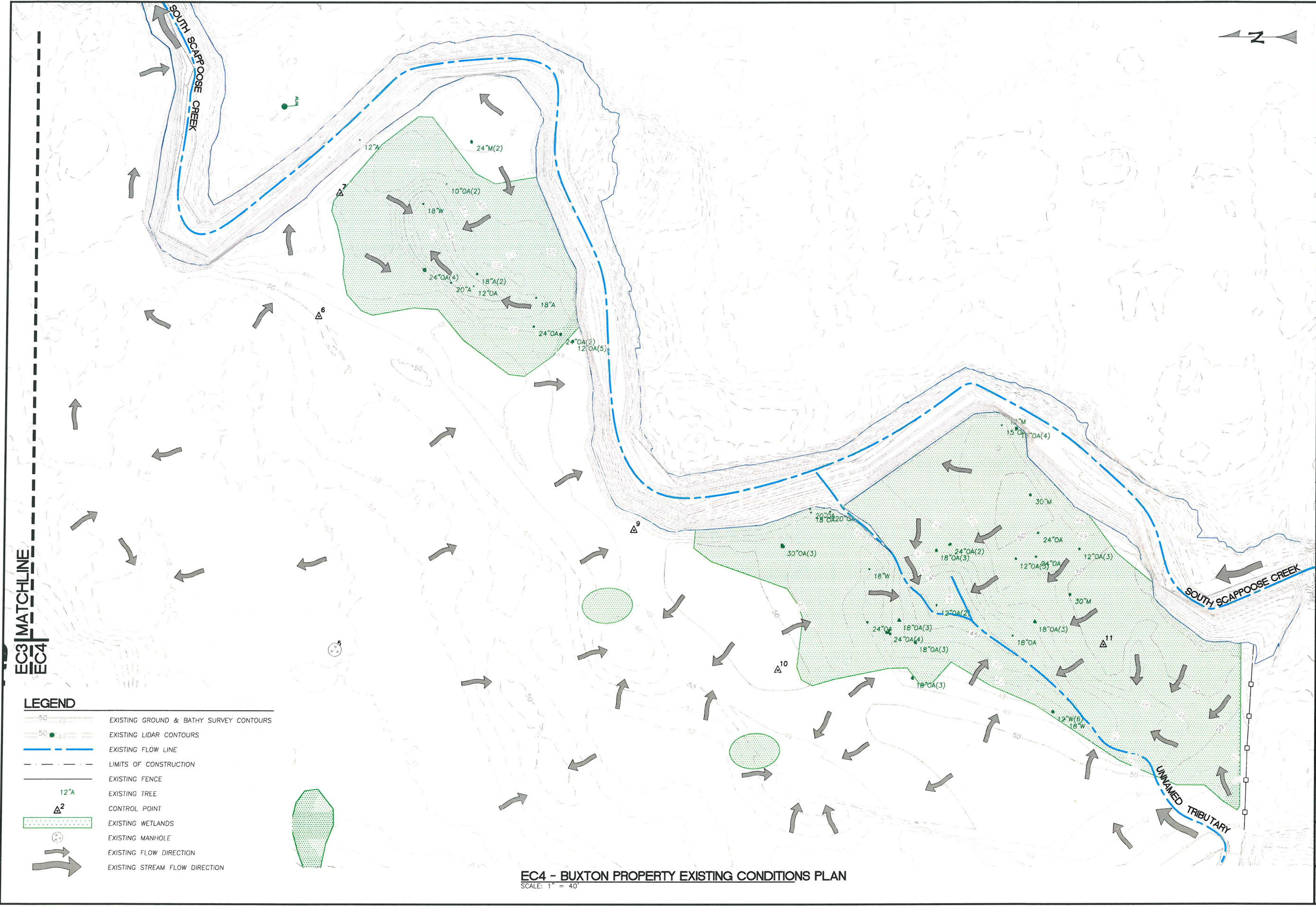
VETERAN'S PARK
EXISTING
CONDITIONS
PLAN

SOUTH SCAPPOOSE CREEK
RESTORATION -
MANAGEMENT ZONES
G AND H
100% EROSION CONTROL
PLANS

DESIGNED BY: D.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

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

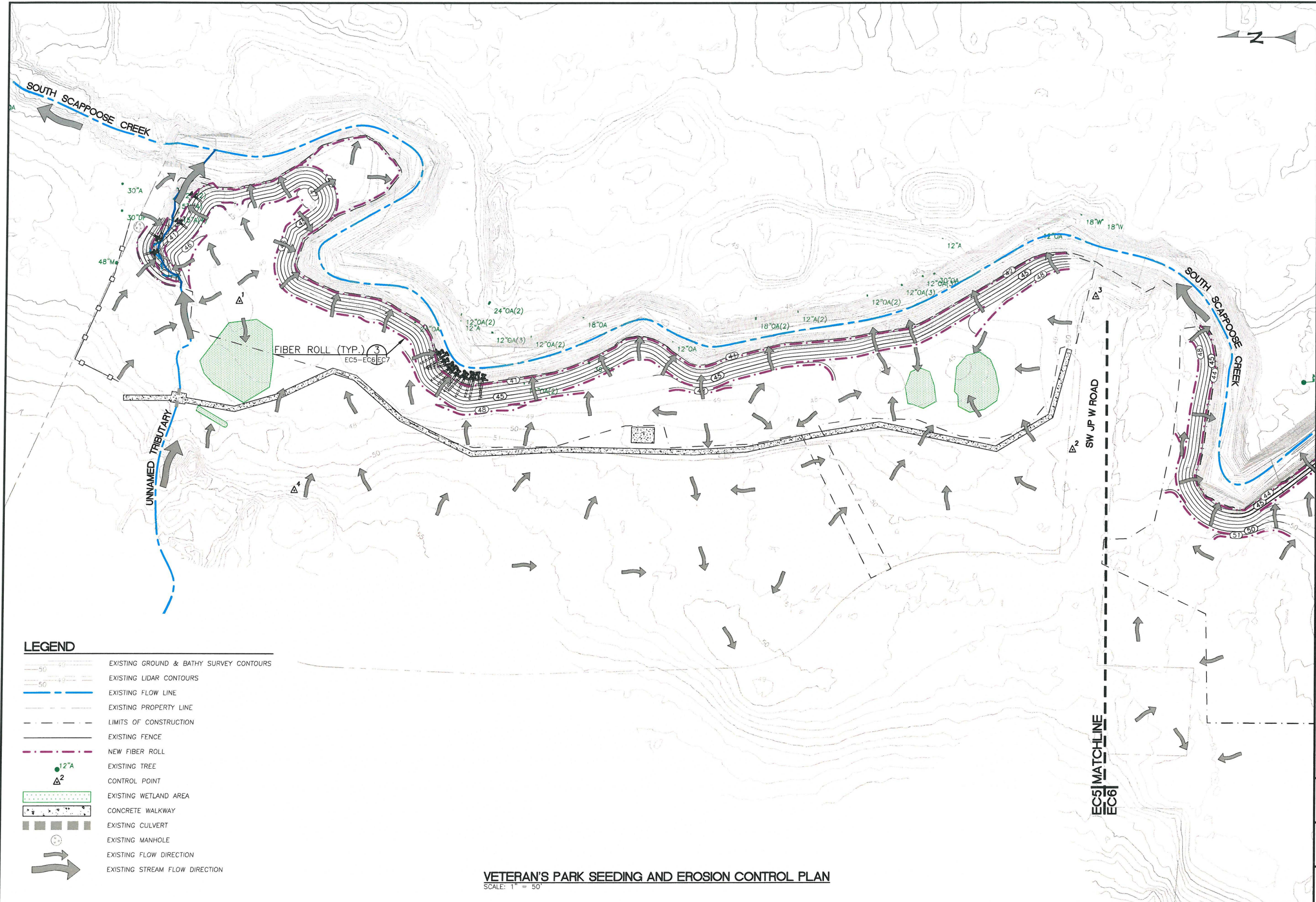
EC3 2 OF 19



EC3 MATCHLINE
 EC4

- LEGEND**
- EXISTING GROUND & BATHY SURVEY CONTOURS
 - EXISTING LIDAR CONTOURS
 - EXISTING FLOW LINE
 - LIMITS OF CONSTRUCTION
 - EXISTING FENCE
 - EXISTING TREE
 - CONTROL POINT
 - EXISTING WETLANDS
 - EXISTING MANHOLE
 - EXISTING FLOW DIRECTION
 - EXISTING STREAM FLOW DIRECTION

EC4 - BUXTON PROPERTY EXISTING CONDITIONS PLAN
 SCALE: 1" = 40'



LEGEND

	EXISTING GROUND & BATHY SURVEY CONTOURS
	EXISTING LIDAR CONTOURS
	EXISTING FLOW LINE
	EXISTING PROPERTY LINE
	LIMITS OF CONSTRUCTION
	EXISTING FENCE
	NEW FIBER ROLL
	EXISTING TREE
	CONTROL POINT
	EXISTING WETLAND AREA
	CONCRETE WALKWAY
	EXISTING CULVERT
	EXISTING MANHOLE
	EXISTING FLOW DIRECTION
	EXISTING STREAM FLOW DIRECTION

VETERAN'S PARK SEEDING AND EROSION CONTROL PLAN
SCALE: 1" = 50'

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PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SCAPOOSE BAY WATERSHED COUNCIL

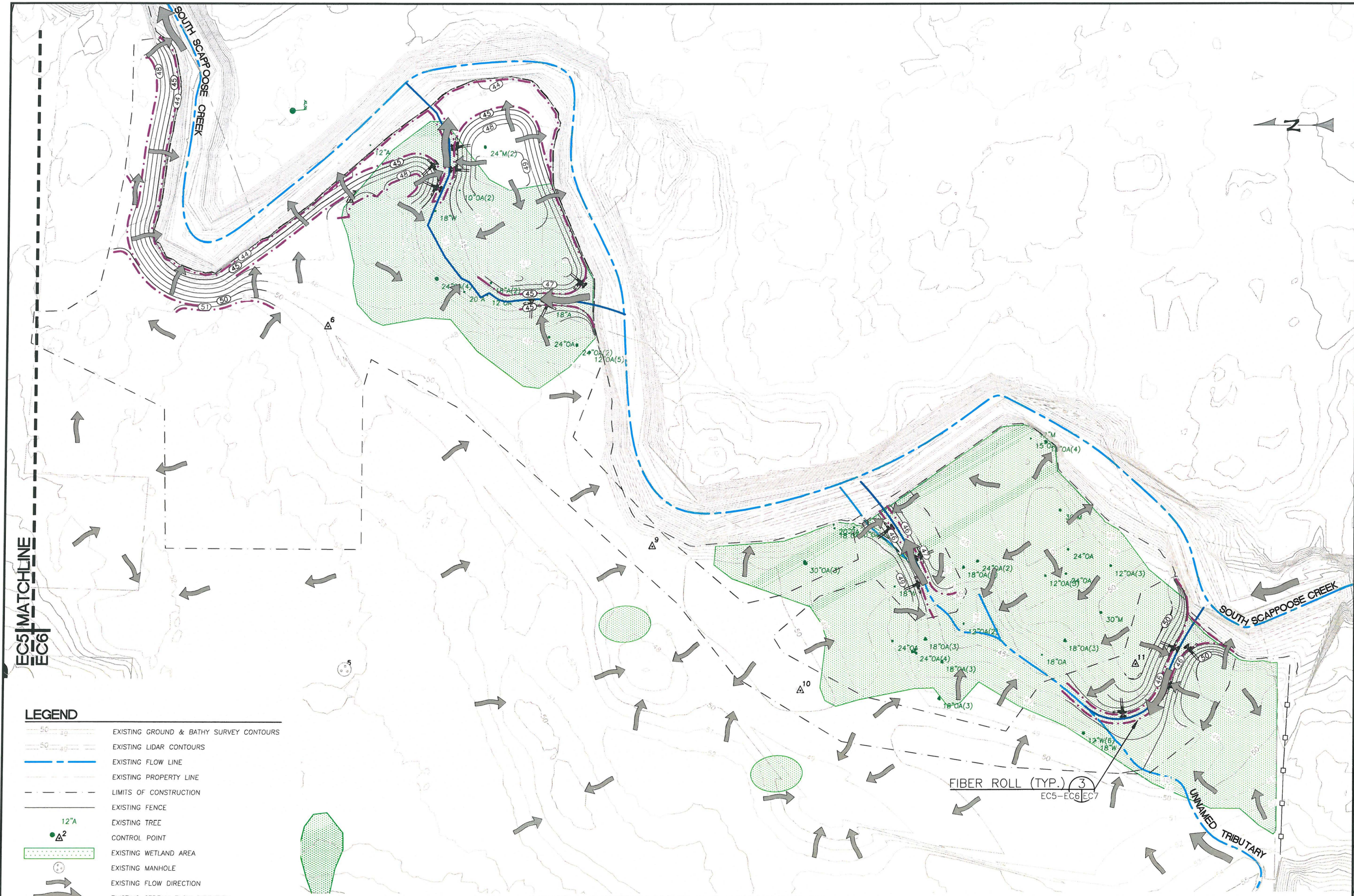
VETERAN'S PARK
RESTORATION -
SEEDING AND
EROSION CONTROL PLAN

SOUTH SCAPOOSE CREEK
RESTORATION -
MANAGEMENT ZONES
G AND H
100% EROSION CONTROL
PLANS

DESIGNED BY: D.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

EC5 17 OF 19



EC5 MATCHLINE
EC6

LEGEND

	EXISTING GROUND & BATHY SURVEY CONTOURS
	EXISTING LIDAR CONTOURS
	EXISTING FLOW LINE
	EXISTING PROPERTY LINE
	LIMITS OF CONSTRUCTION
	EXISTING FENCE
	EXISTING TREE
	CONTROL POINT
	EXISTING WETLAND AREA
	EXISTING MANHOLE
	EXISTING FLOW DIRECTION
	EXISTING STREAM FLOW DIRECTION

BUXTON PROPERTY EXISTING CONDITIONS PLAN
SCALE: 1" = 40'

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 WWW.WATERWAYS.COM

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SCAPOOSE BAY WATERSHED COUNCIL

BUXTON PROPERTY SEEDING AND EROSION CONTROL PLAN

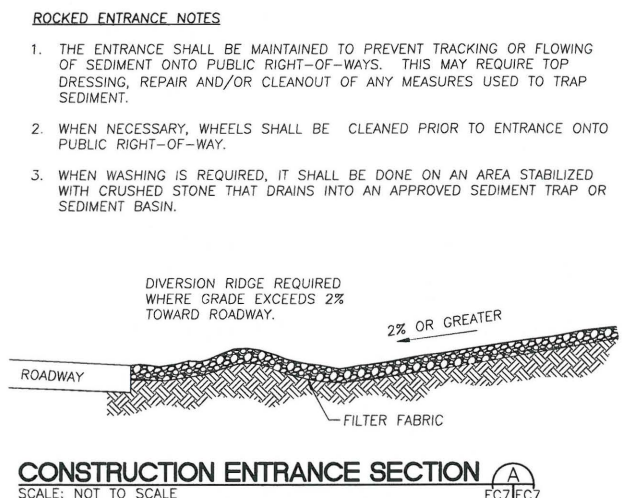
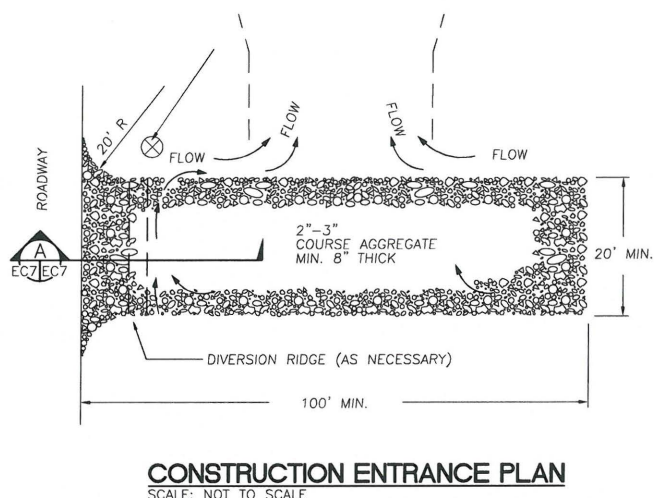
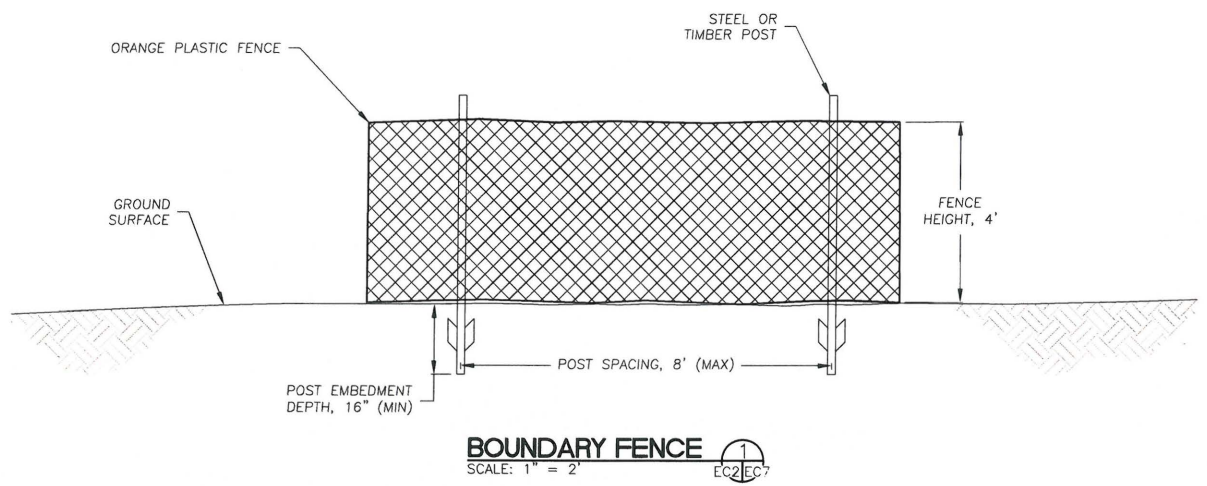
SOUTH SCAPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H 100% EROSION CONTROL PLANS

DESIGNED BY: D.H.
 DRAWN BY: D.H.
 CHECKED BY: M.W.W.
 DATE: 4/18/18
 JOB NO.: 12-030A

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

EC6
 18 OF 19

5R



- ROCKED ENTRANCE NOTES**
1. THE ENTRANCE SHALL BE MAINTAINED TO PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
 2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
 3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

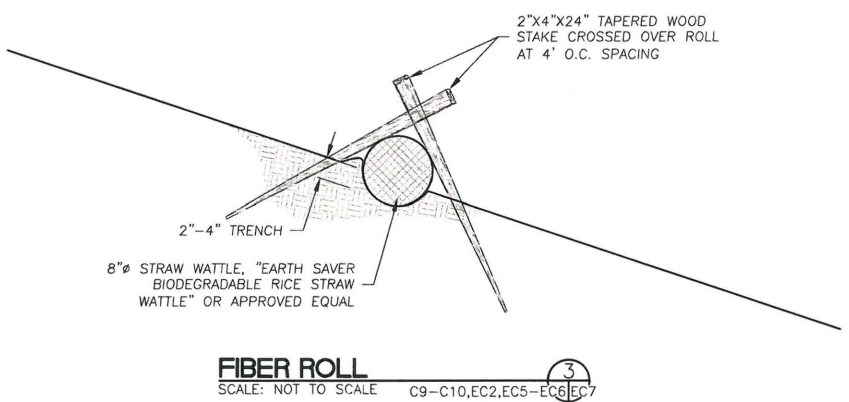


TABLE 1: SEED MIX

BOTANICAL NAME	COMMON NAME	% MIX BY WEIGHT
ELYMUS GLAUCUS	BLUE WILD	60
HORDEUM BRACHYANTHERUM	MEADOW BARLEY	30
BROMUS CARINATUS	CALIFORNIA BROME	10

APPLY AT A RATE OF 44 LBS. PER ACRE WITHIN AREA OF DISTURBANCE.

TABLE 2: SEED MIX

BOTANICAL NAME	COMMON NAME	% MIX BY WEIGHT
LOLIUM PERENNE SSP. MULTIFLORIUM	ITALIAN (ANNUAL) RYEGRASS	60
FESTUCA RUBRA VAR. SEALINK	SEALINK SLENDER CREEPING RED FESCUE	18
FESTUCA BREVIPLIA VAR. SPARTAN II	SPARTAN II HARD FESCUE	15
TRIFOLIUM REPENS	WHITE CLOVER	4
PUCCINELLIA PUMILA VAR FULTS	FULTS DWARF ALKALIGRASS	3

APPLY AT A RATE OF 83.55 LBS. PER ACRE TO STABILIZE STOCKPILE.

- SEEDING NOTES**
1. ALL EXPOSED SOILS RESULTING FROM CREEK AND SIDE CHANNEL GRADING SHALL BE SEEDED PER TABLE 1, THIS SHEET, AND MULCHED FOLLOWING CONSTRUCTION.
 2. ALL DISTURBED SOILS RESULTING FROM ACCESS ROUTES AT VETERAN'S PARK AND THE BUXTON PROPERTY SHALL BE GRADED AND RESEEDED TO MATCH PRE-CONSTRUCTION CONDITIONS.
 3. ALL EXCESS SOIL STOCKPILING AREAS AS SHOWN ON SHEET EC2 SHALL BE SEEDED PER TABLE 2, THIS SHEET, AND MULCHED FOLLOWING CONSTRUCTION.

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

PRELIMINARY
NOT FOR CONSTRUCTION

PREPARED AT THE REQUEST OF:
SCAPOOSE BAY WATERSHED COUNCIL

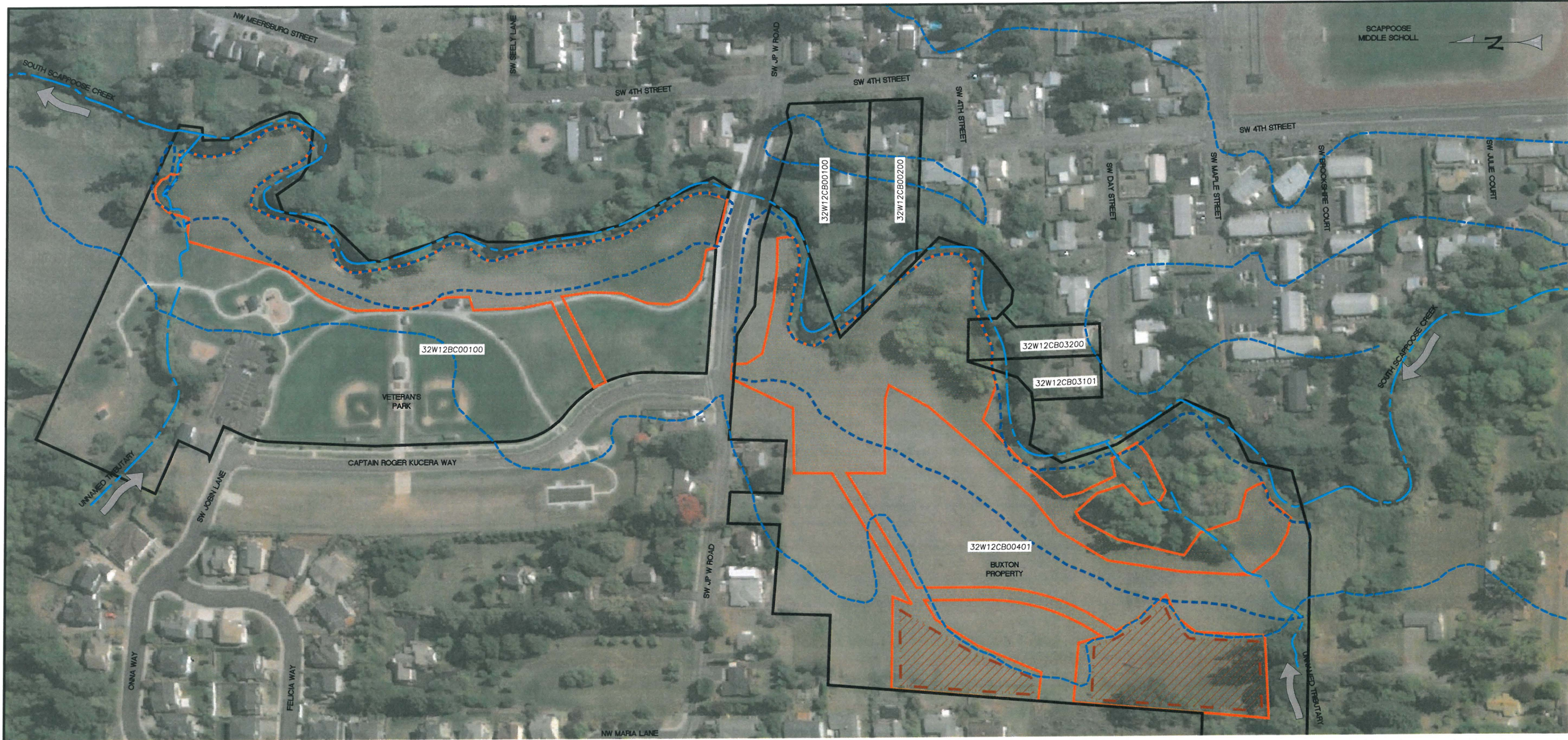
ESCP DETAILS

SOUTH SCAPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H 100% EROSION CONTROL PLANS

DESIGNED BY: D.H.
DRAWN BY: D.H.
CHECKED BY: M.W.W.
DATE: 4/18/18
JOB NO.: 12-030A

BAR IS ONE INCH ON ORIGINAL DRAWING. ADJUST SCALES FOR REDUCED PLOTS

EC7
19 OF 19



AFFECTED PROPERTIES PLAN
SCALE: 1" = 200'

LEGEND

	EXISTING FLOW LINE
	PROPERTY BOUNDARY
	LIMITS OF DISTURBANCE
	EXCESS SOIL STOCKPILING AREA
	NEW RIPARIAN BUFFER
	FEMA 100-YR FLOOD BOUNDARY (EFFECTIVE)

SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H
AFFECTED PROPERTIES

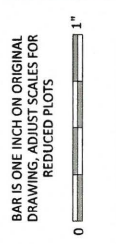


FIGURE
F1

Exhibit 6

Department of State Lands
775 Summer Street, Suite 100
Salem, OR 97301-1279
☎ 503-986-5200

Permit No.: 60968-RF
Permit Type: Removal/Fill
Waterway: Wetland/South Scappoose Creek
County: Columbia
Expiration Date: May 22, 2019

SCAPPOOSE BAY WATERSHED COUNCIL

IS AUTHORIZED IN ACCORDANCE WITH ORS 196.800 TO 196.990 TO PERFORM THE OPERATIONS DESCRIBED IN THE ATTACHED COPY OF THE APPLICATION, SUBJECT TO THE SPECIAL CONDITIONS LISTED ON ATTACHMENT A AND TO THE FOLLOWING GENERAL CONDITIONS:

1. This permit does not authorize trespass on the lands of others. The permit holder must obtain all necessary access permits or rights-of-way before entering lands owned by another.
2. This permit does not authorize any work that is not in compliance with local zoning or other local, state, or federal regulation pertaining to the operations authorized by this permit. The permit holder is responsible for obtaining the necessary approvals and permits before proceeding under this permit.
3. All work done under this permit must comply with Oregon Administrative Rules, Chapter 340; Standards of Quality for Public Waters of Oregon. Specific water quality provisions for this project are set forth on Attachment A.
4. Violations of the terms and conditions of this permit are subject to administrative and/or legal action, which may result in revocation of the permit or damages. The permit holder is responsible for the activities of all contractors or other operators involved in work done at the site or under this permit.
5. Employees of the Department of State Lands (DSL) and all duly authorized representatives of the Director must be permitted access to the project area at all reasonable times for the purpose of inspecting work performed under this permit.
6. Any permit holder who objects to the conditions of this permit may request a hearing from the Director, in writing, within twenty-one (21) calendar days of the date this permit was issued.
7. In issuing this permit, DSL makes no representation regarding the quality or adequacy of the permitted project design, materials, construction, or maintenance, except to approve the project's design and materials, as set forth in the permit application, as satisfying the resource protection, scenic, safety, recreation, and public access requirements of ORS Chapters 196, 390, and related administrative rules.
8. Permittee must defend and hold harmless the State of Oregon, and its officers, agents and employees from any claim, suit, or action for property damage or personal injury or death arising out of the design, material, construction, or maintenance of the permitted improvements.
9. Authorization from the U.S. Army Corps of Engineers may also be required.

NOTICE: If removal is from state-owned submerged and submersible land, the permittee must comply with leasing and royalty provisions of ORS 274.530. If the project involves creation of new lands by filling on state-owned submerged or submersible lands, you must comply with ORS 274.905 to 274.940 if you want a transfer of title; public rights to such filled lands are not extinguished by issuance of this permit. This permit does not relieve the permittee of an obligation to secure appropriate leases from DSL, to conduct activities on state-owned submerged or submersible lands. Failure to comply with these requirements may result in civil or criminal liability. For more information about these requirements, please contact Department of State Lands, 503-986-5200.

Kirk Jarvie, Southern Region Manager
Aquatic Resource Management
Oregon Department of State Lands



Authorized Signature

May 22, 2018
Date Issued

ATTACHMENT A

Permit Holder: Scappoose Bay Watershed Council

Project Name: South Scappoose Creek Restoration Project

Special Conditions for Removal/Fill Permit No. 60968-RF

READ AND BECOME FAMILIAR WITH CONDITIONS OF YOUR PERMIT.

The project site may be inspected by the Department of State Lands (DSL) as part of our monitoring program. A copy of this permit must be available at the work site whenever authorized operations are being conducted.

- Responsible Party:** By proceeding under this permit, Scappoose Bay Watershed Council agrees to comply with and fulfill all terms and conditions of this permit, unless the permit is officially transferred to another party as approved by DSL.
- Authorization to Conduct Removal and/or Fill:** This permit authorizes removal and fill of material in T3N R2W Section 12BC/CB, Tax Lots 100/401, in Columbia County, as described in the attached permit application, map and drawings (See Attachment B for project location), with a final date of February 20, 2018 and summarized as follows:

Summary of Authorized Wetland Impacts

Wetland #	Permanent			Temporary		
	Acres	Removal (cy)	Fill (cy)	Acres	Removal (cy)	Fill (cy)
Wetlands	0.5	1198				
Wetlands	0.05		32.9			
Total:	0.50	1198	32.9			

Summary of Authorized Waterway Impacts

Waterway Name	Permanent			Temporary		
	Linear Ft.	Removal (cy)	Fill (cy)	Linear Ft.	Removal (cy)	Fill (cy)
S. Scappoose Cr.	2449	176.9				
S. Scappoose Cr.	136		57.8			
Total:	2449	176.9	57.8			

- Work Period in Jurisdictional Areas:** Fill or removal activities below the ordinary high water elevation of South Scappoose Creek must be conducted between July 15 and August 31, unless otherwise coordinated with Oregon Department of Fish and Wildlife and approved in writing by DSL. If fish eggs are observed within the project area, work must cease and DSL contacted immediately.

4. **Changes to the Project or Inconsistent Requirements from Other Permits:** It is the permittee's responsibility to ensure that all state, federal and local permits are consistent and compatible with the final approved project plans and the project as executed. Any changes made in project design, implementation or operating conditions to comply with conditions imposed by other permits resulting in removal-fill activity must be approved by DSL prior to implementation.
5. **DSL May Halt or Modify:** DSL retains the authority to temporarily halt or modify the project or require rectification in case of unforeseen adverse effects to aquatic resources or permit non-compliance.
6. **DSL May Modify Conditions Upon Permit Renewal:** DSL retains the authority to modify conditions upon renewal, as appropriate, pursuant to the applicable rules in effect at the time of the request for renewal or to protect waters of this state.

Pre-Construction

7. **Local Government Approval Required Before Beginning Work:** Prior to the start of construction, the permittee must obtain a Sensitive Lands Permit – Fish and Riparian Corridor from the City of Scappoose.
8. **Stormwater Management Approval Required Before Beginning Work:** Prior to the start of construction, the permittee must obtain a National Pollution Discharge Elimination System (NPDES) permit from the Oregon Department of Environmental Quality (DEQ), if one is required by DEQ.
9. **Pre-construction Resource Area Fencing or Flagging:** Prior to any site grading, the boundaries of the avoided wetlands, waterways, and riparian areas adjacent to the project site must be surrounded by noticeable construction fencing or flagging. The marked areas must be maintained during construction of the project and be removed immediately upon project completion.

General Construction Conditions

10. **Water Quality Certification:** The Department of Environmental Quality (DEQ) may evaluate this project for a Clean Water Act Section 401 Water Quality Certification (WQC). If the evaluation results in issuance of a Section 401 WQC, that turbidity condition will govern any allowable turbidity exceedance and monitoring requirements.
11. **Erosion Control Methods:** The following erosion control measures (and others as appropriate) must be installed prior to construction and maintained during and after construction as appropriate, to prevent erosion and minimize movement of soil into waters of this state.
 - a. All exposed soils must be stabilized during and after construction to prevent erosion and sedimentation.
 - b. Filter bags, sediment fences, sediment traps or catch basins, leave strips or berms, or other measures must be used to prevent movement of soil into waterways and wetlands.
 - c. To prevent erosion, use of compost berms, impervious materials or other equally effective methods, must be used to protect soil stockpiled during rain events or when the stockpile site is not moved or reshaped for more than 48 hours.

- d. Unless part of the authorized permanent fill, all construction access points through, and staging areas in, riparian and wetland areas must use removable pads or mats to prevent soil compaction. However, in some wetland areas under dry summer conditions, this requirement may be waived upon approval by DSL. At project completion, disturbed areas with soil exposed by construction activities must be stabilized by mulching and native vegetative plantings/seeding. Sterile grass may be used instead of native vegetation for temporary sediment control. If soils are to remain exposed more than seven days after completion of the work, they must be covered with erosion control pads, mats or similar erosion control devices until vegetative stabilization is installed.
- e. Where vegetation is used for erosion control on slopes steeper than 2:1, a tackified seed mulch must be used so the seed does not wash away before germination and rooting.
- f. Dredged or other excavated material must be placed on upland areas having stable slopes and must be prevented from eroding back into waterways and wetlands.
- g. Erosion control measures must be inspected and maintained as necessary to ensure their continued effectiveness until soils become stabilized.
- h. All erosion control structures must be removed when the project is complete and soils are stabilized and vegetated.

12. Hazardous, Toxic, and Waste Material Handling: Petroleum products, chemicals, fresh cement, sandblasted material and chipped paint, wood treated with leachable preservatives or other deleterious waste materials must not be allowed to enter waters of this state. Machinery refueling is to occur at least 150 feet from waters of this state and confined in a designated area to prevent spillage into waters of this state. Barges must have containment system to effectively prevent petroleum products or other deleterious material from entering waters of this state. Project-related spills into waters of this state or onto land with a potential to enter waters of this state must be reported to the Oregon Emergency Response System (OERS) at 1-800-452-0311.

13. Archaeological Resources: If any archaeological resources, artifacts or human remains are encountered during construction, all construction activity must immediately cease. The State Historic Preservation Office must be contacted at 503-986-0674. You may be contacted by a Tribal representative if it is determined by an affected Tribe that the project could affect Tribal cultural or archeological resources.

14. Construction Corridor: There must be no removal of vegetation or heavy equipment operating or traversing outside the designated construction corridor, access routes or footprint (Figures C2 - C7).

15. Hazards to Recreation, Navigation or Fishing: The activity must be timed so as not to unreasonably interfere with or create a hazard to recreational or commercial navigation or fishing.

16. Operation of Equipment in the Water: Heavy equipment may be positioned on or traverse the area below ordinary high water only when the area is free of flowing or standing water or if the area is isolated from the waterway. All machinery operated below ordinary high water (OHW) elevation must use vegetable-based hydraulic fluids, be steam cleaned and inspected for leaks prior to each use, and be diapered to prevent leakage of fuels, oils, or other fluids below OHW elevation. Any equipment found to be leaking fluids must be immediately removed from and kept out of OHW until repaired. Equipment staging, cleaning, maintenance, refueling, and fuel storage must be at least 150 feet from OHW and wetlands to prevent contaminates from entering waters of the state.

- 17. Work Area Isolation:** The work area must be isolated from the water during construction by using a silt curtain or similar structure in accordance with the work area isolation plan in the application. All structures and materials used to isolate the work area must be removed immediately following construction and water flow returned to pre-construction conditions.
- 18. Raising or Redirecting Water:** The project must not cause water to rise or be redirected and result in damage to structures or property on the project site as well as adjacent, nearby, upstream, and downstream of the project site.
- 19. Temporary Ground Disturbances:** All temporarily disturbed areas must be returned to original ground contours at project completion.

Voluntary Wetland and Waterway Conditions

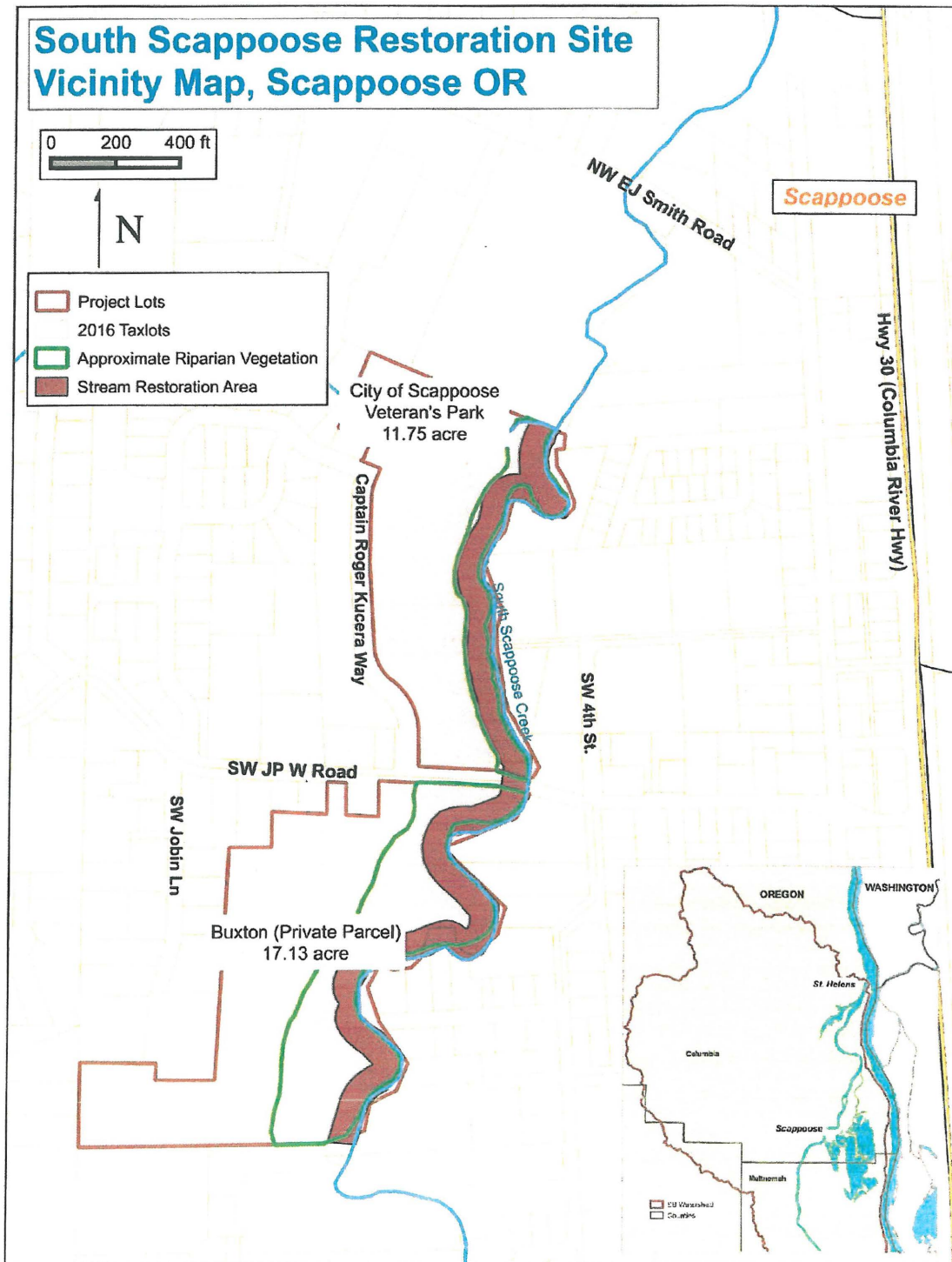
- 20. Mitigation Credits for Voluntary Restoration Projects:** DSL will not recognize future mitigation credits for the resource gains generated by this project unless the applicant receives written consent from DSL approving the baseline conditions, including but not limited to a wetland delineation and function assessment, prior to the start of project construction.
- 21. Post-Construction Report Required:** A post-construction report demonstrating as-built conditions and discussing any variation from the approved plan must be provided to DSL within 90 days of revegetation. The post-construction report must include:
- a. A scaled drawing, accurate to 1-foot elevation, clearly showing the following:
 1. Finished contours of the site.
 2. Current tax lot and right-of-way boundaries.
 3. Photo point locations.
 - b. Photos from fixed photo points. This should clearly show the site conditions.
 - c. A narrative that describes any deviation from the approved enhancement plan.

ATTACHMENT B

Permit Holder: Scappoose Bay Watershed Council

Project Name: South Scappoose Creek Restoration Project

Maps and Drawings for Removal/Fill Permit No. 60968-RF





DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, PORTLAND DISTRICT
P.O. BOX 2946
PORTLAND, OREGON 97208-2946

April 20, 2018

Regulatory Branch
Corps No.: NWP-2018-111

Ms. Pat Welle
Scappoose Bay Watershed Council
57420-2 Old Portland Road
Warren, OR 97053
pat@scappoosebay-wc.org

Dear Ms. Welle:

The U.S. Army Corps of Engineers (Corps) received your request for Department of the Army authorization to conduct aquatic habitat restoration. The project is in South Scappoose Creek and an unnamed wetland, at SW JP West Road, in Scappoose, Columbia County, Oregon (45.7589°, -122.8827°). This letter verifies your project as depicted on the enclosed drawings (Enclosure 1) is authorized by Nationwide Permit (NWP) No.: 27, Aquatic Habitat Restoration, Establishment, and Enhancement Activities (*Federal Register, January 6, 2017, Vol. 82, No.: 4*).

The project would restore 0.75 miles of South Scappoose Creek by laying back banks, constructing floodplain benches, and creating side channel reconnections to provide off-channel habitat for ESA-listed salmonids. The project would stabilize the banks at a 4:1 slope and plant to protect from future erosion.

Approximately 58 cubic yards of large wood would be placed below the Ordinary High Water Mark (OHWM) of South Scappoose Creek within approximately 0.05 acre (136 linear feet), and approximately 33 cubic yards of large wood would be placed within approximately 0.05 acre of wetland as part of this project.

Logs would be secured to each other using rebar pins and ballasted by embedding the stem portion of the rootwad into the bank. Live willow stakes would be incorporated vertically and any disturbed areas would be planted/seeded upon completion.

In order for this authorization to be valid, you must ensure the work is performed in accordance with the enclosed Nationwide Permit 27 Terms and Conditions (Enclosure 2); the Oregon Department of Environmental Quality (DEQ) 401 Water Quality Certification Conditions (Enclosure 3); and the following special conditions:

a. All in-water work shall be performed during the in-water work period of July 1 to September 15, to minimize impacts to aquatic species. Exceptions to this time period requires specific approval from the Corps and the National Marine Fisheries Service.

b. The lead Federal action agency Bonneville Power Administration (BPA) has determined the proposed project may effect species protected by the Endangered Species Act and Essential Fish Habitat for salmon species as designated under the Magnuson-Stevens Fishery Conservation and Management Act. The BPA utilized a programmatic biological opinion to assess compliance with these laws and provide coverage for incidental take. The biological opinion is titled *Endangered Species Act Section 7 Formal Programmatic Biological and Conference Opinion, Letter of Concurrence, and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for Bonneville Power Administration's Habitat Improvement Program III (HIP III) KEC-4*, issued by National Marine Fisheries Service (NMFS) on March 22, 2013. The Corps recommends that you review the programmatic biological opinion in its entirety.

Permittee shall fully implement all applicable nondiscretionary Terms and Conditions of the Reasonable and Prudent Measures of the BPA programmatic biological opinion in Enclosure 4.

c. Permittee shall notify the BPA and the Corps if the project changes in scope or is otherwise modified. The BPA is required to reinitiate consultation on this action where discretionary Federal involvement or control over the action has been retained or is authorized by law and (a) the amount or extent of taking specified in the Incidental Take Statement is exceeded, (b) new information reveals effects of the action that may effect listed species or critical habitat in a manner or to an extent not previously considered, (c) the identified action is subsequently modified in a manner that has an effect to the listed species or critical habitat that was not considered in the biological opinion; or (d) a new species is listed or critical habitat designated that may be effected by the identified action (50 CFR 402.16).

d. Permittee shall perform all of the work from the top of the stream banks to protect riparian vegetation around the creek and wetlands to reduce impacts the aquatic system. Vegetation that will remain in place shall be clearly flagged to avoid accidental removal.

e. Permittee shall ensure all appropriate sediment and erosion control devices are installed and in proper working order prior to construction. Devices shall remain in place until the area is stabilized and construction is complete. If necessary, sediment and erosion control may be left in place after construction is complete to facilitate stabilization. However, upon stabilization all devices shall be removed from the area and disposed of in and upland location.

f. Permittee shall dispose of excavated materials at a suitable upland location, and adequately stabilized to minimize increases in turbidity levels and indirect impacts to wetlands and other aquatic systems. The material shall be placed in a location and manner that prevents its discharge into waterways or wetlands. In the event of spills, affected material shall be taken to an appropriate upland location (and properly disposed of in accordance with any state standards or requirements).

The DEQ has issued a 401 Water Quality Certification for this project. No further coordination with DEQ is required provided the work is performed in accordance with all of the enclosed conditions.

We have determined the aquatic resources identified on the enclosed Preliminary Jurisdictional Determination (PJD) form “may be” waters of the U.S. (Enclosure 5). The aquatic resources shown on the enclosed drawings are considered “potential jurisdictional waters” and the boundaries are approximate. These waters have been treated as jurisdictional waters of the U.S. for purposes of computation of impacts and compensatory mitigation requirements. Please see the enclosed PJD form for additional information on the applicability of a PJD. If you concur with the PJD, please sign and return the PJD form to either the letterhead address above or the email address below within 30 days of the date of this letter.

The enclosed PJD is advisory in nature and may not be appealed. However, you have the option to request an Approved Jurisdictional Determination (AJD). An AJD is an official determination regarding the presence or absence of waters of the U.S. and is an appealable action. The enclosed *Notification of Administrative Appeal Options and Process and Request for Appeal* form describes options regarding PJDs and AJDs (Enclosure 6). If an AJD is requested, please be aware that we may require the submittal of additional information to complete the AJD and work authorized in this letter may not occur until the AJD has been finalized.

The enclosed PJD finds there “may be” waters of the U.S. in the subject review area and the determination does not have an expiration date. However, the Corps may re-evaluate this determination at any time if new information warrants revisions.

The verification of this NWP is valid until March 18, 2022, unless the NWP is modified, reissued, or revoked prior to that date. If the authorized work has not been completed by that date and you have commenced or are under contract to commence this activity before March 18, 2022, you will have until March 18, 2023, to complete the activity under the enclosed terms and conditions of this NWP. If the work cannot be completed by March 18, 2023, you will need to obtain a new NWP verification or authorization by another type of Department of the Army permit.

Our verification of this NWP is based on the project description and construction methods provided in your permit application. If you propose changes to the project, you must submit revised plans to this office and receive our approval of the revisions prior to performing the work. Failure to comply with all terms and conditions of this NWP verification invalidates this authorization and could result in a violation of Section 404 of the Clean Water Act. You must also obtain all local, state, and other federal permits that apply to this project.

Upon completing the authorized work, you must fill out and return the enclosed *Compliance Certification* form (Enclosure 7). We would like to hear about your experience working with the Portland District, Regulatory Branch. Please complete a customer service survey form at the following address:
http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey.

If you have any questions regarding this NWP verification, please contact Ms. Danielle Erb at the letterhead address, by telephone at (503) 808-4368, or e-mail: danielle.h.erb@usace.army.mil.

FOR THE COMMANDER, AARON L. DORF, COLONEL, CORPS OF ENGINEERS,
DISTRICT COMMANDER:

ERB.DANIELLE.HA
RPER.1379534674

Digitally signed by
ERB.DANIELLE.HARPER.1379534674
DN: c=US, o=U.S. Government, ou=DoD,
ou=PKI, ou=USA,
cn=ERB.DANIELLE.HARPER.1379534674
Date: 2018.04.24 08:01:30 -07'00'

Shawn H. Zinszer
Chief, Regulatory Branch

Enclosures

cc:

Oregon Department of State Lands (dan.cary@state.or.us)
Oregon Department of Environmental Quality (401applications@deq.state.or.us)



Ecological Restoration Design ~ Civil Engineering ~ Natural Resource Management

TECHNICAL MEMORANDUM

To: Chris Negelspach P.E., City Engineer
City of Scappoose

From: Jake Hofeld, P.E., Senior Engineer
Waterways Consulting, Inc.

Date: ~~April 13, 2018~~ May 24, 2018 (Revised)

Re: South Scappoose Creek Restoration— Management Zones G and H Hydraulic Analysis

Introduction

The Scappoose Bay Watershed Council (SBWC) is preparing to implement a habitat enhancement project on South Scappoose Creek within the city limits of Scappoose, Oregon. The proposed restoration approach for this project involves a combination of grading inset floodplain benches along the creek, reconnecting abandoned off-channel areas, laying back steep channel banks, and installing several log structures. This project will result in a net removal of approximately 6,200 cubic yards of material from within the floodplain and floodway. Several of the log structures will be used to provide both in-channel habitat complexity and bank toe protection where the channel is close to City park infrastructure. Following construction, the SBWC will establish a riparian buffer to provide long-term bank stability and improved habitat.

Because of the complexities involved in managing the balance between maintaining flood conveyance capacity and improving conditions for threatened or endangered anadromous fish in the City of Scappoose (City), the City has produced development ordinance language that specifically addresses stream habitat restoration projects developed in the FEMA designated floodway (Section 17.84.180.C). According to this ordinance, a qualified professional engineer shall provide a feasibility analysis and certify that any rise in the 100-year flood water surface elevations area as close to zero as possible with confirmation that any rise that does occur will not impact any structures. This memo is intended to provide such feasibility analysis summary and certification of no rises occurring in the 100-year floodplain water surface elevations and assesses potential impacts due to changes in channel velocities due to the project for the South Scappoose Creek Restoration— Management Zones G and H Project.

Hydraulic Analysis

Waterways developed a one-dimensional HEC-RAS hydraulic model of the existing and proposed condition to evaluate potential impacts on the 100-year water surface elevations and channel velocities. Figure 1 shows the locations of the cross sections used for this model. Data used to represent the existing channel and floodplain geometry was based on a combination of Waterways field survey data from 2012 and 2018, bathymetric data collected in 2017, and existing LiDAR data provided by DOGAMI. Waterways also used data provided by Columbia County for the replacement of the JP West Road Bridge to accurately represent the bridge crossing in the model. This analysis also used a 100-year peak flow

rate of 8,041 cubic feet per second that was used to model the bridge. The proposed channel geometry was based on modification of the existing geometry to match the proposed design. Roughness values for the channel and floodplain were set based on field indicators and peer-reviewed literature.

The results from this analysis for water surface elevations are shown in Table 1.

Table 1. Summary of 100-Year Peak Flow Hydraulics			
100-Year Water Surface Elevations (NAVD 88)			
River Station	Existing Conditions Water Surface Elevations (ft)	Proposed Conditions Water Surface Elevations (ft)	Difference
3361.61	52.21	52.13	-0.08
3330.23	52.2	52.14	-0.06
3229.52	52.12	52.06	-0.06
3071.22	52	51.92	-0.08
2931.88	51.93	51.85	-0.08
2911.39	51.91	51.85	-0.06
2875.78	51.86	51.77	-0.09
2800.02	51.77	51.68	-0.09
2676.34	51.67	51.58	-0.09
2555.95	51.61	51.51	-0.10
2507.13	51.58	51.49	-0.09
2447.56	51.58	51.49	-0.09
2226.62	51.48	51.41	-0.07
2140.41	51.43	51.40	-0.03
2033.08	51.36	51.3	-0.06
1998.06	51.28	51.22	-0.06
1901.34	51.24	51.2	-0.04
1701.19	51.05	51	-0.05
1606.68	50.4	50.3	-0.10
1548.78	49.69	49.6	-0.09
1496.17	50.04	49.95	-0.09
1388.92	50.02	49.95	-0.07
1224.5	49.84	49.78	-0.06
1061.88	49.78	49.73	-0.05
790.77	49.56	49.55	-0.01
620.75	49.55	49.53	-0.02
524.14	49.56	49.54	-0.02
325.39	49.52	49.52	0.00
152.04	49.49	49.49	0.00
96.7	49.48	49.48	0.00
59.77	49.46	49.46	0.00
17.5	49.35	49.35	0.00

The results from this analysis for channel velocities are shown in Table 2.

Table 2. Summary of 100-Year Peak Flow Hydraulics			
100-Year Channel Velocities			
River Station	Existing Conditions Channel Velocities (ft/s)	Proposed Conditions Channel Velocities (ft/s)	Difference
3361.61	2.21	2.24	0.03
3330.23	2.08	1.56	-0.52
3229.52	2.72	2.69	-0.03
3071.22	3.27	3.35	0.08
2931.88	2.57	2.61	0.04
2911.39	2.64	2.47	-0.17
2875.78	2.96	3.03	0.07
2800.02	3.06	3.12	0.06
2676.34	3.14	3.22	0.08
2555.95	2.78	2.87	0.09
2507.13	2.94	2.87	-0.07
2447.56	2.29	2.31	0.02
2226.62	2.42	2.14	-0.28
2140.41	2.82	2.28	-0.54
2033.08	3.01	2.98	-0.03
1998.06	3.53	3.55	0.02
1901.34	2.82	2.72	-0.10
1701.19	3.57	3.63	0.06
1606.68	6.29	6.47	0.18
1548.78	7.60	7.69	0.09
1496.17	3.87	3.97	0.10
1388.92	2.9	2.89	-0.01
1224.5	3.39	3.31	-0.08
1061.88	2.54	2.5	-0.04
790.77	3.33	3.09	-0.24
620.75	2.01	2.00	-0.01
524.14	1.3	1.28	-0.02
325.39	1.89	1.41	-0.48
152.04	1.68	1.64	-0.04
96.7	1.65	1.64	-0.01
59.77	2.08	2.01	-0.07
17.5	3.35	3.35	0.00
Average	2.96	2.90	

The river stationing listed in the tables corresponds to the cross-section stations shown on Figure 1. These results show that the proposed project will not create a rise at any of the cross sections modeled following construction of the project.

The channel velocity results show minor increases and decreases in the channel velocities with an average decrease of 0.06 feet per second (ft/s) in channel velocities throughout the project area. Increases in channel velocity all occur at cross sections where no grading work is being proposed as part of the design, while decreased velocity corresponds to areas being graded.

Conclusion

Based on the water surface elevation results, this memo certifies that the proposed grading along South Scappoose Creek will not create a rise in water surface elevations during the 100-year flood event and will not have any hydraulic impacts upstream or downstream of the project area.

The results for the channel velocities indicates that on a project reach scale, there will be a slight reduction in channel velocities overall. The increases in velocities shown in Table 2 represent a maximum 3 percent increase in channel velocities at associated cross sections, and are the result of a lower water surface with more of the flood flow being conveyed through the channel versus the floodplain. These increases are considered within the error of the model and are therefore assumed to be negligible. The modeling results for channel velocity also indicate that in areas where bank grading is occurring there will be a reduction in channel velocity of up to -0.5 ft/s (25% reduction), with the most pronounced reductions occurring where side channel reconnections and inset floodplain benches are being excavated. This result is due to the fact that the cross sectional channel area in these locations is being increased, resulting in a decrease in velocities.

The potential for these changes in velocity to increase sediment deposition is minimal because the bed material in this reach consists primarily of silts and clays that would remain in suspension during high flow events. Increases in sediment deposition is less a function of high flow velocities and more a result of localized changes in bed roughness or the presence of an obstruction in the channel, such as large wood. Under existing conditions, two sections of South Scappoose Creek, within the project area, were noted as having several key pieces of large woody debris that have created small debris jams. Field observations of these key pieces suggest that they fell into the creek from the adjacent bank and have accumulated smaller pieces. Localized input of key pieces appears to be the dominant mechanism for creation of local debris jams given the narrow, sinuous geometry of the creek and the relatively low velocities, even during high flow events. Given the minimal increases in channel velocity indicated from the results, the proposed project will not have any effect on the mobility of those key pieces during the 100-year flood event.

References

U.S. Army Corps of Engineers. 2008, Hydrologic Engineering Center. Computer Program HEC-RAS Version 5.0.3. Davis, California.

Waterways Consulting, Inc. South Scappoose Restoration Design – Management Zones G and H Preliminary Basis of Design Report. Prepared for Scappoose Bay Watershed Council. March, 2018.

David Evans and Associates, Inc. JP West Road Bridge Replacement Over Scappoose Creek – Letter of Map Revision. Prepared for Columbia County. December 2015.



Hydraulic Analysis Cross Section Location Map

SCALE: 1" = 200'

**SOUTH SCAPPOOSE RESTORATION
MANAGEMENT ZONES G & H
PRELIMINARY BASIS OF DESIGN REPORT**



prepared for
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March 5, 2018

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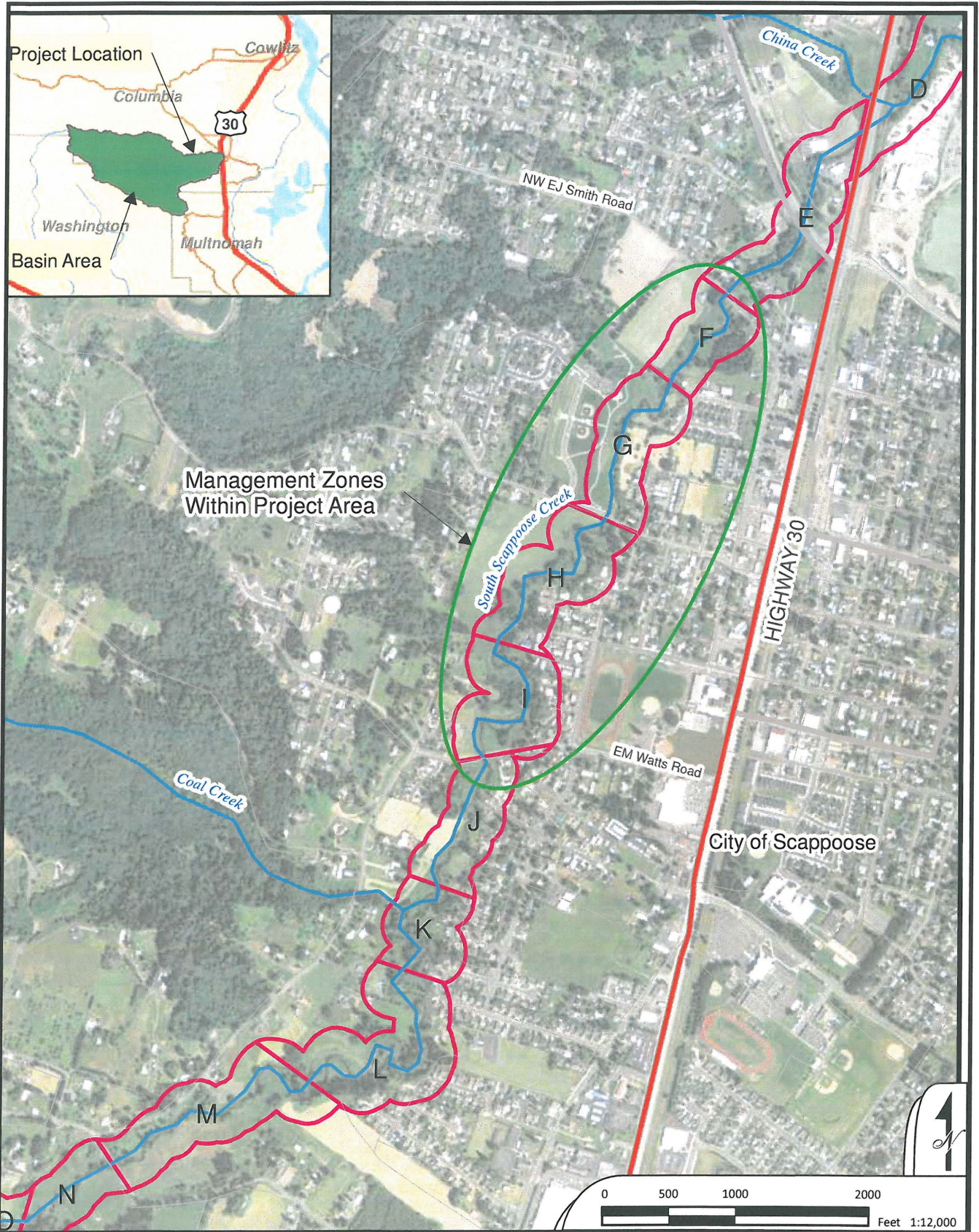
1.0 INTRODUCTION

In 2000, the Scappoose Bay Watershed Council (SBWC) completed a watershed assessment for the streams and catchments that enter Scappoose Bay (DEA, 2000). This assessment identified several reaches of stream where past incision had reduced channel - floodplain interaction and impacted the complexity and quality of aquatic habitat. The lower five-mile stretch of South Scappoose Creek in the vicinity of the City of Scappoose was one area identified in the assessment as impaired. In 2009, Swanson Hydrology and Geomorphology (SH+G) developed a restoration planning document that evaluated this stretch of South Scappoose Creek and split the channel into 18 Management Zones (Figure 1), each of which were assigned a prioritization ranking. The prioritization was based on evaluation criteria that included accessibility, ecological benefit, landowner cooperation, community benefit (public value and health and safety), and cost.

Since completion of the restoration plan, Waterways Consulting, Inc. (Waterways) has been working with the SBWC to plan, design, and assist with the construction of several restoration projects within these Management Zones. Specifically, a bank stabilization project was completed in 2010 in Management Zone O, and a floodplain restoration project was completed in 2011 in Management Zone C at the confluence of North and South Scappoose Creeks.

In 2013, Waterways was retained by the SBWC to develop a floodplain restoration alternatives analysis for a portion of South Scappoose Creek running through the City of Scappoose within Management Zones F, G, H, and I. A technical memorandum was prepared that evaluated restoration opportunities and constraints within each of the Management Zones that built upon the impacts and stressors identified in the original planning document (SHG, 2009). The alternative analysis included a description of the restoration objectives, range of potential restoration alternatives, site conditions with associated constraints, and estimated construction costs for each of the proposed restoration activities. Following completion of the alternatives analysis, the City of Scappoose, SBWC, property owners within the project footprint, and other interested stakeholders were asked to evaluate the range of alternatives and select and prioritize specific restoration actions within each of the assessed Management Zones. The technical memorandum was updated to reflect the decision of the selection committee and the SBWC pursued potential grant opportunities to obtain funding for the project.

In 2017, the SBWC obtained funding to complete the engineering design, obtain the necessary regulatory permits, and construct the project. Funding for the project was provided by the City of Scappoose, the Oregon Watershed Enhancement Board (OWEB), and the Bonneville Power Administration (BPA) to implement the preferred alternative within Management Zones G and H. All of the proposed work would occur along the west bank of Scappoose Creek on property owned by the City of Scappoose (Management Zone G) and the Buxton family (Management Zone H).



Overview of the study area and Management Zones from the 2009 South Scappoose Creek Restoration

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FIGURE
1

In general, the project reach has been significantly impacted by channel incision and is similar to much of lower South Scappoose Creek. The incision has reduced the frequency of flows accessing the floodplain and increased shear stress on the channel bed and banks. This, in turn, has led to moderate to high levels of bank instability as the channel tries to adjust to the added energy. Localized channel armoring at bridges, both upstream and downstream of the project area appears to have arrested the upstream migration of historic head cuts and created backwater conditions upstream of the bridges. Consequently, further incision of the stream within this project area is unlikely. Instead the channel appears to be going through a widening phase to force the creation of an inset floodplain.

The desired outcome of this project is to increase floodplain interaction, stabilize the banks either actively through bioengineering methods or passively by creating conditions that support native riparian vegetation, and enhancing the existing riparian corridor. Because this reach is within the City of Scappoose, the design needs to meet these goals without increasing flood water surface elevation. Therefore, the proposed restoration approach for this project involves a combination of creating inset floodplains, reconnecting abandoned off-channel areas, and laying back the steep banks to allow for vegetation establishment. In addition, a robust revegetation plan is being proposed to establish a native riparian buffer along the left bank of the channel ranging from 50 to 150 feet.

2.0 PROJECT SETTING

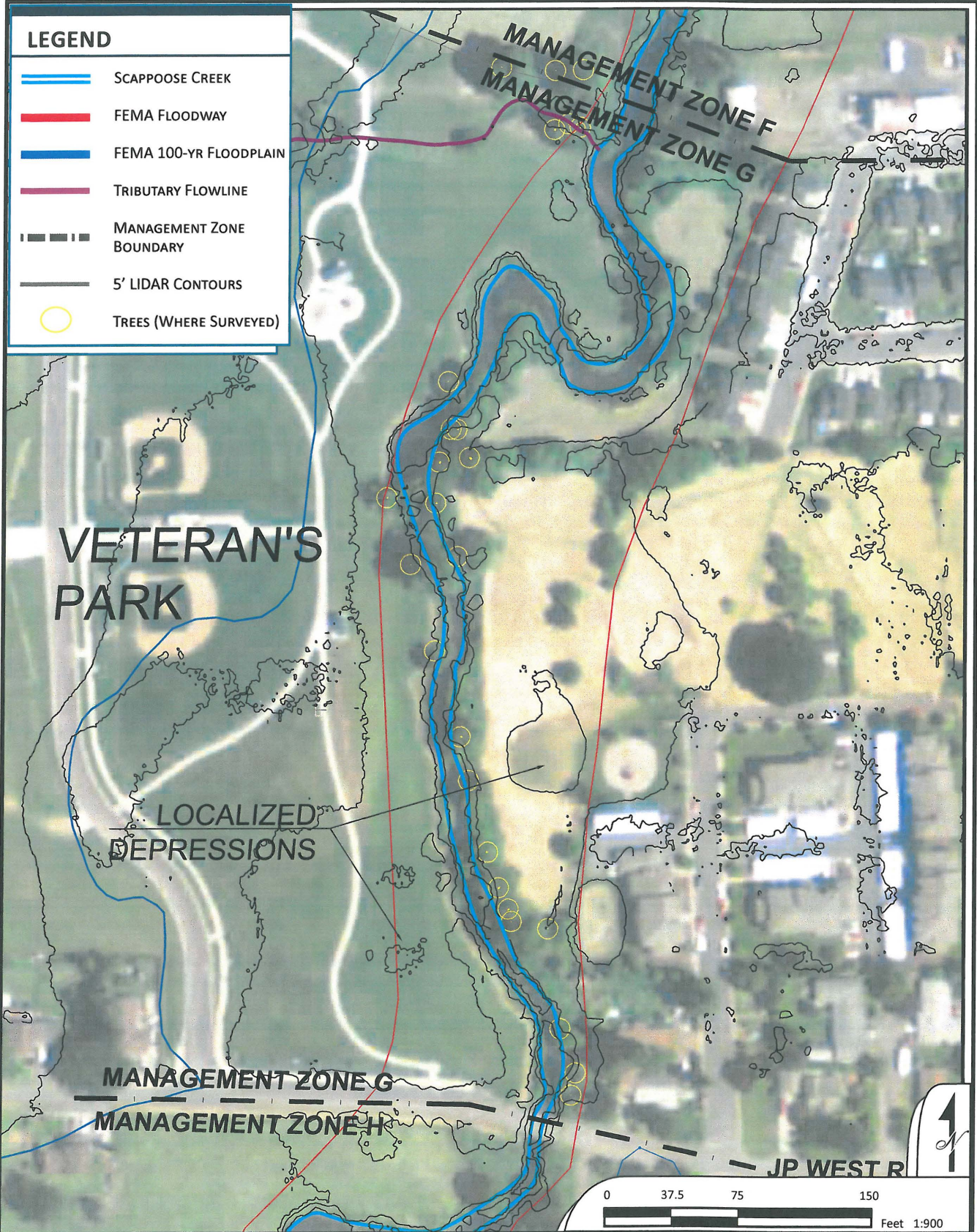
2.1 General Site Description

The contributing drainage area to South Scappoose Creek at the downstream end of the project area is approximately 25 square miles. Management Zone G extends from the northern edge of Veteran's Park to the north of the JP West Road bridge (Figure 2). This reach is also characterized by a highly incised, slightly sinuous channel with moderately unstable banks and two areas of active bank erosion. The right bank floodplain includes pastures/meadows separating medium density residential housing from the channel. A moderate number of mature trees grow along the right bank with only one remaining mature tree growing along the left bank. The left bank floodplain is entirely within Veteran's Park. A small tributary enters into South Scappoose Creek at the northern edge of the park. Substantial incision and active channel/bank erosion of this tributary is evident to approximately 100 feet from the confluence. Just to the north of JP West road along the right and left banks, berms parallel to the bank separate the channel from slight depressional areas.

Management Zone H is located between the JP West bridge to the north and extends south to approximately halfway between JP West Road and EM Watts Road (Figure 3). The stream channel within this reach is more sinuous with moderate bank instability along the left bank and mild to moderate bank instability along the right bank. Residential properties extend up to the edge of the channel along the right bank while the left bank is pasture land out to the edge of the 100-year floodplain with fewer mature trees. In addition to having relatively several contiguous patches of riparian vegetation, the left floodplain also contains multiple depressions which are remnant channels that are only inundated during higher flow events. At the southern edge of this reach, a small intermittent tributary enters one of these depressions creating a seasonal wetland dominated by large Oregon ash trees. There are also several areas of active erosion occurring along the left bank which have been exacerbated by cattle accessing the stream.

Historically, the channel was more sinuous with side channel wetlands and a shallower channel depth, resulting in more frequent overtopping into adjacent floodplains. Given the historic frequency of floodplain access, the floodplain likely consisted of a mosaic of channels and wetlands and was more variable topographically than the modern floodplain. The historic floodplain vegetation community likely consisted of a mix of hardwoods and conifers with a dense understory resulting in a floodplain with high roughness¹ and a continuous canopy, providing an ample supply of large wood to the channel. A healthy

¹ Roughness is a term used to describe channel and/or floodplain complexity and the resistance to flowing water of elements within the channel and/or floodplain, such as trees, structures, fences, boulders, sinuosity or other obstructions. For example, a well-mowed, or grazed, meadow is considered to be lower in roughness than a willow thicket because it results in less resistance to flow. Traditional engineered flood control solutions sought to achieve low roughness (and higher flow conveyance) by constructing straight, concrete-lined channels.

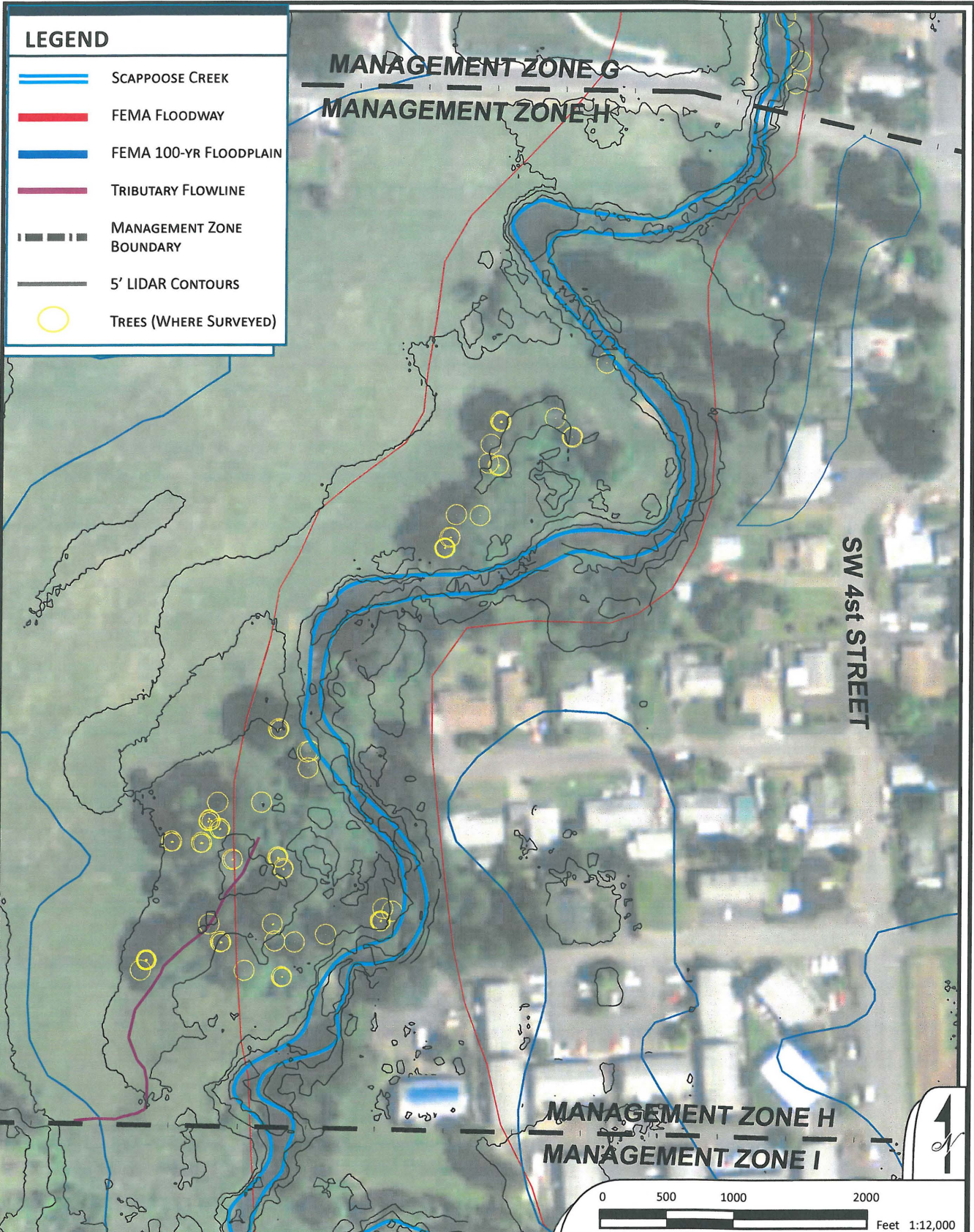


Management Zone G extents showing topography and features in the vicinity of South Scappoose Creek.








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FIGURE
2



LEGEND

-  SCAPPOOSE CREEK
-  FEMA FLOODWAY
-  FEMA 100-YR FLOODPLAIN
-  TRIBUTARY FLOWLINE
-  MANAGEMENT ZONE BOUNDARY
-  5' LIDAR CONTOURS
-  TREES (WHERE SURVEYED)

Management Zone H extents showing topography and features in the vicinity of South Scappoose Creek.

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FIGURE 3

supply of large wood and a well-connected floodplain provides natural grade control and limits risks of incision. To accommodate agricultural activities, the floodplains were cleared and drained and wood was most likely removed from the channel to improve conveyance and reduce the likelihood of channel avulsions and bank erosion. Portions of the channel were also modified to cut off tortuous meanders and create a shorter flow path. Historic meanders were most likely filled. The result of all of these activities, combined with changes to water levels in the Columbia River², caused severe channel incision.

2.2 Hydrology and Hydraulics

South Scappoose Creek is not a gaged stream, so historic streamflow data are not available. To provide estimated of peak discharges to support the project design, the USGS StreamStats software was used to generate the 2, 5, 10, 25, 50, and 100-year events. As part of its analysis, this software also determines the approximate contributing watershed area and several other parameters. Although two small tributaries enter South Scappoose Creek between the upstream and downstream ends of the project, these catchments are relatively small, so no separate peak flow values were established for each of the confluences. The point chosen to represent flows in South Scappoose Creek is at the upstream side of NW EJ Smith Road. Table 1 summarizes the drainage area and peak discharge estimates determined using StreamStats.

Drainage Area (mi ²)	2 Year (cfs)	5 Year (cfs)	10 Year (cfs)	25 Year (cfs)	50 Year (cfs)	100 Year (cfs)
25.2	1070	1590	1950	2400	2740	3080

The design of the proposed enhancement actions within the two Management Areas require estimating the approximate water surface elevations through the project reach at the bankfull discharge.

Furthermore, as part of the regulatory process, a delineation of Ordinary High Water, which is most cases approximates the bankfull discharge, is also required to identify areas under jurisdiction of the U.S. Army Corps of Engineers, a federal agency, and the Oregon Department of State Lands. The discharge for the 1.2-year return event³, which approximates bankfull (Castro and Jackson, 2001), was

² The Columbia River historically backwatered into Scappoose Bay and Scappoose Creek and controlled the overall base level of these tributary systems. Following completion of the flood management system, water surface elevations during peak flood events on the Columbia River have been reduced by an average of 10 feet. These conditions has caused areas of deposition at the mouth of Columbia River tributaries to move downstream, resulting in the upstream propagation of knickpoints through historic sediment deposits.

³ An annual exceedance probability provides a statistical estimate of the likelihood of a particular flood of a given magnitude to occur any given year. The most commonly used term associated with an exceedance probability analysis is the 100-year flood which refers to a particular discharge that has a 1% chance of occurring any given year (1 in 100 years or 1/100 = 1%). The 1.2-year flood event was estimated by researchers at Oregon State University (Castro and Jackson) as the flood event the best

estimated by plotting the annual exceedance probabilities versus peak discharges listed in Table 1. A trend line and associated regression equation was developed to estimate the peak discharge for the 1.2-year event of, which was determined to be approximately 843 cfs (Figure 5).

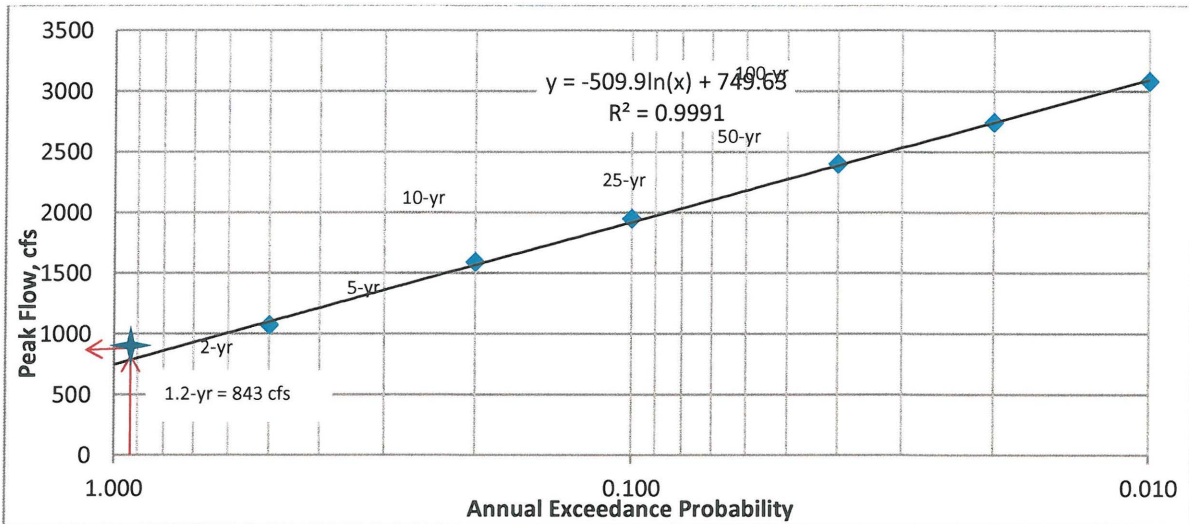


Figure 4: Discharge versus percent probability using flood frequency results from StreamStats to estimate the 1.2-year discharge event.

A primary characteristic of incised channels, like South Scappoose Creek, is that the floodplain is only activated during larger and less frequent high flow events, because the floodplain represents an historic, rather than modern depositional surface. To determine an appropriate water surface elevation for an inset floodplain, a hydraulic model was developed for the project area. The hydraulic model was used to generate a water surface elevation for the 1.2-year discharge that would then be used to guide the design of the bank layback and inset floodplain features.

The hydraulic model for the project area was developed using HEC-RAS Version 5.0.3 software developed by the U.S. Army Corps of Engineers. The model encompasses approximately 3,000 feet of South Scappoose Creek extending from approximately 100 feet north of Veterans Park to 100 feet south of the Buxton property boundary. The existing conditions model was developed using a combination of LiDAR data (DOGAMI), bathymetric data collected in January 2018, and supplemental topographic data collected along the left bank through the project reach. Additional survey elevations collected during a recent field-based assessment verified ground elevations. Cross-section information and the bridge

correlates to bankfull indicators in western Oregon, as measured in the field. In incised streams the indicator that is often the most useful is the line of mature vegetation.

geometry from the new crossing at JP West Road was incorporated into the model, where appropriate, from a HEC-RAS model provided by the City of Scappoose⁴.

Roughness coefficients for the channel were set at 0.06 and the floodplain roughness values were set between 0.035 and 0.09 depending on the land cover (FHA, 1984). Boundary conditions for this model were set to normal depth with an assumed slope of 0.0008 ft/ft at the downstream end. The model assumes a subcritical flow regime. The cross-section locations and cross-section stationing is shown in Figure 5. A water surface profile, relative to ground elevations at the top of bank and the channel bed profile is shown in Figure 6. The model results for the 1.2-year water surface profile shows that the estimated bankfull event ranges between 5 and 6 feet below the existing top of bank. Although results vary by location, the creek does not start inundating adjacent floodplains until events exceed the 5-year flood discharge.

⁴ The model provided by the City of Scappoose was developed to evaluate the design for the new crossing at JP West Road and was set up and calibrated to evaluate larger flood events and the impact of the new bridge on FEMA floodplain boundaries and water surface elevations. The City's model will be used to support other aspects of this project, including the No-Rise Analysis.



- LEGEND**
- EXISTING FLOW LINE
 - ORDINARY HIGH WATER (1.2 YR STORM)
 - FEMA FLOODWAY
 - FEMA 100-YEAR MSE

HEC-RAS SECTION PLAN VIEW
 SCALE: 1" = 100'

FIGURE 5

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

0 1"

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S. SCAPPOOSE CREEK HEC-RAS PROFILE

SCALE: 1" = 30'

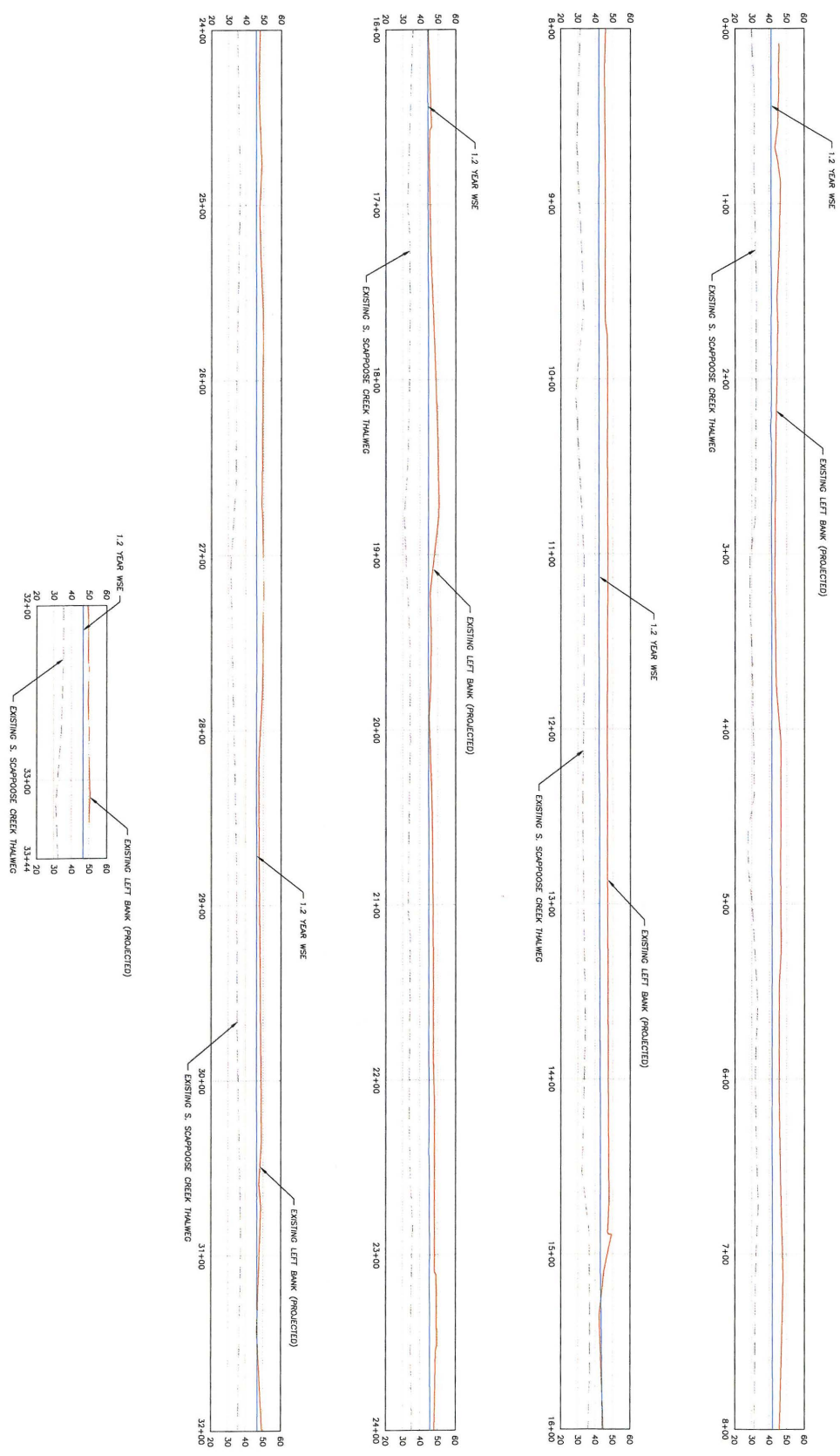


FIGURE 6

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

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3.0 DESIGN APPROACH

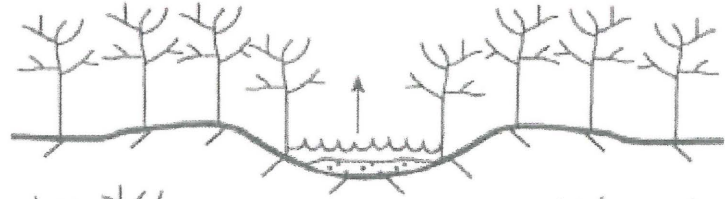
3.1 Conceptual Model

According to a conceptual model developed by Simon and Hupp (1986) that describes how an incised channel evolves over time in response to the initial incision event, this reach of South Scappoose Creek is in transition between Stage 3 and 4 (degradation and widening; Figure 7). Widening of the channel can result in the loss of remaining riparian vegetation, especially in areas where the corridor is already narrow, and may affect adjacent properties and infrastructure. A transition to Stage 5 would include aggradation of the channel with further widening.

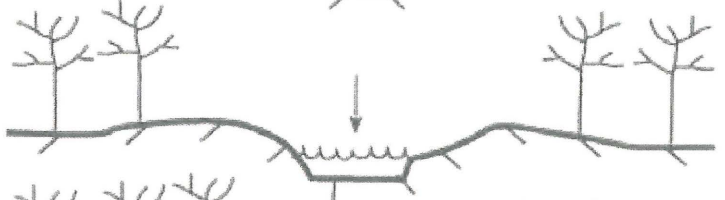
Using the conceptual model as a tool, the restoration community has identified two potential approaches to address the impacts associated with channel incision and the challenges the communities face as an incised channel progresses through the various stages. One approach involves measures to re-grade the channel, thereby forcing the bed of the channel back up to where it was historically and increasing the frequency that flows interact with the floodplain. The techniques to accomplish this vary considerably from site to site but can include channel-spanning structures, reducing the slope of the channel by forcing a more sinuous meander pattern, or other measures to increase channel roughness and enhance sediment deposition. A major constraint associated with this approach is the fact that it increases the elevation of the channel bed or increases planform roughness and is often accompanied by increases in flood elevations. In many cases, increases in flood elevations are not allowed due to impacts to adjacent properties and infrastructure as well as upstream effects, which have developed in response to the incised condition. This is the case in the project reach as residents and infrastructure have been built in portions of the active and historic floodplain that flood less frequently. Current regulations from the Federal Emergency Management Agency (FEMA), which sets rules that need to be adhered by local floodplain managers, restrict activities in the floodplain that would increase water surface elevations during a 100-year flood event.

An alternative approach to improving channel-floodplain interactions is to lower the elevation of the floodplain and essentially speeding up the predicted development of inset floodplain in Stage 6 of the Simon and Hupp model. This approach to restoration involves excavation of historic floodplain terrace deposits and is often accompanied by creation of lower terraces that flood more frequently, integration of floodplain wetland features, installation of habitat elements such as large wood, and a vigorous program of native riparian revegetation. The specific approach taken at each site needs to consider the hydrology to define the proposed bench elevations, soil conditions to minimize erosion of the bench prior to vegetation establishment, upstream and downstream effects, and the potential impacts that localized changes in cross-section geometry and channel-floodplain dynamics might have on sediment transport continuity through the system. One of the primary constraints on using this approach to

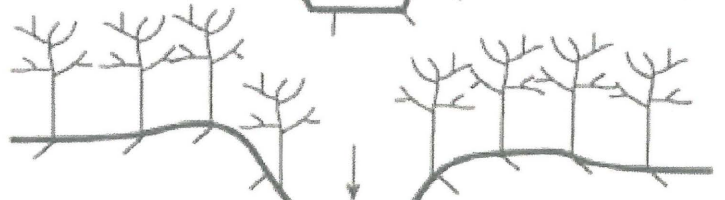
Stage 1:
Premodified



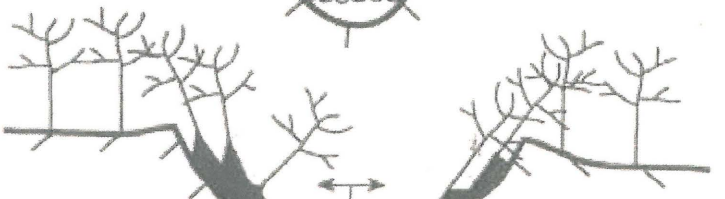
Stage 2:
Constructed



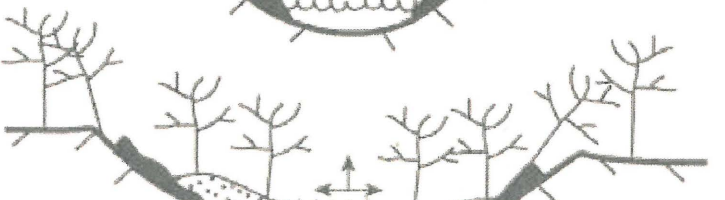
Stage 3:
Degradation



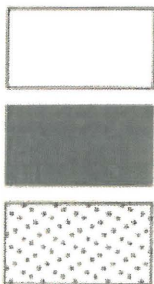
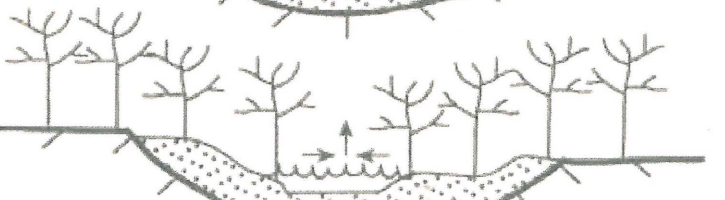
Stage 4:
Degradation and
widening



Stage 5:
Aggradation and
widening



Stage 6:
Quasi equilibrium



Water

Slumped material

Accreted material

Direction of bed or
bank movement

Stages of channel evolution (Simon and Hupp; adapted from Schumm)

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FIGURE
7

improve channel-floodplain dynamics is the cost associated with implementation. For the project to be effective it often requires that a large amount of material is removed from the adjacent floodplain terraces. In many cases the removed material needs to be hauled off site and a disposal site identified.

3.2 Proposed Project Design Elements

The key objectives of this project are to improve stream function and water quality within Management Zone G and H by stabilizing highly eroding streambanks, improving channel and floodplain interactions, where feasible, and establishing a native riparian vegetation buffer. Creating the riparian buffer is one of the most important long-term goals because establishing an adequate-sized, mature riparian buffer will allow the channel to be naturally dynamic while maintaining stream shading, recruiting large wood into the channel to enhance instream habitat for a variety of species, and provide natural bank stability that will protect the buffer and adjacent infrastructure. With these objectives in mind, the following treatments have been included in the design (the 60% engineering designs are included in Appendix A).

3.2.1 Bank Lay Back

Laying back the banks involves excavating historic floodplain/terrace deposits from the existing vertical banks to provide a more gradual transition from the top of bank down to approximately the 1.2-year event water surface elevation and revegetating the new slope with native plants⁵. Approximately 2,400 feet of bank lay back is proposed within Management Area G and H (see Sheets C3 through C7 in Appendix A). The only areas not proposed for bank layback are locations where stands of native, mature trees already occur, which the project will avoid, limiting impacts to existing riparian areas. The slopes will be cut back to a 4H:1V (see Sheet C8 for typical bank layback detail in Appendix A). Laying back the bank provides benefit in the short term by minimizing active bank erosion while providing more channel capacity during high flow events. Long-term benefits include the ability for plants to establish on the bank, thereby creating aquatic habitat improvement from additional shade, improved inputs of large wood, and long-term bank stabilization. Because the bank lay back does not also include active efforts to stabilize the toe, there may be additional bank erosion that occurs, especially for the first couple of years following construction until vegetation establishes.

⁵ A comparison of the modeled 1.2-year water surface elevation and on-the-ground field indicators suggests that the model may be slightly overestimating OHW. Field indicators, consisting of mature trees and shrubs along the right bank, suggest that OHW may be approximately 0.5 to 1 foot lower than the modeled elevation. This is likely due to the fact that peak discharges used in the model were generated from StreamStats, which, based on our experience, has consistently overestimated discharge. To account for the fact that the hydrology may be inaccurate, cut slopes, benches, and riparian planting areas have been adjusted downward approximately 0.5 feet.

3.2.2 Creation of Inset Floodplains

Inset floodplains, or floodplain benching, is proposed in two locations, one in Management Area G and one in Management Area H (see Sheets C3 and C6 in Appendix A). Approximately 100 feet of streambank (0.08 acres) in Management Area G and 120 feet of streambank (0.05 acres) in Management Area H will receive this treatment. The treatment consists of excavating a flat bench at approximate the 1.2-year event water surface elevation with a 4H:1V gradual slope up to the existing ground surface (see Sheet C8 for typical detail of inset floodplain benches in Appendix A). As with the previous option, this treatment reduces bank erosion and provides a slope and bench surface suitable for growing native species to improve riparian habitat and channel stability. The added benefit that this option over simply laying back the banks is that it creates more floodplain interaction at the more frequent high flow events and spreads the energy associated with high flows over a wider cross-section. This treatment is only proposed in two discrete locations because the treatment generates a large amount of material that will need to be disposed of, either locally or off-site. The locations selected represented the most opportune areas along the left bank given site conditions and the desire to confine this treatment to outer bend areas.

3.2.3 Bank Stabilization

Bank stabilization is proposed at two locations within Management Zone G where the banks are actively eroding (See Sheet C3 in Appendix A). Similar conditions exist within Management Zone H but active bank stabilization is only proposed in Management Zone G because existing infrastructure limits the overall width of the proposed riparian buffer. Consequently, there is a desire to protect and maintain the newly established buffer by limiting bank retreat that could result in narrowing of the buffer over time with no opportunity to expand it in the future.

The proposed approach to bank stabilization consists of installation of logs and rootwads to protect the toe of the channel between the streambed and OHW (see Sheets C3, C8, and C9 in Appendix A). The portion of the bank above OHW would still be cut back at a 4H:1V slope. Logs would be secured to each other using rebar pins and ballasted through a combination of log piles and embedment of the stem portion of the rootwad into the bank. Sod mats, obtained during construction of the bank layback and floodplain bench areas will be stacked behind the pile logs to create a planting bench that conforms with the 4H:1V cut slope and OHW. Ten-foot-long by 1.5-2-inch diameter willow live stakes will be incorporated vertically into the structure with the base of the willow pole extending down into the existing substrate and below the low flow water surface elevation. This will maximize opportunities for immediate root growth.

The bank stabilization structures have been designed to conform with the HIP III Programmatic Conservation Measures, as requested by BPA. Use of the HIP III Programmatic and conformance with the conservation measures and design guidelines for bank stabilization highlights the use of

bioengineering techniques. Based on the guidance, the bank stabilization treatments areas would be classified as medium to high risk because a) bankfull flow is greater than 500 cfs; b) the overall bank height is greater than 5 feet. The proposed design follows the conservation measures identified in Chapter 4 of the HIP III Guidance Document.

There is a requirement to justify the use of rebar pinning or bolting of log members. The bank stabilization structures are intended to provide scour protection along the outside of meander bends within Veteran's Park while providing habitat complexity. These logs structures are comprised of a log with an attached root wad, two pile logs, a header log and a footer log. The log with attached root wad provide the habitat complexity component, the footer log provides toe protection, the header log provides soil retention for the regraded slope, and the pile logs provide the ballasting. The header and footer logs also serve to hold the log with root wad in place. All of these members are bolted together to provide structural stability associated with a ballasted connection to the pile log. The locations of the structures with respect to the existing bank have been designed to protect the existing toe of bank to the maximum extent practicable while minimizing the amount of grading work below ordinary high water. The dominant bank erosion process on this portion of South Scappoose Creek is via erosion of the toe and subsequent upper block failure due to undercutting. This is especially true where grass is the dominant vegetation type and there is a lack of adequate rooting depth. Long-term, stability in the bank stabilization areas relies on growth of a dense riparian corridor.

The stability analysis for the proposed bank stabilization log structures in based on evaluation of the buoyancy forces acting on each log structure, assuming full submergence. This analysis was utilized to determine how much ballasting is required to counteract the buoyant force. A factor of safety is applied to the ballasting calculation to provide extra security that sufficient ballasting will be applied. The minimum assumed factor of safety that was used for the bank stabilization log structures is 2.0, which means that there is twice as much ballasting being applied to the log structures as would be require to resist the buoyant forces. Buoyancy forces acting on each member of the log structure are calculated using the following equation:

$$F_B = \gamma * V$$

Where:

- F_B = Force of Buoyancy (pounds)
- γ = specific weight of water (assumed to be 62.4 pounds per cubic foot)
- V = volume of the submerged object (cubic feet)

Summation of the forces of buoyancy on each log member results in the buoyant force acting on the log structure as a whole, assuming the following log properties:

- Logs are dry and seasoned Douglas Fir with a density of 33 pounds per cubic foot;

- Log dimensions are the maximum dimensions indicated on sheets C9 and C10 of the 60% design drawings.

For this project, the ballast is being provided by the vertical log piles. The ballasting forces were calculated based on the skin resistance of the piles embedded into the channel. The skin resistance force on each pile is calculated using the following equation:

$$Q_s = f * p * L$$

Where:

- Q_s = total frictional resistance (pounds);
- f = unit skin resistance based on soil type (pounds per square foot);
- p = perimeter of pile (feet);
- L = length of pile embedment (feet);

The unit skin resistance variable f is based on the assumption that the pile is embedded in clayey material similar to the material that the existing banks are comprised of. The α Method (as described in Section 13.6, page 517 of Fundamentals of Geotechnical Engineering, Das, 2000) is used to calculate a f of approximately 1040 pounds per structure (2 piles).

Dividing the calculated total frictional resistance of the two piles by the total buoyancy force acting on the log structure (2 piles, 1 rootwad, and 2 header/footer logs) results in a factor of safety of 6.6, which is more than three times the required factor of safety identified for the project. Furthermore, the weight of the soil above the buried portion of the log with root wad was considered incidental and not accounted for as ballast, though it is likely that butt end burial of the roowad log also provides additional ballast. The side channel log structure stability relies on the same assessment.

3.2.4 Side Channel Reconnection

The side channel reconnection treatment will occur at two locations within Management Area H and involves excavation of short segments of the existing bank down to create inlets and outlets to the historic channel segments (see Sheets C6 and C7 in Appendix A). The elevations for the inlet and outlet reconnections are dictated by local conditions and are not necessarily tied to the 1.2-year water surface elevation. Inlet and outlet locations were adjusted to avoid any existing mature trees, to the extent practicable. It is necessary to remove one 18-inch alder at the inlet of the side channel shown on Sheets C6. This approach improves stream functionality, floodplain connectivity and riparian corridor health, but is limited to those locations where remnant side channels already exist but are cut off from the main channel. Side slopes in the excavated inlets and outlets were cut to 4H:1V with bottom widths of approximately 10 feet. Rootwads were also added to the inlet and outlet areas to provide localized complexity while vegetation is reestablished. A total of ten rootwads were included in the design with five placed at each of the secondary channels. They're location and configuration vary at each site and

is a function of localize site conditions. They were all placed in areas where grading is occurring to minimize the need for additional disturbance. Each of the log placements consist of one rootwad, that will be trenched into the adjacent cut slope, and two piles that will be embedded at least six feet into the native soils and cross over at the top (see Sheet C10 in Appendix A). No additional ballasting or rebar pins will be used in these structures.

4.0 PROJECT IMPLEMENTATION

4.1 Overview

The project seeks to enhance approximately 9 acres of stream, riparian, and wetland function in Management Areas G and H. These actions consist of bank laybacks, creation of inset floodplain benches, bank stabilization, side channel reconnections, and restoration and enhancement of riparian and wetland habitats within a defined corridor. These activities will require the use of heavy equipment to conduct grading and install large wood structures throughout the site, which will create temporary disturbance and generate excess material (primary soil), that will need to be either managed onsite or off hauled and disposed of at an approved facility.

To limit construction-related impacts, speed the recovery of the site, and protect both short-term and long-term water quality, the project has been designed and will be constructed in conformance with conservation measures and best management practices identified in BPA's HIP III Programmatic. Although only a small portion of the work proposed will occur within the actively flowing waters of Scappoose Creek, all activities proposed for the project, other than vegetation planting, will occur within the specified in-water work window. For Scappoose Creek the in-water work window specified by Oregon Department of Fish and Wildlife (ODFW) is July 15 to August 31st. Activities such as equipment and material staging and establishment of site protection measures can occur prior to the in-water work window.

It is anticipated that the type of equipment that will be needed on-site for construction of the project is an excavator, dump truck, and potentially a front loader. A logging truck will also need to make several trips to the site to off-load the logs needed for the bank stabilization and floodplain log structures.

4.2 Site Access and Staging

The project area consists of two discrete areas separated by JP West Road. The northern portion of the project area is located in Veterans Park, a municipal park owned and managed by the City of Scappoose that contains baseball fields, open grassy areas, a playground, and walkways. The southern portion of the project area occurs entirely on private land owned by Chip Buxton and is currently managed as grazing land for a small herd of cattle. Given the land uses, the project is proposing that the Buxton property, which is fenced and gated, be used as the primary staging area for the project (see Sheet C2 in Appendix A). This area would act as the material storage site, equipment staging and storage, and refueling. The staging area is located more than 150 feet from the active channel, as specified in the HIP III guidance. Following construction, the staging area would be ripped to address compaction and receive seed and straw.

On the Buxton property, all access and haul routes would be temporary and utilize grazed pastureland outside of identified wetland areas. The only exception is the southerly wetland area. Construction equipment will need to access this area to create the side channel inlet. Given that disturbance will already need to occur in this area, access with heavy equipment will be restricted to the proposed excavation area, which will be flagged and staked prior to any construction activities.

Construction equipment access and hauling on the City property will utilize the temporary haul roads identified on Sheet C2. The work area on the Veterans Park property will be isolated from the rest of the park with temporary fencing. Ingress and egress of heavy equipment will occur at the specified construction entrance. The contractor will be required to protect the existing pathways in some manner to prevent damage to the concrete. All temporary access routes will be restored to pre-project conditions.

4.3 Cut Material Management

A significant component of the proposed project consists of excavating material from the historic floodplain terraces to lay back banks and cut a floodplain bench. Developing an approach to manage the material is important because the effort of off-hauling the excavated material and disposing of it at an improved facility can be expensive and have a significant environmental impact associated with fuel use and the number of truck trips on area roads. The ideal approach to managing the excess material is to balance the amount of cut on site with an equal amount of fill. Given constraints associated with the potential for impacts to wetlands, the suitability of the material, and concerns about impacts to the FEMA base flood elevation, a complete on-site balancing of cut and fill is often challenging.

The proposed activities in Management Areas G and H are expected to generate an excess of approximately 6,200 cubic yards that would primarily consist of a mix of silt, clays and silty loams. During a field meeting with regulatory staff at DSL and the Corps, they indicated that thin spreading of material in areas outside of wetlands but within the proposed riparian buffer areas could be a reasonable approach. Based on wetland determinations completed for both properties (see Sheets C2 and C12), approximately 4.7 acres were identified as a candidate for thin spreading within the *Riparian Terrace* planting area shown on Sheet C12. This spreading would consist of spreading excavated materials to a maximum depth of 4", covering existing mowed grass or pasture grass areas. The material would initially be stockpiled and then spread as the contractor worked their way out of completed areas to avoid any compaction. They would then be seeded and mulched prior to getting planted with native riparian vegetation. It was estimated that the site would accommodate approximately 2,920 cubic yards of material under the 4" thin-spread scenario. Thin spreading at that depth would likely not impact 100-year water surfaces.

In addition to the thin spread areas, regulatory staff at DSL also encouraged the design to include creation of additional topographic variability within the Buxton riparian buffer area to allow for more diversity in the vegetation community. High areas, referred to as *Hummocks*, would be irregular in shape and not impact existing wetlands. The potential locations are shown on Sheet C12 and encompass an area of approximately 0.68 acres. The depth of fill in these areas would be a maximum of one foot above surrounding areas. An additional 1,080 cubic yards of material could be placed in the hummocks, bringing the total to approximately 4,000 for the thin spread and hummock areas combined. This approach leaves an additional 2,200 cubic yards of material to manage. Chip Buxton has expressed a willingness to have the excess material stockpiled on his property in a location that would be outside of designated wetlands and the 100-year floodplain. Stockpiling the material in a suitable location to a depth of three feet maximum would only require approximately 0.5 acres. There appears to be an adequate number of locations on the Buxton property that meet those criteria. To verify the potential for utilizing on-site disposal on the Buxton property, a wetland delineation of the potential stockpile area will be required. This will be determined in the next phase of design. If on-site disposal of the remaining material is not feasible, the 2,200 cubic yards will be off-hauled to an approved facility.

4.4 Erosion Control BMP's

To minimize construction-related impacts to the site and protect water quality, the engineering design incorporates a number of best management practices (BMP) to be implemented prior to, during, and following construction. These BMP's and conservation measures are consistent with the conservation measures included in the HIP III guidance document for the design and construction of restoration projects. Several of the conservation measures have been discussed in detail in previous sections of this report.

Before construction begins, a boundary fence will be installed to minimize disturbance outside of the project area during construction. The staging and stockpile area will be located more than 150 feet from South Scappoose Creek or any perennial tributaries and will be located outside of mapped wetlands within the grazed pastureland located on the Buxton property. Fiber rolls or silt fence will be installed around the stockpiling area to prevent construction debris from leaving the project area.

The project will be constructed during the specified in-water work window. Although most of the work that is anticipated will not interact with flowing water, there is the potential for sediment to enter flowing water during excavation activities. To prevent this either a fiber roll or silt fence will be placed temporarily along the bank line within the active work area. If that is not feasible a turbidity curtain will be installed along the toe of slope to prevent, to the extent feasible, turbid water from leaving the project area. The turbidity curtain would be moved along the bank to protect the active work area.

For the bank stabilization portion of the project, it will be necessary to install and maintain a turbidity curtain during installation of the log structures. Complete dewatering of the work area is impractical, given site conditions. When these activities are occurring, the designated party administering the Erosion and Sediment Control Plan will monitor turbidity, per the requirements specified in the 1200C and the HIP III guidance.

The construction contractor will be directed to monitor weather conditions. If a storm is expected to arrive and result in greater than ½ inch of rain over a 24-hour period, all work will be stopped at the site and the contractor will be directed to employ erosion control measures until the storm has passed. All disturbed areas will be seeded and mulched following construction. It is anticipated that seeding and mulching activities will occur as discrete work areas are completed.

Additional BMPs included the following:

1. Utilize only the approved haul roads and access points (as shown on the drawings) for transport of materials and equipment.
2. Between september 1 and june 30, protect exposed soil from erosion at all times. During construction, such protection may consist of mulching and/or planting of native vegetation of adequate density. before completion of the project, stabilize all exposed soil on disturbed slopes against erosion.
3. Construct temporary erosion control measures as shown on this plan and/or as directed by the engineer to control drainage which has been affected by grading and/or trenching operations.
4. Incorporate adequate drainage procedures during the construction process to eliminate excessive ponding and erosion.
5. Construct and maintain erosion control measures to prevent the discharge of earthen materials to the creek from disturbed areas under construction and from completed construction areas.
6. Install all protective devices at the end of each work day when the five-day rain probability equals or exceeds 50 percent as determined from the national weather service forecast office: www.srh.noaa.gov.
7. The erosion control devices on this plan are a schematic representation of what may be required. erosion control devices may be relocated, deleted, or additional items may be required depending on the actual soil conditions encountered, at the discretion of the engineer.
8. Maintain all erosion control devices and modify them as site progress dictates.
9. Monitor the erosion control devices during storms and modify them in order to prevent progress of any ongoing erosion.
10. Clean daily any erosion or debris spilling onto a public street.
11. Be familiar with the conditions of approval of all required project permits and implement all required bmp's prior to commencing site disturbing activities.
12. Staging and storage areas for equipment, materials, fuels, lubricants and solvents, shall be located a minimum of 150' from catch basins, stream and channel banks. stationary equipment such as motors, pumps, generators, compressors, and welders, located within or adjacent to the stream shall be positioned over drip pans. Any equipment or vehicle driven and/or operated over or adjacent to water shall be checked and maintained daily, to prevent leaks or materials

that if introduced to water could be deleterious to aquatic life. Vehicles shall be moved away from the stream prior to refueling and lubrication.

13. No equipment no fueling, cleaning or maintenance of vehicles or equipment shall take place within any areas where an accidental discharge to the river may occur; construction material and heavy equipment must be stored outside of the ordinary high-water mark.
14. All work done within the river shall be completed in a manner so as to minimize impacts to beneficial uses and habitat; measures shall be employed to minimize disturbances along the channel that will adversely impact the water quality of the river.
15. Biodegradable (non-petroleum based) hydraulic fluids shall be used in all machinery and equipment used below the ordinary high-water mark as directed in the field by the owner's representative.



Oregon

Kate Brown, Governor

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April 9, 2018

Pat Welle
Scappoose Bay Watershed Council
57420-2 Old Portland Rd
Warrenton, OR 97053

RE: Nationwide 401 Water Quality Certification Approval for NWP-2018-00111, South Scappoose Creek Restoration Project

The US Army Corps of Engineers (USACE) has determined that your project will be authorized under Nationwide Permit (NWP) category #27. As described in the application package received and reviewed by the Oregon Department of Environmental Quality (DEQ), the project qualifies for the Nationwide Section 401 Water Quality Certification (WQC), subject to the conditions outlined below. If you cannot meet all conditions of this 401 WQC, you may apply for a standard individual certification. A standard individual certification will require additional information and higher fees will apply.

Certification Decision: Based on information provided by USACE and the Applicant, DEQ is reasonably assured that implementation-eligible activities under the proposed NWP will be consistent with applicable provisions of Sections 301, 302, 303, 306, and 307 of the federal Clean Water Act, state water-quality standards set forth in Oregon Administrative Rules Chapter 340 Division 41, and other appropriate requirements of state law, provided the following conditions are incorporated into the federal permit and strictly adhered to by the Applicant.

In addition to all USACE national and regional permit conditions, the following 401 WQC conditions apply to all NWP categories that qualify for the Nationwide 401 WQC.

401 GENERAL CERTIFICATION CONDITIONS

- 1) **Responsible parties:** This 401 WQC applies to the Applicant. The Applicant is responsible for the work of its contractors and sub-contractors, as well as any other entity that performs work related to this WQC.
- 2) **Work Authorized:** Work authorized by this 401 WQC is limited to the work described in the Application or Pre-Construction Notification submitted to the USACE and additional application materials (hereafter "the permit application materials"), unless otherwise authorized by DEQ. If the project is operated in a manner not consistent with the project description contained in the permit application materials, the Applicant is not in compliance with this 401 WQC and may be subject to enforcement.
- 3) A copy of this 401 WQC must be kept on the job site and readily available for reference by Applicant and its contractors, as well as by DEQ, USACE, National Marine Fisheries Service

(NMFS), Oregon Department of Fish and Wildlife (ODFW), and other appropriate state and local government officials.

- 4) In accordance with OAR 340-048-0050, DEQ may modify or revoke this 401 WQC if project activities are having an adverse impact on state water quality or beneficial uses, or if the Applicant is otherwise in violation of the conditions of this certification.
- 5) The Applicant and its contractors must allow DEQ access to the project site, staging areas, and mitigation sites to monitor compliance with these 401 WQC conditions, including:
 - a. Access to any records, logs, and reports that must be kept under the conditions of this 401 WQC;
 - b. To inspect best management practices (BMPs), monitoring or operational equipment or methods; and
 - c. To collect samples or monitor any discharge of pollutants.
- 6) Failure of any person or entity to comply with this Order may result in the issuance of civil penalties or other actions, whether administrative or judicial, to enforce its terms.
- 7) **Land Use Compatibility Statement:** In accordance with OAR 340-048-0020(2) (i), each Applicant must submit findings prepared by the local land use jurisdiction that demonstrates the activity's compliance with the local comprehensive plan. Such findings can be submitted using the appropriate section of the USACE & DSL Joint Permit Application, signed by the appropriate local official and indicating:
 - a. "This project is consistent with the comprehensive plan and land use regulations;" or,
 - b. "This project will be consistent with the comprehensive plan and land use regulations when the following local approvals are obtained," accompanied by the obtained local approvals.
 - c. Rarely, such as for federal projects on federal land, "this project is not regulated by the comprehensive plan" will be acceptable.

In lieu of submitting the appropriate section of the USACE & DSL Joint Permit Application, the Applicant may use DEQ's Land Use Compatibility Statement form found at:
<http://www.oregon.gov/deq/FilterDocs/lucs.pdf>

**FOR PROJECTS THAT PROPOSE CONSTRUCTION, THE FOLLOWING GENERAL
CONDITIONS APPLY**

- 8) **Erosion and Sediment Control:** During construction, erosion and sediment control measures must be implemented to prevent or control movement of sediment, soil or pollutants into waters of the state. The Applicant is required to develop and implement an effective erosion and sediment control plan. **Any project that disturbs more than one acre is required to obtain an NPDES 1200-C construction stormwater permit from DEQ.** In addition, the Applicant (or responsible party) must:
 - a. Where practicable, use removable pads or mats to prevent soil compaction at all construction access points through, and staging areas in, riparian or wetland areas to prevent soil compaction.

- b. Demarcate wetlands not specifically authorized to be impacted to protect from disturbance and/or erosion.
 - c. Place dredged or other excavated material on upland areas with stable slopes to prevent materials from eroding back into waterways or wetlands. Place BMPs as necessary to stabilize and prevent erosion.
- 9) **Spill Prevention:** The Applicant must fuel, operate, maintain and store vehicles, and must store construction materials, in areas that will not impact water quality either directly or due to potential discharges.
- 10) **Spill & Incident Reporting:**
- a. In the event that petroleum products, chemicals, or any other deleterious materials are discharged into state waters, the discharge must be promptly reported to the Oregon Emergency Response Service (OERS, 1-800-452-0311). Containment and cleanup must begin immediately and be completed as soon as practicable.
 - b. If the project operations result in distressed or dying fish, the operator must immediately: cease operations; take appropriate corrective measures to prevent further environmental damage; and immediately notify DEQ and ODFW.
- 11) **Vegetation Protection and Site Restoration:**
- a. The Applicant must protect riparian, wetland, and shoreline vegetation in the authorized project area from disturbance through one or more of the following:
 - i. Minimization of project and impact footprint;
 - ii. Designation of staging areas and access points in open, upland areas;
 - iii. Fencing and other barriers demarking construction areas; and
 - iv. Use of alternative equipment (e.g., spider hoe or crane).
 - b. If authorized work results in any vegetative disturbance and the disturbance has not been accounted for in planned mitigation actions, the Applicant must successfully reestablish vegetation to a degree of function equivalent or better than before the disturbance.
- 12) The Applicant shall avoid and protect from harm, all wetlands and riparian areas located within 50 feet of USACE jurisdictional waters, unless proposed, necessary, and approved as part of the project. If a local jurisdiction has a more stringent buffer requirement, that requirement will override this certification requirement.

FOR PROJECTS THAT PROPOSE IN-STREAM WORK IN JURISDICTIONAL WATERS

- 13) **Fish protection/Oregon Department of Fish and Wildlife timing:** The Applicant must perform in-water work only within the Oregon Department of Fish and Wildlife preferred time window as specified in the *Oregon Guidelines for Timing of In-Water Work to Protect Fish and Wildlife Resources*, or as authorized otherwise under a USACE permit and/or Department of State Lands removal/fill permit. Exceptions to the timing window must be recommended by Oregon Department of Fish and Wildlife, the National Marine Fisheries Services and/or the US Fish and Wildlife as appropriate.
- 14) **Aquatic life movements:** Any activity that may disrupt the movement of aquatic life living in the water body, including those species that normally migrate through the area, is prohibited. The

Applicant must provide unobstructed fish passage at all times during any authorized activity, unless otherwise approved in the approved application.

15) **Turbidity:** The Applicant must implement appropriate Best Management Practices (BMPs) to minimize turbidity during in-water work. Any activity that causes turbidity to exceed 10% above natural stream turbidity is prohibited except as specifically provided below:

- a. **Monitoring:** Turbidity monitoring must be conducted and recorded as described below. Monitoring must occur at two hour intervals each day during daylight hours when in-water work is being conducted. A properly calibrated turbidimeter is required **unless another monitoring method is proposed and authorized by DEQ.**
 - i. **Representative Background Point:** The Applicant must take and record a turbidity measurement every two hours during in-water work at an undisturbed area. A background location shall be established at a representative location approximately 100 feet upcurrent of the in water activity unless otherwise authorized by DEQ. The background turbidity, location, date, tidal stage (if applicable) and time must be recorded immediately prior to monitoring downcurrent at the compliance point described below.
 - ii. **Compliance Point:** The must monitor every two hours. A compliance location shall be established at a representative location approximately 100 feet downcurrent from the disturbance at approximately mid-depth of the waterbody and within any visible plume. The turbidity, location, date, tidal stage (if applicable) and time must be recorded for each measurement.
- b. **Compliance:** The Applicant must compare turbidity monitoring results from the compliance points to the representative background levels taken during each two – hour monitoring interval. Pursuant to OAR 340-041-0036, short term exceedances of the turbidity water quality standard are allowed as follows:

MONITORING WITH A TURBIDIMETER EVERY 2 HOURS	
TURBIDITY LEVEL	Restrictions to Duration of Activity
0 to 4 NTU above background	No Restrictions
5 to 29 NTU above background	Work may continue maximum of 4 hours. If turbidity remains 5-29 NTU above background, stop work and modify BMPs. Work may resume when NTU is 0-5 above background.
30 to 49 NTU above background	Work may continue maximum of 2 hours. If turbidity remains 30-49 NTU above background, stop work and modify BMPs. Work may resume when NTU is 0-5 above background.
50 NTU or more above background	Stop work immediately and inform DEQ

- c. **Reporting:** The Applicant must record all turbidity monitoring required by subsections (a) and (b) above in daily logs. The daily logs must include calibration documentation; background NTUs; compliance point NTUs; comparison of the points in NTUs; location; date; time; and tidal stage (if applicable) for each reading. Additionally, a narrative must be prepared discussing all exceedances with subsequent monitoring, actions taken, and the effectiveness of the actions. Applicant must make available copies of daily logs for turbidity monitoring to DEQ, USACE, NMFS, USFWS, and ODFW upon request.
- d. **BMPs to Minimize In-stream Turbidity:** The Applicant must implement the following BMPs, unless otherwise accepted by DEQ:
 - i. Sequence/Phasing of Work – The Applicant must schedule work activities so as to minimize in-water disturbance and duration of in-water disturbances;
 - ii. Bucket control - All in-stream digging passes by excavation machinery and placement of fill in-stream using a bucket must be completed so as to minimize turbidity. All practicable techniques such as employing an experienced equipment operator, not dumping partial or full buckets of material back into the wetted stream, adjusting the volume, speed, or both of the load, or using a closed-lipped environmental bucket must be implemented;
 - iii. The Applicant must limit the number and location of stream-crossing events. Establish temporary crossing sites as necessary in the least sensitive areas and amend these crossing sites with clean gravel or other temporary methods as appropriate;
 - iv. Machinery may not be driven into the flowing channel, unless authorized by DEQ; and
 - v. Excavated material must be placed so that it is isolated from the water edge or wetlands, and not placed where it could re-enter waters of the state uncontrolled.

FOR PROJECTS THAT INCLUDE NEW IMPERVIOUS SURFACES OR REDEVELOPMENT OF EXISTING SURFACES, THE FOLLOWING CONDITIONS APPLY

- 16) **Post-Construction Stormwater Management:** For projects which propose new impervious surfaces or the redevelopment of existing surfaces, the Applicant must submit a post-construction stormwater management plan to DEQ for review and approval prior to construction, in order to ensure compliance with water quality standards. The Applicant must implement BMPs as proposed in the stormwater management plan, including operation and maintenance. If proposed stormwater facilities change due to site conditions, the Applicant must notify DEQ.

In lieu of a complete stormwater management plan, the Applicant may submit documentation of acceptance of the stormwater into a DEQ permitted National Pollutant Discharge Elimination System (NPDES) Phase I Municipal Separate Storm Sewer System (MS4).

- 17) **Stormwater Management & System Maintenance:** The Applicant is required to implement effective operation and maintenance practices for the lifetime of the proposed facility.

CATEGORY-SPECIFIC CONDITIONS

In addition to all national and regional conditions of the USACE permit and the 401 Water Quality Certification general conditions above, the following conditions apply to the noted specific categories of authorized activities.

NWP 7 – Outfall Structures and Associated Intake Structures:

- 7.1) The following actions are denied certification:
- a. Discharge outfalls that are not subject to an NPDES permit; and
 - b. Outfalls that discharge stormwater without pollutant removal demonstrated to meet water-quality standards prior to discharge to waters of the state.
- 7.2) If an Applicant cannot obtain an NPDES permit or submit an approvable stormwater management plan per DEQ's Guidelines found at: <http://www.oregon.gov/deq/FilterDocs/401wqcertPostCon.pdf> the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 12 – Utility Lines:

- 12.1) For proposals that include directionally-bored stream or wetland crossings:
- a. All drilling equipment, drill recovery and recycling pits, and any waste or spoil produced, must be completely isolated, recovered, then recycled or disposed of to prevent entry into waters of the state.
 - b. In the event that drilling fluids enter a water of the state, the equipment operator must stop work, immediately initiate containment measures and report the spill to the Oregon Emergency Response System (OERS) at 800-452-0311.
 - c. An adequate supply of materials needed to control erosion and to contain drilling fluids must be maintained at the project construction site and deployed as necessary.
 - d. The Applicant must have a contingency plan in place prior to construction for the inadvertent return of drilling lubricant.
- 12.2) For proposals that include utility lines through wetlands, include anti-seep collars or equivalent technology to prevent draining the wetlands.

NWP 13 – Bank Stabilization:

- 13.1) Projects that do not include bioengineering are denied certification, unless a registered professional engineer provides a written statement that non-bioengineered solutions are the only means of protection.

- 13.2) To apply for certification for a project without bioengineering, the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 14 – Linear Transportation:

- 14.1) For projects that include bank stabilization, bioengineering must be a component of the project, unless a registered professional engineer provides a written statement that non-bioengineered solutions are the only means to protect an existing structure.
- 14.2) To apply for certification for a project without bioengineering, the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 16 - Return Water from Contained Upland Disposal Areas: Water-quality criteria and guidance values for toxics, per OAR 340-041-0033, are available in Tables 30, 31, and 40 at: <http://www.oregon.gov/deq/Rulemaking%20Docs/tables303140.pdf>.

- 16.1) Discharge of return water from contaminated dredged material that exceeds a chronic or acute toxicity water quality standard is prohibited.
- 16.2) Water removed with contaminated dredged material that could or does exceed chronic water-quality criteria must be contained and disposed of at an appropriately sized and sealed upland facility by evaporation or infiltration.
- 16.3) If a Modified Elutriate Test (MET) is performed for the known contaminants of concern (CoCs) and CoC concentrations are below DEQ chronic water-quality criteria, return water discharge is not limited.
- a. The MET must be performed before dredging.
 - b. DEQ must approve the list of CoCs and analytical method prior to the Applicant performing the MET.
 - c. DEQ must review the results and provide approval of discharge from return water, in writing, prior to dredging.

NWP 20 – Response Operations for Oil and Hazardous Waste:

- 20.1) Coordination with DEQ's Emergency Response program is required. See: <http://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/Emergency-Response.aspx>.

NWP 22 – Removal of Vessels:

- 22.1) Coordination with DEQ's Emergency Response program is required. See: <http://www.oregon.gov/deq/Hazards-and-Cleanup/env-cleanup/Pages/Emergency-Response.aspx>.

NWP 31 – Maintenance of Existing Flood Control Facilities:

- 31.1) Projects in streams with temperature TMDLs which result in a net reduction of riparian shade are prohibited.

NWP 38 – Cleanup of Hazardous and Toxic Waste:

- 38.1) For removal of contaminated material from waters, dredging method is limited to diver assisted hydraulic suction, hydraulic suction, closed-lipped environmental bucket, or excavation in the dry, unless otherwise authorized by DEQ.
- a. For in-water isolation measures, the Applicant is referred to Appendix D of DEQ's Oregon Erosion and Sediment Control Manual, April 2005 (or most current version), at: <http://www.deq.state.or.us/wq/stormwater/docs/escmanual/appxd.pdf>.
- 38.2) Discharge to waters of the state resulting from dewatering during dredging or release of return water from an upland facility is prohibited except as provided below.
- a. All water removed with sediment must be contained and disposed of at an appropriately sized and sealed upland facility by evaporation or infiltration; or,
 - b. A Modified Elutriate Test (MET) may be performed for the known Contaminants of Concern (CoCs) and if CoC concentrations are below DEQ chronic water-quality criteria; return water discharge is not limited.
 - i. The MET must be performed before dredging.
 - ii. DEQ must approve the list of CoCs and analytical method prior to the Applicant performing the MET.
 - iii. DEQ must review the results and provide approval of discharge from dewatering and return water in writing prior to dredging.
- 38.3) Dredged material must be disposed of in compliance with DEQ Rules governing Hazardous Waste (see: <http://www.oregon.gov/deq/Hazards-and-Cleanup/hw/Pages/default.aspx>) or Solid Waste (see: <http://www.oregon.gov/deq/mm/swpermits/Pages/Solid-Waste-Disposal-Sites-and-Landfill.aspx>).
- 38.4) The new in-water surface must be managed to prevent exposure or mobilization of contaminants.

NWP 41 - Reshaping Existing Drainage Ditches:

- 41.1) To the extent practicable, the Applicant must work from only one bank in order to minimize disturbance to existing vegetation, preferably the bank with the least existing vegetation;
- 41.2) Following authorized work, the Applicant must establish in-stream and riparian vegetation on reshaped channels and side-channels using native plant species wherever practicable. Plantings must be targeted to address water-quality improvement (e.g., provide shade to water to reduce temperature or provide bank stability through root systems to limit sediment inputs). Planting options may include clustering or vegetating only one side of a channel, preferably the side which provides maximum shade.

NWP 42 – Recreational Facilities:

- 42.1) For facilities that include turf maintenance actions, the Applicant must develop and implement an Integrated Pest Management Plan (IPM) that describes pest prevention, monitoring and control techniques with a focus on prevention of chemical and nutrient inputs to waters of the state, including maintenance of adequate buffers for pesticide application near salmonid streams, or coverage under an NPDES permit, if required (information is available at: <http://www.oregon.gov/deq/wq/wqpermits/Pages/Pesticide.aspx>).

NWP 43 – Stormwater Management Facilities:

- 43.1) Projects that propose the following elements are denied certification:
- a. In-stream or wetland stormwater facilities;
 - b. Discharge outfalls not subject to an NPDES permit; and,
 - c. Proposals that do not demonstrate pollutant removal to meet water-quality standards prior to discharge to waters of the state.
- 43.2) To apply for certification for a project with in-stream stormwater facilities, without an NPDES permit, or without submittal of an approvable stormwater management plan per DEQ's Guidelines (at: <http://www.oregon.gov/deq/FilterDocs/401wqcertPostCon.pdf>), the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 44 – Mining Activities:

- 44.1) Projects that do not obtain an NPDES 700-PM or Individual permit are denied certification.
- 44.2) To apply for certification for a project without an NPDES permit, the Applicant must submit complete project information and water quality impacts analysis directly to DEQ in order to undergo individual 401 WQC evaluation and fulfill public participation requirements.

NWP 51 – Land-Based Renewable Energy Generation Facilities:

- 51.1) For associated utility lines with directionally-bored stream or wetland crossings proposed, condition 12.1 must be applied.

NWP 54 – Living Shorelines

- 54.1) Projects that do not include bioengineering are denied certification, unless a registered professional engineer provides a written statement that non-bioengineered solutions are the only means of protection.

If the Applicant is dissatisfied with the conditions contained in this certification, a hearing may be requested. Such request must be made in writing to DEQ's Office of Compliance and Enforcement at 700 NE Multnomah St, Suite 600, Portland Oregon 97232, within 20 days of the mailing of this certification.

The DEQ hereby certifies that this project complies with the Clean Water Act and state rules, with the above conditions. If you have any questions, please contact Roxann Nayar at 503-229-6414, by email at nayar.roxy@deq.state.or.us, or at the address on this letterhead.

Sincerely,



Steve Mrazik,
Water Quality Manager
Northwest Region

ec: Danielle Erb, USACE (Danielle.h.erb@usace.army.mil)

To: Justin Moffett (jtmoffett@BPA.gov) ; Dan Gambetta (dagambetta@bpa.gov)

From: Jim B. Muck (Jim.b.muck@noaa.gov)

CC: Frankie Johnson (Frankie.Johnson@noaa.gov); Joshua Ashline (Joshua.Ashline@noaa.gov); Pat Welle (Pat@scappoosebay-wc.org), Dana Hunter (dana.hunter@noaa.gov)

Regarding: HIP 3 Programmatic Response for South Scappoose Creek Restoration Project (HIP 3 Project Notification Form number: 2018026)

The National Marine Fisheries Service has reviewed the HIP 3 Project notification form (2018026) submitted 16 March 2018 for the South Scappoose Creek Restoration Project, which is covered under Habitat Improvement Program 3 Biological Opinion (HIP 3 BiOp). The project is proposed by the Scappoose Bay Watershed Council (SBWC), and is funded by Bonneville Power Administration (BPA). Based upon the information provided within the HIP 3 Project Notification Form, SBWC proposed actions include: (1) lay back 2,400 linear feet of stream bank, (2) create 220 linear feet of inset flood plains, (3) stabilize stream banks using large wood, rootwads, and willow stakes, (4) reconnect two historical side channels, and (5) replant the riparian buffer and stream lay back areas with native vegetation along South Scappoose Creek within the city limits of Scappoose, Oregon, located in Columbia County.

The proposed actions (described above) fall under the following action categories described within the HIP 3 BiOp: Category 2, River, Stream, Floodplain and Wetland Restoration; sub categories: a. Improve Secondary Channel and Wetland Habitats; c. Protect Streambanks Using Bioengineering Methods; d. Install Habitat-Forming Natural Material Instream Structures; and e. Riparian Vegetation Planting. The effects of the proposed action were analyzed and are consistent with the HIP 3 BiOp, including the incidental take of ESA listed species. Therefore the actions are certified as consistent with HIP 3 BiOp.

Essential Fish Habitat (EFH) for Pacific Salmon has been designated in the action area, and NMFS concurs with the determination that this project will have no adverse effect on EFH.

Reinitiation of consultation on this action is required and shall be requested by the Corps where discretionary Federal involvement or control over the action has been retained or is authorized by law and (a) the amount or extent of taking specified in the Incidental Take Statement is exceeded, (b) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (c) the identified action is subsequently modified in a manner that has an effect to the listed species or critical habitat that was not considered in the biological opinion, or (d) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR 402.16).

If you have any questions regarding this certification, please contact Joshua Ashline of the NOAA Fisheries Oregon-Washington Coastal Office at Joshua.Ashline@NOAA.gov or 360-753-9456

LANDOWNER AGREEMENT

This is an Agreement between the Scappoose Bay Watershed Council (SBWC), and Michael Sills (**Landowner**).

This Agreement supports the **South Scappoose Creek Stream Restoration Project**.

The goals of this project are to:

- Improve stream conditions and create a healthy environment to increase fish and wildlife diversity, including significant Coho salmon and Steelhead numbers.
- Reduce the erosive forces along the streams.
- Create a larger floodway that will help reduce impacts to adjoining properties during flood events.

The Scappoose Bay Watershed Council will complete the following, per the designs and specifications:

TASK	PURPOSE	SCHEDULE
Excavate stream banks to create shallower slopes along a portion of the west bank of the creek.	Reduce erosion and increase flood plain area on west side of creek	July-August 2018
Construct reconnections to two historical side channels on the west side of the creek.	Increase salmonid habitat	July-August 2018
Remove invasive species and replant with native vegetation.	Habitat enhancements	Fall 2018 - Winter 2019

The work will occur on the west bank of South Scappoose Creek between SW Brookshire Ct. and the north end of Veteran's Park. A map showing the location of the work is attached.

The Landowner agrees to allow the SBWC access to their property to complete the tasks above, during the period of the project. The SBWC will complete the work described in the tasks above, within the schedule included.

The Landowner will save and hold harmless the SBWC and its respective officers, agents, employees and members from all claims, suits, or actions of whatsoever nature resulting from, or arising out of, this Agreement. The SBWC will save and hold harmless the landowner, and all representatives, from any and all liability for any damage, injury, or loss which may be sustained as a result of their entry into the private property described in this agreement.

The work to be performed under this Agreement shall begin on or about July 5, 2018, and is expected to be completed by April 30, 2019.

(Signatures on next page)

I have reviewed the designs and plans for this restoration project, and agree to this work being completed on my property.

AGREED:

Landowner:

MICHAEL SILLS

Print name of Landowner



Landowner Signature

5-17-2018

Date

Landowner Phone:

619-549-0253

Landowner Phone

Project Sponsor:

Scappoose Bay Watershed Council;

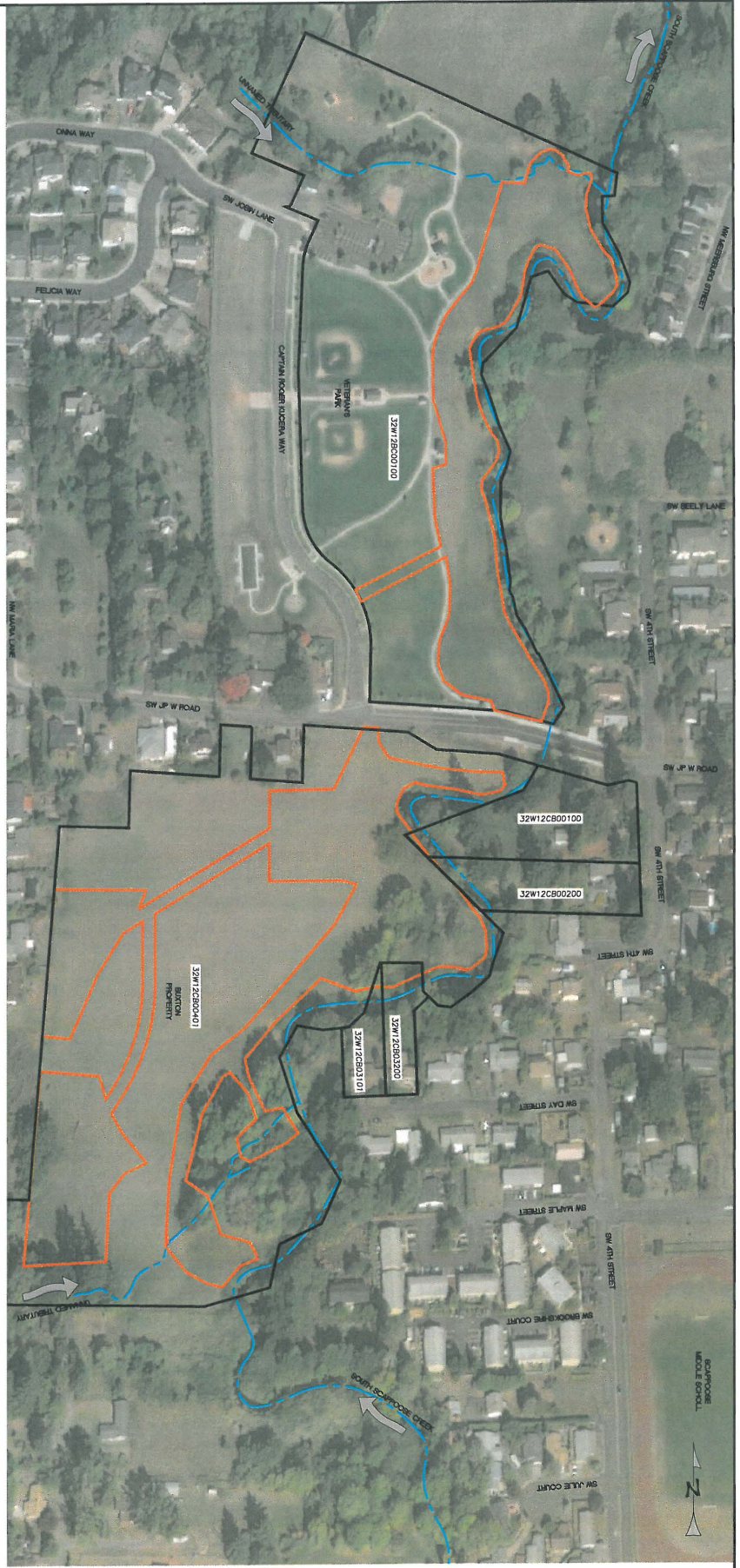
Pat Welle, Coordinator

Print name of Project Sponsor

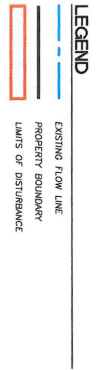


Project Sponsor Signature

Date



AFFECTED PROPERTIES PLAN
SCALE: 1" = 200'



**SOUTH SCAPPOOSE CREEK RESTORATION - MANAGEMENT ZONES G AND H
AFFECTED PROPERTIES**

WATERWAYS CONSULTING INC.
Santa Cruz, CA | watways.com | Portland, OR

LANDOWNER AGREEMENT

This is an Agreement between the Scappoose Bay Watershed Council (SBWC), and Buxton Family Investments (Landowner).

This Agreement supports the **South Scappoose Creek Stream Restoration Project**.

The goals of this project are to:

- Improve stream conditions and create a healthy environment to increase fish and wildlife diversity, including significant Coho salmon and Steelhead numbers.
- Reduce the erosive forces along the streams.
- Create a larger floodway that will help reduce impacts to adjoining properties during flood events.

The Scappoose Bay Watershed Council will complete the following, per the designs and specifications:

TASK	PURPOSE	SCHEDULE
Excavate stream banks to create shallower slopes along a portion of the west bank of the creek.	Reduce erosion and increase flood plain area on west side of creek	July-August 2018
Construct reconnections to two historical side channels on the west side of the creek.	Increase salmonid habitat	July-August 2018
Remove invasive species and replant with native vegetation.	Habitat enhancements	Fall 2018 - Winter 2019

The work will occur on the west bank of South Scappoose Creek between SW Brookshire Ct. and the north end of Veteran's Park. A map showing the location of the work is attached.

The Landowner agrees to allow the SBWC access to their property to complete the tasks above, during the period of the project. The SBWC will complete the work described in the tasks above, within the schedule included.

The Landowner will save and hold harmless the SBWC and its respective officers, agents, employees and members from all claims, suits, or actions of whatsoever nature resulting from, or arising out of, this Agreement. The SBWC will save and hold harmless the landowner, and all representatives, from any and all liability for any damage, injury, or loss which may be sustained as a result of their entry into the private property described in this agreement.

The work to be performed under this Agreement shall begin on or about July 5, 2018, and is expected to be completed by April 30, 2019.

(Signatures on next page)

I have reviewed the designs and plans for this restoration project, and agree to this work being completed on my property.

AGREED:

Landowner:

BUXTON FAMILY INVESTMENTS, LLC
Print name of Landowner

W. Buxton
Landowner Signature

May 15, 2019
Date

Landowner Phone:

541 930 1533
Landowner Phone

Project Sponsor:

Scappoose Bay Watershed Council; Pat Welle, Coordinator
Print name of Project Sponsor

Pat Welle
Project Sponsor Signature

Date

LANDOWNER AGREEMENT

This is an Agreement between the Scappoose Bay Watershed Council (SBWC), and Roman Anthony and Patricia Hesch (**Landowner**).

This Agreement supports the **South Scappoose Creek Stream Restoration Project**.

The goals of this project are to:

- Improve stream conditions and create a healthy environment to increase fish and wildlife diversity, including significant Coho salmon and Steelhead numbers.
- Reduce the erosive forces along the streams.
- Create a larger floodway that will help reduce impacts to adjoining properties during flood events.

The Scappoose Bay Watershed Council will complete the following, per the designs and specifications:

TASK	PURPOSE	SCHEDULE
Excavate stream banks to create shallower slopes along a portion of the west bank of the creek.	Reduce erosion and increase flood plain area on west side of creek	July-August 2018
Construct reconnections to two historical side channels on the west side of the creek.	Increase salmonid habitat	July-August 2018
Remove invasive species and replant with native vegetation.	Habitat enhancements	Fall 2018 - Winter 2019

The work will occur on the west bank of South Scappoose Creek between SW Brookshire Ct. and the north end of Veteran's Park. A map showing the location of the work is attached.

The Landowner agrees to allow the SBWC access to their property to complete the tasks above, during the period of the project. The SBWC will complete the work described in the tasks above, within the schedule included.

The Landowner will save and hold harmless the SBWC and its respective officers, agents, employees and members from all claims, suits, or actions of whatsoever nature resulting from, or arising out of, this Agreement. The SBWC will save and hold harmless the landowner, and all representatives, from any and all liability for any damage, injury, or loss which may be sustained as a result of their entry into the private property described in this agreement.

The work to be performed under this Agreement shall begin on or about July 5, 2018, and is expected to be completed by April 30, 2019.

(Signatures on next page)

I have reviewed the designs and plans for this restoration project, and agree to this work being completed on my property.

AGREED:

Landowner:

ROMAN A. HESCH JR.
Print name of Landowner

Roman A. Hesch Jr.
Landowner Signature

5-15-18
Date

Landowner Phone:

(503) 543-6959
Landowner Phone

Project Sponsor:

Scappoose Bay Watershed Council; Pat Welle, Coordinator
Print name of Project Sponsor

Pat Welle

Project Sponsor Signature

Date

LANDOWNER AGREEMENT

This is an Agreement between the Scappoose Bay Watershed Council (SBWC), and Shirley Fishbaugh (**Landowner**).

This Agreement supports the **South Scappoose Creek Stream Restoration Project**.

The goals of this project are to:

- Improve stream conditions and create a healthy environment to increase fish and wildlife diversity, including significant Coho salmon and Steelhead numbers.
- Reduce the erosive forces along the streams.
- Create a larger floodway that will help reduce impacts to adjoining properties during flood events.

The Scappoose Bay Watershed Council will complete the following, per the designs and specifications:

TASK	PURPOSE	SCHEDULE
Excavate stream banks to create shallower slopes along a portion of the west bank of the creek.	Reduce erosion and increase flood plain area on west side of creek	July-August 2018
Construct reconnections to two historical side channels on the west side of the creek.	Increase salmonid habitat	July-August 2018
Remove invasive species and replant with native vegetation.	Habitat enhancements	Fall 2018 - Winter 2019

The work will occur on the west bank of South Scappoose Creek between SW Brookshire Ct. and the north end of Veteran's Park. A map showing the location of the work is attached.

The Landowner agrees to allow the SBWC access to their property to complete the tasks above, during the period of the project. The SBWC will complete the work described in the tasks above, within the schedule included.

The Landowner will save and hold harmless the SBWC and its respective officers, agents, employees and members from all claims, suits, or actions of whatsoever nature resulting from, or arising out of, this Agreement. The SBWC will save and hold harmless the landowner, and all representatives, from any and all liability for any damage, injury, or loss which may be sustained as a result of their entry into the private property described in this agreement.

The work to be performed under this Agreement shall begin on or about July 5, 2018, and is expected to be completed by April 30, 2019.

(Signatures on next page)

I have reviewed the designs and plans for this restoration project, and agree to this work being completed on my property.

AGREED:

Landowner:

Shirley C. Fishbaugh
Print name of Landowner

Shirley Fishbaugh
Landowner Signature

_____ *Date*

Landowner Phone:

503-543-4198
Landowner Phone

Project Sponsor:

Scappoose Bay Watershed Council; Pat Welle, Coordinator
Print name of Project Sponsor

Pat Welle

_____ *Project Sponsor Signature*

_____ *Date*

LANDOWNER AGREEMENT

This is an Agreement between the Scappoose Bay Watershed Council (SBWC), and John S. Shull (Landowner).

This Agreement supports the **South Scappoose Creek Stream Restoration Project**.

The goals of this project are to:

- Improve stream conditions and create a healthy environment to increase fish and wildlife diversity, including significant Coho salmon and Steelhead numbers.
- Reduce the erosive forces along the streams.
- Create a larger floodway that will help reduce impacts to adjoining properties during flood events.

The Scappoose Bay Watershed Council will complete the following, per the designs and specifications:

TASK	PURPOSE	SCHEDULE
Excavate stream banks to create shallower slopes along a portion of the west bank of the creek.	Reduce erosion and increase flood plain area on west side of creek	July-August 2018
Construct reconnections to two historical side channels on the west side of the creek.	Increase salmonid habitat	July-August 2018
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The work will occur on the west bank of South Scappoose Creek between SW Brookshire Ct. and the north end of Veteran's Park. A map showing the location of the work is attached.

The Landowner agrees to allow the SBWC access to their property to complete the tasks above, during the period of the project. The SBWC will complete the work described in the tasks above, within the schedule included.

The Landowner will save and hold harmless the SBWC and its respective officers, agents, employees and members from all claims, suits, or actions of whatsoever nature resulting from, or arising out of, this Agreement. The SBWC will save and hold harmless the landowner, and all representatives, from any and all liability for any damage, injury, or loss which may be sustained as a result of their entry into the private property described in this agreement.

The work to be performed under this Agreement shall begin on or about July 5, 2018, and is expected to be completed by April 30, 2019.

(Signatures on next page)

I have reviewed the designs and plans for this restoration project, and agree to this work being completed on my property.

AGREED:

Landowner:

John Shell
Print name of Landowner

[Signature]
Landowner Signature

May 16, 2018
Date

Landowner Phone:

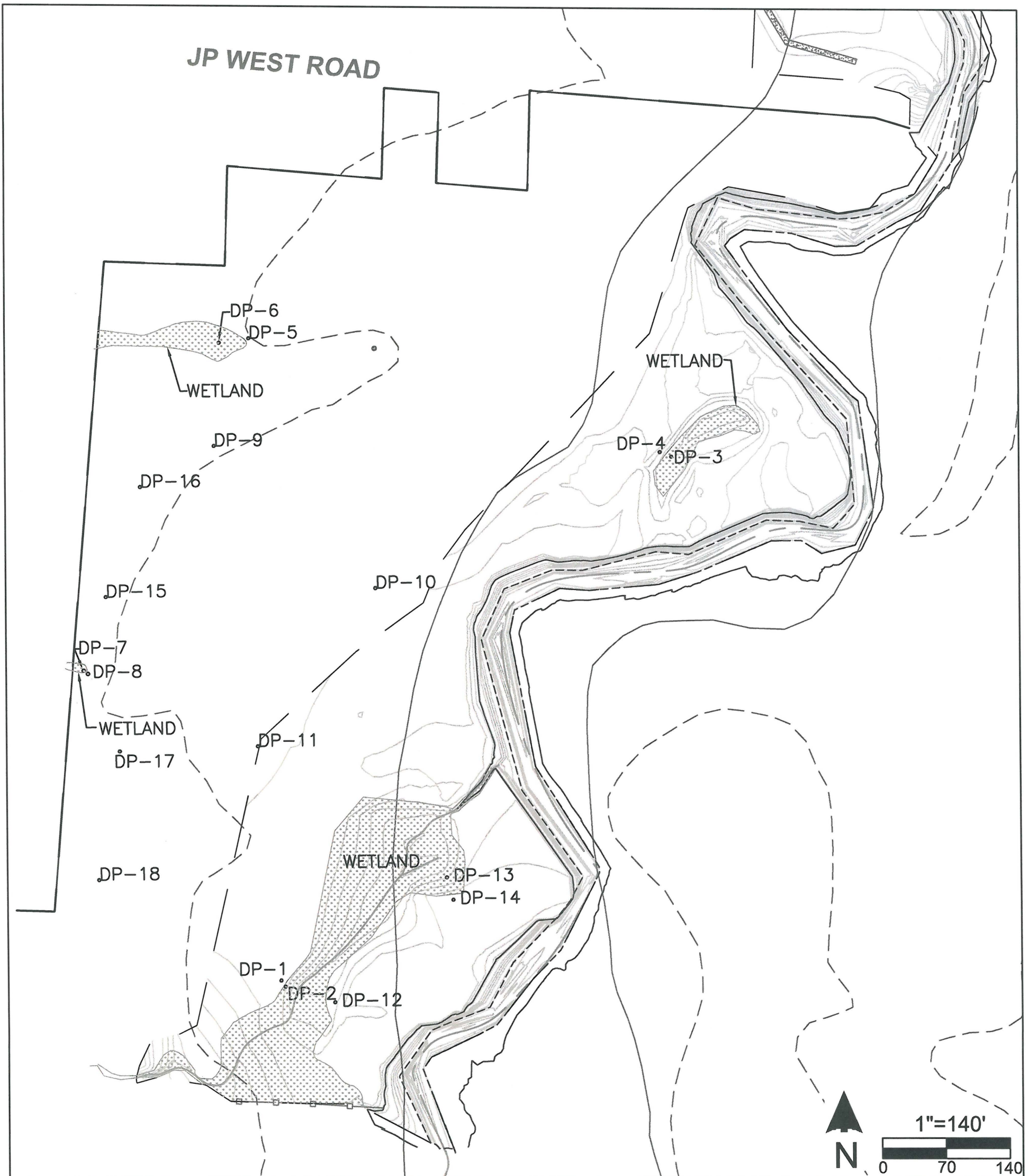
Landowner Phone

Project Sponsor:

Scappoose Bay Watershed Council; Pat Welle, Coordinator
Print name of Project Sponsor

Pat Welle
Project Sponsor Signature

May 15, 2018
Date



Environmental
Science &
Assessment, LLC

107 SE Washington St.,
Suite 249
Portland, OR 97214
Phone: 503.478.0424
www.esapdx.com

Wetland Map Buxton Property Scappoose, Oregon

<h1>Figure 1</h1>	
Base Map Source:	
Modified By: KR	
Date: 5/9/18	Project No. 18029
Rev: 5/11/18	

Exhibit 13

Laurie Oliver

From: Pat Welle <pat@scappoosebay-wc.org>
Sent: Tuesday, April 24, 2018 11:56 AM
To: Laurie Oliver
Subject: South Scappoose Comments from ODFW

Hi Laurie,

This is from Dave Stewart, Fish Biologist from ODFW for our area. He has been on site several times, is very familiar with the project, and will be overseeing any fish-related work during construction.

Let me know if you need me to put this into the other narrative.

Thanks, Pat

From: Dave Stewart <Dave.Stewart@state.or.us>
Date: Tuesday, April 24, 2018 at 10:42 AM
To: Pat Welle <pat@scappoosebay-wc.org>
Subject: South Scappoose Comments

Pat,

Here are my comments for the South Scappoose restoration project regarding potential impacts and benefits from the proposed project.

A. In consultation with a representative of the Oregon Department of Fish and Wildlife, the planner shall identify which areas of the site are the most sensitive and susceptible to destruction, and which are the most significant;

For criteria A above, I will need a statement in the narrative addressing **which areas of the site are most sensitive and susceptible to destruction and which are the most significant.**

The sections of the creek most sensitive and susceptible to destruction, and the most significant, are those reaches in the upstream area of the project that will include connections to historical side-channel habitats. This is the area where the largest riparian exists and is also most significant. These are the areas where the greatest potential to benefit salmonids and other wildlife species.

B. After consultation with a representative of the Oregon Department of Fish and Wildlife, the planner shall analyze what the effect of proposed development will have on the fish and wildlife, hydrology, water quality, and riparian functions; determine if there will be a significantly adverse impact on the fish and wildlife resource; and, if the fish and wildlife habitat will be adversely impacted, the planner shall investigate if other development proposals could protect the fish and riparian corridor and still reasonably allow permitted activities;

For criteria B above, I will need to have a **statement from ODFW** of what the **effect of proposed development will have on the fish and wildlife, hydrology, water quality, and riparian functions**; and a statement of whether or not there will be a **significant adverse impact on the fish and wildlife resource**; and, if the fish and wildlife habitat will be adversely impacted, what mitigation will be provided to remedy the impact.

This project is going to greatly improve habitat for ESA-listed salmonids and resident fish and wildlife species. The hydrologic connectivity to off-channel habitats, along with water quality and riparian functions will be enhanced with the restoration project. No adverse effects to instream and riparian habitats, or water quality will occur.

Thanks,

Looking forward to a great project!

dave



May 9, 2018

Laurie Oliver
Planning Department Supervisor/ City Planner
City of Scappoose

Re: LAND USE ACTION REFERRAL (SLDP2-18 & SLDP3-18) - South Scappoose Creek restoration project

Dear Laurie,

The following items would be good for the applicant to provide to have to strengthen and support the proposed project;

1. Provide a letter from Chip Buxton, property owner of Map # 3212-CB-00401, to verify that he has reviewed and accepted the proposed improvements.
2. State the in-water work window and likely schedule for construction including preliminary staging through final cleanup in the Park and Buxton property.
3. Water Ways Consulting shows no net increase in surface water elevation through the proposed project area, however, the applicant should clarify that the proposed project has no impact to the upstream or downstream properties.
4. Provide statement regarding the disposition of existing debris in the creek channel within the project area or immediately upstream or downstream.

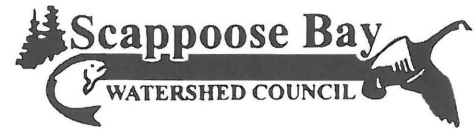
I feel that the rest of the application materials which have been submitted for the application noted above have met the requirements.

Please let me know if you have any questions or would like to discuss.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Negelspach".

Chris Negelspach, P.E.
City Engineer
City of Scappoose



May 17, 2008

Re: South Scappoose Creek Restoration Project, City Permit Questions

Laurie,

This letter addresses the issues raised in last Wednesday's meeting at the Planning office, and the letter provided by Chris on this project.

Responses to Chris' letter:

1. Attached is a Landowner Agreement between Chip and the Council, briefly detailing the project; his signature on page 2 indicates his acceptance of the project activities.
2. The schedule for construction will be specified in the contract, after a bid has been accepted. The in-water work window for South Scappoose Creek will be clearly stated, however we will allow flexibility in defining the schedule for non in-water work activities. Very little of the work in the design is actually occurring in the wetted channel. We will work closely with Dave on all activities occurring within Veteran's Park to minimize disturbance to the public, and provide as much notice as possible. We do not expect any work to occur prior to July 5. It is important to provide the bidders with some flexibility in their schedule; i.e., buffers on either side of the in-water work window to account for mobilization, staging, erosion control, etc.
3. Addressed through revised Technical Memorandum
4. Addressed through revised Technical Memorandum

Regarding creek landowners:

- Attached is a figure showing the affected properties in the project area, over the marked limits of disturbance from project activities. The map shows four properties we were unaware of who have small amounts of property within the project. A fifth property, at the southern end of the project, was also noted as potentially in the project, but is not impacted by the project activities.
 - Attached are Landowner Agreements for tax lots 32W12CB03200, 32W12CB03101, and 32W12C B00200, indicating their agreement to the project activities.
 - Also attached are three City Permit Applications with signatures from each of these landowners.
 - I have discussed the project with the landowner of parcel 32W12CB00100 and expect to pick up a signed agreement and permit application today (May 17). An informational letter was sent to the landowner of parcel 3N2W12CB2102 at the south end of the project; he will also provide signatures on a landowner agreement and permit application (today).

There was also a concern regarding the transfer of material removed from Veteran's Park, onto the Buxton property. Chip will be providing a letter for the city to review and use as an agreement between he and the City. This agreement does not include the Council, except as it allows us to direct the contractor to place the material; thus, I cannot be the author of it.

Please let me know if you have additional questions. Thank you.

Pat Welle, Council Coordinator

A handwritten signature in cursive script that reads "Pat Welle".

SBWC, 57420-2 Old Portland Rd, Warren OR 97053

503-397-7904

Laurie Oliver

From: Jake <jakeh@watways.com>
Sent: Tuesday, May 22, 2018 10:13 AM
To: Laurie Oliver
Cc: Chris Negelspach; Dave Sukau; 'Pat Welle'
Subject: South Scappoose Creek Project

Hi Laurie,

Pat Welle requested that I email you directly regarding our proposed strategy for addressing outstanding issues from the City. As Pat has relayed to you, the most critical path item right now is to get the Land Use Compatibility Statement (LUCS) from the City to submit with our 1200-C application to DEQ. My understanding is that the city will not sign this until two main conditions are met:

- Address removal of the downed tree on park property in the hydraulics memo and the design
- Get a landowner agreement with Buxton for placement of soils from the City on the Buxton property

Chris would like to see the downed tree that we observed during the pre-bid meeting addressed in the Hydraulic Analysis memo and incorporated as an addendum item in the contract documents. After seeing the tree in question first-hand, we are in agreement that the project cannot proceed without addressing this tree, so we are proposing to require that the contractor cut the tree off at the stump and remove it from the creek on the park side for disposal and/or reuse in the project as part of an addendum. This work will not include doing any grading or bank stabilization activities on the opposite side of the creek.

Regarding the stockpiling of soil from the City property on the Buxton property my understanding is that this agreement is in the works, but may take some time to get finalized. That being said, we are proposing to revise the bid documents to have alternate bid items for off-haul of the soil from the City property versus stockpiling on the Buxton property. This will allow the bid process to move forward independent of the landowner agreement and provide a mechanism for altering how the soils are managed without going through a change order process. Per your recommendation, it would be great to simply have a condition of approval attached to the grading permit stating that the agreement must be in place before issuance.

Please let us know as soon as you can if these steps will suffice in getting the 1200-C LUCS signed by the City.

Thanks,

Jake D. Hofeld PE, LEED-AP, CWRE
Senior Engineer
Waterways Consulting, Inc.
1020 SW Taylor St., Suite 380
Portland, Oregon 97205
Ph: 503-227-5979
Cell: 503-528-4816
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Laurie Oliver

From: John Shull <jshull4301@gmail.com>
Sent: Wednesday, May 16, 2018 4:26 PM
To: Laurie Oliver
Subject: SLDP2-18--SLDP3-18

Hi Laurie,

I wanted to comment on the South Scappoose Creek restoration project.
I am a landowner adjacent to the Buxton property with a physical address of 52405 SW 4th Street.

In reviewing the notice you sent me I am concerned that the project is addressing half of the problems identified by excluding the right side of the creek for restoration. I have lost property due to bank erosion each time there is high water in the creek. The bank of my property is steep and established with blackberry vegetation.

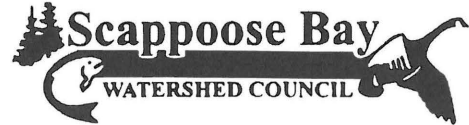
I was not invited to participate in this project. Given the scope of this project, it would have been optimal to address all of the identified problem areas to mitigate the problems that we realized in 1996 and again in 2007 that were 100 year events. All of the proposed work is what I need to minimize bank erosion and invasive vegetation for my property. As it is proposed I will still have bank erosion because it is not stabilized. The riparian buffer will not become establish because the invasive vegetation on the right side of the creek will repopulate easily from seed casting in the wind or animal carriers.

If this project is important to the city, it is important to me as both a property owner and a taxpayer so that the best use of funds help the community.

If there is an opportunity to join in this project I am interested.

Thank you,
John Shull
503-396-2828

MEMO



DATE: May 21, 2018

TO: Laurie Oliver, City of Scappoose

FROM: Pat Welle, Coordinator, SBWC

A handwritten signature in cursive script that reads "Pat Welle".

Re: South Scappoose Creek Restoration Project, Landowner Comment

In reference to the comment received by the city from Mr. Shull regarding the project along South Scappoose Creek (received by the City May 16, 2018; shown below), I am providing the following response:

The project as designed will provide significant benefits to properties on both sides of the creek. This is primarily a fish habitat improvement project; as such, we are creating habitat by expanding the floodplain, installing large wood to create additional pools for resting, hiding, and support cooler water environments, plus installing a large number of native plants to increase shading and riparian health. Though the bank laybacks and side-channel re-connections are occurring on the west side, they will improve the hydraulics throughout the creek, which will improve his bank stability and reduce erosion by increasing the channel capacity and allowing higher flows to spread out over a larger area.

It is very typical in these projects to concentrate efforts on one side of the creek due to mobilization costs, staging, access, and several other practical considerations. However, the enhanced conditions work across the stream flow.

Finally, the Council is now planning to seek additional funding for riparian enhancements on the east side through our small grants program. Funders appreciate projects adjacent to ongoing restoration activities, so it is entirely likely we will secure funds to improve the riparian bank conditions along this property, particularly since it appears his neighbor to the north is also interested. These activities will continue to reduce the amount of invasive species along the creek, something which is a continuous and challenging effort throughout the system.

South Scappoose Restoration Project - Planting Plan Details

Zone Descriptions:

Riparian Terrace: mixed shrub and tree species for bank protection along floodplain slope and upper terrace

Moderate density buffer out approximately 10-20-ft from west bank on park parcel, out varying width (from 50 to 100 feet)

~4 acres Avg plant/acre = 776

Floodplain Bench: low plant area with hydric vegetation for soil retention

High density planting along constructed benches

~0.5 acres Avg plant/acre = 1966

In-fill Zone: Increase riparian plantings in areas along reconnected side channels and wetland areas

Low density plant placements as needed

~3.5 acres Avg plant/acre = 436

Hummock / Mounded areas; provides a mix of wildlife habitat and pollinator plants

Moderate to high density of small shrubs and forbs

~4 acres Avg plant/acre = 1035

Vegetation Species and Number per Zone							Percent of Species per Zone				
Lrg Tree Species	Common Name	# plants	Rip Terr	FBench	InFill	Hummock	Total	Rip Terr	FBench	In-Fill	Hummock
<i>Quercus alba</i>	White Oak	150	100	0	50	0	150	17%		18%	
<i>Acer macrophyllum</i>	big leaf maple	200	150	0	50	0	200	26%		18%	
<i>Alnus rubra</i>	red alder	231	150	0	81	0	231	26%		29%	
<i>Fraxinus latifolia</i>	Oregon ash	150	100	0	50	0	150	17%		18%	
<i>Thuja plicata</i>	Western red cedar	125	75	0	50	0	125	13%		18%	
		856	575	0	281	0	856	100%		100%	
Small Tree											
<i>Acer circinatum</i>	vine maple	171	100		71		171	11%		12%	
<i>Salix</i>	Willow spp.	450	275		175		450	30%		29%	
<i>Salix lasiandra</i>	Pacific willow	450	275		175		450	30%		29%	
<i>Salix stichensis</i>	Sitka willow	450	275		175		450	30%		29%	
		1521	925	0	596	0	1521	100%		100%	
Shrub Species											
<i>Cornus sericea</i>	red osier dogwood	430	350	35	45	0	430	12%	12%	10%	0%
<i>Physocarpus capitatus</i>	ninebark	430	350	35	45	0	430	12%	12%	10%	0%
<i>Ribes sanguineum</i>	red flowering currant	425	320	35	45	25	425	11%	12%	10%	11%
<i>Rosa nutkana</i>	Nootka rose	350	245	35	45	25	350	8%	12%	10%	11%
<i>Rubus parviflorus</i>	thimbleberry	310	245	0	45	20	310	8%	0%	10%	9%
<i>Rubus spectabilis</i>	salmonberry	345	245	35	45	20	345	8%	12%	10%	9%
<i>Sambucus racemosa</i>	red elderberry	389	294	35	45	15	389	10%	12%	10%	7%
<i>Spiraea douglasii</i>	Douglas spiraea	380	298	37	45	0	380	10%	13%	10%	0%
<i>Symphoricarpos albus</i>	common snowberry	388	328	0	40	20	388	11%	0%	9%	9%
<i>Holodiscus discolor</i>	oceanspray	385	283	37	45	20	385	10%	13%	10%	9%
<i>Amelanchieralnifolia</i>	serviceberry	25	0	0	0	25	25		0%	0%	11%
<i>Philadelphus lewisii</i>	mock orange	20	0	0	0	20	20		0%	0%	9%
<i>Rhamnus purshiana</i>	casara	10	0	0	0	10	10		0%	0%	4%
<i>Rosa gymnocarpa</i>	bald hip rose	25	0	0	0	25	25	0%	0%	0%	11%
		3912	2958	284	445	225	3912	100%	100%	100%	100%
Forb Species											
<i>Sidalcea campestris</i>	meadow checkerbloom	75				75	75			0%	25%
<i>Symphotrichum subspicatum</i>	Douglas aster	79				79	79			0%	26%
<i>Achillea millefolium</i>	western yarrow	75				75	75			0%	25%
<i>Aquilegia formosa</i>	columbine	75				75	75			0%	25%
<i>Juncus patens</i>	spreading rush	250		50	200		250		50%	36%	0%
<i>Juncus effusus</i>	soft rush	250		50	200		250		50%	36%	0%
<i>Polystichum munitum</i>	sword fern	150			150		150			27%	0%
		954	0	100	550	304	954		100%	100%	100%
Total Plants		7243	4458	384	1872	529	7243				