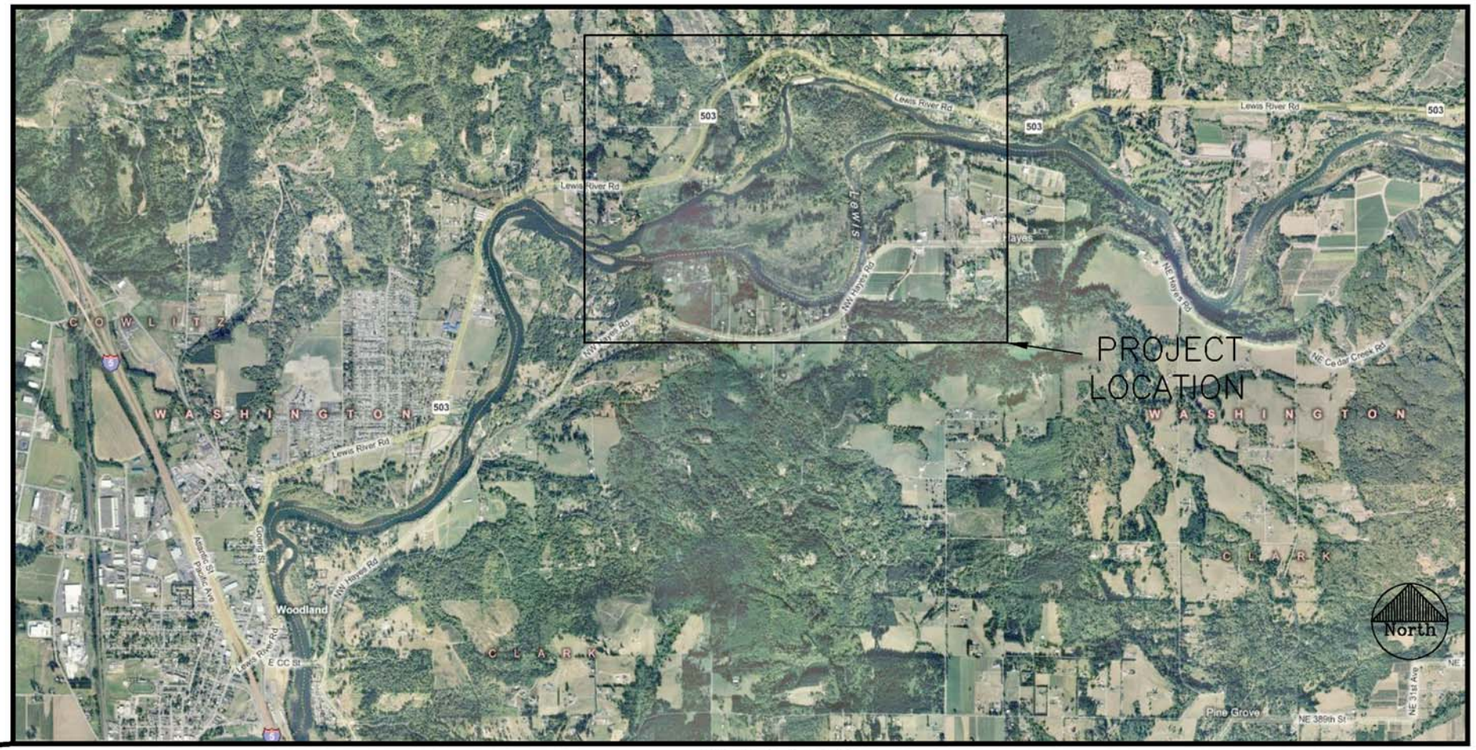
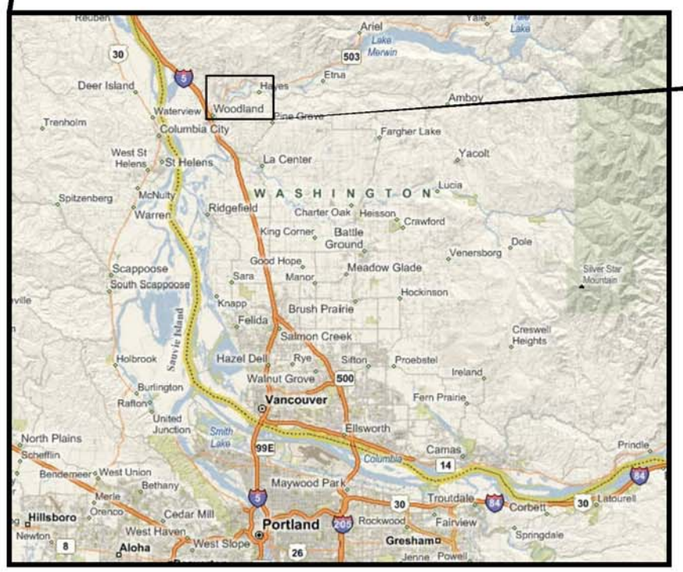
LOCATION MAP
STATE OF WASHINGTON



SITE MAP



VICINITY MAP

ABBREVIATIONS

LWD	LARGE WOODY DEBRIS
ESC	EROSION SEDIMENT AND CONTROL
FES	FABRIC ENCAPSULATED SOIL
FT	FEET
STA	STATION
ELEV	ELEVATION
IN	INCH
APPROX	APPROXIMATE
YR	YEAR
'	FEET
"	INCH
.	DEGREES
%	PERCENT
INV	INVERT
DIA	DIAMETER
HDPE	HIGH DENSITY POLYETHYLENE
OHW	ORDINARY HIGH WATER

SHEET INDEX

Preliminary Not For Construction

30% DESIGN

NO.	BY	DATE	REVISION DESCRIPTION

RP	BN	BN,GJ
DRAWN	DESIGNED	CHECKED
BN	11/09/09	
APPROVED	DATE	PROJECT

Lewis River – Eagle Island
Habitat Restoration – Site B
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Cover, Sheet Index and Vicinity Map

SHEET
1 OF 12

EXISTING DATA

GENERAL TOPOGRAPHIC INFORMATION IS PROVIDED FROM LIDAR FROM CLARK COUNTY AND SPECIFIC PROJECT AREA SURVEY PERFORMED BY INTER–FLUVE, INC.

SOILS

LEWIS RIVER GRAVEL BAR.

UTILITIES

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR HAVING UTILITIES LOCATED PRIOR TO CONSTRUCTION ACTIVITIES.

THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE AFFECTED UTILITY SERVICE TO REPORT ANY DAMAGED OR DESTROYED UTILITIES. THE CONTRACTOR SHALL PROVIDE EQUIPMENT OR LABOR TO AID THE AFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED UTILITIES AT NO COST TO THE OWNER.

CONSTRUCTION ACCESS

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING ANY REQUIRED TRAFFIC CONTROL OR ACCESS PERMITS.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING ANY REQUIRED TRAFFIC CONTROL INCLUDING, BUT NOT LIMITED TO, SIGNAGE AND FLAGGERS.

ALL SAPLING AND TREES TO BE TRANSPLANTED OR REMOVED SHALL BE APPROVED BY THE OWNER'S REPRESENTATIVE AND CLEARLY MARKED.

ALL EQUIPMENT, MATERIALS AND PERSONNEL SHALL REMAIN WITHIN THE LIMITS OF DISTURBANCE.

THE CONTRACTOR SHALL KEEP THE WORK AREAS IN A NEAT AND SIGHTLY CONDITION FREE OF DEBRIS AND LITTER FOR THE DURATION OF THE PROJECT.

COFFERDAM

WORK AREA(S) SHALL BE ISOLATED BY COFFERDAMS INSTALLED UPSTREAM AND DOWNSTREAM OF ENHANCEMENT AREA. COFFERDAM MAY BE CONSTRUCTED WITH SAND FILLED BULK BAGS AND LINED WITH VISQUEEN ADJACENT TO ACTIVE FLOW IN THE CHANNEL.

DEWATERING OF WORK AREA(S) SHALL OCCUR CONCURRENT WITH FISH RESCUE. THE OWNER WILL BE RESPONSIBLE FOR CONDUCTING AND COORDINATING THE FISH RESCUE. THE CONTRACTOR SHALL COORDINATE DEWATERING WITH FISH RESCUE ACTIVITIES.

PUMPING SHALL BE PERFORMED TO KEEP WORK AREA DEWATERED. PUMPED DISCHARGE SHALL RELEASE SEDIMENT–LADEN WATER IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OR INCREASE TURBIDITY OF SURFACE WATERS. (SEE CONTROL DEWATERING).

FISH RESCUE

COFFER DAM SHALL BE INSTALLED TO ISOLATE WORK.

INITIAL DEWATERING SHALL OCCUR SLOWLY BY INCREMENTALLY REDUCING COFFER DAMMED AREAS OVER A PERIOD OF 30 MINUTES TO ALLOW TIME FOR FISH TO FIND RESIDUAL POOLS WITHOUT RISK OF SUDDEN STRANDING.

RESIDUAL POOLS WITHIN THE DEWATERED CONSTRUCTION SITE SHALL BE PUMPED DRY USING SCREENED PUMP INTAKES. TRAPPED FISH SHALL BE RESCUED.

FISH BARRIERS AND PUMP INTAKES SHALL ADHERE TO NMFS SCREENING CRITERIA. NATIONAL MARINE FISHERIES SERVICE JUVENILE FISH SCREEN CRITERIA (REVISED FEBRUARY 16, 1995) AND ADDENDUM: JUVENILE FISH SCREEN CRITERIA FOR PUMP INTAKES (MAY 9, 1996)

ALL FISH RESCUE EFFORTS SHALL BE SUPERVISED BY A QUALIFIED FISHERIES/AQUATIC BIOLOGIST EXPERIENCED WITH THE COLLECTION AND HANDLING OF SALMONID FISHES FROM CONSTRUCTION SITES.

ALL FISH TRAPPED IN RESIDUAL POOLS WITHIN THE PROJECT AREA WILL BE CAREFULLY COLLECTED BY SEINE AND/OR DIP NETS AND PLACED IN CLEAN TRANSFER CONTAINERS WITH PORTABLE AERATION.

CAPTURED FISHES SHALL BE IMMEDIATELY RELEASED TO DOWNSTREAM OR UPSTREAM OF THE CONSTRUCTION SITE, DEPENDING ON SPECIES AND LIFESTAGE.

TREE SALVAGE

ANY REMOVED VEGETATION GREATER THAN 6 INCHES DIAMETER AND 15 FEET LONG SHOULD BE INCORPORATED INTO LOG JAM STRUCTURES. CONTRACTOR IS RESPONSIBLE FOR REMOVING SMALLER CLEARING AND GRUBBING DEBRIS FROM THE SITE AT THE END OF THE PROJECT UNLESS DIRECTED BY THE OWNER'S REPRESENTATIVE.REES THAT ARE REMOVED DURING CONSTRUCTION WILL BE USED AS PART OF THE PROJECT. TREES SHALL BE REMOVED WITH ROOT WADS ATTACHED UNLESS THEIR SIZE PROHIBITS THEIR SAFE REMOVAL WITH ROOT WAD ATTACHED. IN THESE CASES THE TREES SHALL BE FELLED AND THE ROOT WADS SALVAGED. TREE TOPS WILL BE UTILIZED AND BE CUT TO FIELD DIRECTED LENGTHS DEPENDENT ON TREE SIZE AND SPECIES.

LIVE TREES

ALL TREES NOT MARKED FOR REMOVAL SHALL BE LEFT STANDING UNDISTURBED. LOGGING ACTIVITY SHALL NOT DEBARK OR DAMAGE LIVE TREES.

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General Notes

SHEET
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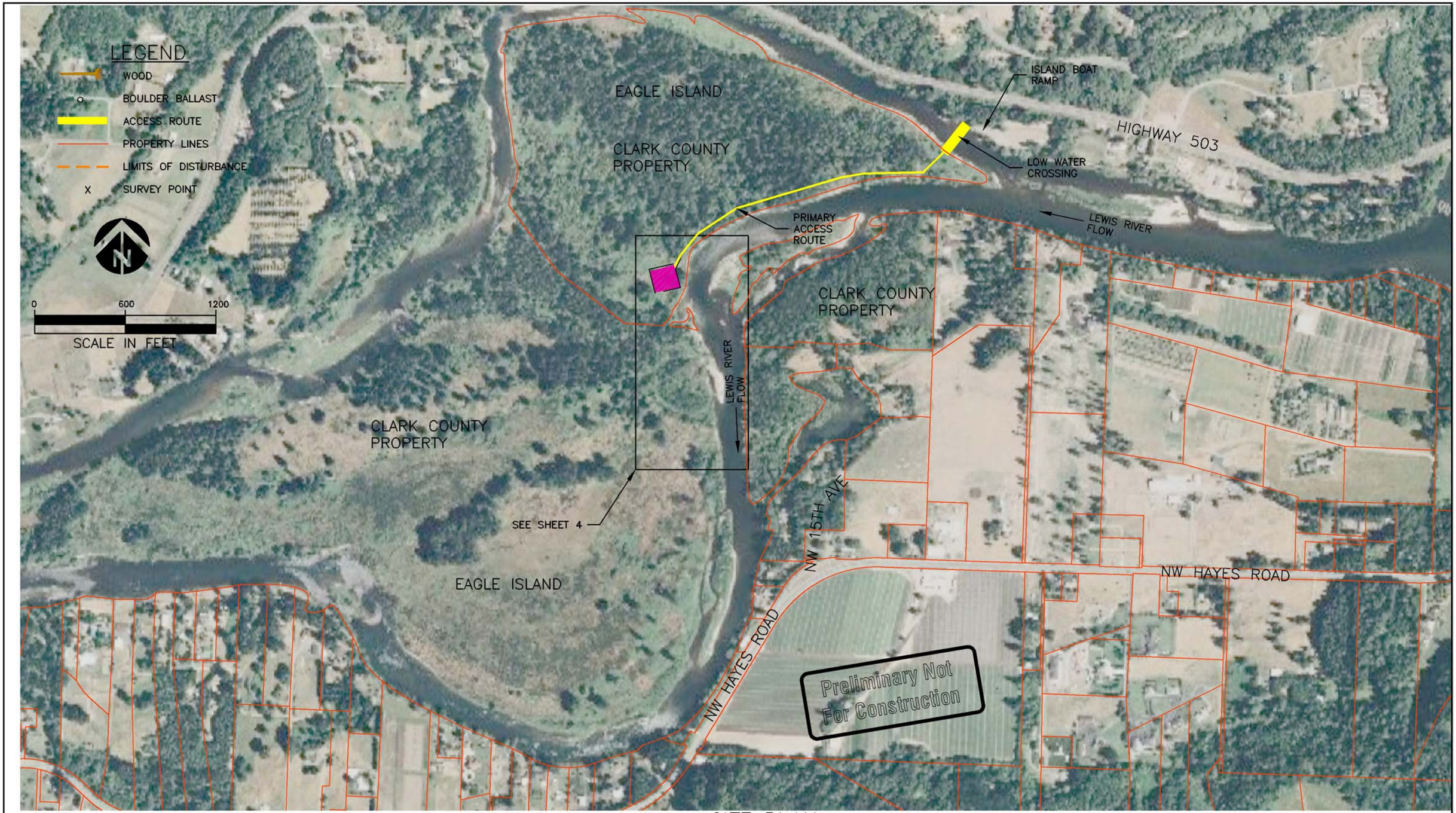

SITE PLAN

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Site Plan and Access

SHEET
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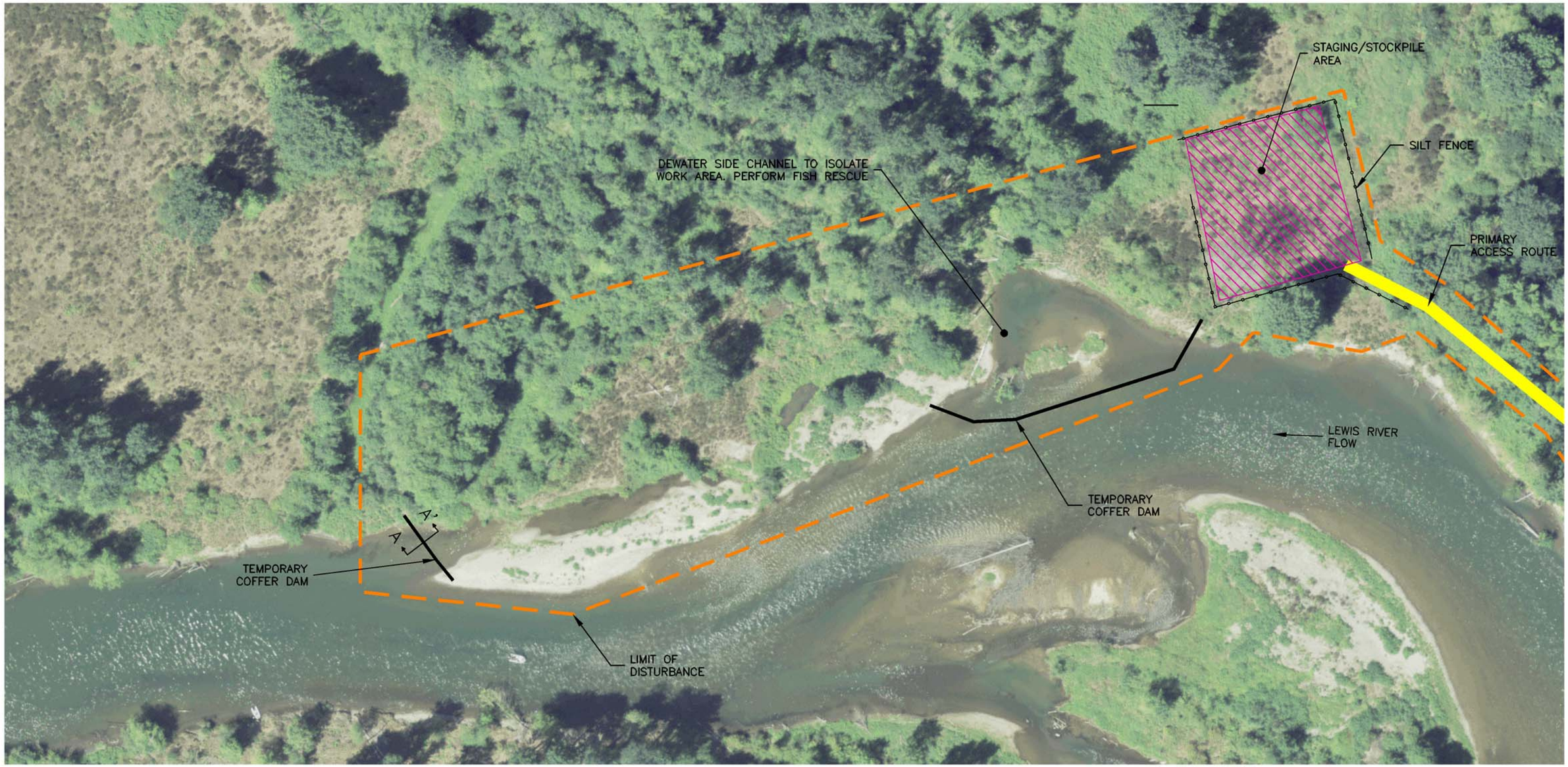

0 100 200

SCALE IN FEET

LEGEND

- TEMPORARY COFFER DAM
- ACCESS ROUTE
- STAGING/STOCKPILE
- LIMITS OF DISTURBANCE
- SEDIMENT FENCE

PLAN VIEW

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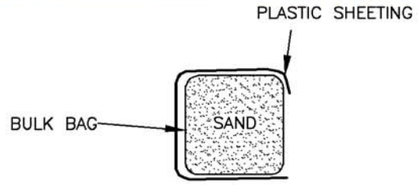

SECTION A–A'

NO SCALE

NOTES:
1. PLACE COFFER DAMS PRIOR TO PERFORMING IN–WATER WORK.

3. REMOVE COFFER DAMS AFTER IN–WATER WORK IS COMPLETE.

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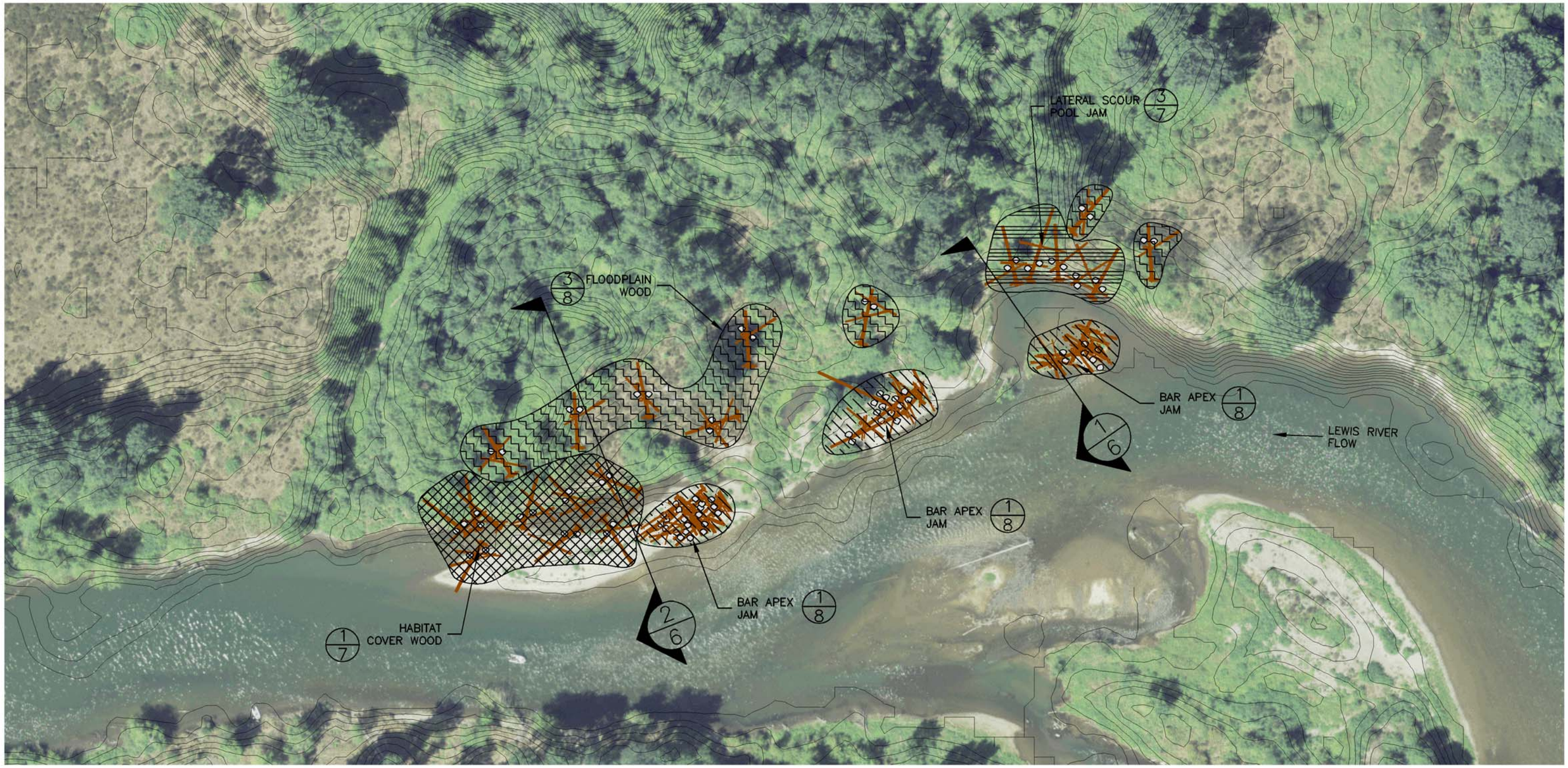
Erosion and Sediment Control Plan

SHEET 4 OF 12



PLAN VIEW

LEGEND

- WOOD
- BOULDER BALLAST
- LIDAR CONTOURS (1 FOOT INTERVALS)
- HABITAT WOOD COVER 1/7 2/7
- LATERAL SCOUR POOL JAM 3/7 4/7
- FLOODPLAIN WOOD 3/8 4/8
- BAR APEX JAM 1/8 2/8

0 100 200
SCALE IN FEET

NOTE:
SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM PLAN VIEW DRAWING DEPENDING ON SIZE AND SHAPE OF MATERIAL ACQUIRED AND SITE CONDITIONS AT TIME OF CONSTRUCTION.

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Plan View
Habitat Restoration

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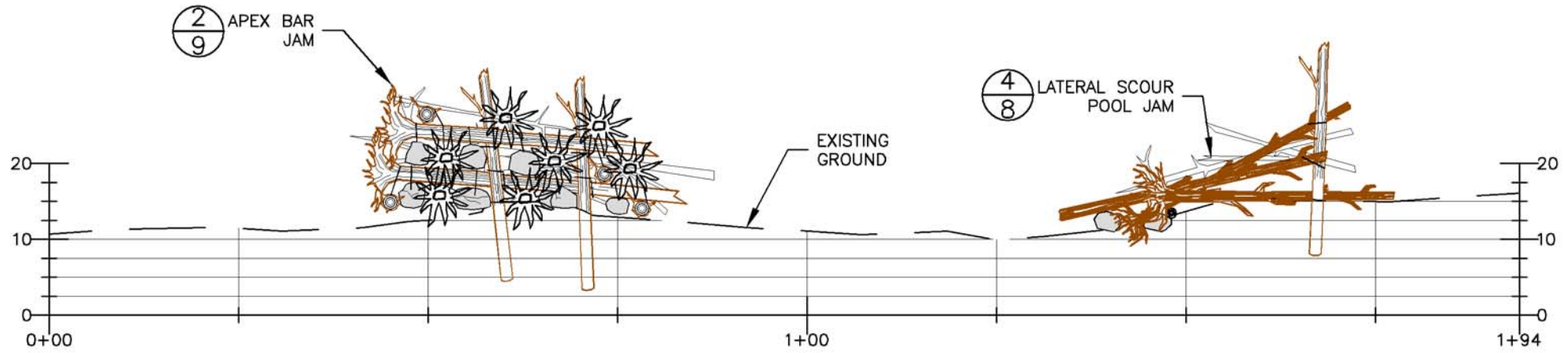
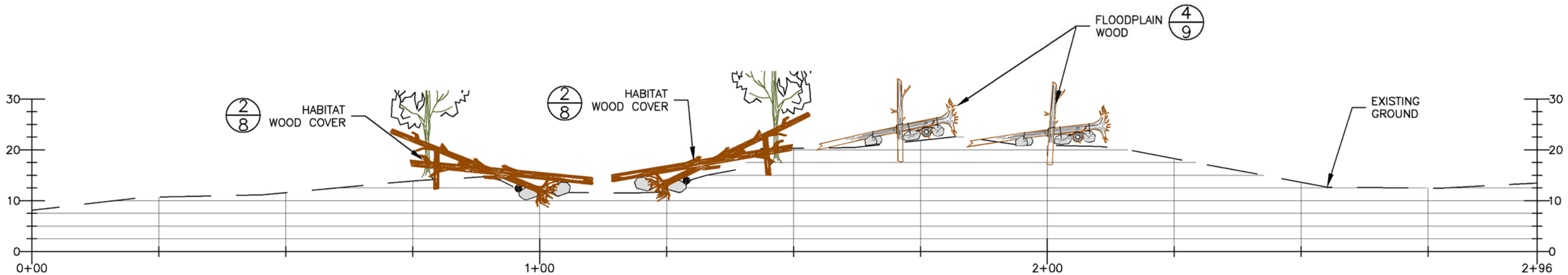


1/6 CROSS–SECTION
NOT TO SCALE



2/6 CROSS–SECTION
NOT TO SCALE

NOTE:
CROSS–SECTION INFORMATION WAS COMPILED USING SURVEY DATA CONDUCTED OCT, 2009 BY INTER–FLUVE, INC.

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Cross–Sections

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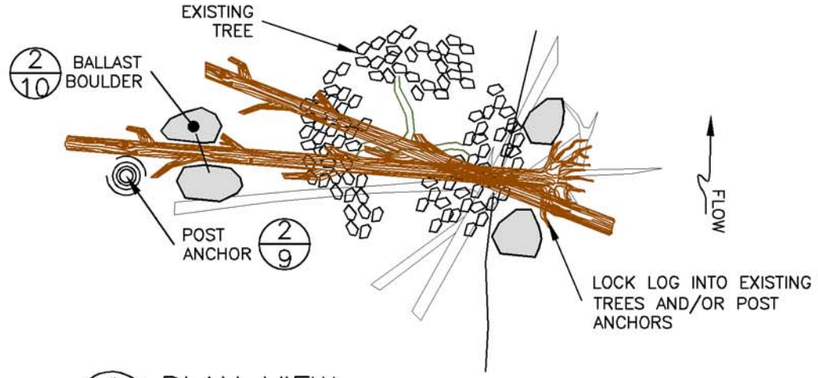
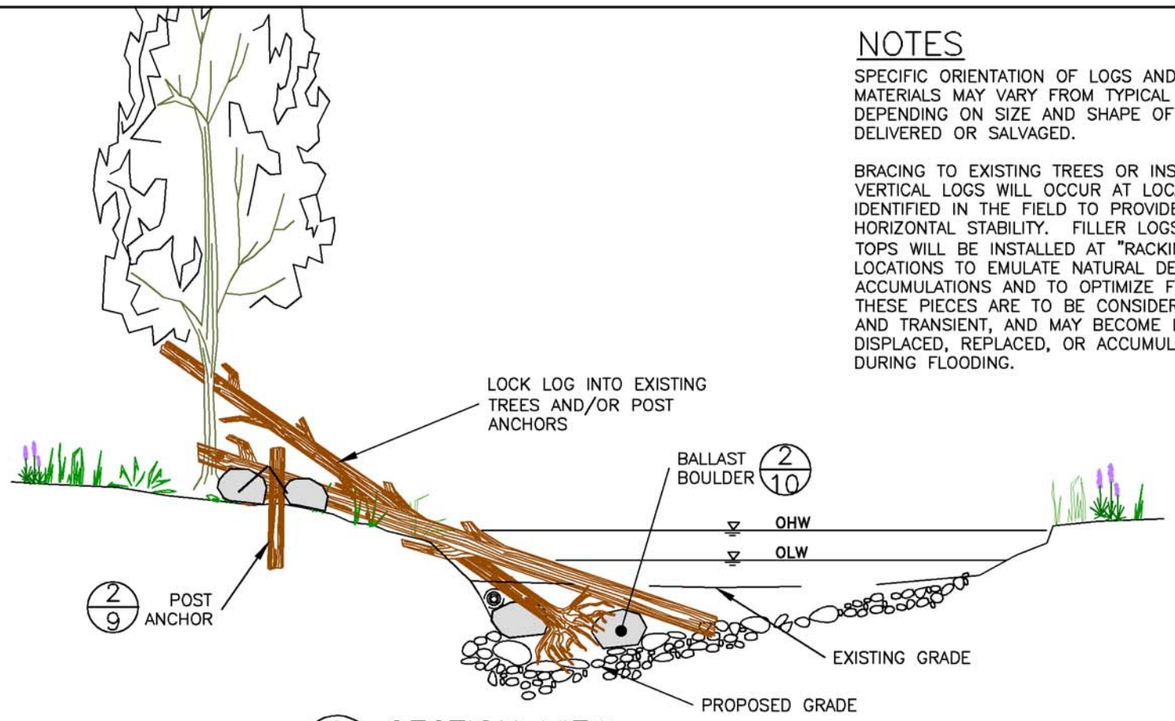


1/7 PLAN VIEW
TYPICAL HABITAT WOOD COVER
NOT TO SCALE

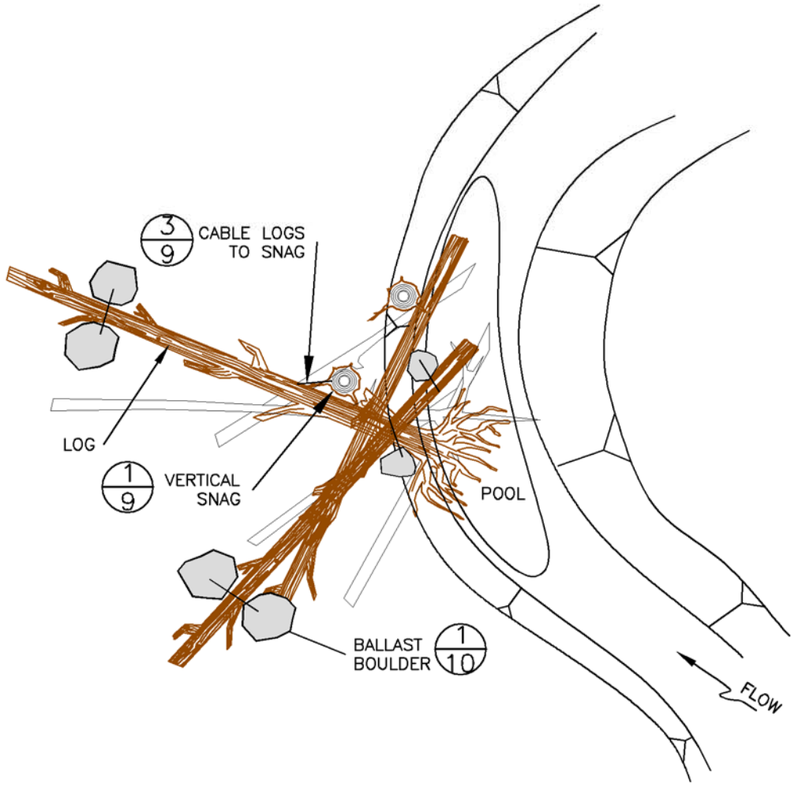


2/7 SECTION VIEW
TYPICAL HABITAT COVER WOOD
NOT TO SCALE

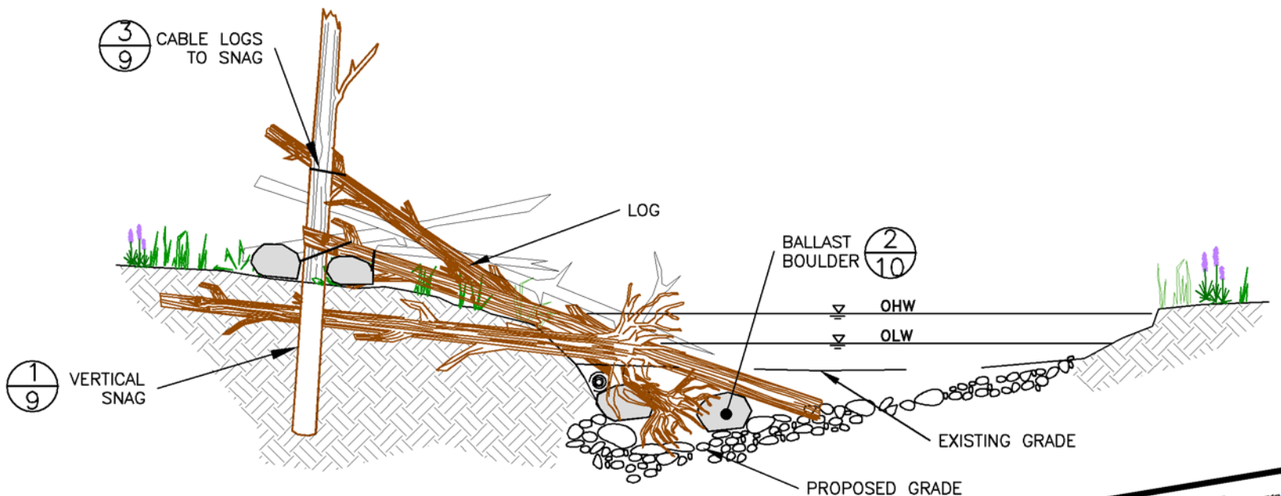
NOTES

SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.

BRACING TO EXISTING TREES OR INSTALLED VERTICAL LOGS WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE HORIZONTAL STABILITY. FILLER LOGS AND TREE TOPS WILL BE INSTALLED AT "RACKING" LOCATIONS TO EMULATE NATURAL DEBRIS ACCUMULATIONS AND TO OPTIMIZE FISH HABITAT. THESE PIECES ARE TO BE CONSIDERED MOBILE AND TRANSIENT, AND MAY BECOME LOOSE, DISPLACED, REPLACED, OR ACCUMULATED ONTO DURING FLOODING.



3/7 PLAN VIEW
TYPICAL LATERAL SCOUR POOL JAM
NOT TO SCALE



4/7 SECTION VIEW
TYPICAL LATERAL SCOUR POOL JAM
NOT TO SCALE

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Typical Details

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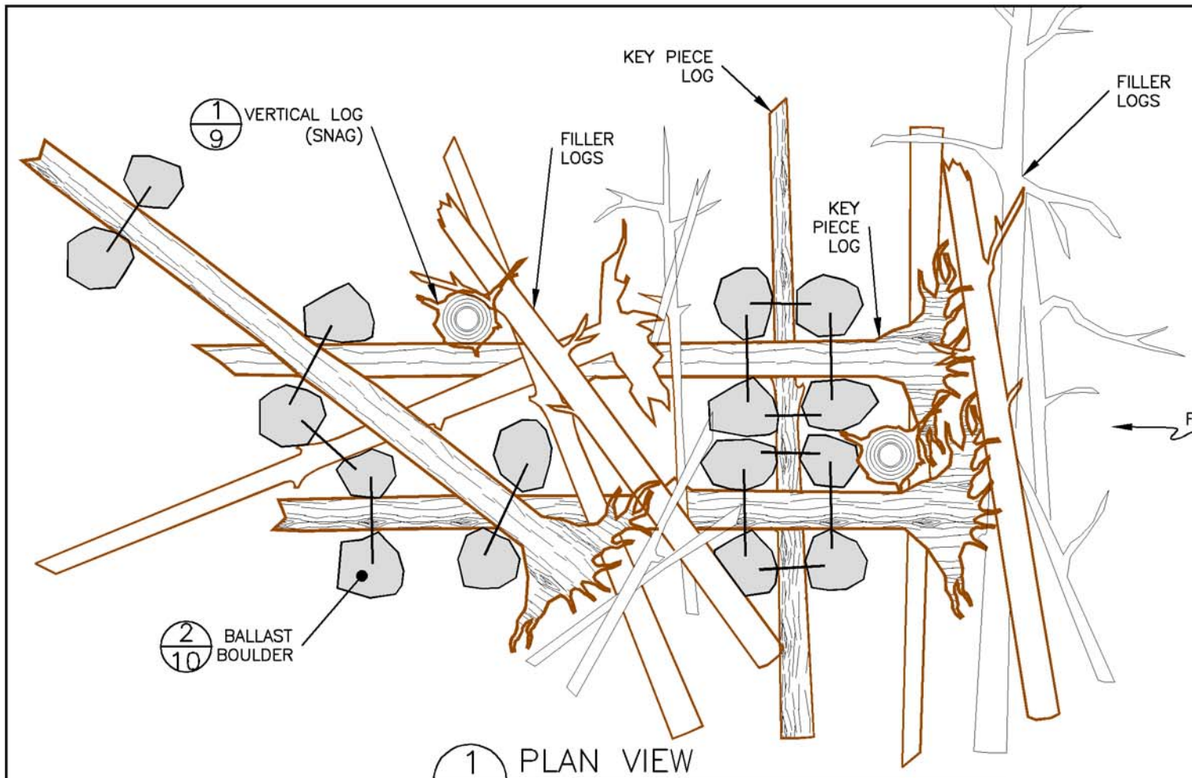
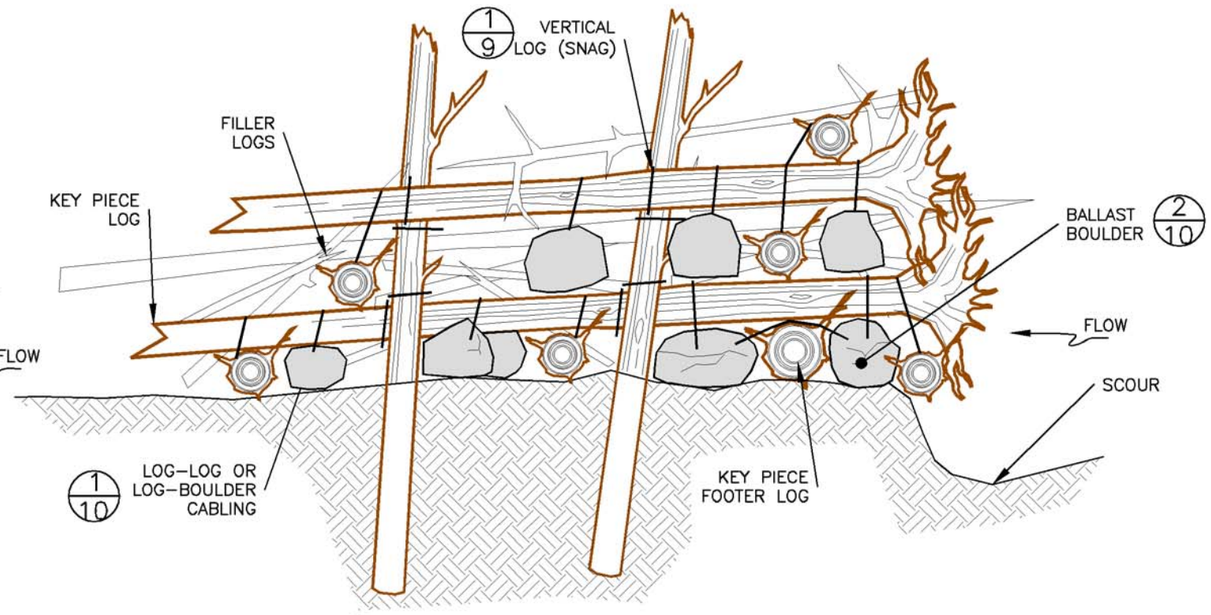


1/8 PLAN VIEW
TYPICAL BAR APEX LOG JAM
NOT TO SCALE

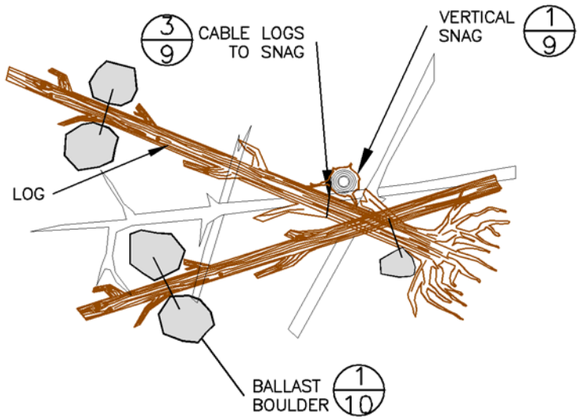


2/8 SECTION VIEW
TYPICAL BAR APEX LOG JAM
NOT TO SCALE

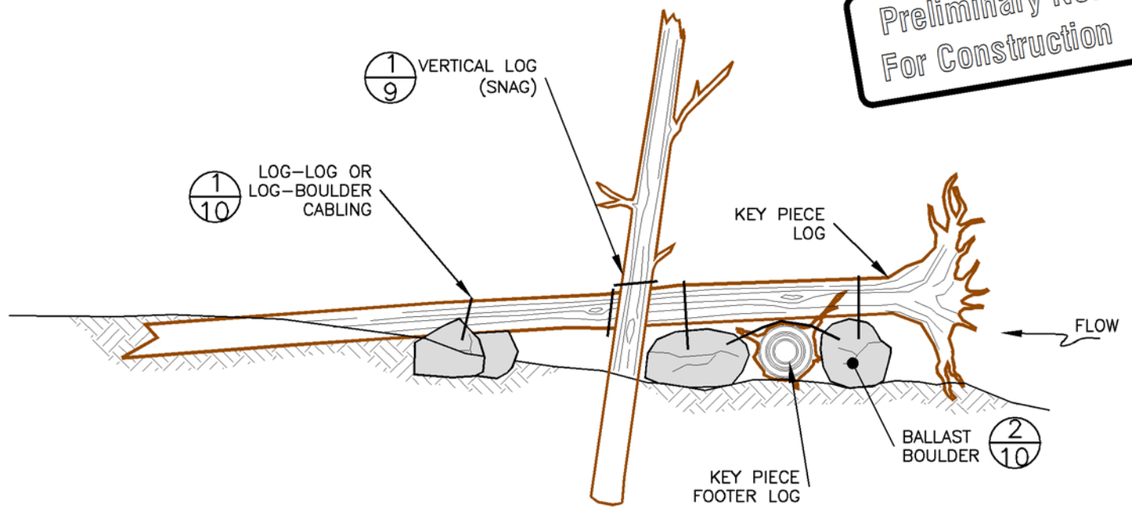
NOTES

SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SIZE AND SHAPE OF MATERIAL DELIVERED OR SALVAGED.

BRACING TO EXISTING TREES OR INSTALLED VERTICAL LOGS WILL OCCUR AT LOCATIONS IDENTIFIED IN THE FIELD TO PROVIDE HORIZONTAL STABILITY. FILLER LOGS AND TREE TOPS WILL BE INSTALLED AT "RACKING" LOCATIONS TO EMULATE NATURAL DEBRIS ACCUMULATIONS AND TO OPTIMIZE FISH HABITAT. THESE PIECES ARE TO BE CONSIDERED MOBILE AND TRANSIENT, AND MAY BECOME LOOSE, DISPLACED, REPLACED, OR ACCUMULATED ONTO DURING FLOODING.



3/8 PLAN VIEW
TYPICAL FLOODPLAIN WOOD
NOT TO SCALE



4/8 SECTION VIEW
TYPICAL FLOODPLAIN WOOD
NOT TO SCALE

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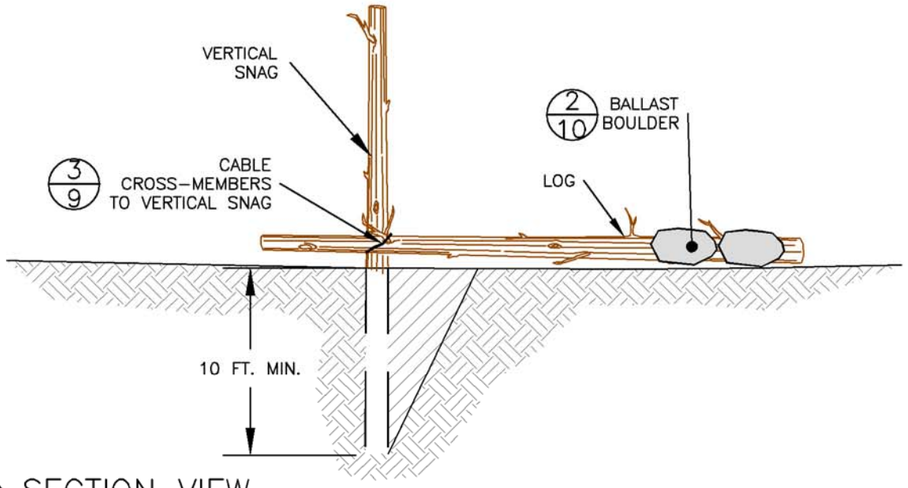
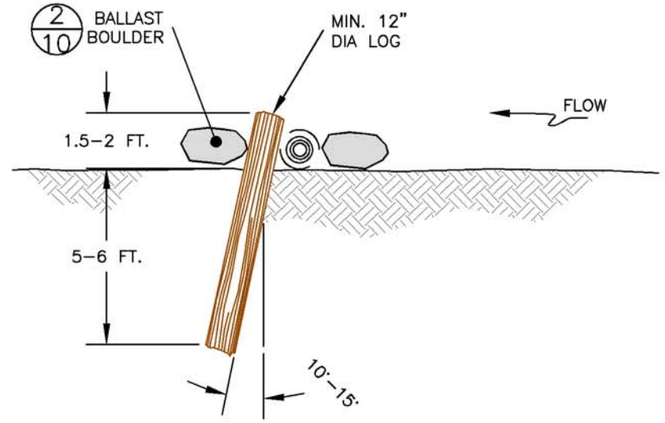


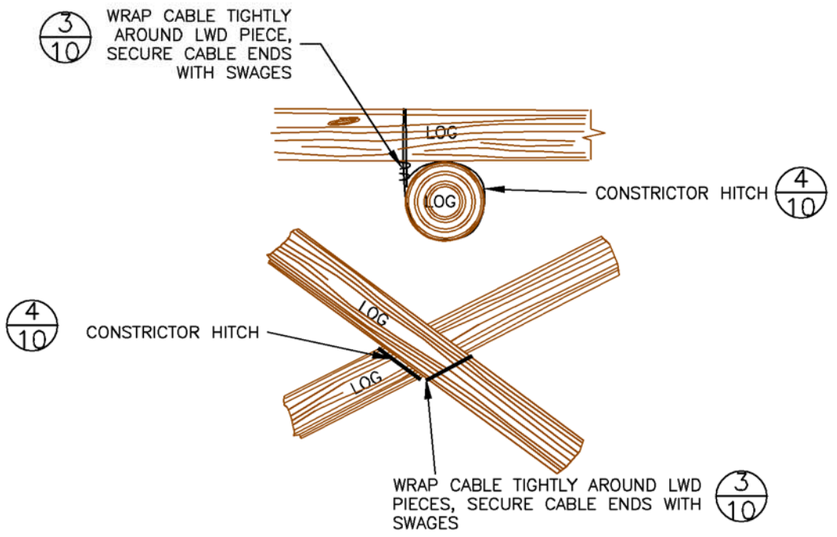
1/9 SECTION VIEW
TYPICAL LOGS SECURED AT VERTICAL SNAG
NOT TO SCALE

CABLING

USE 1/2 INCH GALVANIZED CABLE. CABLE SHALL BE CONSTRICTOR HITCHED AROUND VERTICAL SNAG WRAPPED ONCE AROUND OTHER LOG BEFORE ENDS ARE FASTENED TOGETHER. THERE SHALL BE NO SLACK IN THE CABLE AFTER IT IS FASTENED.



2/9 SECTION VIEW
TYPICAL LWD POST ANCHOR
NOT TO SCALE



3/9 DETAIL VIEWS
TYPICAL LOG CABLING
NOT TO SCALE

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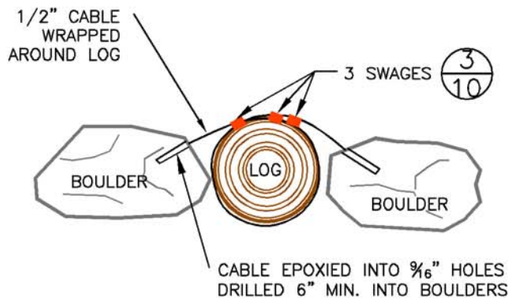
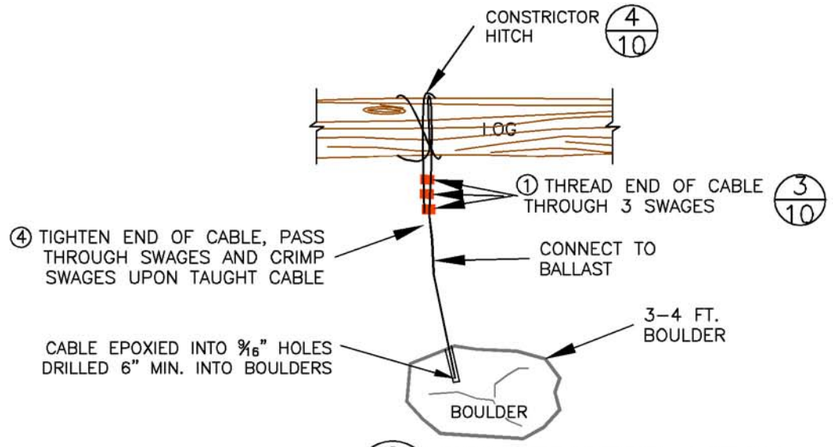
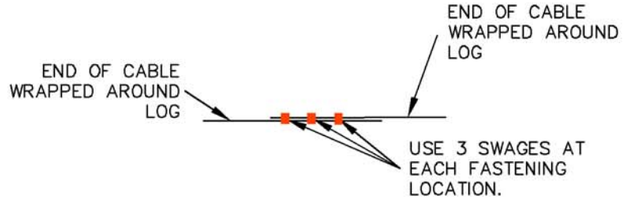
9 OF 12



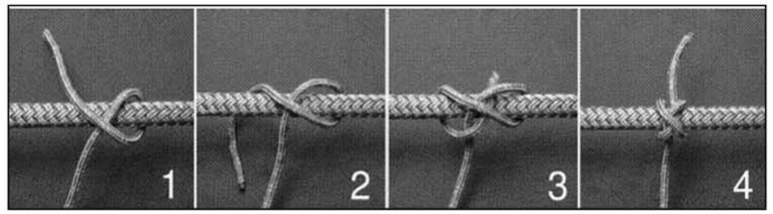
1/10 LWD INSTALLATION DETAILS



2/10 CONSTRICTOR HITCH CABLE WRAP



3/10 SWAGES CABLE SPLICE DETAIL



4/10 CONSTRICTOR HITCH CABLE KNOT DETAIL

Log Wood Buoyancy Force in Pounds	
Assumes Wood Specific Gravity = 0.5	
DBH X Log Length (feet)	Safety Factor 1.5
1 x 30	1104
2 x 30	4416
3 x 30	9935
1 x 40	1472
2 x 40	5887
Additional Root Wad Buoyancy Force in Pounds.	
Estimate Based on 35% Void Space	
Adjust as needed based on void space in each root wad.	
2 X 2 Foot Diameter RW	64
3 X 3 Foot Diameter RW	215
4 X 4 Foot Diameter RW	510
5 X 5 Foot Diameter RW	997
6 X 6 Foot Diameter RW	1722

NOTE:
THE NUMBER OF ANCHOR ROCKS PER ANCHORED LOG STRUCTURE SHALL BE AS SHOWN ON THE TABLES PROVIDED ON THIS SHEET USING APPROPRIATE NUMBER OF BOULDERS AND THE SIZE OF LOGS.

Submerged Boulder Ballast in Pounds. Assumes Rock Density of 2.65 and lift @ 6fps	
Boulder Diameter	Ballast
3 Foot	1289
2 - Boulder Configuration	2579
4 - Boulder Configuration	3868
3.5 Foot	2085
2 - Boulder Configuration	4171
4 - Boulder Configuration	6256
4 Foot	3156
2 - Boulder Configuration	6311
4 - Boulder Configuration	9467

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BOULDER BALLAST AND WOOD CABLING:

BOULDER BALLAST NOTES

DESCRIPTION
THIS WORK CONSISTS OF INSTALLING LOGS WITH ROOT WADS INTO ANCHORED LOG STRUCTURES AS SHOWN ON THE PLANS AND AS DIRECTED BY THE OWNERS REPRESENTATIVE.

MATERIALS
ANCHORS FOR THIS WORK WILL CONSIST OF CABLED BOULDERS. BOULDERS SHALL BE NON–FRACTURED BASALT WITH A MINIMUM SPECIFIC GRAVITY OF 2.65.

CABLE SHALL BE GALVANIZED, STEEL CORE, AND SHALL HAVE A MINIMUM DIAMETER OF 1/2 INCH.

SWAGES SHALL BE ZINC PLATED COPPER AND SHALL MEET THE PERFORMANCE REQUIREMENTS OF MILITARY STANDARD MS–51844, REV. C, SLEEVES, SWAGING–WIRE ROPE. MINIMUM OF 3 SWAGES PER CONNECTION.

EPOXY FOR ANCHORING SHALL BE HILTI HIT RE 500 ADHESIVE OR APPROVED EQUAL.

CONSTRUCTION

FINAL POSITIONING OF THE ANCHORED LOG STRUCTURES SHALL BE IN THE APPROXIMATE LOCATION AS SHOWN ON THE PLANS AND AS APPROVED IN THE FIELD BY THE OWNERS REPRESENATIVE.

GENERAL NOTES , CONT'D

FINAL POSITIONING OF THE ANCHORED LOG STRUCTURES SHALL BE IN THE APPROXIMATE LOCATION AS SHOWN ON THE PLANS AND AS APPROVED IN THE FIELD BY THE OWNERS REPRESENATIVE.

BALLAST BOULDERS SHALL BE SECURED AS SHOWN ON THE PLANS.

DRILL HOLES IN SOLID ROCK AND AVOID ANY CRACKS OR FRACTURES. HOLES SHALL BE 9/16 INCH IN DIAMETER. HOLES MUST BE DRILLED 6 INCHES, MINIMUM, INTO ROCK. HOLES MUST BE CLEANED OF LOOSE ROCK FRAGMENTS AND POWDER WITH A BRUSH AND WATER. HOLES MUST BE CLEAN OF ALL DUST, DEBRIS, OIL, AND SOAP RESIDUES. THE HOLES MUST FLUSH CLEAR TO INSURE NO MATERIAL EXISTS BETWEEN THE CABLE, EPOXY, AND ROCK SURFACE. INSTALL EPOXY PER MANUFACTURER'S RECOMMENDATIONS.

CABLE SHALL BE WRAPPED ONCE AROUND LOG BEFORE ENDS ARE INSERTED INTO THE DRILLED HOLES FILLED WITH EPOXY. WIPE CABLE WITH CLEAN ACETONE SOAKED RAG TO REMOVE OILS AND GREASES PRIOR TO INSERTION INTO EPOXY FILLED HOLE. FILL DRILL HOLES ENOUGH TO ENSURE COMPLETE COVERAGE WITH EPOXY. INSERT CABLE INTO HOLE SO THAT END OF CABLE HITS THE BOTTOM OF THE HOLE. EXCESS EPOXY SHOULD COME OUT OF THE TOP OF THE HOLE AS CABLE IS SEATED IN DRILL HOLE.

MINIMUM 3 SWAGES PER CONNECTION. SWAGES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATION, SPACING AND SWAGE TOOL DIAMETER FOR THE SIZE AND LOAD RATING OF THE CABLE BEING USED. SWAGING TOOL SHALL BE CHECKED FOR PROPER COMPRESSION, ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, USING A GAUGE PROVIDED BY THE MANUFACTURER OF THE SWAGE FITTINGS BEING INSTALLED.

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Lewis River – Eagle Island
Habitat Restoration – Site B
Woodland, Washington

inter·fluve INC.
1020 Wasco Street, Suite I
Hood River, OR 97031
541.386.9003
www.interfluve.com

Typical Details

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THE CONTRACTOR IS ADVISED THAT THE PROJECT AREA DRAINS TO A SALMON BEARING STREAM AND/OR STATE WATERS AND THAT THE CONTRACTOR IS RESPONSIBLE TO PROTECT THE RECEIVING WATERS FROM DELETERIOUS EFFECTS OF CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE EROSION CONTROL MEASURES SHOWN OR DESCRIBED IN THE CONTRACT DOCUMENTS AND ANY ADDITIONAL MEASURES THAT MAY BE REQUIRED BY THE CONTRACTORS MEANS AND METHODS OF CONSTRUCTION AS NEEDED TO CONTROL EROSION AND SEDIMENT AT THE CONSTRUCTION SITE AND TO PREVENT VIOLATION OF SURFACE WATER QUALITY, GROUND WATER QUALITY, OR SEDIMENT MANAGEMENT STANDARDS. EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION AND UNTIL ALL DISTURBED EARTH IS STABILIZED IN FINISH GRADES.

EROSION CONTROL

CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND MAINTAINING ALL NECESSARY EROSION CONTROL FACILITIES TO COMPLY WITH APPLICABLE EROSION CONTROL REGULATIONS.

AN APPROVED EROSION AND SEDIMENT CONTROL (ESC) PLAN IS PROVIDED IN THESE DRAWINGS. THE BID AND CONSTRUCTION CONTRACT ARE BASED UPON IT. THE CONTRACTOR SHALL BE SOLEY RESPONSIBLE FOR PROVIDING EROSION CONTROL MEASURES TO COMPLY WITH APPLICABLE REGULATIONS AND PERMITS.

THE FOLLOWING RECOMMENDATIONS FOR AN ESC PLAN WILL PROVIDE A GUIDELINE FOR THE CONTRACTOR TO DEVELOP AND IMPLEMENT AN ESC PLAN.

A. THE IMPLEMENTATION OF THESE RECOMMENDATIONS FOR AN ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED, AND VEGETATION IS ESTABLISHED.

B. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

C. ESC FACILITIES AS APPROXIMATELY SHOWN ON THIS PLAN ARE TO BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, OR VIOLATE APPLICABLE WATER STANDARDS.

D. THE ESC FACILITIES SHOWN ON THE ESC PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT–LADEN WATER DO NOT LEAVE THE SITE.

E. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

F. FROM OCTOBER 1 – APRIL 30, NO SUBSTANTIALLY UNWORKED SOILS SHALL REMAIN EXPOSED FOR MORE THAN TWO DAYS AT A TIME. FROM MAY 1 – SEPT 30 NO SUBSTANTIALLY UNWORKED SOILS SHALL REMAIN EXPOSED FOR MORE THAN SEVEN DAYS AT A TIME.

SEDIMENT FENCES

1. THE SILT FENCE SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, SILT FENCE SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 12 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST, OR OVERLAP 2'X2" POSTS AND ATTACH AS APPROVED BY THE OWNER'S REPRESENTATIVE.

2. THE SILT FENCE IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE PLAN ALONG THE DOWNHILL PERIMETER OF DISTURBED AREAS. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 4 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 12 INCHES.

3. THE SILT FENCE SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES. ALL EXCAVATED MATERIAL FROM FILTER FABRIC FENCE INSTALLATION SHALL BE BACKFILLED AND COMPACTED, ALONG THE ENTIRE DISTURBED AREA.

4. STANDARD OR HEAVY DUTY SILT FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2' x 2' POST INSTALLATION.

5. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED.

6. SILT FENCES SHALL BE INSPECTED BY THE CONTRACTOR IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.

7. ON PROJECT COMPLETION THE CONTRACTOR SHALL REMOVE ALL SILT FENCES AND TEMPORARY EROSION CONTROL MEASURES FROM THE PROJECT SITE.

INSPECTION AND MAINTENANCE

ALL BEST MANAGEMENT PRACTICES (BMPs) SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL ON–SITE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD.

SEDIMENT MUST BE REMOVED FROM SILT FENCES BEFORE IT REACHES APPROXIMATELY ONE THIRD THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.

STABILIZE SOILS AND PROTECT SLOPES

FROM MAY 1 THROUGH SEPTEMBER 30, ALL EXPOSED SOILS SHALL BE PROTECTED FROM EROSION BY MULCHING, PLASTIC SHEETING, HYDROSEED COVERING, OR OTHER APPROVED MEASURES WITHIN ONE WEEK OF GRADING. FROM OCTOBER 1 THROUGH APRIL 30, ALL EXPOSED SOILS MUST BE PROTECTED WITHIN 2 DAYS OF GRADING. SOILS SHALL BE STABILIZED BEFORE A WORK SHUTDOWN, HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES. HYDROSEED AS SOON AS PRACTICAL ALL DISTURBED AREAS NOT INDICATED IN THE CONTRACT DOCUMENTS FOR OTHER PERMANENT STABILIZATION MEASURES.
DESIGN, CONSTRUCT, AND PHASE CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. REDUCE SLOPE VELOCITIES ON DISTURBED SLOPES BY PROVIDING TEMPORARY BARRIERS. STORMWATER FROM OFF SITE SHOULD BE HANDLED SEPARATELY FROM STORMWATER GENERATED ON SITE.

AFTER FINAL SITE STABILIZATION

ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED FROM THE SITE OR INCORPORATED INTO FINISHED GRADING. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.

CONSTRUCTION ACCESS

PUBLIC RIGHTS–OF–WAY SHALL BE KEPT IN A CLEAN AND SERVICEABLE CONDITION AT ALL TIMES. IN THE EVENT MATERIALS ARE INADVERTENTLY DEPOSITED ON ROADWAYS THE MATERIAL SHALL BE PROMPTLY REMOVED. MATERIALS ARE TO BE SWEPT AND REMOVED PRIOR TO ANY STREET FLUSHING.

SILT FENCE SHALL BE PLACED ALONG ACCESS ROUTES, STOCKPILE AREA, AND DOWNSTREAM OF OUTLET COFFER DAM.

CONTROL POLLUTANTS

CONTRACTOR MUST PREPARE A SPILL PREVENTION CONTROL AND COUNTER MEASURE (SPCC) PLAN AND IMPLEMENT REQUIRED MEASURES TO CONTROL POLLUTANTS. SEE THE SPECIAL PROVISIONS.

ALL POLLUTANT DISCHARGES OTHER THAN SEDIMENT THAT OCCUR ON SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER, GROUNDWATER, OR SOILS TO REMAIN ON SITE.

THE USE OF LIME, FLY ASH, OR OTHER SOIL AMENDMENTS THAT COULD ALTER THE PH OF DISCHARGE WATERS IS PROHIBITED.

SEDIMENT CONTROLS

THE DUFF LAYER, NATIVE TOP SOIL, AND NATURAL VEGETATION SHALL BE RETAINED IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICABLE. THE CONTRACTOR SHALL MARK ALL AREAS WHICH ARE NOT TO BE DISTURBED, INCLUDING SETBACKS, SENSITIVE/CRITICAL AREAS AND THEIR BUFFERS. TREES AND DRAINAGE COURSES NOT TO BE DISTURBED SHALL BE MARKED AND FLAGGED BEFORE CONSTRUCTION ACTIVITIES ARE INITIATED. THESE AREAS SHALL BE PROTECTED BY THE CONTRACTOR WITH BARRIER FENCING AS SHOWN ON THE DRAWING AND AS DIRECTED BY THE ENGINEER WHEN CONSTRUCTION ACTIVITIES ARE INITIATED.

THE CONTRACTOR MAY ELECT TO CONSTRUCT TEMPORARY SEDIMENTATION PONDS, TANKS, OR OTHER FACILITIES AS NECESSARY TO CONTROL RUNOFF AND/OR TO FILTER DEWATERING DISCHARGE.

CONTROL DEWATERING

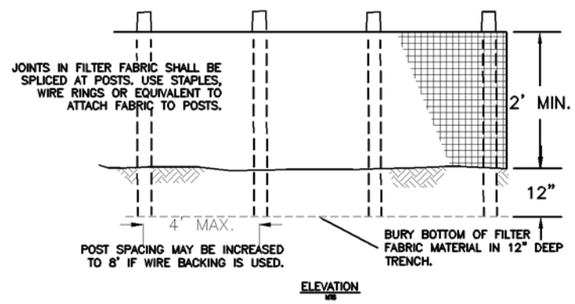
HIGHLY TURBID OR CONTAMINATED DEWATERING WATER FROM CONSTRUCTION EQUIPMENT OPERATION SHALL BE PREVENTED FROM DELIVERING SEDIMENT TO THE RIVER. DISPOSAL OPTIONS FOR DEWATERING DISCHARGE INCLUDE:

1. SEDIMENT–LADEN WATER MAY BE PUMPED TO AN UPLAND AREA AND ALLOWED TO SHEET FLOW OVER UNDISTURBED GROUND THROUGH EXISTING VEGETATION TO INFILTRATE INTO THE GROUND.

2. USE OF AN APPROPRIATELY SIZED AND MAINTAINED SEDIMENTATION BAG (DIRTBAG) OR OTHER SEDIMENTATION FACILITY WITH OUTFALL TO A DITCH OR SWALE FOR SMALL VOLUMES OF LOCALIZED DEWATERING.

NOTES:

1. FENCE SHALL NOT BE INSTALLED ON SLOPES STEEPER THAN 2:1.
2. JOINTS IN FILTER FABRIC SHALL BE OVERLAPPED 12 INCHES AT POST.
3. USE STAPLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC.
4. REMOVE SEDIMENT WHEN IT REACHES 1/3 FENCE HEIGHT.



ELEVATION
NTS

Preliminary Not For Construction

1/11 SILT FENCE DETAIL

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Erosion Control Notes and Details

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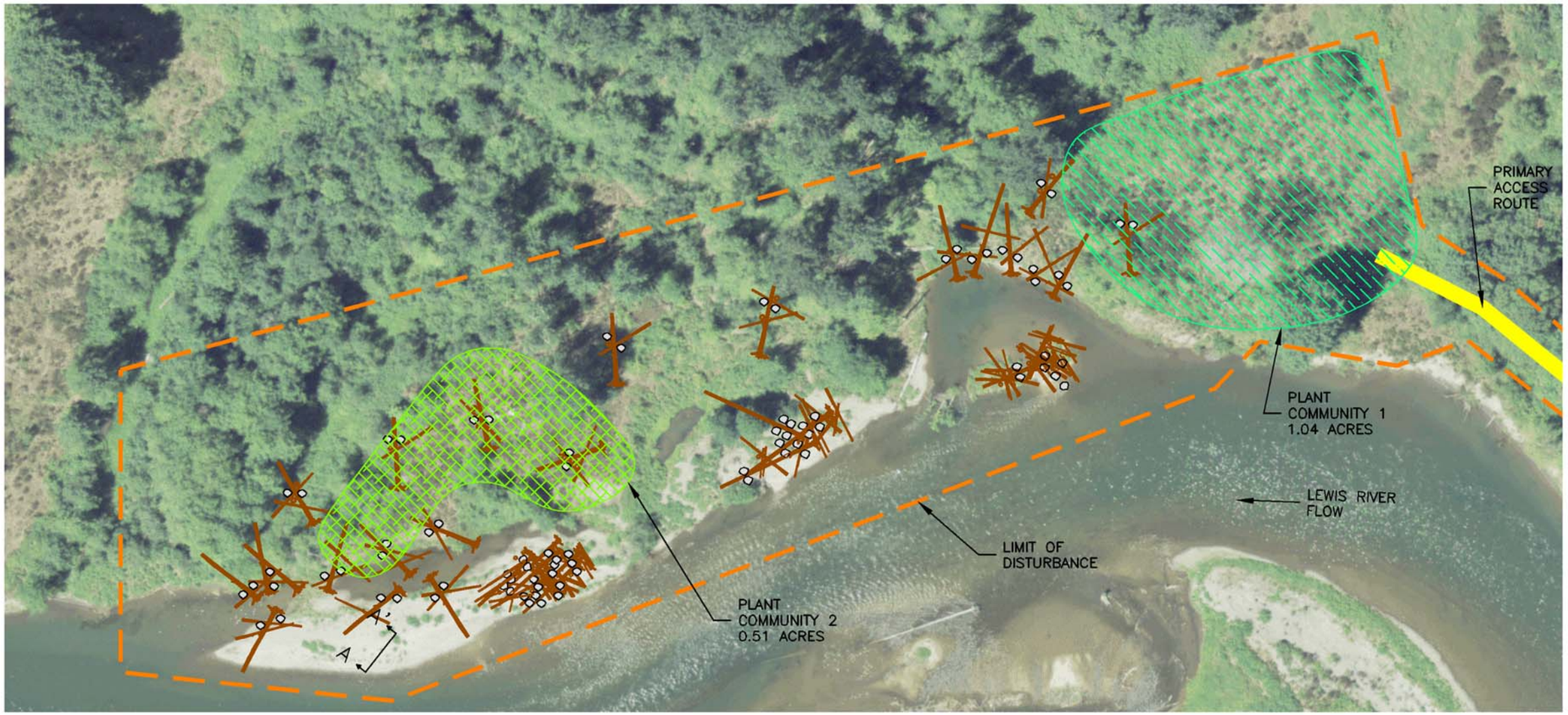

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SCALE IN FEET

LEGEND

- WOOD
- BOULDER BALLAST
- ACCESS ROUTE
- LIMITS OF DISTURBANCE
- PLANT COMMUNITY 1 (1.04 ACRES)
- PLANT COMMUNITY 2 (0.51 ACRES)

PLAN VIEW

Plant Community 1
Upland Restoration Community (1.04 acres)

Common Name	Scientific Name	Plant Form	Minimum Size	Required Number
Trees – approximately 15 foot spacing on center				
Red alder	*Alnus rubra*	Bare root	24"	125
Big leaf maple	*Acer macrophyllum*	Bare root	5 gal/24"	50
Douglas-fir	*Pseudotsuga menziesii*	Bare root	5 gal./24"	50
			Total Trees	225
Shrubs – approximately 5 foot spacing on center				
Evergreen huckleberry	*Vaccinium ovatum*	Bare root	2 gal./24"	375
Beaked hazelnut	*Corylus cornuta*	Bare root	2 gal./24"	275
Snowberry	*Symphoricarpos alba*	Bare root	2 gal./24"	225
			Total Shrubs	875
Seed – Upland mix for staging area restoration – Seed at approximately 20 lbs/ acre				
Blue Wildrye	*Elymus glaucus*	40% of composition by weight		
California brome	*Bromus carinatus*	40% of composition by weight		
Red fescue	*Festuca rubra*	20% of composition by weight		

Plant Community 2
Riparian Tree/Shrub Community (0.51 acres)

Common Name	Scientific Name	Plant Form	Minimum Size	Required Number
Trees – approximately 15 foot spacing on center				
Black cottonwood	*Populus balsamifera*	Bare root	24"	50
Oregon Ash	*Fraxinus latifolia*	Bare root	24"	25
			Total Trees	75
Shrubs – approximately 5 foot spacing on center				
Pacific willow	*Salix lasiandra*	Bare root	36"	175
Sitka willow	*Salix sitchensis*	Bare root	36"	175
Douglas spirgea	*Spiraea douglasii*	Bare root	24"	150
			Total Shrubs	500

NOTE:
SITE ACCESS ROADS AND OTHER DISTURBED AREAS TO BE SEEDED WITH NATIVE EROSION CONTROL SEED MIX.

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Revegetation Plan

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