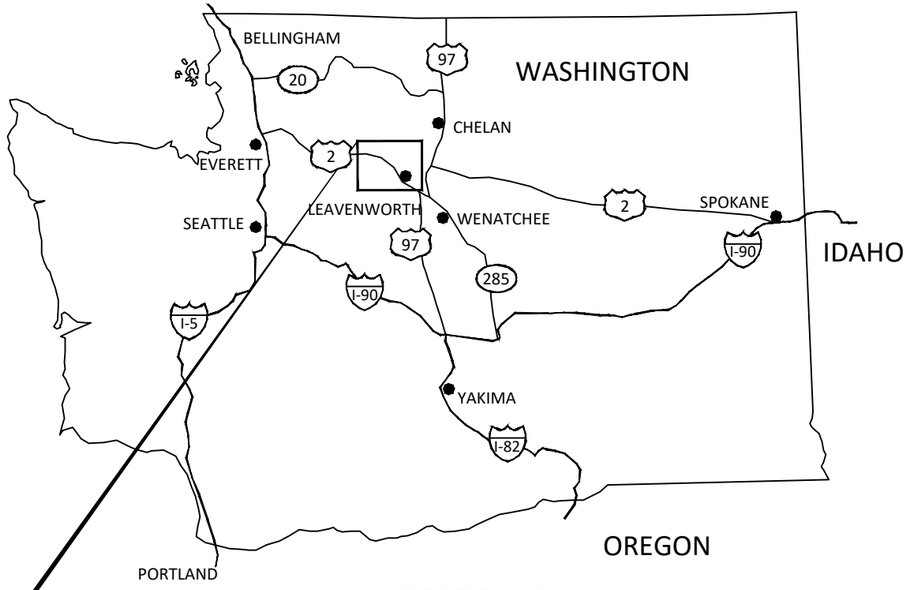
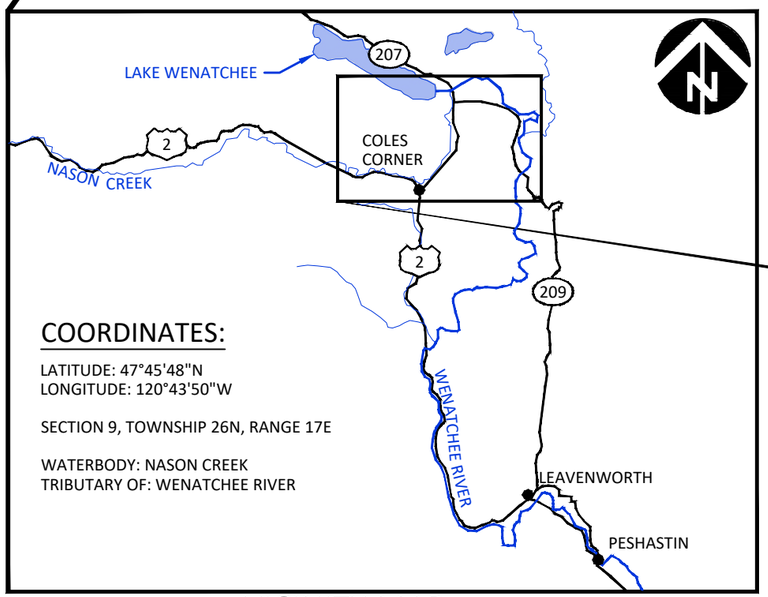
NASON CREEK RM 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 - UPSTREAM STREAM ENHANCEMENT PROJECT
60% DESIGN

CHELAN COUNTY, WA
JANUARY13, 2026



LOCATION MAP
STATE OF WASHINGTON
NOT TO SCALE



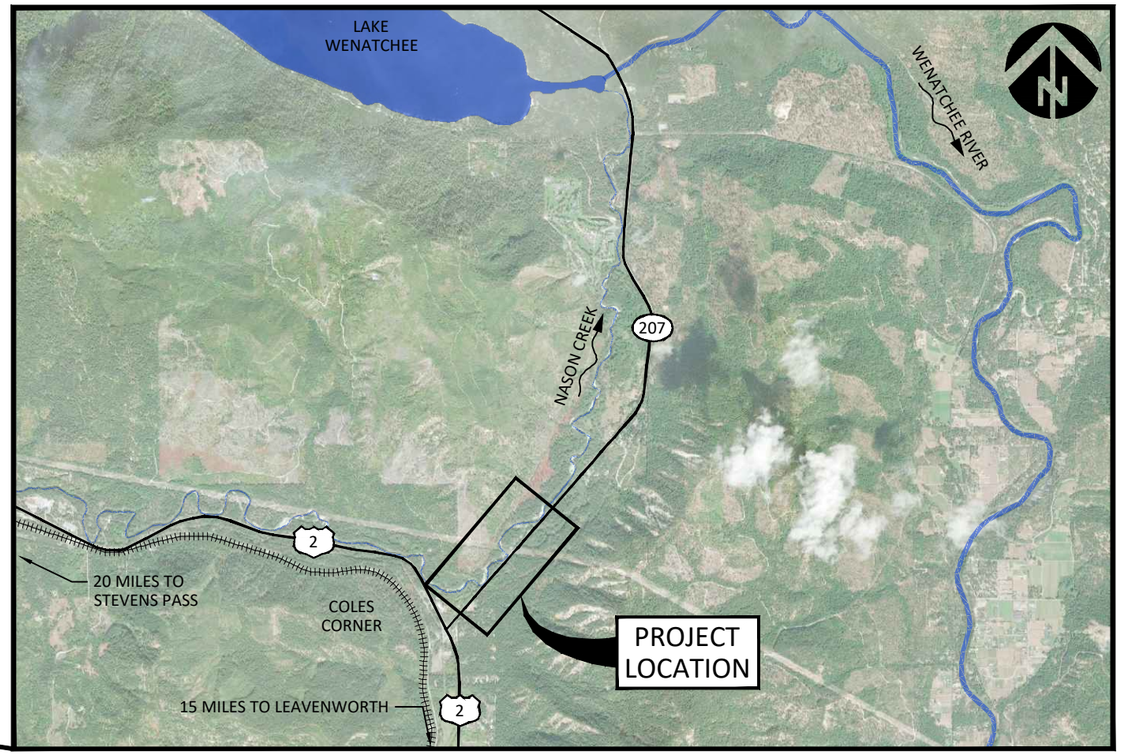
COORDINATES:

LATITUDE: 47°45'48"N
LONGITUDE: 120°43'50"W

SECTION 9, TOWNSHIP 26N, RANGE 17E

WATERBODY: NASON CREEK
TRIBUTARY OF: WENATCHEE RIVER

VICINITY MAP
NOT TO SCALE



SITE MAP
1" = 1 MILE

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Preliminary
Not for Construction

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE BPA HABITAT IMPROVEMENT PROGRAM, PROGRAMMATIC BIOLOGICAL OPINION (HIP IV).

NO.	BY	DATE	REVISION DESCRIPTION

CM DRAWN	DM DESIGNED	DM CHECKED
DM APPROVED	01/13/2026 DATE	200237 PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

interfluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
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Yakama Nation Fisheries
POST OFFICE BOX 151
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COVER, SHEET INDEX & VICINITY MAPS

SHEET 1 OF 31

G:\M-P\Nason_Creek_Floodplain_RM_3.4-4.6_Phase_3_200237\Drawings\IFI_NasonFP_NoRD_C.dwg — cmcconnell — 1/13/26

THE OWNER (YAKAMA NATION UCHRP) WILL PROVIDE A PRE-BID SITE TOUR. THE CONTRACTOR SHALL ATTEND THIS PRE-BID TOUR FOR SITE FAMILIARIZATION AND TO POSE QUESTIONS TO THE OWNER AND OWNER'S REPRESENTATIVE.

THE SELECTED CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH OWNER AND OWNER'S REPRESENTATIVE PRIOR TO MOBILIZING TO SITE AND BEGINNING CONSTRUCTION.

ALL WORK SHALL CONFORM TO THE 2026 EDITION OF STANDARD PLANS AND SPECIFICATIONS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT), AND LOCAL STANDARDS UNLESS INDICATED OTHERWISE BY THE CONTRACT DOCUMENTS. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT SHALL PREVAIL.

IN CASE OF DISCREPANCY, BETWEEN NOTES, LOCAL REGULATIONS, OR OTHER CONTRACT DOCUMENTATION, CONTRACTOR SHALL OBTAIN CLARIFICATION/DIRECTION FROM OWNER.

IN WATER WORK PERIODS

IN WATER WORK SHALL OCCUR DURING THE PERMITTED IN-WATER WORK PERIOD AS STATED IN THE APPLICABLE PERMITS. (JULY 1-31)

FISH RESCUE

ALL FISH RESCUE EFFORTS SHALL BE SUPERVISED BY A QUALIFIED YAKAMA NATION 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 SHALL BE CAREFULLY COLLECTED BY SEINE AND/OR DIP NETS AND PLACED IN CLEAN TRANSFER CONTAINERS WITH ADEQUATE VOLUME OF WATER AND HELD WITHIN NO LONGER THAN 10 MINUTES.

CAPTURED FISHES SHALL BE IMMEDIATELY RELEASED INTO THE RIVER.

CONTRACTOR WILL PROVIDE AGREED UPON ADVANCE NOTICE TO OWNER PRIOR TO FISH RESCUE. CONTRACTOR IS RESPONSIBLE FOR ISOLATING THE CONSTRUCTION LOCATION FROM THE STREAM.

EXISTING DATA

TOPOGRAPHIC DATA WAS COLLECTED BY INTER-FLUVE USING RTK GPS EQUIPMENT ON NOVEMBER 14 & 15, 2018 AND NOVEMBER 2 & 3, 2020. DATA ARE REFERENCED TO NAD83, STATE PLANE, WASHINGTON NORTH, NAVD88, US SURVEY FEET.

2015 LiDAR. 2022 USBR RED/GREEN LiDAR

HYDRAULIC MODELING BY INTER-FLUVE USING USACE HEC-RAS 6.6.

WATERS OF THE U.S.

THE ORDINARY HIGH WATER (OHW) LINES DISPLAYED IN THE DESIGN PACKAGE ARE BASED UPON ANALYSIS, MODELING AND BEST PROFESSIONAL JUDGEMENT.

SOILS

SOILS WITHIN THE PROJECT AREA CONSIST OF BEVERLY FINE SANDY LOAM, BRIEF GRAVELLY SANDY LOAM, ALLUVIAL LAND, RIVERWASH, PEOH SILT LOAM, GODDARD COBBLY FINE SANDY LOAM, AS MAPPED BY NRCS.

HIGHWAY 207 EMBANKMENT MATERIALS

CONTRACTOR SHALL CONDUCT OWN SOILS INVESTIGATIONS AS NEEDED, AT NO ADDITIONAL COST.

WETLANDS

WETLANDS DELINEATIONS WERE COMPLETED BY HAMER ENVIRONMENT (JANUARY 2021, JANUARY 14, 2022) AND TETRATECH (NOVEMBER 2025).

CULTURAL RESOURCES

CULTURAL RESOURCE MONITORING TO BE PROVIDED BY OWNER DURING GROUND DISTURBING ACTIVITIES. THE CONTRACTOR SHALL ACCOMMODATE THE MONITORING PERSONNEL AND COMPLY WITH THEIR DIRECTION RELATIVE TO INTERACTIONS WITH POTENTIAL CULTURAL RESOURCES.

- IF WORK ENCOUNTERS ANY OF THE FOLLOWING CULTURAL RESOURCES:
- NATIVE AMERICAN CULTURAL ARTIFACTS (EXAMPLE: FLAKES, ARROWHEADS, STONE TOOLS, BONE TOOLS, POTTERY, HEARTH FEATURES, ETC)
- HISTORIC ERA ARTIFACTS (EXAMPLE: BUILDING FOUNDATIONS, HOMESTEADS, MINING CAMPS, ETC)
- HUMAN SKELETAL REMAINS AND BONE FRAGMENTS

IMMEDIATELY DISCONTINUE ALL GROUND-DISTURBING ACTIVITY. DO NOT TOUCH OR MOVE THE OBJECTS AND MAINTAIN THE CONFIDENTIALITY OF THE SITE. FOLLOW THE PROCEDURES LISTED IN THE INADVERTENT DISCOVERY PROCEDURE. THEN AWAIT FURTHER DIRECTION FROM THE OWNER'S CULTURAL RESOURCES STAFF.

TREE SALVAGE

ALL SAPLING AND TREES TO BE REMOVED SHALL BE APPROVED AND CLEARLY MARKED BY OWNER OR THEIR CONTRACTED REPRESENTATIVE.

ALL REMOVED NATIVE VEGETATION SHALL BE INCORPORATED INTO LOG STRUCTURES AS DIRECTED BY OWNER OR THEIR CONTRACTED REPRESENTATIVE. IF EXCESS VEGETATION MATERIAL NEEDS DISPOSAL OUTSIDE OF CHANNEL WORK, IT SHALL BE DISTRIBUTED IN DESIGNATED AREAS ON THE FLOODPLAIN OR ON THE FLOODPLAIN AS DIRECTED BY OWNER'S REPRESENTATIVE.

ALL TREES REMOVED WITHIN CLEARING LIMITS SHALL BE REMOVED WHOLE WITH ROOTS INTACT AND UTILIZED IN THE SIDE CHANNEL CONSTRUCTION OR IN MAINSTEM WORK AS DIRECTED BY CONTRACTING AGENT'S REPRESENTATIVE.

REMOVE SOIL FROM ROOTS OF SALVAGED TREES BEFORE PLACEMENT IN THE WATERWAY.

LIVE TREES

ALL TREES NOT MARKED FOR REMOVAL SHALL BE PRESERVED AND UNDISTURBED. CONSTRUCTION ACTIVITY SHALL NOT DEBARK OR DAMAGE LIVE TREES.

KEEP OUT OF DRIP LINE OF ALL PRESERVED EXISTING TREES.

CONTRACTOR'S PLANS

CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL BY THE OWNER PRIOR TO COMMENCING WORK THE FOLLOWING PLANS:

- ACCESS, TRAFFIC CONTROL AND TEMPORARY STREAM CROSSING PLAN
- STOCKPILE AND STAGING PLAN
- CONSTRUCTION SEQUENCING PLAN
- STREAM DIVERSION AND SITE DEWATERING PLAN
- EROSION, SEDIMENT AND DUST CONTROL PLAN
- EARTHWORKS EXCAVATION, PLACEMENT, SALVAGE & REUSE, AND DISPOSAL PLAN

DESIGNS BY OTHERS

PHASE 1 HIGHWAY 207 RELOCATION IS DESIGNED BY PERTEET.

REVEGETATION OF DISTURBED AREAS WILL BE DESIGNED BY OTHERS

UTILITIES

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

THE CONTRACTOR SHALL CALL (800-424-5555 OR 811) FOR UTILITY LOCATE PRIOR TO CONSTRUCTION

THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE AFFECTED UTILITY SERVICE TO REPORT ANY DAMAGED OR DESTROYED UTILITIES.

THE CONTRACTOR SHALL PROVIDE EQUIPMENT AND LABOR TO AID THE AFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED UTILITIES AT NO ADDITIONAL COST.

EXISTING UTILITIES WILL BE DECOMMISSIONED AND REMOVED/ABANDONED IN PHASE 1.

CONTRACTOR SHALL REMOVE AND DISPOSE OF ABANDONED UTILITIES THAT ARE LOCATED WITH IN PROPOSED WORK AREAS.

CONSTRUCTION STAKING

OWNER'S REPRESENTATIVE WILL PROVIDE ELEVATION CONTROL POINTS.

CONTRACTOR SHALL MEET WITH THE OWNER AND OWNER'S REPRESENTATIVE TO DEFINE AND MARK LIMITS OF DISTURBANCE PRIOR TO MOBILIZATION OF EQUIPMENT OR MATERIALS ONTO THE SITE.

CONTRACTOR SHALL STAKE PROJECT LIMITS AND GRADE STAKES BASED ON PROJECT ELEVATION CONTROL POINTS. THE CONTRACTOR SHALL REPLACE DAMAGED OR DESTROYED CONSTRUCTION STAKES AT NO ADDITIONAL COST.

CONTRACTOR SHALL COORDINATE WITH ENGINEER FOR INITIAL AND PERIODIC CHECKING OF CONTRACTOR'S STAKEOUT. SOME FIELD ADJUSTMENTS TO THE LINES AND GRADES ARE TO BE EXPECTED.

CONSTRUCTION MATERIALS

OWNER PROVIDED LOGS, LOGS WITH ROOTWADS AND LOG PILES WILL BE LOCATED IN A DESIGNATED STOCKPILE/STAGING AREA. CONTRACTOR SHALL HAUL WOOD FROM STAGING AREA AND INSTALL PER PLANS. CONTRACTOR SHALL PROCURE, PROVIDE AND PLACE SLASH MATERIALS.

LOCATION, ALIGNMENT, AND ELEVATION OF LOGS AND LOGS WITH ROOTWADS ARE SUBJECT TO ADJUSTMENT BASED ON FIELD CONDITIONS AND MATERIAL SIZE, PER DIRECTION BY OWNER OR OWNER'S REPRESENTATIVE.

ANY EXCESS CONSTRUCTION MATERIALS SHALL BE NEATLY STORED AT AN APPROVED STAGING LOCATION. UPON COMPLETION OF THE PROJECT ANY EXCESS MATERIALS, WITH THE EXCEPTION OF ANY LARGE WOODY MATERIAL (LWM), WILL BECOME THE PROPERTY OF THE CONTRACTOR AND HAULED OFFSITE IN A TIMELY MANNER AND LEGALLY DISPOSED OF.

CONTRACTOR SHALL HAUL EXCESS LWM AND PLACE IN OWNER PROVIDED STOCKPILE AREA AT NO ADDITIONAL COST.

PHASE 1 CONSTRUCTION WILL INCLUDE RELOCATING HIGHWAY 207 ROADWAY AND UTILITIES, DECOMMISSIONING AND REMOVAL OF UTILITIES.

EXISTING HIGHWAY 207 EMBANKMENT TO BE ABANDONED WILL BE REMOVED IN THIS PHASE 2 WORK.

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN	DESIGNED	CHECKED
CM, NS	DM	DM
APPROVED	DATE	PROJECT
DM	01/13/2026	200237

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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GENERAL NOTES (1 OF 2)

SHEET
2 OF 31

CONSTRUCTION ACCESS/TRAFFIC CONTROL

CONTRACTOR SHALL SUBMIT AN ACCESS, STAGING, AND STOCKPILE PLAN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO MOBILIZATION.

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

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DEVELOPING A TRAFFIC CONTROL PLAN ACCEPTABLE TO CHELAN COUNTY AND WSDOT AND SUBMIT TRAFFIC CONTROL PLAN TO THE OWNER A MINIMUM OF 30 DAYS PRIOR TO WORK.

CONTRACTOR SHALL IMPLEMENT MEASURES TO CONTROL AND MINIMIZE WIND BLOWN DUST FROM THE SITE AND ACCESS ROUTES.

AT PROJECT COMPLETION, ROADS AND ACCESS ROUTES SHALL BE CLEANED, GRADED, AND RESURFACED TO PRE-PROJECT CONDITION PER WASHINGTON DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATION OR USFS STANDARDS PER JURISDICTION. WORK SHALL BE INCIDENTAL TO MOBILIZATION/DEMOBILIZATION.

ALL DISTURBED AREAS INCLUDING, BUT NOT LIMITED TO: ROADS, DRIVEWAYS, TEMPORARY ACCESS ROUTES, STAGING AREAS AND STRUCTURE LOCATIONS SHALL BE RESTORED TO PRE-PROJECT CONDITION OR BETTER. THIS WILL INCLUDE, BUT IS NOT LIMITED TO ANY GRADING/BLADING OF DISTURBED AREAS AS WELL AS REMOVAL OF ANY TRASH AND DEBRIS. THE OWNER'S REPRESENTATIVE WILL CONDUCT A FINAL WALK THROUGH WITH THE CONTRACTOR PRIOR TO DEMOBILIZATION.

CONTRACTOR SHALL SEED AND MULCH ALL DISTURBED SURFACES EXCEPT CHANNEL BETWEEN TOPS OF BANK AND EXISTING GRAVEL ROADS.

ALL DISTURBED AREAS OUTSIDE THE LIMITS OF DISTURBANCE SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AT NO ADDITIONAL COST.

EROSION CONTROL

CONTRACTOR SHALL BE SOLELY RESPONSIBLE AT OWN EXPENSE FOR PROVIDING AND MAINTAINING ALL NECESSARY EROSION CONTROL FACILITIES TO COMPLY WITH APPLICABLE EROSION CONTROL REGULATIONS AND TO MAINTAIN CLEAN ACCESS ROUTES.

EROSION/SEDIMENTATION CONTROL (ESC) PLAN

THE EROSION AND SEDIMENT CONTROL (ESC) PLAN PROVIDED IS FOR INFORMATIONAL PURPOSES ONLY, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING EROSION CONTROL MEASURES TO COMPLY WITH APPLICABLE REGULATIONS.

THE RECOMMENDATIONS FOR AN ESC PLAN INCLUDED HEREIN WILL PROVIDE GUIDELINES FOR THE CONTRACTOR TO DEVELOP AND IMPLEMENT AN ESC PLAN. THE CONTRACTOR'S ESC PLAN SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL 30 DAYS PRIOR TO MOBILIZATION. ESC MEASURES SHALL BE IN PLACE PRIOR TO GROUND DISTURBANCE.

A. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED AT NO ADDITIONAL COST FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

B. THE IMPLEMENTATION OF 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/LANDSCAPING IS ESTABLISHED.

C. THE ESC FACILITIES ARE TO BE CONSTRUCTED PRIOR TO CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM.

D. 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.

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

F. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.

G. STABILIZED CONSTRUCTION ENTRANCES AND ADDITIONAL MEASURES MAY BE REQUIRED AND SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT AT CONTRACTOR'S EXPENSE.

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 THREE DAYS 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. MULCH AS SOON AS PRACTICAL ALL DISTURBED AREAS NOT INDICATED IN THE CONTRACT DOCUMENTS FOR OTHER PERMANENT STABILIZATION MEASURES. HAY, STRAW, AND MULCH USED ON SITE MUST BE 99.9% WEED-FREE.

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.

INVASIVE SPECIES CONTROL

THE FOLLOWING MEASURES WILL BE FOLLOWED TO AVOID INTRODUCTION OF INVASIVE PLANTS AND NOXIOUS WEEDS INTO PROJECT AREAS:

1. 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.

DUST CONTROL

THE CONTRACTOR SHALL CONTROL DUST FOR THE DURATION OF THE PROJECT. CONTROL MEASURES SHALL BE IN ACCORDANCE WITH APPLICABLE REGULATIONS, AND MAY INCLUDE WATERING, MULCH, AND SLOWER VEHICLE SPEEDS.

CONSTRUCTION DEWATERING

CONTRACTOR SHALL PERFORM CONSTRUCTION DEWATERING IN SUCH A MANNER AS TO AVOID THE RELEASE OF TURBID OR SEDIMENT-LADEN WATER IN ORDER TO PREVENT CONTAMINATION OR INCREASE TURBIDITY OF SURFACE WATERS. EXCAVATION OF DEWATERING SUMPS BEYOND LIMITS SHOWN SHALL BE AT NO ADDITIONAL COST. SEDIMENT LADEN WATER MAY BE PUMPED TO AN UPLAND DISCHARGE LOCATION AND ALLOWED TO SHEET FLOW THROUGH EXISTING VEGETATION BEFORE INFILTRATING INTO THE GROUND. IF THIS METHOD IS NOT SUFFICIENT TO PREVENT RETURN OF TURBID WATER TO SURFACE WATERS OR SENSITIVE FLOODPLAIN AREAS, A 'DIRT-BAG' OR SEDIMENT RETENTION STRUCTURE MAY BE REQUIRED AS NECESSARY TO COMPLY WITH LAWS AND PERMIT REQUIREMENTS AT NO ADDITIONAL COST. CONTRACTOR SHALL PROVIDE, OPERATE, AND MAINTAIN NUMBER AND SIZE OF PUMPS AS NECESSARY TO ACHIEVE DEWATERING NEEDS. AT A MINIMUM, CONTRACTOR SHALL PROVIDE A 6" DRI-PRIME DIESEL POWERED PUMP AND A PORTABLE 2" PUMP. ADDITIONAL PUMPS AND OF DIFFERENT CAPACITIES MAY BE REQUIRED AT CONTRACTOR'S EXPENSE.

OWNER, OR REPRESENTATIVE SHALL APPROVE DEWATERING DISCHARGE LOCATION PRIOR TO IMPLEMENTATION.

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. THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING MEASURES:

1. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES SHALL BE AVAILABLE ON-SITE.
2. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES SHALL BE POSTED AT THE WORK SITE.
3. SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE SHALL BE AVAILABLE AT THE WORK SITE.
4. WORKERS SHALL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND SHALL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
5. ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS SHALL 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.
6. VEGETABLE BASED HYDRAULIC FLUIDS (BIODEGRADABLE OIL) SHALL BE USED IN ANY VEHICLE THAT WILL BE OPERATED NEAR THE WATER.

INSPECTION AND MAINTENANCE

ALL ESC FACILITIES SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL ESC FACILITIES SHALL BE INSPECTED DAILY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND AFTER EVENTS EXCEEDING 2 HOURS DURATION.

CONTRACTOR'S ESC RECORD

WEEKLY REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN, AND ACTIONS TAKEN AS A RESULT OF THESE INSPECTIONS SHALL BE PREPARED AND RETAINED ON SITE BY THE CONTRACTOR. IN ADDITION, A RECORD OF THE FOLLOWING DATES SHALL BE INCLUDED IN THE REPORTS:

1. WHEN MAJOR GRADING ACTIVITIES OCCUR,

2. DATES OF RAINFALL EVENTS EITHER EXCEEDING 2 HOURS DURATION OR MORE THAN 0.5 INCHES/24 HOURS,

3. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON SITE, OR ON A PORTION OF THE SITE,

4. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE. ESC RECORDS SHALL BE MADE AVAILABLE TO THE OWNER AND OWNER'S REPRESENTATIVE ON REQUEST AND SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO APPLICATION FOR PAYMENT.

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

CM, NS	DM	DM
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DM	01/13/2026	200237
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YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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GENERAL NOTES (2 OF 2)

SHEET
3 OF 31

QUANTITIES ESTIMATE - LARGE WOOD STRUCTURES

Location	Structure	ID code	quantity	units	Item: size:	Log w/RW 18"dbh x 40'	Surface single log 18"dbh x 40'	Log pile 16" dbh x 20'	Slash dense bundle: 4' diameter x 12' long	Tipped/ Salvaged tree	Total earthworks per each: Excavation (CY)	Backfill (CY)
Phase 2 - River Left												
	Apex jams	Apex	2	ea		14		7	4		300	300
	Bar roughness wood structures	BR	5	ea		5		5			50	50
	FP roughness logs	FP	4	ea		1						
	Tipped trees	TT	4	ea						1		
	Phase 2 RL subtotal = Sum [(# of structures) * (Qty per structure)]					57	0	39	8	4	850	850
Phase 2 - River Right												
	Apex jams	Apex	4	ea		14		7	4		300	300
	Bank buried jam	BB	3	ea		9			4	2	300	300
	Bank buried jam w/trees	BB	2	ea		9		4	4	6	300	300
	Small bank buried jam	SM-BB	9	ea		2		2	2	1	40	40
	Bank margin wood	M	7	ea		7		12	3	3	50	50
	Bar roughness wood structures	BR	12	ea		5		5	1		42	42
	BR and SM-BB racking wood	RW	4	ea		6		7		2	42	42
	CED3 Bank barb structure	CED3	4	ea		12	1	14	3	6	0	590
	Deflector jam	DFL	3	ea		2		9	2		0	0
	Inlet structure	Inlet	2	ea		14		6	6		290	290
	low flow channel floodplain roughness LW	LFFP	11	ea		7		8	1		70	70
	low flow channel habitat cover logs	LFHC	11	ea		3		1	1		28	28
	low flow channel floodplain roughness log	LFRL	18	ea		3		2			28	28
	FP roughness logs	FP	9	ea		1						
	Phase 2 RR subtotal = Sum [(# of structures) * (Qty per structure)]					507	4	456	139	80	6244	8604
	Phase 2 Total = (RR + RL subtotals)					564	4	495	147	84	7094	9454

QUANTITIES ESTIMATE - EARTHWORKS

Item	Description	Quantity	Units	Notes
River Right project components				
	CED-1 & 2 Riprap removal and salvage	700	CY	Approximately 225+250LF x 3ft thick x 12ft high, plus barbs
	CED-1 & 2 Road embankment removal, low flow channel and wetland creation excavation and off site disposal	29300	CY	CADD volume
	CED-1 Mainstem Meander excavation	2950	CY	CADD volume minus volume of riprap removal
	CED-1 Mainstem Meander gravel bar alluvial material fill	2330	CY	CADD volume
	CED-1 Inlet swale	82	CY	CADD volume
	CED-3 Mainstem Meander gravel bar alluvial material excavation	1850	CY	CADD volume
	CED-2 bank revetment for Phase 1 road	1050	CY	42" thick Class B stone; approximately 400ft long

NOTES:

1. ESTIMATED MATERIAL VOLUMES ARE IN-PLACE QUANTITIES AND NOT FACTORED FOR EXPANSION OF EXCAVATED MATERIAL OR COMPACTION OF PLACED MATERIAL. MEASUREMENT AND PAYMENT SHALL NOT BE BASED ON WEIGHT TICKETS OR TRUCK MEASURE

2. PLANTING PLAN AND REVEGETATION ARE DESIGNED BY OTHERS.

ABBREVIATIONS

APPROX	APPROXIMATE
BMP	BEST MANAGEMENT PRACTICE
CY	CUBIC YARDS
°	DEGREE
DBH	DIAMETER AT BREAST HEIGHT
DIA	DIAMETER
EA	EACH
ELEV	ELEVATION
ESC	EROSION AND SEDIMENT CONTROL
' or FT	FOOT
GIS	GEOGRAPHIC INFORMATION SYSTEM
HWY	HIGHWAY
" or IN	INCH
LWM	LARGE WOODY MATERIAL
LWS	LARGE WOOD STRUCTURE
LS	LUMP SUM
MAX	MAXIMUM
MIN	MINIMUM
MP	MILEPOST
MSF	THOUSAND SQUARE FEET
NAD 83	NORTH AMERICAN DATUM OF 1983
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988
NRCS	NATURAL RESOURCES CONSERVATION SERVICE
OHW	ORDINARY HIGH WATER
OLW	ORDINARY LOW WATER
%	PERCENT
LBS	POUNDS
RD	ROAD
RM	RIVER MILE
RTK GPS SYSTEM	REAL TIME KINEMATIC GLOBAL POSITIONING
STA	STATION
TBM	TEMPORARY BENCHMARK
TYP	TYPICAL
US	UNITED STATES
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
USFS	UNITED STATES FOREST SERVICE
WDFW WILDLIFE	WASHINGTON DEPARTMENT OF FISH AND
WSDOT TRANSPORTATION	WASHINGTON STATE DEPARTMENT OF

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

DRAWN	DESIGNED	CHECKED
CM, NS	DM	DM
APPROVED	DATE	PROJECT
DM	01/13/2026	200237

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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QUANTITIES ESTIMATES, & ABREVIATIONS

SHEET 4 OF 31

PERMITTING QUANTITIES

Sheet	structure	cofferdam		existing OHW impact		Wetland impact	
		L (ft)	Area (s.f.)	Cut (cy)	Fill (cy)	Area (s.f.)	Type (T/P)
14	BR-1	n/a	0	0	0	0	n/a
	BR-2	n/a	0	0	0	0	n/a
	BR-3	n/a	0	20	20	0	n/a
	TT-1	n/a	0	0	0	0	n/a
	TT-2	n/a	0	0	0	0	n/a
	TT-3	n/a	0	0	0	0	n/a
	TT-4	n/a	0	0	0	0	n/a
	FP-1	n/a	0	0	0	0	n/a
	FP-2	n/a	0	0	0	0	n/a
	FP-3	n/a	0	0	0	0	n/a
	FP-4	n/a	0	0	0	0	n/a
	BR-4	n/a	0	35	35	0	n/a
	BR-5	n/a	0	0	0	0	n/a
	BR-6	n/a	0	50	50	0	n/a
	BR-7	n/a	0	25	25	0	n/a
	BR-8	n/a	0	50	50	0	n/a
	BR-9	n/a	0	25	25	0	n/a
	BR-10	n/a	0	0	0	0	n/a
	BR-11	n/a	0	5	5	0	n/a
	Apex-1	87	1025	100	100	0	n/a
	M-1	n/a	0	0	0	0	n/a
	Inlet-1	n/a	0	0	0	1083	permanent
	BB-1	n/a	0	0	0	914	permanent
	BB-2	n/a	0	0	0	369	permanent
	BB-3	n/a	0	0	0	0	n/a
	BB-4	n/a	0	0	0	0	n/a
	Apex-2	80	970	60	60	0	n/a
	LFRL-1	n/a	0	0	0	0	n/a
	LFRL-2	n/a	0	0	0	0	n/a
	LFHC-1	n/a	0	0	0	0	n/a
	LFRL-3	n/a	0	0	0	0	n/a
	LFFP-1	n/a	0	0	0	0	n/a
	LFFP-2	n/a	0	0	0	0	n/a
	LFRL-4	n/a	0	0	0	0	n/a
	LFHC-2	n/a	0	0	0	0	n/a
	LFRL-5	n/a	0	0	0	0	n/a
	LFFP-3	n/a	0	0	0	0	n/a
	LFFP-4	n/a	0	0	0	0	n/a
	LFHC-3	n/a	0	0	0	0	n/a
	LFRL-6	n/a	0	0	0	0	n/a
	LFHC-4	n/a	0	0	0	0	n/a
	LFRL-7	n/a	0	0	0	0	n/a
	LFHC-5	n/a	0	0	0	0	n/a
	LFHC-6	n/a	0	0	0	0	n/a

Sheet	structure	cofferdam		existing OHW impact		Wetland impact	
		L (ft)	Area (s.f.)	Cut (cy)	Fill (cy)	Area (s.f.)	Type (T/P)
15	BR-12	n/a	0	25	25	0	n/a
	BR-13	n/a	0	3	3	0	n/a
	Apex-3	142	2555	300	300	0	0
	BB-5	59	411	10	10	0	0
	BR-14	n/a	0	8	8	0	n/a
	Inlet-2	61	403	0	0	0	0
	BR-15	n/a	0	0	0	0	n/a
	SM_BB-1	68	449	0	0	0	n/a
	SM_BB-2	60	505	0	0	0	n/a
	BR-16	n/a	0	0	0	0	n/a
	BR-17	n/a	0	0	0	0	n/a
	Apex-4	88	966	75	75	0	n/a
	Apex-5	119	2011	75	75	0	n/a
	Apex-6	72	703	30	30	0	n/a
	LFRL-8	n/a	0	0	0	0	n/a
	LFHC-7	n/a	0	0	0	0	n/a
	LFHC-8	n/a	0	0	0	0	n/a
	LFRL-9	n/a	0	0	0	0	n/a
	LFHC-9	n/a	0	0	0	0	n/a
	LFRL-10	n/a	0	0	0	0	n/a
	LFHC-10	n/a	0	0	0	0	n/a
	LFRL-11	n/a	0	0	0	0	n/a
	LFFP-5	n/a	0	0	0	0	n/a
	LFRL-12	n/a	0	0	0	0	n/a
	LFHC-11	n/a	0	0	0	0	n/a
	LFRL-13	n/a	0	0	0	0	n/a
	LFRL-14	n/a	0	0	0	0	n/a
	LFRL-15	n/a	0	0	0	0	n/a
	LFRL-16	n/a	0	0	0	0	n/a
	LFRL-17	n/a	0	0	0	0	n/a
	LFRL-18	n/a	0	0	0	0	n/a
	LFFP-6	n/a	0	0	0	0	n/a
	LFFP-7	n/a	0	0	0	0	n/a
	LFFP-8	n/a	0	0	0	0	n/a
	LFFP-9	n/a	0	0	0	0	n/a
	LFFP-10	n/a	0	0	0	0	n/a
	LFFP-11	n/a	0	0	0	0	n/a
16	SM_BB-3	n/a	0	0	0	1218	permanent
	SM_BB-4	n/a	0	0	0	1649	permanent
	SM_BB-5	n/a	0	0	0	414	permanent
	SM_BB-6	n/a	0	0	0	336	permanent
	SM_BB-7	n/a	0	0	0	441	permanent
	SM_BB-8	n/a	0	0	0	336	permanent
	SM_BB-9	n/a	0	0	0	485	permanent
17	DFL-1	n/a	0	0	0	0	0
	M-2	116	1754	50	50	0	0
	M-3	155	3241	50	50	0	0
	DFL-2	n/a	0	0	0	0	0
	M-4	n/a	0	0	0	0	0
	M-5	109	1570	0	0	0	0
	M-6	n/a	0	0	0	0	0
	DFL-3	n/a	0	0	0	0	0
	M-7	112	1707	0	0	0	0

Preliminary
Not for Construction

G:\M—P\Nason_Creek_Floodplain_RM_3.4-4.6_Phase_3_200237\Drawings\IFI_NasonFP_NoRD_G.dwg — cmcconnell — 1/13/26

NO.	BY	DATE	REVISION DESCRIPTION

CM, NS	DM	DM
DRAWN	DESIGNED	CHECKED
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PERMITTING QUANTITIES

SHEET
5 OF 31

HIP IV GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS

THE ACTIVITIES COVERED UNDER THE HIP ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO ESA-LISTED SPECIES. THE FOLLOWING GENERAL CONSERVATION MEASURES (DEVELOPED IN COORDINATION WITH USFWS AND NMFS) WILL BE APPLIED TO ALL ACTIONS OF THIS PROJECT.

PROJECT DESIGN AND SITE PREPARATION.

1. STATE AND FEDERAL PERMITS.

A. ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION.

B. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, USACE CLEAN WATER ACT (CWA) 404 PERMITS, CWA SECTION 401 WATER QUALITY CERTIFICATIONS, AND FEMA NO-RISE ANALYSES.

2. TIMING OF IN-WATER WORK.

A. APPROPRIATE STATE (OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW), WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW), IDAHO DEPARTMENT OF FISH AND GAME (IDFG), AND MONTANA FISH WILDLIFE AND PARKS (MFWP)) GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.

B. CHANGES TO ESTABLISHED WORK WINDOWS WILL BE APPROVED BY REGIONAL STATE BIOLOGISTS AND BPA'S EC LEAD.

C. BULL TROUT. FOR AREAS WITH DESIGNATED IN-WATER WORK WINDOWS FOR BULL TROUT OR AREAS KNOWN TO HAVE BULL TROUT, PROJECT PROPONENTS WILL CONTACT THE APPROPRIATE USFWS FIELD OFFICE TO INSURE THAT ALL REASONABLE IMPLEMENTATION MEASURES ARE CONSIDERED AND AN APPROPRIATE IN-WATER WORK WINDOW IS BEING USED TO MINIMIZE PROJECT EFFECTS.

D. LAMPREY. WORKING IN STREAM OR RIVER CHANNELS THAT CONTAIN PACIFIC LAMPREY WILL BE AVOIDED FROM MARCH 1 TO JULY 1 FOR REACHES <5,000 FEET IN ELEVATION AND FROM MARCH 1 TO AUGUST 1 FOR REACHES >5,000 FEET. IF EITHER TIMEFRAME IS INCOMPATIBLE WITH OTHER OBJECTIVES, THE AREA WILL BE SURVEYED FOR NESTS AND LAMPREY PRESENCE, AND AVOIDED IF POSSIBLE. IF LAMPREYS ARE KNOWN TO EXIST, THE PROJECT SPONSOR WILL UTILIZE DEWATERING AND SALVAGE PROCEDURES (SEE FISH SALVAGE AND ELECTROFISHING SECTIONS) TO MINIMIZE ADVERSE EFFECTS.

E. THE IN-WATER WORK WINDOW WILL BE PROVIDED IN THE CONSTRUCTION PLANS.

3. CONTAMINANTS.

A. EXCAVATION OF MORE THAN 20 CUBIC YARDS WILL REQUIRE A SITE VISIT AND DOCUMENTED ASSESSMENT FOR POTENTIAL CONTAMINANT SOURCES. THE SITE ASSESSMENT WILL BE STORED WITH PROJECT FILES OR AS AN APPENDIX TO THE BASIS OF DESIGN REPORT.

B. THE SITE ASSESSMENT WILL SUMMARIZE:

1. THE SITE VISIT, CONDITION OF THE PROPERTY, AND IDENTIFICATION OF ANY AREAS USED FOR VARIOUS INDUSTRIAL PROCESSES;
2. AVAILABLE RECORDS, SUCH AS FORMER SITE USE, BUILDING PLANS, AND RECORDS OF ANY PRIOR CONTAMINATION EVENTS;
3. INTERVIEWS WITH KNOWLEDGEABLE PEOPLE, SUCH AS SITE OWNERS, OPERATORS, OCCUPANTS, NEIGHBORS, OR LOCAL GOVERNMENT OFFICIALS; AND
4. THE TYPE, QUANTITY, AND EXTENT OF ANY POTENTIAL CONTAMINATION SOURCES.

4. SITE LAYOUT AND FLAGGING.

A. CONSTRUCTION AREAS TO BE CLEARLY FLAGGED PRIOR TO CONSTRUCTION.

B. AREAS TO BE FLAGGED WILL INCLUDE:

1. SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;
2. EQUIPMENT ENTRY AND EXIT POINTS;
3. ROAD AND STREAM CROSSING ALIGNMENTS;
4. STAGING, STORAGE, AND STOCKPILE AREAS; AND
5. NO-SPRAY AREAS AND BUFFERS.

5. 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 FLOODPLAINS WILL BE MINIMIZED.

B. VEHICLE USE AND HUMAN ACTIVITIES, INCLUDING WALKING, IN AREAS OCCUPIED BY TERRESTRIAL ESA-LISTED SPECIES WILL BE MINIMIZED.

C. TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST A 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.

D. 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).

E. AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND REVEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES DECOMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.

F. HELICOPTER FLIGHT PATTERNS WILL BE ESTABLISHED IN ADVANCE AND LOCATED TO AVOID TERRESTRIAL ESA-LISTED SPECIES AND THEIR OCCUPIED HABITAT DURING SENSITIVE LIFE STAGES.

6. TEMPORARY STREAM CROSSINGS.

A. EXISTING STREAM CROSSINGS OR BEDROCK 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. TREATED WOOD SHALL NOT BE USED ON TEMPORARY BRIDGE CROSSINGS OR IN LOCATIONS IN CONTACT WITH OR DIRECTLY OVER WATER.

C. FOR PROJECTS THAT REQUIRE EQUIPMENT AND VEHICLES TO CROSS IN THE WET:

1. THE LOCATION AND NUMBER OF ALL WET CROSSINGS SHALL BE APPROVED BY THE OWNER;
2. ONLY TRACKED EQUIPMENT SHALL CROSS THE STREAM;
3. VEHICLES AND MACHINERY SHALL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHENEVER POSSIBLE;
4. NO STREAM CROSSINGS WILL OCCUR 300 FEET UPSTREAM OR 100 FEET DOWNSTREAM OF AN EXISTING REDD OR SPAWNING FISH; AND
5. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND BANKS RESTORED.

7. 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. STAGING AREAS CLOSER THAN 150 FEET WILL BE APPROVED BY THE EC LEAD.

B. NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN 150 FEET IF CLEARLY INDICATED IN THE PLANS THAT AREA IS FOR NATURAL MATERIALS ONLY.

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 DISPOSED OF OUTSIDE THE 100-YEAR FLOODPLAIN.

8. EQUIPMENT.

A. MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS 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).

B. EQUIPMENT WILL BE STORED, FUELED, AND MAINTAINED IN AN CLEARLY IDENTIFIED STAGING AREA THAT MEETS STAGING AREA CONSERVATION MEASURES.

C. EQUIPMENT WILL BE REFUELED IN A VEHICLE STAGING AREA 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).

D. BIODEGRADABLE LUBRICANTS AND FLUIDS WILL BE USED ON EQUIPMENT OPERATING IN AND ADJACENT TO THE STREAM CHANNEL AND LIVE WATER.

E. EQUIPMENT WILL BE INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150 FEET OF ANY NATURAL WATER BODY OR WETLAND.

F. EQUIPMENT WILL BE THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

9. EROSION CONTROL.

A. TEMPORARY EROSION CONTROL MEASURES INCLUDE:

1. TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWNSLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE;
2. 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;
3. TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE SEDGE MATS, FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC;
4. 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;
5. SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL; AND
6. 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:

1. A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND
2. AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

10. DUST ABATEMENT.

A. THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES.

B. WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.

C. 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 MIXED 50:50 WITH WATER.

D. 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).

E. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.

F. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

NO.	BY	DATE	REVISION DESCRIPTION

BPA	BPA	BPA
DRAWN	DESIGNED	CHECKED
BPA		200237
APPROVED	DATE	PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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HIP IV GENERAL CONSERVATION MEASURES (1 OF 3)

PROJECT DESIGN AND SITE PREPARATION (CONTINUED).

11. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES.

A. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING 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.

F. PUMPS USED ADJACENT TO WATER SHALL USE SPILL CONTAINMENT SYSTEMS.

12. INVASIVE SPECIES CONTROL.

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 AIDING IN THE TRANSFER OF INVASIVE SPECIES UNLESS DECONTAMINATION PROCEDURES HAVE BEEN APPROVED BY THE EC LEAD.

WORK AREA ISOLATION AND FISH SALVAGE.

1. WORK AREA ISOLATION.

A. 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.

B. WORK AREA ISOLATION AND FISH SALVAGE ACTIVITIES WILL COMPLY WITH THE IN-WATER WORK WINDOW.

C. DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS AND AREAS (COFFER DAMS, PUMPS, DISCHARGE AREAS, FISH SCREENS, FISH RELEASE AREAS, ETC.).

D. 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.

2. FISH SALVAGE.

A. MONITORING AND RECORDING WILL TAKE PLACE FOR DURATION OF SALVAGE. THE SALVAGE REPORT WILL BE COMMUNICATED TO AGENCIES VIA THE PROJECT COMPLETION FORM (PCF).

B. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING CONDITIONS TO MINIMIZE STRESS TO FISH SPECIES, TYPICALLY PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES WHICH OCCUR IN THE MORNING VERSUS LATE IN THE DAY.

C. SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODS, AND CONSERVATION MEASURES SPECIFIED BELOW:

1. SLOWLY REDUCE WATER FROM THE WORK AREA TO ALLOW SOME FISH TO LEAVE VOLITIONALLY.
2. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
3. 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 AS LONG AS PASSAGE REQUIREMENTS ARE MET.
4. NETS WILL BE MONITORED HOURLY DURING IN-STREAM DISTURBANCE.
5. IF BLOCK NETS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED AND FREE OF ORGANIC ACCUMULATION. IF BULL TROUT ARE PRESENT, NETS ARE TO BE CHECKED EVERY 4 HOURS FOR FISH IMPINGEMENT.
6. CAPTURE FISH THROUGH SEINING AND RELOCATE TO STREAMS.
7. WHILE DEWATERING, ANY REMAINING FISH WILL BE COLLECTED BY HAND OR DIP NETS.
8. SEINES WITH A MESH SIZE TO ENSURE CAPTURE OF THE RESIDING ESA-LISTED FISH WILL BE USED.
9. MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.
10. ELECTROFISH TO CAPTURE AND RELOCATED FISH NOT CAUGHT DURING SEINING PER ELECTROFISH CONSERVATION MEASURES.
11. CONTINUE TO SLOWLY DEWATER STREAM REACH.
12. COLLECT ANY REMAINING FISH IN COLD-WATER BUCKETS AND RELOCATED TO THE STREAM.
13. LIMIT THE TIME FISH ARE IN A TRANSPORT BUCKET.
14. MINIMIZE PREDATION BY TRANSPORTING COMPARABLE SIZES IN BUCKETS.
15. BUCKET WATER TO BE CHANGED EVERY 15 MINUTES OR AERATED.
16. BUCKETS WILL BE KEPT IN SHADED AREAS OR COVERED.
17. DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.

D. SALVAGE GUIDELINES FOR BULL TROUT, LAMPREY, MUSSELS, AND NATIVE FISH.

1. CONDUCT SITE SURVEY TO ESTIMATE SALVAGE NUMBERS.
2. PRE-SELECT SITE(S) FOR RELEASE AND/OR MUSSEL BED RELOCATION.
3. SALVAGE OF BULL TROUT WILL NOT TAKE PLACE WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.
4. IF DRAWDOWN LESS THAN 48 HOURS, SALVAGE OF LAMPREY AND MUSSELS MAY NOT BE NECESSARY IF TEMPERATURES SUPPORT SURVIVAL IN SEDIMENTS.
5. SALVAGE MUSSELS BY HAND, LOCATING BY SNORKELING OR WADING.
6. SALVAGE LAMPREY BY ELECTROFISHING (SEE ELECTROFISHING FOR LARVAL LAMPREY SETTINGS AND LARVAL LAMPREY DRY SHOCKING SETTINGS).
7. SALVAGE BONY FISH AFTER LAMPREY WITH NETS OR ELECTROFISHING (SEE ELECTROFISHING FOR APPROPRIATE SETTINGS).
8. REGULARLY INSPECT DEWATERED SITE SINCE LAMPREY LIKELY TO EMERGE AFTER DEWATERING AND MUSSELS MAY BECOME VISIBLE.
9. MUSSELS MAY BE TRANSFERRED IN COOLERS.
10. MUSSELS WILL BE PLACED INDIVIDUALLY TO ENSURE ABILITY TO BURROW INTO NEW HABITAT.

3. ELECTROFISHING.

A. INITIAL SITE SURVEY AND INITIAL SETTINGS.

1. IDENTIFY SPAWNING ADULTS AND ACTIVE REDDS TO AVOID.
2. RECORD WATER TEMPERATURE. ELECTROFISHING WILL NOT OCCUR WHEN WATER TEMPERATURES ARE ABOVE 18 DEGREES CELSIUS.
3. IF POSSIBLE, A BLOCK NET WILL BE PLACED DOWNSTREAM AND CHECKED REGULARLY TO CAPTURE STUNNED FISH THAT DRIFT DOWNSTREAM.
4. INITIAL SETTINGS WILL BE 100 VOLTS, PULSE WIDTH OF 500 MICRO SECONDS, AND PULSE RATE OF 30 HERTZ.
5. RECORDS FOR CONDUCTIVITY, WATER TEMPERATURE, AIR TEMPERATURE, ELECTROFISHING SETTINGS, ELECTROFISHER MODEL, ELECTROFISHER CALIBRATION, FISH CONDITIONS, FISH MORTALITIES, AND TOTAL CAPTURE RATES WILL BE INCLUDED IN THE SALVAGE LOG BOOK.

B. ELECTROFISHING TECHNIQUE.

1. SAMPLING WILL BEGIN USING STRAIGHT DC. POWER WILL REMAIN ON UNTIL THE FISH IS NETTED WHEN USING STRAIGHT DC. GRADUALLY INCREASE VOLTAGE WHILE REMAINING BELOW MAXIMUM LEVELS.
2. MAXIMUM VOLTAGE WILL BE 1100 VOLTS WHEN CONDUCTIVITY IS <100 MILLISECONDS, 800 VOLTS WHEN CONDUCTIVITY IS BETWEEN 100 AND 300 MILLISECONDS, AND 400 VOLTS WHEN CONDUCTIVITY IS >300 MILLISECONDS.
3. IF FISH CAPTURE IS NOT SUCCESSFUL USING STRAIGHT DC, THE ELECTROFISHER WILL BE SET TO INITIAL VOLTAGE FOR PDC. VOLTAGE, PULSE WIDTH, AND PULSE FREQUENCY WILL BE GRADUALLY INCREASED WITHIN MAXIMUM VALUES UNTIL CAPTURE IS SUCCESSFUL.
4. MAXIMUM PULSE WIDTH IS 5 MILLISECONDS. MAXIMUM PULSE RATE IS 70 HERTZ
5. ELECTROFISHING WILL NOT OCCUR IN ONE AREA FOR AN EXTENDED PERIOD.
6. THE ANODE WILL NOT INTENTIONALLY COME INTO CONTACT WITH FISH. THE ZONE FOR POTENTIAL INJURY OF 0.5 M FROM THE ANODE WILL BE AVOIDED.
7. SETTINGS WILL BE LOWERED IN SHALLOWER WATER SINCE VOLTAGE GRADIENTS LIKELY TO INCREASE.
8. ELECTROFISHING WILL NOT OCCUR IN TURBID WATER WHERE VISIBILITY IS POOR (I.E. UNABLE TO SEE THE BED OF THE STREAM).
9. OPERATIONS WILL IMMEDIATELY STOP IF MORTALITY OR OBVIOUS FISH INJURY IS OBSERVED. ELECTROFISHING SETTINGS WILL BE REEVALUATED.

C. SAMPLE PROCESSING.

1. FISH SHALL BE SORTED BY SIZE TO AVOID PREDATION DURING CONTAINMENT.
2. SAMPLERS WILL REGULARLY CHECK CONDITIONS OF FISH HOLDING CONTAINERS, AIR PUMPS, WATER TRANSFERS, ETC.
3. FISH WILL BE OBSERVED FOR GENERAL CONDITIONS AND INJURIES
4. EACH FISH WILL BE COMPLETELY REVIVED BEFORE RELEASE. ESA-LISTED SPECIES WILL BE PRIORITIZED FOR SUCCESSFUL RELEASE.

D. BULL TROUT ELECTROFISHING.

1. ELECTROFISHING FOR BULL TROUT WILL ONLY OCCUR FROM MAY 1 TO JULY 31. NO ELECTROFISHING WILL OCCUR IN ANY BULL TROUT OCCUPIED HABITAT AFTER AUGUST 15. IN FMO HABITATS ELECTROFISHING MAY OCCUR ANY TIME.
2. ELECTROFISHING OF BULL TROUT WILL NOT OCCUR WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.

E. LARVAL LAMPREY ELECTROFISHING.

1. PERMISSION FROM EC LEAD WILL BE OBTAINED IF LARVAL LAMPREY ELECTROFISHER IS NOT ONE OF FOLLOWING PRE-APPROVED MODELS: ABP-2 "WISCONSIN", SMITH-ROOT LR-24, OR SMITH-ROOT APEX BACKPACK.
2. LARVAL LAMPREY SAMPLING WILL INCORPORATE 2-STAGE METHOD: "TICKLE" AND "STUN".
3. FIRST STAGE: USE 125 VOLT DC WITH A 25 PERCENT DUTY CYCLE APPLIED AT A SLOW RATE OF 3 PULSES PER SECOND. IF TEMPERATURES ARE BELOW 10 DEGREES CELSIUS, VOLTAGE MAY BE INCREASED GRADUALLY (NOT TO EXCEED 200 VOLTS). BURSTED PULSES (THREE SLOW AND ONE SKIPPED) RECOMMENDED TO INCREASE EMERGENCE.
4. SECOND STAGE (OPTIONAL FOR EXPERIENCED NETTERS): IMMEDIATELY AFTER LAMPREY EMERGE, USE A FAST PULSE SETTING OF 30 PULSES PER SECOND.
5. USE DIP NETS FOR VISIBLE LAMPREY. SIENES AND FINE MESH NET SWEEPS MAY BE USED IN POOR VISIBILITY.

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

BPA DRAWN	BPA DESIGNED	BPA CHECKED
BPA APPROVED	DATE	200237 PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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HIP IV GENERAL CONSERVATION MEASURES (2 OF 3)

WORK AREA ISOLATION AND FISH SALVAGE (CONTINUED).

6. SAMPLING WILL OCCUR SLOWLY (>60 SECONDS PER METER) STARTING AT UPSTREAM AND WORKING DOWNSTREAM.

7. MULTIPLE SWEEPS TO OCCUR WITH 15 MINUTES BETWEEN SWEEPS.

8. POST-DRAWDOWN "DRY-SHOCKING" WILL BE APPLIED IF LARVAL LAMPREY CONTINUE TO EMERGE. ANODES TO BE PLACED ONE METER APART TO SAMPLE ONE SQUARE METER AT A TIME FOR AT LEAST 60 SECONDS. FOR TEMPERATURES LESS THAN 10 DEGREES CELSIUS, MAXIMUM VOLTAGE MAY BE GRADUALLY INCREASED TO 400 VOLTS (DRY-SHOCKING ONLY).

4. DEWATERING.

A. DEWATERING WILL OCCUR AT A RATE SLOW ENOUGH TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.

B. WHERE A GRAVITY FEED DIVERSION IS NOT POSSIBLE, A PUMP MAY BE USED. PUMPS WILL BE INSTALLED TO AVOID REPETIVE DEWATERING AND REWATERING.

C. WHEN FISH ARE PRESENT, PUMPS WILL BE SCREENED IN ACCORDANCE WITH NMFS FISH SCREEN CRITERIA. NMFS ENGINEERING REVIEW AND APPROVAL WILL BE OBTAINED FOR PUMPS EXCEEDING 3 CUBIC FEET PER SECOND.

D. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO THE STREAM CHANNEL AND RIPARIAN VEGETATION.

E. SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OF INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL AND VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.

CONSTRUCTION AND POST CONSTRUCTION CONSERVATION MEASURES.

1. FISH PASSAGE.

A. FISH PASSAGE WILL BE PROVIDED FOR ADULT AND JUVENILE FISH LIKELY TO BE PRESENT DURING CONSTRUCTION UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION, THE STREAM IS NATURALLY IMPASSABLE, OR PASSAGE WILL NEGATIVELY IMPACT ESA-LISTED SPECIES OR THEIR HABITAT.

B. FISH PASSAGE ALTERNATIVES WILL BE APPROVED BY THE OWNER UNDER ADVISEMENT BY THE NMFS HABITAT BIOLOGIST.

2. CONSTRUCTION AND DISCHARGE WATER.

A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.

B. DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.

C. CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS, AND OTHER POLLUTANTS.

3. TIME AND EXTENT OF DISTURBANCE.

A. EARTHWORK REQUIRING IN-STREAM MECHANIZED EQUIPMENT (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING, AND COMPACTING) WILL BE COMPLETED AS QUICKLY AS POSSIBLE.

B. MECHANIZED EQUIPMENT WILL WORK FROM TOP OF BANK UNLESS WORK FROM ANOTHER LOCATION WILL RESULT IN LESS HABITAT DISTURBANCE (TURBIDITY, VEGETATION DISTURBANCE, ETC.).

4. CESSATION OF WORK.

A. PROJECT OPERATIONS WILL CEASE WHEN HIGH FLOW CONDITIONS MAY RESULT IN INUNDATION OF THE PROJECT AREA (FLOOD EFFORTS TO DECREASE DAMAGES TO NATURAL RESOURCES PERMITTED).

B. WATER QUALITY LEVELS EXCEEDED. SEE CWA SECTION 401 WATER QUALITY CERTIFICATION AND TURBIDITY MEASURES.

5. SITE RESTORATION.

A. DISTURBED AREAS, STREAM BANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED TO IMPROVED OR PRE-PROJECT CONDITIONS.

B. PROJECT-RELATED WASTE WILL BE REMOVED.

C. TEMPORARY ACCESS ROADS AND STAGING WILL BE DECOMPACTED AND RESTORED. SOILS WILL BE LOOSENED IF NEEDED FOR REVEGETATION OR WATER INFILTRATION.

D. THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE TO MONITOR AND MAINTAIN THE SITE OVER THE LIFE OF THE PROJECT.

6. REVEGETATION.

A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.

B. A MIX OF NATIVE SPECIES (INVASIVE SPECIES NOT ALLOWED) APPROPRIATE TO THE SITE WILL BE USED TO REESTABLISH VEGETATION, PROVIDE SHADE, AND REDUCE EROSION. REESTABLISHED VEGETATION SHOULD BE AT LEAST 70% OF PRE-PROJECT CONDITIONS WITHIN THREE YEARS.

C. VEGETATION SUCH AS WILLOWS, SEDGES, OR RUSH MATS WILL BE SALVAGED FROM DISTURBED OR ABANDONED AREAS TO BE REPLANTED.

D. SHORT-TERM STABILIZATION MEASURE MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, OR OTHER SIMILAR TECHNIQUES.

E. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM, WATE BODY, OR WETLAND.

F. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.

G. INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY THREE YEARS POST-CONSTRUCTION).

7. SITE ACCESS AND IMPLEMENTATION MONITORING.

A. THE PROJECT SPONSOR WILL PROVIDE CONSTRUCTION MONITORING DURING IMPLEMENTATION TO ENSURE ALL CONSERVATION MEASURES ARE ADEQUATELY FOLLOWED, EFFECTS TO LISTED SPECIES ARE NOT GREATER THAN PREDICTED, AND INCIDENTAL TAKE LIMITATIONS ARE NOT EXCEEDED.

B. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL SUBMIT THE PROJECT COMPLETION FORM (PCF) WITHIN 30 DAYS OF PROJECT COMPLETION.

8. CWA SECTION 401 WATER QUALITY CERTIFICATION.

A. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL COMPLETE AND RECORD WATER QUALITY OBSERVATIONS (SEE TURBIDITY MONITORING) TO ENSURE IN-WATER WORK IS NOT DEGRADING WATER QUALITY.

B. DURING CONSTRUCTION, WATER QUALITY PROVISIONS PROVIDED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, WASHINGTON DEPARTMENT OF ECOLOGY, IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY WILL BE FOLLOWED.

STAGED REWATERING PLAN.

A. WHEN REINTRODUCING WATER TO DEWATERED AREAS AND NEWLY CONSTRUCTED CHANNELS, A STAGED REWATERING PLAN WILL BE APPLIED.

B. THE FOLLOWING WILL BE APPLIED TO ALL REWATERING EFFORTS. COMPLEX REWATERING EFFORTS MAY REQUIRE ADDITIONAL NOTES OR A DEDICATED SHEET IN THE CONSTRUCTION DETAILS.

1. TURBIDITY MONITORING PROTOCOL WILL BE APPLIED TO REWATERING EFFORTS.

2. PRE-WASH THE AREA BEFORE REWATERING. TURBID WASH WATER WILL BE DETAINED AND PUMPED TO THE FLOODPLAIN OR SEDIMENT CAPTURE AREAS RATHER THAN DISCHARGING TO FISH-BEARING STREAMS.

3. INSTALL SEINE NETS AT UPSTREAM END TO PREVENT FISH FROM MOVING DOWNSTREAM UNTIL 2/3 OF TOTAL FLOW IS RESTORED TO THE CHANNEL.

4. STARTING IN EARLY MORNING INTRODUCE 1/3 OF NEW CHANNEL FLOW OVER PERIOD OF 1-2 HOURS.

5. INTRODUCE SECOND THIRD OF FLOW OVER NEXT 1 TO 2 HOURS AND BEGIN FISH SALVAGE OF BYPASS CHANNEL IF FISH ARE PRESENT.

6. REMOVE UPSTREAM SEINE NETS ONCE 2/3 FLOW IN REWATERED CHANNEL AND DOWNSTREAM TURBIDITY IS WITHIN ACCEPTABLE RANGE (LESS THAN 40 NTU OR LESS THAN 10% BACKGROUND).

7. INTRODUCE FINAL THIRD OF FLOW ONCE FISH SALVAGE EFFORTS ARE COMPLETE AND DOWNSTREAM TURBIDITY VERIFIED TO BE WITHIN ACCEPTABLE RANGE.

8. INSTALL PLUG TO BLOCK FLOW INTO OLD CHANNEL OR BYPASS. REMOVE ANY REMAINING SEINE NETS.

9. IN LAMPREY SYSTEMS, LAMPREY SALVAGE AND DRY SHOCKING MAY BE NECESSARY.

TURBIDITY MONITORING.

A. RECORD THE READING, LOCATION, AND TIME FOR THE BACKGROUND READING APPROXIMATELY 100 FEET UPSTREAM OF THE PROJECT AREA USING A RECENTLY CALIBRATED TURBIDIMETER OR VIA VISUAL OBSERVATION (SEE THE HIP HANDBOOK TURBIDITY MONITORING SECTION FOR A VISUAL OBSERVATION KEY).

B. RECORD THE TURBIDITY READING, LOCATION, AND TIME AT THE MEASUREMENT COMPLIANCE LOCATION POINT.

1. 50 FEET DOWNSTREAM FOR STREAMS LESS THAN 30 FEET WIDE.

2. 100 FEET DOWNSTREAM FOR STREAMS BETWEEN 30 AND 100 FEET WIDE.

3. 200 FEET DOWNSTREAM FOR STREAMS GREATER THAN 100 FEET WIDE.

4. 300 FEET FROM THE DISCHARGE POINT OR NONPOINT SOURCE FOR LOCATIONS SUBJECT TO TIDAL OR COASTAL SCOUR.

C. TURBIDITY SHALL BE MEASURED (BACKGROUND LOCATION AND COMPLIANCE POINTS) EVERY 4 HOURS WHILE WORK IS BEING IMPLEMENTED.

D. IF THERE IS A VISIBLE DIFFERENCE BETWEEN A COMPLIANCE POINT AND THE BACKGROUND, THE EXCEEDANCE WILL BE NOTED IN THE PROJECT COMPLETION FORM (PCF). ADJUSTMENTS OR CORRECTIVE MEASURES WILL BE TAKEN IN ORDER TO REDUCE TURBIDITY.

E. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 8 HOURS), THE ACTIVITY WILL STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND. THE OWNER WILL BE NOTIFIED OF ALL EXCEEDANCES AND CORRECTIVE ACTIONS AT PROJECT COMPLETION.

F. IF TURBIDITY CONTROLS (COFFER DAMS, WADDLES, FENCING, ETC.) ARE DETERMINED INEFFECTIVE, CREWS WILL BE MOBILIZED TO MODIFY AS NECESSARY. OCCURRENCES WILL BE DOCUMENTED IN THE PROJECT COMPLETION FORM (PCF).

G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO THE OWNER USING THE PROJECT COMPLETION FORM (PCF).

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NO.	BY	DATE	REVISION DESCRIPTION

BPA	BPA	BPA
DRAWN	DESIGNED	CHECKED
BPA		200237
APPROVED	DATE	PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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501 Portway Avenue, Suite 101
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www.interfluve.com

Yakama Nation Fisheries
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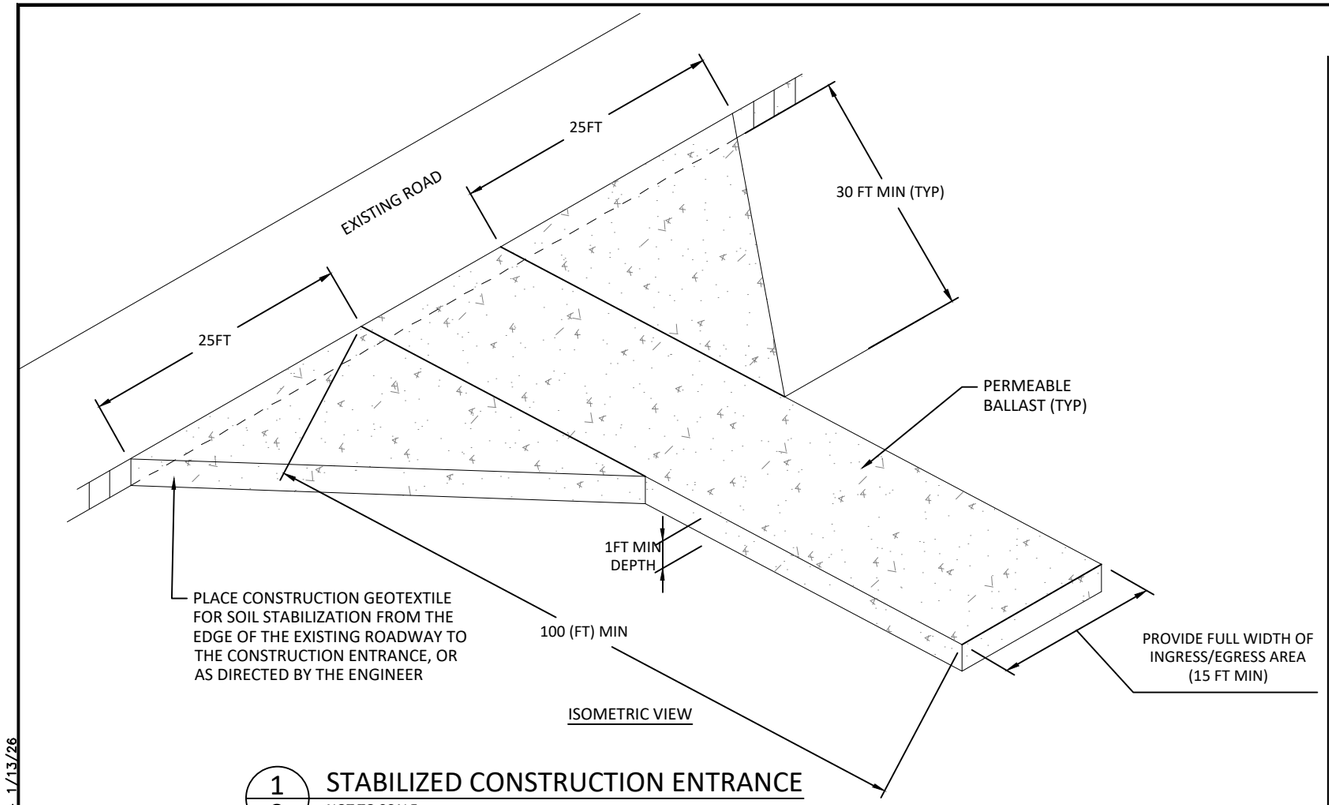
TOPPENISH, WA 98948
(509)865-5121

HIP IV GENERAL CONSERVATION MEASURES (3 OF 3)

SHEET
8 OF 31



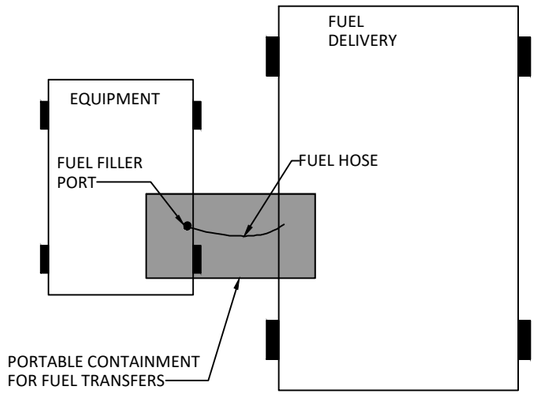
1/9 STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

FUELING NOTES:

CONTRACTOR SHALL PROVIDE ADDITIONAL PROTECTION MEASURES AGAINST FUEL SPILLS WHEN REFUELING AREA IS WITHIN 150 FT OF A WETLAND AND THE RIVER. ADDITION PROTECTION MEASURES SHALL CONSIST OF:

1. CONTAINMENT EQUIPMENT SIZED TO CONTAIN THE MOST LIKELY VOLUME OF FUEL SPILLED DURING A FUEL TRANSFER.
2. PORTABLE CONTAINMENT EQUIPMENT SHALL BE POSITIONED TO CATCH ANY FUEL SPILLS DUE TO OVERFILLING THE EQUIPMENT AND ANY OTHER SPILLS THAT MAY OCCUR AT OR NEAR THE FUEL FILLER PORT TO THAT EQUIPMENT DURING EACH REFUELING ACTIVITY.
3. PERSONNEL MUST ATTEND TO THE FUELING PROCESS TO ENSURE THAT ANY SPILLS WILL BE OF LIMITED VOLUME.



2/9 FUELING AREA PROTECTION

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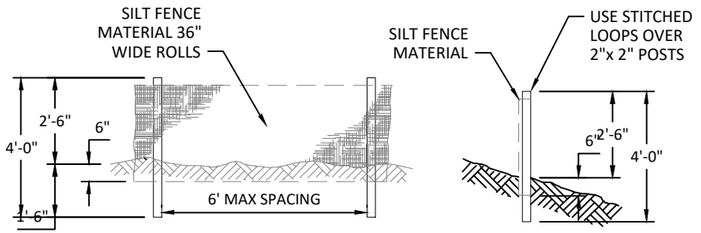

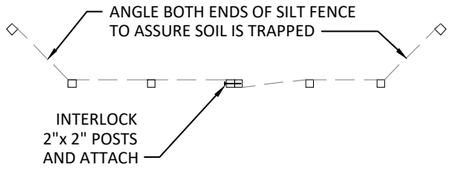

3/9 TYPICAL SILT FENCE DETAIL

NOT TO SCALE

SILT 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 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST. ALTERNATIVELY, OVERLAP AND INTERLOCK TWO POSTS WITH ATTACHED FABRIC AS REQUIRED TO MEET APPLICABLE REGULATIONS.
2. THE SILT FENCE IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE PLAN ALONG THE DOWNHILL PERIMETER OF CONSTRUCTION AREAS. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
3. THE SILT FENCE SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES. ALL EXCAVATED MATERIAL FROM SILT FENCE INSTALLATION SHALL BE BACK-FILLED AND COMPACTED ALONG THE ENTIRE DISTURBED AREA.
4. STANDARD OR HEAVY DUTY SILT FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2 INCHES X 2 INCHES 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, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.

Preliminary
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NO.	BY	DATE	REVISION DESCRIPTION

DRAWN	DESIGNED	CHECKED
CM	DM	DM
APPROVED	DATE	PROJECT
DM	01/13/2026	200237

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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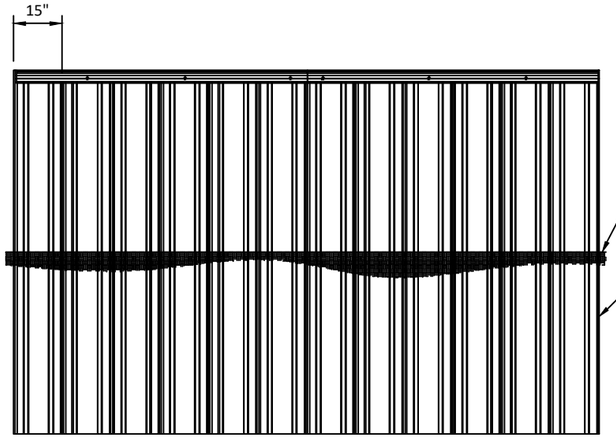
TYPICAL DETAILS - EROSION CONTROL AND ENVIRONMENTAL PROTECTIONS

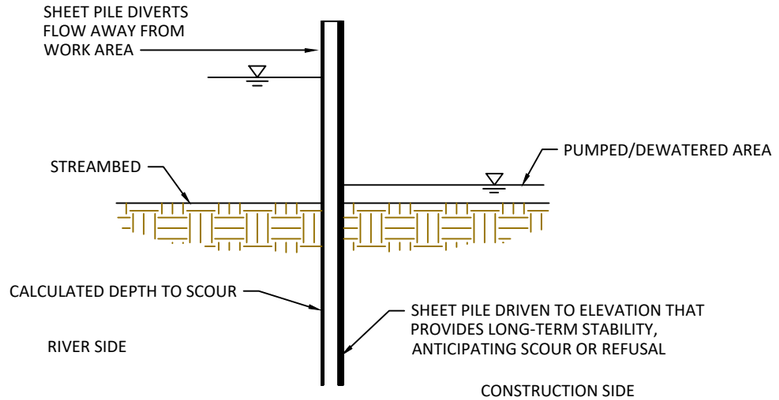
SHEET 9 OF 31

G:\M--P\Nason Creek Floodplain RM 3.4--4.6 Phase 3_200237\Drawings\VFI_NasonFP_NoRD_C.dwg -- cmcconnell -- 1/13/26



NOTE:
INDIVIDUAL SHEET WEIGHT 45 LBS PER LINEAR FOOT

ELEVATION



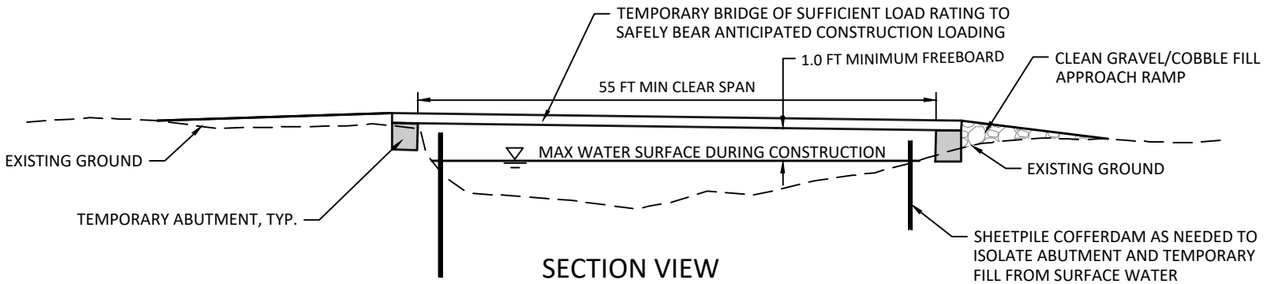
SECTION

1/10 TYPICAL DETAIL - SHEET PILE COFFERDAM

NOT TO SCALE

COFFERDAM NOTES:

1. TEMPORARY SHEET PILE IS REQUIRED TO ISOLATE CONSTRUCTION WATER FROM THE WATERWAY.
2. CONTRACTOR SHALL PROVIDE PUMPING SUFFICIENT FOR A NET INFLOW TO THE WORK AREA, AND DISCHARGE TURBID WATER TO UPLAND FLOODPLAIN.
3. COFFERDAM AND ALL MATERIALS SHALL BE COMPLETELY REMOVED FROM THE SITE AFTER CONSTRUCTION IS COMPLETED AND TURBIDITY HAS BEEN REMOVED.



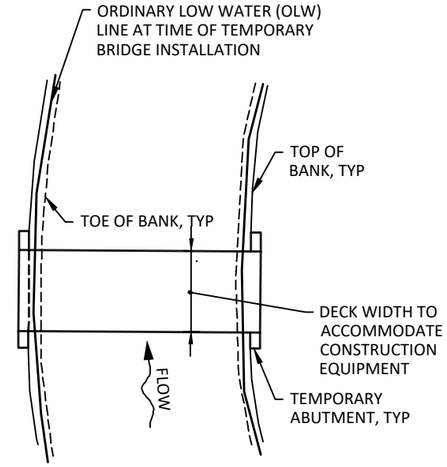
SECTION VIEW

NOTES:

1. TEMPORARY BRIDGE, ABUTMENTS, CLEAN GRAVEL/COBBLE FILL SHALL BE REMOVED AT PROJECT COMPLETION AND SITE RESTORED TO EXISTING GRADE AND CONDITIONS.
2. BRIDGE INSTALLATION AND REMOVAL, INCLUDING ABUTMENTS, SHALL BE ACCOMPLISHED WITH NO MORE THAN FOUR (4) EQUIPMENT CROSSINGS THROUGH THE CHANNEL.

2/10 TYPICAL DETAIL - TEMPORARY CROSSING

NOT TO SCALE



PLAN VIEW

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

CM	DM	DM
DRAWN	DESIGNED	CHECKED
DM	01/13/2026	200237
APPROVED	DATE	PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

interfluve
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Hood River, OR 97031
541.386.9003
www.interfluve.com

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TYPICAL DETAILS - DIVERSION COFFERDAMS & TEMPORARY CROSSING

SHEET 10 OF 31

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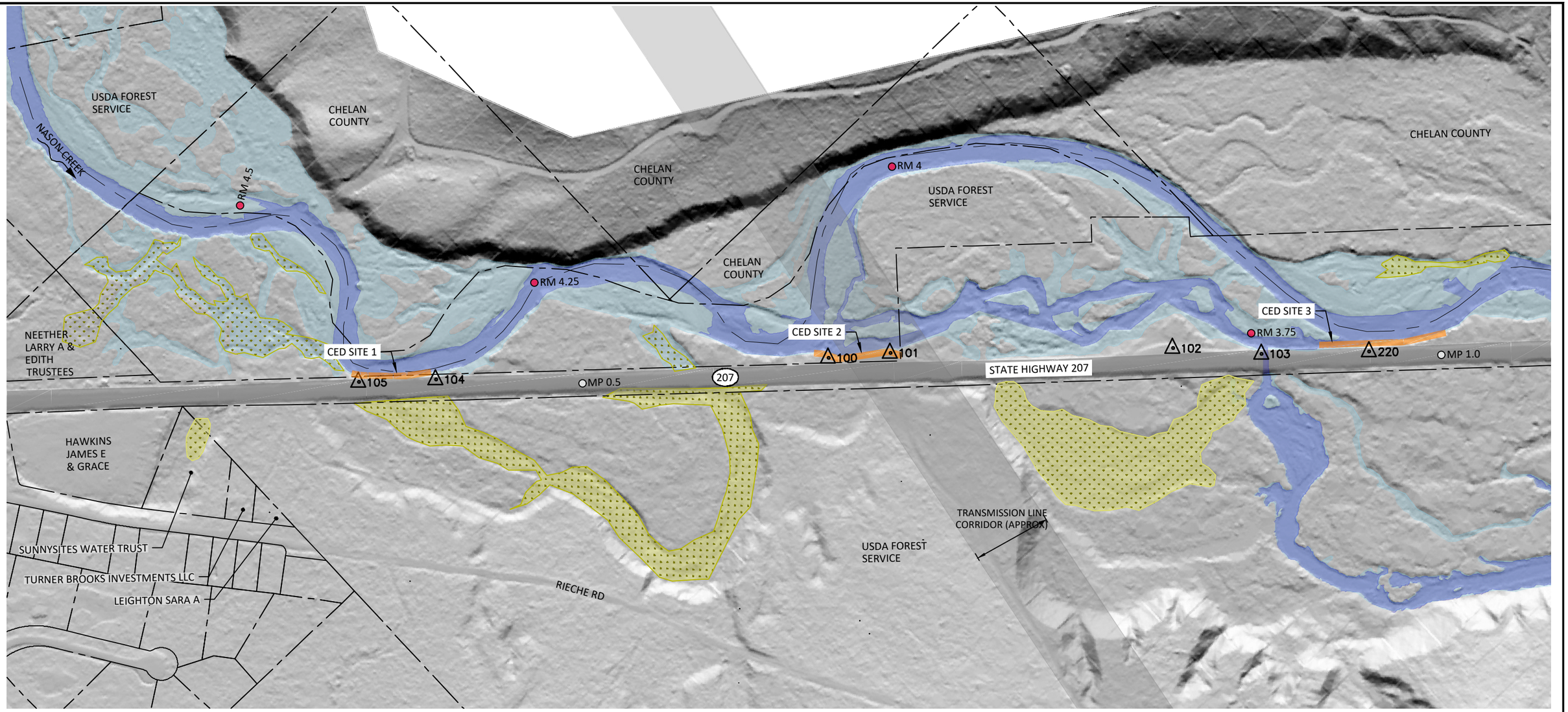

LEGEND

- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
- APPROXIMATE ORDINARY HIGH WATER
- EXISTING WETLANDS
- WSDOT CHRONIC ENVIRONMENT DEFICIENCY SITE (CED)
- TAXLOTS
- RM XX — NASON CREEK RIVER MILE
- MP XX — HIGHWAY 207 MILEPOST
- 100 — SURVEY CONTROL POINT

SURVEY CONTROL

Point #	Northing	Easting	Elevation	Description
220	279771.70	1666807.18	1945.45	NAIL
100	278552.01	1665695.91	1954.74	REBAR
101	278700.56	1665813.38	1952.82	STAKE
102	279340.25	1666390.48	1947.28	NAIL
103	279526.92	1666588.17	1946.14	REBAR
104	277630.52	1664927.19	1964.70	REBAR
105	277452.23	1664772.04	1966.58	REBAR

0 300 600

SCALE IN FEET

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EXISTING CONDITIONS & PROPERTY OWNERSHIP

SHEET 11 OF 31

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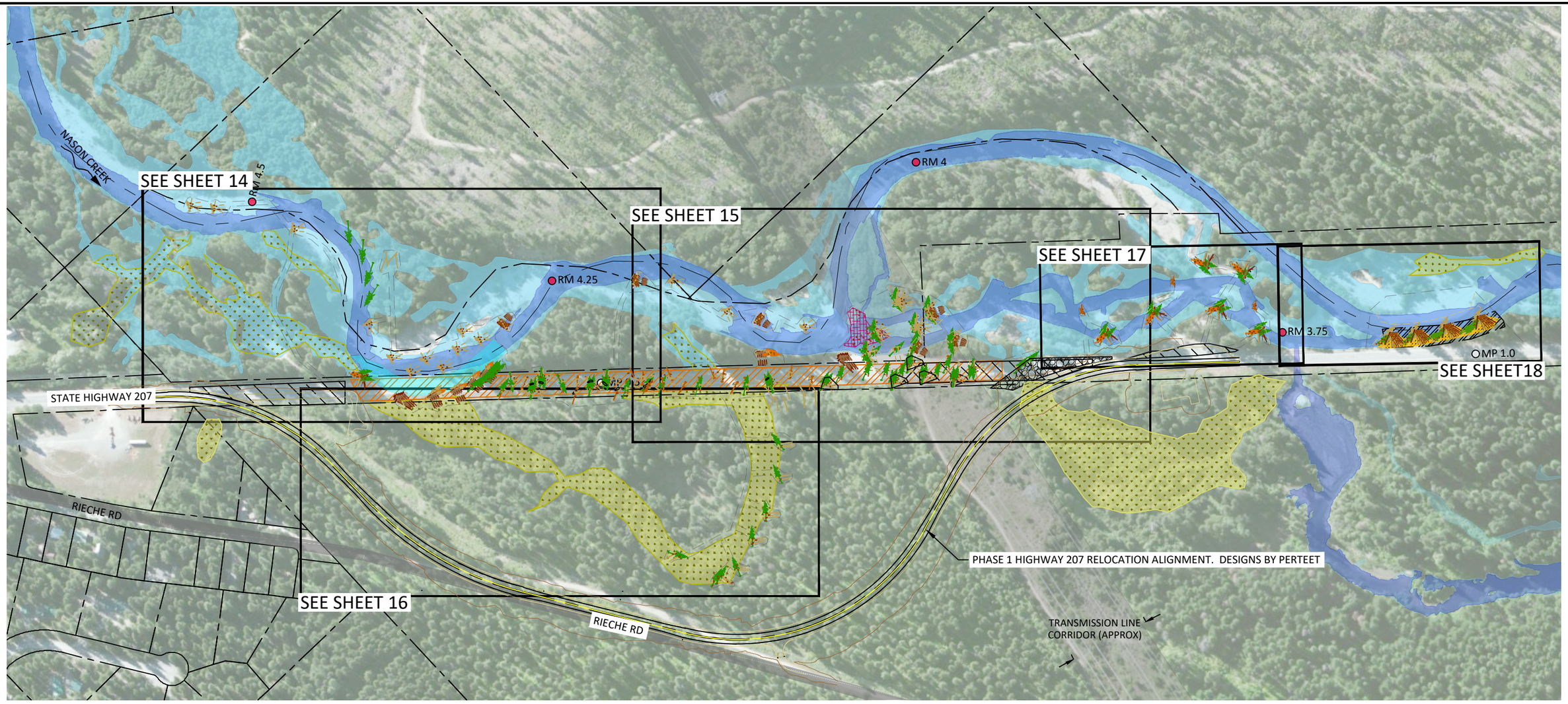

LEGEND

- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
- APPROXIMATE ORDINARY HIGH WATER
- EXISTING WETLANDS
- TAXLOTS
- RM XX — NASON CREEK RIVER MILE
- MP XX — HIGHWAY 207 MILEPOST
- EXISTING ROAD PRISM REMOVAL
- STABILIZE EXISTING LOG JAM WITH LOG PILES
- LARGE WOOD STRUCTURES (TYPE VARIES)
- STAGING AND STOCKPILE AREA
- ACCESS ROUTE
- LIMITS OF DISTURBANCE (LOD)
- COFFERDAM

0 300 600

SCALE IN FEET

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PROPOSED CONDITIONS AND SHEET INDEX

SHEET 12 OF 31

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NASON CREEK

RM 4.5

TEMPORARY WET CROSSING

TEMPORARY BRIDGE CROSSING.
DETAIL 2 SHEET 10

RM 4

TEMPORARY WET CROSSINGS IN THIS AREA

RM 4.25

RM 3.75

MP 1.0

STATE HIGHWAY 207

TEMPORARY BRIDGE CROSSING.
DETAIL 2 SHEET 10

TEMPORARY BRIDGE CROSSING.
DETAIL 2 SHEET 10

RIECHE RD

RIECHE RD

TRANSMISSION LINE
CORRIDOR (APPROX)

LEGEND

- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
- APPROXIMATE ORDINARY HIGH WATER
- EXISTING WETLANDS
- WETLAND CREATION
- TAXLOTS
- RM XX — NASON CREEK RIVER MILE
- MP XX — HIGHWAY 207 MILEPOST
- EXISTING ROAD PRISM REMOVAL
- STABILIZE EXISTING LOG JAM WITH LOG PILES
- LARGE WOOD STRUCTURES (TYPE VARIES)
- STAGING AND STOCKPILE AREA
- ACCESS ROUTE
- LIMITS OF DISTURBANCE (LOD)
- COFFERDAM

0 300 600

SCALE IN FEET

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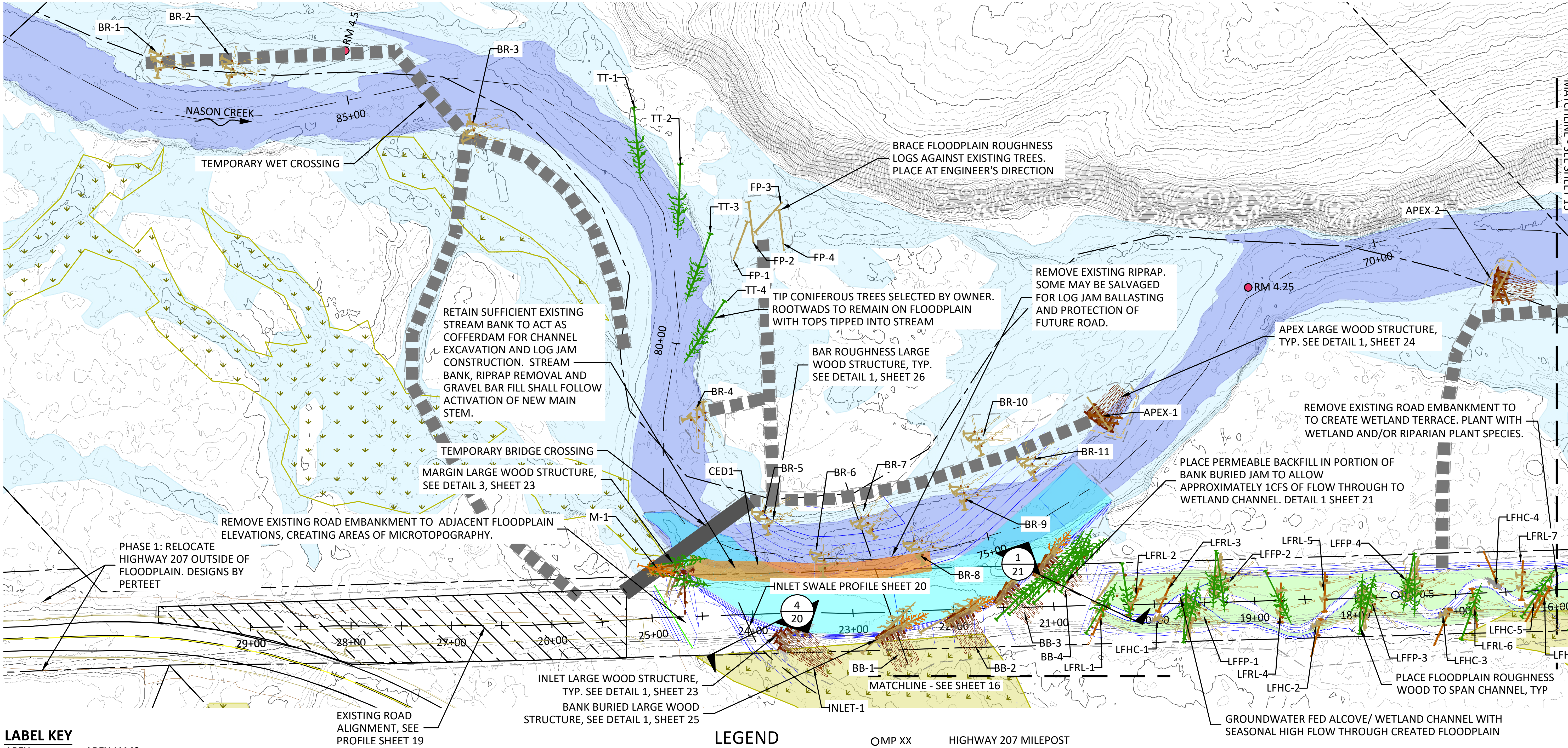
PROPOSED ACCESS, STAGING AND STOCKPILE AREAS

SHEET 13 OF 31


BR-1
BR-2
RM 4.5
BR-3
NASON CREEK
85+00
TT-1
TT-2
TEMPORARY WET CROSSING
BRACE FLOODPLAIN ROUGHNESS LOGS AGAINST EXISTING TREES. PLACE AT ENGINEER'S DIRECTION
FP-3
TT-3
FP-2
FP-4
FP-1
TT-4
MATCHLINE - SEE SHEET 15
APEX-2
70+00
RM 4.25
REMOVE EXISTING RIPRAP. SOME MAY BE SALVAGED FOR LOG JAM BALLASTING AND PROTECTION OF FUTURE ROAD.
TIP CONIFEROUS TREES SELECTED BY OWNER. ROOTWADS TO REMAIN ON FLOODPLAIN WITH TOPS TIPPED INTO STREAM
RETAIN SUFFICIENT EXISTING STREAM BANK TO ACT AS COFFERDAM FOR CHANNEL EXCAVATION AND LOG JAM CONSTRUCTION. STREAM BANK, RIPRAP REMOVAL AND GRAVEL BAR FILL SHALL FOLLOW ACTIVATION OF NEW MAIN STEM.
80+00
BAR ROUGHNESS LARGE WOOD STRUCTURE, TYP. SEE DETAIL 1, SHEET 26
APEX LARGE WOOD STRUCTURE, TYP. SEE DETAIL 1, SHEET 24
BR-4
BR-10
APEX-1
REMOVE EXISTING ROAD EMBANKMENT TO TO CREATE WETLAND TERRACE. PLANT WITH WETLAND AND/OR RIPARIAN PLANT SPECIES.
TEMPORARY BRIDGE CROSSING
BR-11
MARGIN LARGE WOOD STRUCTURE, SEE DETAIL 3, SHEET 23
CED1
BR-5
BR-6
BR-7
PLACE PERMEABLE BACKFILL IN PORTION OF BANK BURIED JAM TO ALLOW APPROXIMATELY 1CFS OF FLOW THROUGH TO WETLAND CHANNEL. DETAIL 1 SHEET 21
REMOVE EXISTING ROAD EMBANKMENT TO ADJACENT FLOODPLAIN ELEVATIONS, CREATING AREAS OF MICROTOPOGRAPHY.
M-1
BR-9
LFHC-4
PHASE 1: RELOCATE HIGHWAY 207 OUTSIDE OF FLOODPLAIN. DESIGNS BY PERTEET
LFRL-3
LFRL-5
LFFP-4
LFRL-7
LFRL-2
LFFP-2
75+00
1
21
BR-8
INLET SWALE PROFILE SHEET 20
0.5
4
20
21+00
19+00
18+00
17+00
16+00
29+00
28+00
27+00
26+00
25+00
24+00
23+00
22+00
BB-3
BB-4
LFHC-1
LFHC-5
LFRL-6
LFHC-6
LFFP-1
LFRL-4
LFFP-3
LFHC-3
INLET LARGE WOOD STRUCTURE, TYP. SEE DETAIL 1, SHEET 23
BB-1
BB-2
LFRL-1
PLACE FLOODPLAIN ROUGHNESS WOOD TO SPAN CHANNEL, TYP
MATCHLINE - SEE SHEET 16
LFHC-2
BANK BURIED LARGE WOOD STRUCTURE, SEE DETAIL 1, SHEET 25
INLET-1
EXISTING ROAD ALIGNMENT, SEE PROFILE SHEET 19
GROUNDWATER FED ALCOVE/ WETLAND CHANNEL WITH SEASONAL HIGH FLOW THROUGH CREATED FLOODPLAIN

LABEL KEY

APEX	APEX JAMS
BB	BANK BURIED JAM
BBT	BANK BURIED JAM W/TREES
SM-BB	SMALL BANK BURIED JAM
M	BANK MARGIN WOOD
BR	BAR ROUGHNESS WOOD STRUCTURES
RW	BR AND SM-BB RACKING WOOD
CED3	CED3 BANK BARB STRUCTURE
DFL	DEFLECTOR JAM
FP	FLOODPLAIN ROUGHNESS LOGS
INLET	INLET STRUCTURE
LFFP	LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LW
LFHC	LOW FLOW CHANNEL HABITAT COVER LOGS
LFRL	LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LOG
TT	TIPPED TREE

LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1 FT)
- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
- APPROXIMATE ORDINARY HIGH WATER
- EXISTING WETLANDS
- WETLAND CREATION
- TAXLOTS
- RM XX — NASON CREEK RIVER MILE
- MP XX — HIGHWAY 207 MILEPOST
- PROPOSED NEW CHANNEL
- LARGE WOOD STRUCTURES (TYPE VARIES)
- STAGING AND STOCKPILE AREA
- ACCESS ROUTE
- LIMITS OF DISTURBANCE (LOD)
- COFFERDAM

0 100 200
SCALE IN FEET

NOTE: DETAILS OF REMOVING ABANDONED UTILITIES TO BE PROVIDED IN THE NEXT PHASE.

G:\M-P\Nason Creek Floodplain RM 3.4-4.6 Phase 3 200237\Drawings\IFI NasonFP NoRD C.dwg — cmcconnell — 1/13/26

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PHASE 2 60% DESIGN

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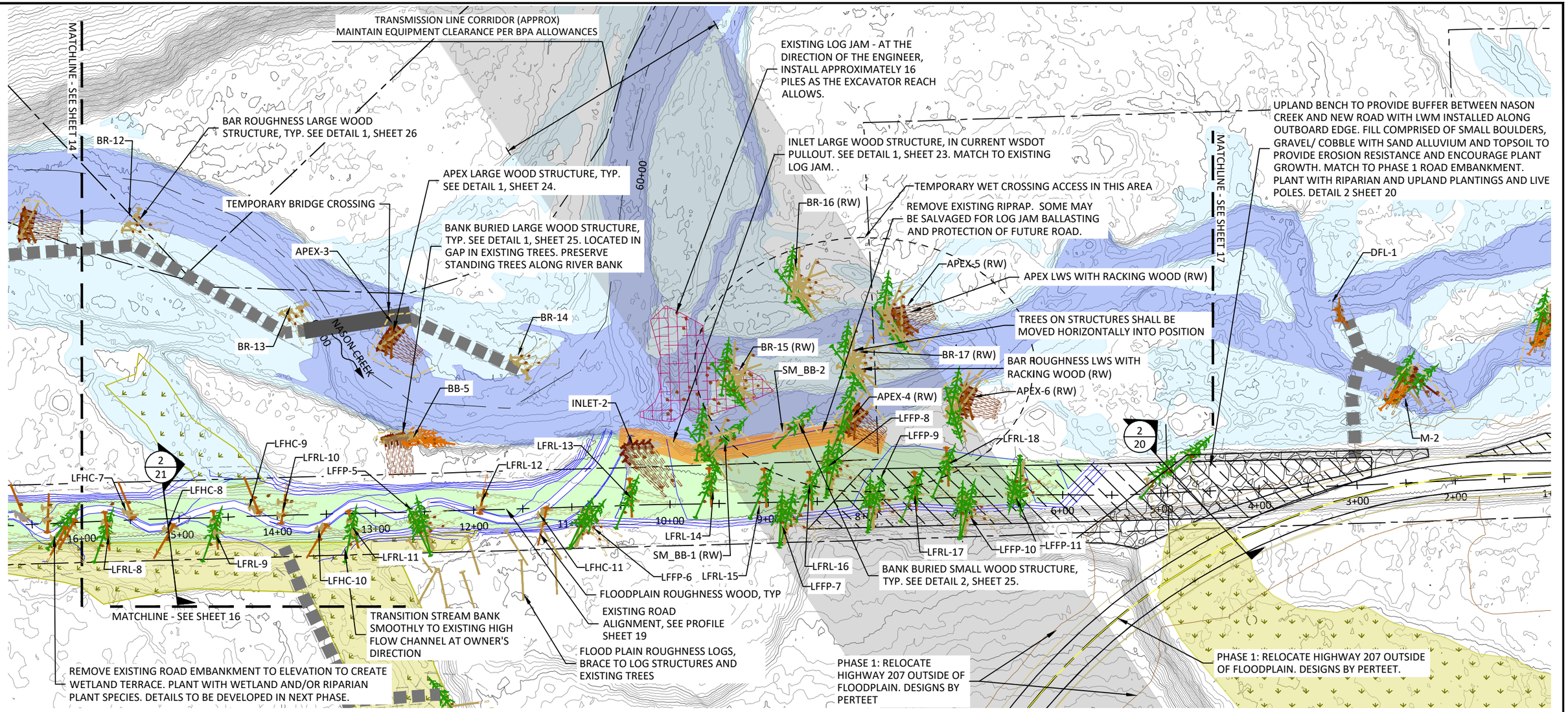
PROPOSED CONDITIONS
(1 OF 5)



LEGEND

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- ACCESS ROUTE
- LIMITS OF DISTURBANCE (LOD)
- COFFERDAM
- STABILIZE EXISTING LOG JAM WITH LOG PILES

LABEL KEY

APEX	APEX JAMS
BB	BANK BURIED JAM
BBT	BANK BURIED JAM W/TREES
SM-BB	SMALL BANK BURIED JAM
M	BANK MARGIN WOOD
BR	BAR ROUGHNESS WOOD STRUCTURES
RW	BR AND SM-BB RACKING WOOD
CED3	CED3 BANK BARB STRUCTURE
DFL	DEFLECTOR JAM
FP	FLOODPLAIN ROUGHNESS LOGS
INLET	INLET STRUCTURE
LFFP	LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LW
LFHC	LOW FLOW CHANNEL HABITAT COVER LOGS
LFRL	LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LOG
TT	TIPPED TREE

0 100 200
SCALE IN FEET

NOTE: DETAILS OF REMOVING ABANDONED UTILITIES TO BE PROVIDED IN THE NEXT PHASE.

Preliminary
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PROPOSED CONDITIONS
(2 OF 5)

SHEET
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MATCHLINE - SEE SHEET 14

MATCHLINE - SEE SHEET 15

22+00
21+00
20+00
19+00
18+00
17+00
16+00
15+00
14+00
13+00
12+00
11+00
10+00
9+00
8+00
7+00
6+00
5+00
4+00

PHASE 1: RELOCATE HIGHWAY 207 OUTSIDE OF FLOODPLAIN. DESIGNS BY PERTEET

FLOODPLAIN ROUGHNESS AND POTENTIAL HABITAT LWM, TYP. SEE DETAIL 2 SHEET 25

SM_BB-9

SM_BB-8

SM_BB-7

SM_BB-6

SM_BB-5

SM_BB-4

SM_BB-3

TOE OF SLOPE REVETMENT TBD PENDING DISCUSSIONS WITH WSDOT

RIECHE RD

0 100 200

SCALE IN FEET

LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1 FT)
- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
- APPROXIMATE ORDINARY HIGH WATER
- EXISTING WETLANDS
- TAXLOTS
- RM XX — NASON CREEK RIVER MILE
- MP XX — HIGHWAY 207 MILEPOST
- STAGING AND STOCKPILE AREA
- ACCESS ROUTE
- LIMITS OF DISTURBANCE (LOD)
- COFFERDAM

LABEL KEY

APEX	APEX JAMS
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LFRL	LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LOG
TT	TIPPED TREE

NOTE: DETAILS OF REMOVING ABANDONED UTILITIES TO BE PROVIDED IN THE NEXT PHASE.

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PROPOSED CONDITIONS
(3 OF 5)

SHEET
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DEFLECTOR LARGE WOOD STRUCTURE, TYP, SEE DETAIL 2, SHEET 24

M-4

M-6

NASON CREEK

DFL-2

MATCHLINE - SEE SHEET 18

DFL-1

MARGIN LARGE WOOD STRUCTURE, TYP, SEE DETAIL 2, SHEET 23

M-5

DFL-3

M-2

M-3

RM 3.75

M-7

102

103

PHASE 1: RELOCATE HIGHWAY 207 OUTSIDE OF FLOODPLAIN. DESIGNS BY PERTEET

207

EXISTING 12 FT CMP CULVERT

MATCHLINE - SEE SHEET 15

LEGEND

- EXISTING CONTOURS (1 FT)
- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
- APPROXIMATE ORDINARY HIGH WATER
- RM XX — NASON CREEK RIVER MILE
- 100 — SURVEY CONTROL POINT
- STAGING AND STOCKPILE AREA
- ACCESS ROUTE
- LIMITS OF DISTURBANCE (LOD)
- COFFERDAM

LABEL KEY

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TT	TIPPED TREE

0 50 100

SCALE IN FEET

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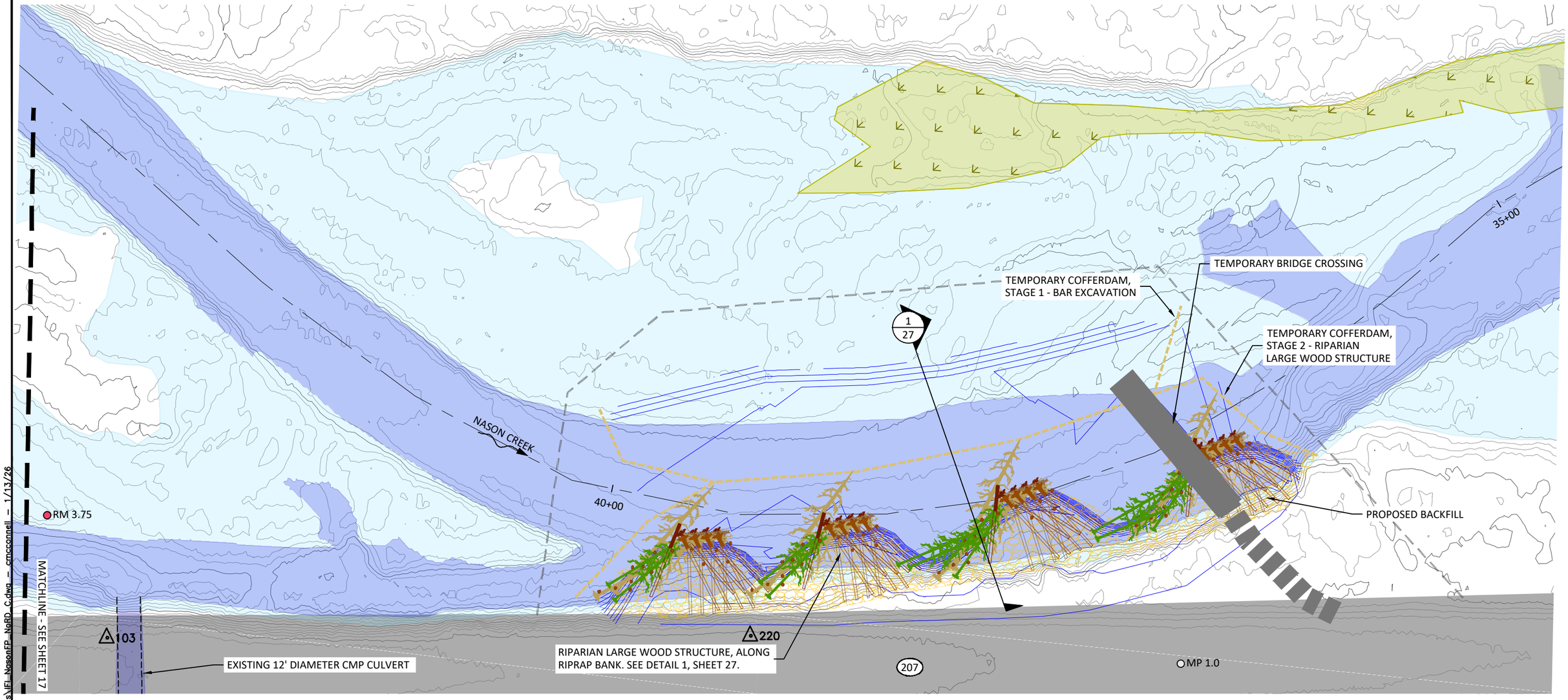
PROPOSED CONDITIONS
(4 OF 5)

SHEET
17 OF 31



LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1 FT)
- APPROXIMATE 1.5-YEAR EVENT FLOW INUNDATION LIMITS FOR EXISTING CONDITIONS
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0 50 100
SCALE IN FEET

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PROPOSED CONDITIONS
(5 OF 5)

SHEET
18 OF 31

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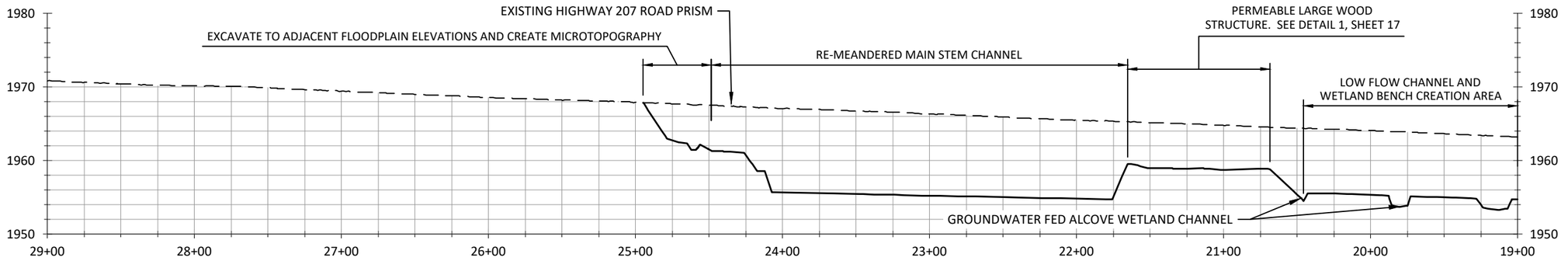
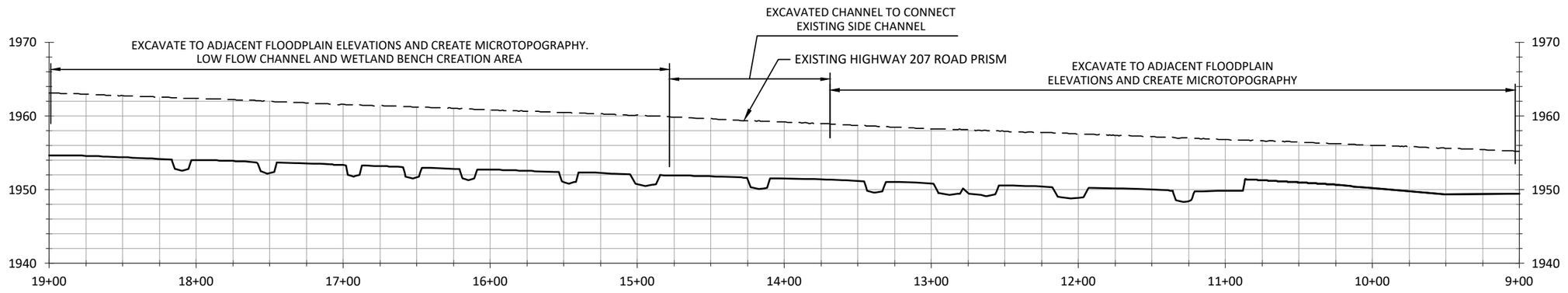
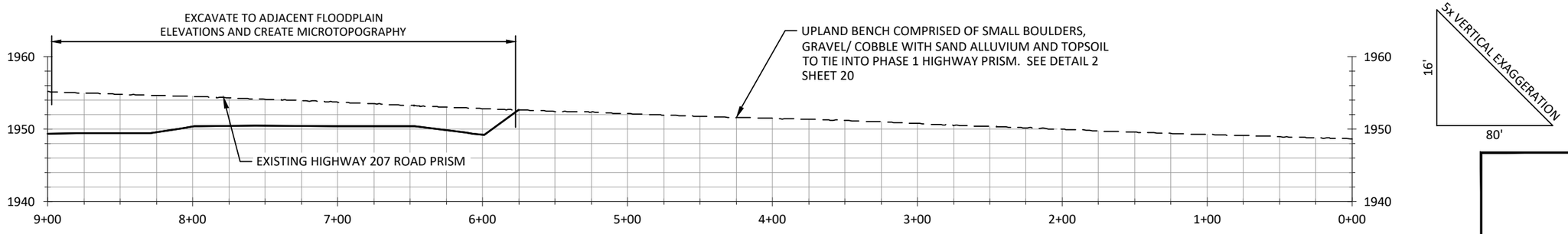


PROFILE - EXISTING ROAD PRISM, STA 29+00 - 19+00



PROFILE - EXISTING ROAD PRISM, STA 19+00 - 9+00



PROFILE - EXISTING ROAD PRISM, STA 9+00 - 0+00

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APPROVED	DATE	PROJECT

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NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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FORT ROAD
TOPPENISH, WA 98948
(509)865-5121

PROFILE - EXISTNG ROAD PRISM

SHEET
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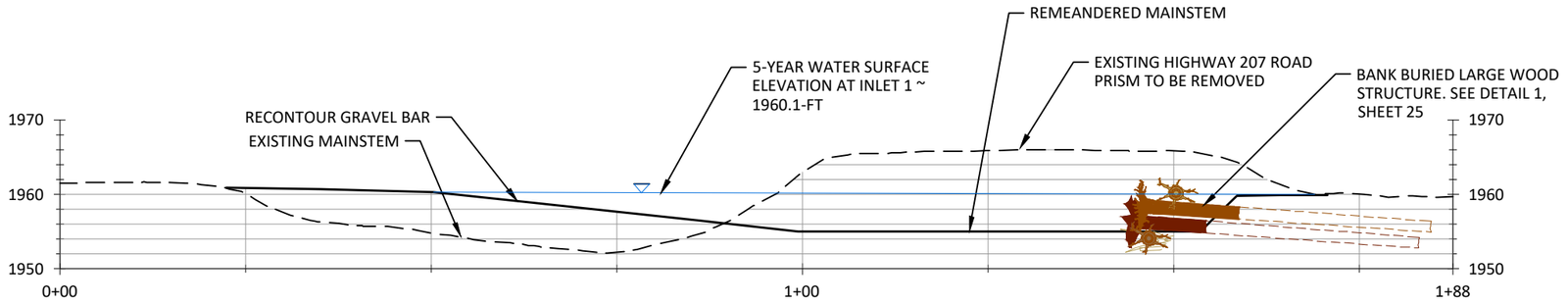
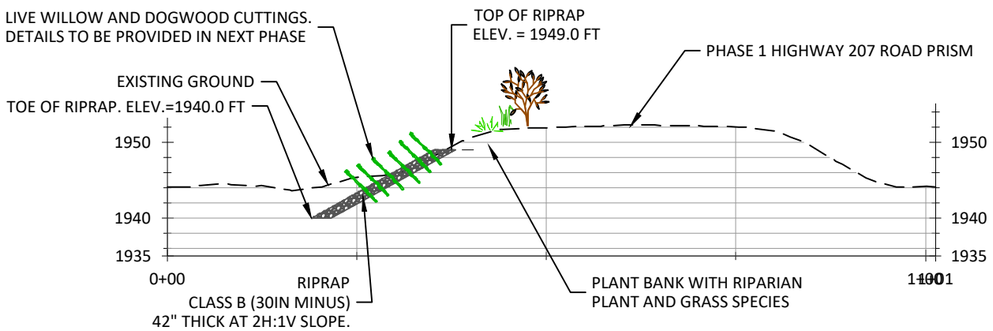
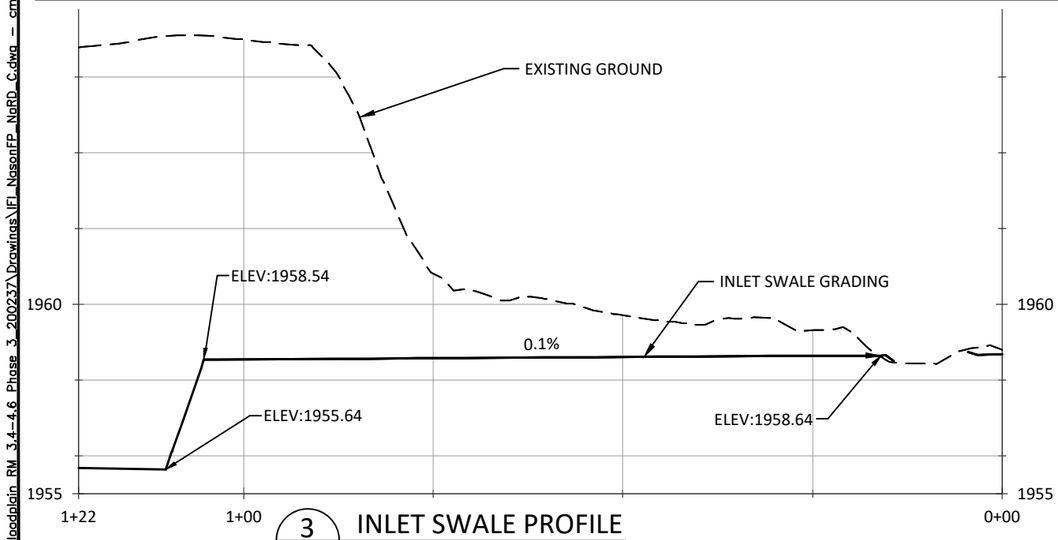


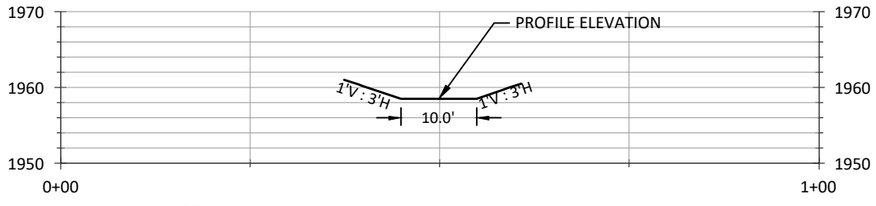
1/20 TYPICAL SECTION - MAINSTEM/ROAD REMOVAL
1"=20'



2/20 TYPICAL SECTION - ROAD BUFFER
1"=20'



3/20 INLET SWALE PROFILE
5 X VERTICAL EXAGERATION (1"=20')



4/20 TYPICAL SECTION - INLET SWALE
1"=20'

G:\M—P\Nason_Creek_Floodplain_RM_3.4-4.6_Phase_3_200237\Drawings\IFI_NasonFP_NoRD_C.dwg — cmcconnell — 1/13/26

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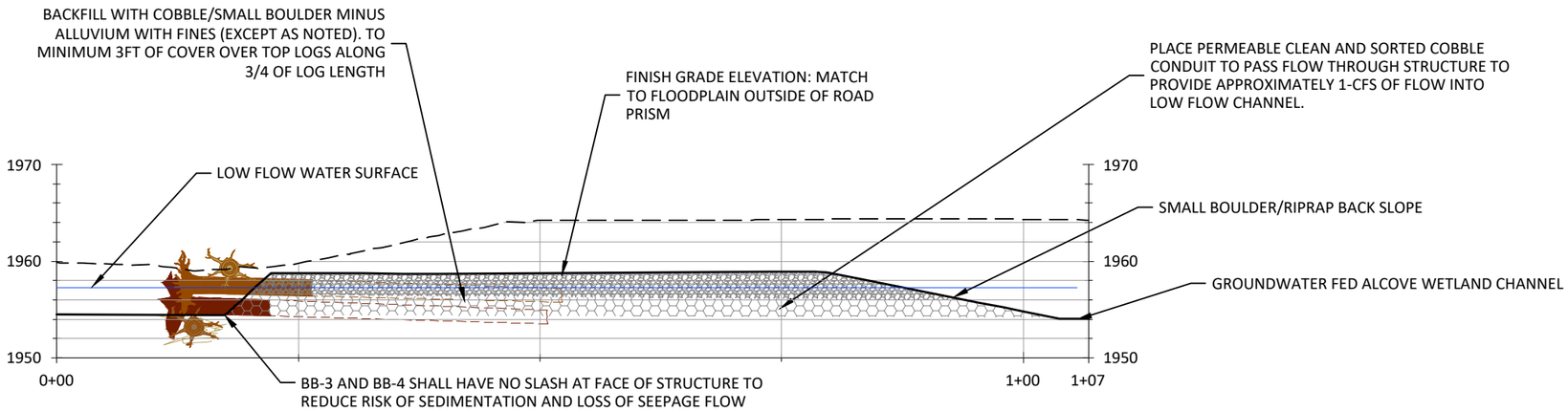
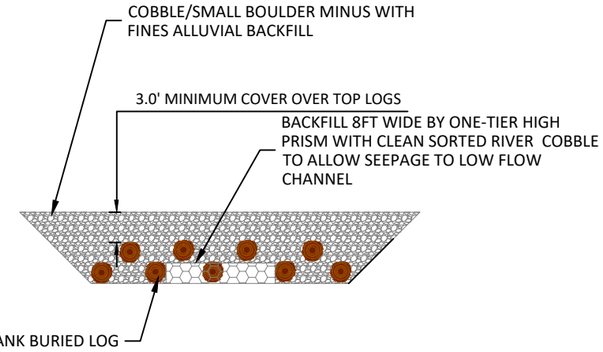
ROAD CROSS SECTIONS & INLET SWALE PROFILE AND SECTION

SHEET
20 OF 31



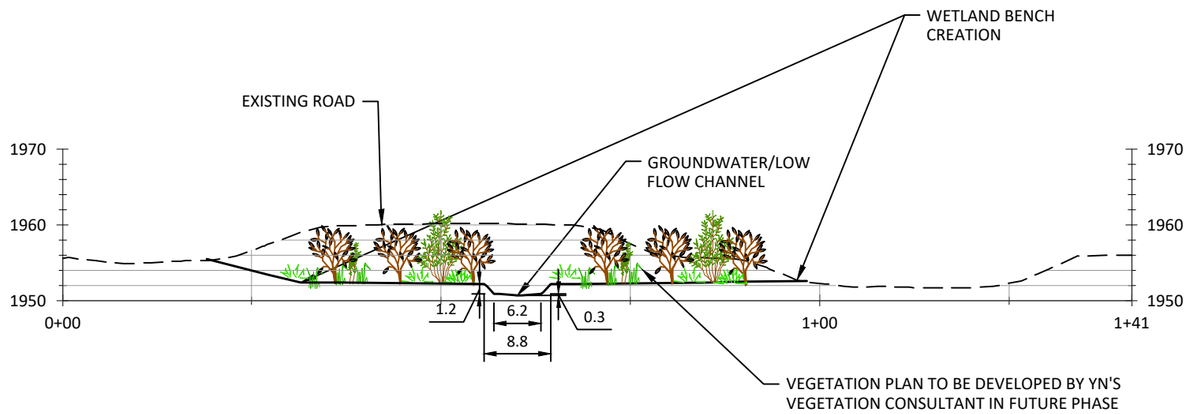
BANK BURIED JAM DETAILS FOR INLET TO GROUND WATER FED/WETLAND CHANNEL



BANK BURIED INFILTRATION LARGE WOOD STRUCTURE SECTION VIEW

1/21 GROUND WATER FED/WETLAND CHANNEL CONTROLLED INFLOW

1"=15'



2/21 TYPICAL SECTION - ROAD REMOVAL/WETLAND TERRACE

1"=20'

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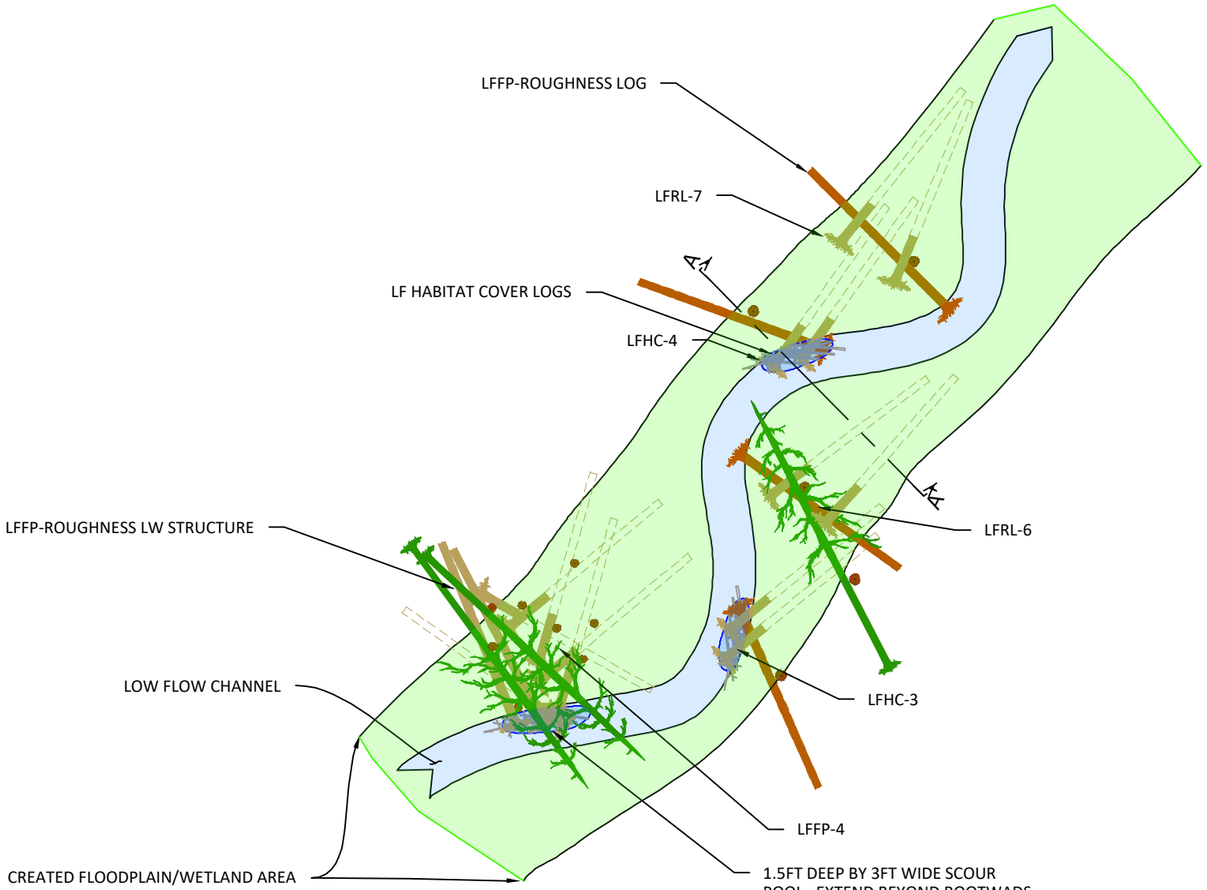
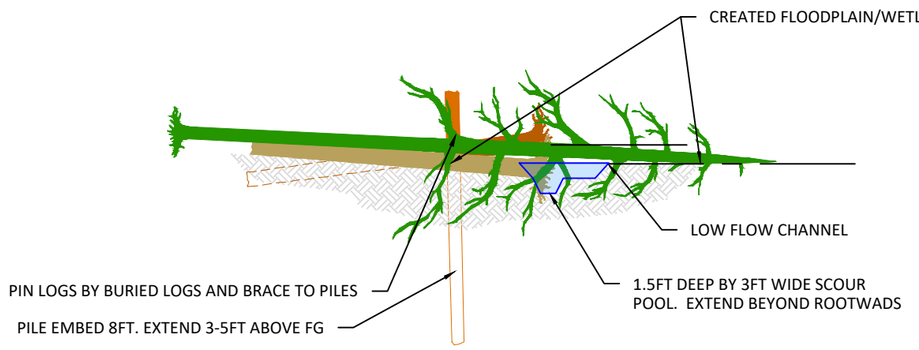
CROSS SECTIONS

SHEET
21 OF 31



PLAN



SECTION VIEW A-A'

1/22 LOW FLOW CHANNEL TYPICAL DETAIL
NOT TO SCALE

Preliminary
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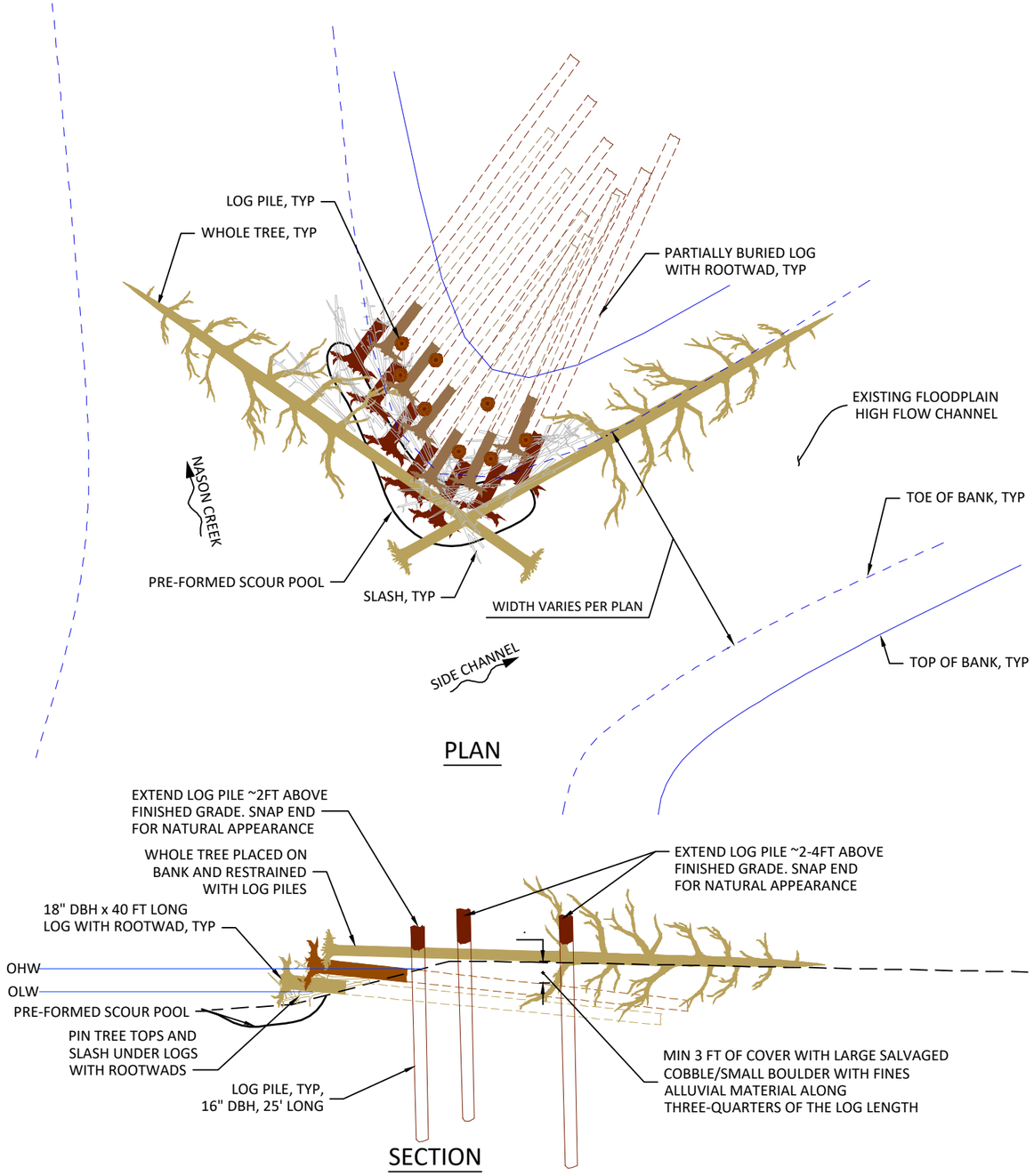
LOW FLOW CHANNEL TYPICAL DETAIL

SHEET
22 OF 31

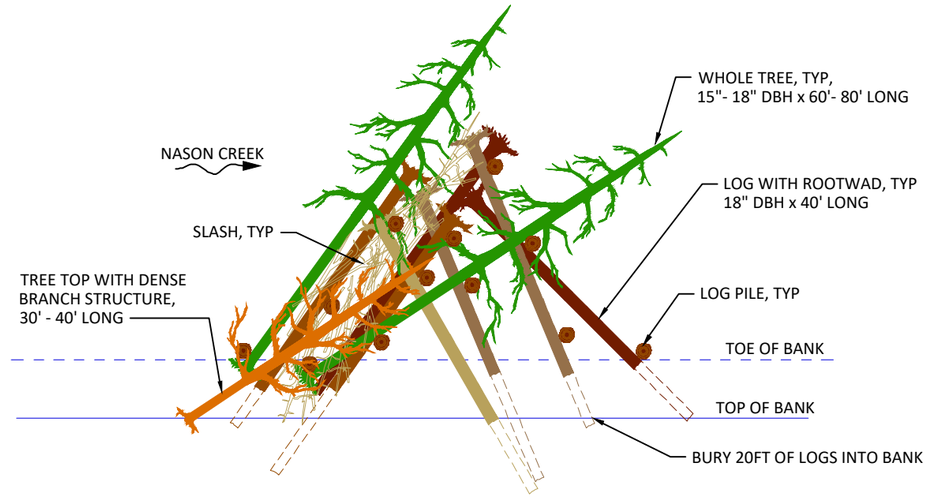


PLAN

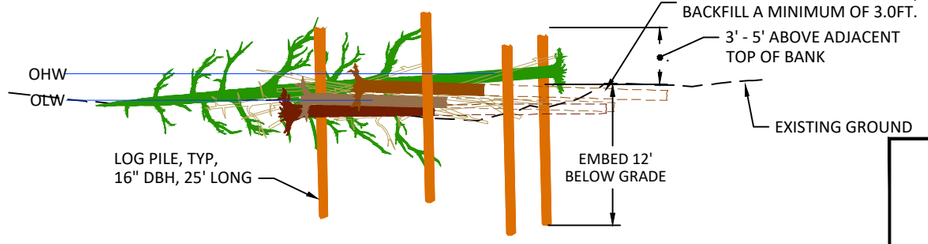
SECTION

1/23 TYPICAL DETAIL - INLET LARGE WOOD STRUCTURE (INLET)

NOT TO SCALE



PLAN



SECTION

2/23 TYPICAL DETAIL - MARGIN LARGE WOOD STRUCTURE (M)

NOT TO SCALE

Preliminary
Not for Construction

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LARGE WOOD TYPICAL DETAILS
(1 OF 5)

SHEET
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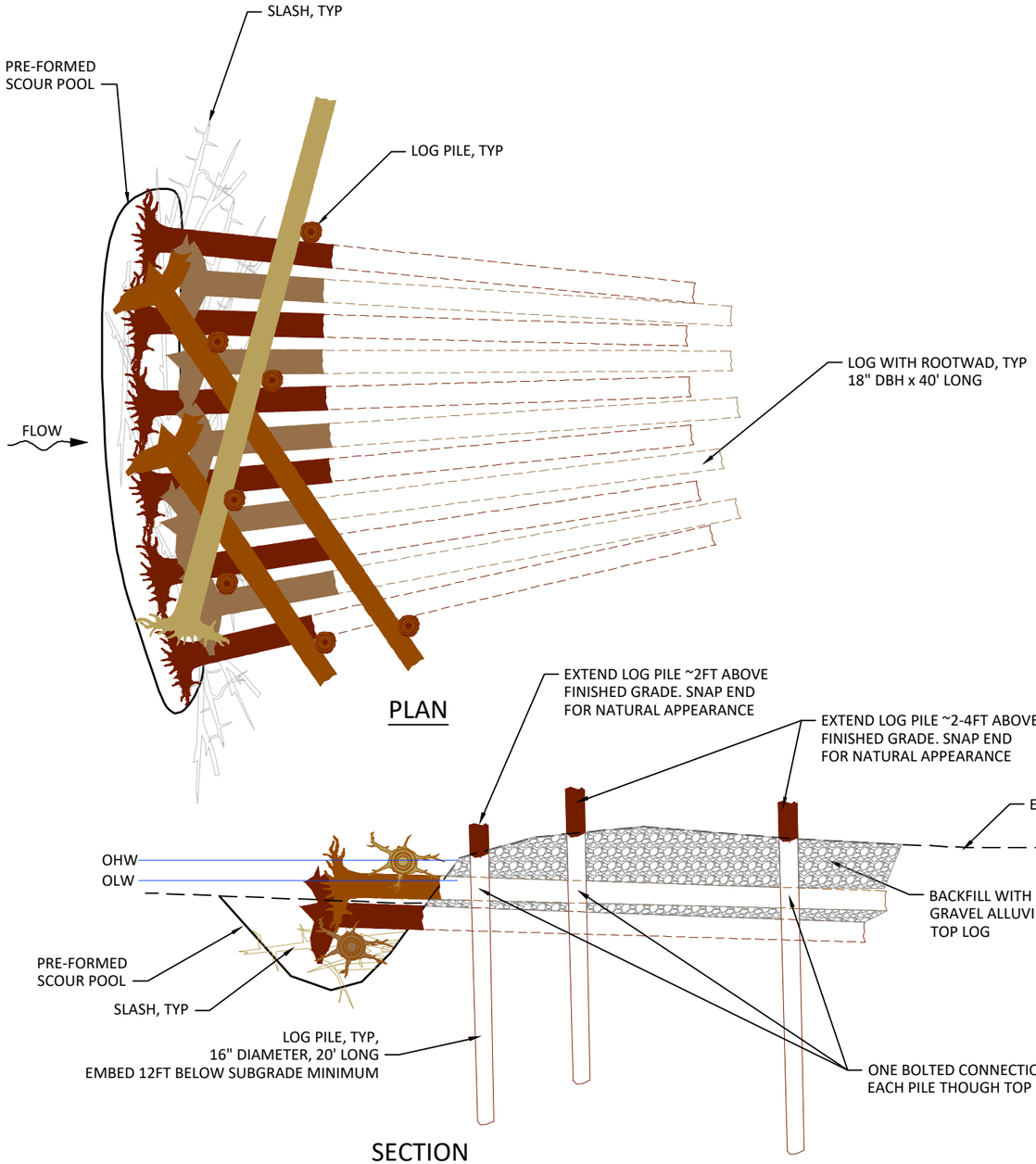
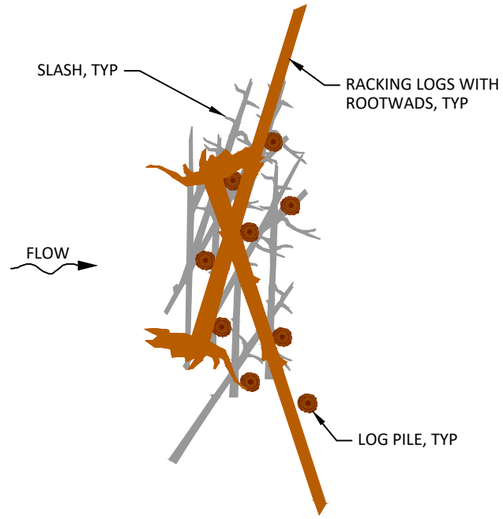
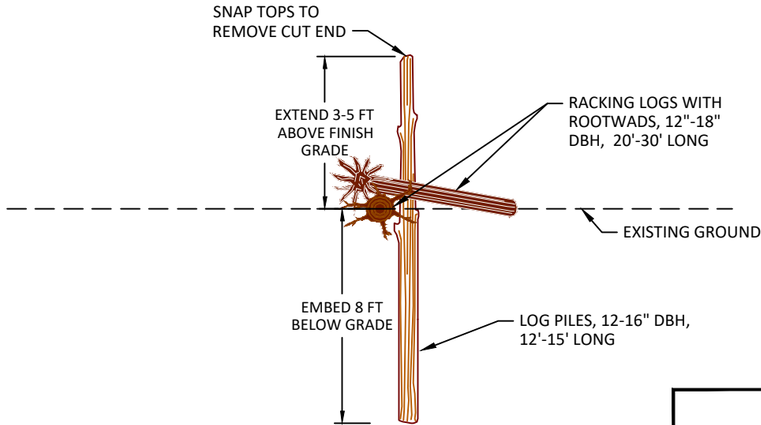


1/24 TYPICAL DETAIL - APEX LARGE WOOD STRUCTURE (APEX)
NOT TO SCALE





2/24 TYPICAL DETAIL - DEFLECTOR STRUCTURE (DFL)
NOT TO SCALE

Preliminary
Not for Construction

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LARGE WOOD TYPICAL DETAILS
(2 OF 5)

SHEET
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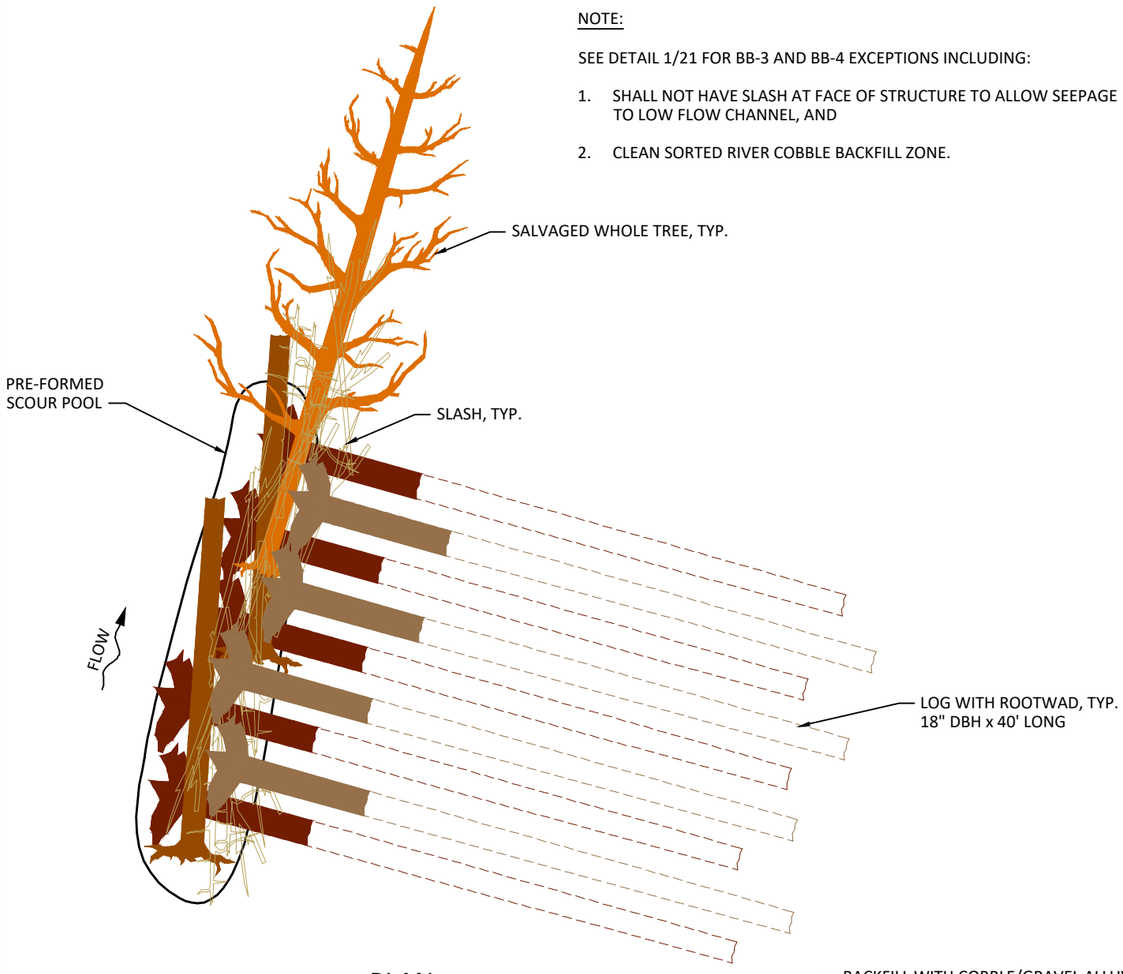
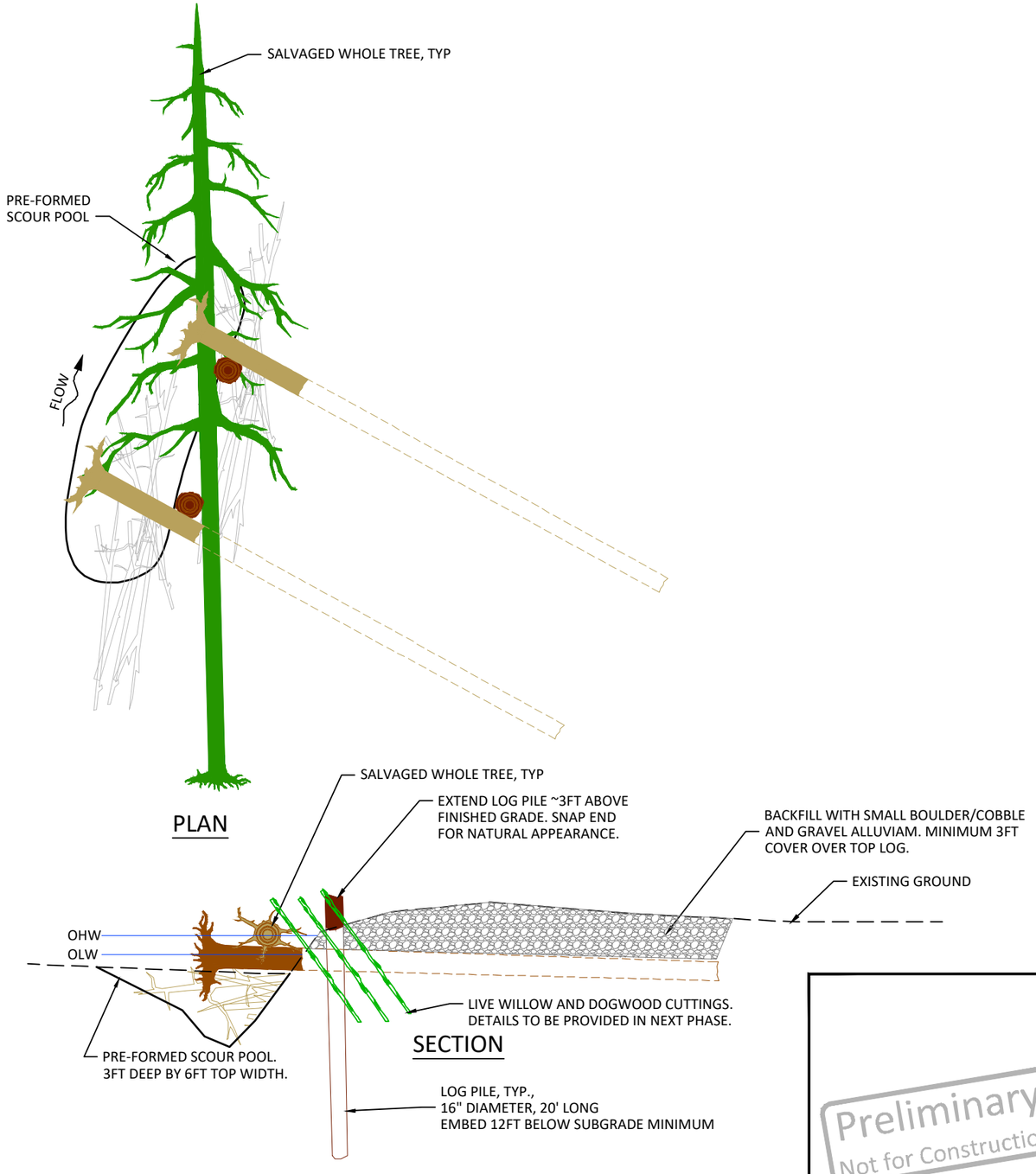
NOTE:

SEE DETAIL 1/21 FOR BB-3 AND BB-4 EXCEPTIONS INCLUDING:

1. SHALL NOT HAVE SLASH AT FACE OF STRUCTURE TO ALLOW SEEPAGE TO LOW FLOW CHANNEL, AND
2. CLEAN SORTED RIVER COBBLE BACKFILL ZONE.



1/25 TYPICAL DETAIL - BANK BURIED LARGE WOOD STRUCTURE (BB)
NOT TO SCALE



2/25 TYPICAL DETAIL - SMALL BANK BURIED LARGE WOOD STRUCTURE (SM-BB)
NOT TO SCALE

Preliminary
Not for Construction

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LARGE WOOD TYPICAL DETAILS
(3 OF 5)

SHEET
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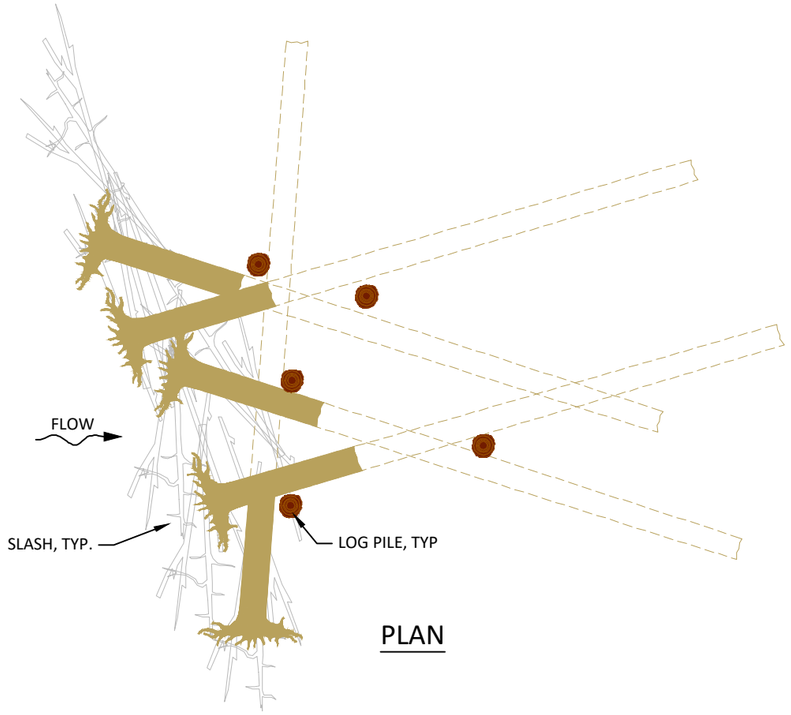
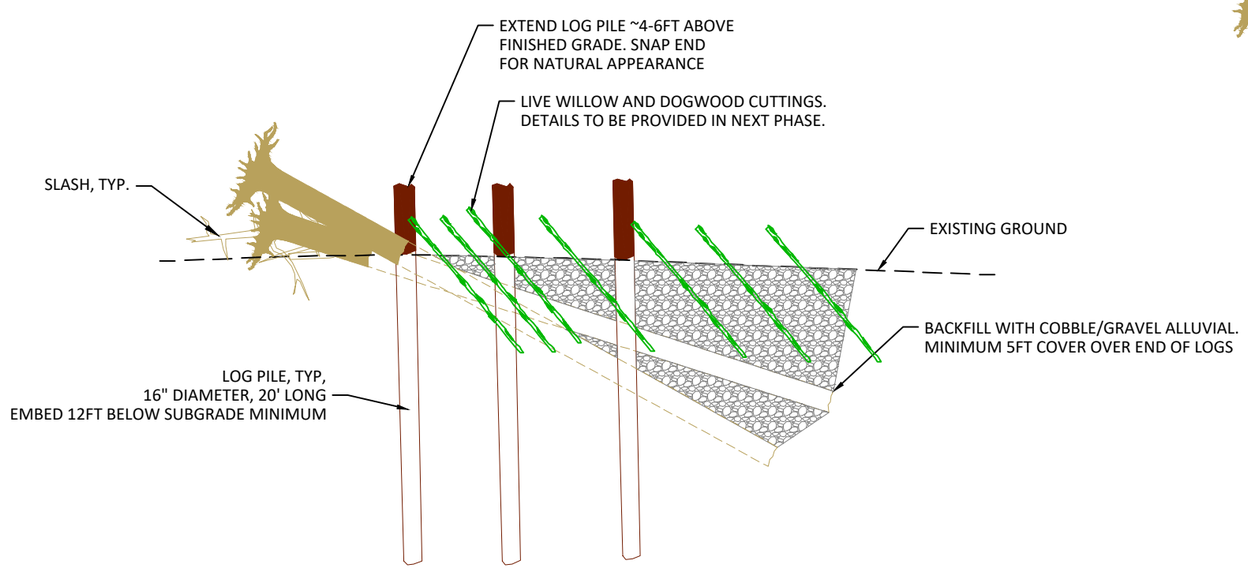
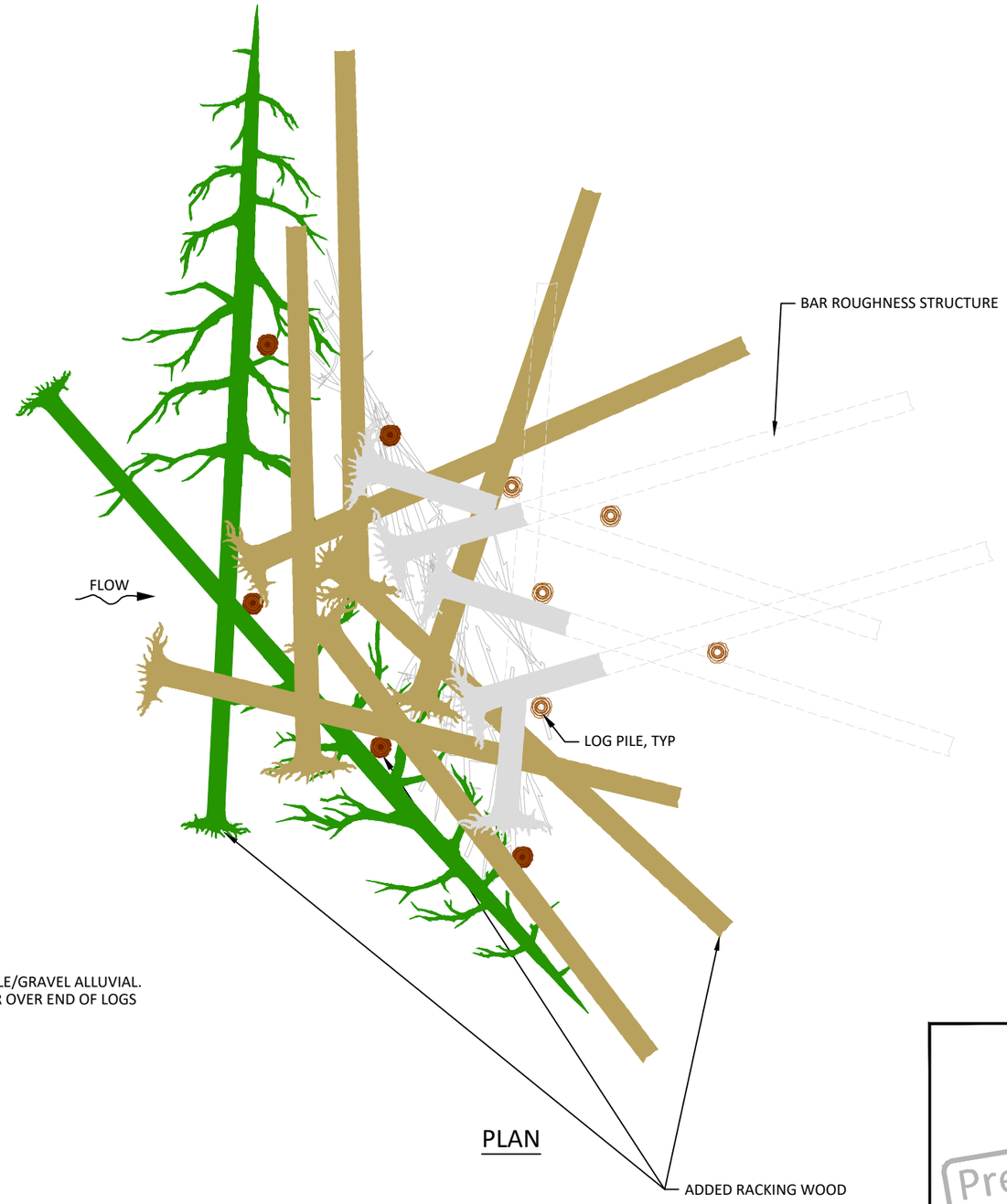


PLAN



SECTION



PLAN

BAR ROUGHNESS WITH ADDED RACKING WOOD

2/26 TYPICAL DETAIL - BAR ROUGHNESS LW STRUCTURE (BR)

NOT TO SCALE

Preliminary
Not for Construction

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LARGE WOOD TYPICAL DETAILS
(4 OF 5)

SHEET
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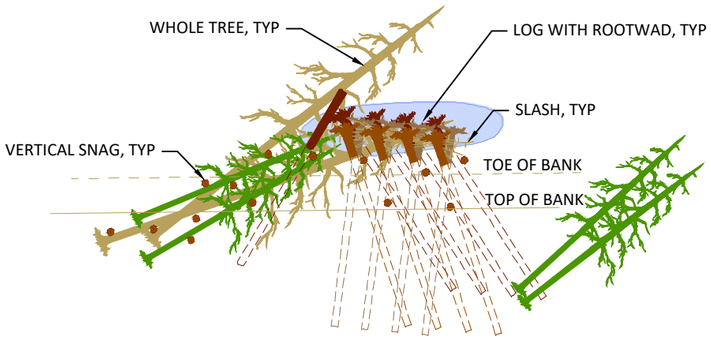
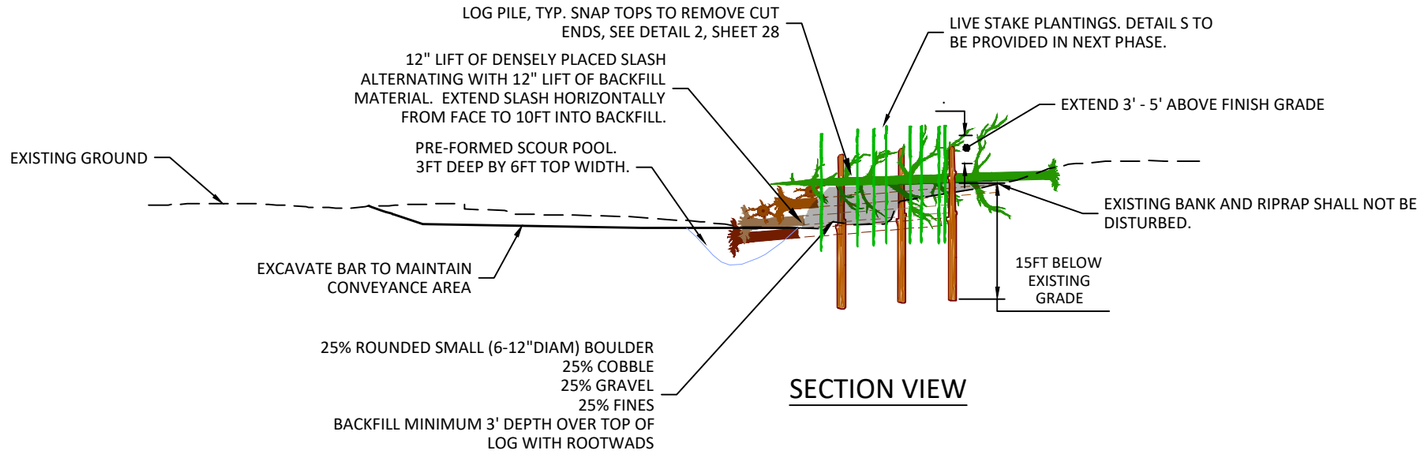
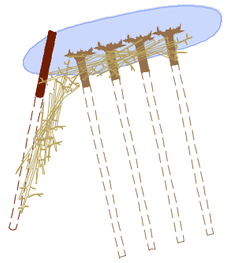


PLAN VIEW

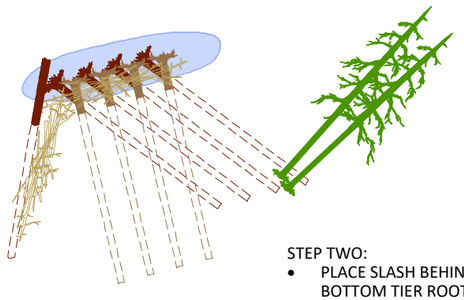


SECTION VIEW



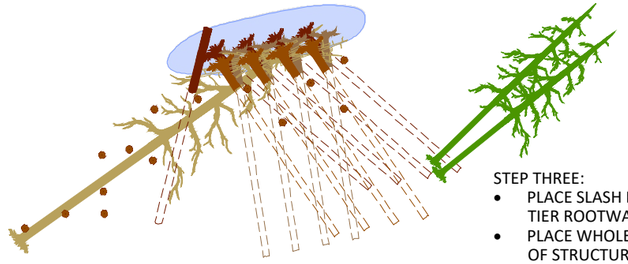
STEP 1

STEP ONE:
- EXCAVATE SCOUR POOL
- PLACE SLASH ALONG PERIMETER OF STRUCTURE
- PLACE BOTTOM TIER OF LOGS WITH ROOTWADS AND BUMPER LOG ON STREAMBED, PINNING SLASH UNDER AND BEHIND ROOTWADS
- BACKFILL TO TOPS OF LOGS



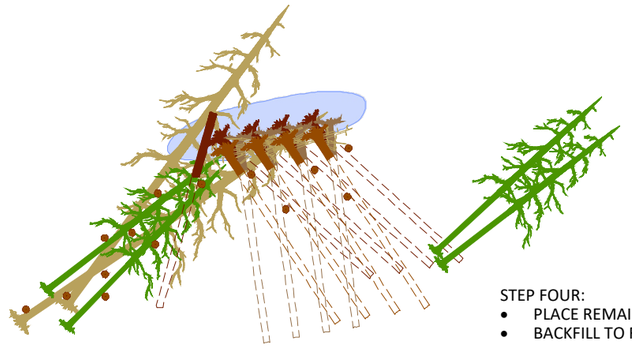
STEP 2

STEP TWO:
- PLACE SLASH BEHIND ROOTWADS OF BOTTOM TIER ROOTWADS
- PLACE DOWNSTREAM WHOLE TREES SPANNING BETWEEN STRUCTURES
- PLACE SECOND TIER OF LOGS WITH ROOTWADS, PINNING SLASH UNDER AND BEHIND ROOTWADS
- BACKFILL TO TOPS OF LOGS



STEP 3

STEP THREE:
- PLACE SLASH BEHIND ROOTWADS OF MIDDLE TIER ROOTWADS
- PLACE WHOLE TREES ALONG UPSTREAM FACE OF STRUCTURE
- PLACE THIRD TIER OF LOGS WITH ROOTWADS, PINNING SLASH UNDER AND BEHIND ROOTWADS
- INSTALL LOG PILES
- BACKFILL TO TOPS OF LOGS



STEP 4

STEP FOUR:
- PLACE REMAINING WHOLE TREES
- BACKFILL TO FINISHED GRADE

SEQUENCING

1/27 TYPICAL DETAIL - RIPARIAN LARGE WOOD STRUCTURE

NOT TO SCALE

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LARGE WOOD TYPICAL DETAILS
(5 OF 5)

SHEET
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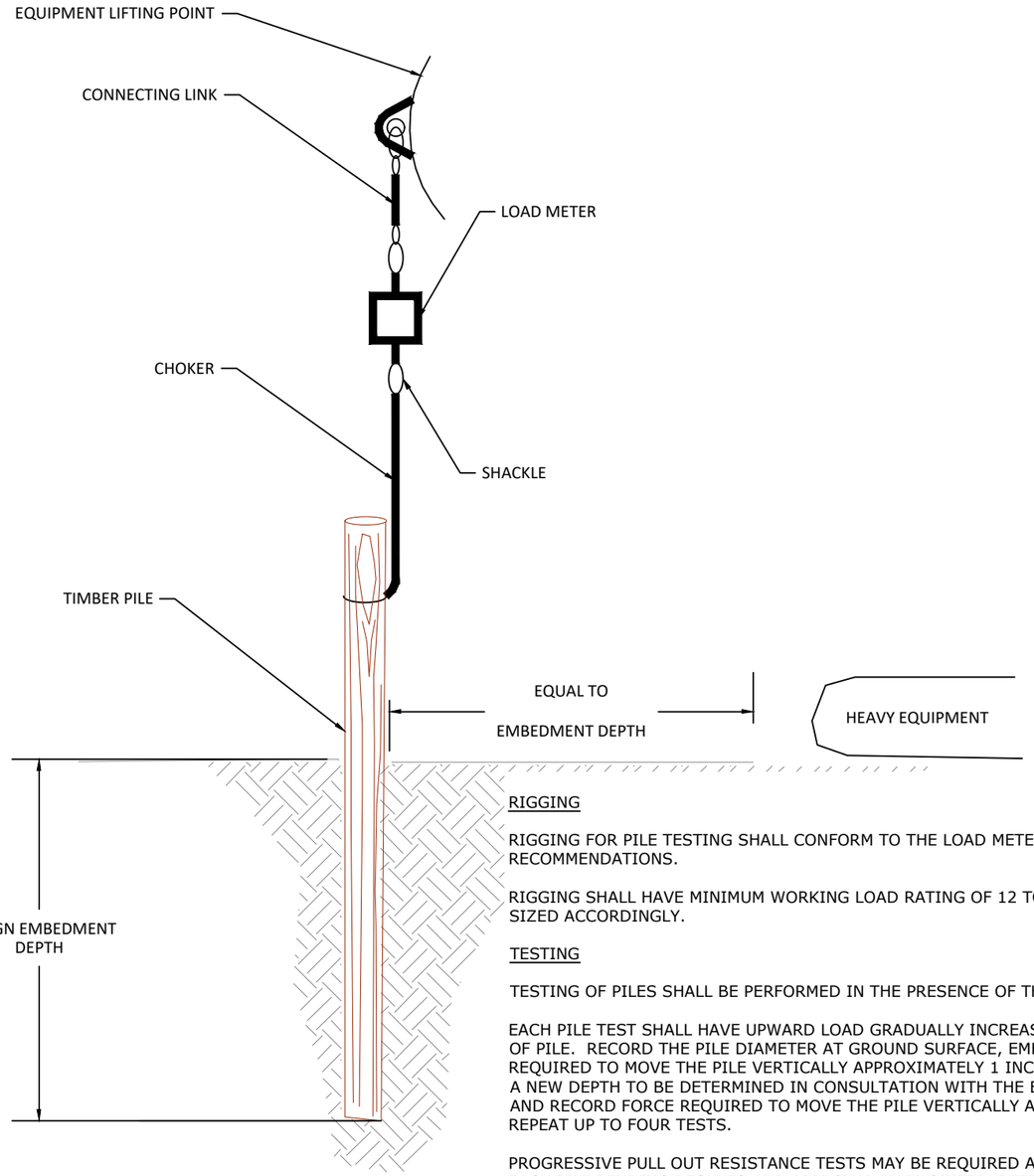


RIGGING

RIGGING FOR PILE TESTING SHALL CONFORM TO THE LOAD METER MANUFACTURER'S RECOMMENDATIONS.

RIGGING SHALL HAVE MINIMUM WORKING LOAD RATING OF 12 TONS. FITTINGS SHALL BE SIZED ACCORDINGLY.

TESTING

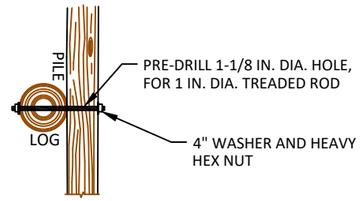
TESTING OF PILES SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.

EACH PILE TEST SHALL HAVE UPWARD LOAD GRADUALLY INCREASED AND ALIGNED TO AXIS OF PILE. RECORD THE PILE DIAMETER AT GROUND SURFACE, EMBEDMENT DEPTH AND FORCE REQUIRED TO MOVE THE PILE VERTICALLY APPROXIMATELY 1 INCH. THEN DRIVE THE PILE TO A NEW DEPTH TO BE DETERMINED IN CONSULTATION WITH THE ENGINEER. APPLY NEW LOAD AND RECORD FORCE REQUIRED TO MOVE THE PILE VERTICALLY APPROXIMATELY 1 INCH. REPEAT UP TO FOUR TESTS.

PROGRESSIVE PULL OUT RESISTANCE TESTS MAY BE REQUIRED AT UP TO FOUR DEPTHS FOR EACH PILE PENDING RESULTS AND APPROVAL BY ENGINEER. DEPTHS SHALL BE DETERMINED IN THE FIELD. AS A GUIDELINE, TEST EMBEDMENT DEPTHS MAY INCLUDE 50%, 60%, 80% AND 100% OF THE DESIGN EMBEDMENT DEPTH. PULL OUT RESISTANCE TEST AT 80% AND 100% OF DESIGN EMBEDMENT DEPTH SHALL ONLY BE REQUIRED IF PULL OUT LOAD IS LESS THAN THE PROOF LOAD REQUIRED IN THE SPECIFICATIONS.

EQUIPMENT CONDUCTING PULL OUT LOADING SHALL BE POSITIONED NO CLOSER THAN EMBEDMENT DEPTH OF PILE, IF POSSIBLE. IF A CLOSER POSITIONING IS REQUIRED, EQUIPMENT SHALL BE NO CLOSER THAN THAT REQUIRED TO GENERATE REQUIRED LOADING WITH DISTANCE FROM PILE NOTED IN THE TEST RECORD. IF EQUIPMENT IS CLOSER THAN HALF THE EMBEDMENT DEPTH, DISTRIBUTE GROUND LOADING ON TIMBERS AND AWAY FROM THE PILE LOCATION. TIMBER DIMENSIONS AND LENGTHS SHALL BE NOTED IN THE TEST RECORD.

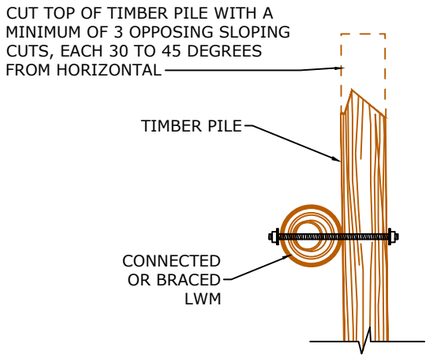
1/28 TYPICAL DETAIL - TIMBER PILE TESTING
NOT TO SCALE



NOTES:

1. DRILL 1-1/8" DIA HOLE THROUGH LOGS.
2. INSERT 1" DIA THREADED ROD.
3. INSTALL 1/4" THICK BY 4" SQUARE OR ROUND STEEL WASHER AND HEAVY HEX NUTS. SECURE NUTS BY CHISELING THREADS OR MUSHROOMING EXPOSED ENDS OF ROD.
4. CUT BOLT TO EXTEND NO FURTHER THAN 2" PAST NUT.
5. FILE OR GRIND OFF SHARP EDGES

2/28 TYPICAL DETAIL - BOLTED CONNECTIONS
NOT TO SCALE



3/28 TYPICAL DETAIL - TIMBER PILE TOPS
NOT TO SCALE

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

CM	DM	DM
DRAWN	DESIGNED	CHECKED
DM	01/13/2026	200237
APPROVED	DATE	PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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LOG PILE DETAILS

SHEET
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INTRODUCTION

THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION 2026 (WSDOT STANDARD SPECIFICATIONS) SHALL APPLY UNLESS OTHERWISE NOTED IN THE FOLLOWING PROVISIONS. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT WILL GOVERN. THE "CONTRACTING AGENCY" OR "OWNER" SHALL BE THE CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION, UPPER COLUMBIA HABITAT RESTORATION PROJECT (UCHRP). ADDITIONAL SPECIFICATIONS IN THE FOLLOWING CONTRACT SECTIONS ARE INCLUDED FOR ITEMS NOT COVERED BY THE WSDOT STANDARD SPECIFICATIONS.

SECTIONS 1-02, 1-03, AND 1-08 (EXCEPT 1-08.6, 1-08.7, 1-08.8) OF THE STANDARD SPECIFICATIONS DO NOT APPLY.

THE IN-WATER WORK WINDOW FOR THIS PROJECT IS JULY 1 - AUGUST 15. WORK MAY OCCUR OUTSIDE OF WATER BEFORE OR AFTER THE IN-WATER WORK WINDOW.

FLOWS ARE RECORDED BY WASHINGTON DEPARTMENT OF ECOLOGY STREAM GAGE 45J070 NEAR MOUTH OF NASON CREEK

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE BPA HABITAT IMPROVEMENT PROGRAM (HIP). HIP GENERAL CONSERVATION MEASURES (CMS) ARE INCLUDED ON SHEETS 6-8 OF THE PLANS. SITE SPECIFIC DIRECTION IS ADDED TO THE FOLLOWING PROVISIONS. ANY VARIANCES FROM HIP CMS WILL BE REQUESTED BY OWNER. IN A CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, LOCAL REGULATIONS, OR OTHER CONTRACT DOCUMENTATION, THE MORE STRINGENT WILL GOVERN, UNLESS SPECIFIED IN WRITING BY THE OWNER.

ITEM 001 - MOBILIZATION

THIS ITEM SHALL CONSIST OF PREPARATION WORK AND OPERATIONS PERFORMED BY THE CONTRACTOR. THE PROVISIONS OF SECTION 2.01 OF THE WSDOT STANDARD SPECIFICATIONS, AND AS AMENDED BY THESE SPECIAL PROVISIONS.

CONSTRUCTION REQUIREMENTS

1. PRIOR TO ENTERING THE SITE, ALL EQUIPMENT SHALL BE POWER WASHED, BECOME FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE. IF EQUIPMENT LEAVES THE SITE AND RETURNS, IT SHALL BE REWASHED AND INSPECTED PRIOR TO ACCESSING THE SITE.
2. TEMPORARY SITE ACCESS SHALL BE ALONG ACCESS ROUTES AND STAGING AREAS SHOWN IN THE PLANS. THESE ARE APPROXIMATE. ACTUAL DISTURBANCE LIMITS WILL BE STAKED AND FLAGGED IN THE FIELD BY THE OWNER. DESIGNATED DISTURBANCE LIMITS SHALL BE STRICTLY ADHERED TO AND NO LARGE TREES WILL BE IMPACTED WITHOUT PERMISSION FROM THE OWNER.
3. DESIGNATED RIVER CROSSINGS ARE SHOWN IN THE PLANS. A TEMPORARY BRIDGE AS SPECIFIED IN ITEM 0## TEMPORARY ACCESS BRIDGE SHALL BE USED TO CROSS FLOWING CHANNELS. TEMPORARY RIVER WET CROSSINGS ARE SHOWN ON THE PLANS. NO RIVER CROSSING SHALL BE MADE PRIOR TO APPROVAL BY OWNER.
4. PRIOR TO DEMOBILIZATION, RUTTING AND DISTURBED GROUND SHALL BE RIPPED TO 18INCHES DEEP TO DECOMPACT SOILS IF DIRECTED BY OWNER, AND GRADED SMOOTH TO BLEND WITH EXISTING TOPOGRAPHY. ACCESS ROUTES, AND STOCKPILE AND STAGING AREAS SHALL BE RETURNED TO ORIGINAL OR BETTER CONDITION. ANY REMOVED OR DAMAGED FENCES SHALL BE REPAIRED OR REPLACED TO PRE-PROJECT CONDITION OR BETTER.
5. EXISTING ROADS SHALL BE RESTORED TO PRE-PROJECT OR BETTER CONDITION AS DIRECTED BY OWNER.
6. BEFORE THE RELEASE OF FINAL RETAINAGE TO THE CONTRACTOR, THE CONTRACTOR WILL PARTICIPATE IN A WALK-THROUGH WITH THE OWNER AND USFS STAFF TO EVALUATE THE RESTORED AREAS.
7. ALL HEAVY EQUIPMENT OPERATING ON PAVEMENT SHALL USE RUBBER MATS OR SIMILAR TO AVOID IMPACTS TO PAVED SURFACE.
8. ROAD ASPHALT REPAIR/REPLACEMENT WORK SHALL CONFORM TO COUNTY, STATE OR USFS SPECIFICATIONS BASED ON JURISDICTION OF ROAD IF MORE STRINGENT THAN SPECIFICATIONS HEREIN.
9. MATERIALS EXCAVATED FOR DISPOSAL SHALL BE HAULED AND PLACED OUTSIDE OF THE FEMA DELINEATED FLOODPLAIN IN A LEGAL DISPOSAL AREA AND IN COMPLIANCE WITH ANY APPLICABLE REGULATIONS WITH ANY NECESSARY PERMITS OBTAINED BY THE CONTRACTOR.
10. CONTRACTOR SHALL REPAIR/REPLACE CRUSHED GRAVEL ROAD BASE PER WSDOT STANDARD SPECIFICATION 9-03.9(3) CRUSHED SURFACING BASE COURSE. FINISHED GRADE SHALL BE SLOPED PER ROAD JURISDICTIONAL CRITERIA TO PROVIDE POSITIVE DRAINAGE OFF ROAD SURFACE.

MEASUREMENT AND PAYMENT

MOBILIZATION SHALL BE MEASURED AND PAID FOR BY LUMP SUM. PARTIAL PAYMENTS WILL BE MADE IN ACCORDANCE WITH SECTION 2.01 OF THE STANDARD SPECIFICATIONS. WITHHOLDING OF PARTIAL PAYMENT WILL OCCUR IF LIMITS OF DISTURBANCE ARE NOT ADHERED TO. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEM 002- TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL REQUIREMENTS SHALL INCLUDE BARRICADES AND CONSTRUCTION SIGNAGE AT THE ENTRANCE TO THE PROJECT SITE AND ANY OTHER MEASURES PER STANDARD SPECIFICATIONS SECTION 2-04.3 AND LOCAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPLICABLE COUNTY PERMITS.

MEASUREMENT AND PAYMENT

TRAFFIC CONTROL SHALL BE MEASURED AND PAID FOR BY LUMP SUM. PARTIAL PAYMENTS WILL BE MADE IN ACCORDANCE WITH SECTION 2.04 OF THE STANDARD SPECIFICATIONS. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION ACQUIRING RIGHT-OF-WAY PERMIT, AS WELL AS ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEM 003- TESC, SPCC PLAN AND IMPLEMENTATION

THIS WORK SHALL PROVIDE FOR PREPARATION, IMPLEMENTATION, AND REMOVAL OF A TEMPORARY EROSION SEDIMENT CONTROL (TESC) PLAN AND FOR THE PREPARATION AND IMPLEMENTATION OF A SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN IN ACCORDANCE WITH SECTION 1-07.15 OF THE STANDARD SPECIFICATIONS, AND AS AMENDED BY THESE SPECIAL PROVISIONS.

1. THE CONTRACTOR SHALL SUBMIT A TESC FOR THE PROJECT TO THE OWNER FOR APPROVAL. THE TESC MUST SATISFY THE REQUIREMENTS OF THE WASHINGTON DEPARTMENT OF ECOLOGY NPDES STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY AND ALL OTHER APPLICABLE PERMITS. THE CONTRACTOR SHALL USE MEASURES OF THEIR OWN DESIGN TO ENSURE SATISFACTORY PERFORMANCE AND THAT THE EROSION CONTROL REQUIREMENTS OF ALL APPLICABLE PERMITS ARE MET. THE CONTRACTOR SHALL BE NAMED AS THE PERMIT HOLDER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING, INSPECTING AND FILING REPORTS, MAINTAINING, REPLACING, AND REMOVING TESC AND SPCC MEASURES. THE PLAN SHALL INCLUDE THE NAME, ADDRESS AND 24-HOUR CONTACT NUMBER OF THE PERSON RESPONSIBLE FOR EROSION PREVENTION AND SEDIMENT CONTROL MEASURES.
2. A SPILL CONTAINMENT KIT SHALL BE ON SITE AND CREWS SHALL BE TRAINED IN ITS USE.
3. BIODEGRADABLE HYDRAULIC FLUID SHALL BE INSTALLED INTO EACH PIECE OF HEAVY MACHINERY WORKING WITHIN 50 FEET OF THE RIVER AND SIDE CHANNELS.
4. CONTRACTOR WILL BE REQUIRED TO APPLY FOR AN INDUSTRIAL FIRE PROTECTION LEVEL (IFPL) 3 WAIVER IN THE EVENT THAT DEPARTMENT OF NATURAL RESOURCES DECLARES THE IFPL LEVEL HAS BEEN INCREASED TO LEVEL 3. REGARDLESS OF IFPL LEVELS, A FIRE CONTAINMENT KIT INCLUDING SHOVELS AND FIRE EXTINGUISHERS WILL BE KEPT WHERE ANY CONSTRUCTION ACTIVITIES ARE TAKING PLACE AND AT THE REFUELING LOCATION.

INSPECTION AND MAINTENANCE

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AT OWN EXPENSE FOR PROVIDING AND MAINTAINING ALL NECESSARY EROSION CONTROL FACILITIES TO COMPLY WITH APPLICABLE EROSION CONTROL REGULATIONS AND TO MAINTAIN CLEAN ACCESS ROUTES.

ALL TESC FACILITIES SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL TESC FACILITIES SHALL BE INSPECTED DAILY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND AFTER EVENTS EXCEEDING 2 HOURS DURATION.

CONTRACTOR'S MEETINGS AND TESC RECORDS

THE CONTRACTOR SHALL MEET WITH THE OWNER AND OWNER'S REPRESENTATIVE AT THE BEGINNING OF EACH WORK WEEK TO DISCUSS: WORK COMPLETED DURING THE PRIOR WEEK, WORK ANTICIPATED IN THE NEXT WEEK, CONSTRUCTION SCHEDULE, WORK SITE ORGANIZATION, ACCESS ROUTES, CONSTRUCTION TECHNIQUES, LANDOWNER CONSIDERATIONS, BIOLOGICAL OBJECTIVES, LOGISTICS AND OTHER TOPICS PERTINENT TO IMPLEMENTATION OF THE PROJECT.

THE CONTRACTOR SHALL SUBMIT WEEKLY REPORTS TO THE OWNER. REPORTS SHALL INCLUDE: SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN, AND ACTIONS TAKEN AS A RESULT OF THE INSPECTIONS SHALL BE PREPARED AND RETAINED ON SITE BY THE CONTRACTOR. IN ADDITION, A RECORD OF THE FOLLOWING EVENTS SHALL BE INCLUDED IN THE REPORTS:

1. WHEN MAJOR GRADING ACTIVITIES OCCUR,
2. DATES OF RAINFALL EVENTS EITHER EXCEEDING 2 HOURS DURATION OR MORE THAN 0.5 INCHES/24 HOURS,
3. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON SITE, OR ON A PORTION OF THE SITE,
4. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE.

TESC RECORDS SHALL BE MADE AVAILABLE TO THE OWNER AND THE OWNER'S REPRESENTATIVE ON THE REQUEST AND SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO APPLICATION FOR PAYMENT.

MEASUREMENT AND PAYMENT

"TESC, SPCC PLAN AND IMPLEMENTATION," INCLUDING THE ABOVE AMENDMENTS TO THE ITEM WILL BE MEASURED AND PAID FOR BY LUMP SUM. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEM 004 - CLEARING AND GRUBBING

THIS ITEM CONSISTS OF CLEARING AND GRUBBING FOR CONSTRUCTION AS SHOWN IN THE PLANS INCLUDING THOSE AREAS REQUIRED FOR TEMPORARY ACCESS ROUTES AND IN ACCORDANCE WITH SECTION 3-01 OF THE STANDARD SPECIFICATIONS, AND AS AMENDED BY THESE SPECIAL PROVISIONS.

1. CLEARING AND GRUBBING SHALL BE LIMITED TO APPROVED ACCESS ROUTES, EXCAVATION/FILL AND LWM STRUCTURE CONSTRUCTION AREAS AS SHOWN IN THE PLANS. LIMITS OF DISTURBANCE EXTENTS MAY BE ADJUSTED BY THE OWNER TO REDUCE DAMAGE TO THE ENVIRONMENT. THE FINAL AREAS WILL BE FLAGGED IN THE FIELD BY THE OWNER PRIOR TO CLEARING AND GRUBBING WORK. CLEARING AND GRUBBING SHALL NOT OCCUR OUTSIDE OF THE DESIGNATED LIMITS.
2. BRUSH, SHRUBS AND TREES SHALL BE CLEARED BY CUTTING AT GROUND LEVEL. GRUBBING SHALL ONLY OCCUR TO VEGETATION SPECIFIED BY OWNER.
3. INCLUDED IN THIS ITEM ARE TREES VARYING IN SIZE IDENTIFIED BY THE OWNER FOR REMOVAL AND SALVAGE. TREE SPECIES INCLUDE CONIFEROUS AND DECIDUOUS. REMOVED TREES SHALL BE SALVAGED FOR INSTALLATION AS LARGE WOODY MATERIAL DURING CONSTRUCTION OF THE SIDE CHANNEL AND LOG STRUCTURES. FOR CONIFEROUS TREES, THE CONTRACTOR SHALL EXCAVATE TO LOOSEN SOIL AROUND EACH ROOTWAD AND THEN PUSH OVER TREES IN ORDER TO SALVAGE LOGS WITH INTACT ATTACHED ROOTS. DECIDUOUS TREES MAY BE CUT AT THE STUMP WITH ROOTS LEFT UNGRUBBED. SALVAGED TREES SHALL BE TEMPORARILY STOCKPILED WITHIN PROJECT LIMITS OF DISTURBANCE.
4. TREES AND SHRUBS SMALLER THAN 12" DBH THAT ARE REMOVED DURING CLEARING AND GRUBBING SHALL BE SALVAGED AND USED AS SLASH DURING INSTALLATION OF LWM . UNUSED EXCESS SLASH MAY REMAIN ON SITE AND SHALL BE EVENLY DISTRIBUTED ON DISTURBED AREAS.
5. VEGETATION PROTECTION AND RESTORATION PER SECTION 1-07.16(2) SHALL BE INCIDENTAL TO CLEARING AND GRUBBING.

MEASUREMENT AND PAYMENT

REMOVAL AND SALVAGE OF TREES AND SHRUBS SHALL BE CONSIDERED INCIDENTAL TO CLEARING AND GRUBBING.

INSTALLATION OF THE SALVAGED TREES INTO PROJECT FEATURES SHALL BE AS SHOWN ON THE PLANS AND SHALL BE INCIDENTAL TO THOSE ITEMS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

MEASUREMENT AND PAYMENT FOR CLEARING AND GRUBBING SHALL BE BY THE LUMP SUM CONTRACT PRICE FOR "CLEARING AND GRUBBING". PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

CM	DM	DM
DRAWN	DESIGNED	CHECKED
DM	01/13/2026	200237
APPROVED	DATE	PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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SPECIFICATIONS (1 OF 3)

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ITEM 005 - COFFERDAM AND DIVERSION

THIS ITEM CONSISTS OF PROVIDING AND INSTALLING, MAINTAINING, AND REMOVING MEASURES TO BYPASS THE SURFACE WATERS OF THE STREAM AROUND IN-CHANNEL WORK AREAS, AND TO PREVENT TURBIDITY FROM ENTERING THE RIVER. COFFERDAM LOCATIONS ARE SHOWN ON THE PLANS.

COFFERDAM SHALL BE VIBRATORY DRIVEN SHEETPILE. DRIVING SHEET PILE BY IMPACT HAMMER IS NOT ACCEPTABLE. REVIEW AND APPROVAL OF THE COFFERDAM PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM FULL RESPONSIBILITY FOR THE ADEQUACY OF COFFERDAM WORK IF THE PROPOSED PLAN IS NOT SUCCESSFUL AT PROPERLY ISOLATING THE WORK AREA. COFFERDAMS SHALL BE SUITABLY OFFSET FROM WORK AREA SO AS TO NOT INTERFERE WITH LOG PLACEMENT OR LIMIT POOL EXCAVATION.

THE WORK INCLUDES COORDINATING WITH THE OWNER FOR FISH SALVAGE AND RELOCATION ACTIVITIES. EXCAVATION, FILL OR LOG PLACEMENT SHALL NOT OCCUR UNTIL THE OWNER COMPLETES FISH SALVAGE. THE CONTRACTOR SHALL PROVIDE MINIMUM 2 DAYS ADVANCE NOTICE TO THE OWNER BEFORE EACH COFFERDAM INSTALLATION DATE. THE CONTRACTOR SHALL PROVIDE OWNER ACCESS TO COFFERDAMS AND SUPPORTING STAFF FOR OWNER'S DEFISHING. THE CONTRACTOR IS ADVISED THAT FISH RESCUE MAY TAKE APPROXIMATELY 4 HOURS PER COFFERDAM.

MATERIALS

THE CONTRACTOR SHALL PROVIDE ALL REQUIRED MATERIALS FOR THE PROJECT.

CONSTRUCTION REQUIREMENTS

THE CONTRACTOR SHALL ISOLATE THE WORK AREA FROM THE RIVER BY INSTALLING COFFERDAM PER THE PLANS. NO TURBIDITY FROM CONSTRUCTION ACTIVITIES SHALL ENTER THE RIVER.

MEASUREMENT AND PAYMENT

"COFFERDAM AND DIVERSION," INCLUDING THE ABOVE AMENDMENTS TO THE ITEM, WILL BE MEASURED BY LUMP SUM. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED FOR THE ENTIRETY OF THE PROJECT. PAYMENT WILL BE MADE IN ACCORDANCE WITH SECTION 1-04.1 FOR THE FOLLOWING BID ITEMS: "COFFERDAM" PER LUMP SUM.

ITEM 006 - PUMPING

THIS ITEM INCLUDES DEWATERING AND CONTROLLING TURBIDITY WITHIN CONSTRUCTION AREAS ISOLATED FROM THE RIVER BY COFFERDAMS. THE WORK CONSISTS OF FURNISHING, MONITORING, OPERATING, MAINTAINING, AND REMOVING PUMPS, COORDINATING WITH THE OWNER FOR FISH SALVAGE RELOCATION ACTIVITIES, AND INSTALLATION OF CONTROL OF WATER BMPS.

MATERIALS

CONTRACTOR SHALL PROVIDE SUFFICIENT SIZE AND NUMBERS OF PUMPS TO DEWATER COFFERDAMS AND CONTROL TURBIDITY FOR THE PROJECT AND ENCOUNTERED FLOWS AND GROUNDWATER CONDITIONS. CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE 6" TRASH PUMP WITH PUMPING CAPACITY GREATER THAN 600 GPM, ASSUMING 12 FEET OF VERTICAL LIFT AND 300 FEET OF DISCHARGE HOSE AND 2" TRASH PUMPS. ADDITIONAL PUMPS SHALL BE PROVIDED BY CONTRACTOR AS NEEDED AT NO ADDITIONAL COST

1. EACH WATER INTAKE SHALL HAVE A FISH SCREEN INSTALLED, OPERATED AND MAINTAINED ACCORDING TO NMFS' FISH SCREEN CRITERIA (NMFS 1997; NMFS 2008). NO PUMPING CAN OCCUR UNTIL FISH SCREEN HAS BEEN APPROVED BY OWNER PRIOR TO INSTALLATION.
2. PUMPS SHALL BE PLACED WITHIN A CONTAINER TO CONTAIN FUEL OR OIL SPILLS. OIL ABSORBENT DIAPERS SHALL BE STORED AT EACH PUMP.
3. THE CONTRACTOR SHALL PROVIDE ENVIRONMENTAL PROTECTION MEASURES SUCH AS STRAW BALES, PERFORATED PIPE FOR DISCHARGE FLOW DISTRIBUTORS, GEOTEXTILES, FILTER BAGS, OR OTHER MEANS OF CONTROLLING DISCHARGE WATER AND TURBIDITY. NO TURBIDITY SHALL BE ALLOWED TO ENTER THE RIVER OR WETLANDS.
4. TO HELP PREVENT TURBIDITY FROM LEAKING THROUGH COFFERDAMS, THE CONTRACTOR SHALL OPERATE 6" TRASH PUMP TO LOWER THE WATER SURFACE WITHIN THE ISOLATED AREA AND DISCHARGE TO AN INFILTRATION AREA.

ENVIRONMENTAL PROTECTION MEASURES

a. IF OBSERVED OR MEASURED TURBIDITY DOWNSTREAM OF COFFERDAM OR PUMP DISCHARGE IS MORE THAN 10% ABOVE THE UPSTREAM BACKGROUND VISUAL OBSERVATION OR MEASUREMENT - OR EXCEEDS APPLICABLE PERMITS AND REGULATIONS - THE ACTIVITY MUST BE MODIFIED TO REDUCE TURBIDITY. CONTINUE TO MONITOR EVERY 2 HOURS AS LONG AS INSTREAM ACTIVITY CONTINUES.

b. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 4 HOURS), THE ACTIVITY MUST STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND, AND THE EC LEAD MUST BE NOTIFIED WITHIN 48 HOURS.

c. IF AT ANY TIME, MONITORING, INSPECTIONS, OR OBSERVATIONS/SAMPLES SHOW THAT THE TURBIDITY CONTROLS ARE INEFFECTIVE, IMMEDIATELY STOP WORK AND MOBILIZE WORK CREWS TO REPAIR, REPLACE, OR REINFORCE CONTROLS AS NECESSARY. ADDITIONAL AND ALTERNATIVE METHODS, SUCH AS PUMPING INTO STILLING BASINS OR FILTRATION GEOTEXTILE FABRIC SHALL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.

"PUMPING," INCLUDING THE ABOVE AMENDMENTS TO THE ITEM WILL BE MEASURED BY LUMP SUM. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED FOR THE ENTIRETY OF THE PROJECT. PAYMENT WILL BE MADE IN ACCORDANCE WITH SECTION 1-04.8 FOR THE FOLLOWING BID ITEMS: "PUMPING" PER LUMP SUM.

ITEM 007 - TEMPORARY ACCESS BRIDGE

A TEMPORARY BRIDGE SHALL BE REQUIRED TO CROSS FLOW CHANNEL AT LOCATION SHOWN IN THE PLANS. CONTRACTOR SHALL SUBMIT AN ACCESS PLAN INCLUDING DRAWINGS SHOWING DETAILS OF PROPOSED METHODS FOR PROVIDING ACCESS FOR EQUIPMENT, INCLUDING LOADED HAUL TRUCKS, TO THE SITES. REVIEW AND APPROVAL OF THE PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM FULL RESPONSIBILITY FOR THE ADEQUACY AND SAFETY OF THE CROSSING.

TEMPORARY BRIDGE SHALL SPAN FLOWING WATER WITHOUT CREATING A BACKWATER CONDITION AND PROVIDE A MINIMUM OF 1.0-FT OF FREEBOARD FROM LOW CHORD TO MAXIMUM WATER SURFACE ELEVATION FOR DURATION OF BRIDGE INSTALLATION. ABUTMENTS SHALL BE PROVIDED AS NECESSARY FOR THE BRIDGE SYSTEM AND SHALL NOT ENCROACH ON STREAM FLOW. APPROACH RAMPS TO THE BRIDGE SHALL BE CLEAN ALLUVIAL MATERIAL. ABUTMENTS MAY REQUIRE COFFERDAMS. COFFERDAM AND BRIDGE SHALL BE REMOVED AT PROJECT COMPLETION.

THE TEMPORARY BRIDGE SHALL BE REMOVED BEFORE THE END OF THE IN-WATER WORK WINDOW.

MEASUREMENT AND PAYMENT

"TEMPORARY ACCESS BRIDGE" WILL BE MEASURED AND PAID FOR BY ONE LUMP SUM FOR ALL TEMPORARY BRIDGE INSTALLATIONS. INSTALLATION OF THE TEMPORARY BRIDGE, REMOVAL, MAINTENANCE, AND ASSOCIATED ITEMS SUCH AS ABUTMENTS, FOOTINGS, RAMPS, AND SEDIMENT AND WATER CONTROLS SHALL BE INCLUDED IN THIS ITEM.

ITEMS 008 EARTHWORKS

EARTHWORKS SHALL CONSIST OF EXCAVATING, SORTING, LOADING AND HAULING SPOILS AND SALVAGE RIPRAP TO SPECIFIED ON-SITE DISPOSAL AREA TO BE DESIGNATED BY OWNER AND LEGAL OFF-SITE DISPOSAL AREA AND GRADING TO BLEND TO EXISTING CONTOURS, AND PLACING ALLUVIAL FILL IN LOCATIONS DESIGNATED ON PLANS. ROAD MATERIALS INCLUDING ASPHALT SHALL BE HANDLED PER APPLICABLE REGULATIONS FOR HAULING OFF SITE AND DISPOSING OF IN A LEGAL FACILITY. SPECIFIC LOCATION AND GRADING SHALL BE AS INDICATED IN PLANS.

1. CONTRACTOR SHALL PROVIDE SURVEY EQUIPMENT AND CONDUCT STAKEOUT AND SURVEY TO DETERMINE ELEVATIONS. EXISTING ELEVATION CONTROL POINTS ARE LOCATED NEARBY.
2. PORTIONS OF WORK MAY BE IN WATER. THE CONTRACTOR IS ADVISED THAT GROUNDWATER MAY BE ENCOUNTERED THROUGHOUT EXCAVATION AREAS. PUMPING AND TESC SHALL BE IMPLEMENTED AS NECESSARY.
3. THIS ITEM INCLUDES HAULING OF MATERIAL EXCAVATED TO DESIGNATED DISPOSAL AREAS. EXCAVATED MATERIAL MAY BE REQUIRED AS SALVAGED BACKFILL IN STRUCTURES. CONTRACTOR SHALL SELECTIVELY STOCKPILE MATERIALS INTO SEGRAGETED SIZES
4. THIS ITEM INCLUDES DETAIL EXCAVATION, FILL AND GRADING TO SHAPE THE CHANNEL AS SHOWN IN THE PLANS, SCOUR POOLS SHALL BE OVER-EXCAVATED INTO THE STREAM BED AS DESIGNATED IN THE PLANS AND DETAILS.
5. NO WORK SHALL OCCUR OUTSIDE OF THE LIMITS OF DISTURBANCE SHOWN IN THE PLANS UNLESS AUTHORIZED BY THE OWNER.

MEASUREMENT AND PAYMENT

EARTHWORKS WILL BE MEASURED BY CUBIC YARDS OF EXCAVATION AND PLACEMENT. MEASUREMENTS SHALL BE IN PLACE QUANTITY BY COMPARISON OF PRE-PROJECT (EXISTING) TOPOGRAPHY, DESIGN SUBGRADE AND DESIGN FINISHED GRADE TOPOGRAPHIC SURFACES.

QUANTITIES MEASUREMENT BY TRUCK WEIGHT OR TRUCK COUNT SHALL NOT BE ALLOWED.

MEASUREMENT AND PAYMENT.

EXCAVATION, SORTING, HAUL, DISPOSAL, GRADING OF DISPOSED SPOILS, FILL AND GRADING OF CHANNEL FEATURES; PLACEMENT OF SALVAGED SLASH; AND EXCAVATION OF SCOUR POOLS FOR LARGE WOOD STRUCTURES SHALL BE INCIDENTAL TO THIS ITEM. NO ADDITIONAL COMPENSATION WILL BE MADE FOR EXCAVATED MATERIAL THAT IS OVER EXCAVATED OR STOCKPILED, RE-EXCAVATED, AND MOVED AGAIN.

PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEMS 009-021 - LOG STRUCTURES

"LOG STRUCTURES" INCLUDES ALL WORK ASSOCIATED WITH HAULING, HANDLING AND INSTALLATION OF LWM, SALVAGED TREES AND SLASH. THIS ITEM INCLUDES EXCAVATION AND BACKFILL TO PARTIALLY BURY LWM, AND HAUL AND DISPOSAL OF SURPLUS EXCAVATED MATERIAL. COFFERDAM AND PUMPING ARE REQUIRED AT DESIGNATED "LOG STRUCTURES" SHOWN IN THE PLANS. "LOG STRUCTURES" INCLUDES:

- ITEM 009 - APEX JAMS
- ITEM 010 - BANK BURIED JAM
- ITEM 011 - SMALL BANK BURIED JAM
- ITEM 012 - BANK MARGIN WOOD
- ITEM 013 - BAR ROUGHNESS WOOD
- ITEM 014 - SMALL BANK BURIED AND BAR ROUGHNESS RACKING WOOD
- ITEM 015 - CED3 BANK BARB STRUCTURE
- ITEM 016 - DEFLECTOR JAM
- ITEM 017 - INLET STRUCTURE
- ITEM 018 - LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LW
- ITEM 019 - LOW FLOW CHANNEL HABITAT COVER LOGS
- ITEM 020 - LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LOG
- ITEM 021 - TIPPED TREE

MATERIALS

LOG STRUCTURES SHALL BE CONSTRUCTED OF LARGE WOODY MATERIAL (LWM), EXCAVATION AND BACKFILL, SLASH, SALVAGED TREES AND TREE TOPS AND - IF DIRECTED BY OWNER, OPTIONAL ADDITIVE ITEMS: ITEM 022 JAM BALLAST BOULDERS AND/OR ITEM 023 IMPORTED BOULDER BACKFILL.

LWM INCLUDES: LOGS WITH ROOTWADS, LOGS WITHOUT ROOTWADS, AND PILES.

LWM IS SUPPLIED BY THE OWNER AND IS DECKED AT WINTON MILL.

THE CONTRACTOR SHALL LOAD AND HAUL LWM FROM THE OWNER'S STOCKPILE. QUANTITIES TO BE MOVED TO EACH SITE ARE SHOWN IN THE PLANS.

OWNER SUPPLIED LWM WILL HAVE THE FOLLOWING CHARACTERISTICS:

6. LOGS WITH ROOTWADS: 40' LONG AND 18" DBH.
7. LOGS WITHOUT ROOTWADS: 40' LONG AND 18" DBH.
8. PILES: 20' LONG AND 16" DIAMETER AT MIDDLE OF LOG

SLASH: INCLUDES SHRUBS, TREES <6" DBH AND TREE TOPS REMOVED FROM ACCESS ROUTES AND EXCAVATION AREAS. UNITS OF SLASH SHALL BE DENSELY PACKED 4FT DIAMETER BY 12FT LONG BUNDLES.

CONSTRUCTION REQUIREMENTS

LOCATIONS FOR PLACEMENT AND DETAILS OF CONSTRUCTION FOR EACH STRUCTURE TYPE ARE SHOWN IN THE PLANS. FINAL LOCATION AND INSTALLATION WILL DEPEND UPON THE SIZE, SHAPE AND QUANTITY OF MATERIAL DELIVERED OR SALVAGED. INSTALLATION OF LWM SHALL BE UNDERSTOOD TO REQUIRE A "FIT IN THE FIELD" APPROACH AS DIRECTED BY THE OWNER.

Preliminary
Not for Construction

NO.	BY	DATE	REVISION DESCRIPTION

CM	DM	DM
DRAWN	DESIGNED	CHECKED
DM	01/13/2026	200237
APPROVED	DATE	PROJECT

YAKAMA NATION FISHERIES
NASON CR. R.M. 3.6-4.6 FLOODPLAIN ENHANCEMENT
PHASE 2 60% DESIGN

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PILES: CONSTRUCTION OF PILES SHALL INCLUDE ON-SITE MOVEMENT AND INSTALLATION OF PILES TO DESIGNATED SITES SHOWN IN THE PLANS. PILES SHALL BE PER THE APPROXIMATE NUMBERS AND QUANTITIES INDICATED ON THE PLANS. CONTRACTOR SHALL CUT TO LENGTH AT NO ADDITIONAL COST. SPECIFIC LOCATIONS SHALL BE DETERMINED IN THE FIELD AND DIRECTED BY THE OWNER. THE REQUIRED EMBEDMENT DEPTH IS INDICATED ON THE PLANS. EACH PILE SHALL HAVE A "BROKEN TOP" BY STUMP-GRINDING OR MAKING MULTIPLE PLUNGE CUTS WITH CHAIN SAW TO PROVIDE A ROUGHENED OR RAGGED END. ROUGHENING ENDS SHALL NOT COMPROMISE PILE STRUCTURAL INTEGRITY AT LOG CONNECTIONS. PILES SHALL BE OF VARYING HEIGHTS EXTENDING FROM 2 TO 5 FEET ABOVE FINISHED GRADE. ONE BOLT SHALL BE INSTALLED IN EACH PILE CONNECTING TO TOP LOG AS DETAILED IN THE PLANS.

PILES SHALL BE INSTALLED BY VIBRATORY PILE DRIVER MEETING OR EXCEEDING THE FOLLOWING CHARACTERISTICS:

a. MINIMUM OF 800 KN (80 TONS) OF CENTRIFUGAL FORCE.

b. SIDE GRIP WITH MINIMUM 16" SPACE BETWEEN ENDS OF JAWS SO THAT 16" DIAMETER LOG WILL FIT INTO THE JAWS WITHOUT NEEDING TO SLIDE THE GRIP OVER THE END AND DOWN THE LOG.

c. PRE-APPROVED PILE DRIVERS INCLUDE: MOVAX SP-80, GRIZZLY MG90, OR EQUIVALENT.

TESTING: AT EACH LOG STRUCTURE SITE, A MINIMUM OF ONE PILE SHALL BE TESTED FOR PULLOUT RESISTANCE. EACH TEST WILL REQUIRE UP TO FOUR INDIVIDUAL PULLS, EACH AT A DEEPER DEPTH. SEE DETAILS IN PLANS. THE CONTRACTOR SHALL PROVIDE THE TENSION LINK, METER, AND ASSOCIATED HARDWARE (RATED 12 TON).

SLASH: SLASH SHALL BE INCORPORATED INTO LOG STRUCTURES AS SHOWN IN THE PLANS AND DIRECTED BY THE OWNER. INTERMINGLE, STACK, AND RACK SLASH MATERIAL TO THE INSTALLED LWM AND PILE TO EMULATE NATURAL ACCUMULATIONS OF WOOD MATERIAL. IF INSUFFICIENT SLASH IS SALVAGED ON SITE. CONTRACTOR SHALL IMPORT SLASH AT NO ADDITIONAL COST

WHOLE TREES: TREES CLEARED FOR ACCESS OR ALREADY DOWNED TREES IMMEDIATELY ADJACENT TO CONSTRUCTION SITE AND REQUIRING MOVEMENT FOR SITE ACCESS MAY BE INCORPORATED, AS DIRECTED BY THE OWNER. SALVAGED TREE TOPS MAY BE USED AS SLASH. IF SALVAGE DOES NOT GENERATE SPECIFIED NUMBER OF WHOLE TREES, IMPORT WHOLE TREES AT NO ADDITIONAL COST.

TIPPED TREES SHOWN ON THE PLANS SHALL BE TIPPED BY EXCAVATOR OR CABLE - NO FELLING OR CUTTING OF TREES IS ALLOWED. IF TREE TIPPING IS DESIGNATED BY OWNER TO BE BY OTHERS, CONTRACTOR SHALL COORDINATE WITH TREE TIPPING CONTRACTOR.

EARTHWORK: WHERE PARTIAL BURIAL OF LWM IS REQUIRED, EXCAVATE TO SUBGRADE AND STOCKPILE MATERIAL WITHIN THE DESIGNATED DISTURBANCE AREA. SORT MATERIALS BY GENERAL SIZES, SEPARATING PILES FOR COARSE AND FINE MATERIAL. BACKFILL THE LWM AS EACH LAYER IS INSTALLED. USE COARSE FILL COMPRISED OF GRAVEL/COBBLE ALLUVIUM WITH FINES ALONG EXTERIOR OF FILL ZONE AND ALONG WATERWARD EDGE, AND FINER GRAVEL MATERIALS WITHIN INTERIOR OF FILL ZONE. SILT AND SAND SHALL NOT BE USED FOR BACKFILL AND SHALL BE HAULED FROM THE SITE; CONTRACTOR SHALL SALVAGE OR IMPORT GRAVEL/COBBLE ALLUVIUM FOR BACKFILL AT NO ADDITIONAL COST. WHERE POOL EXCAVATION IS INCLUDED, EXCAVATED MATERIAL SHALL BE SALVAGED AND PLACED AS BACKFILL IN LWM STRUCTURE. BACKFILL ALONG WATERWARD EDGE SHALL BE LAYERED WITH SLASH WITH LIFTS NO THICKER THAN 18INCHES AND BUCKET COMPACTED. SLASH SHALL EXTEND 10FT MINIMUM INTO FILL. BACKFILL THE LOGS AS EACH LAYER IS INSTALLED.

LIVE WILLOW AND DOGWOOD PLANTINGS SHALL BE INSTALLED IN LARGE WOOD STRUCTURES AND AS SHOWN ON PLANS AND DETAILS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT SHALL BE MADE PER EACH STRUCTURE FOR:

- ITEM 009 - APEX JAMS
- ITEM 010 - BANK BURIED JAM
- ITEM 011 - SMALL BANK BURIED JAM
- ITEM 012 - BANK MARGIN WOOD
- ITEM 013 - BAR ROUGHNESS WOOD
- ITEM 014 - SMALL BANK BURIED AND BAR ROUGHNESS RACKING WOOD
- ITEM 015 - CED3 BANK BARB STRUCTURE
- ITEM 016 - DEFLECTOR JAM
- ITEM 017 - INLET STRUCTURE
- ITEM 018 - LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LW
- ITEM 019 - LOW FLOW CHANNEL HABITAT COVER LOGS
- ITEM 020 - LOW FLOW CHANNEL FLOODPLAIN ROUGHNESS LOG
- ITEM 021 - TIPPED TREE

THE CONTRACT PRICE SHALL BE FULL COMPENSATION FOR ALL COSTS INCURRED FOR EQUIPMENT, MATERIALS AND LABOR FOR HANDLING, LOADING AND HAULING LWM FROM STOCKPILE AREAS, EXCAVATING TO SUBGRADE, SELECTIVE HANDLING OF EXCAVATED MATERIALS AND BACKFILL, SALVAGE OR IMPORT OF SUITABLE BACKFILL MATERIAL, INSTALLING AND SECURING LWM, PILES, SLASH AND SALVAGED TREE TOPS AND WHOLE TREES AS OUTLINED IN THE PLANS. EARTHWORK, HAUL AND DISPOSAL OF SPOILS. INSTALLING SLASH AND SALVAGED TREES SHALL BE INCIDENTAL.

LIVE WILLOW AND DOGWOOD CUTTINGS INCLUDED IN LARGE WOOD STRUCTURES SHALL BE INCIDENTAL TO LARGE WOOD STRUCTURES. CUTTINGS STORAGE & WATERING, EXCAVATION, INSTALLATION AND BACKFILL AND ANY OTHER WORK NECESSARY TO INSTALL LIVE WILLOWS SHALL BE INCIDENTAL.

REVEGETATION TO BE DESIGNED BY OTHERS IN FUTURE DESIGN PHASES.

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OPTIONAL ADDITIVE ALTERNATE ITEMS

FOLLOWING ARE OPTIONAL ADDITIVE ALTERNATE ITEMS. OWNER SHALL DETERMINE IF ITEMS ARE REQUIRED, QUANTITIES AND LOCATIONS FOR PLACEMENTS. OWNER SHALL PROVIDE WRITTEN AUTHORIZATION TO IMPLEMENT THESE ITEMS PRIOR TO PROCUREMENT, TRANSPORT, HANDLING OR INSTALLATION.

ITEM 022 - JAM BALLAST BOULDERS

OWNER SHALL DETERMINE IF ADDITIONAL JAM BALLAST BOULDERS (BOULDERS) ARE REQUIRED. CONTRACTOR SHALL PROCURE AND IMPORT, HAUL AND PLACE BOULDERS. UNLESS NOTED HEREIN, BOULDERS SHALL MEET WSDOT STANDARD SPECIFICATION 9-13.1. BOULDERS SHALL BE MINIMUM 4FT EQUIVALENT DIAMETER WITH SPECIFIC GRAVITY OF 2.65 OR GREATER AND SHALL WEIGH NO LESS THAN 5,500 POUNDS DRY WEIGHT PER EACH. BOULDERS SHALL BE ROUNDED TO SUBANGULAR.

MEASUREMENT AND PAYMENT

JAM BALLAST BOULDERS SHALL BE MEASURED AND PAID FOR PER EACH BOULDER. PAYMENT WILL BE FULL COMPENSATION FOR ALL COSTS INCURRED FOR SALVAGE OR IMPORT OF BOULDERS, HAULING, STOCKPILING AND PLACING.

ITEM 023 - IMPORTED BOULDER BACKFILL

OWNER SHALL DETERMINE IF IMPORTED BOULDER BACKFILL IS REQUIRED FOR BACKFILL ON BANK BURIED LARGE WOOD STRUCTURES. THIS MATERIAL IS COMPRISED OF COBBLE TO MEDIUM SIZED BOULDERS. SOURCE IS TO BE DETERMINED. CONTRACTOR SHALL PROCURE AND IMPORT, HAUL AND PLACE IMPORTED BOULDER BACKFILL IN LARGE WOOD STRUCTURES AS DIRECTED BY ENGINEER.

MEASUREMENT AND PAYMENT

IMPORTED BOULDER BACKFILL SHALL BE MEASURED AND PAID FOR PER CUBIC YARD PLACED. TRUCK COUNT OR WEIGHT MAY BE ALLOWED WITH WRITTEN PERMISSION. PAYMENT WILL BE FULL COMPENSATION FOR ALL COSTS INCURRED FOR IMPORTED BOULDER BACKFILL, PROCUREMENT, IMPORT, HAULING, STOCKPILING AND PLACING

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