CLARK COUNTY
STAFF REPORT

DEPARTMENT/DIVISION: Environmental Services / Policy and Planning / Legacy Lands Program

DATE: June 30, 2015

REQUEST: Authorize the Acting County Manager to execute the attached License and Access agreement with the Columbia River Estuary Study Task Force to remove two failing culverts along Buckmire Slough in the Vancouver Lake Lowlands in order to improve water quality, fish and wildlife habitat.

CHECK ONE: ☒ Consent ☐ Hearing ☐ Chief Administrative Officer

BACKGROUND: The Columbia River Estuary Study Task Force (CREST) has been awarded $461,280 by Bonneville Power Administration (BPA) to complete a restoration project on county property along Buckmire Slough in the Vancouver Lake Lowlands. Two failing culverts will be removed and riparian plantings installed to improve water quality in the slough and improve fish habitat. One culvert will be replaced with a bridge to maintain trail access to Vancouver Lake Park.

COMMUNITY OUTREACH: The project was identified as a potential mitigation opportunity for offsetting the impact of Columbia River dams on Endangered Species Act listed salmonid populations. The project went through an extensive technical review process administered by BPA to rate benefits to salmon and cost-effectiveness relative to other projects under review. County staff have coordinated closely with CREST throughout the project design process.

BUDGET AND POLICY IMPLICATIONS: Pursuing partnership opportunities that help us better manage our properties and support regional salmon recovery efforts are Environmental Services priorities. CREST will be solely responsible for the cost and expense of the work.

FISCAL IMPACTS: ☐ Yes (see Fiscal Impacts Attachment) ☒ No

ACTION REQUESTED: Authorize the Acting County Manager to execute the attached License and Access agreement with the Columbia River Estuary Study Task Force to remove two failing culverts along Buckmire Slough in the Vancouver Lake Lowlands in order to improve water quality, fish and wildlife habitat.

DISTRIBUTION: Please return original copies of the signed agreement and the approved staff report to Environmental Services Administration.

Patrick T. Lee
Legacy Lands Program Coordinator

Don Benton
Environmental Services Director

APPROVED:
CLARK COUNTY, WASHINGTON
BOARD OF COUNTY COUNCILORS

June 30, 2015

SR 132-15

PL/bt

Enclosure

SR15-022

LICENSE AND ACCESS AGREEMENT

THIS LICENSE AND ACCESS AGREEMENT ("Access Agreement"), effective the _____ day of_____, 2015, is entered into by and between the Clark County and the Columbia River Estuary Study Taskforce ("CREST"), collectively referred to herein as the "Parties".

RECITALS

WHEREAS, Clark County owns certain real property adjacent to Buckmire Slough near Vancouver Lake.

WHEREAS, CREST is under contract with Bonneville Power Administration ("BPA") to conduct salmon habitat restoration projects throughout the lower Columbia River; and

WHEREAS, CREST and its subcontractors wish to enter the Property, as represented by the area shown on the attached Exhibit A ("Access Area"), to implement a habitat restoration project and install a light-duty bridge for the Vancouver Lake Trail Network, described in the Scope of Work attached as Exhibit B (the "Work").

NOW, THEREFORE, in consideration of the foregoing and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereby agree as follows:

1. **Grant of License**. Clark County hereby grants CREST, its employees, representatives, contractors, and subcontractors (together, "Licensee") a non-exclusive license (the "License") to enter upon the Access Area to perform the Work. The License shall commence on May 1, 2015 and shall expire on December 31, 2015 ("Access Period"). The scope or term may be extended by the Parties by a written amendment to this License and Access Agreement ("Access Agreement"). This Access Agreement may be terminated by either Party, with or without cause, upon ten (10) days written notice to the other Party. The specific days and times for access shall be agreed upon by the Parties in advance.

2. **Compliance with Laws**. Licensee shall perform the Work in compliance with all applicable federal, state, and local laws, ordinances, regulations, permits, standards, and directives, and judicial and administrative orders and decrees, including those now in effect and those that take effect during the term of this license.

3. **Responsibility for Costs**. Licensee shall be solely responsible for the cost and expense of the Work.

4. **Permits**. Licensee shall be responsible at its sole expense for obtaining any and all governmental permits and approvals which may be necessary for it to perform the Work or other activities under this Access Agreement. Licensee shall seek all necessary signatures from the landowner, Clark County, and will provide a copy of any and all permits obtained for the Work under this Access Agreement, together with any specific plans for the Work or tests to be conducted as part of the Work. Licensee shall be responsible at its sole expense for compliance

with all provisions of governmental permits and approvals including required post-construction maintenance and monitoring of the Work.

5. Disposal of Materials. Licensee agrees at its sole expense to arrange for the prompt and lawful transportation and disposal of all waste materials, samples and debris generated by Licensee during its performance of the Work.

6. Restoration and Maintenance of Access Area. At all times during the terms of this Access Agreement, Licensee shall maintain all equipment, vehicles, and other materials used in the performance of the Work such that they do not endanger the health, safety, or welfare of Clark County employees, representatives, or the general public. Licensee shall promptly repair, at its expense, any damage to the Access Area caused in the performance of the Work. Upon expiration or termination of the Access Agreement, Licensee shall restore the Access Area to the conditions that existed before Licensee's performance of the Work and shall remove all equipment, vehicles, and materials from the Access Area, with the exception of permanent vegetation plots, water quality probes, or other approved monitoring equipment.

7. Ownership of Light Duty Bridge. Following the installation and approval by Clark County of the light duty bridge, Clark County will retain complete ownership and maintenance responsibilities of the new bridge.

8. No Disruption. Licensee shall perform the Work permitted under this Access Agreement in a manner that shall (i) minimize interference with any occupant of the Access Area, (ii) not endanger the health, safety, or welfare of Clark County employees or the general public, (iii) not disrupt the business of Clark County, and (iv) minimize any impacts on the natural environment and the native flora and fauna. Licensee shall not contribute to or exacerbate any contamination that might be present in, on, or under the Access Area.

9. Insurance. Licensee, throughout the Term, shall maintain commercial general liability and property damage insurance in an amount of not less than $1,000,000.00 per occurrence and $2,000,000 combined single limit during the construction period. Licensee shall also maintain professional liability insurance of $1,000,000.

10. Indemnification. Licensee shall defend, indemnify, and hold harmless Clark County and its councilors, officers, agents and employees from and against any claims, demands, actions, suits, judgments, losses, damages, penalties, fines, costs, or expenses, including attorneys' fees, ("Claims") arising from or relating to (i) the negligent or reckless performance of the Work by Licensee; (ii) Licensee's failure to comply with any applicable federal, state, or local law, regulation ordinances, permits, directives, and judicial or administrative orders; and (iii) Licensee's failure to comply with the terms and conditions of this Access Agreement. Licensee also indemnifies Clark County for consequential damages, if any, Clark County incurs due to Licensee's failure to comply with the terms and conditions of this Access Agreement. In making such assurances, Licensee specifically agrees to indemnify and hold harmless Clark County from any and all bodily injury claims brought by employees of CREST and its subcontractors, and expressly waives its immunity under the Industrial Insurance Act, Title 51, solely for the purposes of this indemnification. Provided, however, this paragraph does not purport to indemnify Clark County against the liability for damages arising

out of bodily injuries to person or damages caused by or resulting from the sole negligence of the County, its elected officials, officers, employees and agents. This section has been mutually negotiated by the parties. This section shall survive the expiration of this Access Agreement.

11. License and Access Agreement Prevails. If any term or condition or provision of any work plan or attachment to any work plan conflicts with the terms of the Access Agreement, this agreement (and not the work plan or attachment) prevails and controls.

12. Notices. Any notices, requests, consents, approvals and other communications shall be in writing and shall be deemed to have been sufficiently given for all purposes when delivered by hand, mailed by U.S. first class postage or by electronic mail. Contacts for communications are as follows:

If to Licensee:

Denise Lofman
Director
Columbia River Estuary Study Taskforce
818 Commercial St. Suite 203
Astoria, OR 97103
Telephone: (503) 325-0435

If to Clark County:

Patrick Lee
Legacy Lands Program Coordinator
Clark County
P.O. Box 9810
Vancouver, WA 98666
Telephone: (360) 397-2121 x4070

13. Severability. If any term, covenant, condition or provision of this Access Agreement is held to be invalid, void, or unenforceable, the other terms of this Access Agreement shall remain in full force and shall in no way be affected, impaired, or invalidated.

14. Waiver. The waiver by one party of the performance of any covenant, term, or condition under this Access Agreement shall not invalidate this Access Agreement nor shall it be considered a waiver by it of any other covenant, term, or condition under this Access Agreement.

15. Authority. Each of the persons signing this Agreement represents and warrants that he or she has been duly authorized to sign this Agreement. Each of the undersigned Parties hereby warrants that it is authorized to execute this Access Agreement and that this Access Agreement shall remain in full force and shall in no way be affected, impaired, or invalidated.

APPROVED AS TO FORM, ONLY

Anthony F. Golik, Clark County Prosecuting Attorney

By: _____

Christine M. Cook
Senior Deputy Prosecuting Attorney

CLARK COUNTY

By: _____ Date: 6/30/15

Mark McCauley
Acting County Manager

CREST

By: _____ Date: _____

Denise Lofman
Director, CREST

EXHIBIT "A"- ACCESS AREA

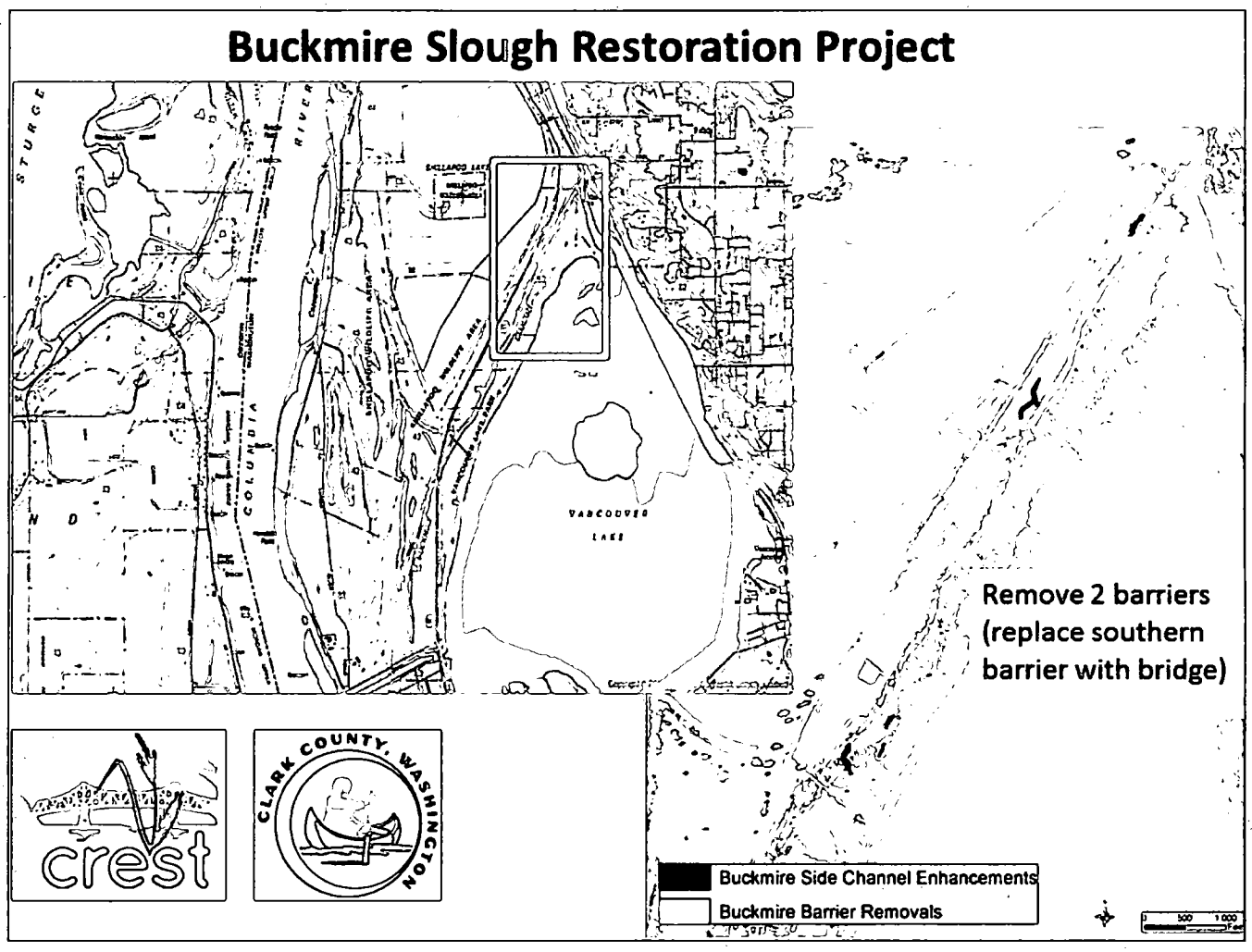


EXHIBIT "B"

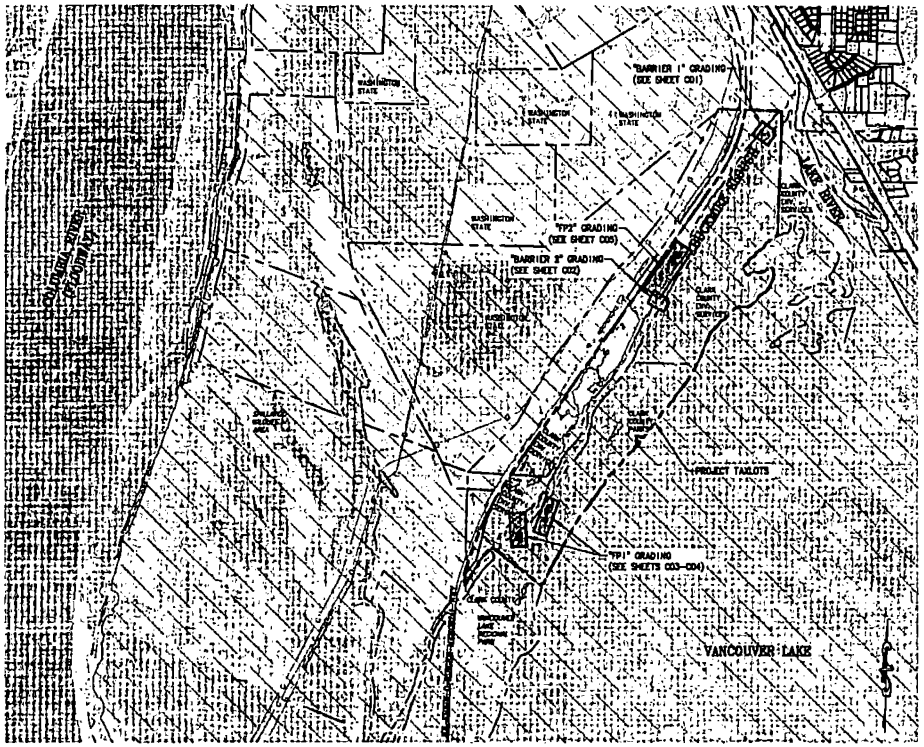
SCOPE OF WORK

1. This Scope of Work covers all data gathering necessary for restoration actions on the Clark County owned portions of Buckmire Slough. This includes topographic data gathering, vegetation surveys, and water quality data.
2. Implementation of the restoration project will occur in August 2015 and will be substantially in conformance with the final design plan set attached as Exhibit "C". CREST will coordinate closely with Clark County personnel on construction activities and schedules. Subcontractors hired by CREST will be allowed access to the site and will be overseen by CREST. CREST is the point of contact on permits for the project and will ensure compliance. Clark County will be provided with copies of all relevant state and federal permits for their records.

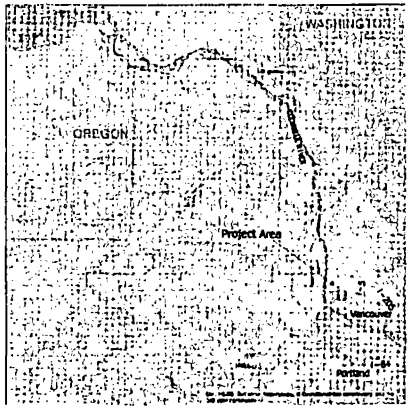
EXHIBIT "C"

FINAL DESIGN PLAN SET

BUCKMIRE SLOUGH RESTORATION PROJECT
CLARK COUNTY, WASHINGTON



PROJECT AREA MAP
1" = 1000' (22X34)



VICINITY MAP
NTS

SHEET INDEX

PROJECT OWNER

COLUMBIA RIVER ESTUARY STUDY TASKFORCE (CREST)
750 COMMERCIAL ST.
ROOM 205
ASTORIA, OR 97103
(503) 325-0435

PROPERTY OWNER

CLARK COUNTY
1200 FRANKLIN ST.
VANCOUVER, WA 98660
(360) 397-2000

APPROVED BY CLARK COUNTY

PATRICK LEE _____ DATE _____

REVISION NO.	SHEETS AFFECTED	INITIAL APPROVAL	DATE

May 29, 2015 - 10:47am
L:\Project\17000\17016A\Dwg\17016A_G01.dwg

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 "It's the Law" NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN	MCM
DRAWN	MCM
CHECKED	MCR

STATUS
☐ DRAFT ANALYSIS
☒ CONSTRUCTION

crest
PC TRASK AND ASSOCIATES

BUCKMIRE SLOUGH RESTORATION PROJECT

COVER AND SHEET INDEX

otak
808 SW 3rd Ave., Ste. 300
Portland, OR 97204
Phone: (503) 287-6825
Fax: (503) 415-2304
www.otak.com
Member/Global Partner

DATE June 2, 2015
G01
SHEET NO
1 OF 28

GENERAL LEGEND

	EXISTING	PROPOSED
TAXLOT		
TRAIL		
GAS	G G	
GRADING LIMITS		
MAJOR CONTOUR		
MINOR CONTOUR		
SECTION LINE		
OHW	OHW	OHW
ACW		
CULVERT		
TREE TO BE REMOVED		
WETLAND MITIGATION		
SURVEY CONTROL POINT		
CONCRETE BRIDGE DECK		
QUARRY SPALLS		
LARGE WOOD STRUCTURE		

TESC LEGEND

FLOW DIRECTION	
CONSTRUCTION ENTRANCE	
COMPOST SOCK	
HIGH VISIBILITY FENCE	XX XX
WORK AREA ISOLATION	
BIODEGRADABLE EROSION CONTROL BLANKET	
STAGING AREA (APPROX., SHOWN FOR REFERENCE ONLY)	
SOIL DISPOSAL AREA (APPROX., SHOWN FOR REFERENCE ONLY)	
TEMPORARY ACCESS (APPROX., SHOWN FOR REFERENCE ONLY)	
PERMANENT GRAVEL ACCESS ROAD (APPROX., SHOWN FOR REFERENCE ONLY)	

LIST OF ABBREVIATIONS

ACW	ACTIVE CHANNEL WIDTH
ALT	ALTERNATIVE
APPROX.	APPROXIMATE
ASTM	AMERICAN SOCIETY OF TESTING AND MATERIALS
BMP	BEST MANAGEMENT PRACTICE
BRG	BEARING
CAR	CONTRACTING AGENCY REPRESENTATIVE
CL OR ℄	CENTERLINE
CLR	CLEAR
CMP	CORRUGATED METAL PIPE
CST. JT.	CONSTRUCTION JOINT
C.Y.	CUBIC YARD
DEPT.	DEPARTMENT
DIA	DIAMETER
EL.	ELEVATION
ELEV	ELEVATION
EF	EACH FACE
EQ	EQUAL
EX	EXISTING
FAC	FACULTATIVE
FT	FEET
FUT.	FUTURE
GALV	GALVANIZED
GR	GRADE
HORIZ.	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
INCL.	INCLUDING
LH	LEFT HAND
LIDAR	LIGHT DISTANCE AND RANGING
LF	LINEAL FEET
MAX.	MAXIMUM
MIN.	MINIMUM
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OHW	ORDINARY HIGH WATER
O.C.	ON CENTER
OZ	OUNCE
PROF	PROFILE
PVC	POLYVINYLCHLORIDE
QPL	QUALIFIED PRODUCTS LIST
R	RADIUS
RH	RIGHT HAND
RIP	RIPARIAN
SCHED	SCHEDULE
SF	SQUARE FEET
SPECS	SPECIFICATIONS
ST.	STREET
STA	STATION
SWPPP	STORMWATER POLLUTION PREVENTION PLAN
T&B	TOP AND BOTTOM
TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
T.O.W.	TOP OF WALL
TYP.	TYPICAL
UG	UNDERGROUND
UV	ULTRAVIOLET RADIATION
VERT.	VERTICAL
W/	WITH
WETL	WETLAND
WSE	WATER SURFACE ELEVATION

GENERAL NOTES:

1. PROJECT CONTROL AND SURVEY CONDUCTED BY STATEWIDE LAND SURVEYING, INC. (2012).
2. HORIZONTAL DATUM IS NAD83/CORS 88 EPOCH 2002.00 WASHINGTON STATE PLANE SOUTH ZONE 4602. UNITS IN US SURVEY FEET.
3. VERTICAL DATUM IS NAVD88, USING GEOID 03.
4. SITE TOPOGRAPHY DEVELOPED FROM 2010 LIDAR DATA AND 2012 SURVEY. EXISTING GROUND SURFACE IS APPROXIMATE (DEVELOPED FROM DETAILED SURVEY AT BARRIERS IN 2012 AND REMOTELY-SENSED SURFACE BEYOND OUTER LIMITS OF BARRIERS). EXISTING GROUND BELOW ELEVATION 9 FT IS ASSUMED AND SHALL BE VERIFIED BY CONTRACTOR.
5. ALL WORK AREAS ARE WITHIN THE SPECIAL FLOOD HAZARD AREA (1% ANNUAL CHANCE FLOODPLAIN).
6. THE ORDINARY HIGH WATER ELEVATION IS 19.5 FT.
7. TREES SHOWN IN THESE PLANS WITHIN THE PROJECT LIMITS HAVE BEEN FIELD VERIFIED. TREES OUTSIDE OF THE PROJECT LIMITS ARE NOT SHOWN IN THESE PLANS, BUT SHALL BE IDENTIFIED IN THE FIELD AND PROTECTED TO THE MAXIMUM EXTENT PRACTICABLE.
8. PER THE HYDRAULIC PROJECT APPROVAL, THE IN-WATER WORK WINDOW IS LIMITED TO AUGUST 1 TO FEBRUARY 28 IN BUCKMIRE SLOUGH.
9. ALL CONSTRUCTION AND MATERIAL, UNLESS OTHERWISE SPECIFIED, SHALL BE IN CONFORMANCE WITH THE 2014 STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION AS PREPARED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION.
10. CALL 1-800-424-5555 FOR UTILITY LOCATES PRIOR TO ANY GROUND DISTURBING ACTIVITY.
11. THE CONTRACTOR SHALL HAVE A COPY OF THESE PLANS, PROJECT SPECIFICATIONS, ADDENDA, CHANGE ORDERS AND SWPPP ON THE JOB SITE AT ALL TIMES. THE CONTRACTOR SHALL MAINTAIN AND UPDATE THE SWPPP. THE CONTRACTOR SHALL HAVE A COPY OF THE BONNEVILLE POWER ADMINISTRATION (BPA) PROGRAMMATIC BIOLOGICAL OPINION: 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 18 (HIP 18) KEC-4.
12. THE CONTRACTOR SHALL STOP WORK AND IMMEDIATELY NOTIFY THE CREST PROJECT MANAGER IN THE EVENT OF UNCOVERING ARCHAEOLOGICAL ARTIFACTS.
13. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE CAR IN THE EVENT OF DISCOVERY OF POOR SOILS, CONTAMINATED SOILS, OR DISCREPANCIES OR DEVIATIONS FROM THE PLANS AS MAY BE FOUND IN THE FIELD.
14. PROTECTION OF THE ENVIRONMENT: NO CONSTRUCTION RELATED ACTIVITY SHALL CONTRIBUTE TO THE DEGRADATION OF THE ENVIRONMENT, ALLOW MATERIAL TO ENTER SURFACE OR GROUND WATERS, OR ALLOW PARTICULATE EMISSIONS TO ENTER THE ATMOSPHERE, WHICH EXCEED STATE OR FEDERAL STANDARDS. ANY ACTIONS THAT POTENTIALLY ALLOW A DISCHARGE TO STATE WATERS MUST HAVE PRIOR APPROVAL OF THE STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY. IT IS CRITICAL THAT NO SEDIMENT BE ALLOWED TO MIGRATE FROM THE CONSTRUCTION AREA OR DURING TRANSPORTATION OF EQUIPMENT AND MATERIALS TO OR FROM THE WORK AREA.

SURVEY CONTROL TABLE

SHEET REFERENCE	PT. NO.	NORTHING	EASTING	ELEV	DESCRIPTION	LATITUDE (DMS)	LONGITUDE (DMS)
C05	9	141300.86	1070341.59	14.33	SET 1/2" IR RPC "STATEWIDE CONTROL"	N45°41'55.30959"	W122°43'32.54144"
C02	10	141142.52	1070260.05	17.15	SET 1/2" IR RPC "STATEWIDE CONTROL"	N45°41'53.73331"	W122°43'33.62650"
C01	28	144034.23	1072092.99	15.34	SET 1/2" IR RPC "STATEWIDE CONTROL"	N45°42'22.77042"	W122°43'28.88267"
C01	1057	144023.42	1072073.21	19.02	FD 1/2" IRON ROD	N45°42'22.65632"	W122°43'29.23695"

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

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DESIGN	MCM
DRAWN	MCM
CHECKED	MGR

STATUS
☐ DRAFT ANALYSIS
☒ CONSTRUCTION

crest — PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

GENERAL NOTES, LEGEND, AND ABBREVIATIONS

otak
808 SW 3rd Ave., Ste. 300
Portland, OR 97204
Phone: (503) 287-6825
Fax: (503) 415-2304
www.otak.com
Member/Oldcas Partner

DATE June 2, 2015
G02
SHEET NO
2 OF 28

May 29, 2015 - 3:09pm
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HIP III GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS

DOCUMENTATION: TO BE POSTED ONSITE BY THE CONTRACTOR IN A LOCATION VISIBLE TO THE PUBLIC.

A) NAME(S), PHONE NUMBER(S), AND ADDRESS(ES) OF THE PERSON(S) RESPONSIBLE FOR OVERSIGHT.
B) A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES.
C) PROCEDURES TO CONTAIN AND CONTROL A SPILL OF ANY HAZARDOUS MATERIAL GENERATED, USED OR STORED ON-SITE, INCLUDING NOTIFICATION OF PROPER AUTHORITIES.
D) A STANDING ORDER TO CEASE WORK IN THE EVENT OF HIGH FLOWS EXCEPT AS NECESSARY TO MINIMIZE RESOURCE DAMAGE (ABOVE THOSE ADDRESSED IN THE DESIGN AND IMPLEMENTATION PLANS) OR EXCEEDANCE OF TAKE OR WATER QUALITY LIMITATIONS.

SITE PREPARATION

1) SITE LAYOUT AND FLAGGING: PRIOR TO CONSTRUCTION, THE ACTION AREA WILL BE CLEARLY FLAGGED TO IDENTIFY THE FOLLOWING:
   A. SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;
   B. EQUIPMENT ENTRY AND EXIT POINTS;
   C. ROAD AND STREAM CROSSING ALIGNMENTS;
   D. STAGING, STORAGE, AND STOCKPILE AREAS; AND
   E. NO-SPRAY AREAS AND BUFFERS.

2) TEMPORARY ACCESS ROADS AND PATHS:
   A. EXISTING ACCESS ROADS AND PATHS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER AND LENGTH OF TEMPORARY ACCESS ROADS AND PATHS THROUGH RIPARIAN AREAS AND FLOOD PLAINS WILL BE MINIMIZED TO LESSEN SOIL DISTURBANCE AND COMPACTION, AND IMPACTS TO VEGETATION.
   B. TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST LIKELIHOOD OF EXCESSIVE EROSION OR FAILURE. IF SLOPES ARE STEEPER THAN 30%, THEN THE ROAD WILL BE DESIGNED BY A CIVIL ENGINEER WITH EXPERIENCE IN STEEP ROAD DESIGN.
   C. THE REMOVAL OF RIPARIAN VEGETATION DURING CONSTRUCTION OF TEMPORARY ACCESS ROADS WILL BE MINIMIZED. WHEN TEMPORARY VEGETATION REMOVAL IS REQUIRED, VEGETATION WILL BE CUT AT GROUND LEVEL (NOT GRUBBED).
   D. AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND RE-VEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES RE-COMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.
   E. TEMPORARY ROADS AND PATHS IN WET AREAS OR AREAS PRONE TO FLOODING WILL BE OBLITERATED BY THE END OF THE IN-WATER WORK WINDOW.

3) TEMPORARY STREAM CROSSINGS:
   A. EXISTING STREAM CROSSINGS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.
   B. TEMPORARY BRIDGES AND CULVERTS WILL BE INSTALLED TO ALLOW FOR EQUIPMENT AND VEHICLE CROSSING OVER PERENNIAL STREAMS DURING CONSTRUCTION.
   C. EQUIPMENT AND VEHICLES WILL CROSS THE STREAM IN THE WET ONLY WHERE:
      i. THE STREAMBED IS BEDROCK; OR
      ii. MATS OR OFF-SITE LOGS ARE PLACED IN THE STREAM AND USED AS A CROSSING.
   D. VEHICLES AND MACHINERY WILL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHEREVER POSSIBLE.
   E. THE LOCATION OF THE TEMPORARY CROSSING WILL AVOID AREAS THAT MAY INCREASE THE RISK OF CHANNEL RE-ROUTING OR AVULSION.
   F. POTENTIAL SPAWNING HABITAT (I.E., POOL TAILOUTS) AND POOLS WILL BE AVOIDED TO THE MAXIMUM EXTENT POSSIBLE.
   G. NO STREAM CROSSINGS WILL OCCUR AT ACTIVE SPAWNING SITES, WHEN HOLDING ADULT LISTED FISH ARE PRESENT, OR WHEN EGGS OR ALEVINS ARE IN THE GRAVEL. THE APPROPRIATE STATE FISH AND WILDLIFE AGENCY WILL BE CONTACTED FOR SPECIFIC TIMING INFO.
   H. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND THE STREAM CHANNEL AND BANKS RESTORED.

4) STAGING, STORAGE, AND STOCKPILE AREAS:
   A. STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND, OR ON AN ADJACENT, ESTABLISHED ROAD AREA IN A LOCATION AND MANNER THAT WILL PRECLUDE EROSION INTO OR CONTAMINATION OF THE STREAM OR FLOODPLAIN.
   B. NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN THE 100-YEAR FLOODPLAIN.
   C. ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.
   D. ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE REMOVED TO A LOCATION OUTSIDE OF THE 100-YEAR FLOODPLAIN FOR DISPOSAL.

5) EQUIPMENT: MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE IMPACTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS). ALL VEHICLES AND OTHER MECHANIZED EQUIPMENT WILL BE:
   A. STORED, FUELED, AND MAINTAINED IN A VEHICLE STAGING AREA PLACED 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND OR ON AN ADJACENT, ESTABLISHED ROAD AREA;
   B. REFUELED IN A VEHICLE STAGING AREA PLACED 150 FEET OR MORE FROM A NATURAL WATERBODY OR WETLAND, OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD (THIS MEASURE APPLIES ONLY TO GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS);
   C. BIODEGRADABLE LUBRICANTS AND FLUIDS SHOULD BE USED, IF POSSIBLE, ON EQUIPMENT OPERATING IN AND ADJACENT TO THE STREAM CHANNEL AND LIVE WATER.
   D. INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150 FEET OF ANY NATURAL WATER BODY OR WETLAND; AND
   E. THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

6) EROSION CONTROL: EROSION CONTROL MEASURES WILL BE PREPARED AND CARRIED OUT, COMMENSURATE IN SCOPE WITH THE ACTION, THAT MAY INCLUDE THE FOLLOWING:
   A. TEMPORARY EROSION CONTROLS.
      i. TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWN SLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE.
      ii. IF THERE IS A POTENTIAL FOR ERODED SEDIMENT TO ENTER THE STREAM, SEDIMENT BARRIERS WILL BE INSTALLED AND MAINTAINED FOR THE DURATION OF PROJECT IMPLEMENTATION.
      iii. TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC.
      iv. SOIL STABILIZATION UTILIZING WOOD FIBER MULCH AND TACKIFIER (HYDRO-APPLIED) MAY BE USED TO REDUCE EROSION OF BARE SOIL IF THE MATERIALS ARE NOXIOUS WEED FREE AND NONTOXIC TO AQUATIC AND TERRESTRIAL ANIMALS, SOIL MICROORGANISMS, AND VEGETATION.
      v. SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL.
      vi. ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.
   B. EMERGENCY EROSION CONTROLS.
      THE FOLLOWING MATERIALS FOR EMERGENCY EROSION CONTROL WILL BE AVAILABLE AT THE WORK SITE: SUPPLY OF SEDIMENT CONTROL MATERIALS; AND AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

7) TIMING OF IN-WATER WORK: APPROPRIATE STATE (OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW), WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW), IDAHO DEPARTMENT OF FISH AND GAME (IDFG), MONTANA FISH WILDLIFE AND PARKS (MFWP) GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.
   A. BULL TROUT - WHILE UTILIZING THE APPROPRIATE STATE DESIGNATED IN-WATER WORK PERIOD WILL LESSEN THE RISK TO BULL TROUT, THIS ALONE MAY NOT BE SUFFICIENT TO ADEQUATELY PROTECT LOCAL BULL TROUT POPULATIONS. THIS IS ESPECIALLY TRUE IF WORK IS OCCURRING IN SPAWNING AND REARING AREAS BECAUSE EGGS, ALEVIN, AND FRY ARE IN THE SUBSTRATE OR CLOSELY ASSOCIATED HABITATS NEARLY YEAR ROUND. SOME AREAS MAY NOT HAVE DESIGNATED IN-WATER WORK WINDOWS FOR BULL TROUT OF IF THEY DO, THEY MAY CONFLICT WITH WORK WINDOWS FOR SALMON AND STEELHEAD. IF THIS IS THE CASE, OR IF PROPOSED WORK IS TO OCCUR WITHIN BULL TROUT SPAWNING AND REARING HABITATS, PROJECT PROPONENTS WILL CONTACT THE APPROPRIATE USFWS FIELD OFFICE (SEE APPENDIX B IN THIS BO) TO INSURE THAT ALL REASONABLE IMPLEMENTATION MEASURES ARE CONSIDERED AND AN APPROPRIATE IN-WATER WORK WINDOW IS BEING USED TO MINIMIZE PROJECT EFFECTS.
   B. LAMPREY - THE PROJECT SPONSOR AND/OR THEIR CONTRACTORS WILL AVOID WORKING IN STREAM OR RIVER CHANNELS THAT CONTAIN PACIFIC LAMPREY FROM MARCH 1 TO JULY 1 IN LOW TO MID ELEVATION REACHES (<3,000 FEET). IN HIGH ELEVATION REACHES(>3,000 FEET), THE PROJECT SPONSOR WILL AVOID WORKING IN STREAM OR RIVER CHANNELS FROM MARCH 1 TO AUGUST 1. IF EITHER TIMEFRAME IS INCOMPATIBLE WITH THE OTHER OBJECTIVES, THE AREA WILL BE SURVEYED FOR NESTS AND LAMPREY PRESENCE, AND AVOIDED IF POSSIBLE. IF LAMPREYS ARE KNOW TO EXIST, THE PROJECT SPONSOR WILL UTILIZE DE-WATERING AND SALVAGE PROCEDURES OUTLINED IN US FISH AND WILDLIFE SERVICE (2010).
   C. EXCEPTIONS TO ODFW, WDFW, MFWP, OR IDFG IN-WATER WORK WINDOWS WILL BE REQUESTED FROM NMFS AND THE FWS. AN IWW VARIANCE REQUEST (PRE-COORDINATED WITH STAFF BIOLOGISTS) WILL BE E-MAILED FROM AN APPROPRIATE REPRESENTATIVE OF THE ACTION AGENCY TO THE NMFS HABITAT BRANCH CHIEF AND THE FWS FIELD OFFICE SUPERVISOR FOR THE PROJECT AREA. WORK WILL NOT PROCEED OUTSIDE THE IWW UNTIL THE EXCEPTION IS APPROVED BY E-MAILS FROM NMFS AND/OR THE FWS.

8) DUST ABATEMENT: THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES (IF NECESSARY) BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES. IN ADDITION, THE FOLLOWING CRITERIA WILL BE FOLLOWED:
   A. WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.
   B. DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25 FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING A 50:50 (LIGNINSULFONATE TO WATER) SOLUTION.
   C. APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25 FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).
   D. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.
   E. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

9) SPILL PREVENTION, CONTROL, AND COUNTER MEASURES: THE USE OF MECHANIZED MACHINERY INCREASES THE RISK FOR ACCIDENTAL SPILLS OF FUEL, LUBRICANTS, HYDRAULIC FLUID, OR OTHER CONTAMINANTS INTO THE RIPARIAN ZONE OR DIRECTLY INTO THE WATER. ADDITIONALLY, UNCURED CONCRETE AND FORM MATERIALS ADJACENT TO THE ACTIVE STREAM CHANNEL MAY RESULT IN ACCIDENTAL DISCHARGE INTO THE WATER. THESE CONTAMINANTS CAN DEGRADE HABITAT, AND INJURE OR KILL AQUATIC FOOD ORGANISMS AND ESA-LISTED SPECIES. THE PROJECT SPONSOR WILL ADHERE TO THE FOLLOWING MEASURES:
   A. A DESCRIPTION OF HAZARDOUS MATERIALS TO BE USED (INVENTORY & STORAGE) AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.
   B. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.
   C. SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.
   D. WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
   E. ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A TARPAULIN, UNTIL THEY CAN BE PROPERLY TRANSPORTED TO AND DISPOSED OF AT A FACILITY THAT IS APPROVED FOR RECEIPT OF HAZARDOUS MATERIALS.

10) INVASIVE SPECIES - EQUIPMENT CLEANING AND MAINTENANCE: THE FOLLOWING MEASURES WILL BE FOLLOWED TO AVOID INTRODUCTION OF INVASIVE PLANTS AND NOXIOUS WEEDS INTO PROJECT AREAS:
   A. PRIOR TO ENTERING THE SITE, ALL VEHICLES AND EQUIPMENT WILL BE POWER WASHED, ALLOWED TO FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE.
   B. WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.
   C. WADING BOOTS WITH FELT SOLES ARE NOT TO BE USED DUE TO THEIR PROPENSITY FOR ADDING IN THE TRANSFER OF INVASIVE SPECIES.

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

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DESIGN	MCM
DRAWN	MCM
CHECKED	MGR
STATUS	☐ DRAFT ANALYSIS ☒ CONSTRUCTION

crest GEOSCIENCE CONSULTANTS PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

HIP III GENERAL CONSERVATION MEASURES

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DATE June 2, 2015
G03
SHEET NO
3 OF 28

WORK AREA ISOLATION & FISH SALVAGE

ANY WORK AREA WITHIN THE WETTED CHANNEL WILL BE ISOLATED FROM THE ACTIVE STREAM WHENEVER ESA LISTED FISH ARE REASONABLY CERTAIN TO BE PRESENT, OR IF THE WORK AREA IS LESS THAN 300-FEET UPSTREAM FROM KNOWN SPAWNING HABITATS. WHEN WORK AREA ISOLATION IS REQUIRED, DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS, FISH RELEASE AREAS, AND, WHEN A PUMP IS USED TO DE-WATER THE ISOLATION AREA AND FISH ARE PRESENT, A FISH SCREEN THAT MEETS NMFS'S FISH SCREEN CRITERIA (NMFS 2011, OR MOST CURRENT). WORK AREA ISOLATION AND FISH CAPTURE ACTIVITIES WILL OCCUR DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITIONS APPROPRIATE TO MINIMIZE STRESS AND DEATH OF SPECIES PRESENT.

FOR SALVAGE OPERATIONS IN KNOWN BULL TROUT SPAWNING AND REARING HABITAT, ELECTRO-FISHING SHALL ONLY OCCUR FROM MAY 01 TO JUL 31. NO ELECTRO-FISHING WILL OCCUR IN ANY BULL TROUT OCCUPIED HABITAT AFTER AUG 15. BULL TROUT ARE VERY TEMPERATURE SENSITIVE AND GENERALLY SHOULD NOT BE ELECTRO-SHOCKED OR OTHERWISE HANDLED WHEN TEMPERATURES EXCEED 15 DEGREES CELSIUS. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITIONS APPROPRIATE TO MINIMIZE STRESS TO FISH SPECIES PRESENT.

SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODOLOGIES, AND CONSERVATION MEASURES SPECIFIED BELOW IN STEPS 1 THROUGH 6. STEPS 1 AND 2 WILL BE IMPLEMENTED FOR ALL PROJECTS WHERE WORK AREA ISOLATION IS NECESSARY ACCORDING TO CONDITIONS ABOVE. ELECTRO-FISHING (STEP 3) CAN BE IMPLEMENTED TO ENSURE ALL FISH HAVE BEEN REMOVED FOLLOWING STEPS 1 AND 2, OR WHEN OTHER MEANS OF FISH CAPTURE MAY NOT BE FEASIBLE OR EFFECTIVE. DE-WATERING AND RE-WATERING (STEPS 4 AND 5) WILL BE IMPLEMENTED UNLESS WETTED IN-STREAM WORK IS DEEMED TO BE MINIMALLY HARMFUL TO FISH, AND IS BENEFICIAL TO OTHER AQUATIC SPECIES. DE-WATERING WILL NOT BE CONDUCTED IN AREAS KNOWN TO BE OCCUPIED BY LAMPREY, UNLESS LAMPREYS ARE SALVAGED USING GUIDANCE SET FORTH IN US FISH AND WILDLIFE SERVICE (2010).

1) ISOLATE:
   - A. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
   - B. BLOCK NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE. BLOCK NETS MAY BE LEFT IN PLACE FOR THE DURATION OF THE PROJECT TO EXCLUDE FISH.
   - C. IF BLOCK NETS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED TO THE BANKS AND FREE OF ORGANIC ACCUMULATION. IF THE PROJECT IS WITHIN BULL TROUT SPAWNING AND REARING HABITAT, THE BLOCK NETS MUST BE CHECKED EVERY FOUR HOURS FOR FISH IMPINGEMENT ON THE NET. LESS FREQUENT INTERVALS MUST BE APPROVED THROUGH A VARIANCE REQUEST.
   - D. NETS WILL BE MONITORED HOURLY ANYTIME THERE IS IN-STREAM DISTURBANCE.

2) SALVAGE: – AS DESCRIBED BELOW, FISH TRAPPED WITHIN THE ISOLATED WORK AREA WILL BE CAPTURED TO MINIMIZE THE RISK OF INJURY, THEN RELEASED AT A SAFE SITE:
   - A. REMOVE AS MANY FISH AS POSSIBLE PRIOR TO DE-WATERING.
   - B. DURING DE-WATERING, ANY REMAINING FISH WILL BE COLLECTED BY HAND OR DIP NETS.
   - C. SEINES WITH A MESH SIZE TO ENSURE CAPTURE OF THE RESIDING ESA-LISTED FISH WILL BE USED.
   - D. MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.
   - E. IF BUCKETS ARE USED TO TRANSPORT FISH:
     - I. THE TIME FISH ARE IN A TRANSPORT BUCKET WILL BE LIMITED, AND WILL BE RELEASED AS QUICKLY AS POSSIBLE;
     - II. THE NUMBER OF FISH WITHIN A BUCKET WILL BE LIMITED BASED ON SIZE, AND FISH WILL BE OF RELATIVELY COMPARABLE SIZE TO MINIMIZE PREDATION;
     - III. AERATORS FOR BUCKETS WILL BE USED OR THE BUCKET WATER WILL BE FREQUENTLY CHANGED WITH COLD CLEAR WATER AT 15 MINUTE OR MORE FREQUENT INTERVALS. BUCKETS WILL BE KEPT IN SHADED AREAS OR WILL BE COVERED BY A CANOPY IN EXPOSED AREAS.
     - IV. DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.
   - F. AS RAPIDLY AS POSSIBLE (ESPECIALLY FOR TEMPERATURE-SENSITIVE BULL TROUT), FISH WILL BE RELEASED IN AN AREA THAT PROVIDES ADEQUATE COVER AND FLOW REFUGE. UPSTREAM RELEASE IS GENERALLY PREFERRED, BUT FISH RELEASED DOWNSTREAM WILL BE SUFFICIENTLY OUTSIDE OF THE INFLUENCE OF CONSTRUCTION.
   - G. SALVAGE WILL BE SUPERVISED BY A QUALIFIED FISHERIES BIOLOGIST EXPERIENCED WITH WORK AREA ISOLATION AND COMPETENT TO ENSURE THE SAFE HANDLING OF ALL FISH.

3) ELECTROFISHING: ELECTROFISHING WILL BE USED ONLY AFTER OTHER SALVAGE METHODS HAVE BEEN EMPLOYED OR WHEN OTHER MEANS OF FISH CAPTURE ARE DETERMINED TO NOT BE FEASIBLE OR EFFECTIVE. IF ELECTROFISHING WILL BE USED TO CAPTURE FISH FOR SALVAGE, THE SALVAGE OPERATION WILL BE LED BY AN EXPERIENCED FISHERIES BIOLOGIST AND THE FOLLOWING GUIDELINES WILL BE FOLLOWED:
   - A. THE NMFS'S ELECTROFISHING GUIDELINES (NMFS 2000).
   - B. ONLY DIRECT CURRENT (DC) OR PULSED DIRECT CURRENT (PDC) WILL BE USED AND CONDUCTIVITY MUST BE TESTED.
     - I. IF CONDUCTIVITY IS LESS THAN 100 MS, VOLTAGE RANGES FROM 900 TO 1100 WILL BE USED.
     - II. FOR CONDUCTIVITY RANGES BETWEEN 100 TO 300 MS, VOLTAGE RANGES WILL BE 500 TO 800.
     - III. FOR CONDUCTIVITY GREATER THAN 300 MS, VOLTAGE WILL BE LESS THAN 400.
   - C. ELECTROFISHING WILL BEGIN WITH A MINIMUM PULSE WIDTH AND RECOMMENDED VOLTAGE AND THEN GRADUALLY INCREASE TO THE POINT WHERE FISH ARE IMMOBILIZED.
   - D. THE ANODE WILL NOT INTENTIONALLY CONTACT FISH.
   - E. ELECTROFISHING SHALL NOT BE CONDUCTED WHEN THE WATER CONDITIONS ARE TURBID AND VISIBILITY IS POOR. THIS CONDITION MAY BE EXPERIENCED WHEN THE SAMPLER CANNOT SEE THE STREAM BOTTOM IN ONE FOOT OF WATER.
   - F. IF MORTALITY OR OBVIOUS INJURY (DEFINED AS DARK BANDS ON THE BODY, SPINAL DEFORMATIONS, DE-SCALING OF 25% OR MORE OF BODY, AND TORPIDITY OR INABILITY TO MAINTAIN UPRIGHT ATTITUDE AFTER SUFFICIENT RECOVERY TIME) OCCURS DURING ELECTROFISHING, OPERATIONS WILL BE IMMEDIATELY DISCONTINUED, MACHINE SETTINGS, WATER TEMPERATURE AND CONDUCTIVITY CHECKED, AND PROCEDURES ADJUSTED OR ELECTROFISHING POSTPONED TO REDUCE MORTALITY.

4) DEWATER: DEWATERING, WHEN NECESSARY, WILL BE CONDUCTED OVER A SUFFICIENT PERIOD OF TIME TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA AND WILL BE LIMITED TO THE SHORTEST LINEAR EXTENT PRACTICABLE.
   - A. DIVERSION AROUND THE CONSTRUCTION SITE MAY BE ACCOMPLISHED WITH A COFFER DAM AND A BYPASS CULVERT OR PIPE, OR A LINED, NON-ERODIBLE DIVERSION DITCH. WHERE GRAVITY FEED IS NOT POSSIBLE, A PUMP MAY BE USED, BUT MUST BE OPERATED IN SUCH A WAY AS TO AVOID REPETITIVE DE-WATERING AND RE-WATERING OF THE SITE. IMPOUNDMENT BEHIND THE COFFERDAM MUST OCCUR SLOWLY THROUGH THE TRANSITION, WHILE CONSTANT FLOW IS DELIVERED TO THE DOWNSTREAM REACHES.
   - B. ALL PUMPS WILL HAVE FISH SCREENS TO AVOID JUVENILE FISH IMPINGEMENT OR ENTRAINMENT, AND WILL BE OPERATED IN ACCORDANCE WITH NMFS'S CURRENT FISH SCREEN CRITERIA (NMFS 20114, OR MOST RECENT VERSION). IF THE PUMPING RATE EXCEEDS 3 CUBIC FEET SECOND (CFS), A NMFS HYDRO FISH PASSAGE REVIEW WILL BE NECESSARY.
   - C. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO RIPARIAN VEGETATION OR STREAM CHANNEL.
   - D. SAFE REENTRY OF FISH INTO THE STREAM CHANNEL WILL BE PROVIDED, PREFERABLY INTO POOL HABITAT WITH COVER, IF THE DIVERSION ALLOWS FOR DOWNSTREAM FISH PASSAGE.
   - E. SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OR INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL OR TO FILTER THROUGH VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.

5) RE-WATERING: UPON PROJECT COMPLETION, THE CONSTRUCTION SITE WILL BE SLOWLY RE-WATERED TO PREVENT LOSS OF SURFACE FLOW DOWNSTREAM AND TO PREVENT A SUDDEN INCREASE IN STREAM TURBIDITY. DURING RE-WATERING, THE SITE WILL BE MONITORED TO PREVENT STRANDING OF AQUATIC ORGANISMS BELOW THE CONSTRUCTION SITE.

6) SALVAGE NOTICE: MONITORING AND RECORDING OF FISH PRESENCE, HANDLING, AND MORTALITY MUST OCCUR DURING THE DURATION OF THE ISOLATION, SALVAGE, ELECTROFISHING, DEWATERING, AND REWATERING OPERATIONS. ONCE OPERATIONS ARE COMPLETED, A SALVAGE REPORT WILL DOCUMENT PROCEDURES USED, ANY FISH INJURIES OR DEATHS (INCLUDING NUMBERS OF FISH AFFECTED), AND CAUSES OF ANY DEATHS.

CONSTRUCTION AND POST-CONSTRUCTION CONSERVATION MEASURES FOR AQUATIC SPECIES

1) FISH PASSAGE: FISH PASSAGE WILL BE PROVIDED FOR ANY ADULT OR JUVENILE FISH LIKELY TO BE PRESENT IN THE ACTION AREA DURING CONSTRUCTION, UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION OR THE STREAM IS NATURALLY IMPASSABLE AT THE TIME OF CONSTRUCTION. IF THE PROVISION OF TEMPORARY FISH PASSAGE DURING CONSTRUCTION WILL INCREASE NEGATIVE EFFECTS ON AQUATIC SPECIES OF INTEREST OR THEIR HABITAT, A VARIANCE CAN BE REQUESTED FROM THE NMFS BRANCH CHIEF AND THE FWS FIELD OFFICE SUPERVISOR (APPENDIX B OF THIS BO). PERTINENT INFORMATION, SUCH AS THE SPECIES AFFECTED, LENGTH OF STREAM REACH AFFECTED, PROPOSED TIME FOR THE PASSAGE BARRIER, AND ALTERNATIVES CONSIDERED, WILL BE INCLUDED IN THE VARIANCE REQUEST.

2) CONSTRUCTION AND DISCHARGE WATER:
   - A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS, BUT ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.
   - B. DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.
   - C. ALL CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED USING THE BEST AVAILABLE TECHNOLOGY APPLICABLE TO SITE CONDITIONS.
   - D. TREATMENTS TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS AND OTHER POLLUTANTS LIKELY TO BE PRESENT WILL BE PROVIDED.

3) MINIMIZE TIME AND EXTENT OF DISTURBANCE: EARTHWORK (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING AND COMPACTING) IN WHICH MECHANIZED EQUIPMENT IS IN STREAM CHANNELS, RIPARIAN AREAS, AND WETLANDS WILL BE COMPLETED AS QUICKLY AS POSSIBLE. MECHANIZED EQUIPMENT WILL BE USED IN STREAMS ONLY WHEN PROJECT SPECIALISTS BELIEVE THAT SUCH ACTIONS ARE THE ONLY REASONABLE ALTERNATIVE FOR IMPLEMENTATION, OR WOULD RESULT IN LESS SEDIMENT IN THE STREAM CHANNEL OR DAMAGE (SHORT- OR LONG-TERM) TO THE OVERALL AQUATIC AND RIPARIAN ECOSYSTEM RELATIVE TO OTHER ALTERNATIVES. TO THE EXTENT FEASIBLE, MECHANIZED EQUIPMENT WILL WORK FROM THE TOP OF THE BANK, UNLESS WORK FROM ANOTHER LOCATION WOULD RESULT IN LESS HABITAT DISTURBANCE.

4) CESSATION OF WORK: PROJECT OPERATIONS WILL CEASE UNDER THE FOLLOWING CONDITIONS:
   - A. HIGH FLOW CONDITIONS THAT MAY RESULT IN INUNDATION OF THE PROJECT AREA, EXCEPT FOR EFFORTS TO AVOID OR MINIMIZE RESOURCE DAMAGE;
   - B. WHEN ALLOWABLE WATER QUALITY IMPACTS, AS DEFINED BY THE STATE CWA SECTION 401 WATER QUALITY CERTIFICATION, HAVE BEEN EXCEEDED; OR
   - C. WHEN "INCIDENTAL TAKE" LIMITATIONS HAVE BEEN REACHED OR EXCEEDED.

5) SITE RESTORATION: WHEN CONSTRUCTION IS COMPLETE:
   - A. ALL STREAM BANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED AS NECESSARY USING STOCKPILED LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL.
   - B. ALL PROJECT RELATED WASTE WILL BE REMOVED.
   - C. ALL TEMPORARY ACCESS ROADS, CROSSINGS, AND STAGING AREAS WILL BE OBLITERATED. WHEN NECESSARY FOR RE-VEGETATION AND INFILTRATION OF WATER, COMPACTED AREAS OF SOIL WILL BE LOOSENED.
   - D. ALL DISTURBED AREAS WILL BE REHABILITATED IN A MANNER THAT RESULTS IN SIMILAR OR IMPROVED CONDITIONS RELATIVE TO PRE-PROJECT CONDITIONS. THIS WILL BE ACHIEVED THROUGH REDISTRIBUTION OF STOCKPILED MATERIALS, SEEDING, AND/OR PLANTING WITH LOCAL NATIVE SEED MIXES OR PLANTS.

6) RE-VEGETATION: LONG-TERM SOIL STABILIZATION OF DISTURBED SITES WILL BE ACCOMPLISHED WITH REESTABLISHMENT OF NATIVE VEGETATION USING THE FOLLOWING CRITERIA:
   - A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.
   - B. AN APPROPRIATE MIX OF SPECIES THAT WILL ACHIEVE ESTABLISHMENT, SHADE, AND EROSION CONTROL OBJECTIVES, PREFERABLY FORB, GRASS, SHRUB, OR TREE SPECIES NATIVE TO THE PROJECT AREA OR REGION AND APPROPRIATE TO THE SITE WILL BE USED.
   - C. VEGETATION, SUCH AS WILLOW, SEDGE AND RUSH MATS, WILL BE SALVAGED FROM DISTURBED OR ABANDONED FLOOD PLAINS, STREAM CHANNELS, OR WETLANDS.
   - D. INVASIVE SPECIES WILL NOT BE USED.
   - E. SHORT-TERM STABILIZATION MEASURES MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE SEEDS ARE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, JUTE MATTING, AND OTHER SIMILAR TECHNIQUES.
   - F. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM CHANNEL, WATER BODY, OR WETLAND.
   - G. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO RE-VEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.
   - H. RE-ESTABLISHMENT OF VEGETATION IN DISTURBED AREAS WILL ACHIEVE AT LEAST 70% OF PRE-PROJECT CONDITIONS WITHIN 3 YEARS.
   - I. INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY 3 YEARS POST-CONSTRUCTION).

7) IMPLEMENTATION MONITORING: PROJECT SPONSOR STAFF OR THEIR DESIGNATED REPRESENTATIVE WILL PROVIDE IMPLEMENTATION MONITORING TO ENSURE COMPLIANCE WITH THE APPLICABLE BIOLOGICAL OPINION, INCLUDING:
   - A. GENERAL CONSERVATION MEASURES ARE ADEQUATELY FOLLOWED; AND
   - B. EFFECTS TO LISTED SPECIES ARE NOT GREATER THAN PREDICTED AND INCIDENTAL TAKE LIMITATIONS ARE NOT EXCEEDED.

8) CWA SECTION 401 WATER QUALITY CERTIFICATION: THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL COMPLETE AND RECORD WATER QUALITY OBSERVATIONS TO ENSURE THAT IN-WATER WORK IS NOT DEGRADING WATER QUALITY. DURING CONSTRUCTION, CWA SECTION 401 WATER QUALITY CERTIFICATION PROVISIONS PROVIDED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, WASHINGTON DEPARTMENT OF ECOLOGY, OR IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY WILL BE FOLLOWED. TURBIDITY MONITORING SHALL BE CONDUCTED IN ACCORDANCE WITH THE HIP III TURBIDITY MONITORING PROTOCOL OUTLINED BELOW AND RECORDED ON THE PROJECT COMPLETION FORM.

TURBIDITY MONITORING PROTOCOL

THE PROJECT SPONSOR SHALL COMPLETE AND RECORD THE FOLLOWING WATER QUALITY OBSERVATIONS TO ENSURE THAT ANY INCREASE IN SUSPENDED SEDIMENT DOES NOT EXCEED THE LIMIT FOR HIP III COMPLIANCE. RECORDS SHALL BE REPORTED ON THE HIP III PROJECT COMPLETION FORM (PNF).

1) TAKE A BACKGROUND TURBIDITY SAMPLE USING AN APPROPRIATELY AND FREQUENTLY CALIBRATED TURBIDIMETER IN ACCORD WITH MANUFACTURER'S INSTRUCTIONS, OR A VISUAL TURBIDITY OBSERVATION, EVERY 2 HOURS WHILE WORK IS BEING IMPLEMENTED, OR MORE OFTEN IF TURBIDITY DISTURBANCES VARY GREATLY, TO ENSURE THAT THE IN-WATER WORK AREA IS NOT CONTRIBUTING VISIBLE SEDIMENT TO THE WATER COLUMN. THE BACKGROUND SAMPLES OR OBSERVATIONS SHOULD BE TAKEN AT A RELATIVELY UNDISTURBED AREA APPROXIMATELY 100 FEET UPSTREAM FROM THE PROJECT AREA. RECORD THE OBSERVATION, LOCATION, AND TIME BEFORE MONITORING AT THE DOWNSTREAM POINT.

2) TAKE A SECOND SAMPLE OR OBSERVATION, IMMEDIATELY AFTER EACH UPSTREAM SAMPLE OR OBSERVATION. APPROXIMATELY 50 FEET DOWNSTREAM FROM THE PROJECT AREA IN STREAMS THAT ARE 30 FEET WIDE OR LESS: 100 FEET DOWNSTREAM FROM THE PROJECT AREA FOR STREAMS BETWEEN 30 AND 100 FEET WIDE; 200 FEET DOWNSTREAM FROM THE PROJECT AREA FOR STREAMS GREATER THAN 100 FEET WIDE; AND 300 FEET FROM THE DISCHARGE POINT OR NON-POINT SOURCE FOR AREAS SUBJECT TO TIDAL OR COASTAL SCOUR. RECORD THE DOWNSTREAM OBSERVATION, LOCATION, AND TIME.

3) COMPARE THE UPSTREAM AND DOWNSTREAM OBSERVATIONS/SAMPLES. IF OBSERVED OR MEASURED TURBIDITY DOWNSTREAM IS MORE THAN UPSTREAM OBSERVATION OR MEASUREMENT (> 10%), THE ACTIVITY MUST BE MODIFIED TO REDUCE TURBIDITY. IF VISUAL ESTIMATES ARE USED, AN OBVIOUS DIFFERENCE BETWEEN UPSTREAM AND DOWNSTREAM OBSERVATIONS SHALL BEAR THE ASSUMPTION OF A (> 10%) DIFFERENCE. CONTINUE TO MONITOR EVERY 2 HOURS AS LONG AS IN-STREAM ACTIVITY CONTINUES.

4) IF THE EXCEEDANCE CONTINUES AFTER THE SECOND MONITORING INTERVAL (AFTER 4 HOURS), THE ACTIVITY MUST STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND, AND THE EC LEAD MUST BE NOTIFIED WITHIN 48 HOURS. THE EC LEAD SHALL DOCUMENT THE REASONS FOR THE EXCEEDANCE, CORRECTIVE MEASURES TAKEN, NOTIFY THE LOCAL NMFS BRANCH CHIEF AND/OR USFWS FIELD SUPERVISOR AND SEEK RECOMMENDATIONS.

5) IF AT ANY TIME, MONITORING, INSPECTIONS, OR OBSERVATIONS/SAMPLES SHOW THAT THE TURBIDITY CONTROLS ARE INEFFECTIVE, IMMEDIATELY MOBILIZE WORK CREWS TO REPAIR, REPLACE, OR REINFORCE CONTROL AS NECESSARY.

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

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BUCKMIRE SLOUGH RESTORATION PROJECT

HIP III GENERAL CONSERVATION MEASURES

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MICHAEL RAFFERTY — STATE OF WASHINGTON — REGISTERED PROFESSIONAL ENGINEER

DATE June 2, 2015

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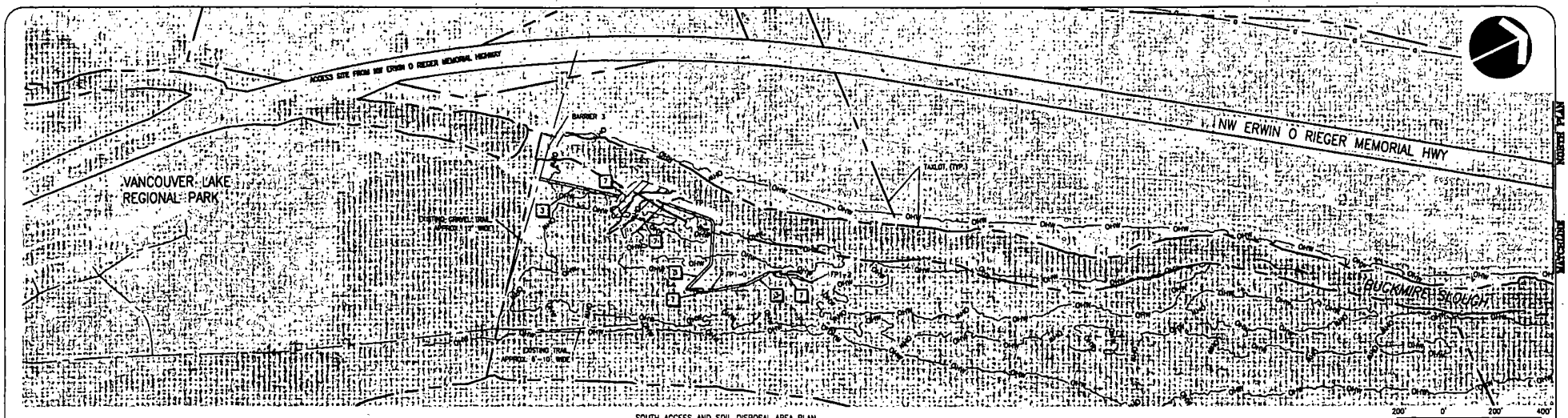
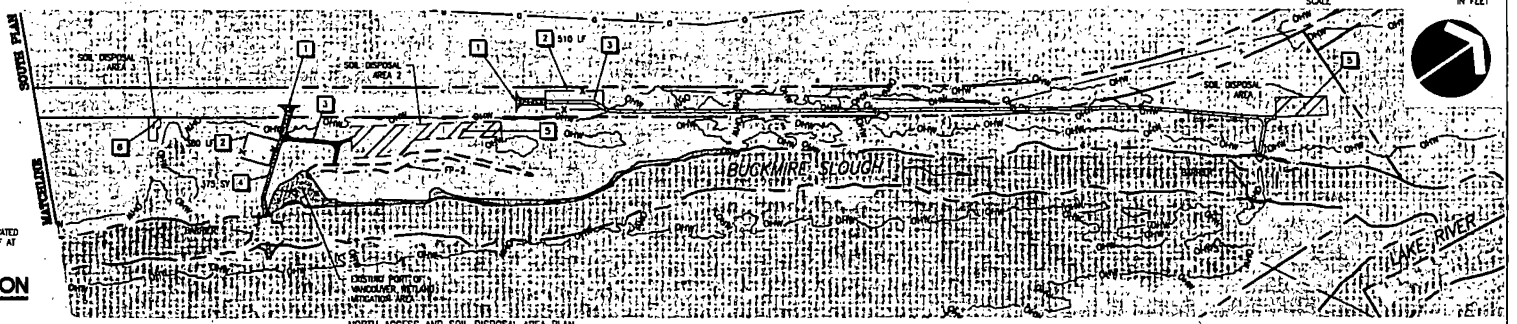
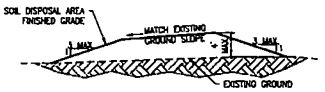






NOTES:

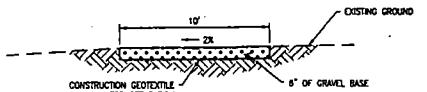
1. SOIL DISPOSAL AREA 3 SHALL BE ABOVE ELEVATION 29 AND LOCATED OUTSIDE OF THE SPECIAL FLOOD HAZARD AREA (100-YEAR FLOODPLAIN).
2. APPROX. 210 TOTAL CY OF EXCAVATED MATERIALS SHALL BE DISPOSED OF AT SOIL DISPOSAL AREA 3.

1 SOIL DISPOSAL AREA 3 TYP. SECTION
NTS

SOIL DISPOSAL AREA APPROX. QUANTITIES	
SOIL DISPOSAL AREA	FOOTPRINT (SF)
SOIL DISPOSAL AREA 1	10,890
SOIL DISPOSAL AREA 2	34,690
SOIL DISPOSAL AREA 3	2,625
FP1-1 SIDECAST	24,825
FP1-2 SIDECAST	1,565
FP1-3 SIDECAST	540

SEQUENCE OF EROSION CONTROL INSTALLATION NOTES

1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE (FOR DETAILS SEE SHEET EC05).
2. INSTALL HIGH VISIBILITY FENCE AROUND PERIMETER OF STAGING AREA. INSTALL COMPOST SOCKS AROUND DOWNSLOPE PERIMETER OF STAGING AREA (FOR DETAILS SEE SHEET EC05). STAGING AREA SHALL BE 150 FT. MIN. FROM ADW.
3. RECOMMENDED ACCESS ROUTE FOR TEMPORARY ACCESS. MINIMIZE DISTURBANCE TO NATIVE VEGETATION. EXISTING PATHS AND ROADWAYS SHALL BE USED WHENEVER REASONABLE. SOME EXISTING ACCESS ROUTES MAY REQUIRE MINOR IMPROVEMENTS INCLUDING SMOOTHING OF GRADE AND CLEARING AND CRUBBING. UPON COMPLETION OF WORK, RESTORE ACCESS ROUTES BY SCARIFYING SOILS AND SEEDING WITH PERMANENT SEED MIX NO. 1.
4. CONSTRUCT PERMANENT GRAVEL ACCESS ROAD TO BARRIER 2. MINIMIZE DISTURBANCE TO NATIVE VEGETATION. SEE DETAIL 2 THIS SHEET.
5. DISPOSE OF EXCAVATED MATERIALS. NOTIFY CAR PRIOR TO SOIL DISPOSAL. COVER LARGE TEMPORARY STOCKPILES WITH PLASTIC SHEETING DURING CONSTRUCTION (FOR DETAILS SEE SHEET EC05). SPREAD MATERIAL TO A DEPTH NOT EXCEEDING 1.5 FT AND PERMANENTLY STABILIZE WITH SEED MIX NO. 1 (FOR DETAILS SEE SHEETS L01-L04). DOWNSLOPE PERIMETER OF SOIL DISPOSAL AREA SHALL BE STABILIZED WITH COMPOST SOCKS UNTIL VEGETATION IS ESTABLISHED (FOR DETAILS SEE SHEET EC05). SOIL DISPOSAL AREAS 1 AND 2 MAY BE USED AS STAGING AREAS.
6. DISPOSE OF APPROX. 210 CY OF MATERIAL IN SOIL DISPOSAL AREA 3 (SEE DETAIL 1 THIS SHEET). PERMANENTLY STABILIZE WITH SEEDING (FOR DETAILS SEE SHEETS L01 - L04). DOWNSLOPE PERIMETER OF SOIL DISPOSAL AREA SHALL BE STABILIZED WITH COMPOST SOCKS UNTIL VEGETATION IS ESTABLISHED (FOR DETAILS SEE SHEET EC05).
7. SIDECAST EXCAVATED MATERIALS FROM FLOODPLAIN CHANNELS (FOR DETAILS SEE SHEET EC8). STABILIZE WITH SEEDING (FOR DETAILS SEE SHEETS L01-L04).



NOTE:
6" GROUND ON BOTH SIDES OF THE ROAD SLOPES AWAY FROM THE ROAD. CROWN ROAD AT CENTERLINE WITH 2% CROSS-SLOPE.

GRAVEL BASE GRADATION AND QUALITY	
SIEVE SIZE	PERCENT PASSING
2"	75 - 100
NO. 4	22 - 100
NO. 200	0 - 10
DUST RATIO	⅔ MAX.
SAND EQUIVALENT	30 MIN.

ALL PERCENTAGES ARE BY WEIGHT.

2 PERMANENT GRAVEL ACCESS ROAD
NTS

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BUCKMIRE SLOUGH RESTORATION PROJECT

TESC PLAN – SITE ACCESS AND SOIL DISPOSAL

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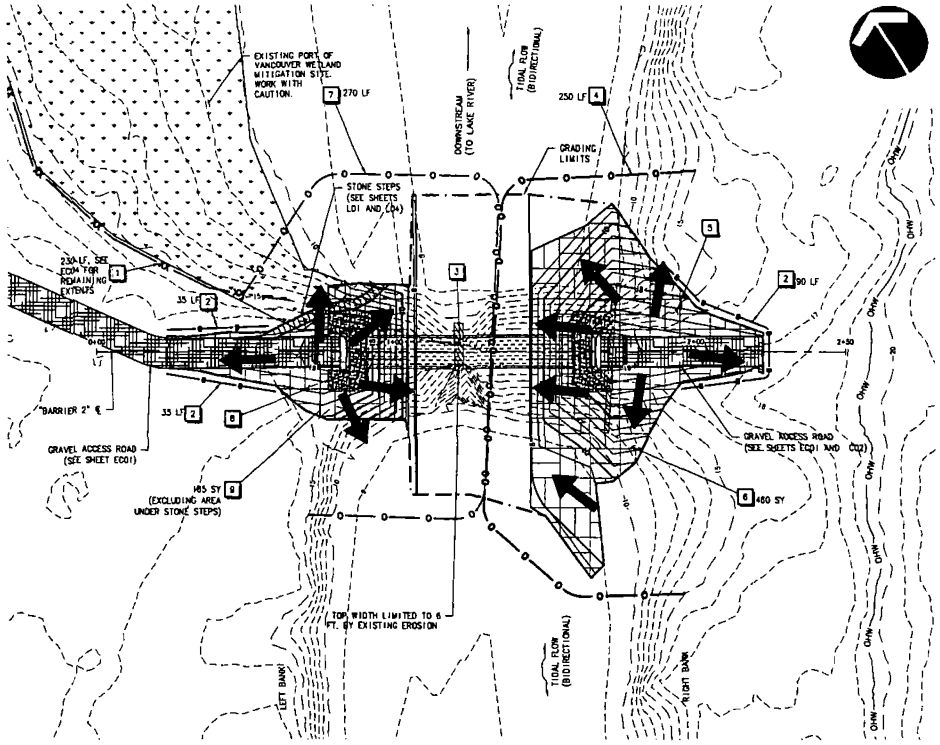
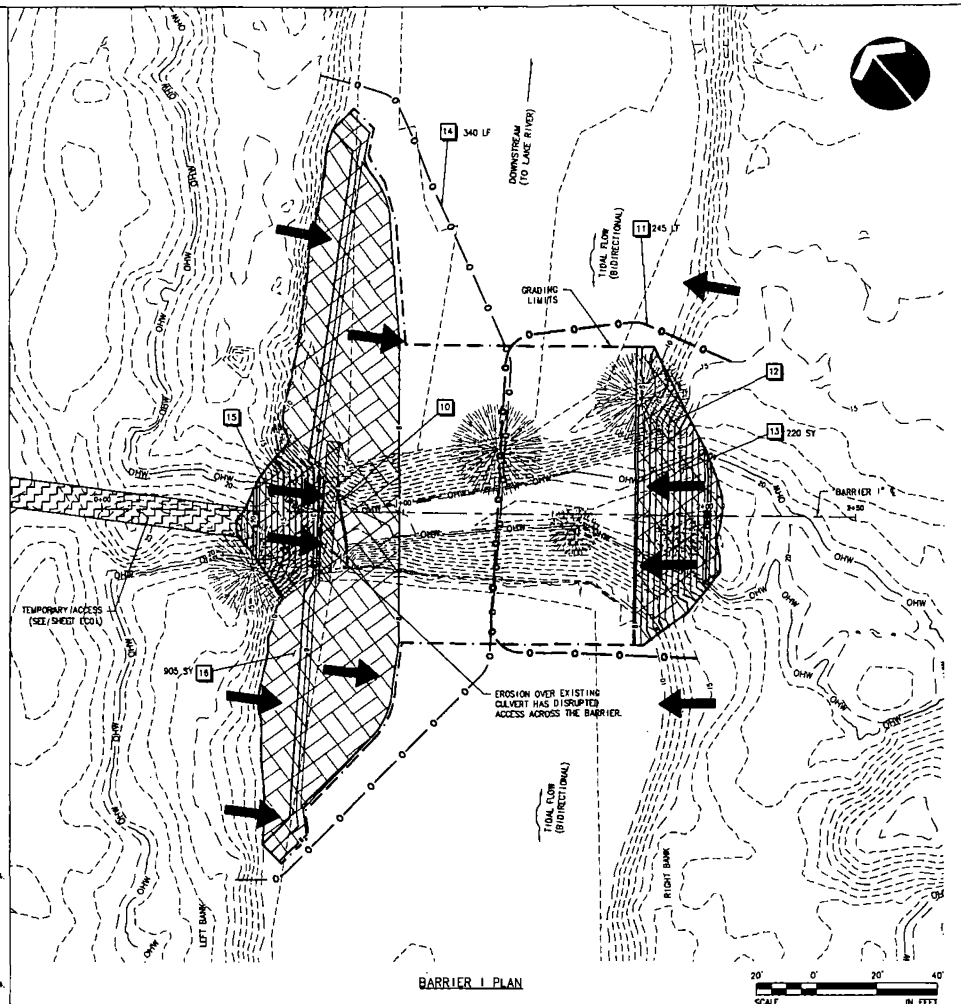


BARRIER 2 PLAN



BARRIER 1 PLAN

SEQUENCE OF EROSION CONTROL INSTALLATION NOTES

NOTE: LEAVE BARRIER 1 INTACT WHILE CONTSTRUCTING CHANNEL AND BRIDGE AT BARRIER 2 TO MINIMIZE TIDAL INFLUENCE FROM LAKE RIVER.

1. INSTALL HIGH VISIBILITY FENCE (FOR DETAILS SEE SHEET EC05).
2. INSTALL COMPOST SOCK (FOR DETAILS SEE SHEET EC05).
3. CONSTRUCT TEMPORARY ACCESS ACROSS BARRIER 2 TO ACCESS RIGHT BANK.
4. INSTALL WORK AREA ISOLATION ON RIGHT BANK OF BUCKMIRE SLOUGH AT BARRIER 2, ANCHOR AT TOP OF BANK (FOR DETAILS SEE SHEET EC07).
5. CONSTRUCT RIGHT BANK OF CHANNEL AT BARRIER 2 INCLUDING BRIDGE APPROACH AND PERMANENT GRAVEL ACCESS ROAD (SEE SHEET C02).
6. INSTALL LONG-TERM STABILIZATION MEASURES ON RIGHT BANK AT BARRIER 2 (SEEDING, BIODEGRADABLE EROSION CONTROL BLANKET, AND PLANTING). SEE SHEETS EC08 AND L01 - L04.
7. REMOVE WORK AREA ISOLATION FROM RIGHT BANK AT BARRIER 2 AND INSTALL WORK AREA ISOLATION ON LEFT BANK. ANCHOR AT TOP OF BANK (FOR DETAILS SEE SHEET EC07).
8. CONSTRUCT LEFT BANK OF CHANNEL AT BARRIER 2 INCLUDING BRIDGE APPROACH AND PERMANENT GRAVEL ACCESS ROAD (SEE SHEET C02). INSTALL BRIDGE (SEE SHEETS S01 - S04).
9. INSTALL LONG-TERM STABILIZATION MEASURES ON LEFT BANK AT BARRIER 2 (SEEDING, BIODEGRADABLE EROSION CONTROL BLANKET, AND PLANTING). SEE SHEETS EC08 AND L01 - L04. AFTER STABILIZATION, REMOVE WORK AREA ISOLATION FROM BARRIER 2.
10. CONSTRUCT TEMPORARY ACCESS ACROSS BARRIER 1 TO ACCESS RIGHT BANK.
11. INSTALL WORK AREA ISOLATION ON RIGHT BANK OF BUCKMIRE SLOUGH AT BARRIER 1, ANCHOR AT TOP OF BANK (FOR DETAILS SEE SHEET EC07).
12. CONSTRUCT RIGHT BANK OF CHANNEL AT BARRIER 1 (SEE SHEET C01).
13. INSTALL LONG-TERM STABILIZATION MEASURES ON RIGHT BANK AT BARRIER 1 (SEEDING, BIODEGRADABLE EROSION CONTROL BLANKET, AND PLANTING). SEE SHEETS EC08 AND L01 - L04.
14. REMOVE WORK AREA ISOLATION FROM RIGHT BANK AT BARRIER 1 AND INSTALL WORK AREA ISOLATION ON LEFT BANK. ANCHOR AT TOP OF BANK (FOR DETAILS SEE SHEET EC07).
15. CONSTRUCT LEFT BANK OF CHANNEL AT BARRIER 1 INCLUDING BENCHES (SEE SHEET C01).
16. INSTALL LONG-TERM STABILIZATION MEASURES ON LEFT BANK AT BARRIER 1 (SEEDING, BIODEGRADABLE EROSION CONTROL BLANKET, AND PLANTING). SEE SHEETS EC08 AND L01 - L04. AFTER STABILIZATION, REMOVE WORK AREA ISOLATION FROM BARRIER 1.

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BUCKMIRE SLOUGH RESTORATION PROJECT

TESC PLAN – BARRIERS 1 AND 2

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MICHAEL RAFFERTY 24668 REGISTERED PROFESSIONAL ENGINEER

DATE June 2, 2015
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May 29, 2015 - 4:31pm
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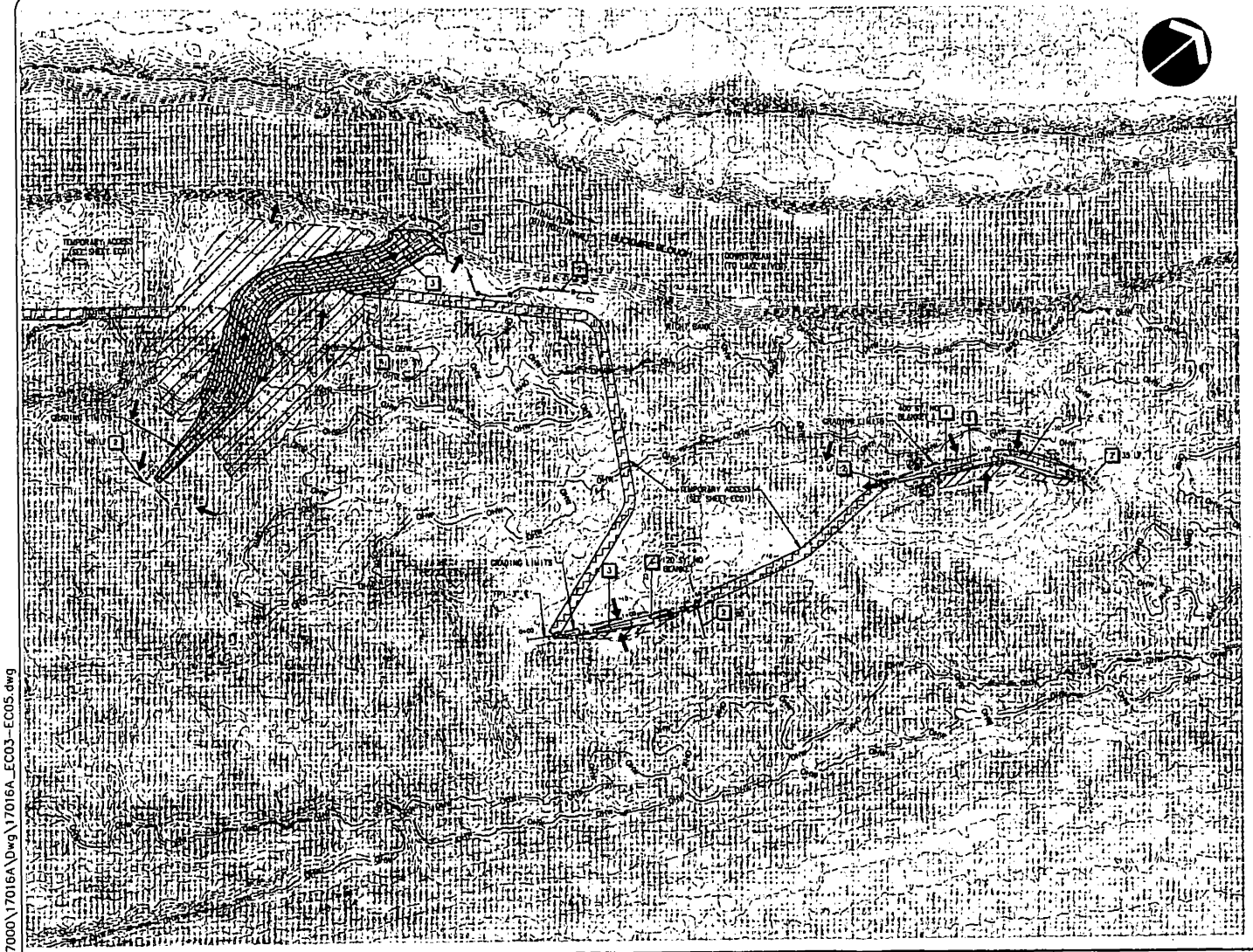

SEQUENCE OF EROSION CONTROL INSTALLATION NOTES

1. INSTALL WORK AREA ISOLATION AT TOP OF RIGHT BANK ALONG BUCKMIRE SLOUGH (FOR DETAILS SEE SHEET EC07).
2. INSTALL COMPOST SOCK (FOR DETAILS SEE SHEET EC05).
3. CONSTRUCT FLOODPLAIN CHANNEL (SEE SHEETS C03–C04).
4. INSTALL LONG-TERM STABILIZATION MEASURES (SEEDING, BIODEGRADABLE EROSION CONTROL BLANKET, AND PLANTING). SEE SHEETS EC06 AND L01 – L04.
   NOTE: DO NOT INSTALL BIODEGRADABLE EROSION CONTROL BLANKET IN FP1–2 AND FP1–3.
5. REMOVE WORK AREA ISOLATION AND TEMPORARY ACCESS AFTER CONSTRUCTION IS COMPLETE.

50' 0' 50' 100'
SCALE IN FEET

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BUCKMIRE SLOUGH RESTORATION PROJECT

TESC PLAN – FLOODPLAIN CHANNEL FP1

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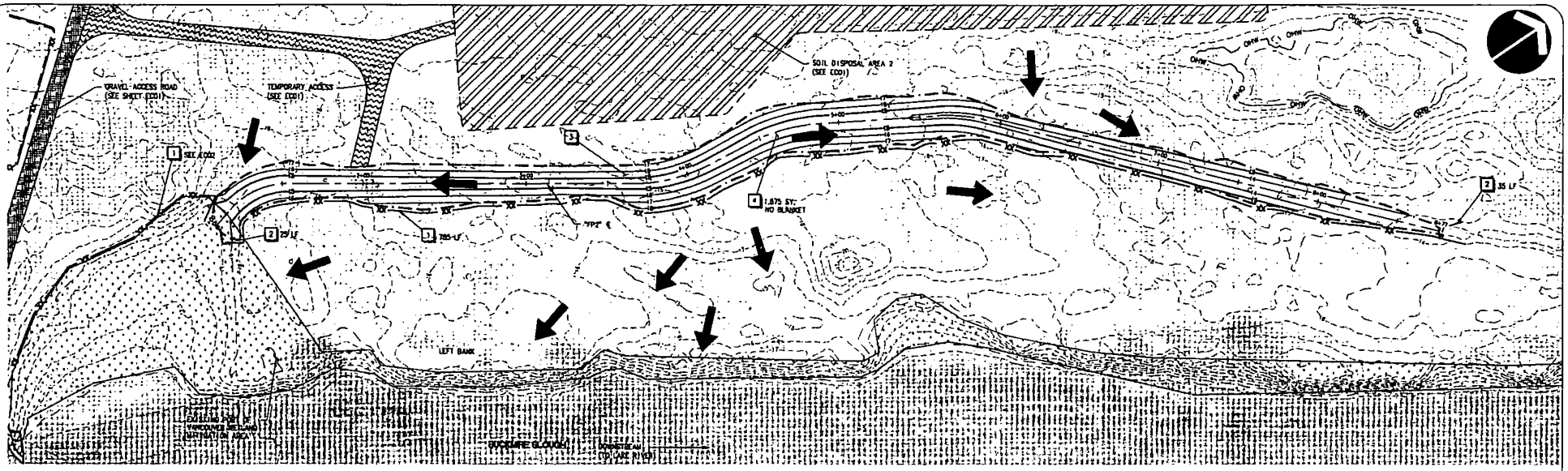

SEQUENCE OF EROSION CONTROL INSTALLATION NOTES

1. INSTALL HIGH-VISIBILITY FENCE (FOR DETAILS SEE SHEET EC05).
2. INSTALL COMPOST SOCK (FOR DETAILS SEE SHEET EC05).
3. CONSTRUCT FLOODPLAIN CHANNEL (SEE SHEET EC03).
4. INSTALL LONG-TERM STABILIZATION MEASURES (SEEDING AND PLANTING). SEE SHEETS EC06 AND L01 - L04. DO NOT INSTALL BIODEGRADABLE EROSION CONTROL BLANKET.

30' 0' 30' 60'
SCALE IN FEET

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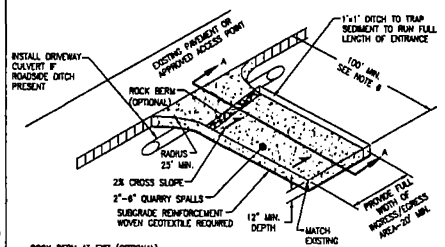
EROSION CONTROL GENERAL NOTES

1. THE CONTRACTOR SHALL INSTALL AND MAINTAIN BMP'S AS SHOWN AND PERFORM ALL ACTIONS NECESSARY TO PREVENT EROSION, AND CONTROL SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. CONTRACTOR SHALL COMPLY WITH CLARK COUNTY CODE CHAPTER 40.385.
2. ALL EROSION PREVENTION AND CONTROL MEASURES SHALL BE IN-PLACE AND IN WORKING CONDITION PRIOR TO DISTURBING AND EXPOSING ANY SOIL SURFACES.
3. ALL EROSION PREVENTION AND CONTROL BMP'S SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO INSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. NEEDED REPAIRS SHALL BE MADE AS SOON AS PRACTICABLE. THEY ARE TO REMAIN IN PLACE AND OPERATIONAL DURING ALL PHASES OF CONSTRUCTION. CONSTRUCTION ACTIVITIES SHALL NOT CONTINUE OR RESUME UNTIL REPAIRS TO EROSION CONTROL FACILITIES ARE MADE AND THE FACILITIES ARE FUNCTIONAL. ANY SEDIMENT LEAVING THE SITE OR DISCHARGING TO A SENSITIVE AREA SHALL BE STOPPED AND CONTROLLED IMMEDIATELY. CONTAMINATED AREAS SHALL BE CLEANED AND RESTORED.
4. CLEARING LIMITS AND WORK AREA LIMITS SHALL BE DELINEATED AND MARKED. DO NOT DISTURB MORE AREA THAN NEEDED FOR CONSTRUCTION REQUIREMENTS.
5. ALL SENSITIVE OR CRITICAL AREAS (WETLANDS, STEEP SLOPES, NATURAL WATERWAYS), AND BUFFERS SHALL ALL BE CLEARLY DELINEATED AND CLEARLY MARKED, AND PROTECTED FROM SEDIMENT DEPOSITION.
6. SEDIMENT LADEN RUNOFF SHALL BE PREVENTED FROM ENTERING ALL EXISTING STORM WATER CATCH BASINS AND INLETS AFFECTED BY CONSTRUCTION.
7. NO EXPOSED, BARE SOILS SHALL REMAIN UNSTABILIZED FOR MORE THAN TWO DAYS DURING THE PERIOD OCTOBER 1 THROUGH APRIL 30 OR FOR MORE THAN SEVEN DAYS DURING THE PERIOD OF MAY 1 THROUGH SEPTEMBER 30. ALL DISTURBED SOIL SURFACES SHALL BE STABILIZED BY A SUITABLE APPLICATION OF "BEST MANAGEMENT PRACTICES".
8. DEWATERING DEVICES SHALL DISCHARGE INTO A SEDIMENT TRAP OR SEDIMENT POND. NO DISCHARGE SHALL BE MADE TO A PAVED STREET, STORMWATER COLLECTION SYSTEM, OR NATURAL WATERWAY WITHOUT FIRST REMOVING SEDIMENT.
9. CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. EROSION SHALL BE CONTROLLED AND PREVENTED BY SUCH MEASURES AS ROUGHENING THE SURFACE, INSTALLATION OF INTERCEPTOR DITCHES, TERRACING, COVERING WITH MATTING, MULCH OR PLASTIC SHEETING. RUNOFF SHALL BE PREVENTED FROM ENTERING A SLOPE AND FROM UNDERCUTTING THE BASE OF SLOPES.
10. ANY SOIL OR DEBRIS TRANSPORTED ONTO ROADWAYS AND SIDEWALKS SHALL BE REMOVED. DEPOSITS SHALL BE COMPLETELY REMOVED BY SHOVELING AND/OR SWEEPING. WASHING SHALL NOT BE UTILIZED UNLESS SPECIFICALLY APPROVED IN WRITING BY THE COUNTY.
11. ALL CONVEYANCE CHANNELS, BOTH TEMPORARY AND PERMANENT SHALL BE STABILIZED TO PREVENT EROSION OF THE CHANNEL. STABILIZATION SHALL EXTEND TO AREAS AT OUTLETS AND DOWNSTREAM REACHES VULNERABLE TO EROSION RESULTING FROM FLOW DISCHARGING FROM THE CHANNEL.
12. IF BMP'S SHOWN ARE UTILIZED BUT ARE INSUFFICIENT TO PREVENT SEDIMENT FROM REACHING WATER BODIES, ADJACENT PROPERTIES, OR PUBLIC RIGHTS-OF-WAY; ADDITIONAL BMP'S SHALL BE IMPLEMENTED IMMEDIATELY TO PREVENT FURTHER ENCROACHMENT OF SEDIMENT.
13. STABILIZED AREAS SHALL BE PROVIDED FOR EMPLOYEE PARKING AND STORAGE OF CONSTRUCTION MATERIALS. ERODIBLE STOCKPILES OF EARTHEN MATERIALS, SUCH AS TOPSOIL, SILTY AND CLAYEY SOILS; AND LANDSCAPE MATERIALS, SHALL BE COVERED WHEN NOT BEING INCORPORATED IN THE WORK. EROSION CONTROL BMP'S SHALL BE UTILIZED AS NECESSARY TO PREVENT SEDIMENT LADEN RUNOFF FROM LEAVING OR SEDIMENT BEING TRANSPORTED FROM THESE AREAS FROM VEHICLE ACTIVITY.
14. ALL POLLUTANTS OTHER THAN SEDIMENT THAT OCCUR DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORM WATER OR NATURAL WATERWAYS.
15. THE CONTRACTOR SHALL KEEP AN INSPECTION LOG OF THE CONDITION OF THE EROSION CONTROL FACILITIES. EROSION CONTROL FACILITIES SHALL BE INSPECTED AT LEAST WEEKLY AND AFTER EACH RAINFALL. THE INSPECTION LOG SHALL BE KEPT AT THE PROJECT SITE AT A DESIGNATED LOCATION AND SHALL BE AVAILABLE FOR REVIEW BY THE COUNTY. AN INDIVIDUAL THAT HAS SUCCESSFULLY COMPLETED THE COUNTY'S EROSION CONTROL CERTIFICATION COURSE SHALL PERFORM INSPECTIONS AND MAINTAIN THE LOG.
16. ALL TEMPORARY BMP'S SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED. TRAPPED SEDIMENT SHALL BE DEPOSITED AND STABILIZED ON SITE. AREAS DISTURBED RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.
17. CONSTRUCTION SHALL NOT BE CONSIDERED COMPLETE AND ACCEPTABLE UNTIL ALL DISTURBED SOIL SURFACES HAVE BEEN PROTECTED FROM EROSION WITH PERMANENT LANDSCAPING, COVERING WITH IMPERVIOUS SURFACES, RESTORED TO ORIGINAL UNDISTURBED CONDITION OR PERMANENTLY STABILIZED.
18. VEGETATED STABILIZATION AND LANDSCAPING SHALL BE WATERED AND MAINTAINED TO INSURE THAT GROWTH OF VEGETATION IS ESTABLISHED AND SUSTAINED.
19. DURING DRY WEATHER CONSTRUCTION PERIODS THE CONTRACTOR SHALL PROVIDE PROJECT-SPECIFIC DUST CONTROL MEASURES THAT MAY INCLUDE: SEEDING, MULCHING, MATTING, WATER, TACKIFIER, OR CHEMICAL SOIL STABILIZERS. THE CONTRACTOR SHALL MAINTAIN THE DUST CONTROL MEASURES THROUGH DRY WEATHER PERIODS UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED. IMMEDIATELY RE-STABILIZE AREAS DISTURBED BY CONTRACTOR'S OPERATIONS OR OTHER ACTIVITIES (WIND, WATER, VANDALISM, ETC.).
20. ENTRY ONTO THE CONSTRUCTION SITE SHALL BE RESTRICTED TO A SINGLE APPROVED ENTRANCE AS SHOWN ON THE PLAN.
21. MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES WHICH INVOLVE POTENTIAL CONTAMINANTS (OIL,SOLVENTS,HYDRAULIC FLUID, ETC.) MUST BE CONDUCTED IN A MANNER WHICH PREVENTS CONTAMINATION OF SOILS, SURFACE WATER AND GROUND WATER. TARPS, DRIP PANS, OR OTHER APPROPRIATE MEASURES SHALL BE USED AS NECESSARY.
22. STRIPPING, TOPSOIL, AND UNSUITABLE MATERIAL STOCKPILES SHALL BE HYDROSEEDED WITH PERMANENT SEED MIX NO. 1. MAINTENANCE OF STOCKPILE AREAS AND REAPPLICATION OF HYDROSEED COVERING SHALL BE REQUIRED IF BARE SOIL IS PRESENT. DURING WINTER AND WET WEATHER CONDITIONS, STOCKPILES SHALL BE COVERED WITH PLASTIC SHEETING PER DETAIL 4 THIS SHEET.
23. SIGNIFICANT VARIATION AND DEGREE OF EROSION CONTROL EFFORT WILL BE DICTATED BY WEATHER CONDITIONS. THE DEVELOPER AND CONTRACTOR SHOULD BE PREPARED TO PROVIDE EXTRA EROSION CONTROL PROVISIONS AND EFFORT DURING WINTER AND WET WEATHER CONDITIONS BEYOND THAT NORMALLY REQUIRED DURING SUMMER AND DRY WEATHER CONDITIONS. FINE GRAINED AND UNCONSOLIDATED SOILS ON SLOPING SITES MAY BECOME UNSTABLE WHEN SUBJECT TO EXCESSIVE MOISTURE.
24. TEMPORARY ACCESS SHOWN IS APPROXIMATE. CONTRACTOR SHALL BE RESPONSIBLE FOR ACTUAL LOCATION. LOCATION SHOULD MINIMIZE IMPACTS OUTSIDE GRADING LIMITS. SOME IMPACTS TO EXISTING TREES ARE ANTICIPATED TO BE UNAVOIDABLE.
25. RESTORE EXISTING TRAILS TO PRE-PROJECT CONDITIONS AFTER CONSTRUCTION IS COMPLETE.



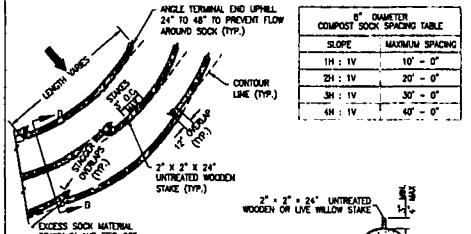
NOTES:

1. INSTALL WOVEN GEOTEXTILE FABRIC TO PREVENT SUB-SOIL PUMPING.
2. VEHICLE WASHDOWN AREA, IF REQUIRED, IS TO BE INSTALLED AND USED TO REMOVE SEDIMENT FROM VEHICLES THAT ARE ABOUT TO ENTER AN ESTABLISHED ROAD.
3. WASHDOWN AREA TO BE MADE UP OF CLEAN 2"- 6" QUARRY SPALLS, 12" DEEP (MIN.) OVER WOVEN GEOTEXTILE FABRIC. WASHDOWN AREA TO BE FULL WIDTH OF ENTRANCE AND 50' LENGTH (MIN.), AND 100' IF EXPOSED SOIL IS OVER 5 ACRES.
4. AT TIME OF PRECONSTRUCTION MEETING, THE COUNTY INSPECTOR MAY REQUIRE THE ENTRANCE TO BE PAVED TO THE EDGE OF THE RIGHT-OF-WAY PRIOR TO THE INSTALLATION OF A WASHDOWN ENTRANCE TO AVOID DAMAGE TO THE EXISTING ROADWAY.
5. THE RESPONSIBLE EROSION CONTROL INDIVIDUAL IS TO ENSURE THAT ALL VEHICLES USE THIS ENTRANCE AND ARE TO BE INSPECTED AND CLEANED OF SOILS BEFORE LEAVING PROJECT, AND THAT THE ENTRANCE IS TO BE KEPT CLEAN AT ALL TIMES.
6. THE 100' MINIMUM LENGTH OF ENTRANCE SHALL BE REDUCED TO THE MAXIMUM PRACTICABLE SIZE WHEN THE SIZE OR CONFIGURATION OF THE SITE DOES NOT ALLOW THE FULL LENGTH (100').

SECTION A-A

1. EXCAVATE MINIMUM OF 12" OF EXISTING SOILS.
2. PLACE MINIMUM OF 12" OF 2"-6" QUARRY SPALLS.
3. CONSTRUCT ROCK BERM ALONG TRANSITION POINT TO FINISH ROAD SURFACES, DIVERT RUNOFF TO ONSITE AREA (OPTIONAL).

1 STABILIZED CONSTRUCTION ENTRANCE
NTS



8" DIAMETER COMPOST SOCK SPACING TABLE	
SLOPE	MAXIMUM SPACING
1H : 1V	10' - 0"
2H : 1V	20' - 0"
3H : 1V	30' - 0"
4H : 1V	40' - 0"

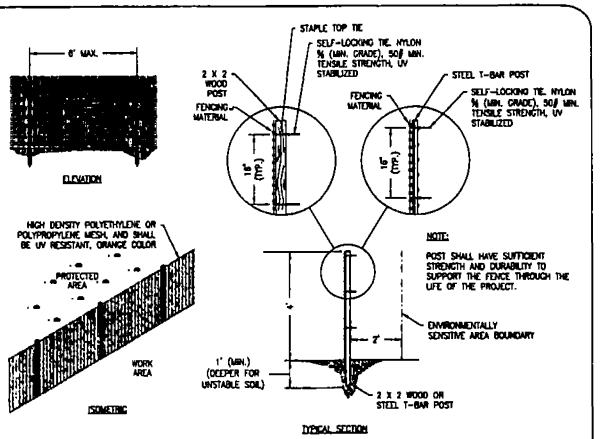
NOTES:

1. SECURELY KNOT EACH END OF COMPOST SOCK. OVERLAP ADJACENT COMPOST SOCK ENDS 12" BEHIND ONE ANOTHER AND SECURELY TIE TOGETHER.
2. PREPARE THE SLOPE BEFORE THE SOCKING PROCEDURE IS STARTED.
3. SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
4. IT IS CRITICAL THAT SOCKS ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, PARALLEL TO THE SLOPE CONTOUR.
5. INSTALL SOCKS FROM THE BOTTOM OF THE SLOPE AND WORK UP.
6. LAY THE SOCK ALONG THE SLOPE FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE SOIL AND THE COMPOST SOCK.
7. USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE SOCK AND INTO THE SOIL FOR THE LIVE WILLOW OR 2" X 2" UNTREATED WOODEN STAKES.
8. DRIVE THE STAKE THROUGH PREPARED HOLE INTO SOIL. LEAVE ONLY 1 OR 2 INCHES OF STAKE EXPOSED ABOVE ROLL.
9. IF USING WILLOW STAKES REFER TO LIVE STAKING BMP.

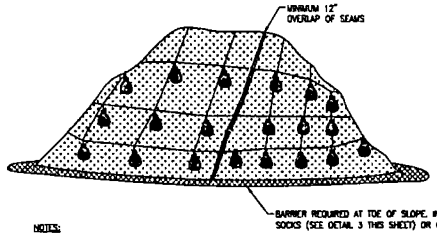
INSPECTION AND MAINTENANCE:

A. INSPECT THE COMPOST SOCKS AND THE SLOPES AFTER SIGNIFICANT STORMS. MAKE SURE THE SOCKS ARE IN CONTACT WITH THE SOIL.
B. REPAIR ANY RILLS OR GULLIES PROMPTLY.
C. RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.
D. COMPOST TO BE DISPERSED ON SITE AS DETERMINED BY THE ENGINEER, WHEN VEGETATION COVERS THE SURFACE.

3 COMPOST SOCK
NTS



2 HIGH VISIBILITY FENCE
NTS



NOTES:

1. PLASTIC SHEETING IS USED TO PROVIDE IMMEDIATE PROTECTION TO SLOPES AND STOCKPILES.
2. DO NOT USE PLASTIC COVERING UPSLOPE OF AREAS SUCH AS STEEP AND/OR UNSTABLE SLOPES THAT MIGHT BE ADVERSELY AFFECTED BY CONCENTRATED RUNOFF.
3. WHEN POSSIBLE, INSTALL AN INTERCEPTOR DIKE AT THE TOP OF THE PLASTIC TO DIVERT FLOWS AWAY FROM THE PLASTIC.
4. TOE-IN THE TOP OF THE SHEETING IN A 8"X8" TRENCH BACKFILLED WITH COMPACTED NATIVE MATERIAL.
5. INSTALL A GRAVEL BERM, RIPRAP, OR OTHER SUITABLE PROTECTION AT THE TOP OF THE SLOPE IN ORDER TO DISSIPATE RUNOFF VELOCITY.
6. ANCHOR THE PLASTIC USING SANDBAGS OR OTHER SUITABLE TETHERED ANCHOR SYSTEM SPACED ON A 10' GRID SPACING IN ALL DIRECTIONS.
7. OVERLAP SEAMS 1-2', TAPE, ROLL AND STAKE THE SEAMS AND THEN WEIGH DOWN THE ENTIRE LENGTH.
8. BARRIER IS REQUIRED AT TOE OF STOCK PILE.
9. REPLACE TORN SHEETS AND REPAIR OPEN SEAMS. COMPLETELY REMOVE AND REPLACE PLASTIC WHEN IT BEGINS TO DETERIORATE.

4 PLASTIC SHEETING
NTS

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BUCKMIRE SLOUGH RESTORATION PROJECT

TESC – NOTES AND DETAILS

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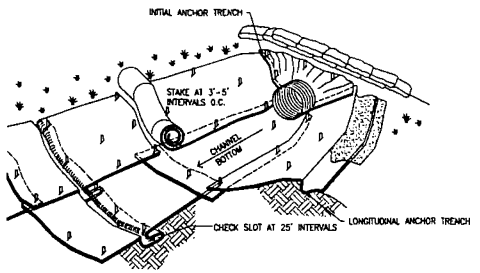
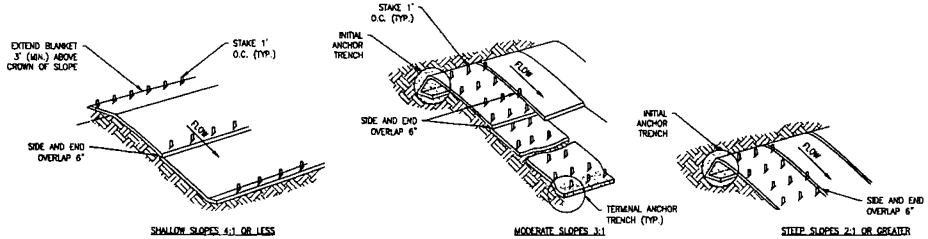
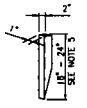


CHANNEL INSTALLATION – ISOMETRIC VIEW

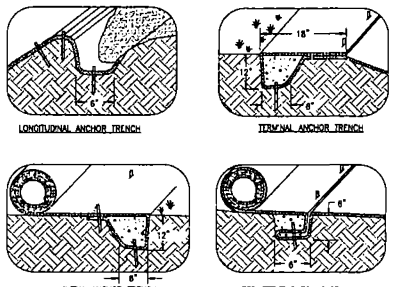


SHALLOW SLOPES 4:1 OR LESS | MODERATE SLOPES 3:1 | STEEP SLOPES 2:1 OR GREATER

SLOPE INSTALLATION – ISOMETRIC VIEW



WOOD STAKES



NOTES:

1. SURFACE MUST BE GRADED SMOOTH TO REMOVE ALL DEBRIS AND UNDULATIONS LARGER THAN 2" IN ANY DIRECTION.
2. APPLY SEED MIX NO. 1 (SEE SHEETS L01 – L04) PRIOR TO EROSION CONTROL BLANKET. INSTALL SO THAT EROSION CONTROL BLANKET IS IN COMPLETE CONTACT WITH SOIL SURFACE.
3. CHECK SLOTS TO BE CONSTRUCTED PER MANUFACTURERS SPECIFICATIONS.
4. STAKING LAYOUT PER MANUFACTURER'S SPECIFICATIONS.
5. USE 24" MIN. STAKES BELOW EL. 10.
6. LENGTHWISE OVERLAP EROSION CONTROL BLANKET A MINIMUM OF 12"; CROSSWISE OVERLAP A MINIMUM OF 6", AND AVOID JOINING MATERIAL IN CENTER OF CHANNEL.

INSPECTION AND MAINTENANCE:

A. INSPECT ONCE PER WEEK ON ACTIVE SITES, ONCE EVERY TWO WEEKS ON INACTIVE SITES, AND WITHIN 24 HOURS FOLLOWING A 0.5 INCH RAIN EVENT.

B. REPAIR ANY DAMAGED AREAS OF THE NET OR BLANKET AND STAPLE INTO THE GROUND ANY AREAS NOT IN CLOSE CONTACT WITH THE GROUND SURFACE.

C. IF EROSION OCCURS, REPAIR AND PROTECT THE ERODED AREA.

① BIODEGRADABLE EROSION CONTROL BLANKET
NTS

May 29, 2015 - 9:25am
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BUCKMIRE SLOUGH RESTORATION PROJECT

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MICHAEL MAPPER
OREGON
EXPIRES: 12/31/15

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EC06
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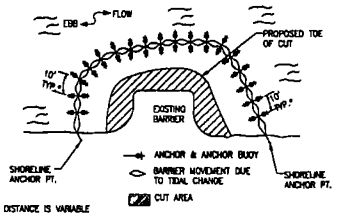
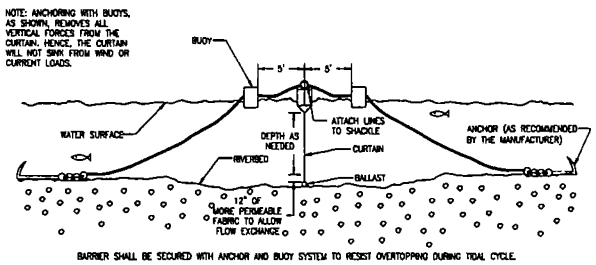
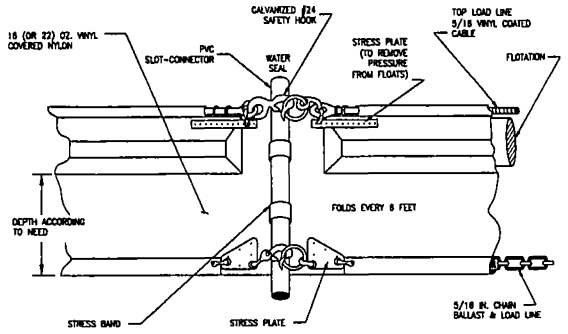


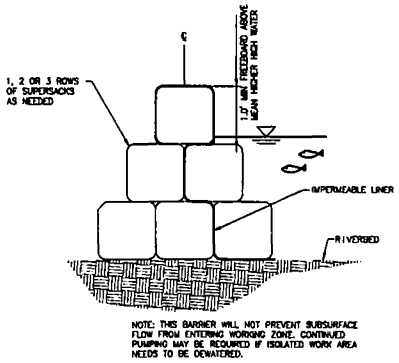
1 TURBIDITY CURTAIN: PLAN VIEW
NTS



2 TURBIDITY CURTAIN: SECTION VIEW
NTS



3 TURBIDITY CURTAIN: CONNECTIONS
NTS



4 ALTERNATE WORK AREA ISOLATION: SANDBAG BARRIER
NTS

TEMPORARY WATER MANAGEMENT NOTES:

1. BUCKMIRE SLOUGH IS SUBJECT TO TIDAL FORCES. THE AVERAGE TIDAL AMPLITUDE IS APPROXIMATELY 0.5 FT WITH A MAXIMUM OF APPROXIMATELY 3 FT.
2. PER THE HYDRAULIC PROJECT APPROVAL, THE IN-WATER WORK WINDOW IS LIMITED TO AUGUST 1 TO FEBRUARY 28 IN BUCKMIRE SLOUGH.
3. CONTRACTOR SHALL SEQUENCE CONSTRUCTION TO MINIMIZE INUNDATION FROM BUCKMIRE SLOUGH IN WORK AREAS WITH SPECIAL CONSIDERATION OF FLOODPLAIN CHANNEL GRADING CONNECTIONS.

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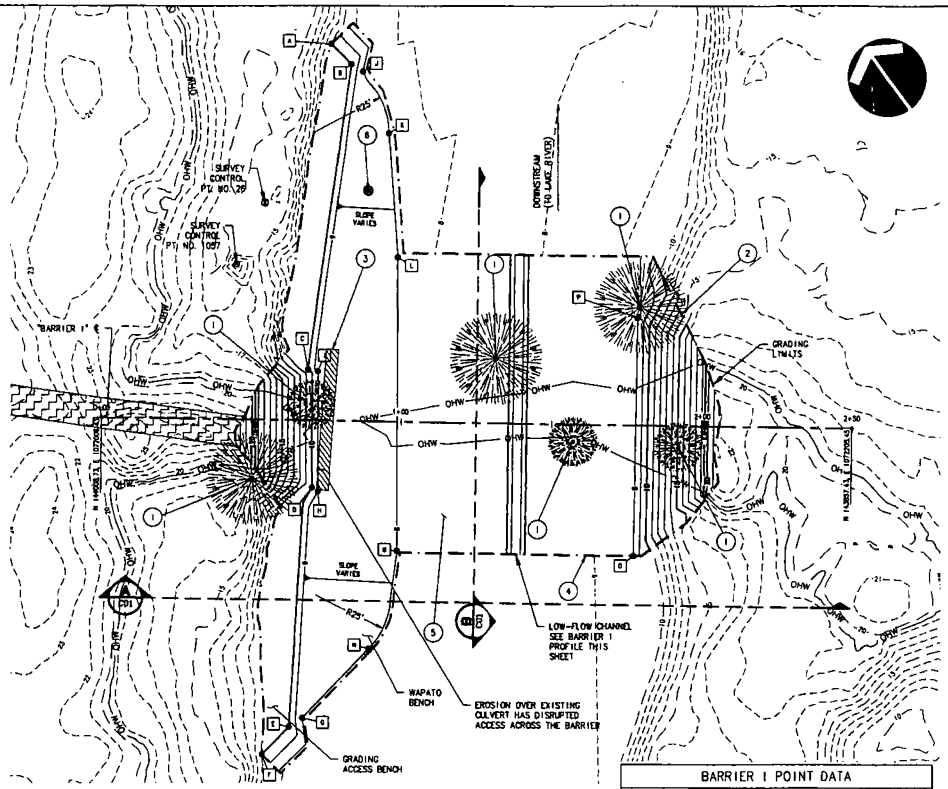
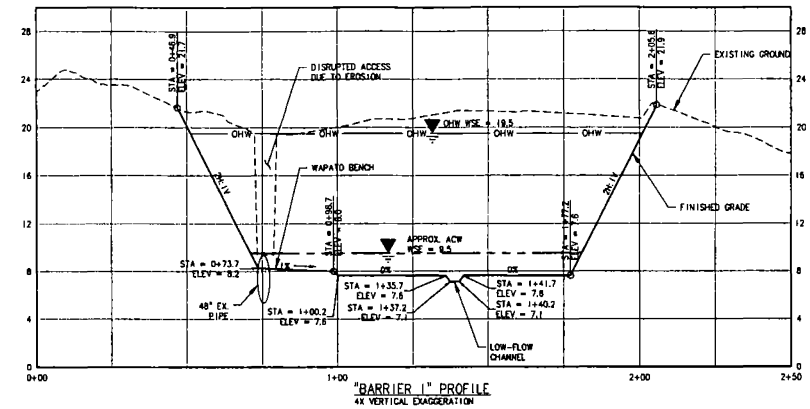
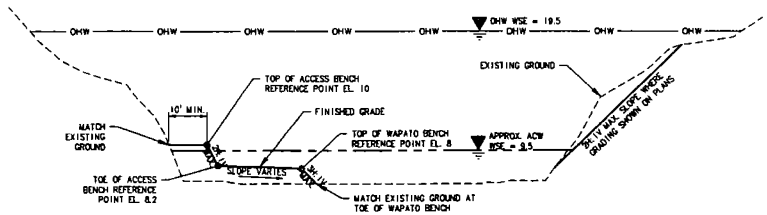


"BARRIER 1" PLAN

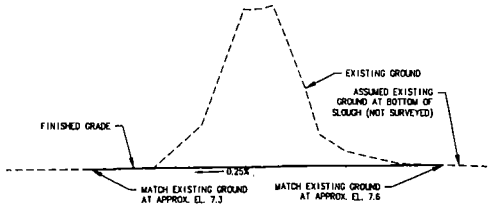


"BARRIER 1" PROFILE
4X VERTICAL EXAGGERATION



A TYP. BENCH SECTION
4X VERTICAL EXAGGERATION
NO SCALE

SCALE 20' 0' 20' 40' HORIZ. 5' 0' 5' 10' VERT. IN FEET



B TYP. BARRIER REMOVAL – STA 1+00 TO STA 1+80
4X VERTICAL EXAGGERATION
NO SCALE

CONSTRUCTION NOTES

1. REMOVE TREE WITH ROOTWAD INTACT (FOR DETAILS SEE SHEET C08). TREES IN THE VICINITY OF BARRIER 1 WILL BE STOCKPILED AND PLACED IN LARGE WOOD STRUCTURES IN CHANNEL "FP2".
2. CLEAR AND GRUB WITHIN GRADING LIMITS, AS NECESSARY. STOCKPILE TOP 6 INCHES OF SOIL MATERIAL ABOVE EL. 9 OR REUSE AS TOPSOIL TYPE B.
3. REMOVE AND DISPOSE OF EXISTING COLLAPSED 48" CMP CULVERT.
4. PERFORM EARTHWORK TO ACHIEVE FINISHED GRADES SHOWN IN PLAN, PROFILE, AND SECTIONS.
5. REMOVE AND DISPOSE OF MANMADE DEBRIS WITHIN PROJECT LIMITS (INCLUDING BUT NOT LIMITED TO CHAIRS, CAR DOOR, AND TIRES) AS DIRECTED IN THE FIELD.
6. PROVIDE 7 DAYS ADVANCE NOTICE TO CREST BEFORE BEGINNING GROUND DISTURBING ACTIVITIES IN VICINITY OF STAGE MONITORING STATION.

NOTE: CONSTRUCT BARRIER 2 (SEE SHEET C02) REMOVAL PRIOR TO CONSTRUCTING BARRIER 1 REMOVAL.

BARRIER 1 POINT DATA

POINT	FINISHED GRADE	STA, OFFSET FROM "BARRIER 1"
A	10.0'	STA 0+75.2, 125.7'L
B	10.0'	STA 0+81.9, 119.1'L
C	10.0'	STA 0+88.7, 17.0'L
D	10.0'	STA 0+70.4, 22.3'R
E	10.0'	STA 0+83.8, 102.5'R
F	10.0'	STA 0+54.9, 111.6'R
G	8.0'	STA 0+88.3, 99.4'R
H	9.0'	STA 0+72.5, 23.5'R
I	9.0'	STA 0+72.0, 16.4'L
J	8.0'	STA 0+85.7, 118.7'L
K	8.0'	STA 0+94.7, 98.1'L
L	8.0'	STA 0+98.2, 55.1'L
M	8.0'	STA 0+99.2, 43.0'R
N	8.0'	STA 0+90.1, 75.9'R
O	8.0'	STA 1+77.7, 43.5'R
P	8.0'	STA 1+78.1, 35.9'L

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BARRIER 1 REMOVAL – PLAN, PROFILE, AND DETAILS

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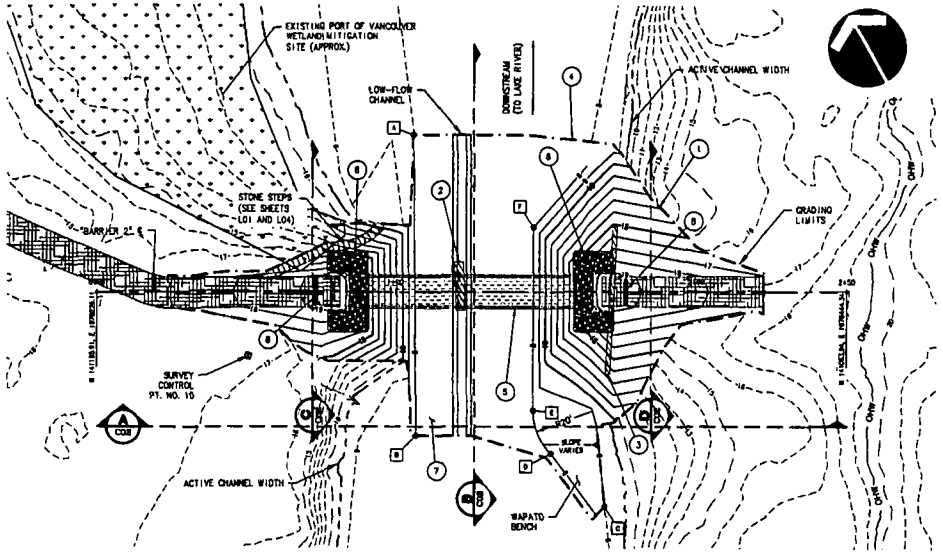
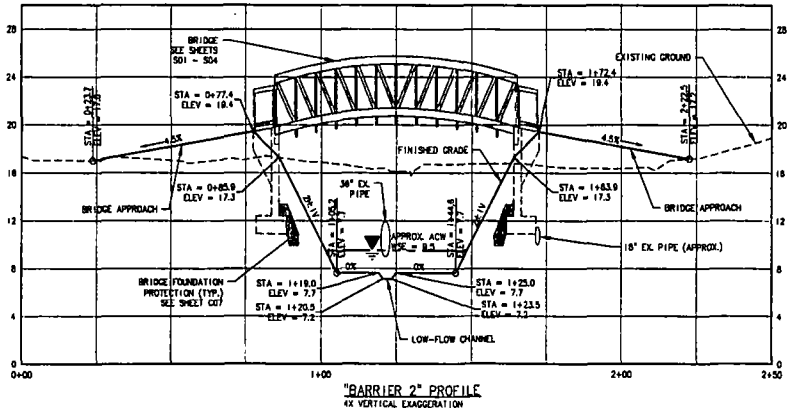




CONSTRUCTION NOTES

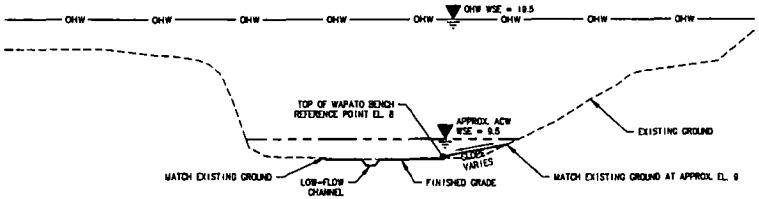
1. CLEAR AND GRUB WITHIN GRADING LIMITS, AS NECESSARY. STOCKPILE TOP 6 INCHES OF SOIL MATERIAL ABOVE EL 9 FOR REUSE AS TOPSOIL TYPE B.
2. REMOVE AND DISPOSE OF EXISTING COLLAPSED 36" CMP CULVERT.
3. REMOVE AND DISPOSE OF EXISTING 18" PIPE.
4. CONSTRUCT EARTH EMBANKMENT AND PERFORM EARTHWORK TO ACHIEVE FINISHED GRADES SHOWN IN PLAN, PROFILES, AND SECTIONS.
5. CONSTRUCT BRIDGE (FOR DETAILS SEE SHEETS S01 - S04).
6. CONSTRUCT BRIDGE FOUNDATION PROTECTION (FOR DETAILS SEE SHEET C07).
7. REMOVE AND DISPOSE OF MANMADE DEBRIS WITHIN PROJECT LIMITS (INCLUDING BUT NOT LIMITED TO TIRES) AS DIRECTED IN THE FIELD.
8. INSTALL DOUBLE BOLLARD ASSEMBLY (FOR DETAILS SEE SHEET C08).

BARRIER 2 POINT DATA

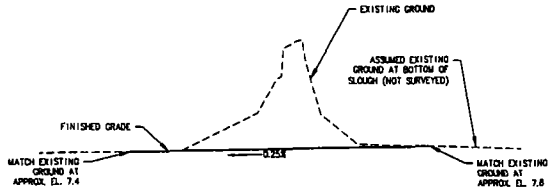
POINT	FINISHED GRADE	STA, OFFSET FROM "BARRIER 2"
A	8.0'	STA 1+08.0, 52.0'L
B	8.0'	STA 1+08.8, 48.0'R
C	9.0'	STA 1+69.4, 71.6'R
D	8.0'	STA 1+51.4, 53.9'R
E	8.0'	STA 1+45.4, 39.5'R
F	8.0'	STA 1+45.8, 21.3'L

NOTE:

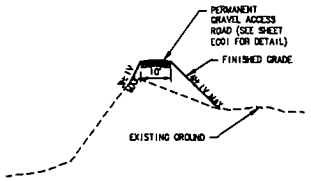
ACTIVE CHANNEL WIDTH (ACW) IS ASSUMED TO OCCUR AT ELEVATION 9.5, AS DETERMINED BY BPA STAFF DURING THE MARCH 11 2015 SITE VISIT.



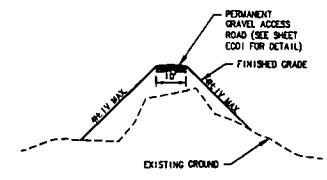
A TYP. CHANNEL AND BENCH SECTION
4X VERTICAL EXAGGERATION
NO SCALE



B TYP. BARRIER REMOVAL STA 1+10 TO STA 1+45
4X VERTICAL EXAGGERATION
NO SCALE



C TYP. BRIDGE APPROACH STA 0+24 TO STA 0+77
4X VERTICAL EXAGGERATION
NO SCALE



D TYP. BRIDGE APPROACH STA 1+72 TO STA 2+23
4X VERTICAL EXAGGERATION
NO SCALE

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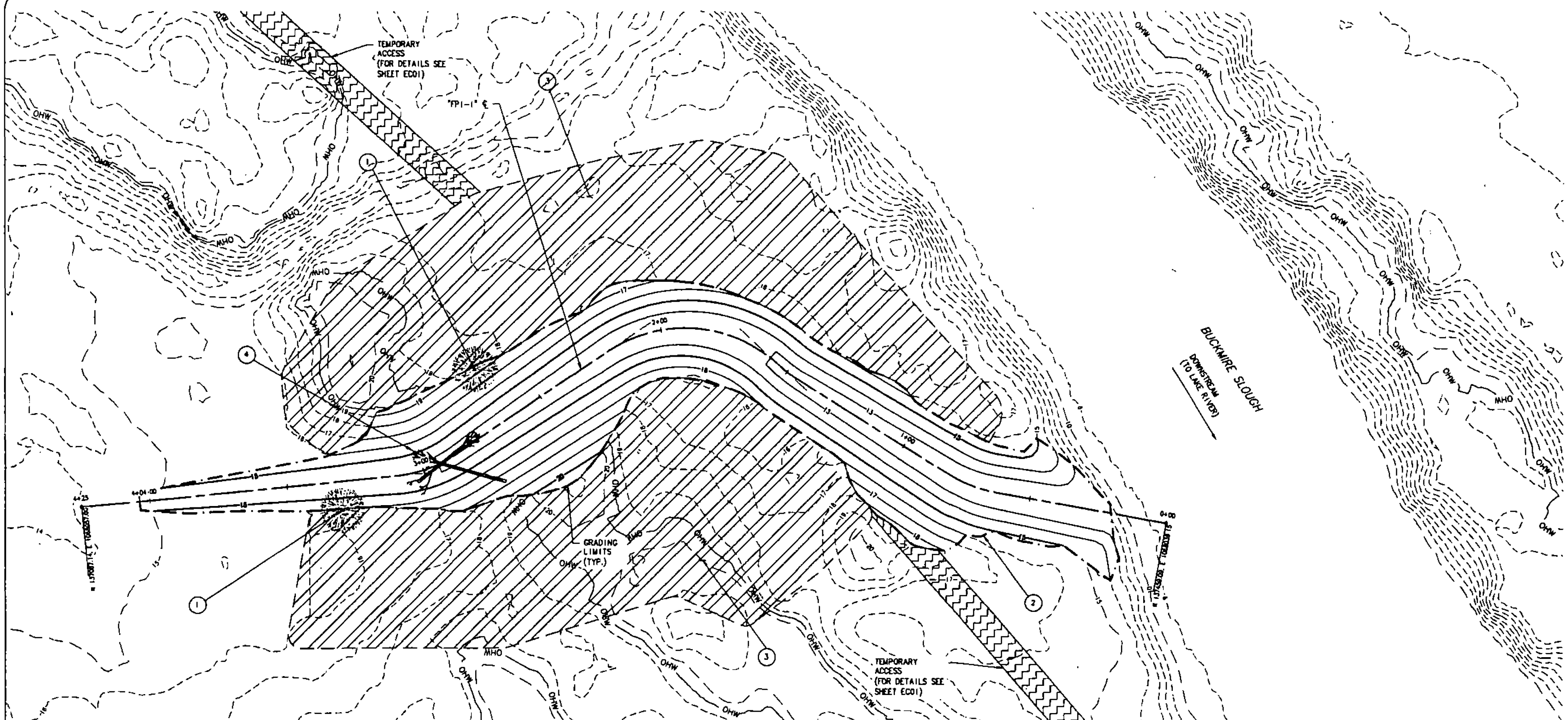
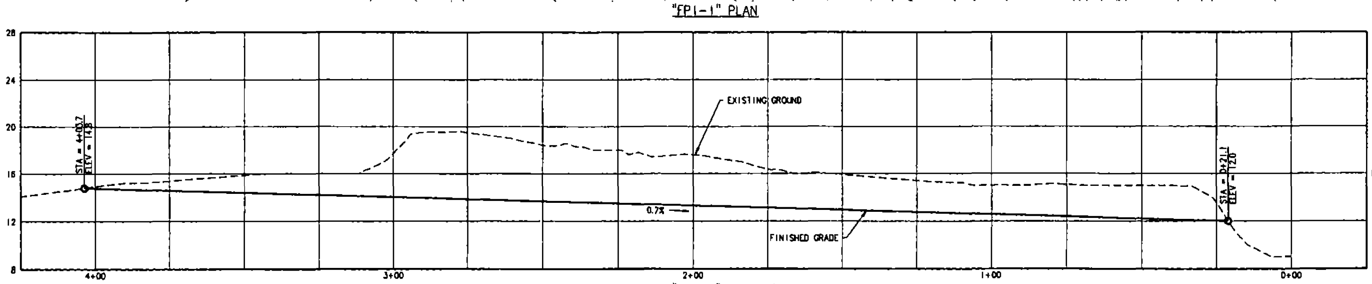


"FP1-1" PLAN



"FP1-1" PROFILE
4X VERTICAL EXAGGERATION

SCALE: 20' 0' 20' 40' HORIZ.; 5' 0' 5' 10' VERT. IN FEET

CONSTRUCTION NOTES:

1. REMOVE TREE WITH ROOTWAD INTACT (FOR DETAILS SEE SHEET C08).
2. CONSTRUCT FLOODPLAIN CHANNEL FP1-1. SEE PROFILE THIS SHEET AND C06 FOR SECTION. INSTALL BIODEGRADABLE EROSION CONTROL BLANKET (FOR DETAILS SEE SHEET EC06).
3. EXCAVATE AND SIDECAST MATERIAL AT APPROVED ONSITE SOIL DISPOSAL AREA (FOR DETAILS SEE SHEETS EC01 AND C06).
4. CONSTRUCT LARGE WOOD STRUCTURE (FOR DETAILS SEE SHEET C08) PER FIELD DIRECTION BY ENGINEER.

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DESIGN	MCM
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STATUS: ☐ DRAFT ANALYSIS ☒ CONSTRUCTION

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BUCKMIRE SLOUGH RESTORATION PROJECT

FLOODPLAIN CHANNEL FP1-1 PLAN AND PROFILE

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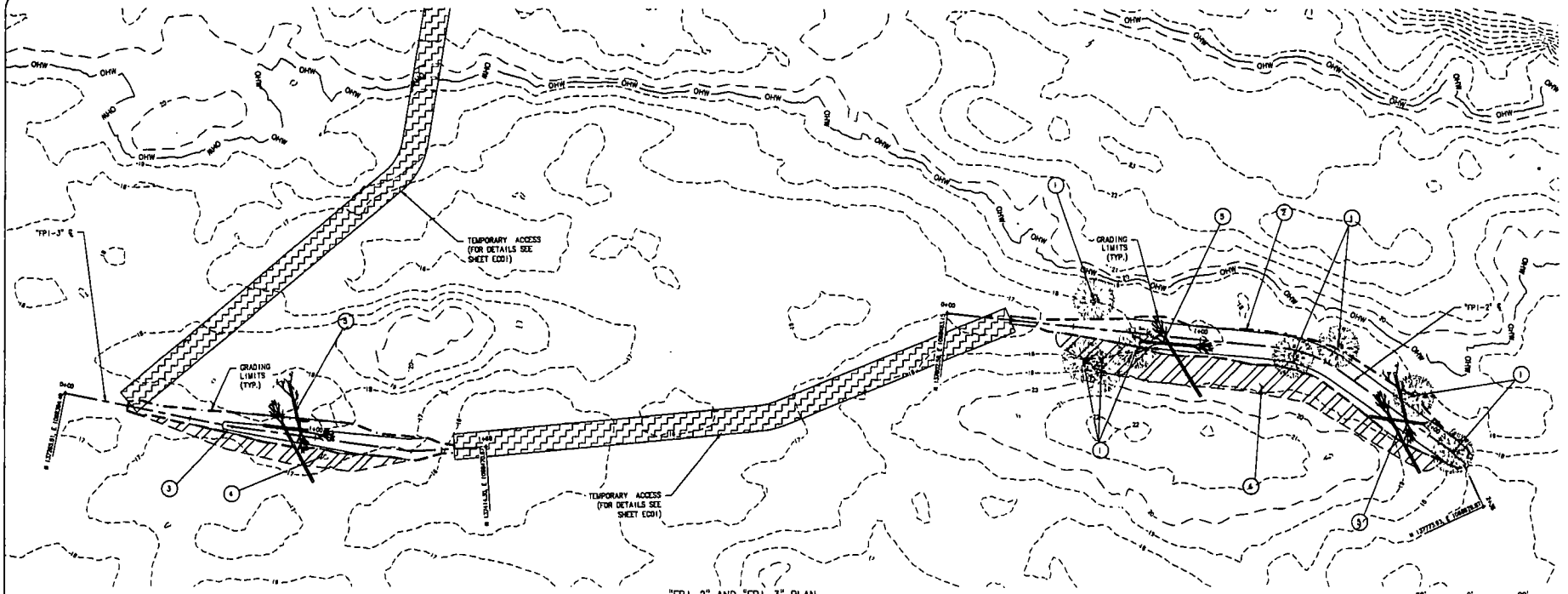
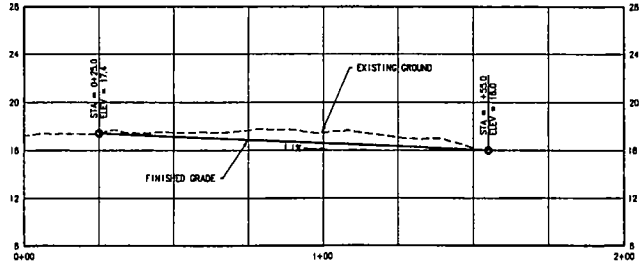


"FP1-2" AND "FP1-3" PLAN

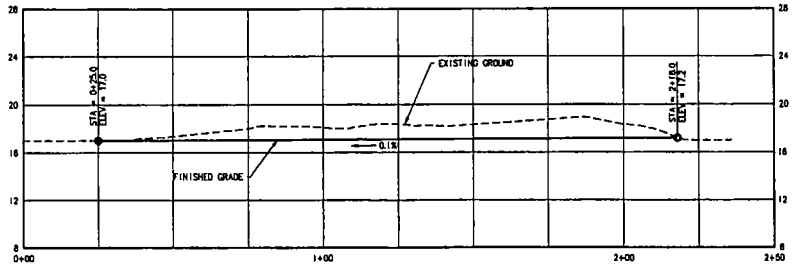
20' 0' 20' 40' HORIZ.
5' 0' 5' 10' VERT.
SCALE IN FEET



"FP1-3" PROFILE
4X VERTICAL EXAGGERATION

CONSTRUCTION NOTES:

1. REMOVE TREE WITH ROOTWAD INTACT (FOR DETAILS SEE SHEET CC8).
2. CONSTRUCT FLOODPLAIN CHANNEL FP1-2, SEE PROFILE THIS SHEET AND SHEET CC8 FOR SECTION.
3. CONSTRUCT FLOODPLAIN CHANNEL FP1-3, SEE PROFILE THIS SHEET AND SHEET CC8 FOR SECTION.
4. EXCAVATE AND SIDECAST MATERIAL AT APPROVED ONSITE SOIL DISPOSAL AREA (FOR DETAILS SEE SHEETS CC01 AND CC8).
5. CONSTRUCT LARGE WOOD STRUCTURE (FOR DETAILS SEE SHEET CC8) PER FIELD DIRECTION BY ENGINEER.



"FP1-2" PROFILE
4X VERTICAL EXAGGERATION

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☒ CONSTRUCTION

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BUCKMIRE SLOUGH RESTORATION PROJECT

FLOODPLAIN CHANNELS FP1-2 AND FP1-3
PLAN AND PROFILES

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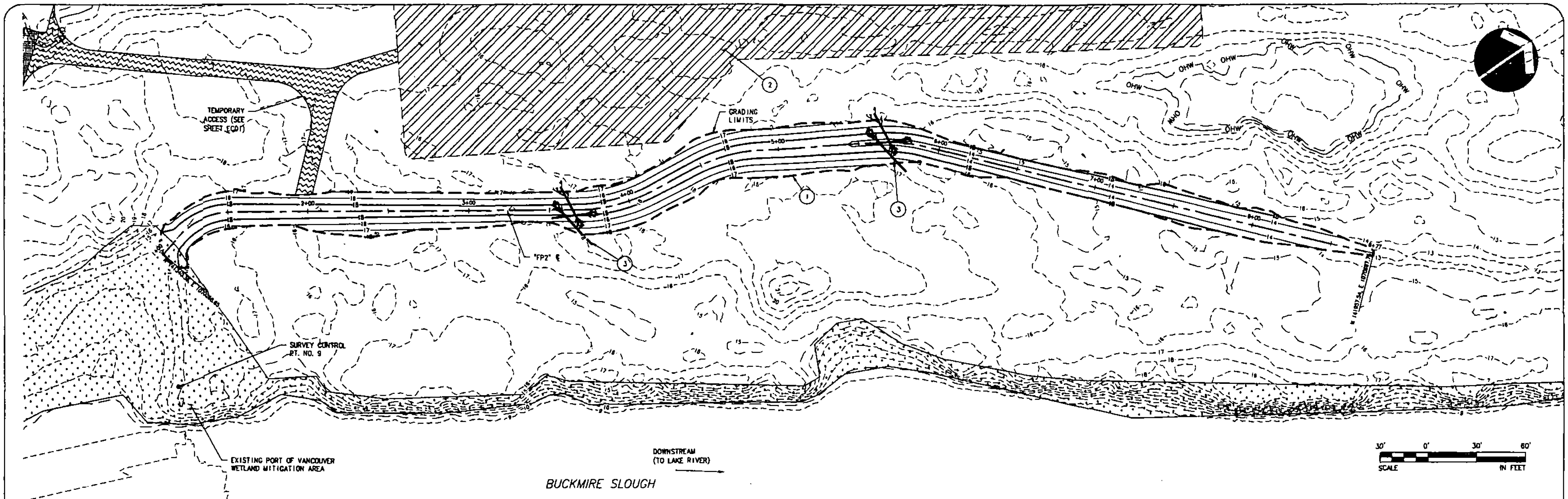
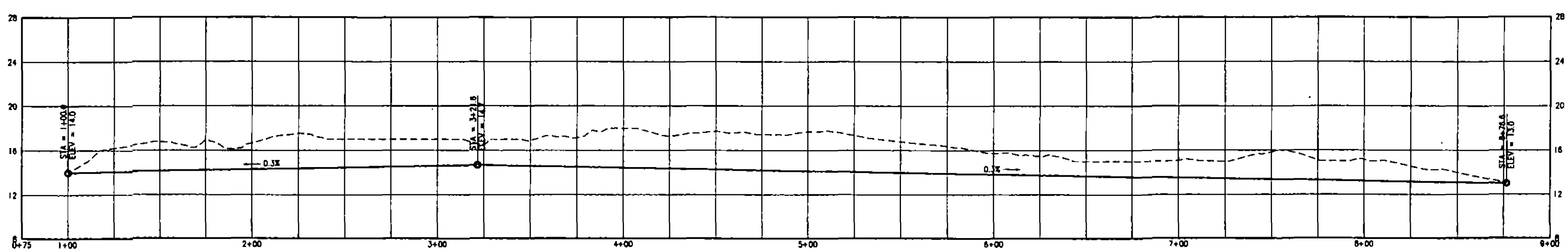


"FP2" PLAN

CONSTRUCTION NOTES:

1. CONSTRUCT FLOODPLAIN CHANNEL FP2. SEE THIS SHEET FOR PROFILE AND SHEET C06 FOR SECTION.
2. EXCAVATE AND HAUL MATERIAL TO APPROVED ONSITE SOIL DISPOSAL AREA (FOR DETAILS SEE SHEET EC01).
3. CONSTRUCT LARGE WOOD STRUCTURE (FOR DETAILS SEE SHEET C06) PER FIELD DIRECTION BY ENGINEER.



"FP2" PROFILE
6X VERTICAL EXAGGERATION

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

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BUCKMIRE SLOUGH RESTORATION PROJECT

FLOODPLAIN CHANNEL FP2 PLAN AND PROFILE

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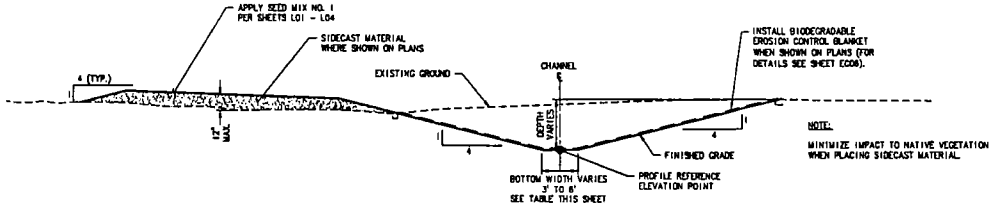
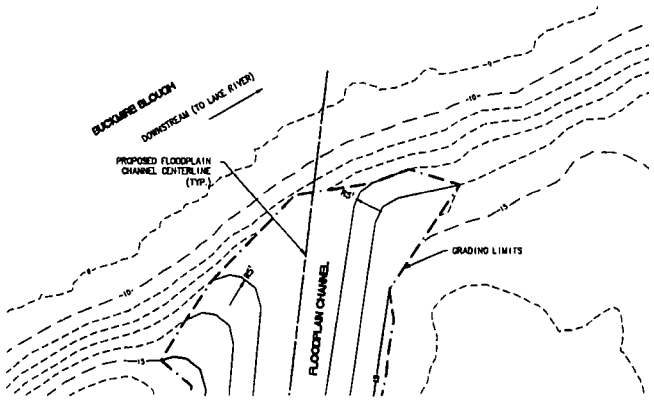


1 TYP. FLOODPLAIN CHANNEL SECTION
NTS

FLOODPLAIN CHANNEL GRADING DATA			
ALIGNMENT	START STATION	END STATION	BOTTOM WIDTH (FT)
"FP1-1"	0+21	4+04	6
"FP1-2"	0+25	2+18	3
"FP1-3"	0+25	1+55	3
"FP2"	1+00	8+77	3

2 FLOODPLAIN CHANNEL GRADING DATA



3 TYP. SLOUGH CONNECTION GRADING
NTS

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FLOODPLAIN CHANNEL DETAILS

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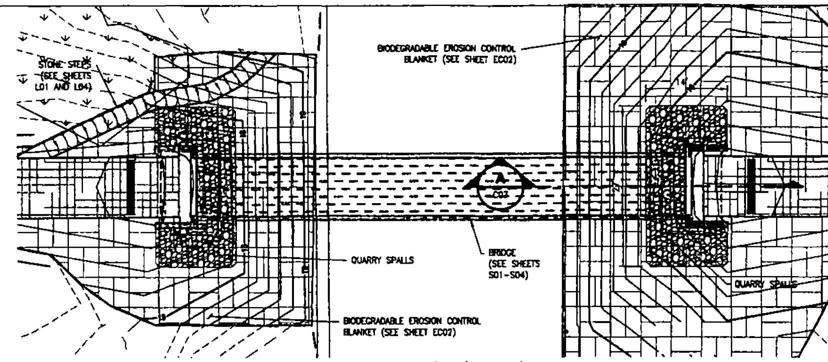
EARTHWORK DATA TABLE					
GRADING AREA	CUT & HAUL ON-SITE (C.Y.)	CUT & PLACE (C.Y.)	STRIP & PLACE TOPSOIL TYPE B (C.Y.)	CUT & HAUL OFF-SITE (C.Y.)	IMPORT MATERIAL (C.Y.)
"BARRIER 1"	1830	75	180	0	0
"BARRIER 2"	150	290	130	210	210
"FP1-1"	0	685*	235	0	0
"FP1-2"	0	60*	0	0	0
"FP1-3"	0	20*	0	0	0
"FP2"	550	0	320	0	0

*NOTE:
SIDECAST CUT MATERIAL FROM "FP1-1", "FP1-2" AND "FP1-3". FOR DETAILS, SEE SHEET C06.

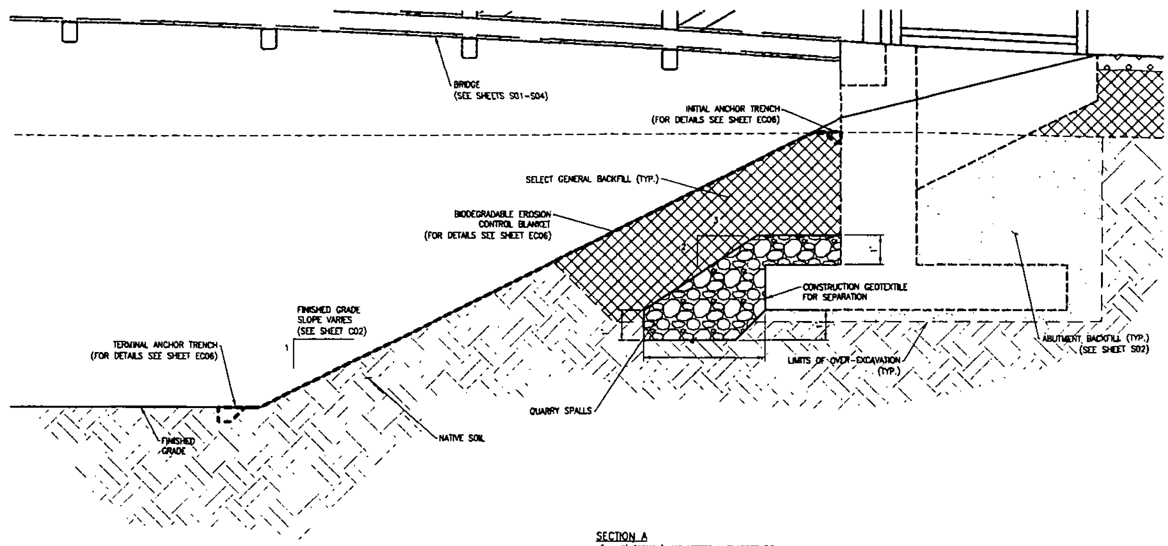
(1) EARTHWORK DATA



PLAN (BARRIER 2)
1" = 10' (22X34)

IMPORT MATERIAL DATA TABLE, BARRIER 2		
FEATURE	MATERIAL	VOLUME (C.Y.)
PERMANENT GRAVEL ACCESS ROAD	GRAVEL	63
ROCK SLOPE PROTECTION	QUARRY SPALLS	36
STONE STEP PATHWAY	BOULDERS AND GRAVEL	4
DOUBLE BOLLARD ASSEMBLIES	CONCRETE, STEEL, AND GRAVEL	2
BRIDGE INCL. FOUNDATION	CONCRETE, STEEL, AND GRAVEL	105

(2) IMPORT MATERIAL DATA



SECTION A
1" = 2' (22X34), NO VERTICAL EXAGGERATION

QUARRY SPALL GRADATION	
SIEVE SIZE	PERCENT PASSING
8"	100
3"	40 MAX.
¾"	10 MAX.

QUARRY SPALLS SHALL CONSIST OF BROKEN STONE. BROKEN CONCRETE RUBBLE SHALL NOT BE USED. ALL PERCENTAGES ARE BY WEIGHT.

(3) BRIDGE FOUNDATION PROTECTION
AS SHOWN

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GRADING DETAILS

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MICHAEL RAFFERTY, STATE OF WASHINGTON, REGISTERED PROFESSIONAL ENGINEER

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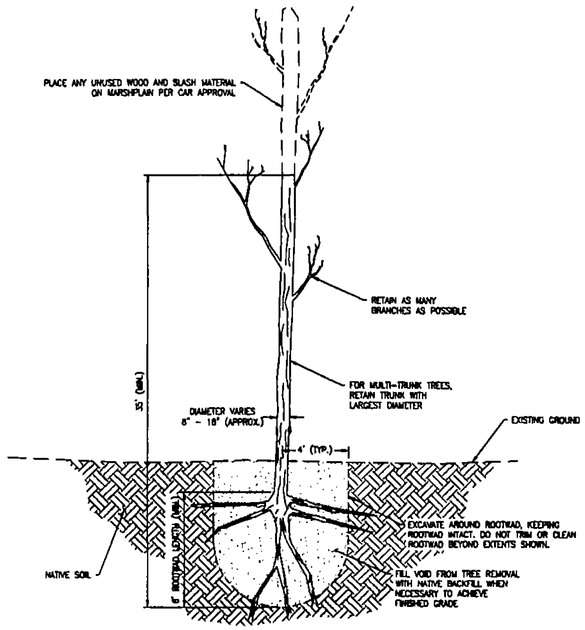
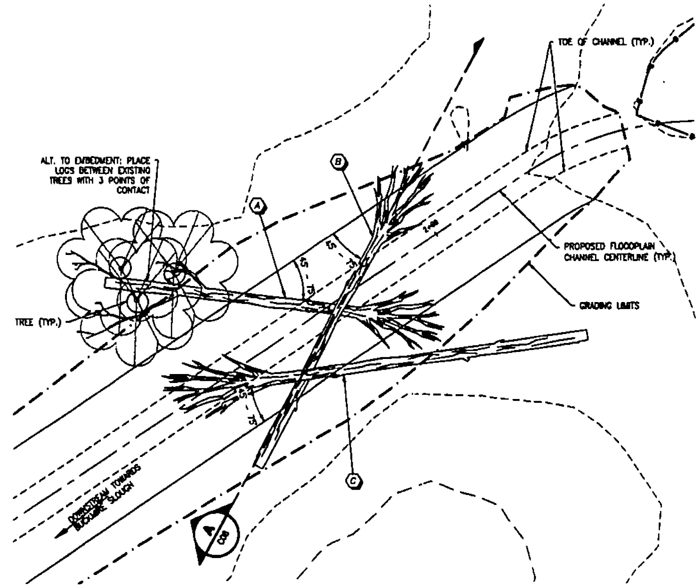
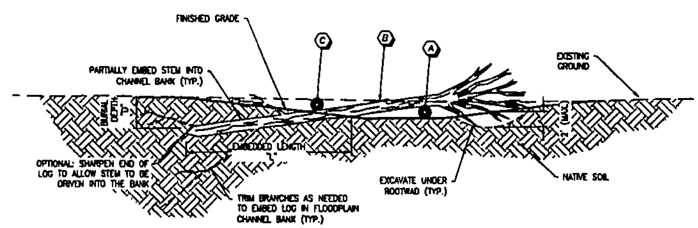


1 TREE REMOVAL WITH INTACT ROOTWAD
C07 NTS



PLAN



SECTION A - A

2 LARGE WOOD STRUCTURE
NTS

NOTES:

1. FIRST, PLACE LOG A. USE SMALLEST-DIAMETER LOG. ORIENT STEM DOWNSTREAM AS SHOWN ON PLAN. PREFERABLY, PLACE STEM BETWEEN EXISTING TREES WITH 8" DIA. (MIN.). OTHERWISE, EMBED STEM 8 FT MIN. INTO BANK WITH 2 FT MIN. BURIAL AT END OF LOG.
2. NEXT, PLACE LOG B. USE LARGEST-DIAMETER LOG. LAY LOG B ON TOP OF LOG A. PREFERABLY, EMBED STEM 12 FT MIN. INTO BANK, WITH 3 FT BURIAL AT END OF LOG. OTHERWISE, PLACE STEM BETWEEN EXISTING TREES WITH 8" DIA (MIN.).
3. ON THREE-LOG STRUCTURES, PLACE LOG C LAST. LAY ROOTWAD END OF LOG C ON TOP OF LOG B. PREFERABLY, EMBED STEM 12 FT MIN. INTO BANK WITH 3 FT BURIAL AT END OF LOG. OTHERWISE, PLACE STEM BETWEEN EXISTING TREES WITH 8" DIA (MIN.).
4. TO THE EXTENT POSSIBLE, KEEP ROOTWADS WITHIN LIMITS OF CHANNEL BANKS.
5. MINIMIZE DISTURBANCE OUTSIDE GRADING LIMITS.
6. FINAL POSITION AND ORIENTATION OF LARGE WOOD STRUCTURES TO BE IDENTIFIED IN THE FIELD BY THE ENGINEER.

LOG PLACEMENT TABLE

LOG	MIN. BURIAL DEPTH "D" (FT)	MIN. EMBEDDED LENGTH "L" (FT)
A	2	8
B	3	12
C	3	12

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LARGE WOOD STRUCTURE DETAILS

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STATE OF WASHINGTON
PROFESSIONAL ENGINEER

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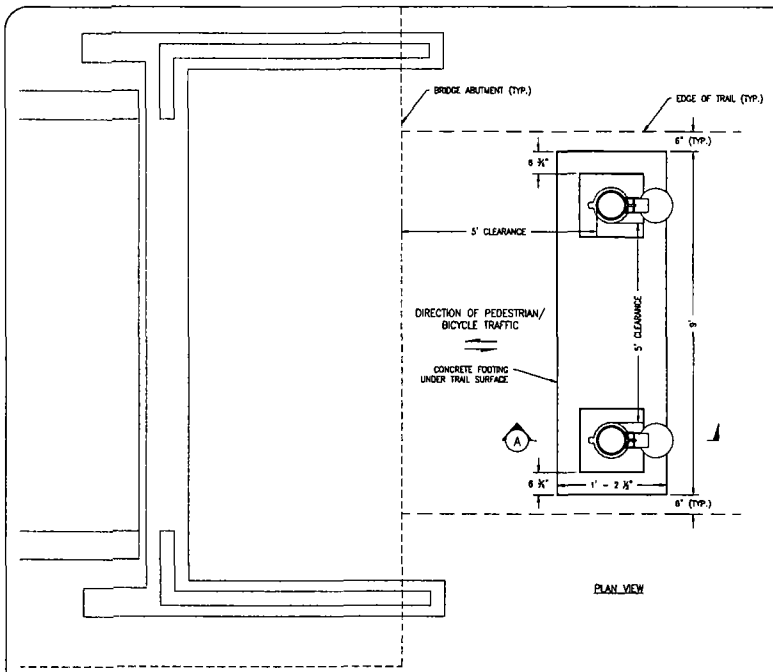
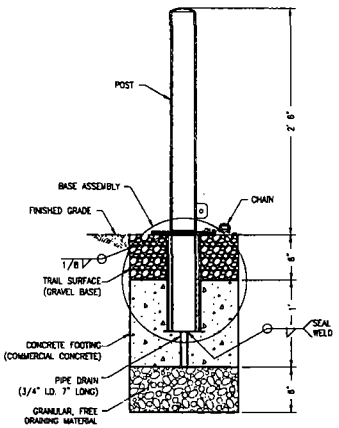
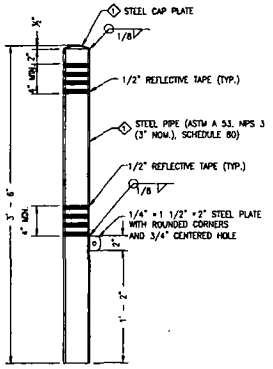


PLAN VIEW



SECTION (A)



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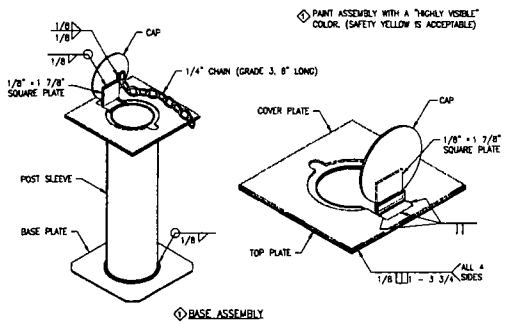
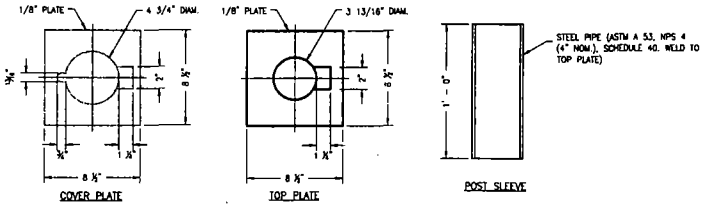


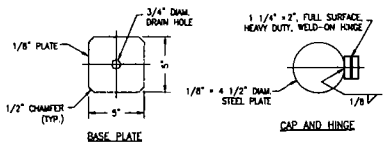
1 BASE ASSEMBLY



COVER PLATE

TOP PLATE

POST SLEEVE



BASE PLATE

CAP AND HINGE

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BUCKMIRE SLOUGH RESTORATION PROJECT

DOUBLE BOLLARD ASSEMBLY DETAILS

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GENERAL NOTES

1. THE STRUCTURE DRAWINGS SHOW DETAILS AND REQUIREMENTS FOR FABRICATION OF THE BRIDGE SPAN AND FOR THE SITE CONSTRUCTION OF THE ABUTMENTS AND INSTALLATION OF THE BRIDGE SPAN. THE CONTRACTING AGENCY WILL PROCURE THE FABRICATED BRIDGE SPAN UNDER A SEPARATE CONTRACT FROM THE SITE CONSTRUCTION TO FACILITATE CONSTRUCTION WITHIN THE PROJECT SCHEDULE. THE NOTES ON THIS SHEET TITLED "SITE CONSTRUCTION CONTRACT NOTES" AND "BRIDGE SPAN PROCUREMENT NOTES" DETAIL THE REQUIREMENTS FOR THESE TWO CONTRACTS AS PERTAINS TO THE BRIDGE CONSTRUCTION.

2. DUE TO THE PRESENCE OF SUBSURFACE LAYERS OF LIQUEFACTION SUSCEPTIBLE SOILS AND THE ASSOCIATED POTENTIAL OF SEISMICALLY INDUCED LIQUEFACTION SETTLEMENT, THE BRIDGE AND FOUNDATIONS HAVE NOT BEEN DESIGNED FOR SEISMIC RESISTANCE.

SITE CONSTRUCTION CONTRACT BRIDGE NOTES

1. THE SITE CONSTRUCTION CONTRACT INCLUDES PROVISION AND INSTALLATION OF THE ANCHOR BOLTS AND BRIDGE DECK CONCRETE.

2. PROJECT COMPONENTS TO BE PROCURED SEPARATELY BY THE CONTRACTING AGENCY AND PROVIDED BY THE CONTRACTING AGENCY FOR INSTALLATION UNDER THIS CONTRACT ARE: THE STEEL TRUSS BRIDGE SPAN, ELASTOMERIC BRIDGE BEARINGS, WINGWALL RAILINGS WITH LOAD LIMIT SIGNS, AND DECK WELDED WIRE REINFORCING.

3. ALL MATERIAL AND WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2014, AND AMENDMENTS.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION.

MATERIALS
1. CLASS 4000 CONCRETE SHALL BE USED IN THE ABUTMENT, FOOTINGS, WINGWALLS, AND DECK. USE 5% ± 1% AIR ENTRAINMENT FOR CONCRETE EXPOSED TO THE ELEMENTS.

2. STEEL BAR REINFORCING SHALL CONFORM TO ASTM SPECIFICATION A706, GRADE 60, OR ASTM A615, GRADE 60. USE THE FOLLOWING SPLICE LENGTHS UNLESS SHOWN OTHERWISE.

REINFORCING SPLICE LENGTHS (CLASS B) GRADE 60								*f'c = 4.0 ksi*
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10
UNCOATED	1'-0"	2'-0"	2'-0"	2'-6"	2'-8"	3'-7"	4'-6"	5'-9"

3. FIELD BENT STIRRUPS SHALL CONFORM TO ASTM SPECIFICATION A706, GRADE 60.

4. ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 55. NUTS SHALL BE ASTM A563 GRADE DH OR A194 GRADE 2H. PLATE WASHERS SHALL BE ASTM A36. COAT ANCHOR BOLTS AND HARDWARE AS SHOWN.

PLAN DIMENSIONS AND ELEVATIONS
1. GENERAL SIZE OF THE BRIDGE SPAN TRUSS AND MEMBER DIMENSIONS ARE SHOWN ON THE CONTRACT DRAWINGS. THE DETAILS AND DIMENSIONS OF THE BRIDGE AND/OR MEMBERS MAY CHANGE DURING AGENCY PROCUREMENT OF THE BRIDGE SPAN. ONLY AGENCY PROVIDED SHOP DRAWINGS SHALL BE USED IN DETERMINING THE ANTICIPATED CONFIGURATION AND DIMENSIONS FOR CONSTRUCTION. CONFIRM ALL DIMENSIONS BY MEASUREMENTS OF THE ACTUAL FABRICATED SPAN.

2. EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 3/4" UNLESS NOTED OTHERWISE.

3. DIMENSIONS SHOWN ARE MEASURED HORIZONTALLY OR VERTICALLY UNLESS NOTED OTHERWISE

4. DIMENSIONS TO REINFORCING STEEL ARE TO CENTERLINE OF BAR UNLESS NOTED OTHERWISE.

5. CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING BAR SHALL BE 2" UNLESS SHOWN OTHERWISE ON THE DRAWINGS.

6. BEARING SEAT ELEVATIONS ARE BASED ON PRELIMINARY STRUCTURE DIMENSIONS AND ARE TO BE ADJUSTED BY THE CONTRACTOR IF NECESSARY TO MAINTAIN PROFILE ELEVATIONS.

7. DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED BY CONTRACTOR PRIOR TO ORDERING ANY MATERIAL OR PERFORMING ANY CONSTRUCTION ACTIVITIES.

CONSTRUCTION
1. CONSTRUCTION JOINTS WILL BE PERMITTED ONLY AT THE LOCATIONS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER.

2. TRAIL EMBANKMENT AND BACKFILL MATERIAL SHALL BE PLACED BEHIND THE ABUTMENT FOOTINGS BEFORE THE DECK CONCRETE IS PLACED ON THE PREFABRICATED BRIDGE.

3. AFTER INSTALLATION OF THE BRIDGE SPAN, INSTALL DECK SLAB REINFORCING PROVIDED BY THE AGENCY AS SHOWN. LAP SPLICE WELDED WIRE PANELS A MINIMUM OF ONE CROSS WIRE GRID SPACING. SCREED THE CONCRETE DECK SURFACE TO A ROUNDED NORMAL CROWN AND PROVIDE A SIDEWALK FINISH. MATCH THE CROWN OF THE ABUTMENT BACKWALL AND AS NEEDED FOR THE EXPANSION JOINT INSTALLATION.

FOUNDATION
1. BORING LOGS FOR THE FOUNDATION DESIGN CAN BE FOUND IN THE LETTER REPORT "GEOTECHNICAL ENGINEERING SERVICES, BUCKMIRE SLOUGH BRIDGE, VANCOUVER, WA" BY PBS ENGINEERING AND ENVIRONMENTAL DATED DECEMBER 09, 2014.

2. THE MIXIMUM ALLOWABLE BEARING PRESSURE FOR THE SPREAD FOOTINGS IS 1500 PSF. HOWEVER, THE FOOTINGS HAVE BEEN SIZED TO ATTAIN A UNIFORM BEARING PRESSURE TO REDUCE DIFFERENTIAL SETTLEMENTS.

3. VERIFY FOUNDATION CONDITIONS WITH GEOTECHNICAL ENGINEER AFTER FOOTING EXCAVATION.

SPAN PROCUREMENT CONTRACT NOTES

1. THE CONTRACT TO PROVIDE THE STEEL BRIDGE TRUSS SPAN INCLUDES ENGINEERING DESIGN OF THE BRIDGE SPAN, PROVIDING: THE FABRICATED STEEL TRUSS SPAN, SHEET METAL DECK FORM INSTALLED ON THE SPAN, WELDED WIRE DECK REINFORCING, ELASTOMERIC BRIDGE BEARINGS, AND WINGWALL RAILINGS WITH MOUNTED LOAD LIMIT SIGNS. ALSO INCLUDED ARE THE STORAGE OF THE COMPONENTS UNTIL DELIVERY TO THE SITE, AND DELIVERY TO THE SITE.

2. ADDITIONAL DESIGN AND FABRICATION REQUIREMENTS ARE INCLUDED IN THE BRIDGE SPAN SPECIFICATION ATTACHMENT TO THE BRIDGE SPAN PROCUREMENT CONTRACT.

3. ALL MATERIAL AND WORK SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2014, AND AMENDMENTS.

4. THE STRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION 2012 AS MODIFIED BY THE WSDOT BRIDGE DESIGN MANUAL AND AASHTO "LRFD GUIDE SPECIFICATIONS FOR THE DESIGN OF PEDESTRIAN BRIDGES", 2ND EDITION 2009 WITH 2015 INTERIMS.

5. THE DESIGN SHALL CONSIDER THE FOLLOWING LOADINGS:

PEDESTRIAN LOADING:	90 PSF
SNOW LOADING:	25 PSF
EQUESTRIAN LOADING:	NONE
BRIDGE COMPONENTS PEDESTRIAN LOADING:	90 PSF
MAINTENANCE VEHICLE:	5 TON
WIND LOAD:	85 MPH DESIGN WIND SPEED

6. DETAILS, DIMENSIONS AND CALLOUTS SHOWN ON THESE DRAWINGS ARE REQUIREMENTS OF THE DESIGN. DIMENSIONS AND DETAILS NOT IDENTIFIED SHALL BE AS DETERMINED BY THE ENGINEERED DESIGN. SUBMIT ANY PROPOSED DEVIATIONS FROM IDENTIFIED REQUIREMENTS FOR REVIEW AS A REQUEST FOR INFORMATION PRIOR TO SUBMITTING SHOP DRAWINGS.

DECK REINFORCING
1. WELDED WIRE STEEL REINFORCING SHALL CONFORM TO ASTM A185 or A497.

STRUCTURAL STEEL
1. STRUCTURAL STEEL SHAPES AND PLATES SHALL BE ASTM A588 (WEATHERING STEEL).

2. HSS TUBE SECTIONS SHALL BE ASTM A847 (WEATHERING STEEL).

3. BRIDGE WELDING SHALL CONFORM TO THE LATEST EDITION OF AWS D1.1 AND THE SPECIFICATIONS.

ELASTOMERIC BEARING PADS
1. EACH OF (4) STEEL REINFORCED BEARING PADS SHALL BE 9" BY 5" IN PLAN WITH THREE 14 GAGE STEEL LAMINATES, TWO INTERNAL ELASTOMER LAYERS 1/2" IN THICKNESS, AND 1/4" COVER LAYERS AND EDGE COVER, FOR A TOTAL THICKNESS OF 1.725".

LOAD LIMIT SIGNS
1. THE LOAD LIMIT SIGNS SHALL BE A MINIMUM OF 1/8" THICK POWDER COATED ALUMINUM WITH BONDED VINYL LETTERING AND OVERCOATED WITH A CLEAR SEMI-GLOSS COATING THAT IS RESISTANT TO CUTTING, WEATHER, UV EXPOSURE, AND GRAFFITI. THE SIGN COLOR SHALL BE A RUST BROWN BACKGROUND WITH BRIGHT WHITE BLOCK LETTERING AND BORDER. EACH OF TWO SIGNS SIGN SHALL BE ATTACHED TO EACH LEFT WINGWALL TOP RAIL WITH A MINIMUM 1/4" DIAMETER SECURITY FASTENER AT EACH CORNER. SUBMIT SHOP DRAWING AND DETAILS OF THE SIGN FOR REVIEW. WRAP THE SIGNS FOR PROTECTION DURING SHIPPING AND INSTALLATION AFTER ATTACHMENT TO THE WINGWALL RAILINGS.

STORAGE AND DELIVERY
1. THE BRIDGE AND COMPONENTS SHALL BE STORED AT A SUITABLE SECURE LOCATION UNTIL DELIVERY TO THE SITE IS REQUESTED. COORDINATE SITE DELIVERY TO COINCIDE WITH THE SITE CONTRACTOR'S SCHEDULE FOR OFF-LOADING AND/OR ERECTION.

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 "It's the Law" UTILITIES UNDERGROUND LOCATION CENTER

DESIGN	KBF
DRAWN	SLR
CHECKED	KBF
STATUS	
☐ DRAFT ANALYSIS	
☒ CONSTRUCTION	

crest — PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

BRIDGE NOTES

otak — 808 SW 3rd Ave., Ste. 300, Portland, OR 97204, Phone: (503) 287-6825, Fax: (503) 415-2304, www.otak.com — Named Global Partner

KELLY D. FREEMAN — STATE OF WASHINGTON — 24176 — REGISTERED PROFESSIONAL ENGINEER

DATE June 2, 2015
S01
SHEET NO
21 OF 28

Jun 01, 2015 - 1:25pm
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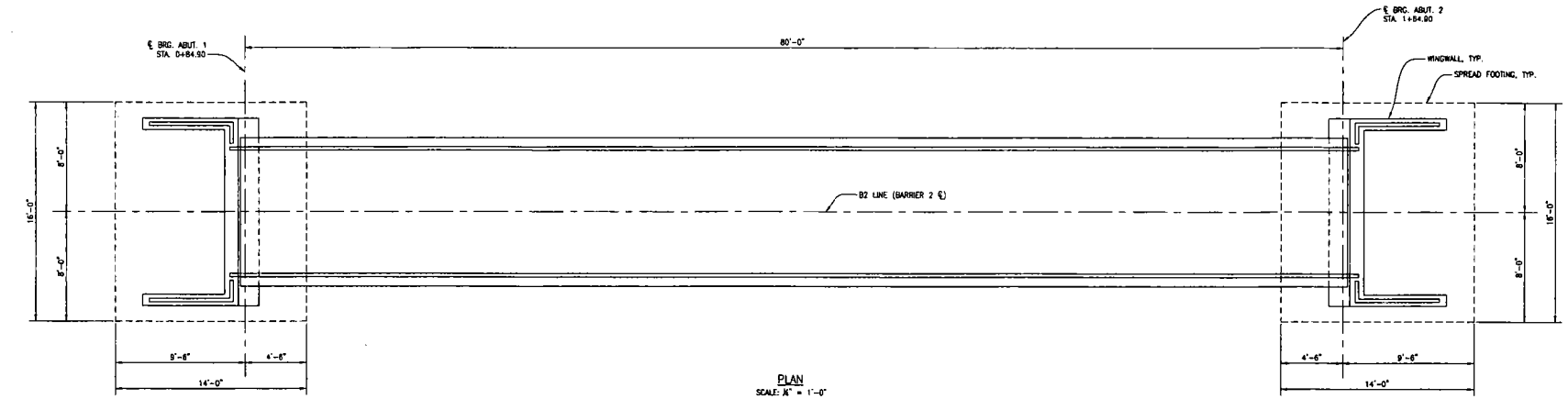

PLAN
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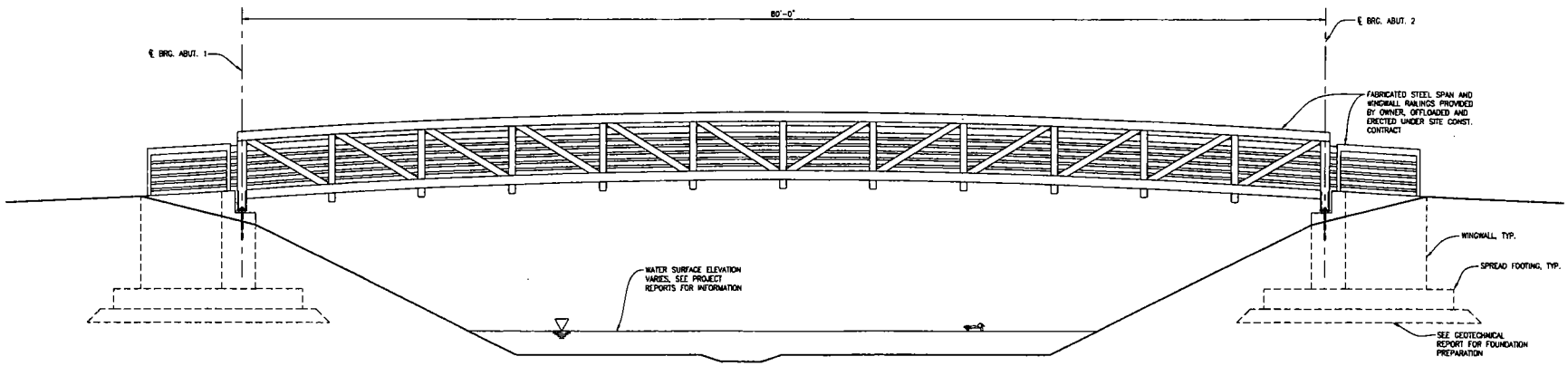

ELEVATION
SCALE: 1/4" = 1'-0"

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

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CLARK COUNTY, WASHINGTON

CALL 48 HOURS BEFORE YOU DIG
1-800-424-5555
"It's the Law"
NORTHWEST UTILITIES NOTIFICATION CENTER

DESIGN	KBF
DRAWN	SLR
CHECKED	KBF

STATUS
☐ DRAFT ANALYSIS
☒ CONSTRUCTION

crest
PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

BRIDGE PLAN AND ELEVATION

otak
808 SW 3rd Ave., Ste. 300
Portland, OR 97204
Phone: (503) 287-6825
Fax: (503) 415-2304
www.otak.com
HanmiGlobal Partner

KELLY S. FREEMAN
STATE OF WASHINGTON
20178
REGISTERED PROFESSIONAL ENGINEER

DATE June 2, 2015
S02
SHEET NO
22 OF 28

May 29, 2015 - 3:49pm
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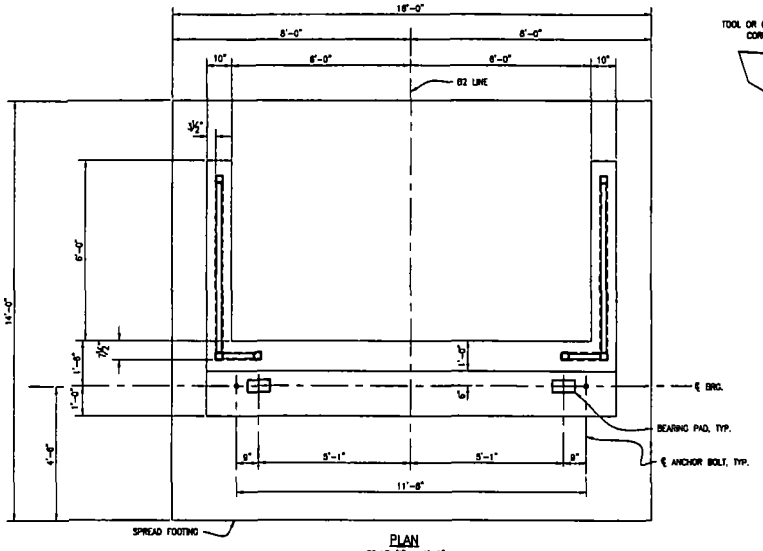

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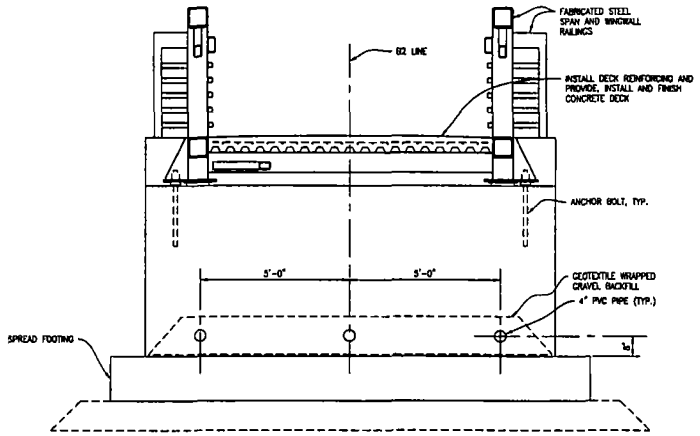

ABUTMENT ELEVATION
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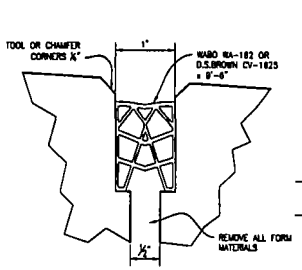

EXPANSION JOINT
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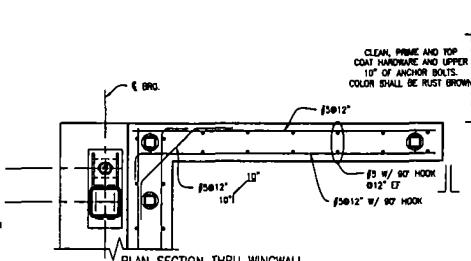
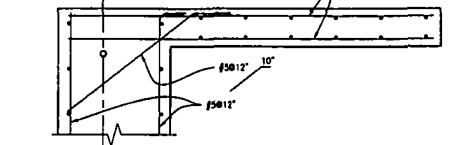
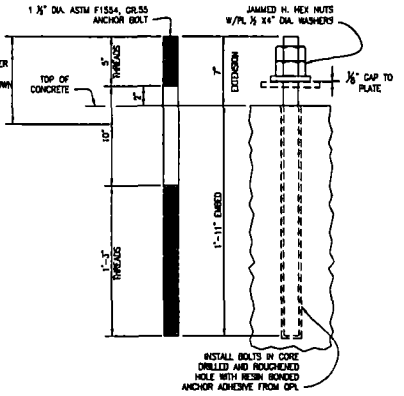


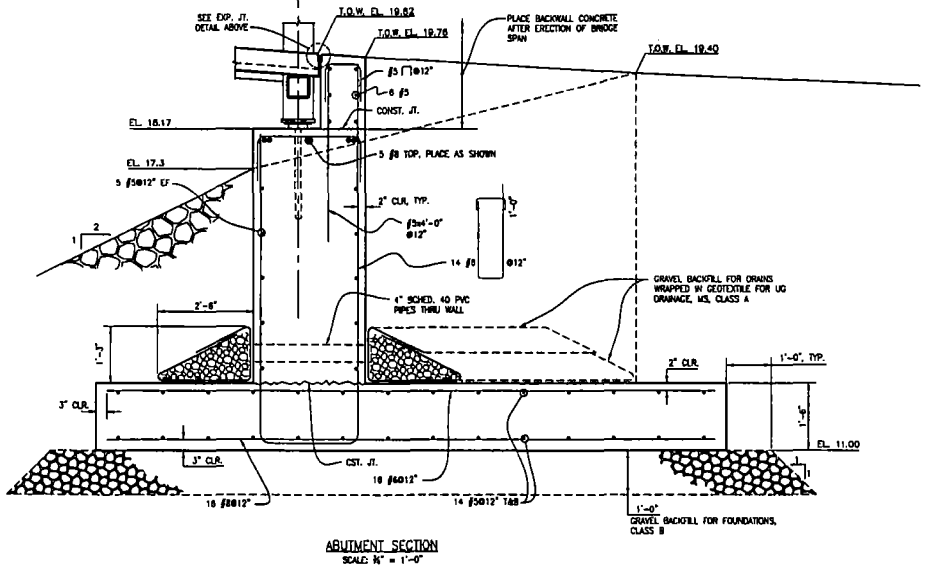
PLAN SECTION THRU WINGWALL
SCALE: ¾" = 1'-0"



PLAN SECTION THRU BACKWALL
SCALE: ¾" = 1'-0"



ANCHOR BOLT DETAIL
SCALE: 2" = 1'-0"



ABUTMENT SECTION
SCALE: ½" = 1'-0"

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 "It's the Law" Northwest Utilities Notification Center

DESIGN	KBF
DRAWN	SLR
CHECKED	KBF

STATUS
☐ DRAFT ANALYSIS
☒ CONSTRUCTION

crest PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

BRIDGE ABUTMENT DETAILS

otak
808 SW 3rd Ave., Ste 300
Portland, OR 97204
Phone: (503) 287-6825
Fax: (503) 415-2384
www.otak.com
Hammel/Otak Partner

KELLY B. FRASER
OREGON
69178
RENEWAL: 12/31/2015
PROFESSIONAL ENGINEER

DATE June 2, 2015
SHEET NO
S03
23 OF 28

May 29, 2015 - 3:41pm
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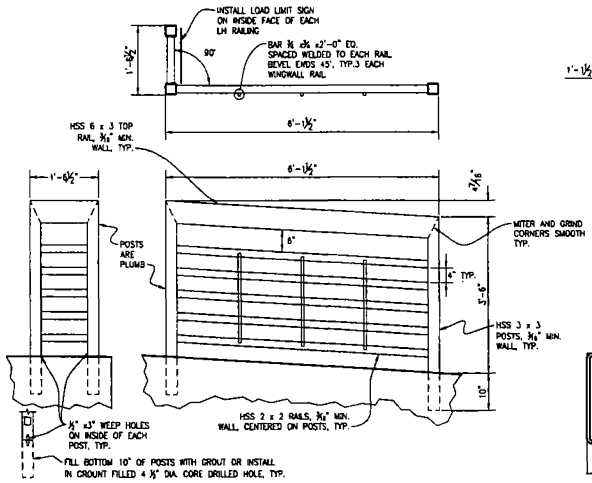

WINGWALL RAILING
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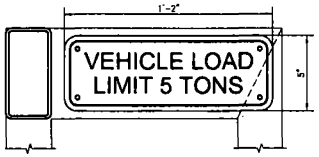

LOAD LIMIT SIGNS
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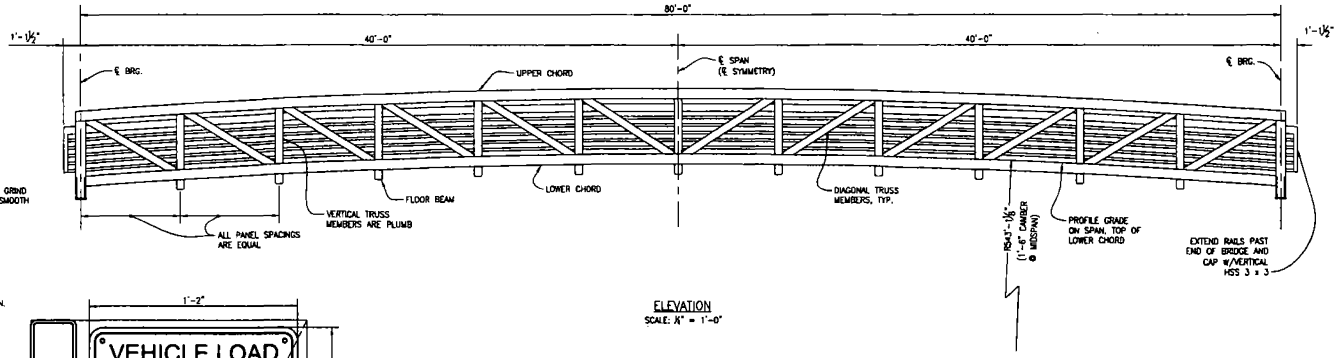

ELEVATION
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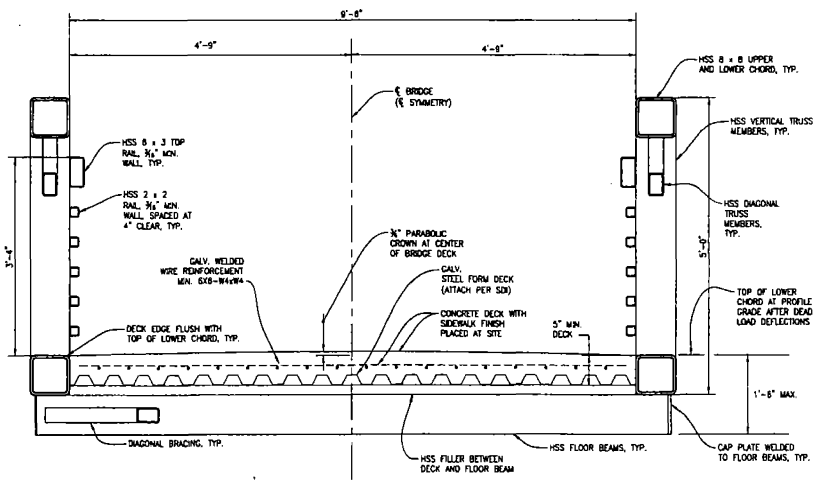

TYPICAL SECTION
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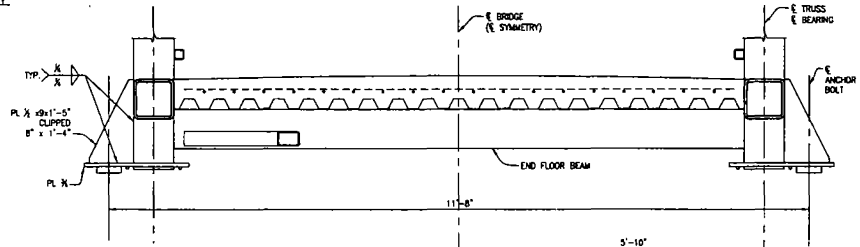
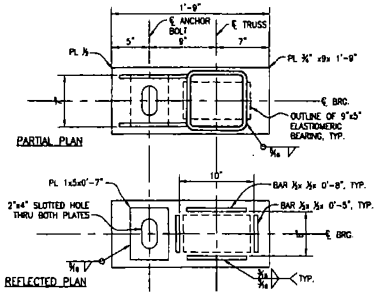
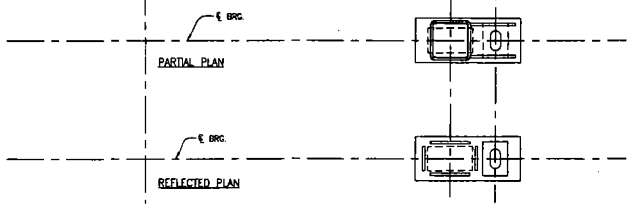


END FLOOR BEAM AND BEARING SEAT DETAIL
SCALE: 1" = 1'-0"



BEARING PLATE DETAIL
SCALE: 1 ½" = 1'-0"



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BUCKMIRE SLOUGH RESTORATION PROJECT

BRIDGE SPAN PROCUREMENT DETAILS

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808 SW 3rd Ave., Ste. 300
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S04
SHEET NO
24 OF 28

Jun 01, 2015 - 1:48pm
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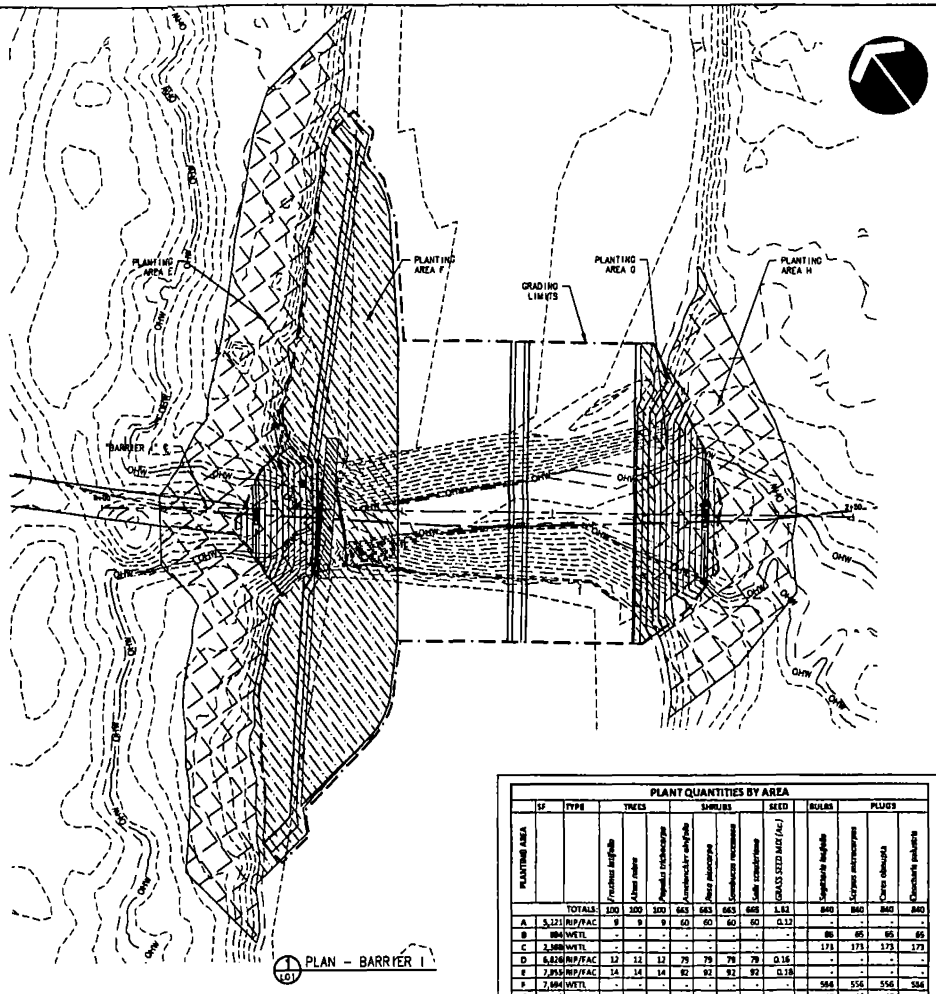
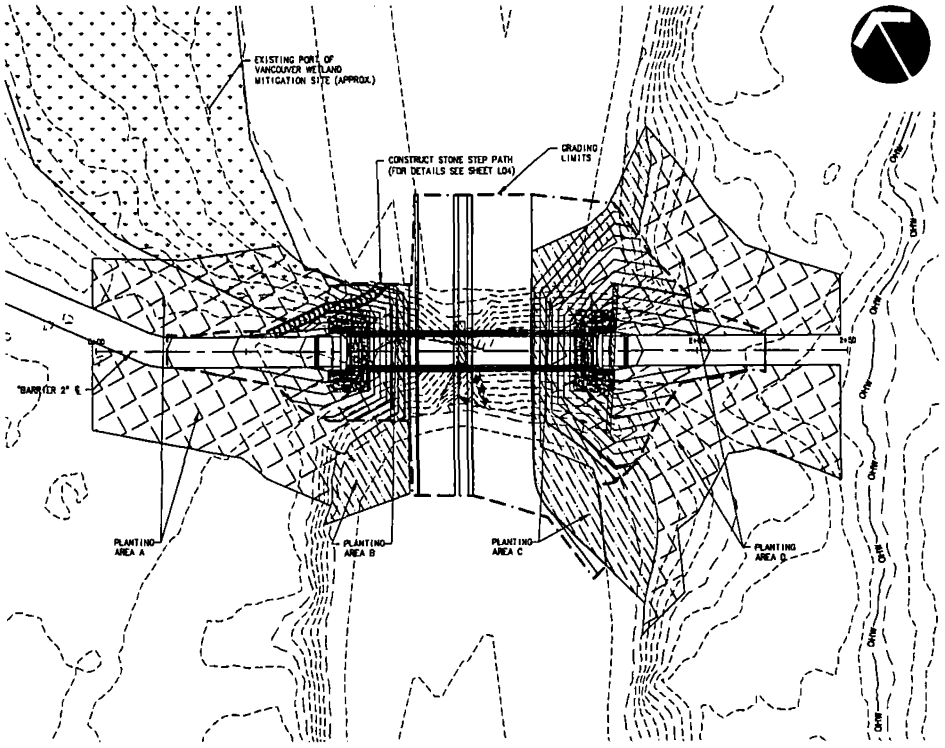


1 PLAN – BARRIER 1
L01



2 PLAN – BARRIER 2
L01

20' 0' 20' 40'
SCALE IN FEET

PLANT QUANTITIES BY AREA

PLANTING AREA	SF	TYPE	TREES			SHRUBS				SEED	BULBS	PLUGS		
			Fraxinus latifolia	Alnus rubra	Populus trichocarpa	Amelanchier alnifolia	Rosa pisocarpa	Sambucus racemosa	Salix scouleriana	GRASS SEED MIX (Ac)	Sagittaria latifolia	Scirpus microcarpus	Carex obnupta	Eleocharis palustris
		TOTALS:	100	100	100	665	665	665	665	1.82	840	840	840	840
A	5,121	RIP/FAC	9	9	9	60	60	60	60	0.13	-	-	-	-
B	884	WETL	-	-	-	-	-	-	-	-	85	85	85	85
C	2,388	WETL	-	-	-	-	-	-	-	-	173	173	173	173
D	6,826	RIP/FAC	12	12	12	79	79	79	79	0.16	-	-	-	-
E	7,955	RIP/FAC	14	14	14	92	92	92	92	0.18	-	-	-	-
F	7,884	WETL	-	-	-	-	-	-	-	-	556	556	556	556
G	643	WETL	-	-	-	-	-	-	-	-	46	46	46	46
H	6,894	RIP/FAC	8	8	8	54	54	54	54	0.11	-	-	-	-
I	12,712	RIP/FAC	22	22	22	147	147	147	147	0.29	-	-	-	-
J	1,070	RIP/FAC	2	2	2	13	13	13	13	0.02	-	-	-	-
K	2,340	RIP/FAC	4	4	4	26	26	26	26	0.05	-	-	-	-
L	16,479	RIP/FAC	29	29	29	195	195	195	195	0.38	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	-

PLANT LIST
RIPARIAN/FACULTATIVE

BOTANICAL NAME	COMMON NAME	SIZE & SPACING
TREES		
Fraxinus latifolia	Oregon Ash	Bare Root; 15 FT. O.C.
Alnus rubra	Red Alder	Bare Root; 15 FT. O.C.
Populus trichocarpa	Black Cottonwood	Bare Root; 15 FT. O.C.
SHRUBS		
Rosa pisocarpa	Swamp Rose	Bare Root; 5 FT. O.C.
Salix scouleriana	Scouler's Willow	Bare Root; 5 FT. O.C.
Amelanchier alnifolia	Serviceberry	Bare Root; 5 FT. O.C.
Sambucus racemosa	Red Elderberry	Bare Root; 5 FT. O.C.

PERMANENT SEED MIXT NO. 1

Deschampsia cespitosa	Tufted Hairgrass	2%
Festuca rubra	Red Fescue	6%
Stenlen hybrid	Squirrel Tail	20%
Elymus glaucus	Wild Rye	23%
Glyceria occidentalis	Mannagrass	5%
Bromus carinitus	Native Brome	43%
Agrostis exarata	Spikegrass	1%

Apply native seed mix at a rate of 11 lbs. PLS per acre

PLANT LIST
WETLAND/OBLIGATE

BOTANICAL NAME	COMMON NAME	SIZE & SPACING
EMERGENT		
Sagittaria latifolia	Wapato	Bulb; 2 FT. O.C.
Scirpus microcarpus	Small-Fruited Bulrush	Plug; 2 FT. O.C.
Carex obnupta	Slough Sedge	Plug; 2 FT. O.C.
Eleocharis palustris	Creeping Spike Rush	Plug; 2 FT. O.C.

NOTES:
1. SEE PLANTING AREA QUANTITIES THIS SHEET.
2. SEE SHEET L04 FOR PLANTING NOTES AND DETAILS.
3. PROVIDE BROWSE GUARDS FOR ALL BARE ROOT TREES.
4. PROVIDE 8" DEPTH TOPSOIL TYPE B WITHIN GRADING LIMITS AT RIPARIAN/FACULTATIVE PLANTING AREAS.
5. PROVIDE WEED AND PEST CONTROL FOR PLANTING AREAS OUTSIDE OF GRADING LIMITS.

20' 0' 20' 40'
SCALE IN FEET

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

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DESIGN	DDH
DRAWN	MLD
CHECKED	DDH

STATUS
☐ DRAFT ANALYSIS
☒ CONSTRUCTION

crest
PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

BARRIER PLANTING PLAN

otak
808 SW 3rd Ave., Ste. 300
Portland, OR 97204
Phone: (503) 287-0563
Fax: (503) 415-2304
www.otak.com
Member/Global Partner

STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
DAVID D. MAYNES
CERTIFICATE NO. 824

DATE June 2, 2015
L01
SHEET NO
25 OF 28

Jun 01, 2015 - 10:53am
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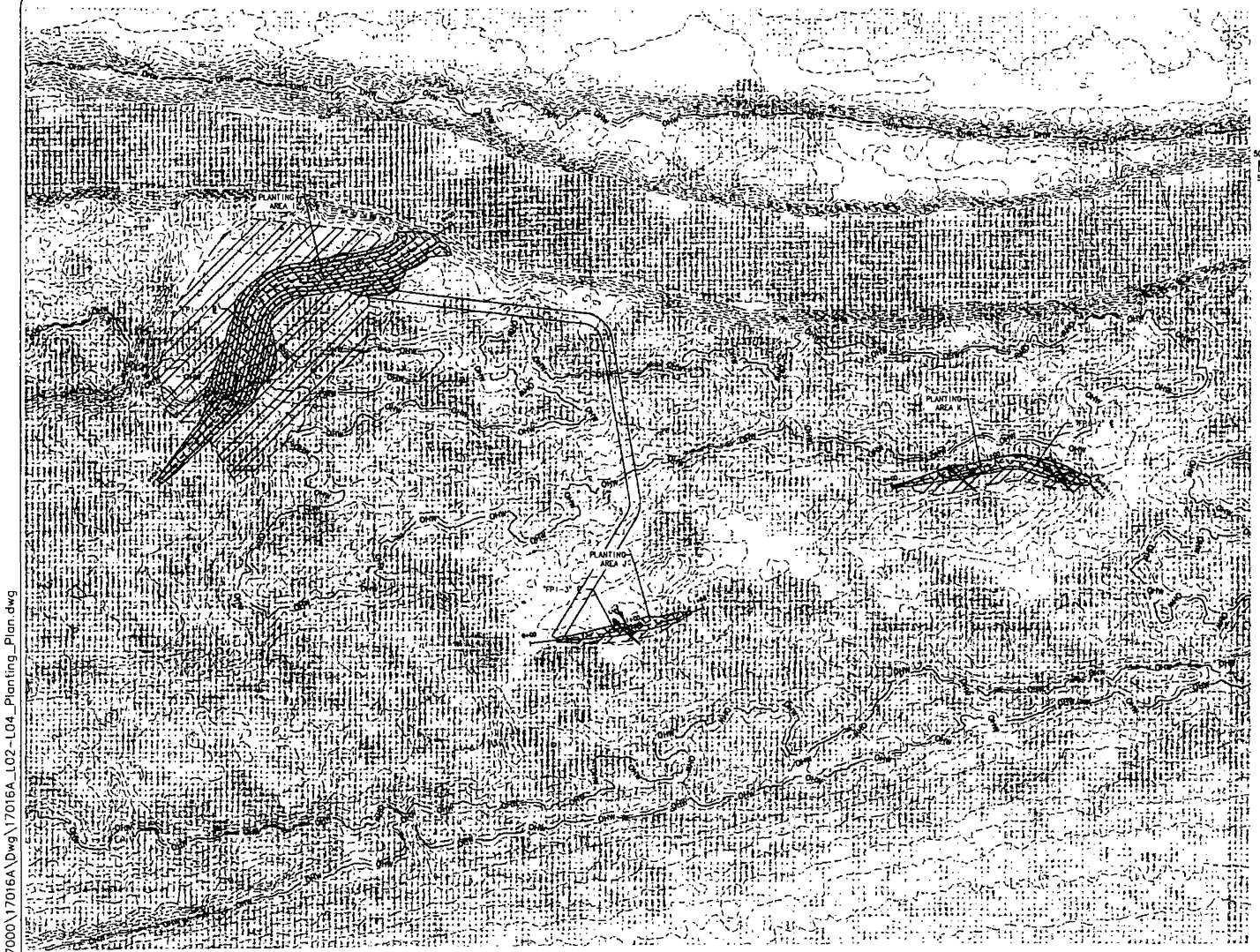

PLANT QUANTITIES BY AREA

PLANTING AREA	SF	TYPE	TREES			SHRUBS				SEED	BULBS	PLUGS		
			Fraxinus latifolia	*Alnus rubra*	*Populus trichocarpa*	*Amelanchier alnifolia*	*Rosa pisocarpa*	*Sambucus racemosa*	*Salix scouleriana*	GRASS SEED MIX (AC.)	*Sagittaria latifolia*	*Juncus ingocarpus*	*Carex obnupta*	*Eleocharis palustris*
		TOTALS:	100	100	100	665	665	665	665	1.32	840	840	840	840
A	5,221	RIP/FAC	9	9	9	60	60	60	60	0.12	-	-	-	-
B	894	WETL	-	-	-	-	-	-	-	-	65	65	65	65
C	2,388	WETL	-	-	-	-	-	-	-	-	173	173	173	173
D	6,826	RIP/FAC	12	12	12	79	79	79	79	0.16	-	-	-	-
E	7,955	RIP/FAC	14	14	14	93	92	92	92	0.18	-	-	-	-
F	7,694	WETL	-	-	-	-	-	-	-	-	556	556	556	556
G	643	WETL	-	-	-	-	-	-	-	-	46	46	46	46
H	4,694	RIP/FAC	8	8	8	54	54	54	54	0.11	-	-	-	-
I	12,717	RIP/FAC	22	22	22	147	147	147	147	0.29	-	-	-	-
J	1,070	RIP/FAC	2	2	2	12	12	12	12	0.02	-	-	-	-
K	2,240	RIP/FAC	4	4	4	26	26	26	26	0.05	-	-	-	-
L	16,879	RIP/FAC	29	29	29	195	195	195	195	0.39	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	-

PLANT LIST
RIPARIAN/FACULTATIVE

BOTANICAL NAME	COMMON NAME	SIZE & SPACING
TREES		
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SHRUBS		
Rosa pisocarpa	Swamp Rose	Bare Root; 5 FT. O.C.
Salix scouleriana	Scouler's Willow	Bare Root; 5 FT. O.C.
Almelanchier alnifolia	Serviceberry	Bare Root; 5 FT. O.C.
Sambucus racemosa	Red Elderberry	Bare Root; 5 FT. O.C.
PERMANENT SEED MIXT NO. 1		
Deschampsia cespitosa	Tufted Hairgrass	2%
Festuca rubra	Red Fescue	6%
Sitanion hystrix	Squirrel Tail	20%
Elymus glaucus	Wild Rye	23%
Glyceria occidentalis	Mannagrass	5%
Bromus carnilus	Native Brome	43%
Agrostis exarata	Spikegrass	1%

Apply native seed mix at a rate of 11 lbs. PLS per acre

STOCKPILE REVEGETATION - Total 2.4 acres - See Sht EC01 for extent

PERMANENT SEED MIXT NO. 1

Deschampsia cespitosa	Tufted Hairgrass	2%
Festuca rubra	Red Fescue	6%
Sitanion hystrix	Squirrel Tail	20%
Elymus glaucus	Wild Rye	23%
Glyceria occidentalis	Mannagrass	5%
Bromus carnilus	Native Brome	43%
Agrostis exarata	Spikegrass	1%

Apply native seed mix at a rate of 11 lbs. PLS per acre

NOTES:
1. SEE PLANTING AREA QUANTITIES THIS SHEET.
2. SEE SHEET L04 FOR PLANTING NOTES AND DETAILS.
3. PROVIDE BROWSE GUARDS FOR ALL BARE ROOT TREES.

LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE AND MAY BE INCOMPLETE

RIGHT-OF-WAY LINEWORK DISPLAYED IS REFERENCING CLARK COUNTY GIS TAXLOT INFORMATION AND SHOULD NOT BE CONSIDERED AS SURVEYED RIGHT-OF-WAY

CLARK COUNTY, WASHINGTON

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555 "It's the Law" Northwest Utilities Notification Center

DESIGN	DDH
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STATUS
☐ DRAFT ANALYSIS
☒ CONSTRUCTION

crest | PC TRASK

BUCKMIRE SLOUGH RESTORATION PROJECT

FLOODPLAIN CHANNEL FP1
PLANTING PLAN

otak
808 SW 3rd Ave., Ste. 300
Portland, OR 97204
Phone: (503) 287-6825
Fax: (503) 415-2304
www.otak.com
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STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
DAVID D. HAYNES
CERTIFICATE NO. 834

DATE June 2, 2015
L02
SHEET NO.
26 OF 28

Jun 01, 2015 - 11:03am
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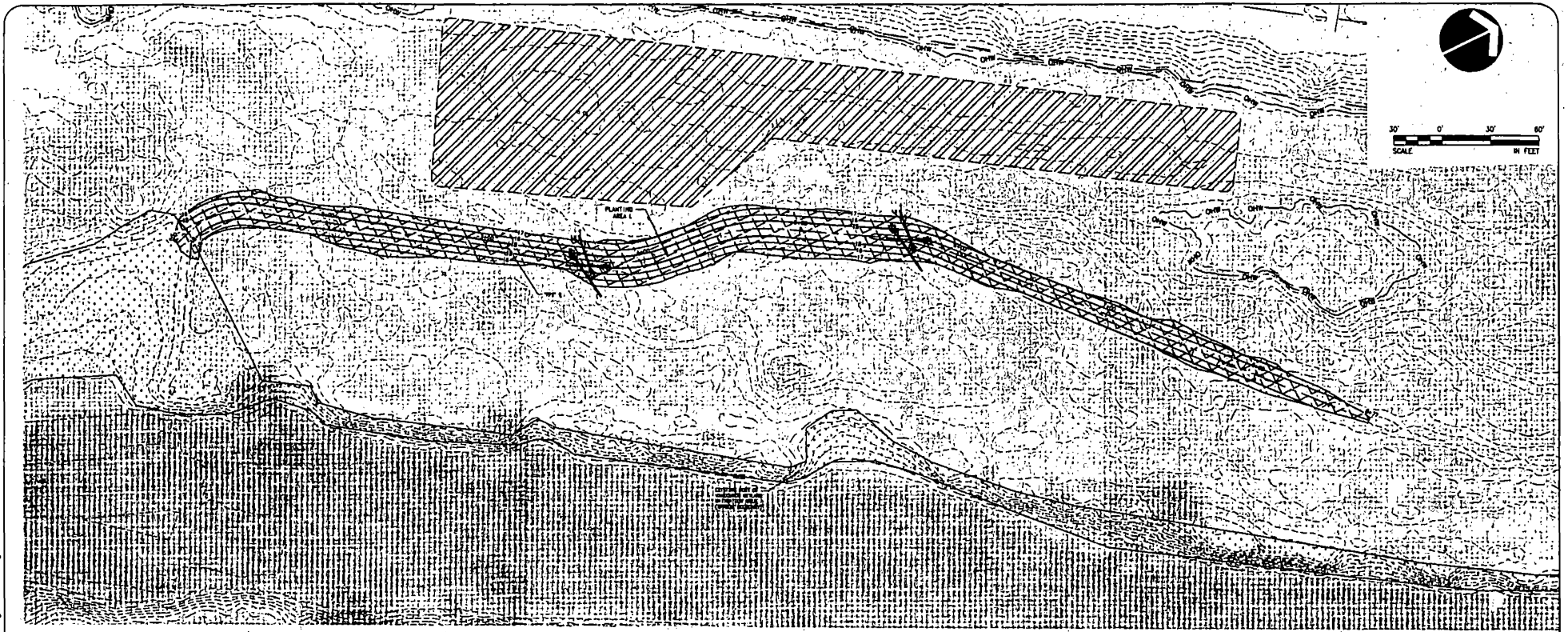

PLANT LIST
RIPARIAN/FACULTATIVE

BOTANICAL NAME	COMMON NAME	SIZE & SPACING
TREES		
Fraxinus latifolia	Oregon Ash	Bare Root; 15 FT. O.C.
Alnus rubra	Red Alder	Bare Root; 15 FT. O.C.
Populus trichocarpa	Black Cottonwood	Bare Root; 15 FT. O.C.
SHRUBS		
Rosa pisocarpa	Swamp Rose	Bare Root; 5 FT. O.C.
Salix scouleriana	Scouler's Willow	Bare Root; 5 FT. O.C.
Almelanchier alnifolia	Serviceberry	Bare Root; 5 FT. O.C.
Sambucus racemosa	Red Elderberry	Bare Root; 5 FT. O.C.

PERMANENT SEED MIXT NO. 1

Deschampsia cespitosa	Tufted Hairgrass	2%
Festuca rubra	Red Fescue	6%
Stanion hystrix	Squirrel Tail	20%
Elymus glaucus	Wild Rye	23%
Glyceria occidentalis	Mannagrass	5%
Bromus carnitus	Native Brome	43%
Agrostis exarata	Spikegrass	1%

Apply native seed mix at a rate of 11 lbs. PLS per acre

PLANT QUANTITIES BY AREA

PLANTING AREA	SF	TYPE	TREES			SHRUBS					SEED	BULBS	PLUGS		
			Fraxinus latifolia	Alnus rubra	Populus trichocarpa	Amelanchier alnifolia	Rosa pisocarpa	Sambucus racemosa	Salix scouleriana	GRASS SEED MIXT (AC)	Sagittaria latifolia	Scirpus microcarpus	Carex stipata	Eleocharis palustris
		TOTALS:	100	100	100	665	665	665	665	1.32	880	880	880	880
A	5,221	RIP/FAC	9	9	9	60	60	60	60	0.12	-	-	-	-
B	894	WETL	-	-	-	-	-	-	-	-	85	85	85	85
C	2,388	WETL	-	-	-	-	-	-	-	-	173	173	173	173
D	6,826	RIP/FAC	12	12	12	79	79	79	79	0.16	-	-	-	-
E	7,955	RIP/FAC	14	14	14	92	92	92	92	0.18	-	-	-	-
F	7,684	WETL	-	-	-	-	-	-	-	-	556	556	556	556
G	643	WETL	-	-	-	-	-	-	-	-	46	46	46	46
H	4,694	RIP/FAC	8	8	8	54	54	54	54	0.11	-	-	-	-
I	12,712	RIP/FAC	22	22	22	147	147	147	147	0.29	-	-	-	-
J	1,070	RIP/FAC	2	2	2	12	12	12	12	0.02	-	-	-	-
K	2,240	RIP/FAC	4	4	4	26	26	26	26	0.05	-	-	-	-
L	16,879	RIP/FAC	29	29	29	195	195	195	195	0.39	-	-	-	-
			-	-	-	-	-	-	-	-	-	-	-	-

STOCKPILE REVEGETATION - Total 2.4 acres - See Sht EC01 for extents

PERMANENT SEED MIXT NO. 1

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Apply native seed mix at a rate of 11 lbs. PLS per acre

NOTES:
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FLOODPLAIN CHANNEL FP2
PLANTING PLAN

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STATE OF WASHINGTON REGISTERED LANDSCAPE ARCHITECT
DAVID D. MAYNES
CERTIFICATE NO. 624

DATE June 2, 2015
L03
SHEET NO.
27 OF 28

Jun 01, 2015 - 11:04am
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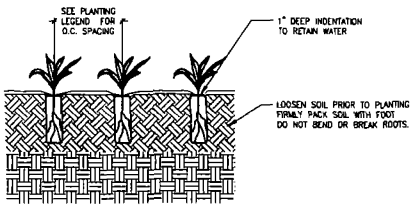
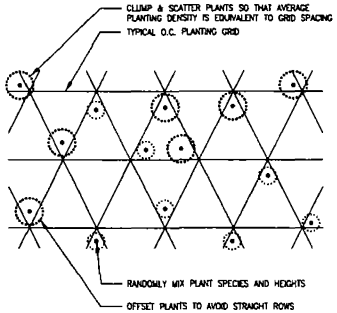


PLUG PLANTING

SCALE: N.T.S.

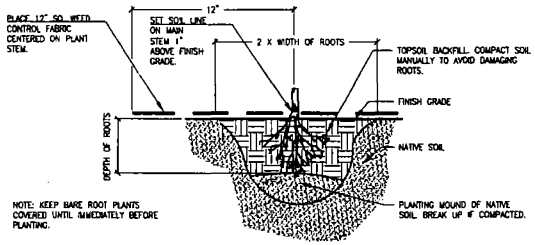
1 / L05



RANDOM PLANTING PATTERN

SCALE: N.T.S.

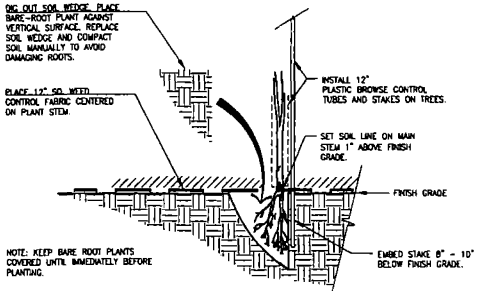
2 / L05



BARE ROOT PLANTING DETAIL

SCALE: N.T.S.

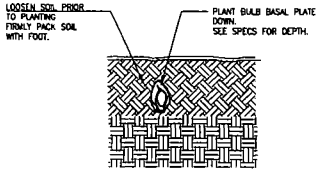
4 / L05



BARE ROOT WEDGE PLANTING

SCALE: N.T.S.

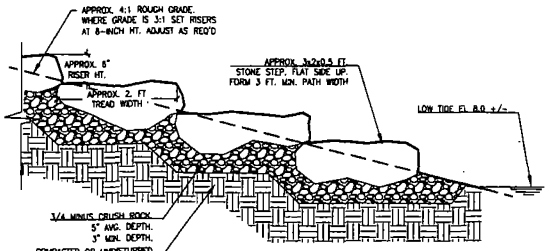
3 / L05



BULB PLANTING

SCALE: N.T.S.

5 / L05



3 FT. WIDE STONE STEPS

SCALE: N.T.S.

6 / L05

UTILITY NOTE:

CONTRACTOR IS CAUTIONED THAT EXISTING UNDERGROUND MAY FACILITIES OCCUR THROUGHOUT THE WORK AREAS INCLUDING BUT NOT LIMITED TO POWER, GAS, TELEPHONE, WATER SUPPLY, AND IRRIGATION. CONTRACTOR SHALL MARK THE FACILITIES BEFORE WORK, POTHOLE WHERE NECESSARY, AND PROTECT DURING CONSTRUCTION. IMMEDIATELY NOTIFY OWNER'S REPRESENTATIVE IF ANY CONFLICTS ARE FOUND.

LANDSCAPE NOTES:

1. GENERAL: SEVERAL OF THE FOLLOWING NOTES SUMMARIZE THE PROJECT SPECIFICATIONS FOR THE CONTRACTORS CONVENIENCE. IF A DISCREPANCY EXISTS BETWEEN THESE NOTES AND THE PROJECT SPECIFICATIONS THE SPECIFICATIONS SHALL OVERRIDE.
2. THE LANDSCAPE CONTRACTOR IS TO THOROUGHLY REVIEW THE SITE. IF THERE ARE ANY DISCREPANCIES BETWEEN THE PLAN AND THE EXISTING CONDITIONS THE OWNERS REPRESENTATIVE IS TO BE NOTIFIED IMMEDIATELY.
3. IF THE LANDSCAPE CONTRACTOR STARTS WORK BEFORE SITE CONDITIONS ARE READY OR CONTINUES WORK IN ADVERSE CONDITIONS WITHOUT PRIOR APPROVAL THEY WILL BE RESPONSIBLE FOR ANY ADDITIONAL COSTS RELATING TO THE CONDITION.
4. IMMEDIATELY NOTIFY OWNERS REPRESENTATIVE CONCERNING ANY CONDITION AT ANY TIME DURING CONSTRUCTION THAT IS DETRIMENTAL TO THE HEALTH AND VIGOROUS GROWTH OF THE SPECIFIED PLANT MATERIAL.
5. PROVIDE QUANTITY OF PLANT MATERIAL INDICATED IN PLANT LIST OR THE QUANTITY REQUIRED TO COVER AREAS INDICATED AT SPECIFIED SPACING, WHICHEVER IS GREATER
6. IF AN AREA DIFFERS SIGNIFICANTLY IN SIZE FROM THAT SCALED ON DRAWING AND REQUIRES MORE OR LESS MATERIAL THE OWNERS REPRESENTATIVE IS TO BE INFORMED.
7. TOPSOIL: TOPSOIL TYPE B SHALL BE PREPARED AND AMENDED IN ACCORDANCE WITH THE DETAILS AND SPECIFICATIONS.
8. PLANTING POCKETS: BACK FILL PLANT HOLE WITH SOIL EXCAVATED FROM HOLE. DO NOT ADD ADDITIONAL AMENDMENTS.
9. PLANT MATERIAL: ALL PLANT MATERIAL SHALL MEET MINIMUM QUALITY AND SIZE REQUIREMENTS ESTABLISHED IN THE AMERICAN STANDARD FOR NURSERY STOCK GUIDELINES.
10. LEAVE PLANT NAME IDENTIFICATION TAGS ON TEN PERCENT OF ALL TREES AND SHRUBS INSTALLED TO AID INSPECTORS IN VERIFYING THAT SPECIFIED PLANTS HAVE BEEN INSTALLED.
11. PLANT CENTER OF SHRUBS A MINIMUM OF 24 INCHES FROM ADJACENT PAVING/GRAVEL. PLANT CENTER OF GROUND COVERS A MINIMUM OF 18 INCHES FROM ADJACENT PAVING/GRAVEL.
12. WHERE PLANT BED SLOPE IS LESS THAN 3% MOUND PLANTING BED AREAS 3% MINIMUM FOR POSITIVE DRAINAGE.
13. SEE SPECIFICATIONS FOR FINAL INSPECTION, MAINTENANCE, AND WARRANTY REQUIREMENTS UNIQUE TO THIS PROJECT.
14. SEE SPECIFICATIONS FOR OTHER LANDSCAPE CONSTRUCTION REQUIREMENTS.

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DAVID D. HAINES
CERTIFICATE NO. 824

DATE June 2, 2015

L04
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28 OF 28

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