

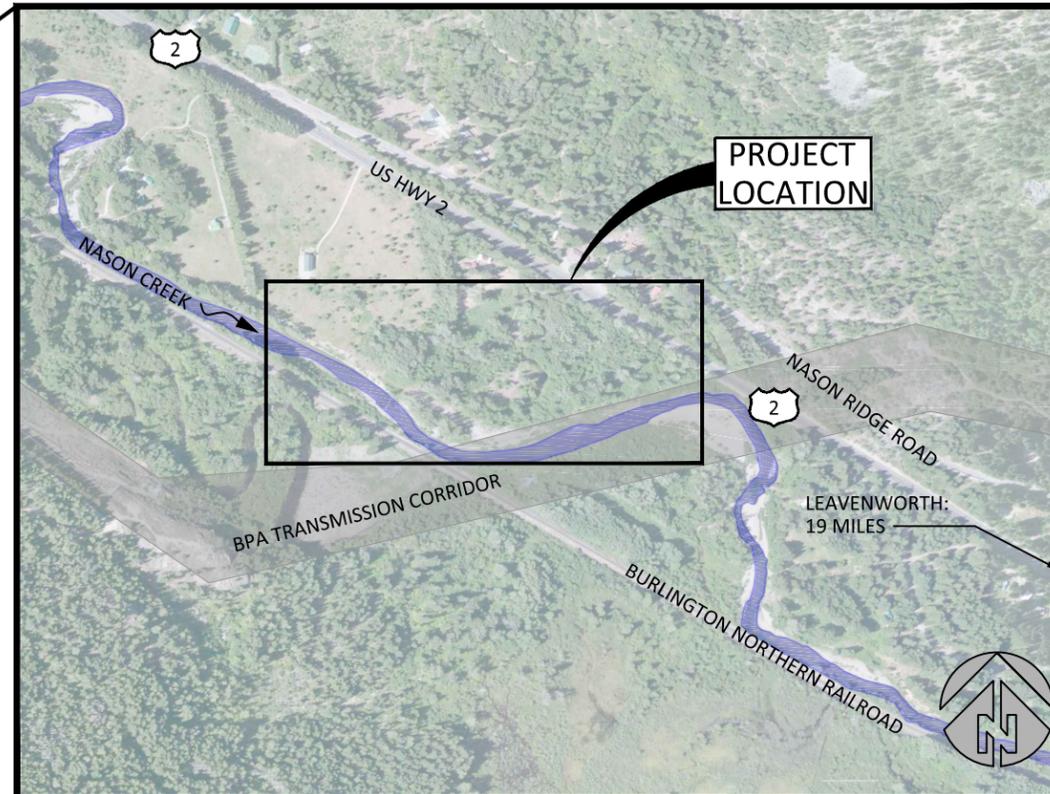
# NASON CREEK - LOWER WHITE PINE GROUPS 2 & 3 FISH HABITAT ENHANCEMENT PROJECT PRELIMINARY DESIGN

CHELAN COUNTY, WA  
OCTOBER, 2015

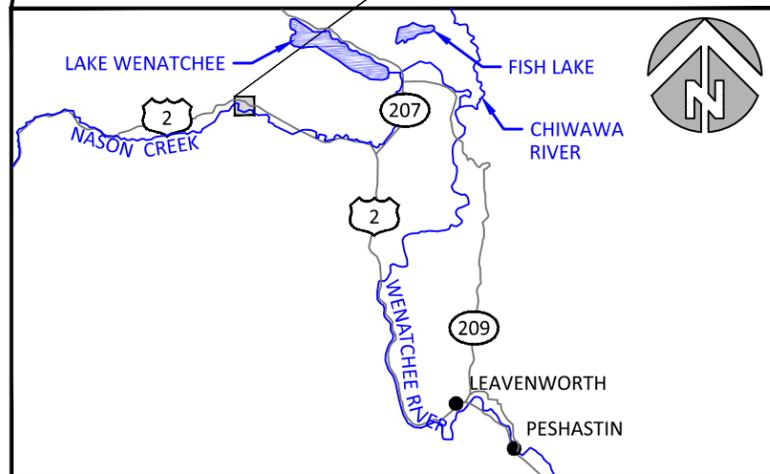
Preliminary  
Not for Construction



**STATE OF WASHINGTON**  
NOT TO SCALE



**SITE MAP**  
NOT TO SCALE



**VICINITY MAP**  
NOT TO SCALE

**SHEET INDEX**

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COORDINATES:  
LATITUDE: 47°46'25.47"N  
LONGITUDE: 120°49'13.69"W  
  
SECTION 2, TOWNSHIP 26N, RANGE 16E  
  
WATERBODY: NASON CREEK  
TRIBUTARY OF: WENATCHEE RIVER

G:\LowerWhitePineGroups2&3\_150233\Drawings\IF\_LWP\_GRP2-3\_P.dwg - NBUSHEY - 10/29/15

NO.	BY	DATE	REVISION DESCRIPTION

NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT**



501 Portway Avenue, Suite 101  
Hood River, OR 97031  
541.386.9003  
www.interfluve.com

**COVER, SHEET INDEX, SITE  
MAP**

IT IS STRONGLY SUGGESTED THAT THE CONTRACTOR ATTEND A PRE-BID SITE MEETING.

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

ALL WORK SHALL CONFORM TO THE CURRENT EDITIONS 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 WILL PREVAIL.

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

### WDFW IN-WATER WORK PERIODS

WORK SHALL OCCUR DURING THE PERMITTED IN-WATER WORK PERIOD STATED IN THE HYDRAULIC PROJECT APPROVAL.

### EXISTING DATA

TOPOGRAPHIC SURVEY COLLECTED BY INTER-FLUVE, INC. BY RTK GPS AND TOTAL STATION IN OCTOBER AND DECEMBER 2013 AND JULY 2015. REFERENCED TO NAD83 WASHINGTON STATE PLANE, NORTH ZONE US FEET NAVD 88.

PROPERTY BOUNDARIES PROVIDED BY CHELAN COUNTY, 2013.

WETLAND BOUNDARIES DISPLAYED IN THIS SET ARE THE RESULT OF A WETLAND ASSESSMENT PERFORMED BY INTER-FLUVE, INC. IN OCTOBER 2013.

ORDINARY HIGH WATER (OHW)/WATERS DISPLAYED ON THIS SET REPRESENT MODEL RESULTS GENERATED BY INTER-FLUVE, INC. TO DEPICT THE LIMITS OF INUNDATION OF A 1-YEAR FLOOD EVENT.

HYDRAULIC MODELING BY INTER-FLUVE USING USACE HEC-RAS (4.1.0). MODEL CALIBRATED USING SURVEYED WATER SURFACE ELEVATIONS AND EXISTING HIGH WATER MARKS.

### SOILS

SOILS ON SITE CONSIST PRIMARILY OF CHIWAWA CINDERY FINE SANDY LOAM (0 TO 3 PERCENT SLOPES); AERIC FLUVAQUENTS AND CHIWAWA GRAVELLY FINE SANDY LOAM (0 TO 3 PERCENT SLOPES) ALSO PRESENT, PER NRCS, USDA WEB SOIL SURVEY.

### UTILITIES

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

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

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

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

### CONSTRUCTION STAKING

CONTRACTOR SHALL STAKE PROJECT LIMITS, GRADE STAKES, AND ELEVATION CONTROL POINTS. SOME FIELD ADJUSTMENTS TO THE LINES AND GRADES ARE TO BE EXPECTED.

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.

THE CONTRACTOR SHALL REPLACE DAMAGED OR DESTROYED CONSTRUCTION STAKES AT NO ADDITIONAL COST.

### CONSTRUCTION MATERIALS

LOCATION, ALIGNMENT, AND ELEVATION OF LOGS AND LOGS WITH ROOTWADS ARE SUBJECT TO ADJUSTMENT BASED ON FIELD CONDITIONS, AND MATERIAL SIZE.

EXCAVATED MATERIALS SHALL BE STOCKPILED NEATLY IN AN APPROVED LOCATION WITHIN THE STOCKPILE AND STAGING AREA. AT COMPLETION OF WORK, THE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR OBTAINING ANY PERMITS AND FEES REQUIRED FOR LEGAL DISPOSAL.

### EQUIPMENT

EXCAVATORS SHALL BE FITTED WITH NON-TOXIC HYDRAULIC FLUIDS AT NO ADDITIONAL COST.

### CONSTRUCTION ACCESS/TRAFFIC CONTROL

CONTRACTOR SHALL SUBMIT AN ACCESS, STAGING, AND STOCKPILE PLAN TO THE OWNER FOR APPROVAL.

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

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

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

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

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

ALL DISTURBED AREAS INCLUDING BUT NOT LIMITED TO ROADS, DRIVEWAYS, ACCESS ROUTES, FENCES, AND IRRIGATION SYSTEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AND RE-VEGETATED PER PLANS.

IMPORT AND PLACEMENT OF GRAVEL MAY BE REQUIRED TO RESTORE ACCESS ROADS TO PRE-PROJECT CONDITION AT CONTRACTOR'S EXPENSE.

FOR DURATION OF PROJECT, CONTRACTOR SHALL KEEP ALL PRIVATE AND PUBLIC ROADS USED FOR ACCESS FREE OF DEBRIS AND MUD.

AT PROJECT COMPLETION, PAVEMENT SHALL BE CLEANED OF CONSTRUCTION DEBRIS AND RESTORED TO PRE-PROJECT CONDITION OR BETTER AT CONTRACTOR'S EXPENSE.

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 A GUIDELINE FOR THE CONTRACTOR TO DEVELOP AND IMPLEMENT AN ESC PLAN.

- A. 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.
- B. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
- C. ESC FACILITIES AS APPROXIMATELY SHOWN ON THIS PLAN ARE TO BE CONSTRUCTED 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, OR VIOLATE APPLICABLE WATER STANDARDS.
- D. 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.
- 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.

### 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.

### ABBREVIATIONS

APPROX	APPROXIMATE
CPUD	CHELAN PUBLIC UTILITY DISTRICT
°	DEGREES
DIA or Ø	DIAMETER
DBH	DIAMETER AT BREAST HEIGHT
EL or ELEV	ELEVATION
ESC	EROSION AND SEDIMENT CONTROL
EXIST	EXISTING
FT or '	FEET
FTR	FULLY THREADED ROD
HORIZ	HORIZONTAL
IN or "	INCH
INV	INVERT
LWM	LARGE WOODY MATERIAL
MAX	MAXIMUM
MIN	MINIMUM
NWI	NATIONAL WETLANDS INVENTORY
OHW	ORDINARY HIGH WATER
%	PERCENT
RMx	RIVER MILE x
STA	STATION
TBM	TEMPORARY BENCHMARK
TBD	TO BE DETERMINED
TYP	TYPICAL
VERT	VERTICAL
WSE	WATER SURFACE ELEVATION
YR	YEAR



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NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT**



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**GENERAL NOTES AND  
ABBREVIATIONS**

**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. HYDROSEED AS SOON AS PRACTICAL ALL DISTURBED AREAS NOT INDICATED IN THE CONTRACT DOCUMENTS FOR OTHER PERMANENT STABILIZATION MEASURES.

DESIGN, CONSTRUCT, AND PHASE CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. REDUCE SLOPE VELOCITIES ON DISTURBED SLOPES BY PROVIDING TEMPORARY BARRIERS. STORMWATER FROM OFF SITE SHOULD BE HANDLED SEPARATELY FROM STORMWATER GENERATED ON SITE.

**AFTER FINAL SITE STABILIZATION**

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

**DUST CONTROL**

THE CONTRACTOR SHALL CONTROL DUST FOR THE DURATION OF THE PROJECT. CONTROL MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO : SPRINKLERS, MULCH, SLOWER VEHICLE OPERATING SPEEDS.

**TREE SALVAGE**

ANY REMOVED VEGETATION GREATER THAN 6 INCHES DIAMETER AND 15 FEET LONG SHALL BE INCORPORATED INTO LOG STRUCTURES AS SLASH. SMALLER MATERIAL MAY BE USED IN LOG STRUCTURES AS SLASH ONLY BY APPROVAL OF OWNER OR OWNER'S REPRESENTATIVE.

ALL TREES REMOVED WITHIN CLEARING LIMITS SHALL BE REMOVED WHOLE WITH ROOTWAD AND UTILIZED IN THE PROJECT CONSTRUCTION AS DIRECTED BY OWNER OR OWNER'S REPRESENTATIVE.

**LIVE TREES**

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

ANY LIVE TREES DEBARKED OR OTHERWISE DISTURBED, SHALL BE REPLACED AT CONTRACTOR'S EXPENSE.

**WETLAND AND WATERS OF THE U.S.**

THE ORDINARY HIGH WATER (OHW) AND APPROXIMATE LOW WATER LINES DISPLAYED IN THE DESIGN PACKAGE WERE DELINEATED BY INTER-FLUVE STAFF IN 2014 AND 2015, AND ARE BASED UPON ANALYSIS, MODELING AND BEST PROFESSIONAL JUDGEMENT. A WETLAND ASSESSMENT WAS PERFORMED IN 2013.

THE OHW LINES DO NOT REPRESENT JURISDICTIONAL BOUNDARIES WITHIN THE STATE OF WASHINGTON. THE ARMY CORPS OF ENGINEERS AND THE WASHINGTON DEPARTMENT OF ECOLOGY HAVE THE FINAL AUTHORITY IN DETERMINING WATER AND WETLANDS BOUNDARIES AND REGULATIONS.

**FISH RESCUE**

DEWATERING OF IN-CHANNEL WORK AREAS SHALL OCCUR CONCURRENT WITH FISH RESCUE. CONTRACTOR SHALL COORDINATE WITH YAKAMA NATION FISHERIES FOR FISH RESCUE. CONTRACTOR SHALL PROVIDE YAKAMA NATION FISHERIES AMPLE TIME TO SCHEDULE FISH RESCUE. IF DIVERSION FAILS DUE TO CONTRACTOR NEGLIGENCE, FISH RESCUE SHALL BE REPEATED AT CONTRACTOR'S EXPENSE.

ALL FISH RESCUE EFFORTS SHALL BE SUPERVISED BY A 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 WILL BE CAREFULLY COLLECTED BY SEINE AND/OR DIP NETS AND PLACED IN CLEAN TRANSFER CONTAINERS WITH ADEQUATE VOLUME OF FRESH RIVER WATER.

CAPTURED FISHES SHALL BE IMMEDIATELY RELEASED INTO ADJACENT UNDISTURBED AREAS OF THE WATER BODY WHERE FISH WERE TRAPPED.

**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 OWNER'S REPRESENTATIVE SHALL APPROVE DEWATERING DISCHARGE LOCATION PRIOR TO IMPLEMENTATION.

**CULTURAL RESOURCES**

IF ANY ARCHAEOLOGICAL RESOURCES AND/OR ARTIFACTS ARE ENCOUNTERED DURING CONSTRUCTION ALL CONSTRUCTION ACTIVITY SHALL IMMEDIATELY CEASE AND THE OWNER SHALL BE CONTACTED.

**QUANTITIES**

	TOTAL	WITHIN WETLAND	WITHIN WATERS
<b>BACKWATER CHANNEL/ALCOVE COMPLEX</b>			
CHANNEL CUT	3574 CY		7 CY
CHANNEL FILL	211 CY		
LOG PLACEMENT EXCAVATION	600 CY		
LOG PLACEMENT BACKFILL	480 CY		
LOGS	17 EA		
LOGS WITH ROOTWADS	37 EA		
VERTICAL SNAGS	34 EA		
CULVERT	1 EA		
<b>OXBOW POND CONNECTION</b>			
CUT	111 CY	21 CY	
FILL	102	21 CY	
CULVERT	1 EA		
<b>MAIN CHANNEL LARGE WOOD</b>			
EXCAVATION	672 CY		
BACKFILL	592 CY		
LOGS	10 EA		10 EA
LOGS WITH ROOTWADS	25 EA		25 EA
VERTICAL SNAGS	27 EA		5 EA
<b>SIDE CHANNEL INLET LOG JAM</b>			
EXCAVATION	127 CY		
BACKFILL	111 CY		
LOGS	2 EA		2 EA
LOGS WITH ROOTWADS	6 EA		2 EA
VERTICAL SNAGS	7 EA		1 EA



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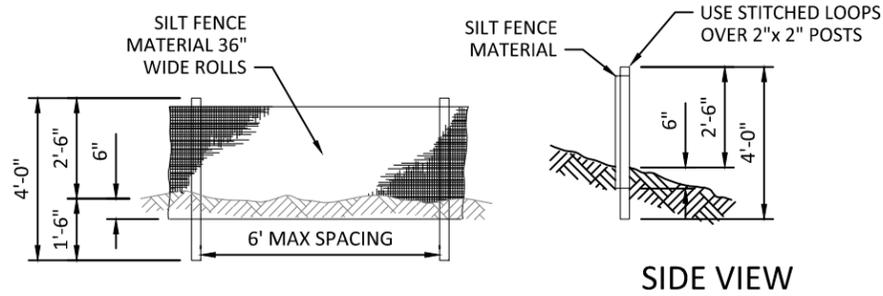
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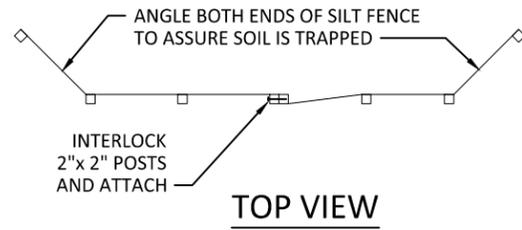


**GENERAL NOTES AND  
ESTIMATED QUANTITIES**



FRONT VIEW

SIDE VIEW



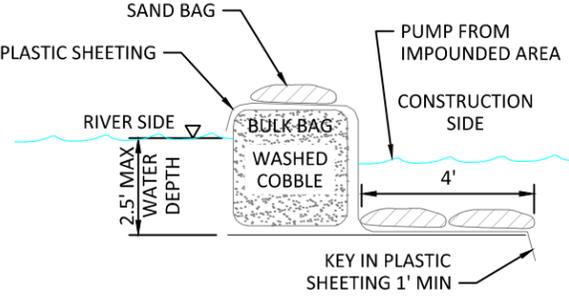
TOP VIEW

1/4 TYPICAL DETAIL - SILT FENCE  
NOT TO SCALE

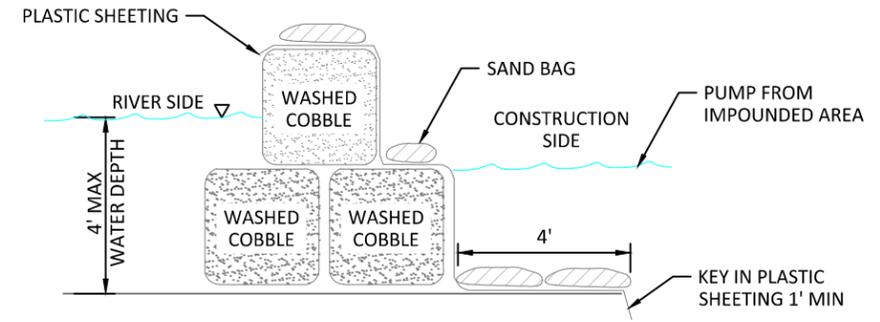
NOTES:

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  
Not for Construction



SECTION - WATER DEPTHS LESS THAN 2.5'

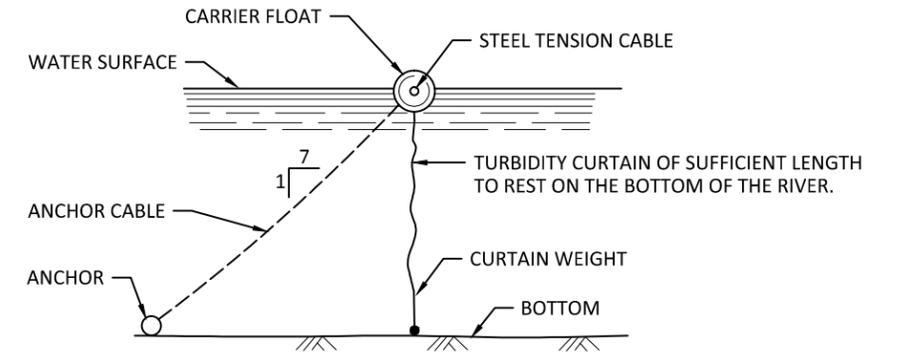


SECTION - WATER DEPTHS GREATER THAN 2.5'

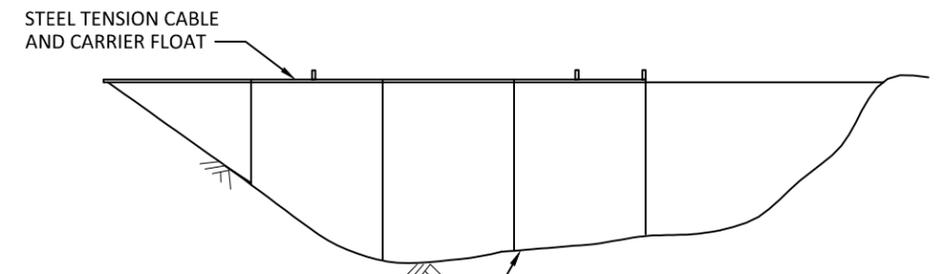
2/4 TYPICAL DETAIL - TEMPORARY COFFERDAM  
NOT TO SCALE

BULK BAG NOTES:

1. BULK BAG COFFERDAM SHALL BE CONSTRUCTED OF SEVERAL UNITS OF BULK BAGS FILLED WITH WASHED COBBLE, AND ABUTTED SIDE BY SIDE TO CREATE A ROW THAT ISOLATES THE CONSTRUCTION SITE.
2. IF WATER DEPTH EXCEEDS 85% OF THE BULK BAG HEIGHT, AN ADDITIONAL TOP ROW OF BULK BAGS SHALL BE INSTALLED, SUPPORTED BY TWO BOTTOM ROWS OF BULK BAGS. BULK BAG COFFERDAM SHALL BE SEALED BY COVERING THE COFFERDAM WITH PLASTIC SHEETING HELD IN PLACE BY STANDARD SANDBAGS PLACED IN ROWS ON TOP OF COFFERDAM, AND AT TOE OF COFFERDAM.
3. THE PLASTIC SHEETING SHALL BE DRAPED ALONG THE CHANNEL BOTTOM ON BOTH SIDES OF THE COFFERDAM WITH OUTWARD EDGE OF SHEETING MINIMUM 4- FEET FROM TOE OF COFFERDAM. THE DRAPED PORTION OF PLASTIC SHEETING SHALL BE PINNED TO THE CHANNEL BED BY MINIMUM TWO ROWS OF STANDARD SANDBAGS. ALL SANDBAGS SHALL BE FILLED WITH WASHED PEA GRAVEL.
4. THE CONSTRUCTION SIDE EDGE OF PLASTIC SHEETING SHALL BE TOED INTO THE CHANNEL BED MINIMUM 1-FT. TOEING IN THE OUTWARD EDGE OF PLASTIC SHEETING SHALL OCCUR AFTER THE COFFERDAM IS CLOSED TO PREVENT TURBIDITY RELEASE TO THE WATERWAY.
5. THE TERMINAL ENDS OF BULK BAG COFFERDAM, WHERE IT CONNECTS TO CHANNEL BANK OR HIGH GROUND, SHALL BE SEALED WITH PLASTIC SHEETING AND STANDARD SANDBAGS.
6. BULK BAGS SHALL BE CUBE-SHAPED POLYPROPYLENE WOVEN FABRIC BAGS WITH FULLY OPEN TOP, FLAT BOTTOM, FOUR LOOPS, MINIMUM 2-TON WEIGHT CAPACITY, MINIMUM 5:1 SAFETY FACTOR.
7. PLASTIC SHEETING SHALL BE MINIMUM 6-MIL THICKNESS. ROLL LENGTH SHALL BE LONG ENOUGH TO ENSURE THAT ENTIRE LENGTH OF COFFERDAM WILL BE COVERED WITHOUT A SEAM. MINIMUM 12-FT WIDE ROLL SHALL BE USED FOR SINGLE LAYER BULK BAG COFFERDAM. MINIMUM 16-FT WIDE ROLL SHALL BE USED FOR 2-LAYER STACKED BULK BAG COFFERDAM.
8. BULK BAG COFFERDAM SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION IS COMPLETED AND TURBIDITY HAS BEEN REMOVED. BULK BAG FILL (WASHED COBBLE) AND SANDBAG FILL (WASHED PEA GRAVEL) SHALL BE DISPOSED OF ON SITE. BAGS SHALL BE REMOVED FROM THE SITE ONCE CONSTRUCTION IS COMPLETED.
9. MEASUREMENT AND PAYMENT FOR BULK BAG COFFERDAM, SAND BAGS, PLASTIC SHEETING, WASHED COBBLE PLACEMENT, MAINTENANCE AND REMOVAL OF ALL MATERIALS SHALL BE INCIDENTAL TO THE LUMP SUM ALL INCLUSIVE COST FOR DIVERSION AND DEWATERING.
10. ALTERNATE COFFERDAM MATERIALS AND CONFIGURATIONS MAY BE ALLOWED BUT SHALL NOT BE IMPLEMENTED WITHOUT REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND/OR VENDOR CUT SHEETS FOR SUBSTITUTIONS.



CROSS SECTION VIEW



ELEVATION VIEW

3/4 TYPICAL DETAIL - TURBIDITY CURTAIN  
NOT TO SCALE

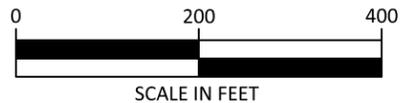
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NO.	BY	DATE	REVISION DESCRIPTION

NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT

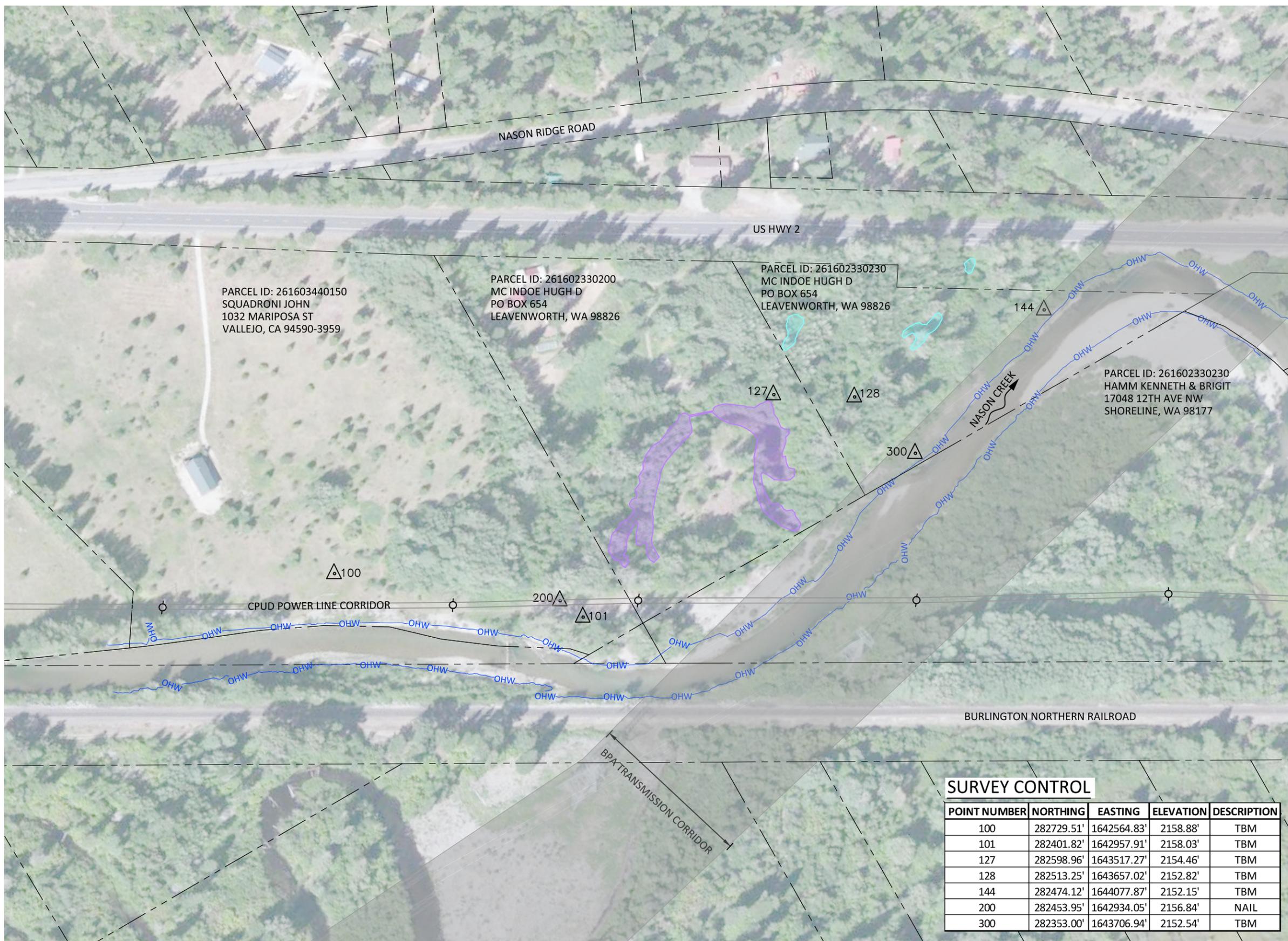
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**LEGEND**

- PROPERTY BOUNDARY (CHELAN COUNTY)
- ORDINARY HIGH WATER
- EMERGENT WETLAND
- FORESTED WETLAND
- BPA TRANSMISSION CORRIDOR
- CPUD TOWER
- CPUD OVERHEAD LINES
- BENCHMARK

**Preliminary**  
 Not for Construction



**SURVEY CONTROL**

POINT NUMBER	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	282729.51'	1642564.83'	2158.88'	TBM
101	282401.82'	1642957.91'	2158.03'	TBM
127	282598.96'	1643517.27'	2154.46'	TBM
128	282513.25'	1643657.02'	2152.82'	TBM
144	282474.12'	1644077.87'	2152.15'	TBM
200	282453.95'	1642934.05'	2156.84'	NAIL
300	282353.00'	1643706.94'	2152.54'	TBM

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**YAKAMA NATION FISHERIES**  
**NASON CREEK LOWER WHITE PINE GROUPS 2 & 3**  
**FISH HABITAT ENHANCEMENT PROJECT**

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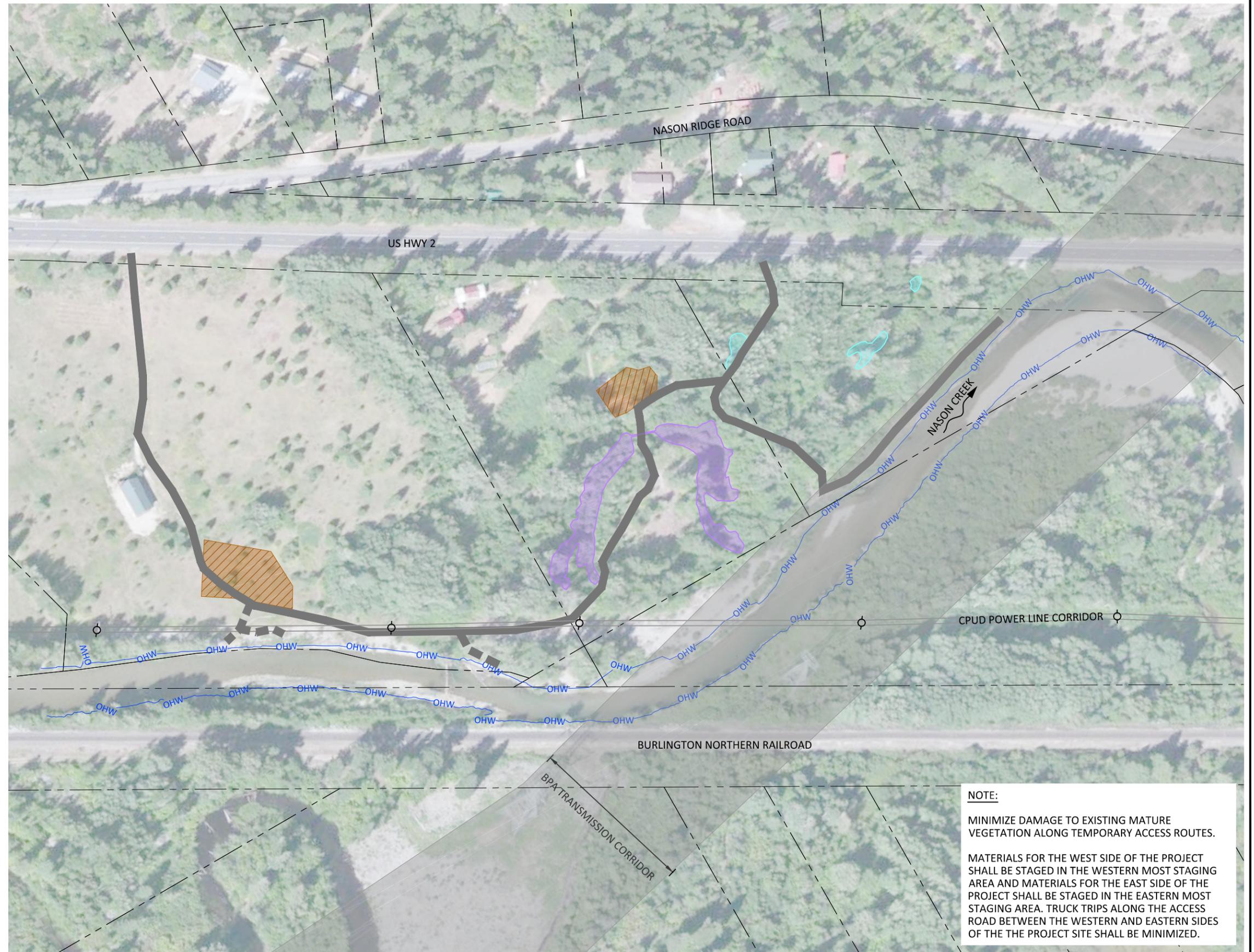
**EXISTING CONDITIONS AND**  
**SURVEY CONTROL**



**LEGEND**

- PROPERTY BOUNDARY (CHELAN COUNTY)
- ORDINARY HIGH WATER
- EXISTING ACCESS
- TEMPORARY ACCESS
- STAGING/STOCKPILE AREA
- EMERGENT WETLAND
- FORESTED WETLAND
- BPA TRANSMISSION CORRIDOR
- CPUD TOWER
- CPUD OVERHEAD LINES

Preliminary  
Not for Construction



**NOTE:**

MINIMIZE DAMAGE TO EXISTING MATURE VEGETATION ALONG TEMPORARY ACCESS ROUTES.

MATERIALS FOR THE WEST SIDE OF THE PROJECT SHALL BE STAGED IN THE WESTERN MOST STAGING AREA AND MATERIALS FOR THE EAST SIDE OF THE PROJECT SHALL BE STAGED IN THE EASTERN MOST STAGING AREA. TRUCK TRIPS ALONG THE ACCESS ROAD BETWEEN THE WESTERN AND EASTERN SIDES OF THE THE PROJECT SITE SHALL BE MINIMIZED.

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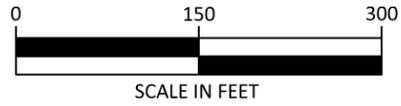
NO.	BY	DATE	REVISION DESCRIPTION

NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT**

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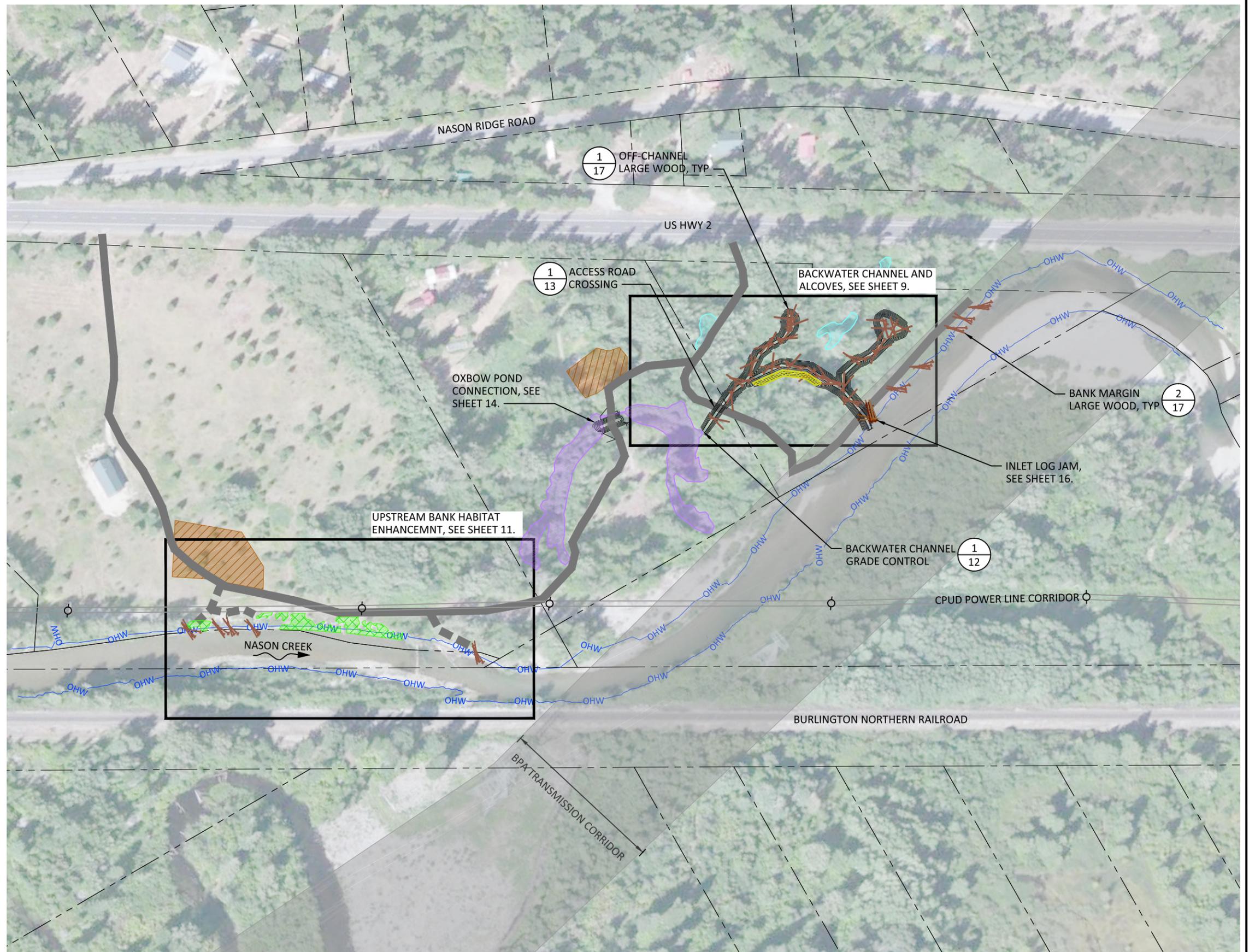
**ACCESS AND STAGING**



**LEGEND**

- PROPOSED CONTOURS (1 FT)
- PROPERTY BOUNDARY (CHELAN COUNTY)
- OHW
- ORDINARY HIGH WATER
- EXISTING ACCESS
- TEMPORARY ACCESS
- EMERGENT WETLAND
- FORESTED WETLAND
- STOCKPILE/STAGING AREA
- LIVE STAKE AND SLASH BANK TREATMENT
- EMERGENT VEGETATION PLANTING AREA
- BPA TRANSMISSION CORRIDOR
- CPUD TOWER
- CPUD OVERHEAD LINES
- LARGE WOOD ENHANCEMENT

**Preliminary**  
Not for Construction



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NO.	BY	DATE	REVISION DESCRIPTION

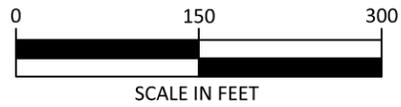
NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES  
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FISH HABITAT ENHANCEMENT PROJECT**



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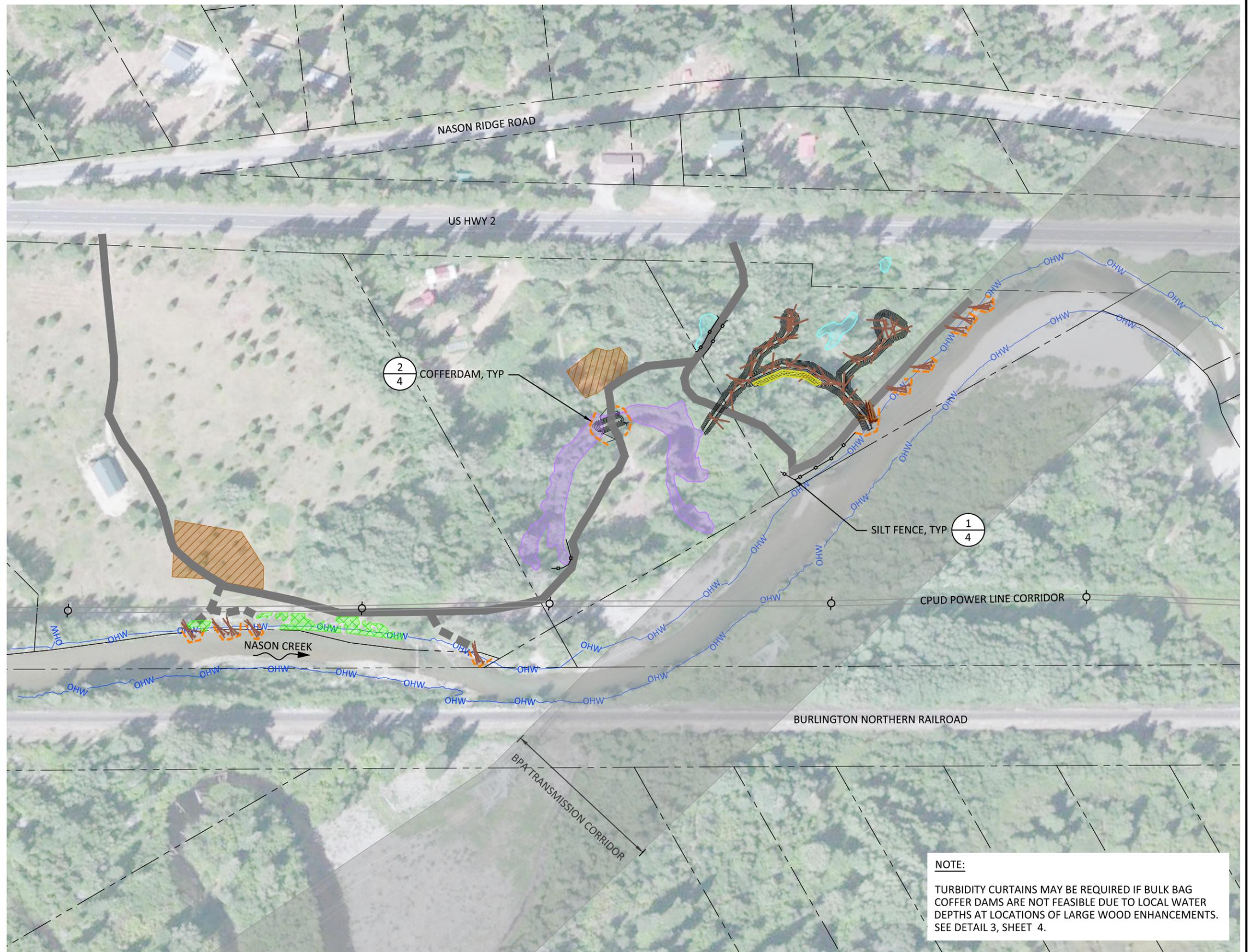
**PROPOSED CONDITIONS AND  
SHEET INDEX**



**LEGEND**

- PROPOSED CONTOURS (1 FT)
- - - PROPERTY BOUNDARY (CHELAN COUNTY)
- OHW — ORDINARY HIGH WATER
- EXISTING ACCESS
- TEMPORARY ACCESS
- - - COFFERDAM
- SILT FENCE
- EMERGENT WETLAND
- FORESTED WETLAND
- STOCKPILE/STAGING AREA
- BPA TRANSMISSION CORRIDOR
- SMALL LWM BRUSH STRUCTURE AREA
- EMERGENT VEGETATION PLANTING AREA
- CPUD TOWER
- CPUD OVERHEAD LINES
- LARGE WOOD ENHANCEMENT

**Preliminary**  
 Not for Construction



**NOTE:**  
 TURBIDITY CURTAINS MAY BE REQUIRED IF BULK BAG COFFER DAMS ARE NOT FEASIBLE DUE TO LOCAL WATER DEPTHS AT LOCATIONS OF LARGE WOOD ENHANCEMENTS. SEE DETAIL 3, SHEET 4.

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NO.	BY	DATE	REVISION DESCRIPTION

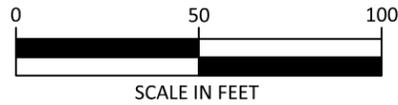
NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES**  
**NASON CREEK LOWER WHITE PINE GROUPS 2 & 3**  
**FISH HABITAT ENHANCEMENT PROJECT**



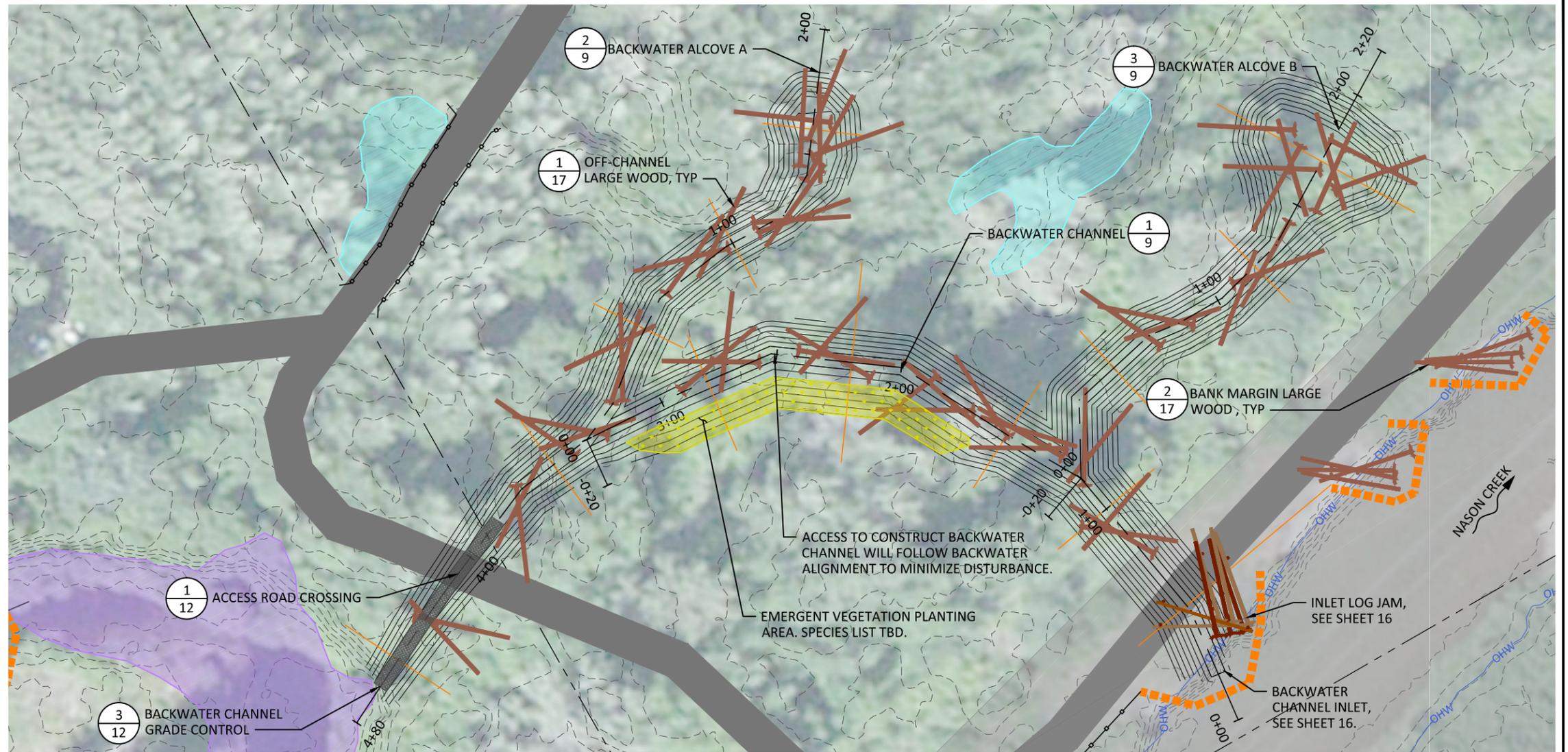
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**EROSION CONTROL PLAN**



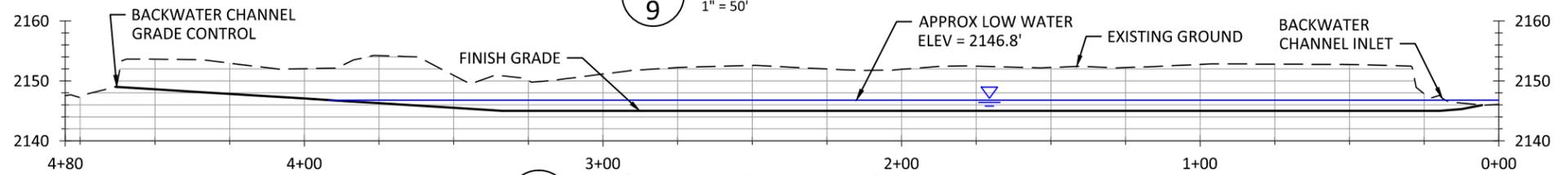
**LEGEND**

- EXISTING CONTOURS (LIDAR, 1 FT)
- PROPOSED CONTOURS (1 FT)
- - - PROPERTY BOUNDARY (CHELAN COUNTY)
- OHW ORDINARY HIGH WATER
- CROSS-SECTION (SEE SHEET 10)
- EXISTING ACCESS
- PROPOSED ALIGNMENT
- COFFERDAM
- SILT FENCE
- EMERGENT WETLAND
- FORESTED WETLAND
- EMERGENT VEGETATION PLANTING AREA
- ROUGHENED CHANNEL
- LARGE WOOD ENHANCEMENT

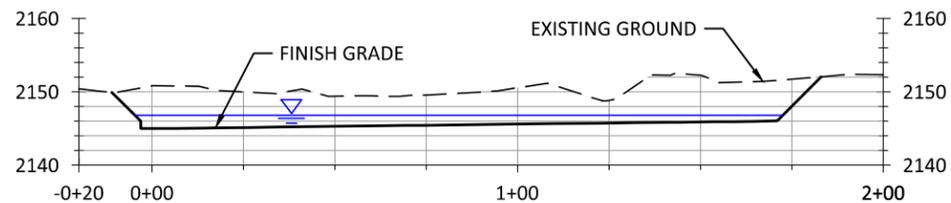


**Preliminary**  
 Not for Construction

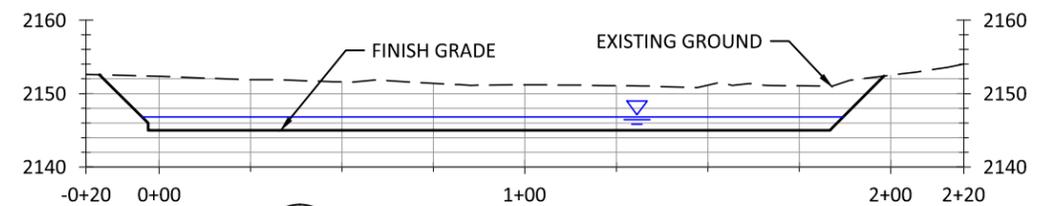
**1**  
**9** PROFILE - BACKWATER CHANNEL AND ALCOVES  
1" = 50'



**2**  
**9** PROFILE - BACKWATER CHANNEL  
HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE 1" = 25'



**3**  
**9** PROFILE - BACKWATER ALCOVE A  
HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE 1" = 25'



**4**  
**9** PROFILE - BACKWATER ALCOVE B  
HORIZONTAL SCALE: 1" = 50' VERTICAL SCALE 1" = 25'

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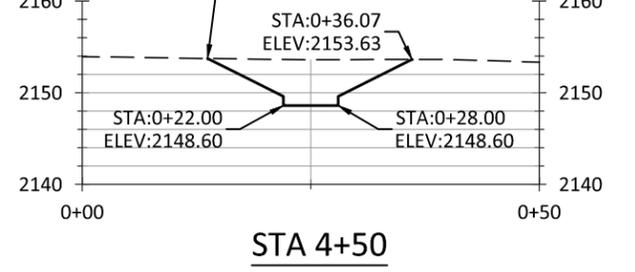
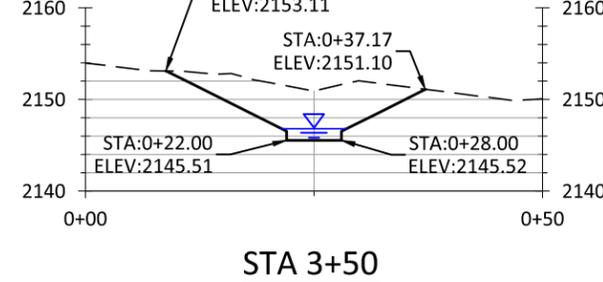
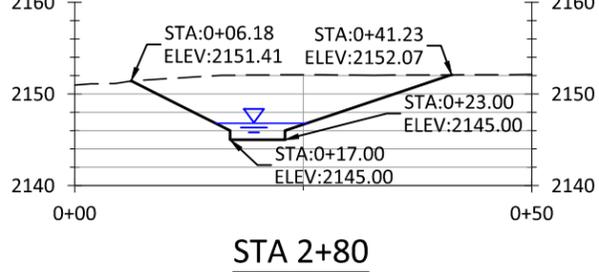
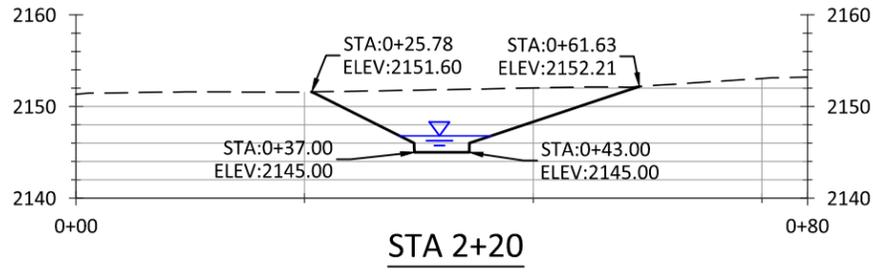
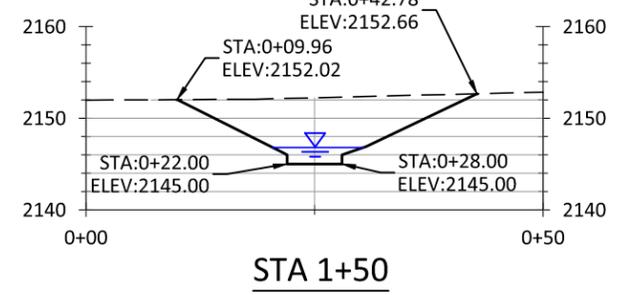
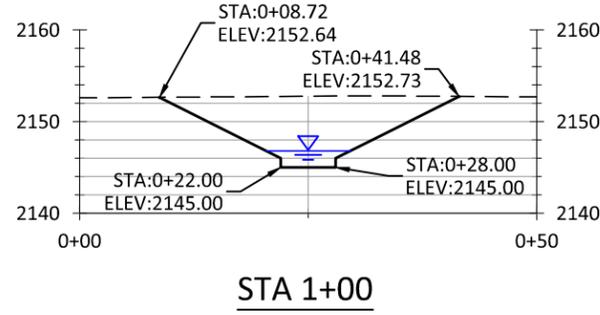
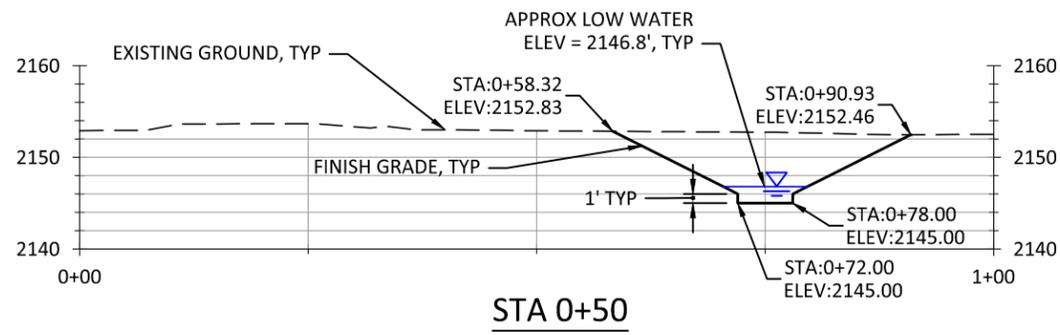
**YAKAMA NATION FISHERIES**  
**NASON CREEK LOWER WHITE PINE GROUPS 2 & 3**  
**FISH HABITAT ENHANCEMENT PROJECT**



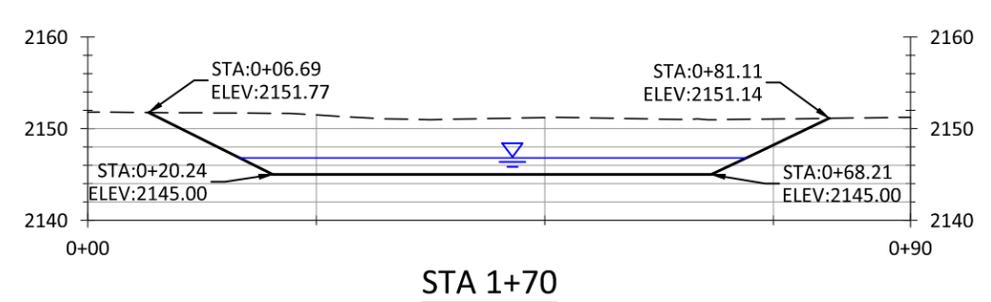
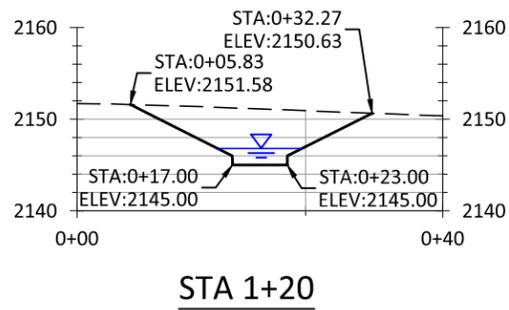
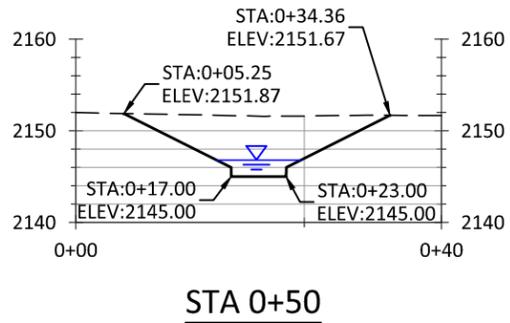
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**PROPOSED BACKWATER**  
**CHANNEL AND ALCOVES -**  
**PLAN AND PROFILE**

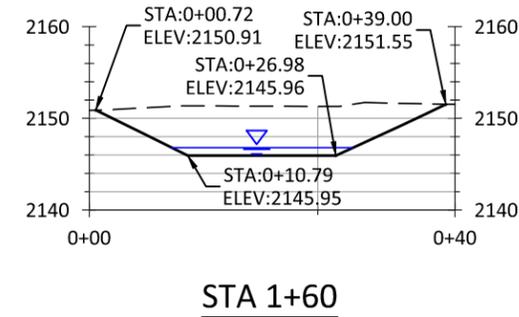
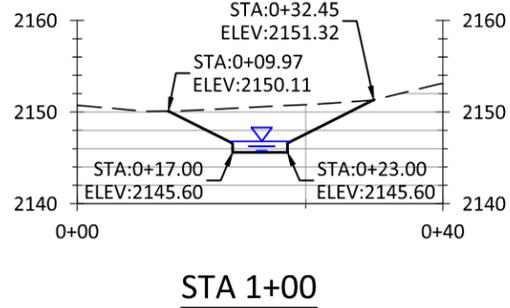
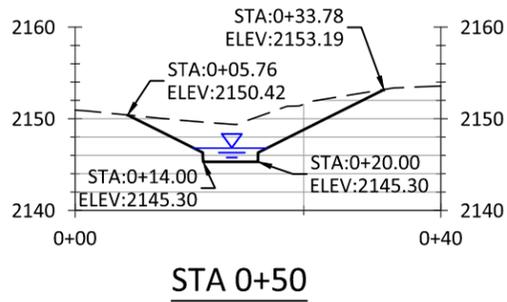
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**1**  
**10** CROSS-SECTIONS - BACKWATER CHANNEL  
1" = 20'



**2**  
**10** CROSS-SECTIONS - BACKWATER ALCOVE A  
1" = 20'



**3**  
**10** CROSS-SECTIONS - BACKWATER ALCOVE B  
1" = 20'

Preliminary  
Not for Construction

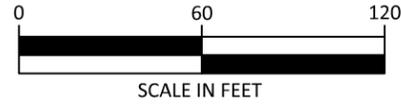
NO.	BY	DATE	REVISION DESCRIPTION

NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT

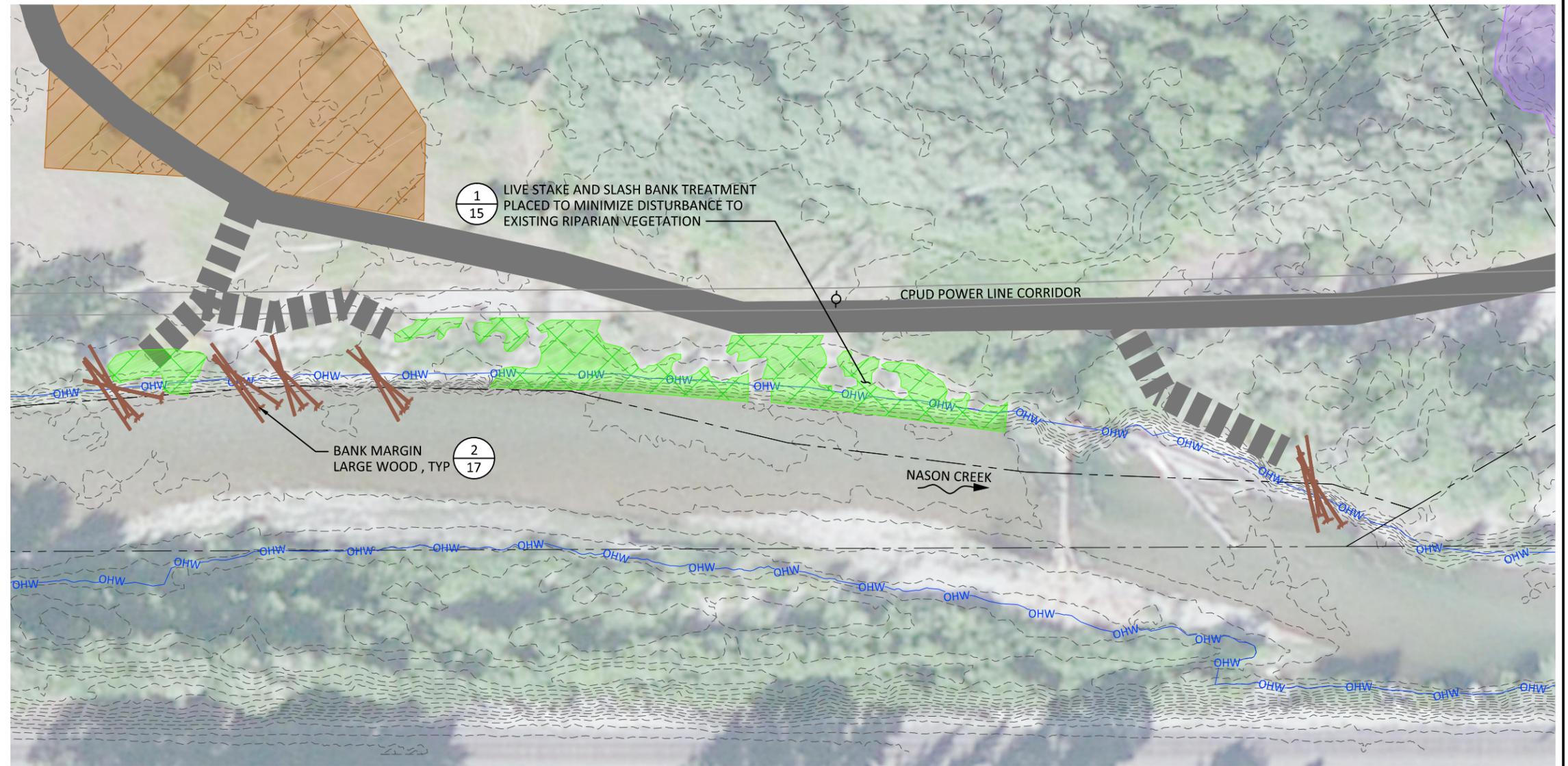


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**LEGEND**

- EXISTING CONTOURS (LIDAR, 1 FT)
- PROPERTY BOUNDARY (CHELAN COUNTY)
- OHW
- EXISTING ACCESS
- TEMPORARY ACCESS
- EMERGENT WETLAND
- STAGING/STOCKPILE AREA
- LIVE STAKE AND SLASH BANK TREATMENT
- CPUD TOWER
- CPUD OVERHEAD LINES
- LARGE WOOD ENHANCEMENT



**PLAN VIEW**

**NOTE:**

LIVE STAKE AND SLASH BACKFILL SHALL BE PLACED ON THE BANK IN AREAS THAT DO NOT INTERSECT THE CPUD POWER LINE CORRIDOR AND MAINTENANCE ACCESS ROAD.

**Preliminary**  
 Not for Construction

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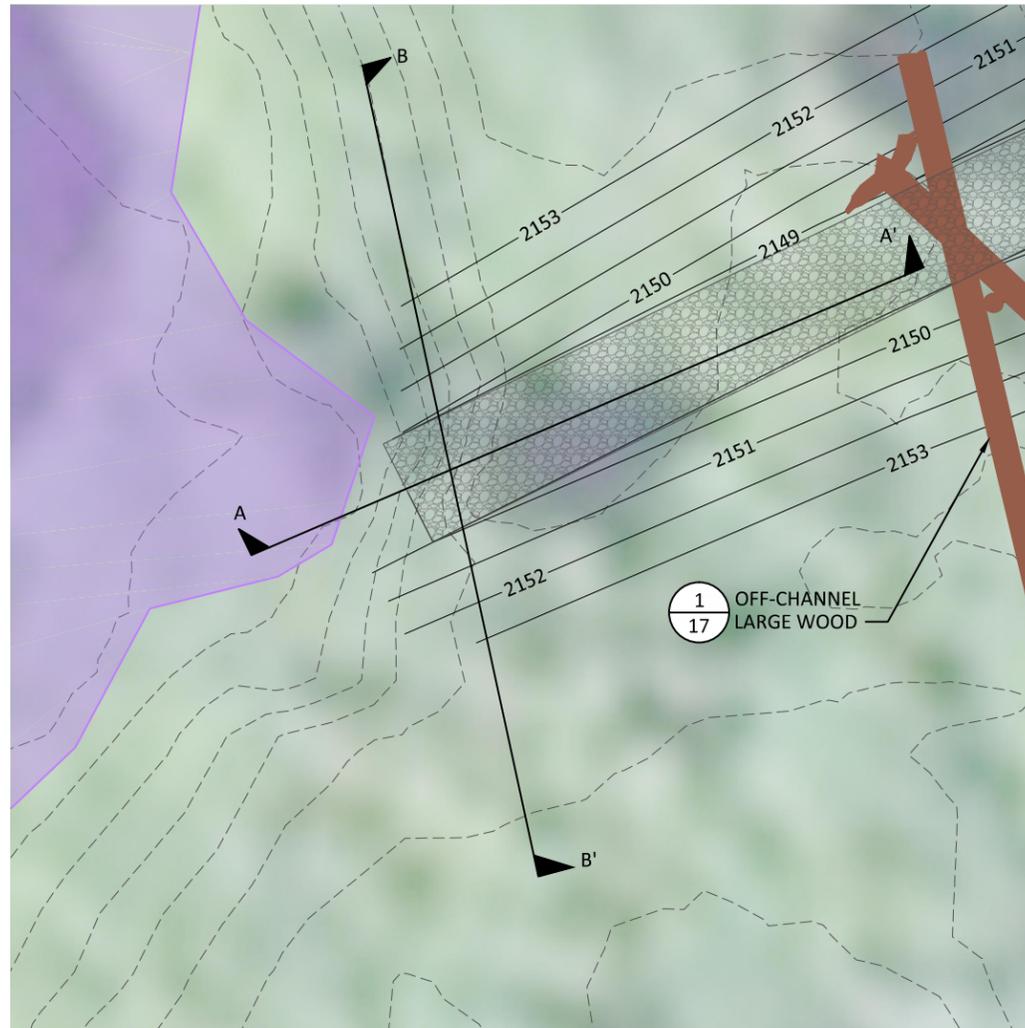
NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT**

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**UPSTREAM BANK HABITAT  
ENHANCEMENT PLAN**

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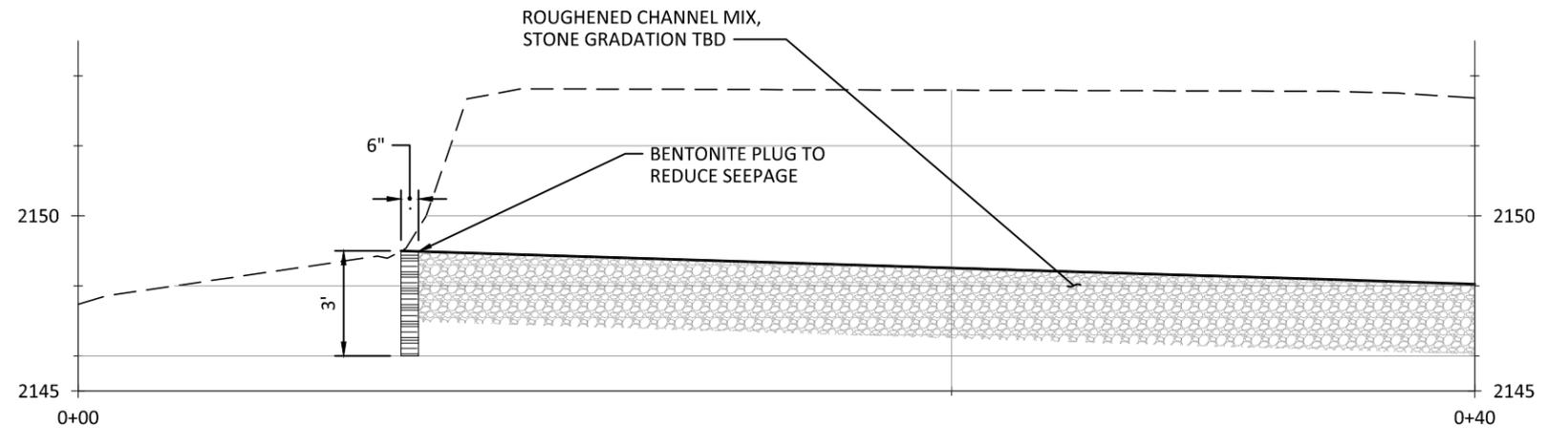
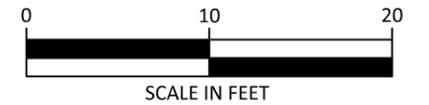


**PLAN**  
1" = 10'

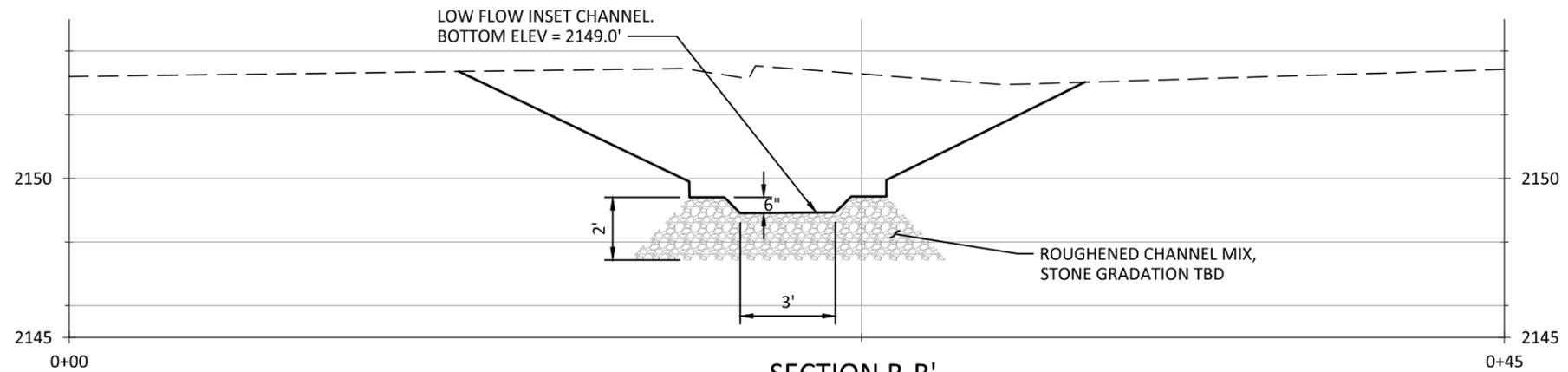
**Preliminary**  
Not for Construction

**LEGEND**

- EXISTING CONTOURS (LIDAR, 1FT)
- PROPOSED CONTOURS (1FT)
- EMERGENT WETLAND
- ROUGHENED CHANNEL
- LARGE WOOD ENHANCEMENT



**SECTION A-A'**  
1" = 5'



**SECTION B-B'**  
1" = 5'

**1/12 BACKWATER CHANNEL GRADE CONTROL**

NO.	BY	DATE	REVISION DESCRIPTION

NS	MC, LH, GJ	MC, DM
DRAWN	DESIGNED	CHECKED
MC	10/15/15	150233
APPROVED	DATE	PROJECT

**YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT**



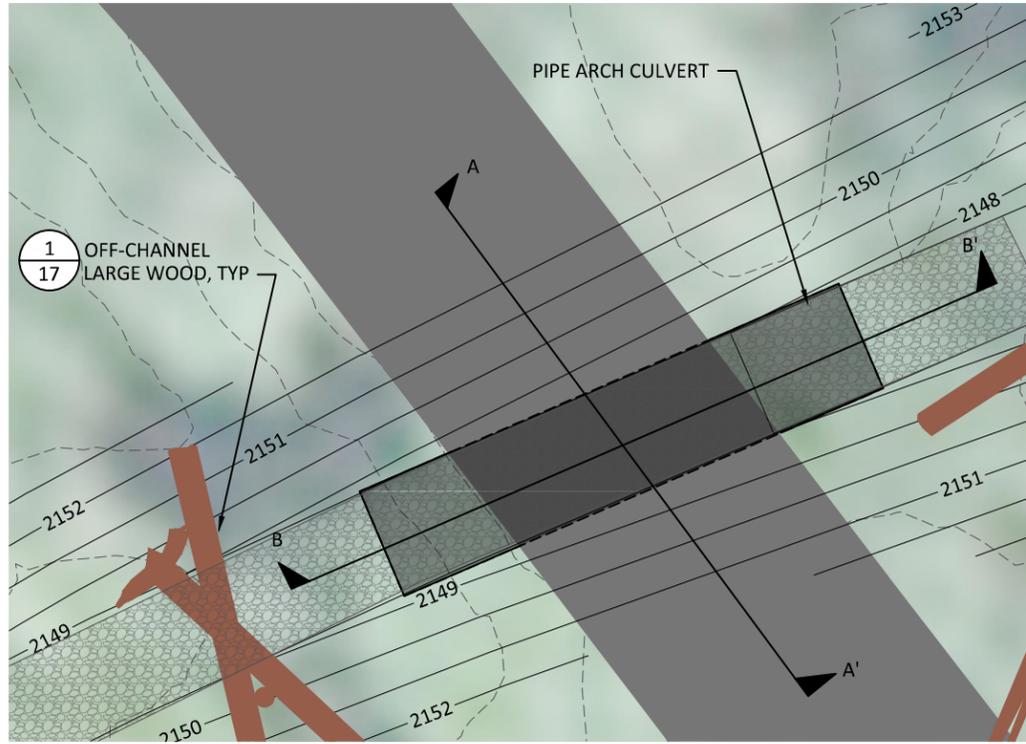
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**BACKWATER CHANNEL GRADE  
CONTROL PLAN AND SECTIONS**

SHEET

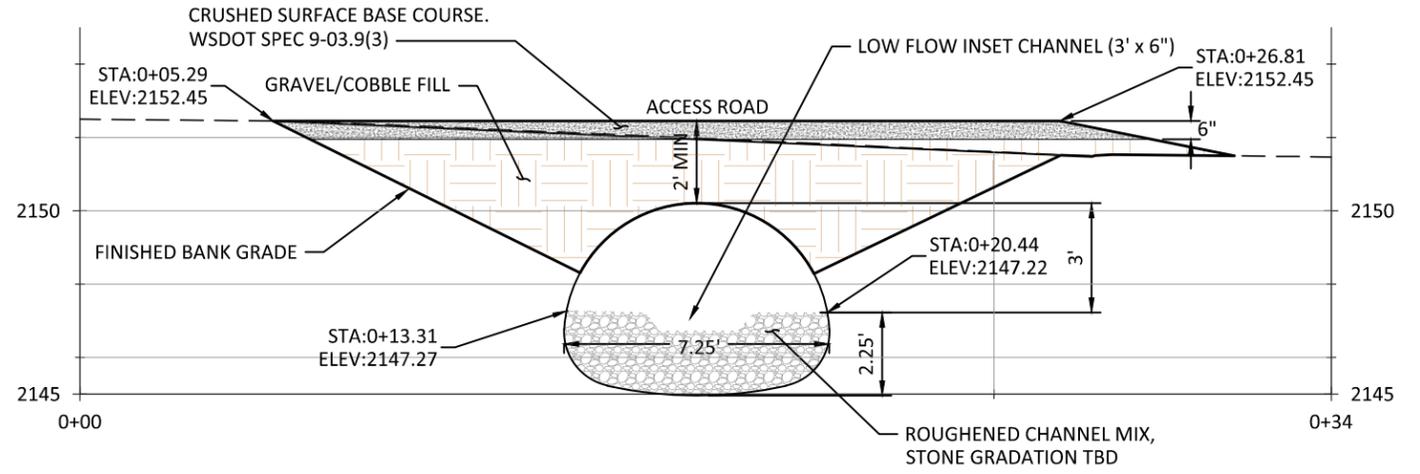
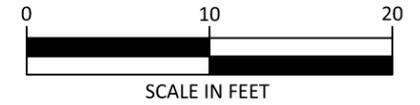
12 OF 17

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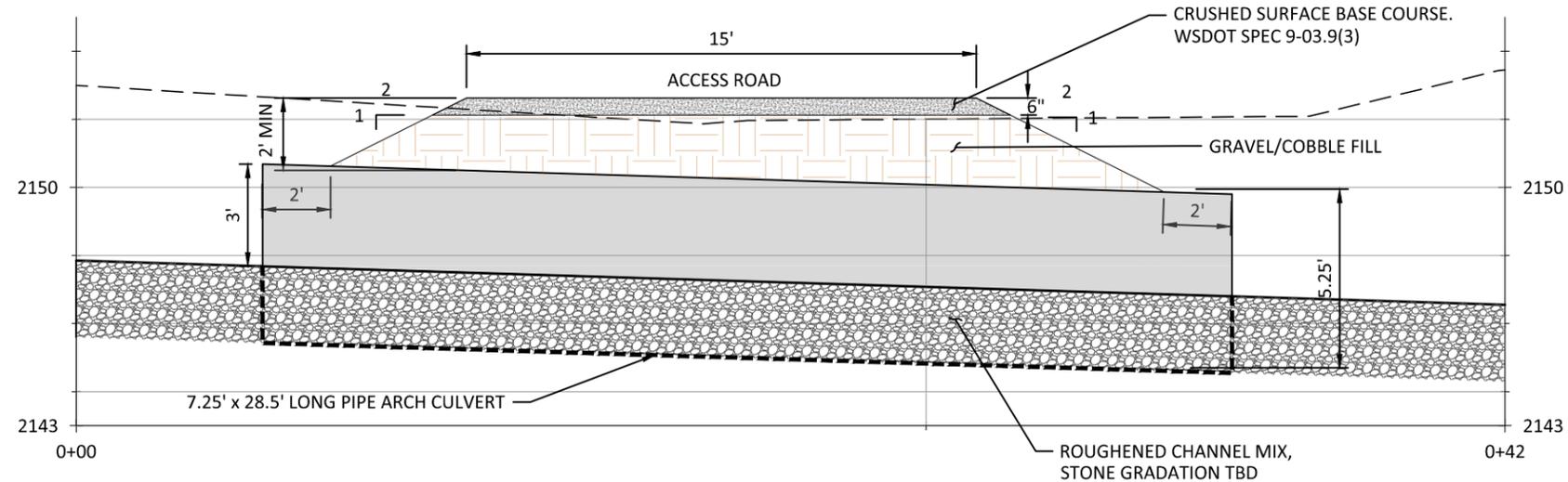


**LEGEND**

- EXISTING CONTOURS (LIDAR, 1FT)
- PROPOSED CONTOURS (1FT)
- EXISTING ACCESS
- ROUGHENED CHANNEL
- LARGE WOOD ENHANCEMENT



**Preliminary**  
Not for Construction



**1**  
**13** ACCESS ROAD CROSSING

NO.	BY	DATE	REVISION DESCRIPTION

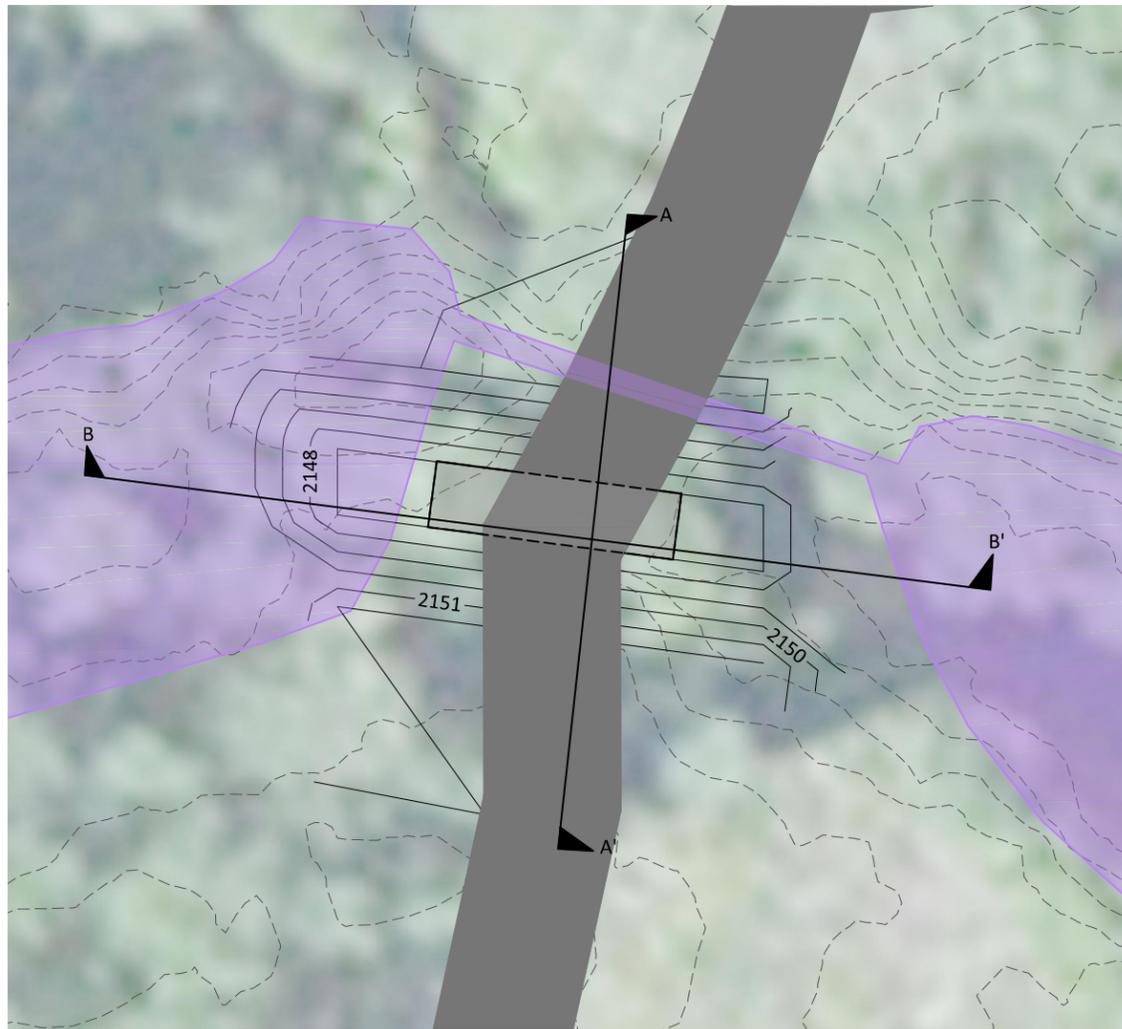
NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES  
NASON CREEK LOWER WHITE PINE GROUPS 2 & 3  
FISH HABITAT ENHANCEMENT PROJECT**

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**BACKWATER CHANNEL  
CROSSING PLAN AND  
SECTIONS**

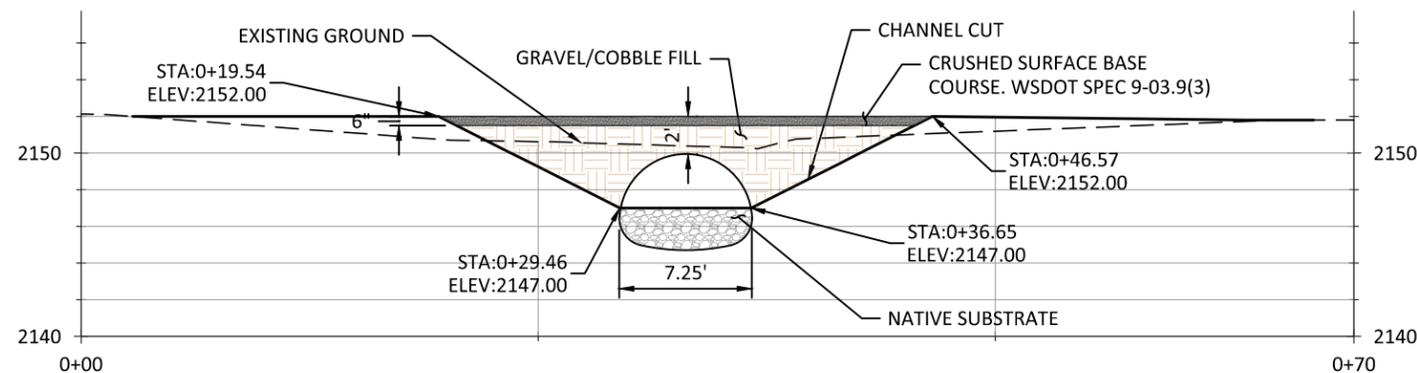
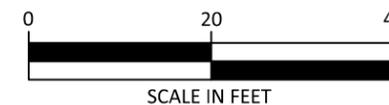
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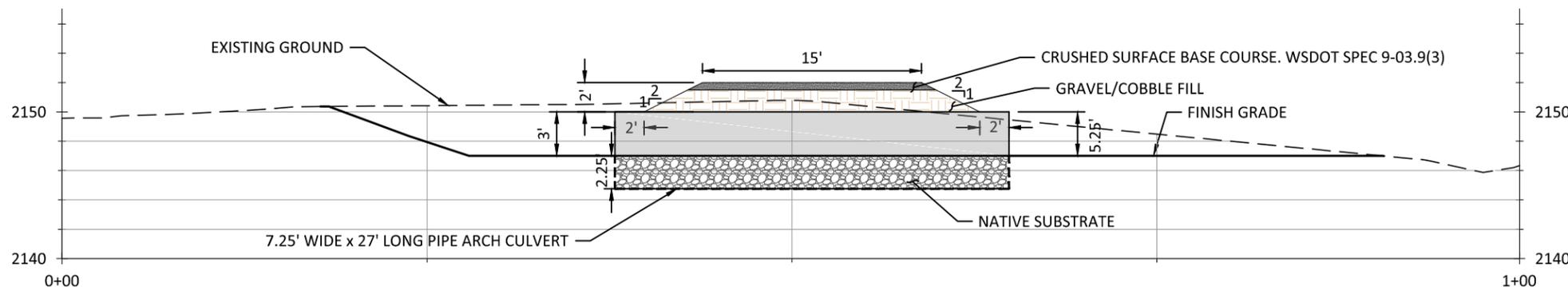
**PLAN**  
1" = 20'

**LEGEND**

- EXISTING CONTOURS (LIDAR, 1FT)
- PROPOSED CONTOURS (1FT)
- █ EXISTING ACCESS
- █ EMERGENT WETLAND



**SECTION A-A'**  
1" = 10'



**SECTION B-B'**  
1" = 10'

**Preliminary**  
Not for Construction

**1**  
**14** OXBOW POND CONNECTION AND CROSSING

NO.	BY	DATE	REVISION DESCRIPTION

NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES**  
**NASON CREEK LOWER WHITE PINE GROUPS 2 & 3**  
**FISH HABITAT ENHANCEMENT PROJECT**

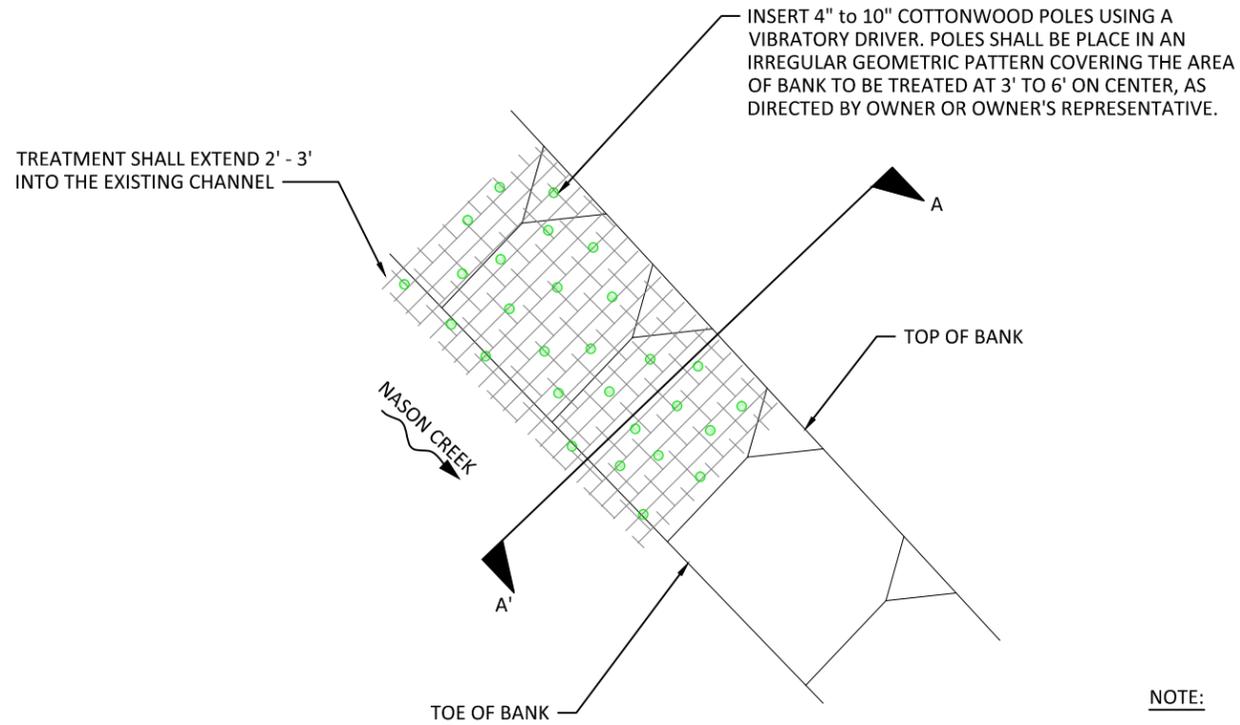


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**OXBOW POND CONNECTION**  
**AND CROSSING PLAN AND**  
**SECTIONS**

SHEET  
**14** OF 17

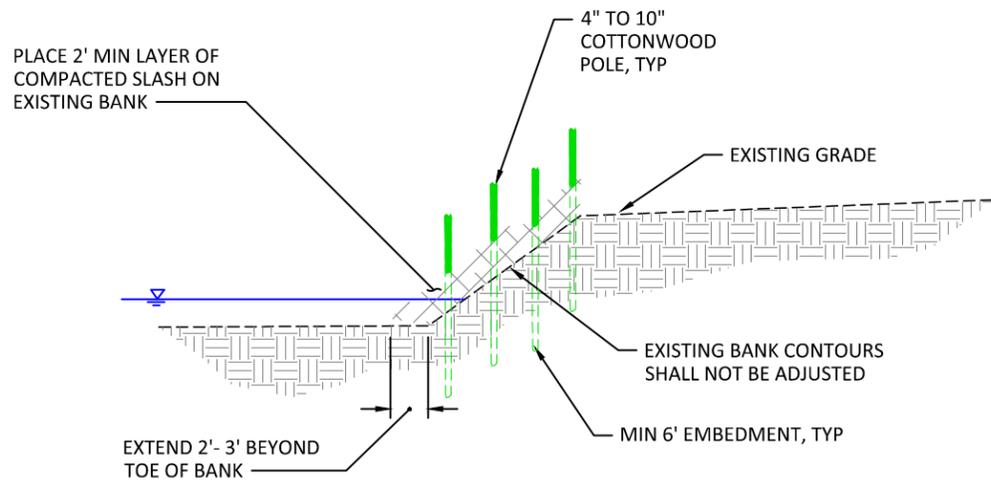
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**PLAN**

**NOTE:**  
SLASH SHALL BE PLACED IN AN INTERLOCKING MANNER AROUND PILES

**Preliminary**  
Not for Construction



**SECTION A-A'**

**1** LIVE STAKE AND SLASH BANK TREATMENT  
15 NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

NS	MC, LH, GJ	MC, DM
DRAWN	DESIGNED	CHECKED
MC	10/15/15	150233
APPROVED	DATE	PROJECT

**YAKAMA NATION FISHERIES**  
**NASON CREEK LOWER WHITE PINE GROUPS 2 & 3**  
**FISH HABITAT ENHANCEMENT PROJECT**



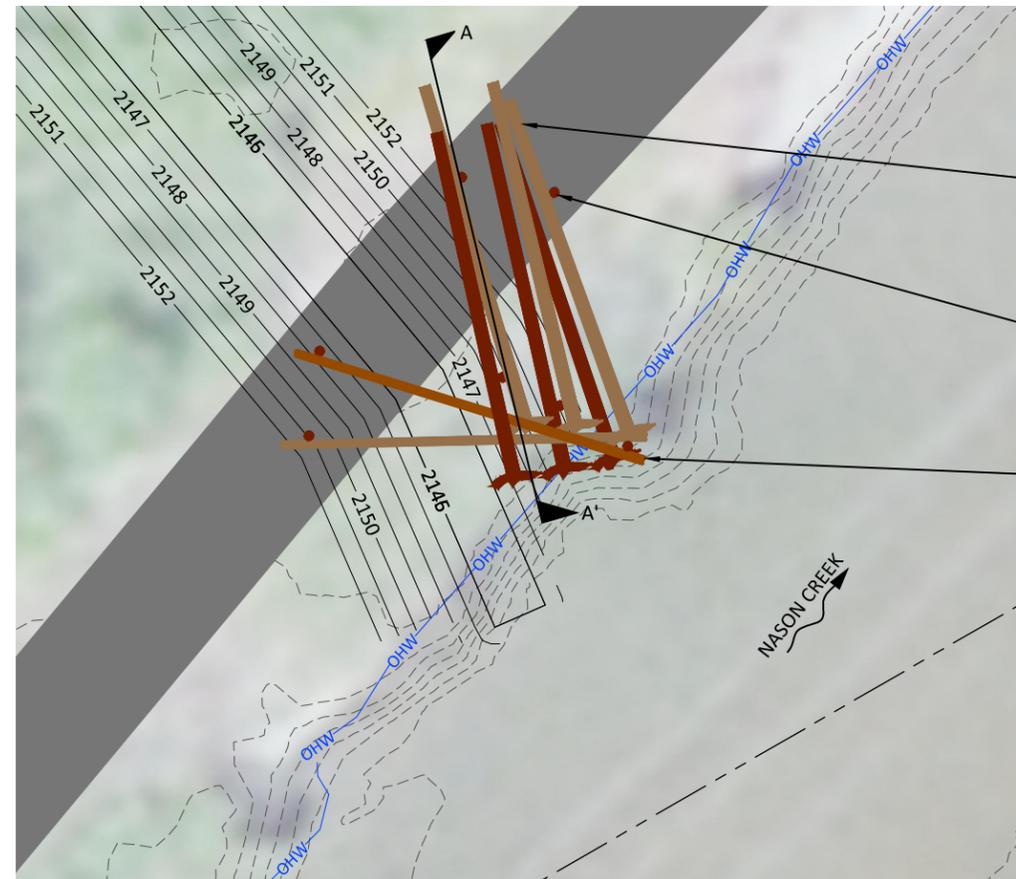
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541.386.9003  
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**LIVE STAKE AND SLASH BANK TREATMENT**



**LEGEND**

- EXISTING CONTOURS (LIDAR, 1FT)
- PROPOSED CONTOURS (1FT)
- - - PROPERTY BOUNDARY
- OHW — ORDINARY HIGH WATER
- █ EXISTING ACCESS
- LARGE WOOD ENHANCEMENT



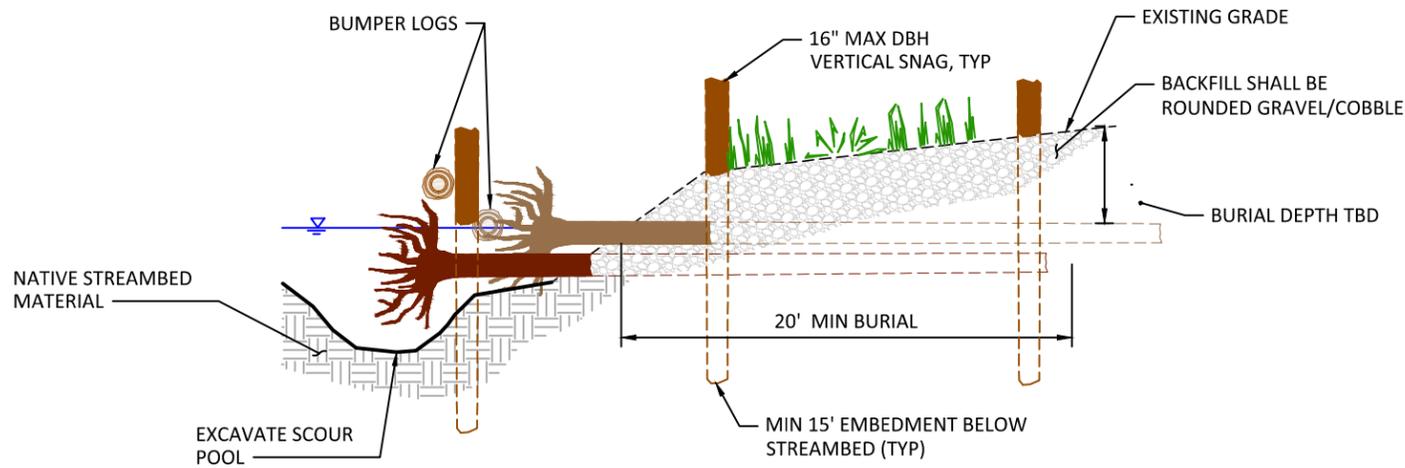
18"-24" DBH x 35'-40' LONG LOG WITH ROOTWAD, PARTIALLY BURIED, TYP

16" DIA VERTICAL SNAG, TYP

15"-18" DBH x 35'-40' LONG LOG, PARTIALLY BURIED, TYP

**PLAN**  
1" = 20'

**Preliminary**  
Not for Construction



**SECTION A-A'**  
NOT TO SCALE

**1**  
**16** BACKWATER CHANNEL INLET

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NO.	BY	DATE	REVISION DESCRIPTION

NS DRAWN	MC, LH, GJ DESIGNED	MC, DM CHECKED
MC APPROVED	10/15/15 DATE	150233 PROJECT

**YAKAMA NATION FISHERIES**  
**NASON CREEK LOWER WHITE PINE GROUPS 2 & 3**  
**FISH HABITAT ENHANCEMENT PROJECT**

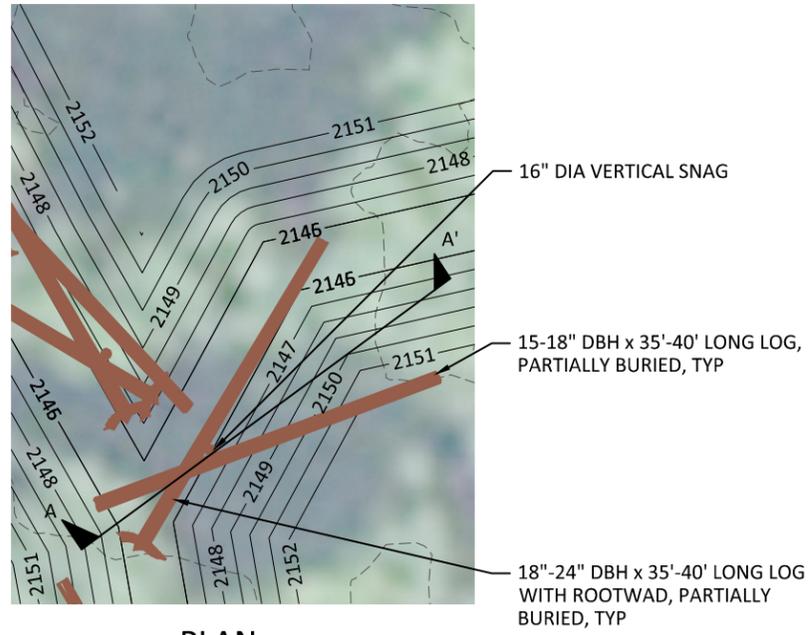
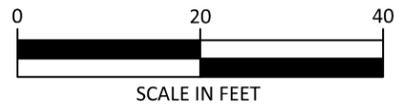


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**BACKWATER CHANNEL INLET**  
**PLAN AND DETAILS**

**LEGEND**

- EXISTING CONTOURS (LIDAR, 1FT)
- PROPOSED CONTOURS (1FT)
- OHW ORDINARY HIGH WATER

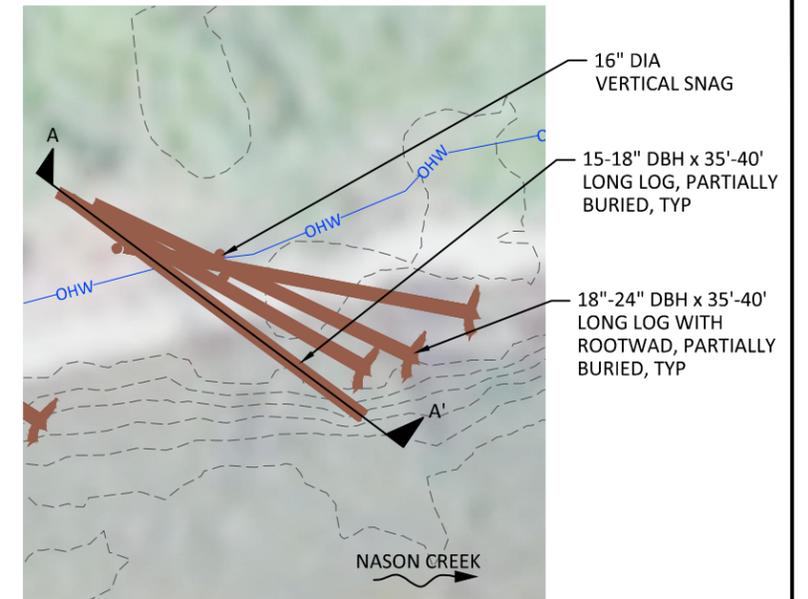


**PLAN**  
1" = 20'

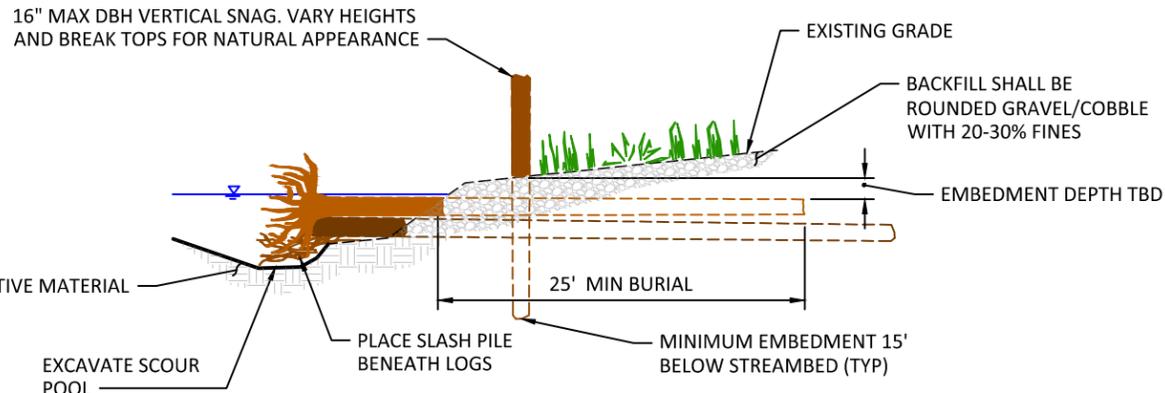
Preliminary  
Not for Construction

**NOTE:**  
ALL VERTICAL SNAGS SHALL BE INSTALLED USING VIBRATORY PILE DRIVING EQUIPMENT. INSTALLATION BY EXCAVATION, HAMMERING OR VIBRATORY PLATE COMPACTORS SHALL NOT BE ALLOWED.

ACCEPTABLE MINIMUM VIBRATORY PILE DRIVING EQUIPMENT SHALL INCLUDE: HMC MOVAX SONIC SIDE GRIP VIBRATORY PILE DRIVER-MODEL SP80 OR EQUIVALENT.

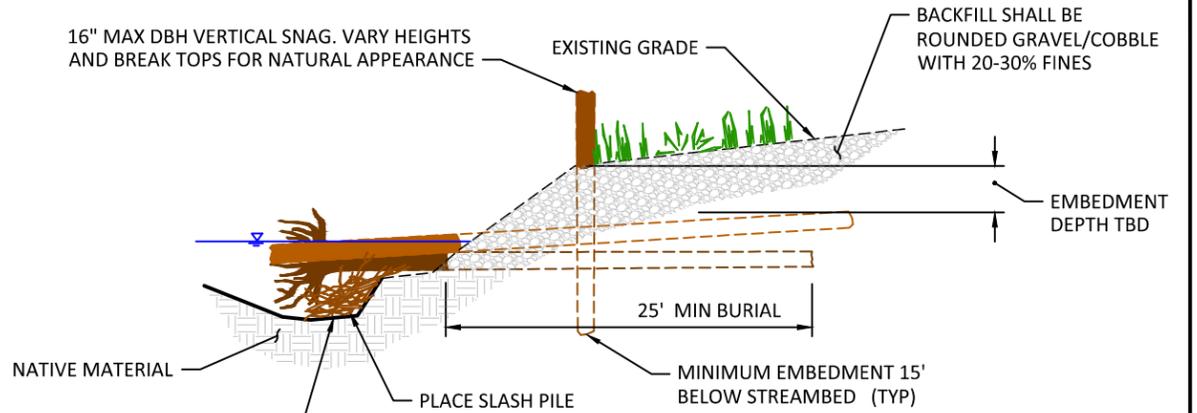


**PLAN**  
1" = 20'



**SECTION A-A'**  
NOT TO SCALE

**1**  
17 **OFF-CHANNEL LARGE WOOD**



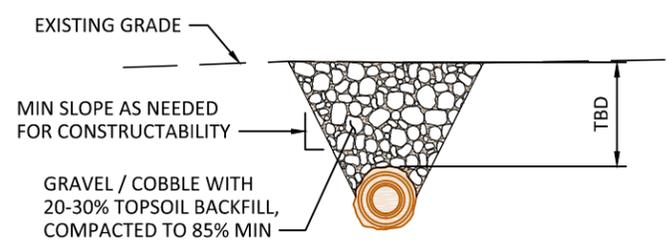
**SECTION A-A'**  
NOT TO SCALE

**2**  
17 **BANK MARGIN LARGE WOOD**



**3**  
17 **FULLY THREADED ROD (FTR) CONNECTION**  
NOT TO SCALE

- NOTES:**
1. BOLTS SHALL BE MINIMUM 7/8" DIAMETER THREADED ROD, GRADE A36 STEEL. WASHERS SHALL BE SQUARE PLATE, 1/4" x 4" x 4" MIN. NUTS SHALL BE HEAVY HEX. ALL HARDWARE SHALL BE HOT-DIP GALVANIZED.
  2. DRILL 1" HOLE THROUGH LOGS.
  3. INSERT 7/8" DIA ALL-THREAD REBAR.
  4. INSTALL STEEL PLATES AND HEAVY HEX NUTS. SECURE NUTS BY CHISELING THREADS.
  5. FILE OR GRIND OFF SHARP EDGES.



**4**  
17 **LOG BURIAL**  
NOT TO SCALE

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**LARGE WOOD DETAILS**