EXISTING DATA

TOPOGRAPHIC DATA COLLECTED BY ERS, INC USING RTK TOTAL STATION HYDRODROME AND DRONE BASED SFM FROM OCTOBER TO NOVEMBER 2018; GIS DATA PROVIDED BY VARIOUS AGENCIES INCLUDING AERIAL PHOTOGRAPHY, LIDAR, FISH USE, SURFACE SOILS INFORMATION, LAND OWNERSHIP, AND TRANSPORTATION ROUTES.

EXISTING DAM INFORMATION INCLUDED IN DEPARTMENT OF ECOSYSTEM DRAINAGE SAFETY REPORT (2006) INCLUDED SCANS OF DESIGN PLANS AND CHM MCL SKETCH OF PRE-DEM TOPOGRAPHY.

HORIZONTAL DATUM: NA93 WASHINGTON STATE PLINES, SOUTH, QM-FOOT/ VERTICAL DATUM: NAVD88

HISTORICAL PHOTOS PROVIDED AS SUPPLEMENTAL INFORMATION. SEE GEODESIGN REPORT PROVIDED AS SUPPLEMENTAL INFORMATION.

SOILS

RESERVOIR SOILS WERE HIGHLY DISTURBED DURING DAM CONSTRUCTION. SEE HISTORICAL PHOTOS PROVIDED AS SUPPLEMENTAL INFORMATION. SEE GEODESIGN REPORT PROVIDED AS SUPPLEMENTAL INFORMATION. SUBSURFACE SOILS ARE EXPECTED TO BE SILT, CLAY, SAND AND GRAVEL. CONTRACTOR SHALL CONDUCT OWN INVESTIGATIONS IF ADDITIONAL DATA IS REQUIRED AT NO ADDITIONAL COST.

SOILS ON SITE ARE KINNEY LOAM (WEB/GB). CONTRACTOR SHALL REMOVE SOFT SOILS IN THE DRAW DOWN AREA OF THE RESERVOIR TO CONCENTRATE FISH IN A REDUCED AREA. WDFW WILL ASSIST WITH THEIR ELECTRO-FISHING BOAT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SCREENING TRIBUTARY DIVERSION INLETS AND FISH SCREEN. THE CONTRACTOR SHALL CLEAR DEBRIS FROM THE AFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED LIVE TREES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE AT OWN EXPENSE. THE CONTRACTOR SHALL SCREEN TRIBUTARY DIVERSION INLETS WITH ASSISTANCE FROM THE COWLITZ INDIAN TRIBE FISHERIES BIOLOGIST. FISH SALVAGE SHOULD BE EXCLUDED FROM THE WORK AREA WITH SEINE NETS AND FISH SCREEN. THE CONTRACTOR SHALL CLEAR DEBRIS FROM THE SEINE NETS AND FISH SCREEN AS NECESSARY.

ALL SOIL AND FRESHWATER MUSSELS 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 FISH AND FRESHWATER MUSSELS SHALL BE IMMEDIATELY RELEASED INTO RIVER AT AREAS SELECTED BY A COWLITZ TRIBE BIOLOGIST.

FISH SHALL BE EXCLUDED FROM THE WORK AREA WITH SEINE NET OR OTHER METHOD APPROVED BY WDFW AND COWLITZ TRIBE PERSONNEL.

R E S E R V O I R

FISH SALVAGE IN THE RESERVOIR SHALL OCCUR AFTER THE INITIAL DRAW DOWN OF THE RESERVOIR TO CONCENTRATE FISH IN A REDUCED AREA. WDFW WILL ASSIST WITH THEIR ELECTRO-FISHING BOAT. THE CONTRACTOR SHALL SCREEN TRIBUTARY DIVERSION INLETS AND FISH SCREEN. THE CONTRACTOR SHALL CLEAR DEBRIS FROM THE AFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED LIVE TREES. CONTRACTOR SHALL BE SOLELY RESPONSIBLE AT OWN EXPENSE. THE CONTRACTOR SHALL SCREEN TRIBUTARY DIVERSION INLETS WITH ASSISTANCE FROM THE COWLITZ INDIAN TRIBE FISHERIES BIOLOGIST. FISH SALVAGE SHOULD BE EXCLUDED FROM THE WORK AREA WITH SEINE NETS AND FISH SCREEN. THE CONTRACTOR SHALL CLEAR DEBRIS FROM THE SEINE NETS AND FISH SCREEN AS NECESSARY.

ALL SOIL AND FRESHWATER MUSSELS 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 FISH AND FRESHWATER MUSSELS SHALL BE IMMEDIATELY RELEASED INTO RIVER AT AREAS SELECTED BY A COWLITZ TRIBE BIOLOGIST.

FISH SHALL BE EXCLUDED FROM THE WORK AREA WITH SEINE NET OR OTHER METHOD APPROVED BY WDFW AND COWLITZ TRIBE PERSONNEL.

WILDOY CREEK

THE CONTRACTOR SHALL PERFORM FISH EXCLUSION IN WILDOY CREEK WITH ASSISTANCE FROM THE COWLITZ INDIAN TRIBE FISHERIES BIOLOGIST. FISH SALVAGE SHOULD INCLUDE THE CONTRACTOR PROVIDING SCREENED INTAKE PUMPS AND OPERATING THE PUMPS TO CONCENTRATE FISH IN POOLS. THE POOLS SHALL BE PUMPED DOWN TO ALLOW FOR SYSTEMATIC SEINE NETTING THROUGH THE WORK AREAS. FOLLOWING SEINE NETTING, THE WORK AREAS WILL BE ISOLATED TO EXCLUDE FISH WITH SEINE NETS THAT MUST BE KEPT CLEAN OF DEBRIS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SWIMMING DEBRIS OFF SEINE NETS THROUGHOUT CONSTRUCTION. ANY SEINE NETS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

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 affected utility service to report any damaged or destroyed utilities.
EROSION/SEDIMENTATION CONTROL (ESC) PLAN

STABILIZE SOILS AND PROTECT SLOPES

ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION, TEMPORARY BEST MANAGEMENT PRACTICES (BMP) ARE NO LONGER NEEDED. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS NECESSARY TO COMPLY WITH LAWS AND PERMIT REQUIREMENTS AND TO PREVENT THE DEPOSITS OF SEDIMENT AND SEDIMENT-LADEN WATER INTO SURFACES, WATERS, THE DRAINAGE SYSTEM, OR VIOLATE APPLICABLE WATER STANDARDS.

CONSTRUCTION DEWATERING

CONTRACTOR SHALL PERFORM CONSTRUCTION DEWATERING IN SUCH A MANNER AS TO AVOID THE RELEASE OF SEDIMENT-LADEN WATER TO SURFACES, WATERS, THE DRAINAGE SYSTEM, OR DID NOT VIOLATE APPLICABLE WATER STANDARDS. ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES ARE NO LONGER NEEDED. STABLE SOILS AND PROTECT SLOPES

CONSTRUCTION DRAINAGE

STABILIZED CONSTRUCTION ENTRANCES AND ADDITIONAL MEASURES MAY BE REQUIRED TO TEMPORARILY OR PERMANENTLY CEASE ON PORTIONS OF THE CONTRACTOR'S 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. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON PORTIONS OF THE CONTRACTOR'S 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. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON PORTIONS OF THE CONTRACTOR'S 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. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE.
TEMPORARY ACCESS ROADS (OFF ROAD)

NOT TO SCALE

NATIVE MATERIAL

CLEAR AND GRUB APPROX. 12-15 FT. (TRACKED VEHICLES AND SKIDDERs ONLY)

NOTE: THESE ACCESS ROADS ARE INTENDED FOR TRACKED VEHICLES AND SKIDDERs. ADD GRAVEL FROM ONSITE STOCKPILE OR OTHERWISE SALVAGED ONSITE AS NEEDED FOR UNEVEN TERRAIN, OR IF SOFT SPOTS DEVELOP.

TYPICAL SECTION - PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)

NOT TO SCALE

APPROX. 12-15 FT. (VEHICULAR)

GRADE FLAT

NOTE: ADD GRAVEL FROM ONSITE STOCKPILE OR OTHERWISE SALVAGED ONSITE AS NEEDED FOR UNEVEN TERRAIN, OR IF SOFT SPOTS DEVELOP.

TYPICAL SECTION - PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)

NOT TO SCALE

APPROX. 12-15 FT. (VEHICULAR)

GRADE FLAT

VARIES

NOTE: ADD GRAVEL FROM ONSITE STOCKPILE OR OTHERWISE SALVAGED ONSITE AS NEEDED FOR UNEVEN TERRAIN, OR IF SOFT SPOTS DEVELOP.

TYPICAL SECTION - PROPOSED TEMPORARY ACCESS ROADS (WILDBOY CREEK)

NOT TO SCALE

NOTE: ROAD ALIGNMENTS AND LOCATIONS MAY VARY AS LONG AS THEY REMAIN WITHIN THE LIMITS OF DISTURBANCE.
CONTRACTOR SHALL DREDge EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK. SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE SUFFICIENT LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK. SEE CONSTRUCTION SEQUENCE FOR TIMING.

PROJECT BOUNDARY AREA

EXISTING RIVER PATHWAYS
EXISTING DAM AND SPILLWAY
EXISTING FOREST ROAD
PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)
PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)
PROPOSED TEMPORARY ACCESS ROADS (WILDBOY CREEK)
PROPOSED ACCESS ROADS (TO REMAIN)
PROJECT BOUNDARY AREA
PROPOSED TRIBUTARIES
EPHEMERAL STREAM
LIMITS OF DISTURBANCE
STAGING AND STOckPILE
WATER TURBIDITY MONITORS
KAYAKERS WARNING SIGNS

LEGEND

CONTRACTOR SHALL COLLECT FLOWS THAT SEEP FROM WORK AREAS AND PUMP TO UPLAND LOCATION FOR INFILTRATION.

TEXAS CREEK

WILDBOY CREEK
NOTES:
LIDAR WAS ACCESSED VIA WNR LIDAR PORTAL. LIDAR IS 2M RESOLUTION AND HAS LIMITATIONS DUE TO QUALITY AND AGE OF DATA SET.
HORIZONTAL DATUM: NAD83 WASHINGTON STATE PLANE, SOUTH ZONE, US FOOT
VERTICAL DATUM: NAVD88

SURVEY CONTROL

LEGEND

EXISTING RIVER PATHWAYS
EXISTING RESERVOIR
EXISTING DAM AND SPILLWAY
EXISTING GRADING (1 FOOT INTERVAL)
ORDINARY HIGH WATER (OHW)
SURVEY CONTROL
EXISTING DAM AND SPILLWAY
EXISTING DOWNED LARGE TREES FOR WILDBOY CREEK AT PLUNGE POOL
DOWNSTREAM OF EXISTING DAM

DATA SET.
LIMITATIONS DUE TO QUALITY AND AGE OF PORTAL. LIDAR IS 2M RESOLUTION AND HAS

WEST TRIBUTARY
ORTH TRIBUTARY
1. **STEP 1 IN THIS SEQUENCE HAS BEEN PERFORMED UNDER A SEPARATE CONTRACT PRIOR TO THE DAM REMOVAL CONTRACT, SEPARATE PILES OF BOULDERS, COBBLE, GRAVEL AND SOIL ARE LOCATED IN THE STAGING AND STOCKPILE AREA LOCATED SOUTHEAST OF THE RESERVOIR.**

2. **CLEAR AND GRUB STAGING AREAS, ACCESS ROADS, INCLUDING ACCESS AROUND THE RESERVOIR TO TRIBUTARY DIVERSION LOCATIONS, TEXAS CREEK DISCHARGE LOCATIONS, AND WILDBOY CREEK ACCESS LOCATIONS DOWNSTREAM OF DAM locations in Tributaries, identified on the Drawings.**

3. **PLACE BLIND FLANGES AND GASKETS ON ENDS OF WELDED JOINTS.**

4. **INSTALL TRIBUTARY DIVERSIONS AND PERFORM FISH EXCLUSION.**

5. **DIVERSION DAM LOCATIONS AT FULL RESERVOIR LEVEL.**

6. **LOCATIONS, TEXAS CREEK DISCHARGE LOCATIONS, AND WILDBOY REACHES BY USING SEINES AS BLOCK NETS.**

7. **THE COWLITZ TRIBE FROM THE EXISTING SPRING TO THE CONFLUENCE WITH TEXAS CREEK.**

8. **DOWNSTREAM OF THE DAM.**

9. **ELECTRO-FISHING CREWS AND WDFW VOLUNTEERS TO CLEAR THE REMAINING FISH IN RESIDUAL POOLS IN THE 0.25 MILE REACH DOWNSTREAM OF THE DAM.**

10. **ALL COLLECTED FISH, FRESHWATER MUSSELS, AND AMPHIBIANS WILL BE SPECIATED AND ENUMERATED. THE COWLITZ TRIBE WILL OCCUR IN DEFINED SECTIONS/SUB REACHES BY USING SEINES AS BLOCK NETS.**

11. **AN INITIAL FISH RESCUE PASS WILL BE PERFORMED IN THE 0.25 MILE REACH DOWNSTREAM OF THE DAM.**

12. **THE CONTRACTOR SHALL MONITOR SPRAYERS FOR LAND APPLICATION AND INFILTRATION.**

13. **AFTER CLEARWATER PUMPING HAS CEASED, REMOVE THE SILT CURTAIN AND FLOATING INTAKES.**

14. **REFILL TURBIDITY PLUMES TO AVOID TURBID WATER FROM PASSING UNDER THE SILT CURTAIN.**

15. **LARGE WOOD STRUCTURES IN WILDBOY CREEK (SHEETS 57-71) WILL BE COMPLETED.**

16. **RE-CONTOURED FOR DEWATERING PURPOSES AS LONG AS THE BOTTOM OF THE RESERVOIR TO AVOID MOBILIZING THOSE SEDIMENTS.**

17. **DEWATERING COFFERDAM 3 UPSTREAM OF DAM AND PUMP WATER AND PERFORM FISH RESCUE IN THE PLUNGE POOL DOWNSTREAM OF THE DAM PRIOR TO REMOVING BOTTOM 10 FEET OF CONCRETE APRON AT THE UPSTREAM FACE OF DAM.**

18. **CONTINUE DAM DEMOLITION WHILE MAINTAINING 10 FEET, MINIMUM FREEBOARD UNTIL FINE SEDIMENT HAVE BEEN REMOVED.**

19. **CONTINUE ACCESS ROUTES WITHIN THE RESERVOIR FOOTPRINT USING BOATS FOR CONTAINMENT.**

20. **USE DEWATERING COFFERDAM 1 TO COMPLETELY REMOVE DAM AND CONSTRUCT WILDBOY CREEK CHANNEL WITHIN FORMER DAM FLOODPLANE, CONSTRUCTING THE DEWATERING CHANNEL (FORMER DAM) AS A SEDIMENT TRAP AFTER CHANNEL IS CONSTRUCTED WITHIN FORMER DAM FOOTPRINT. TURBID WATER COLLECTED IN THE PLUNGE POOL WILL BE USED FOR LARGE WOOD STRUCTURE CONSTRUCTION AND OTHER PURPOSES.**

21. **PLACE SEEDING AND MULCH IN DISTURBED AREAS.**

22. **USE THE ABILITY TO PUMP FROM EACH TRIBUTARY DIVERSION TO FLUSH SEDIMENTS.**

23. **REINTRODUCE TRIBUTARY FLOWS, ONE AT A TIME TO FLUSH REMAINING SEDIMENTS.**

24. **PERFORM FINAL SITE STABILIZATION.**

**CONSTRUCTION SEQUENCE**

- **Preliminary Activities:**
  - **1.** Clear and grub staging areas, access roads, including access around the reservoir to tributary diversion locations, Texas Creek discharge locations, and Wildboy Creek access locations downstream of dam locations in tributaries, identified on the drawings.
  - **2.** Place blind flanges and gaskets on ends of welded joints.
  - **3.** Install tributary diversions and perform fish exclusion.

- **Diversion Dam Construction:**
  - **4.** Diversion dam locations at full reservoir level.
  - **5.** Locations, Texas Creek discharge locations, and Wildboy reaches by using seines as block nets.
  - **6.** The Cowlitz Tribe.

- **Clearwater Pumping:**
  - **7.** Clearwater pumping has ceased.
  - **8.** After clearwater pumping has ceased, remove the silt curtain and floating intakes. Floating intakes shall remain in the reservoir during fish rescue.

- **Silt Curtain:**
  - **9.** The contractor shall remove the floating intakes to deepen portions of the reservoir. The floating intakes shall remain in the reservoir during fish rescue.
  - **10.** The contractor shall clear soft soils from the dewatered shoreline for boat access. Dewatering field in depumping and retrieving electrofishing boat.

- **Fish Rescue:**
  - **11.** The contractor shall relocate floating intakes to deepen portions of the reservoir. The floating intakes shall remain in the reservoir during fish rescue.

- **Dewaterting Field:**
  - **12.** Dewaterting field shall be deepened using seines.
  - **13.** Dewaterting field shall be deepened using seines.

- **Final Site Stabilization:**
  - **14.** After channel has been constructed within the reservoir, reintroduce tributary flows, one at a time to flush remaining sediments.
  - **15.** Dewaterting field shall be deepened using seines.
CONTRACTOR SHALL COLLECT FLOWS THAT SEEP PAST DIVERSION DAM AND PUMP TO UPLAND LOCATION FOR INFILTRATION. GRAVITY DIVERSION PIPE SHALL PENETRATE DIVERSION DAM

LOCATION FOR INFILTRATION.

CONTRACTOR SHALL COLLECT FLOWS THAT SEEP PAST DIVERSION DAM AND PUMP TO UPLAND LOCATION FOR INFILTRATION. GRAVITY DIVERSION PIPE SHALL PENETRATE DIVERSION DAM

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RESERVOIR OPERATIONS ESCP PROVIDED BY EXISTING DAM.

HIGH HEAD PUMPS SHALL BE PIONEER PUMP, PP66S12, OR APPROVED EQUAL.

FRICTION LOSSES AS RESERVOIR LEVELS DESCEND. SUMP PUMPS SHALL BE

NOTES:

PERMIT REQUIREMENTS.

SUMP SHALL BE POWERED BY HYDRA-TECH, HT74DJV POWER UNIT, OR APPROVED

WELDED JOINT HDPE CONVEYANCE PIPE AS BOOSTER PUMPS TO OVERCOME

SUBMERSIBLE (SUM) PUMPS SHALL BE ATTACHED TO EACH 6 IN. DIA. SDR 11,

HDPE WELDED JOINT SDR-17 CONVEYANCE PIPE

HIGH HEAD PUMPS TO SPRAYERS

FLOATING INTAKE 1, (SEE DETAILS ON SHEETS 16) (A)

SECURE FLOATING INTAKE 2 TO DAM FACE ANCHOR POINT

CONNECT ENDS OF FLOATING INTAKES WITH 1/2 WIRE ROPE

FLOATING INTAKE 2, (SEE DETAILS ON SHEETS 16) (A)

SECURE FLOATING INTAKE TO EXISTING SHORELINE TREES. ADJUST TENSION, AS

TEMPORARY BREACH FLOATING INTAKE TO ALLOW FOR WDFW ELECTRO FISHING BOAT

INGRESS AND EGRESS

SECURE FLOATING INTAKE TO EXISTING SHORELINE TREES. ADJUST TENSION, AS

FLOATING INTAKE 3, (SEE DETAILS ON SHEETS 16) (A)

SECURE TO WIRE ROPE 4 FT. O.C. WITH HEAVY DUTY (175 LB.) ZIP TIES

SECURE TO WIRE ROPE 4 FT. O.C. WITH HEAVY DUTY (175 LB.) ZIP TIES

SECURE FLOATING INTAKE TO EXISTING SHORELINE TREES. ADJUST TENSION, AS

FLOATING INTAKE TO 10 to 20 FT. SPACING OUTSIDE OF SILT CURTAIN

PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)

PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)

EXCAVATE A LEVEL SURFACE PART WAY DOWN

PARTIALLY DEMOLISH CONCRETE APRON AND

PUMP CLEAR WATER FROM DEEP WATER SIDE

OF THE SILT CURTAIN TO THE SPILLWAY APRON.

PARTIALLY DEMOLISH CONCRETE APRON AND

EXCAVATE A LEVEL SURFACE PART WAY DOWN

THE DAM. MOVE THE CLEARWATER PUMP

DOWN THE DAM FACE TO REDUCE SUCTION

HEAD AS RESERVOIR LEVELS DESCEND

SECURE FLOATING INTAKE TO

EXISTING SHORELINE TREES.

ADJUST TENSION, AS

Necessary while WATER

SURFACE DESCENDS.

SUBMERSIBLE (SUM) PUMPS SHALL BE ATTACHED TO EACH 6 IN. DIA. SDR 11,

WELDED JOINT HDPE CONVEYANCE PIPE AS BOOSTER PUMPS TO OVERCOME

FRICITION LOSSES AS RESERVOIR LEVELS DESCEND. SUMP PUMPS SHALL BE

HYDRA-TECH, HT74DJV POWER UNIT, OR APPROVED EQUAL. EACH SUMP SHALL BE POWERED BY HYDRA-TECH, HT74DJV POWER UNIT, OR APPROVED EQUAL.

HIGH HEAD PUMPS SHALL BE PIONEER PUMP, PP66S12, OR APPROVED EQUAL.

CONTRACTOR TO ADJUST EROSION CONTROL DESIGN AS NECESSARY TO MEET APPLICABLE

PERMIT REQUIREMENTS.

1) TEMPORARY BULK BAG DIVERSION DAM, TYP.

2) DAM FACE ANCHOR POINT

3) INSTALL ANCHOR POINT Ogee CREST, TYP.

4) TEMPORARY ACCESS RAMP

5) CONTRACTOR SHALL ESTABLISH ACCESS FOLLOWING INITIAL DRAWDOWN AND ASSIST WITH LAUNCHING AND TRAILERING WDFW ELECTRO FISHING BOAT

6) INSTALL ANCHOR POINT Ogee CREST, TYP.

7) TEMPORARY DRAWDOWN 10 FT DRAWDOWN

8) MINIMUM INITIAL DRAWDOWN

9) DEWATERING FIELD UNTIL SILT CURTAIN IS REMOVED. FOLLOWING REMOVAL OF

SILT CURTAIN, REEF END OF FLOATING INTAKE 2 TOWARD

DAM FACE ANCHOR POINT. CONTINUE TO PUMP

FLOATING INTAKE 1, (SEE DETAILS ON SHEETS 16) (A)

SECURE FLOATING INTAKE 1 TO

DAM FACE ANCHOR POINT WITH 1/2 WIRE ROPE

SITE LOCATION PLAN VIEW SHEET 16 - 17

SHEET 16 - 17}

LEGEND

EXISTING RIVER PATHWAYS

EXISTING GRADE

EXISTING RESERVOIR

EXISTING DAM AND SPILLWAY

EXISTING FOREST ROADS

PROPOSED TEMPORARY ROADS (OFF ROAD)

PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)

STAGING AND STOCKPILE

WATER TURBIDITY MONITORS

HDPE WELDED JOINT SDR-17 DIVERSION PIPE

HDPE WELDED JOINT SDR-17 DIVERSION PIPE (PREDICTED)

6-INCH WELDED JOINT SDR-11 CONVEYANCE PIPE

SILT TURBIDITY CURTAIN

DIVERSION DAM

10 FT DRAWDOWN

MINIMUM INITIAL DRAWDOWN

FLOATING INTAKE

LIMITS OF DISTURBANCE

ORDINARY HIGH WATER (OHW)
ANCHOR SILT TURBIDITY CURTAIN AND FLOATING INTAKES TO EXISTING SHORELINE TREES. ADJUST TENSION, AS NECESSARY, AS RESERVOIR LEVELS DESCEND.

FLOATING INTAKE 10 to 20 FT. SPACING OUTSIDE OF SILT CURTAIN

PUMP CLEAR WATER FROM DEEP WATER SIDE OF THE SILT CURTAIN TO THE SPILLWAY APRON. PARTIALLY DEMOUGH CONCRETE APRON AND EXCAVATE A LEVEL SURFACE. PART WAY DOWN THE DAM, MOVE THE CLEARWATER PUMP DOWN THE DAM FACE TO REDUCE SUCTION HEAD AS RESERVOIR LEVELS DESCEND.

CONTRACTOR SHALL INSTALL TEMPORARY ACCESS RAMPS WITH ROCK LOCATED IN SPILLWAY AND STOCKPILED ON SITE TO ALLOW ACCESS ACROSS SPILLWAY FOR DAM REMOVAL. ROCK MATERIALS FOR RAMPS TO BE SALVAGED AND REUSED FOLLOWING DAM REMOVAL.

INSTALL AIR RELEASE VALVES IN HIGH POINTS IN PIPELINES.

PUMP TO DOWNSTREAM OF POOL.

INSTALL TEMPORARY OUTLET PROTECTION.

DIVERSION PIPE OUTLET . INSTALL  TEMPORARY OUTLET PROTECTION.

EXISTING RESERVOIR

EXISTING GRADE

EXISTING DAM AND SPILLWAY

EXISTING FOREST ROADS

PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)

PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)

PROJECT BOUNDARY AREA

LIMITS OF DISTURBANCE

STAGING AND STOCKPILE

WATER TURBIDITY MONITORS

HDPE WELDED JOINT SDR-17 DIVERSION PIPE

6-INCH WELDED JOINT SDR-11 CONVEYANCE PIPE

DIVERSION DAM

10 FT DRAW DOWN

AREA TO BE FURTHER DEWATERED AFTER INITIAL DRAW DOWN

SPRAY INFILTRATION AREA

NOTE: "DEWATERING FIELD" INCLUDES THE AREAS WHERE WATER FROM FLOATING INTAKES WILL BE SPRAYED FOR LAND APPLICATION. THIS ARE MAY ALSO BE USED FOR IMPOUNDED SEDIMENTS DEWATERING.

CONTRACTOR TO ADJUST EROSION CONTROL DESIGN AS NECESSARY TO MEET APPLICABLE PERMIT REQUIREMENTS.

NOTE: "DEWATERING FIELD" INCLUDES THE AREAS WHERE WATER FROM FLOATING INTAKES WILL BE SPRAYED FOR LAND APPLICATION. THIS AREA MAY ALSO BE USED FOR IMPOUNDED SEDIMENTS DEWATERING.

CONTRACTOR TO ADJUST EROSION CONTROL DESIGN AS NECESSARY TO MEET APPLICABLE PERMIT REQUIREMENTS.

NOTE: "DEWATERING FIELD" INCLUDES THE AREAS WHERE WATER FROM FLOATING INTAKES WILL BE SPRAYED FOR LAND APPLICATION. THIS AREA MAY ALSO BE USED FOR IMPOUNDED SEDIMENTS DEWATERING.

CONTRACTOR TO ADJUST EROSION CONTROL DESIGN AS NECESSARY TO MEET APPLICABLE PERMIT REQUIREMENTS.

NOTE: "DEWATERING FIELD" INCLUDES THE AREAS WHERE WATER FROM FLOATING INTAKES WILL BE SPRAYED FOR LAND APPLICATION. THIS AREA MAY ALSO BE USED FOR IMPOUNDED SEDIMENTS DEWATERING.

CONTRACTOR TO ADJUST EROSION CONTROL DESIGN AS NECESSARY TO MEET APPLICABLE PERMIT REQUIREMENTS.
RESERVOIR SHORE

FLOW

24 IN. WELDED JOINT SDR 17 HDPE PIPE

24 IN. WELDED JOINT SDR 17 HDPE PIPE

Gravity Line to Texas Creek

[2] 24 IN. FLANGES

FLOW TO TEXAS CREEK

FLOW TO TEXAS CREEK

FLOW TO TEXAS CREEK

FLOW TO TEXAS CREEK

[4] 8 IN. FLANGE CONNECTION TO TEMPORARY DIVERSION PUMP

ECCENTRIC 24 IN. X 8 IN. TEE

(provide two precast blocks strap to pipe to provide thrust restraint)

Valve, Typ.

Temporary diversion pumps shall be Baker Corp, 8 in. BPRBL, Golemat, or approved equal, Typ.

Typical Detail - Temporary Pumping Header

Typical Section - Temporary Pumping Header

Note: Contractor may provide alternate design with equal performance.
WSDOT TYPE 1 MANHOLE WITH 3-FOOT REEK, OR APPROVED EQUAL, TO END OF PIPE AND APPROPRIATE BASE MATERIAL AS WELL AS PRECAST BLOCK RESTRAINT.

VISQUEEN UP SLOPES.

HDPE TRIBUTARY DISCHARGE PIPE.

APPROPRIATE BASE MATERIAL.

SANDBAGS.

22-FOOT RISER, OR APPROVED EQUAL. TO END OF PIPE AND ABOVE FLOW AND PROVIDE TWO PRECAST BLOCKS, ULTRABLOCK OR APPROVED EQUAL.

AS WELL AS PRECAST BLOCKS, ULTRABLOCK OR APPROVED EQUAL/>

INSTALL 20-MIL VISQUEEN SHEETING AT UPSTREAM END OF OUTLET EROSION CONTROL MEASURES. KEY INTO STREAM BED IF BEDROCK IS NOT PRESENT. SECURE WITH SANDBAGS IF BEDROCK IS PRESENT.

SECURE PIPE OUTLET WITH PRECAST CONCRETE BLOCKS, ULTRABLOCK OR APPROVED EQUAL. WRAPPED AROUND PIPE. KEY INTO STREAM BED IF BEDROCK IS NOT PRESENT.

INSTALL SANDBAGS ON TOP OF PRECAST CONCRETE WEIR TO CREATE LOW POINT AND DIRECT FLOW.

COVERED WITH SOLID SHEETS OF PLYWOOD.

DIRECT FLOW.

SANDBAGS SECURE WITH 20-MIL VISQUEEN SHEETING AT UPSTREAM END OF OUTLET EROSION CONTROL MEASURES. KEY INTO STREAM BED IF BEDROCK IS NOT PRESENT.

SECURE VISQUEEN UNDER CONCRETE BLOCK AND WRAP IN 20-MIL VISQUEEN.

INSTALLED PRECAST CONCRETE BLOCKS, ULTRABLOCK OR APPROVED EQUAL. WRAPPED WITH 20-MIL VISQUEEN.

INSTALL AIR RELEASE VALVES IN HIGH POINTS IN PIPELINE.

CLEAR WATER PUMP SHALL BE BAKER CORP, 8 IN. BBBS, GOLLSAT, OR APPROVED EQUAL, TYP.

WEIGHT AS NECESSARY TO AVOID FLOATATION.

EXISTING DAM FACE.

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE DESIGN WITH EQUAL PERFORMANCE.

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE DESIGN WITH EQUAL PERFORMANCE.
TYPICAL DETAIL - ANCHOR POINT

NOT TO SCALE

CONNECT SLING TO WIRE ROPE THIMBLE WITH A
LOAD APPROPRIATE ROPE WITH TRUCKER HITCH
OR BLOCK AND TACKLE THAT ALLOWS FOR
CONTROLLED LENGTHENING OF LINE AS
RESERVOIR LEVELS DESCEND.

INSTALL 5/16 IN. X 6 IN.
CROSBY S-276 FORGED
RIVET EYE BOLT.
ADHERE WITH HILTI HIT
RE 500 EPOXY

1/2 IN. WIRE ROPE

TYPICAL DETAIL - FLOATING INTAKE RETENTION LINE

NOT TO SCALE

NOTE: CONTRACTOR MAY
PROVIDE ALTERNATE DESIGN
WITH EQUAL PERFORMANCE.

DRILL 1 1/2 IN. DIA. HOLE
INTO EXISTING
CONCRETE

WRAP LOAD RATED NYLON SLING AROUND
EXISTING TREE. SLING EYES. FIX LINE TO FLOATING
INTAKE OR TURBIDITY CURTAIN, RUN THROUGH
BLOCK. FIX AND ADJUST, AS NECESSARY

TYPICAL DETAIL - WIRE ROPE THIMBLE

NOT TO SCALE

CROSBY 450, OR
APPROVED EQUAL

1/2 IN. WIRE ROPE

TYPICAL DETAIL - 1/2 IN. DIA. WIRE ROPE END OVERLAP CONNECTION

NOT TO SCALE

(6) CROSBY 450,
OR APPROVED EQUAL

1/2 IN. WIRE ROPE
CONTRACTOR SHALL MAINTAIN FISH SCREEN TO ENSURE FLOW INTO DIVERSION PIPING.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

INSTALL AIR RELEASE VALVES IN HIGH POINTS IN PIPELINE.

TYPICAL PLAN VIEW: DIVERSION DAM

NOT TO SCALE

LONG AS WATER QUALITY
NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

DRAIN DOWN WATER SURFACE.

EXISTING RESERVOIR SURFACE.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

EXISTING STREAMBED.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

INTAKE TO DIVERSION PIPE.
SCREENED FOR SAFETY.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

TYPICAL PROFILE: DIVERSION DAM

NOT TO SCALE

DIVERSION DAM.
BULK BAGS FILLED WITH SAND.

DIVERSION PIPE.
WELDED HOPE PIPE.

SWIM.

FLOW.

TEMPORARY ACCESS ROAD.

EXISTING RESERVOIR.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

INTAKE TO DIVERSION PIPE.
SCREENED FOR SAFETY.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

DIVERSION DAM.
BULK BAGS FILLED WITH SAND.

DIVERSION PIPE.
WELDED HOPE PIPE.

SWIM.

FLOW.

TEMPORARY ACCESS ROAD.

EXISTING RESERVOIR.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

INTAKE TO DIVERSION PIPE.
SCREENED FOR SAFETY.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

DIVERSION DAM.
BULK BAGS FILLED WITH SAND.

DIVERSION PIPE.
WELDED HOPE PIPE.

SWIM.

FLOW.

TEMPORARY ACCESS ROAD.

EXISTING RESERVOIR.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

INTAKE TO DIVERSION PIPE.
SCREENED FOR SAFETY.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

DIVERSION DAM.
BULK BAGS FILLED WITH SAND.

DIVERSION PIPE.
WELDED HOPE PIPE.

SWIM.

FLOW.

TEMPORARY ACCESS ROAD.

EXISTING RESERVOIR.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

INTAKE TO DIVERSION PIPE.
SCREENED FOR SAFETY.

FILL WITH CRUSHED GRAVEL.
1 FT. MIN. AND COMPACT.

EXISTING STREAMBED.

DIVERSION DAM.
BULK BAGS FILLED WITH SAND.

DIVERSION PIPE.
WELDED HOPE PIPE.

SWIM.

FLOW.

TEMPORARY ACCESS ROAD.

EXISTING RESERVOIR.

NOTE: CONTRACTOR MAY ADD CLAY TO REDUCE SEEPAGE AS LONG AS WATER QUALITY STANDARDS ARE MET.
ANCHOR POINTS TYP. 50 FT. O.C.
CONNECT LINES TO SECURE LOCATION OF SILT CURTAIN TO ANCHOR POINTS

NOTE:
INSTALL PER MANUFACTURERS RECOMMENDATIONS

REEFING LINES TYP. ABOUT 6 FT. APART. ADJUST REEFING LINES, AS NECESSARY TO MAINTAIN 2 FEET, MINIMUM SPACE BETWEEN THE BOTTOM OF THE CURTAIN AND FINE SEDIMENTS AT THE BOTTOM OF THE RESERVOIR. TYP. ALTERNATIVELY, CONTRACTOR MAY ADJUST LOCATION OF CURTAIN TO DEEPER WATER TO MAINTAIN MINIMUM DISTANCE BETWEEN BOTTOM OF THE CURTAIN AND FINE SEDIMENTS AT THE BOTTOM OF THE RESERVOIR.

REEFING LINES PASS THROUGH GROMMETS AND CHAIN
END GROMMETS LACED TOGETHER WITH 120 LB TEST WIRE TIES
BOTTOM BALLAST CHAIN
CHAIN TENSIONED THROUGH S.S. STRESS PLATES, VIA HOOK AND RING CONNECTION

5/16 IN. COATED CABLE DUAL TENSION CABLE BELOW FLOTATION (FRONT AND BACK)

CURTAIN MEMBRANE 22 OZ PVC

NOTE:
INSTALL PER MANUFACTURERS RECOMMENDATIONS

12 IN. FLOTATION

TYPICAL SECTION - TYPE 2 TURBIDITY CURTAIN
NOT TO SCALE

TYPICAL DETAIL - TYPE 2 TURBIDITY CURTAIN ELEVATION VIEW
NOT TO SCALE
EVAPORATIVE DEWATERING IS AN OPTION FOR IMPOUNDED SEDIMENTS. DEWATERING, CONTRACTOR SHALL DEVELOP A PLAN FOR IMPOUNDED SEDIMENTS DEWATERING USING A VARIETY OF MEANS AND METHODS OF THE CONTRACTOR’S DESIGN.

2. RELOCATE LAND APPLICATION SPRAYERS, PLATFORMS, AND PIPING TO EVAPORATIVE DEWATERING SPRAYER LOCATIONS.

3. PLACE SUMP PUMPS FOR EVAPORATIVE DEWATERING. PLACE NOPE PIPING FROM SUMP PUMPS TO HIGH HEAD PUMPS, AND FROM HIGH HEAD PUMPS TO SPRAYER PLATFORMS REPURPOSE HIGH HEAD PUMPS FOR EVAPORATIVE DEWATERING OPERATIONS.

4. BEGIN EVAPORATIVE SPRAYING OPERATIONS FOLLOWING FISH RESCUE WITHIN THE RESERVOIR. NOTE, ANY RAIN EVENTS THAT OVERTOP TRIBUTARY DIVERSIONS WILL REQUIRE EVAPORATIVE SPRAY OPERATIONS TO CEASE AND WILL REQUIRE ADDITIONAL FISH RESCUE PRIOR TO RESTARTING PUMPS.

5. EVAPORATIVE DEWATERING OPERATIONS ARE ANTICIPATED FOR A DURATION OF 10 TO 14 DAYS. WEATHER DEPENDENT. AS LONG AS INITIAL DRAWDOWN IS OVER 10 FEET, LOWER INITIAL DRAWDOWN LEVELS WILL SIGNIFICANTLY REDUCE THE DURATION OF IMPOUNDED SEDIMENTS DEWATERING OPERATIONS AS LONG AS THE TRIBUTARY DIVERSIONS ARE NOT OVERTOPPED.

NOTES:

- THIS IMPOUNDED SEDIMENT DEWATERING PROCESS IS PROVIDED FOR INFORMATION PURPOSES. THE CONTRACTOR SHALL PREPARE AN EJC PLAN THAT INCLUDES DEWATERING IMPOUNDED SEDIMENTS THROUGH MEANS AND METHODS OF THE CONTRACTOR’S DESIGN.
- SUMP PUMPS SHALL BE HYDRA-TECH, 6 IN. SUBMERSIBLE TRASH PUMP, SEIC, FITTED WITH ROUND FISH SCREEN, OR APPROVED EQUAL. EACH SUMP PUMP SHALL BE POWERED BY HYDRA-TECH, HT740V POWER UNIT, OR APPROVED EQUAL.
- HIGH HEAD PUMPS SHALL BE PIONEER PUMP, PP67512, OR APPROVED EQUAL.
TYPICAL DETAIL - PRECAST CONCRETE BLOCK

PRECAST CONCRETE BLOCKS, FULL FLAT OR APPROVED EQUAL, TOP COARSE FULL FLAT BLOCKS, BASE COARSE AND MIDDLE COARSE, FULL BLOCKS, TYP.

CAREFULLY LEVEL BASE BLOCKS TO EACH OTHER, SINCE LEVELING ERRORS WILL MULTIPLY AS SUBSEQUENT BLOCKS ARE STACKED.

PLACE CRUSHED SURFACING BASE COARSE 0.20 FT. THICK

CLEAR AND GRUB EXISTING VEGETATION, ORGANICS AND SOILS DOWN TO FIRM SUB-SOILS

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE DESIGN WITH EQUAL PERFORMANCE.
PLACE EXISTING RIPRAP EXCAVATED FROM SPILLWAY INSIDE OF NORTHWEST CORNER OF Ogee Crest. RIPRAP MATERIAL SHALL BE PLACED INDIVIDUALLY AND IN LIFTS OF HALF THE RIPRAP HEIGHT THICKNESS. EACH LIFT OF RIPRAP SHALL BE FILLED WITH SMALL (3-INCH, MINUS) REMOVED FROM THE DAM OR SORTED FROM SPOILS PILE BEFORE THE NEXT LIFT OF RIPRAP IS PLACED. CONTRACTOR SHALL COMPACT MATERIALS WITH EXCAVATOR BUCKET AND TRACKS FOR EACH SUCCESSIVE LIFT. SUBSEQUENT LIFTS OF RIPRAP SHALL BE PLACED IN SUCH A WAY THAT POCKETS BETWEEN OR UNDER THEM CAN BE FILLED WITH CRUSHED ROCK FROM THE DAM EITHER BEFORE OR AFTER RIPRAP PLACEMENT. ADD GRAVEL BASE AND CRUSHED SURFACING BASE PER DETAIL 1 OF SHEET 16 OVER RIPRAP LIFTS.

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE DESIGN WITH EQUAL PERFORMANCE.
EXCAVATION AND FILL QUANTITIES WITHIN OHW UPSTREAM OF DAM

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NOTE:
Contractor shall provide suitable soils growing medium for establishment of native vegetation.

AREA FOR DRAWING OF IMPROVED SEDIMENTS AND MIXING WITH COMMON FILL. THE SOIL MIXTURE SHALL SUBSEQUENTLY BE SPREAD THROUGHOUT PROPOSED UPLAND AND RIPARIAN AREAS WITHIN THE RESERVOIR FOOTPRINT.

LEGEND

- EXISTING DAM AND SPILLWAY
- TEMPORARY ACCESS ROADS
- STAGING AND STOCKPILE
- EXISTING GRADING
- PROPOSED GRADING
- DIVERSION DAM
- LIMITS OF DISTURBANCE
- ORDINARY HIGH WATER (OHW)

NOTE:
Contractor shall provide suitable soils growing medium for establishment of native vegetation.
LEGEND

- EXISTING GRADE
- ORDINARY HIGH WATER (OHW)
- ANTICIPATED GRADE
- ACCESS ROAD SALVAGED ROCK

NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

CROSS-SECTION - NORTH TRIBUTARY

CROSS-SECTION - WEST TRIBUTARY

CROSS-SECTION - EAST TRIBUTARY
EXISTING STREAMBED

FLOW

2.5 FT. MAX. WATER DEPTH

DIVERSION DAM: BULKBAGS FILLED WITH SAND

CONSTRUCTION AREA

PLASTIC SHEETING

4 FT. MIN.

FLOW

PUMP FROM IMPounded AREA

KEY IN PLASTIC SHEETING 1 FT. MIN.

EXISTING STREAMBED

TYPICAL SECTION VIEW: SINGLE LAYER

TYPICAL SECTION VIEW: STACKED LAYERS

COFFERDAM NOTES:
1. BULKBAG COFFERDAM IS A PRE-APPROVED METHOD FOR ISOLATING THE WORK AREA FROM SURFACE FLOWS. CONTRACTOR MAY SUBMIT ALTERNATE COFFERDAM DESIGN TO THE ENGINEER FOR REVIEW AND APPROVAL. ALTERNATE DESIGN SUBMITTAL SHALL INCLUDE SHOP DRAWINGS AND/OR MATERIALS AND MANUFACTURER'S RECOMMENDATIONS.
2. BULKBAGS SHALL BE FILLED WITH SAND. PLACE FILLED BULKBAGS ADJACENT TO ONE ANOTHER TO CREATE A CONTINUOUS ROW THAT ISOLATES THE WORK AREA FROM SURFACE FLOWS.
3. IF WATER DEPTH EXCEEDS 85% OF THE BULKBAG HEIGHT, AN ADDITIONAL TOP ROW OF BULKBAGS SHALL BE INSTALLED, SUPPORTED BY TWO BOTTOM ROWS OF BULKBAGS.
4. BULKBAG 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. THE PLASTIC SHEETING SHALL BE DRAPED ALONG THE CHANNEL BOTTOM ON THE WORK AREA SIDE OF THE COFFERDAM WITH OUTWARD EDGE OF SHEETING MINIMUM 4 FEET FROM TOE OF COFFERDAM. THE DRAPPED PORTION OF PLASTIC SHEETING SHALL BE PINNED TO THE CHANNEL BED BY MINIMUM TWO ROWS OF STANDARD SANDBAGS.
5. THE OUTWARD EDGE OF PLASTIC SHEETING ON WORK AREA SIDE SHALL BE TOED INTO THE CHANNEL BED MINIMUM 1 FT. TOERING IN THE OUTWARD EDGE OF PLASTIC SHEETING SHALL OCCUR AFTER THE COFFERDAM IS CLOSED TO PREVENT TURBIDITY RELEASE TO THE WATERWAY.
6. THE COFFERDAM SHALL BE TIGHTLY SEALED TO THE GROUND BY PLASTIC SHEETING AND STANDARD SANDBAGS. MULTIPLE LAYERS OF SHEETING AND SANDBAGS MAY BE REQUIRED TO FORM A WATERTIGHT SEAL.
7. BULKBAGS SHALL BE WATERPROOF CUBE-SHAPED POLYPROPYLENE WOVEN FABRIC BAGS WITH FULLY OPEN TOP, FLAT BOTTOM, FOUR LOOPS, MINIMUM 2-TON WEIGHT CAPACITY, MINIMUM 5:1 SAFETY FACTOR.
8. 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 BULKBAG COFFERDAM.
9. CONTRACTOR SHALL PROVIDE PUMPING SUFFICIENT FOR A NET INFLOW TO THE WORK AREA, AND DISCHARGE TURBID WATER TO UPLAND FLOODPLAIN.
10. BULKBAG COFFERDAM SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION IS COMPLETED AND TURBIDITY HAS BEEN REMOVED.
11. IF NECESSARY, GAPS BETWEEN BULKBAGS MAY BE FILLED WITH BENNETITE TO SEAL AND IMPROVE COFFERDAM SEAL.

TYPICAL DETAIL: DAM REMOVAL COFFER DAM 1

NOTE: CONTRACTOR MAY PROVIDE ALTERNATE DESIGN WITH EQUAL PERFORMANCE.
INSTALL DEWATERING COFFERDAM 1 TO INTERCEPT FLOW THAT SEEPS OR RUNS INTO THE RESERVOIR AND PUMP TO UPLAND LOCATION FOR INFILTRATION. CONTACTOR SHALL ENSURE THAT ALL FLOW IS INTERCEPTED PRIOR TO REMOVING THE BOTTOM 10 FEET OF CONCRETE APRON AT THE UPSTREAM DAM FACE.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

INSTALL DEWATERING COFFERDAM FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM Dewatered and Defished Plunge Pool.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

EXISTING DAM AND SPILLWAY
EXISTING GRADING
2+00
CHANNEL CENTERLINE
EXISTING CONCRETE TO BE REMOVED
+ PROPOSED GRADING
ORDINARY HIGH WATER (OHW)
INSTALL PERMANENT SAFETY FENCE

LEGEND

PUMP TURBID WATER TO UPLAND LOCATION FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM Dewatered and Defished Plunge Pool.

REMOVE ROCK FROM SPILLWAY AND SALVAGE FOR REUSE IN LARGE WOOD STRUCTURES.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

INSTALL PERMANENT SAFETY FENCE

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

INSTALL DEWATERING COFFERDAM FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM Dewatered and Defished Plunge Pool.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

INSTALL DEWATERING COFFERDAM FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM Dewatered and Defished Plunge Pool.

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THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

INSTALL DEWATERING COFFERDAM FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM Dewatered and Defished Plunge Pool.
EXISTING DAM TO BE REMOVED. ROCK SHALL BE SALVAGED FOR REUSE FOR ACCESS ROADS AND LARGE WOOD STRUCTURES.

NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

LEGEND
- EXISTING GRADE
- ANTICIPATED DAM SUBGRADE
- EXISTING DAM TO BE REMOVED
- DAM FOUNDATION MATERIAL

CROSS-SECTION - DAM REMOVAL STA. 39+29

CROSS-SECTION - DAM REMOVAL STA. 39+46

CROSS-SECTION - DAM REMOVAL STA. 39+69

CROSS-SECTION - DAM REMOVAL STA. 39+92
EXISTING SPILLWAY TO BE REMOVED.

CONTRACTOR SHALL REARRANGE LARGE ROCK AND ADD LARGE WOOD GRADE CONTROL IN THIS AREA.

EXISTING DAM TO BE REMOVED. ROCK SHALL BE SALVAGED FOR REUSE FOR ACCESS ROADS AND LARGE WOOD STRUCTURES.

NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

LEGEND
- EXISTING GRADE
- ANTICIPATED GRADE
- EXISTING DAM SUBGRADE
- EXISTING DAM TO BE REMOVED
- DAM FOUNDATION MATERIAL

PROFILE VIEW - DAM REMOVAL STA. 39+00 TO STA. 41+29

CROSS-SECTION - DAM REMOVAL STA. 40+16

CROSS-SECTION - DAM REMOVAL STA. 40+41

CROSS-SECTION - DAM REMOVAL STA. 40+67
NOTES:
SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LOGS, BOULDERS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.

IF DISCRETE BEDROCK DROPS ARE ENCOUNTERED IN RESERVOIR CHANNELS, LARGE WOOD QUANTITIES SHALL REMAIN THE SAME, BUT SOME LARGE WOOD LOCATIONS WILL CHANGE TO BACKWATER THE BEDROCK DROP WITH LOG AND ROCK STEPS THAT ARE LESS THAN 8 INCHES IN HEIGHT.

ALL EXCAVATION CUT AND FILLS ARE PERMANENT. SEE SHEET 24 FOR AREAS AND QUANTITIES.
EXISTING DAM TO BE REMOVED. ROCK SHALL BE SALVAGED FOR REUSE.

EXISTING SPILLWAY TO BE REMOVED AND REGRADED.

SALVAGE ALL EXISTING ROCK LOCATED WITHIN THE SPILLWAY FOR REUSE IN LARGE WOOD STRUCTURES.

EXISTING DAM TO BE REMOVED. ROCK SHALL BE SALVAGED FOR REUSE.

FILL MAY BE REQUIRED DEPENDING ON BEDROCK INTERFACE AND VOLUME BALANCE.

WILDBOY CREEK (SEE SHEETS 57-76)

NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT.
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.
EXISTING DAM MATERIAL TO BE REMOVED, SORTED AND REPLACED WILL PROVIDE AN ARMOR LAYER WITH LARGER ROCK ALONG CHANNEL BOUNDARIES.

LEGEND
EXISTING GRADE
ORDINARY HIGH WATER (OHW)
ANTICIPATED GRADE
ANTICIPATED DAM SUBGRADE
ACCESS ROAD SALVAGED ROCK
EXISTING DAM MATERIAL TO BE REMOVED, SORTED AND REPLACED
DAM FOUNDATION MATERIAL
REGRADED SPILLWAY

PARR excellence
302 W. Steuben St. #6
Vancouver, WA 98665
www.parrengineers.com

KWONEESUM DAM REMOVAL DESIGN
KWONEESUM RESERVOIR AND DAM – DAM REMOVAL AREA CROSS-SECTIONS

1 34 CROSS-SECTION - DAM REMOVAL STA. 39+29
2 34 CROSS-SECTION - DAM REMOVAL STA. 39+46
3 34 CROSS-SECTION - DAM REMOVAL STA. 39+69
4 34 CROSS-SECTION - DAM REMOVAL STA. 39+92
**CROSS-SECTION - DAM REMOVAL STA. 40+16**

- Existing spillway to be removed and regraded.
- Salvage all existing rock located within the spillway for reuse in large wood structures.
- Fill may be required depending on bedrock interface and volume balance.
- Existing dam to be removed. Rock shall be salvaged for reuse.

**CROSS-SECTION - DAM REMOVAL STA. 40+41**

- Existing spillway to be removed and regraded.
- Salvage all existing rock located within the spillway for reuse in large wood structures.
- Fill may be required depending on bedrock interface and volume balance.
- Existing dam to be removed. Rock shall be salvaged for reuse.

**CROSS-SECTION - DAM REMOVAL STA. 40+67**

- Existing dam to be removed. Rock shall be salvaged for reuse.
- Contractor to wash fines into voids to reduce subsurface flow.
- Tie into existing Wildboy Creek.

**Legend**

- **Existing Grade**
- **Ordinary High Water (OHW)**
- **Anticipated Grade**
- **Anticipated Dam Subgrade**
- **Access Road Salvaged Rock**
- **Existing Dam Material to be Removed, Sorted and Replaced**
- **Dam Foundation Material**
- **Regraded Spillway**

**Notes:**
- All excavation cut and fills are permanent.
- All cross-sections are oriented left to right looking downstream.
- Existing dam material to be removed, sorted and replaced will provide an armor layer with larger rock along channel boundaries.
Riparian areas within the reservoir to be spread throughout proposed upland and riparian areas within the reservoir footprint. Contractor may need to provide measures to retain fines and avoid piping of fine soils through containment berms.

Contractor may dewater impounded sediments within containment areas.

Soils mixture shall subsequently be spread.

Salvaged dam material used to construct containment berm.

Existing Kwoneesum dam to be removed and salvaged.

Cover salvaged dam material with drained and mixed salvaged soils.

De-watering ditch through spillway.

Area for draining of fine soils removed from the bottom of the reservoir and mixing with dry soils. The soils mixture shall subsequently be spread throughout proposed upland and riparian areas within the reservoir footprint. Contractor may need to provide measures to retain fines and avoid piping of fine soils through containment berms.

Salvaged dam material used to construct containment berm.
PLAN VIEW - RESERVOIR ACCESS ROAD AREA AND DECOMISSIONING
TYPICAL CROSS-SECTION: RESERVOIR ACCESS ROAD

- Containment Berm
- Salvaged Dam Material
- Drained and Mixed Salvaged Soils
- Cover 6 in. layer of straw on slope face
- Proposed Channel Grade
- Existing Grade
- Anticipated Grade
- Salvaged Dam Material
- Impounded Sediments

TYPICAL CROSS-SECTION: CONTAINMENT BERM

- Salvaged Rock from Access Road and dispose of material in spillway.
- Temporary Fill, 638 SY, 2080 CY
- Cover Salvaged Dam Material Slope with 1 ft. Min. Drained and Mixed Salvaged Soils
- Pack 6 in. layer of straw on slope face
- Proposed Channel Grade
- Existing Grade

PROFILE VIEW: RESERVOIR ACCESS ROAD DECOMMISSIONING STA. 7+30 TO 8+70

- Salvaged Dam Material
- Drained and Mixed Salvaged Soils
- Cover Riprap slope with 1 ft. Min. Drained and Mixed Salvaged Soils
- Access Road
- Existing Grade

NOTE:
- All cut and fills are permanent except where noted as temporary.
NOT TO SCALE

TYPICAL CROSS-SECTION: NORTH TRIBUTARY CHANNEL GEOMETRY
NOTE:
ALL EXCAVATION CUT AND
FILLS ARE PERMANENT

ALL CROSS-SECTIONS ARE
ORIENTED LEFT TO RIGHT
LOOKING DOWNSTREAM.

LEGEND
EXISTING GRADE
ORDINARY HIGH
WATER (OHW)
ANTICIPATED
GRADE
ANTICIPATED DAM
SUBGRADE
ACCESS ROAD
SALVAGED DAM
MATERIAL

CROSS-SECTION STA. 41+25

CROSS-SECTION STA. 42+00

CROSS-SECTION STA. 43+00

CROSS-SECTION STA. 44+00
NOTE:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

LEGEND
- EXISTING GRADE
- ORDINARY HIGH WATER (OHW)
- ANTICIPATED GRADE
- ACCESS ROAD SALVAGED DAM MATERIAL

CROSS-SECTION STA. 45+00

CROSS-SECTION STA. 46+00

CROSS-SECTION STA. 47+00

CROSS-SECTION STA. 48+00

CROSS-SECTION STA. 49+00

CROSS-SECTION STA. 50+00
NOT TO SCALE

TYPICAL CROSS-SECTION: EAST TRIBUTARY CHANNEL GEOMETRY

LEGEND

PROPOSED TRIBUTARIES
EXISTING GRADING
CHANNEL CENTERLINE
PROPOSED GRADING
LARGE WOOD MATERIAL (LWM)
SALVAGED DAM MATERIAL
STREAMBED SUBSTRATE
PLACED SLASH
LIMITS OF DISTURBANCE
ORDINARY HIGH WATER (OHW)

NOTE:

SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LOGS, BOULDERS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS MATERIAL SIZE AND STABILITY REQUIREMENTS.

CONTRACTOR SHALL PROVIDE SUITABLE SOILS GROWING MEDIUM FOR ESTABLISHMENT OF NATIVE VEGETATION WITHIN THE RESERVOIR AND DAM FOOTPRINT.

IF DISCRETE BEDROCK DROPS ARE ENCOUNTERED IN RESERVOIR CHANNELS, LARGE WOOD QUANTITIES SHALL REMAIN THE SAME, BUT SOME LARGE WOOD LOCATIONS WILL CHANGE TO BACKWATER THE BEDROCK DROP WITH LOG AND ROCK STEPS THAT ARE LESS THAN 8 INCHES IN HEIGHT.

ALL EXCAVATION CUT AND FILLS ARE PERMANENT. SEE SHEET 24 FOR AREAS AND QUANTITIES.
NOTE:
ALL EXCAVATION CUT AND
FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE
ORIENTED LEFT TO RIGHT
LOOKING DOWNSTREAM.

LEGEND

EXISTING GRADE

ORDINARY HIGH WATER (OHW)

ANTICIPATED GRADE

ACCESS ROAD SALVAGED DAM
MATERIAL

CROSS-SECTION STA. 0+60

CROSS-SECTION STA. 2+00

CROSS-SECTION STA. 3+00

CROSS-SECTION STA. 4+00
NOTE:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

LEGEND
- - - EXISTING GRADE
- - - ORDINARY HIGH WATER (OHW)
- - - ANTICIPATED GRADE
- - - ACCESS ROAD SALVAGED DAM MATERIAL

CROSS-SECTION STA. 5+00

CROSS-SECTION STA. 6+00

CROSS-SECTION STA. 7+00
LEGEND
- EXISTING GRADING
- PROPOSED GRADING
- CHANNEL CENTERLINE
- LIMITS OF DISTURBANCE
- ORDINARY HIGH WATER (OHW)

NOTE:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT. SEE SHEET 24 FOR AREAS AND QUANTITIES.

Log steps not shown on proposed profile for clarity. Contractor shall install log steps per sheet 48.

Profile View - West Tributary

Legend:
- Existing Grade
- Ordinary High Water (OHW)
- Proposed Grade

Note:
All excavation cut and fills are permanent. See Sheet 24 for areas and quantities.
**LEGEND**

- **Proposed Tributaries**
- **Existing Grading**
- **Channel Centerline**
- **Proposed Grading**
- **Large Wood Material (LWM)**
- **Salvaged Dam Material**
- **Streambed Substrate**
- **Placed Slash**
- **Limits of Disturbance**
- **Ordinary High Water (OHW)**

**PLAN VIEW**

**NOTE:**

Specific location, alignment, and elevations of logs, boulders are subject to change based on field conditions material size and stability requirements.

Contractor shall provide suitable soils growing medium for establishment of native vegetation within the reservoir footprint.

If discrete bedrock drops are encountered in reservoir channels, large wood quantities shall remain the same, but some large wood locations will change to backwater the bedrock drop with log and rock steps that are less than 8 inches in height.

All excavation cut and fills are permanent. See sheet 24 for areas and quantities.

**Typical Cross-Section: West Tributary Channel Geometry**

- **Existing Grade**
- **Impounded Sediments**
- **2 ft.**
- **8 ft.**
- **12 ft.**

**Ephemeral Channel (See Sheet 54)**

**North Tributary (See Sheets 39-42)**

**West Tributary**

**Legend:**

- **2+00**
- **Salvaged Dam Material**
- **Streambed Substrate**
- **Placed Slash**
- **Limits of Disturbance**
- **Ordinary High Water (OHW)**

**Notes:**

- **Existing Grading**
- **Channel Centerline**
- **Proposed Grading**
- **Large Wood Material (LWM)**
- **Salvaged Dam Material**
- **Streambed Substrate**
- **Placed Slash**
- **Limits of Disturbance**
- **Ordinary High Water (OHW)**

**Typical Cross-Section: West Tributary Channel Geometry**

- **Existing Grade**
- **Impounded Sediments**
- **2 ft.**
- **8 ft.**
- **12 ft.**

**Ephemeral Channel (See Sheet 54)**

**North Tributary (See Sheets 39-42)**

**West Tributary**
NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT.
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.
NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT.
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

LEGEND
- EXISTING GRADE
- ORDINARY HIGH WATER (OHW)
- ANTICIPATED GRADE
- ACCESS ROAD SALVAGED DAM MATERIAL

CROSS-SECTION STA. 5+00
CROSS-SECTION STA. 6+00
CROSS-SECTION STA. 7+00
CROSS-SECTION STA. 8+00
KWONEESUM DAM AND RESEVOIR - TYPICAL LARGE WOOD CROSS-SECTIONS

1. **TYPICAL CROSS-SECTION THROUGH DAM AREA WITH LARGE WOOD**
   - Existing dam to be removed
   - Large wood installed across valley to create backwater to upstream log jam
   - Containment berm
   - Anticipated grade
   - Existing grade
   - Dewatering ditch through spillway notch
   - Floodplain wood
   - Impounded sediments
   - Strawbales upstream of log sill

2. **NORTH TRIBUTARY DAM AREA WITH LARGE WOOD**
   - Large wood installed across valley to create backwater to upstream log jam
   - Cover salvaged dam material slope with 1 ft. min. drained and mixed salvaged soils
   - Strawbales upstream of log sill
   - Containment berm
   - Access road

3. **TYPICAL CROSS-SECTION THROUGH EAST TRIBUTARY WITH LARGE WOOD**
   - Cover salvaged dam material slope with 1 ft. min. drained and mixed salvaged soils
   - Large wood installed across valley to create backwater to upstream log jam
   - Strawbales upstream of log sill

4. **TYPICAL CROSS-SECTION THROUGH WEST TRIBUTARY WITH LARGE WOOD**
   - Cover salvaged dam material slope with 1 ft. min. drained and mixed salvaged soils
   - Large wood installed across valley to create backwater to upstream log jam
   - Strawbales upstream of log sill
   - Containment berm

Note: All excavation cut and fills are permanent. See sheet 24 for areas and quantities.
LEGEND

- PROPOSED TRIBUTARIES
- EXISTING GRADING
- EXISTING SPILLWAY FOOTPRINT
- CHANNEL CENTERLINE
- SPILLWAY CONCRETE (REMOVED)
- PROPOSED GRADING
- SPILLWAY NOTCH DITCH
- TEMPORARY ACCESS ROADS
- FLOOPLAIN WOOD
- STRAWBales
- SLASh
- LIMITS OF DISTURBANCE
- ORDINARY HIGH WATER (OHW)

NOTE:
EXCAVATION SHOWN IS OUTSIDE JURISDICTIONAL BOUNDARIES.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

SPILLWAY WALL TO REMAIN IN PLACE UNDISTURBED. PROPOSED FILL TO STOP AT CONCRETE SPILLWAY CONCRETE WALL.

BURY CONCRETE FROM DAM DEMOLITION WITH 3 FEET MINIMUM COVER WITH MIXED SOILS.

PLACED LWM (SEE DETAIL SHEETS 78)

EXISTING LARGE WOOD UNDERCUT ROCK LEVEE WITH EXISTING SPILLWAY

NOTE:
EXCAVATION SHOWN IS OUTSIDE JURISDICTIONAL BOUNDARIES.

EXTEND LARGE WOOD INTO UNDERCUT ROCK BENEATH EXISTING SPILLWAY

SPILLWAY WALL TO REMAIN IN PLACE UNDISTURBED. PROPOSED FILL TO STOP AT CONCRETE SPILLWAY CONCRETE WALL.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

PLAN VIEW - REGRADED SPILLWAY
**TYPICAL PROFILE: SPILLWAY FILL AND REGRADE**

- **Existing Concrete Spillway to Be Removed and Disposed Off-Site**
- **Native Material**
- **Existing Reinforced Concrete Wall to Be Removed and Disposed Off-Site Following Tributary Flow Diversions**

- **Drained and Mixed Salvaged Soils**
- **Finished Grade**
- **Existing Concrete Spillway to Be Removed and Disposed Off-Site**

**Proposed Chain Link Fence Placed 1 ft. from existing edge of concrete apron. Post shall be core drilled in concrete.**

**Extend Large Wood into Undercut Rock Beneath Existing Spillway.**

**The Concrete Apron at the Last 30 Feet of the Spillway Shall Remain Intact as a Historical Remnant.**

**Proposed Fill to Stop at Concrete Spillway Concrete Wall.**

**The Concrete Apron At The Last 30 Feet Of The Spillway Shall Remain Intact As A Historical Remnant.**

**Existing Overhang Under Spillway.**

**Finshed Grade.**

**Currently being written by another language model.**
SORT, CLASSIFY, SALVAGE, AND REUSE THESE MATERIALS. CLASSIFY AS BOULDERS, COBBLE, GRAVEL, AND SOIL. BOULDERS SHALL BE REUSED AS BALLAST FOR LARGE WOOD STRUCTURES. COBBLE AND GRAVEL SHALL BE USED IN CHANNEL CONSTRUCTION WITHIN THE RESERVOIR FOOTPRINT. SOIL SHALL BE MIXED WITH FINES EXCAVATED FROM THE BOTTOM OF THE RESERVOIR AND THEN SPREAD IN UPLAND AREAS OF THE FORMER RESERVOIR, DAM, AND SPILLWAY. CLEAR AND GRUB MATERIALS SHALL BE INCORPORATED INTO LARGE WOOD STRUCTURES.
LEGEND

SHEET LOCATION

H15 SHEETS 1-76

SHEETS 64

SHEETS 65

SHEETS 66

WILDBOY CREEK

LARGE WOOD STRUCTURES PLACED IN WILDBOY CREEK (SEE TYPICAL DETAILS - SHEETS 72-76)

EXISTING SPRING

EXISTING FLOODWATERS

PROPOSED GRADING

EXISTING RIVER PATHWAYS

STAGING AND STOCKPILE

PLACED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)

PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)

SALVAGED TEMPORARY ACCESS ROAD ROCK

STREAMBED SUBSTRATE

PLACED SLASH

ORDINARY HIGH WATER (OHW)

100 YR WATER SURFACE

FLOW

WILDBOY CREEK

FLOW

WILDBOY CREEK

WILDBOY CREEK

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WILDBOY CREEK
LARGE WOOD STRUCTURES PLACED IN WILDBOY CREEK (SEE TYPICAL DETAILS SHEETS 72-76)

LEGEND

- TEMPORARY ACCESS ROADS (OFF ROAD)
- EXISTING GRADING
- CHANNEL CENTERLINE
- STRAWBALES
- SLASH
- PLACED FELLED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)
- PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)
- SALVAGED TEMPORARY ACCESS ROAD ROCK
- STREAMBED SUBSTRATE
- ORDINARY HIGH WATER (OHW)
- 100 YR WATER SURFACE

NOTE: SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES, BOULDERS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK. SPRING WATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK. SEE CONSTRUCTION SEQUENCE FOR TIMING.
**Legend**

- **Temporary Access Roads**: 2 Key Pieces, 8 Racking Members
- **Existing Grading**: 2 Key Pieces, 8 Racking Members
- **Channel Centerline**: Ordinary High Water (OHW)
- **Strawbales**: Channel Gravel
- **Slash**: 100-Year Water Surface (100YR)
- **Placed Trees Into Large Wood Structures**: (Key Piece LWM)
- **Placed Trees Into Large Wood Structures (Racking)**: (Racking LWM)
- **Salvaged Temporary Access Road Rock**: 2 Key Pieces, 8 Racking Members
- **Streambed Substrate**: 2 Key Pieces, 8 Racking Members
- **Ordinary High Water (OHW)**: 2 Key Pieces, 8 Racking Members

**Notes:**

- Specific location, alignment, and elevations of large wood pieces, boulders are subject to change based on field conditions, material size and stability requirements.

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**Profile View - Wildboy Creek STA. 5+00 to 10+00**
NOTE: SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES, BOULDERS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.

LEGEND

- TEMPORARY ACCESS ROADS (OFF ROAD)
- EXISTING GRADING
- CHANNEL CENTERLINE
- STRAWBales
- SLASH
- PLACED FELLED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)
- PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)
- SALVAGED TEMPORARY ACCESS ROAD ROCK
- STREAMBED SUBSTRATE
- ORDINARY HIGH WATER (OHW)
- 100 YR WATER SURFACE

100 YR WATER SURFACE

BASED ON FIELD CONDITIONS, MATERIAL ELEVATIONS OF LARGE WOOD PIECES, NOTE: SIZE AND STABILITY REQUIREMENTS.

STRUCTURES (RACKING LWM)

EXISTING WILDBOY CREEK THALWEG

EXISTING LCFEG

CHANNEL CENTERLINE

LOG JAM

RACKING MEMBERS

SUBSTRATE

FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK. SEE CONSTRUCTION SEQUENCE FOR TIMING.

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK.

SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS.

REMOVE PIPING AND SANDBAG DAM FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK. SEE TYPICAL DETAILS SHEETS 72-76.

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK.

SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS.

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK.

SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS.

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK.

SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS.

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK.

SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS.
NOTE: SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES, Boulders are subject to change based on field conditions, material size and stability requirements.

LEGEND

- TEMPORARY ACCESS ROADS (OFF ROAD)
- EXISTING GRADED CHANNEL CENTERLINE
- STRAWBales
- SLASH
- PLACED FELLED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)
- PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)
- SALVAGED TEMPORARY ACCESS ROAD ROCK
- STREAMBED SUBSTRATE
- ORDINARY HIGH WATER (OHW)
- 100 YR WATER SURFACE

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK. SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM POLYETHELENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND

PROFILE VIEW - WILDBOY CREEK STA. 15+00 TO 20+00

BASED ON FIELD CONDITIONS, MATERIAL SIZES AND STABILITY REQUIREMENTS.

EXISTING GRADED CHANNEL CENTERLINE

PLACED FELLED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)

PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)

SALVAGED TEMPORARY ACCESS ROAD ROCK

STREAMBED SUBSTRATE

ORDINARY HIGH WATER (OHW)

100 YR WATER SURFACE

CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRING WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK. SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHYLENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK. SEE CONSTRUCTION SEQUENCE FOR TIMING.

PROFILE VIEW - WILDBOY CREEK STA. 15+00 TO 20+00

WARNING: WORKER SAFETY. FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK.

PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM POLYETHELENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK.
LARGE WOOD STRUCTURES PLACED IN WILDBOY CREEK (SEE TYPICAL DETAILS SHEETS 72-76)

NOTE: SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES, BOULDERS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.
TEMPORARY ACCESS ROADS (OFF ROAD)
EXISTING GRADING
CHANNEL CENTERLINE
STRAWBALES
SLASH

LEGEND

PLACED FELLED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)
PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)
SALVAGED TEMPORARY ACCESS ROAD ROCK
STREAMBED SUBSTRATE
ORDINARY HIGH WATER (OHW)
100 YR WATER SURFACE

TEMPORARY ACCESS ROADS
EXISTING GRADING
CHANNEL CENTERLINE
STRAWBALES
SLASH

LEGEND

PLACED FELLED TREES INTO LARGE WOOD STRUCTURES (KEY PIECE LWM)
PLACED TREES INTO LARGE WOOD STRUCTURES (RACKING LWM)
SALVAGED TEMPORARY ACCESS ROAD ROCK
STREAMBED SUBSTRATE
ORDINARY HIGH WATER (OHW)
100 YR WATER SURFACE

LARGE WOOD STRUCTURES PLACED IN WILDBOY CREEK (SEE TYPICAL DETAILS SHEETS 72-76)

NOTE:
SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES, BOULDERS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.

Log Jam Z
3 KEY PIECES, 12 RACKING MEMBERS

Log Jam W
1 KEY PIECE, 6 RACKING MEMBERS

Log Jam X
1 KEY PIECE, 6 RACKING MEMBERS

Log Jam Y
1 KEY PIECE, 6 RACKING MEMBERS

Log Jam V
1 KEY PIECE, 6 RACKING MEMBERS

NOTE:
SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.

PLAN VIEW

PROFILE VIEW - WILDBOY CREEK STA. 25+00 TO 30+00

NOTE:
SPECIFIC LOCATION, ALIGNMENT, AND ELEVATIONS OF LARGE WOOD PIECES ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS, MATERIAL SIZE AND STABILITY REQUIREMENTS.
Note:
Specific location, alignment, and elevations of large wood pieces, boulders are subject to change based on field conditions, material size and stability requirements.
## WILDBOY CREEK LARGE WOOD STRUCTURE QUANTITIES

### Site A

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| Tech. | |}
EXISTING GROUND
EXISTING NATIVE MATERIAL
HAND FELLED SILL LOG
KEY LOG PIECES
Packed Slash
STRAWBALES
STREAMBED SUBSTRATE
SAVAGED TEMPORARY ACCESS ROAD MATERIAL

LEGEND

EXISITNG TREES

CROSS-SECTION 1

CROSS-SECTION 2

CROSS-SECTION 3

CROSS-SECTION 4

CROSS-SECTION 5

CROSS-SECTION 6

CROSS-SECTION 7
### Legend

- **Existing Ground**
- **Existing Native Material**
- **Hand Felled Sill Log**
- **Key Log Pieces**
- **Streambed Substrate**
- **Salvaged Temporary Access Road Material**
- **Packed Slash**
- **Strawbales**

### Cross Sections

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STRAW BALE PLACED UPSTREAM OF SILL LOG. ORIENTATION TO BE ADJUSTED BASED ON FIELD CONDITIONS.

EXISTING TREES PLACED IN CHANNEL (SEE PLAN SHEETS) ANCHORED TO BEDROCK (SEE DETAILS SHEET 73-77).

KEY PIECES OF WOOD ANCHORED TO BEDROCK (SEE DETAILS SHEET 73-77).

SILL LOG ANCHORED TO BEDROCK (SEE DETAILS SHEET 73-77).

PLACED SLASH AS COVER BELOW LARGE WOOD.

SALVAGED TEMPORARY ACCESS ROAD ROCK PLACED UPSTREAM OF SILL LOG. 1 FT. AT A 10:1 SLOPE. STREAMBED SUBSTRATE PLACED OVER SALVAGED TEMPORARY ACCESS ROAD ROCK.

RACKING MEMBERS ANCHORED TO KEY PIECES (SEE DETAILS SHEET 73-77).

PLACE SLASH AROUND KEY PIECES, ANCHORS AND STRAW BALES TO ASSIST IN PLUGGING OPENINGS PRIOR TO PLACING SALVAGED DAM ROCK.

FLOW

EXISTING CHANNEL

TYPICAL DETAIL: CHANNEL SPANNING LARGE WOOD STRUCTURES

TYPICAL PROFILE: CHANNEL SPANNING LARGE WOOD STRUCTURES

KEY PIECES OF WOOD ANCHORED TO BEDROCK (SEE DETAILS SHEET 73-77).

PLACE SLASH AROUND KEY PIECES. ANCHORS AND STRAW BALES TO ASSIST IN PLUGGING OPENINGS PRIOR TO PLACING SALVAGED DAM ROCK.

FLOW

TYPICAL DETAIL: CHANNEL SPANNING LARGE WOOD STRUCTURES
TYPICAL DETAIL: CHANNEL SPANNING LARGE WOOD STRUCTURES
ANCHORING IN WILDBOY CREEK

NOT TO SCALE

SLASH PLACED IN LARGE WOOD STRUCTURES

EXISTING BED ROCK CHANNEL

FLOW

THREADED REBAR THROUGH LOG, STEEL WASHER AND NUT FASTENERS, ON BOTH SIDES TO SECURE CHAIN (SEE NOTES). TENSION ALL SLACK OUT OF CHAIN BEFORE TIGHTENING DOWN NUT AND WASHER

TYPICAL DETAIL: LARGE WOOD ANCHOR CONNECTIONS

NOT TO SCALE

EXISTING BED ROCK CHANNEL

LOG

THREADED REBAR THROUGH LOG, STEEL WASHER AND NUT FASTENERS, ON BOTH SIDES TO SECURE CHAIN (SEE NOTES). TENSION ALL SLACK OUT OF CHAIN BEFORE TIGHTENING DOWN NUT AND WASHER

NOTES:

1. THREADED REBAR SHALL BE 1-INCH DIAMETER THREADBAR, DYWIDAG (DSI UNDERGROUND) #8 OR APPROVED EQUAL, CONFORMING TO ASTM A615, GRADE 75 STEEL.
2. WASHERS SHALL BE SQUARE PLATE 1/4"X4"X4", MINIMUM. NUTS SHALL BE CAST HEX.
3. CHAIN SHALL BE 3/4-INCH, LONG LINK HIGH TEST GRADE 43.
4. ALL HARDWARE SHALL BE HOT DIPPED GALVANIZED.
5. EPOXY SHALL BE HILTI HIT RE 500 OR APPROVED EQUAL.
EXISTING BEDROCK CHANNEL

PLACE LARGE WOOD TEMPORARILY WHERE SHOWN ON THE DRAWINGS. DRILL VERTICALLY THROUGH LARGE WOOD WITH 2 IN. HOLE

SECTION VIEW
STEP 1. POSITION LOG AND DRILL HOLE

BEDROCK ANCHORS WILL BE DRILLED VERTICALLY INTO BEDROCK T WITH A 1 1/4 IN. DIA. HOLE 12 IN. MIN. INTO BEDROCK

SECTION VIEW
STEP 2. DRILL BEDROCK HOLE

REMOVE LARGE WOOD TEMPORARILY AND CLEAN THE DRILLED HOLES IN BEDROCK SO THEY THREADED REBAR CAN BE EPOXYED INTO THE HOLE

SECTION VIEW
STEP 3. CLEAN BEDROCK HOLE

AFTER EPOXY HAS CURED, PLACE LARGE WOOD BACK INTO POSITION BY SLIDING THE THREADED REBAR THROUGH THE LARGE WOOD HOLES PREVIOUSLY DRILLED.

SECTION VIEW
STEP 4. EPOXY THREADED REBAR

THREADED REBAR THROUGH LOG, STEEL WASHER AND NUT FASTENERS ON BOTH SIDES TO SECURE CHAIN. TENSION ALL SLACK OUT OF CHAIN BEFORE TIGHTENING DOWN NUT AND WASHER.

SECTION VIEW
STEP 5. POSITION LOG ONTO THREADED REBAR

THREADED REBAR EMBEDDED 12 IN. MIN. ADHERE WITH EPOXY, STEEL WASHER AND NUT FASTENERS.

SECTION VIEW
STEP 6. SECURE LOG WITH WASHER AND NUT ON THREADED REBAR

TYPICAL DETAIL: LARGE WOOD BEDROCK ANCHORING

NOT TO SCALE
**TYPICAL DETAIL: LOG TO LOG ANCHORING TO BEDROCK**

**SECTION VIEW**

- Angle threaded rebar through log to log connection to allow for nuts to be exposed and tightened.
- Threaded rebar chained to bedrock anchors.
- Existing bedrock channel.
- Large wood bedrock anchoring, see detail.

**PLAN VIEW**

- Place washers and nuts, then tighten nuts until wood begins to crush beneath washers.

**TYPICAL DETAIL: LOG TO LOG ANCHORING**

**SECTION VIEW**

- Angle threaded rebar through log to log connection to allow for nuts to be exposed and tightened.
- Threaded rebar chained to bedrock anchors.
- Existing bedrock channel.
- Large wood bedrock anchoring, see detail.

**PLAN VIEW**

- Place washers and nuts, then tighten nuts until wood begins to crush beneath washers.
1. **Typical Detail: Large Wood Boulder Ballast**

   - 1-2 ton boulders salvaged from spill way and dam material
   - Existing bed rock channel

2. **Typical Detail: Large Wood Boulder Ballast with Chain**

   - 1-2 ton boulders salvaged from spill way and dam material
   - Existing bed rock channel

   - Threads rebar embedded 12 in. min. adhere with epoxy, steel washer and nut fasteners, (see notes).

3. **Section View**

   - Threads rebar embedded 12 in. min. adhere with epoxy, steel washer and nut fasteners, (see notes).

   - Place washers and nuts, then tighten nuts until wood begins to crush beneath washers.
TYPICAL PLAN VIEW: LARGE WOOD CHANNEL SPANNING JAMS IN PROPOSED TRIBUTARIES

TYPICAL PROFILE: LARGE WOOD CHANNEL SPANNING JAMS IN PROPOSED TRIBUTARIES

TYPICAL CROSS-SECTION: LARGE WOOD IN TRIBUTARY CHANNEL

TYPICAL CROSS-SECTION: LARGE WOOD IN TRIBUTARY POOL

NOTE: WOOD EXTENDING OFF BANKS NOT SHOWN FOR CLARITY
TYPICAL PLAN: FLOODPLAIN WOOD

1. **Boulder-Ballast,Typ.**
2. **Log,Typ.**
3. **FINISHED GRADE**
4. **BOULDER-BALLAST, TYP.**
5. **LOG, TYP.**
6. **FINISHED GRADE**
7. **BOLTED LOG END, BURIED INTO BANK**
8. **SILL LOG, BOTH ENDS, BURIED INTO BANK**

TYPICAL SECTION FLOODPLAIN WOOD

1. **Boulder-Ballast,Typ.**
2. **Log,Typ.**
3. **FINISHED GRADE**

TYPICAL DETAIL: SILL LOGS IN TRIBUTARIES

1. **SILL LOG, BOTH ENDS, BURIED INTO BANK**
2. **BOLTED LOG END, BURIED INTO BANK**
3. **SALVAGED TEMPORARY ACCESS ROAD ROCK PLACED UPSTREAM OF SILL LOG, 1 FT. AT A 10:1 SLOPE. STREAMBED SUBSTRATE PLACED OVER SALVAGED TEMPORARY ACCESS ROAD ROCK**
4. **SALVAGED SLASH PLACED IN CHANNEL SPANNING LOG JAMS**
5. **FLOW**
6. **STRAW BALE PLACED UPSTREAM OF SILL LOG. ORIENTATION TO BE ADJUSTED BASED ON FIELD CONDITIONS**
7. **SALVAGED TEMPORARY ACCESS ROAD ROCK PLACED 1 FT. AT A 10:1 SLOPE. STREAMBED SUBSTRATE PLACED OVER SALVAGED TEMPORARY ACCESS ROAD ROCK**
8. **FLOOD**

TYPICAL DETAILS
NOTES:
1. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED. IF CONTRACTOR DISTURBS AREAS OUTSIDE THOSE DESIGNATED FOR SEED, THE CONTRACTOR SHALL APPLY APPROPRIATE SEED MIX FOR UPLAND OR RIPARIAN AREAS DISTURBED.
2. APPLY MULCH TO ALL SEEDED AREAS.
3. CONTRACTOR SHALL PLANT AREAS IMPACTED BY CHOSEN DEWATERING METHODS.