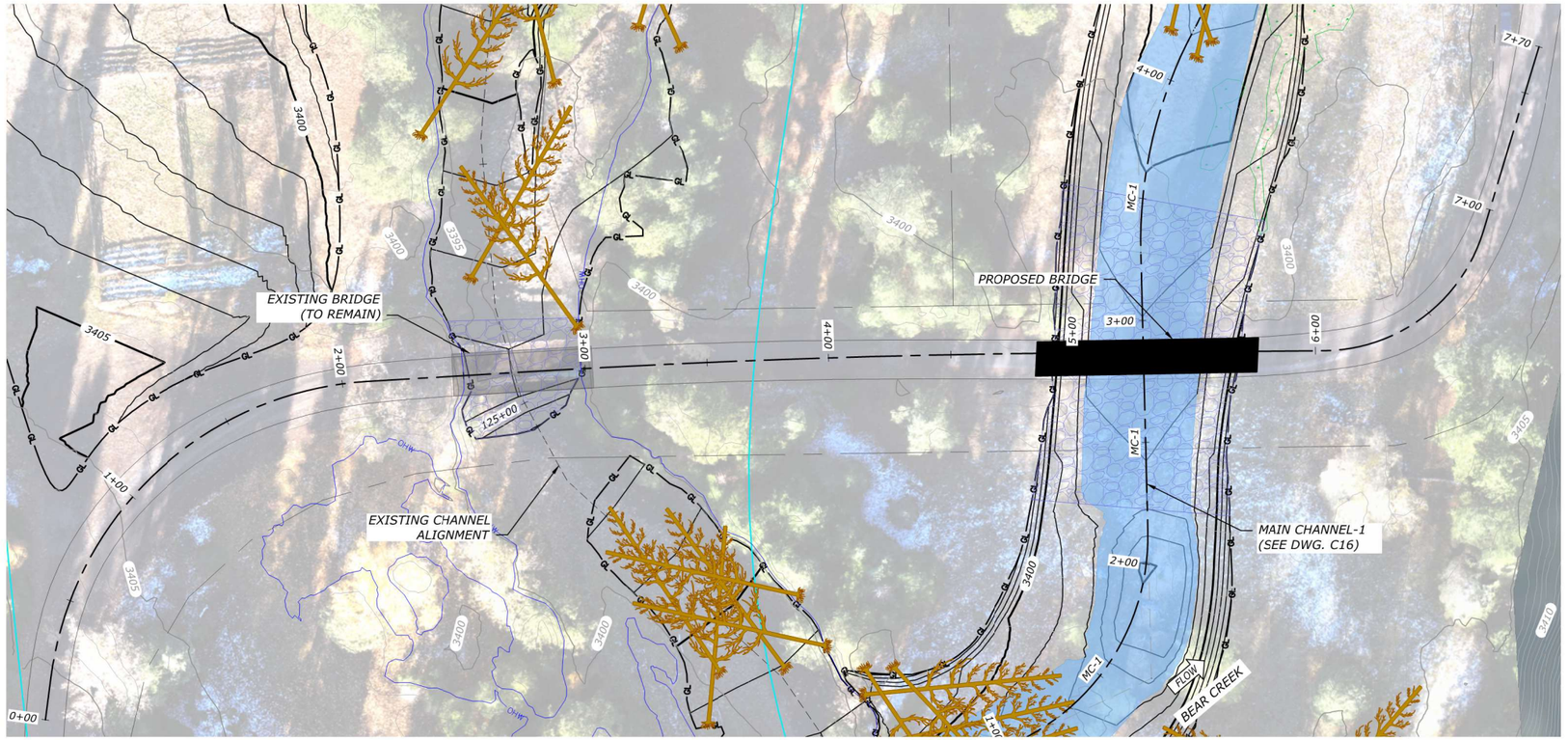


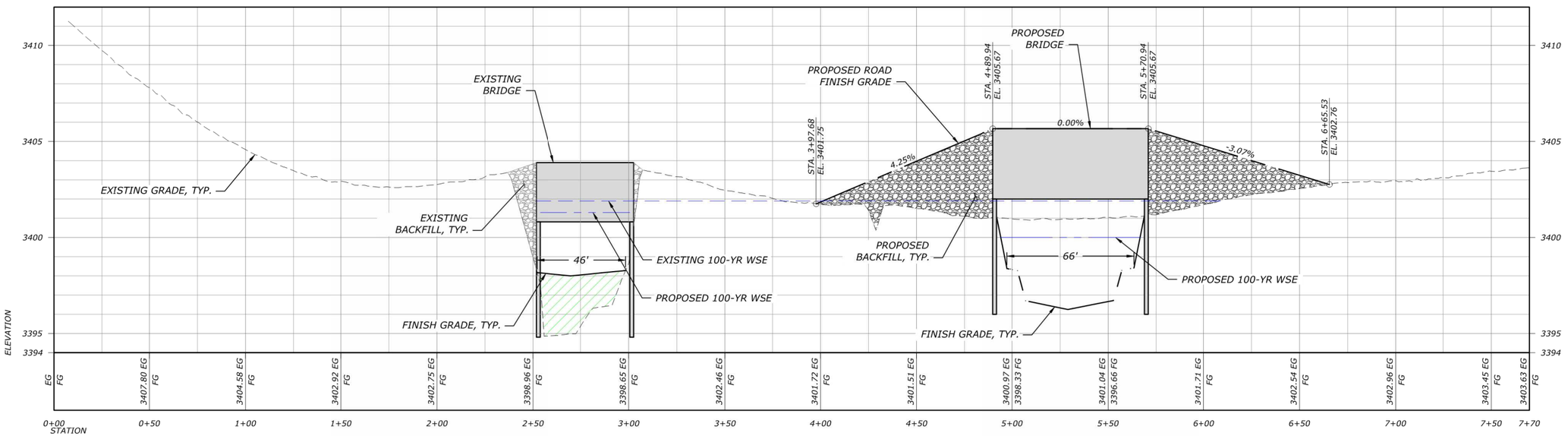
BRIDGE - PLAN (PHASE 2)

LEGEND

- EG 1-FT CONTOUR
- EXISTING ROAD
- FG 1-FT CONTOUR
- PROPOSED GRADING LIMIT
- HELICOPTER PLACED LARGE WOOD, TYP.
- HELICOPTER DELIVERED, EQUIPMENT PLACED LARGE WOOD, TYP. EQUIPMENT SOURCED AND PLACED LARGE WOOD, TYP.
- PROPOSED SAWYER FELLED TREE, TYP.
- PROPOSED LOW FLOW INUNDATION
- FEMA ZONE A BOUNDARY
- EXISTING OHW
- PROPOSED CONSTRUCTED RIFFLE

NOTE: MEASURED EXISTING BANKFULL WIDTH ON BEAR CREEK IS 50-FT. HIP REQUIREMENTS STATE THAT BRIDGES WITH MULTIPLE SPANS MUST MAINTAIN A TOTAL CLEAR AND UNOBSTRUCTED OPENING 2.2 TIMES THE BANKFULL WIDTH OR GREATER. THE COMBINATION OF THE PROPOSED OPENING ALONG WITH THE EXISTING OPENING ACHIEVES A BANKFULL CROSSING WIDTH OF 112-FT WHICH EXCEEDS THE 110-FT REQUIRED BY HIP.

30 0 30 60 90
SCALE 1"=30'



BRIDGE - SECTION (PHASE 2)

HORIZONTAL
30 0 30 60 90
SCALE 1"=30'

VERTICAL
3 0 3 6 9
SCALE 1"=3'

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

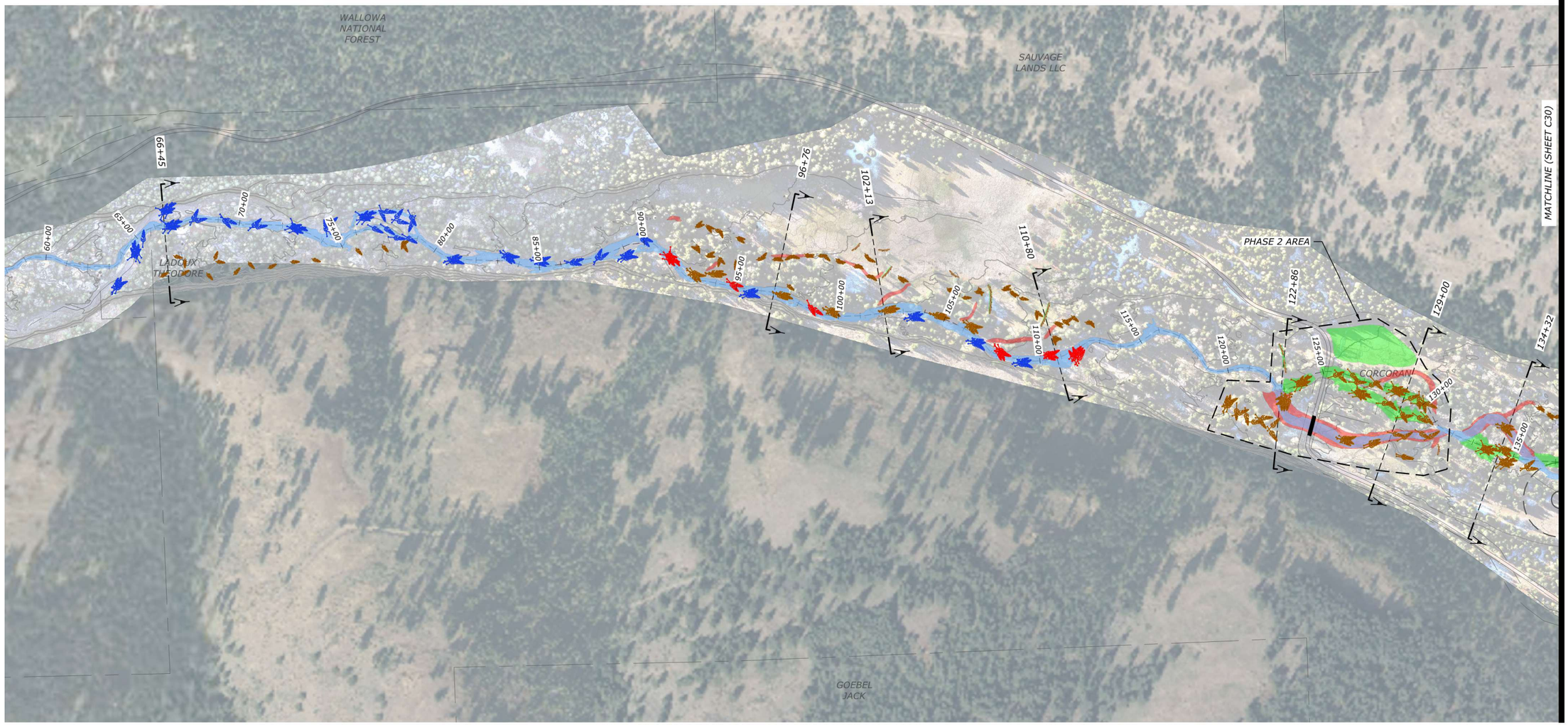
WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
PLAN & PROFILES

BRIDGE PLAN AND PROFILE

DRAWING NO.
C28
SHEET 36 OF 57



CROSS SECTIONS - VALLEY SECTIONS MAP 1

NOTE:
1. SEE SHEET C31 AND C32 FOR SECTION VIEWS.

LEGEND

- EG 2-FT CONTOUR
- FG 2-FT CONTOUR
- PROPOSED FILL
- PROPOSED CUT
- PROPOSED LOW FLOW INUNDATION

250 0 250 500 750
SCALE IN FEET

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

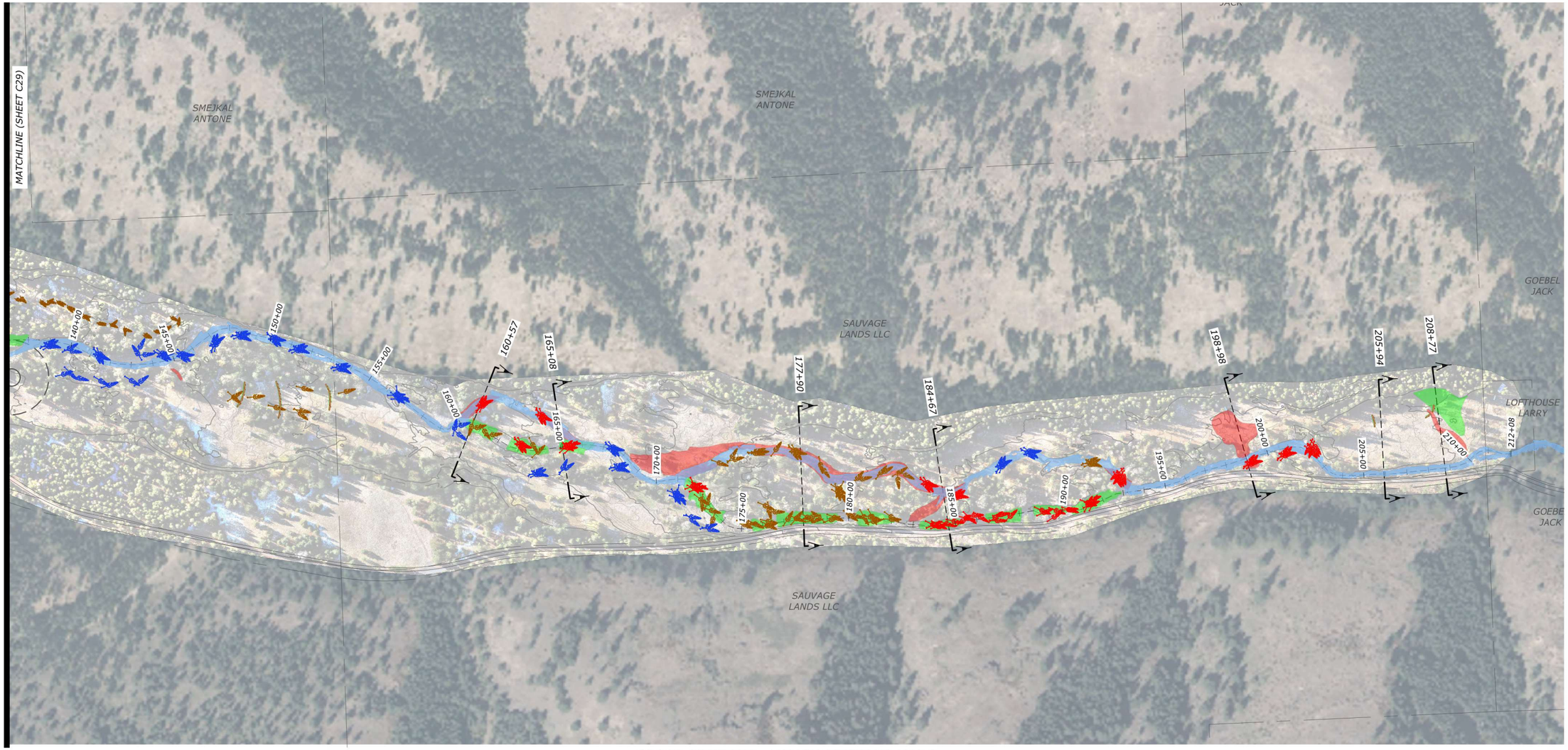
GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
CROSS SECTIONS
VALLEY SECTIONS MAP 1

DRAWING NO.
C29
SHEET 37 OF 57



CROSS SECTIONS - VALLEY SECTIONS MAP 2

NOTE:
1. SEE SHEET C31 AND C32 FOR SECTION VIEWS.

LEGEND
- EG 2-FT CONTOUR
- FG 2-FT CONTOUR
- PROPOSED FILL
- PROPOSED CUT
- PROPOSED LOW FLOW INUNDATION

250 0 250 500 750
SCALE IN FEET

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

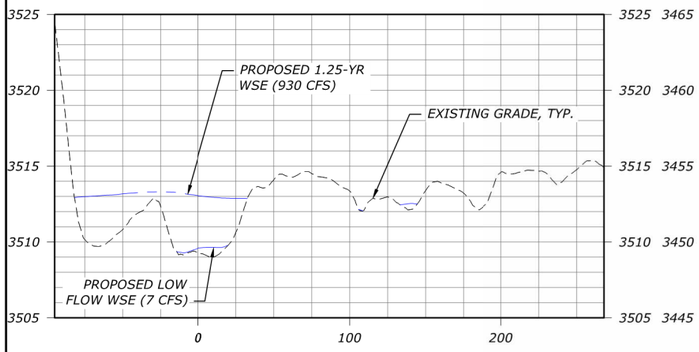
GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

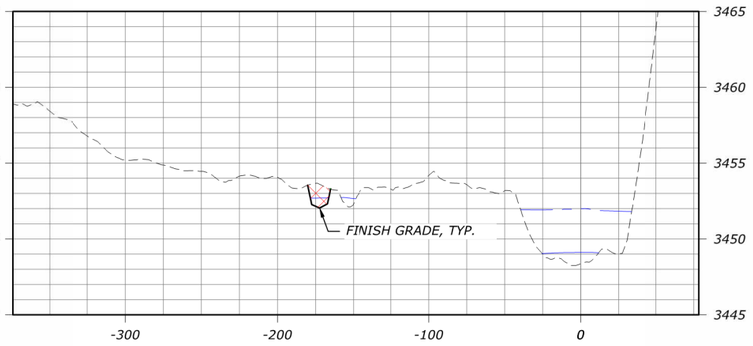
DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
CROSS SECTIONS
VALLEY SECTIONS MAP 2

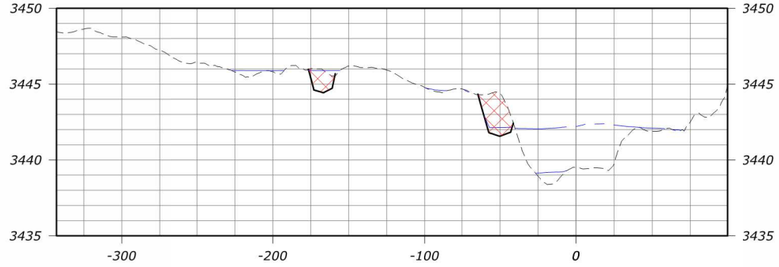
DRAWING NO.
C30
SHEET 38 OF 57



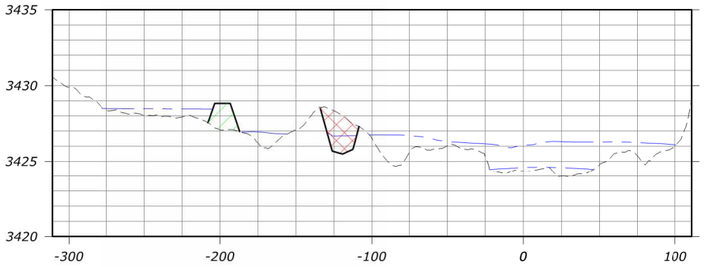
66+45



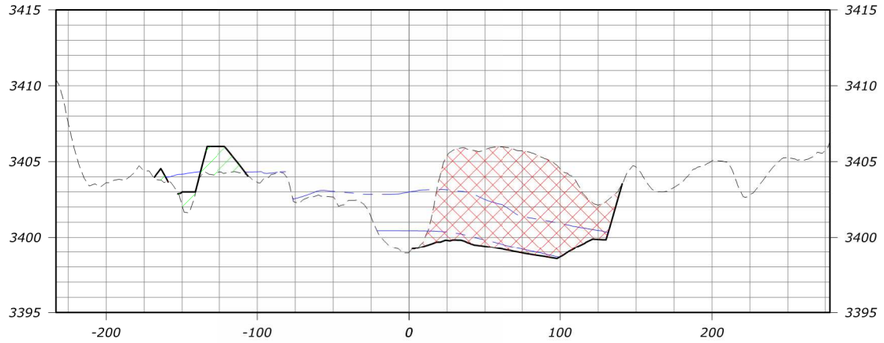
96+76



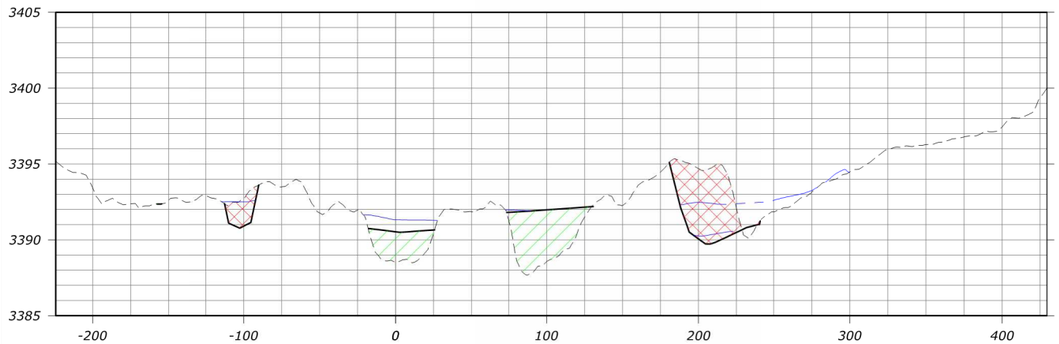
102+13



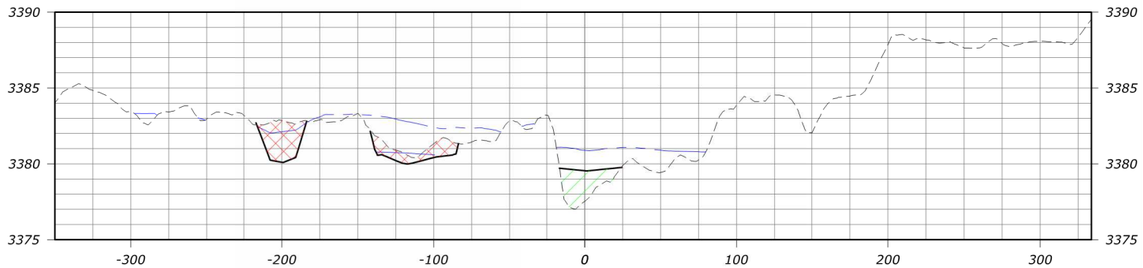
110+80



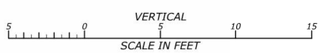
122+86



129+00



134+32



LEGEND

- PROPOSED FILL
- PROPOSED CUT
- EXISTING GRADE
- FINISH GRADE
- WATER SURFACE ELEVATION (WSE)

CROSS SECTIONS - VALLEY CROSS SECTIONS 1

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME

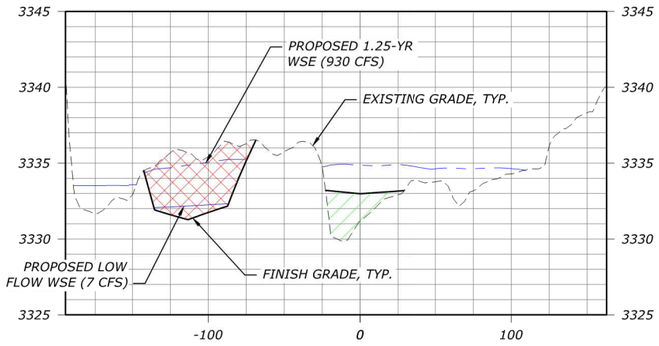
CROSS SECTIONS

VALLEY CROSS SECTIONS 1

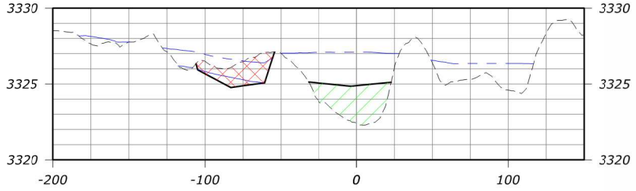
DRAWING NO.

C31

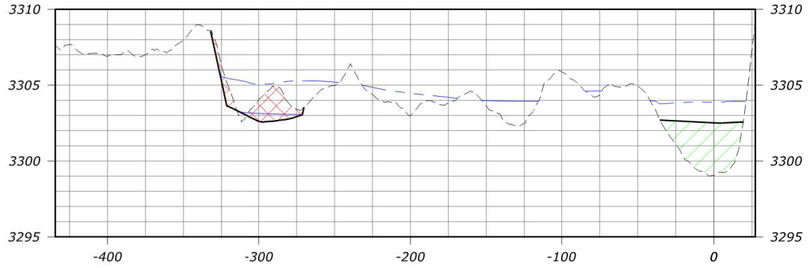
SHEET 39 OF 57



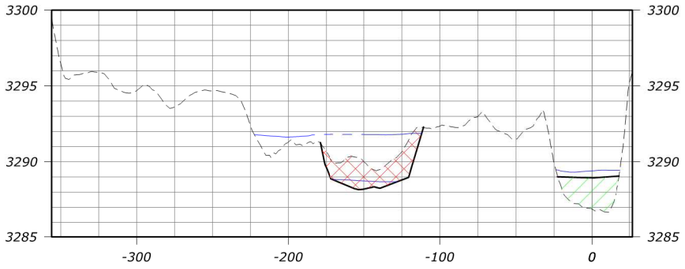
160+57



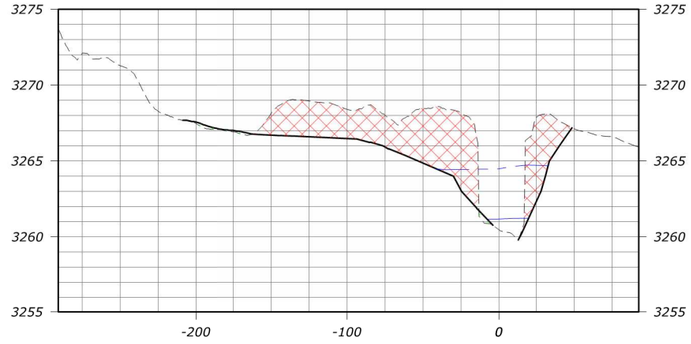
165+08



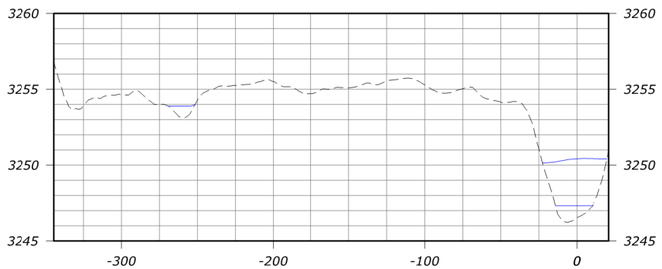
177+90



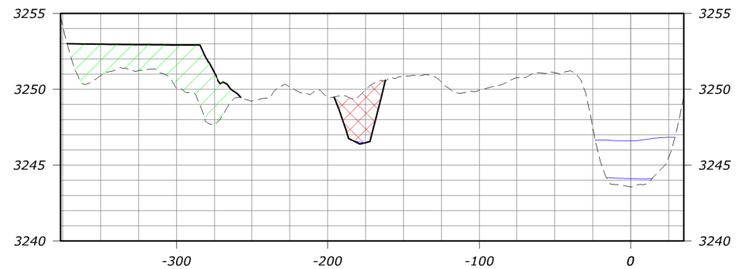
184+67



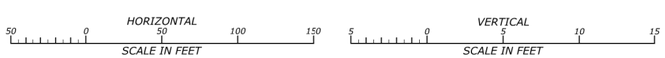
198+98



205+94



208+77



LEGEND

- PROPOSED FILL
- PROPOSED CUT
- EXISTING GRADE
- FINISH GRADE
- WATER SURFACE ELEVATION (WSE)

CROSS SECTIONS - VALLEY CROSS SECTIONS 2

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

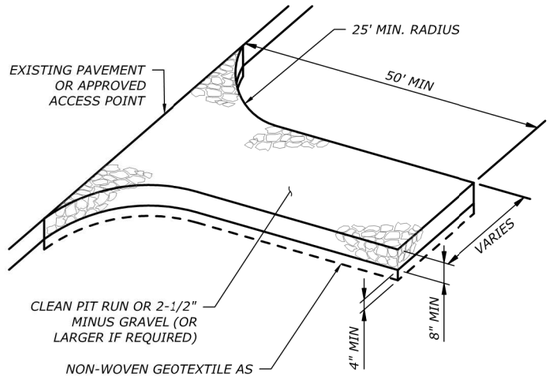
WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
CROSS SECTIONS

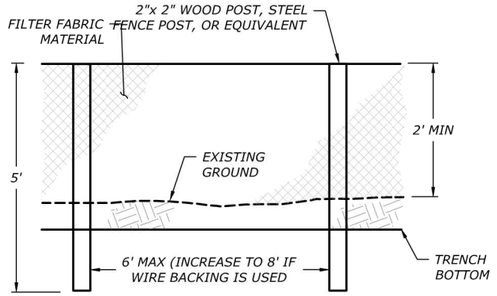
VALLEY CROSS SECTIONS 2

DRAWING NO.
C32
SHEET 40 OF 57

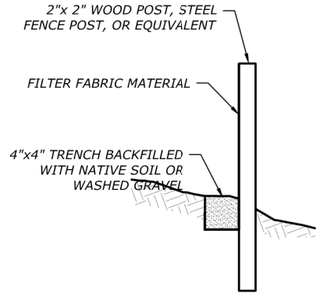


NOTES:
1. ADDITIONAL GRAVEL SHALL BE ADDED PERIODICALLY TO MAINTAIN PROPER FUNCTION OF THE PAD.
2. REMOVE GRAVEL ENTRANCE AND REPLACE WITH BASE COURSE PRIOR TO COMPLETION OF THE PROJECT.

1 TEMPORARY CONSTRUCTION ENTRANCE
NTS



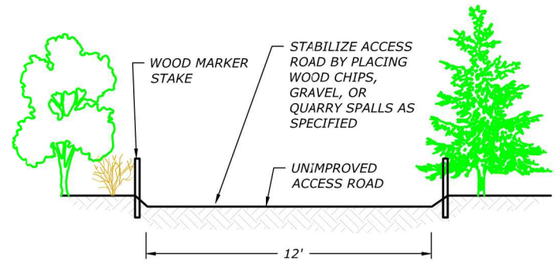
ELEVATION VIEW



SECTION VIEW

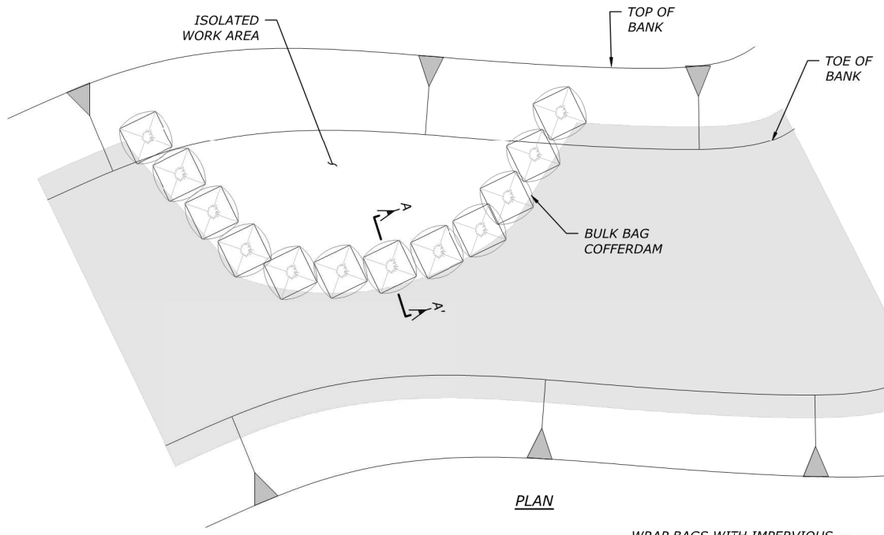
NOTES:
1. JOINTS IN FILTER FABRIC SHALL BE SPLICED AT POSTS. USE STABLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC TO POSTS WITH A MINIMUM 4" OVERLAP.
2. STITCHED LOOPS ON FILTER FABRIC (IF PRESENT) TO BE INSTALLED ON DOWNHILL SIDE OF SLOPE.
3. GROUND MAY BE ROCKY; PLAN ACCORDINGLY FOR PROPER EQUIPMENT SELECTION.

3 SILT FENCE
NTS



NOTES:
1. CLEARED ACCESS TO BE ROUTED TO MINIMIZE VEGETATION DISTURBANCE AND FOREST CLEARING.
2. CONTRACTOR SHALL MARK CLEARING LIMITS. CLEARING LIMITS TO BE APPROVED BY ENGINEER PRIOR TO ANY CLEARING ACTIVITIES.
3. ANY TREES GREATER THAN 18" Ø SHALL BE REMOVED W/ ROOTWADS INTACT AND STOCKPILED FOR USE IN LOGJAM CONSTRUCTION.
4. TREES AND SHRUBS WITH 6"-18" Ø SHALL BE STOCKPILED FOR USE AS RACKING MATERIAL IN LOGJAM CONSTRUCTION.
5. VEGETATION AND ORGANIC SOIL SHALL BE STRIPPED, TEMPORARILY STOCKPILED, AND REPLACED ON ROAD ALIGNMENT AFTER WORK IS COMPLETE AND ACCEPTED.
6. ACCESS SHALL BE MAINTAINED BY MINOR GRADING AND PLACEMENT OF WOOD CHIPS, GRAVEL AND/OR QUARRY SPALLS. ALL GRAVEL OR QUARRY SPALLS (IF PLACED) SHALL BE UNDERLAIN WITH A GEOTEXTILE AND REMOVED.
7. RESTORE ACCESS ROADS AND SEED IN ACCORDANCE WITH SEEDING SPECIFICATIONS.

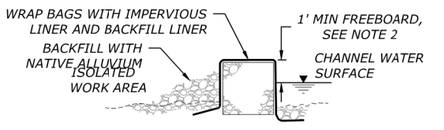
4 ACCESS ROAD
NTS



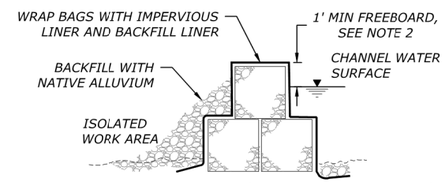
PLAN

NOTES:
1. WRAP BULK BAGS WITH IMPERVIOUS PLASTIC LINER TO PREVENT SEEPAGE.
2. BACKFILL THE DOWNSTREAM SIDE OF THE COFFERDAM WITH NATIVE ADJACENT ALLUVIUM.
3. USE BULK BAGS AS A BUTTRESS AS REQUIRED.
4. BULK BAG MATERIAL SHALL BE 8 OZ. (MIN) WOVEN FABRIC HAVING A 1200 HOUR UV RESISTANCE WITH LIFTING LOOPS.
5. PLACE BULK BAGS CAREFULLY TO PREVENT TEARING OR CUTTING OF BAGS.
6. BULK BAG FILL MATERIAL SHALL BE CLEAN, WASHED, ALLUVIUM.

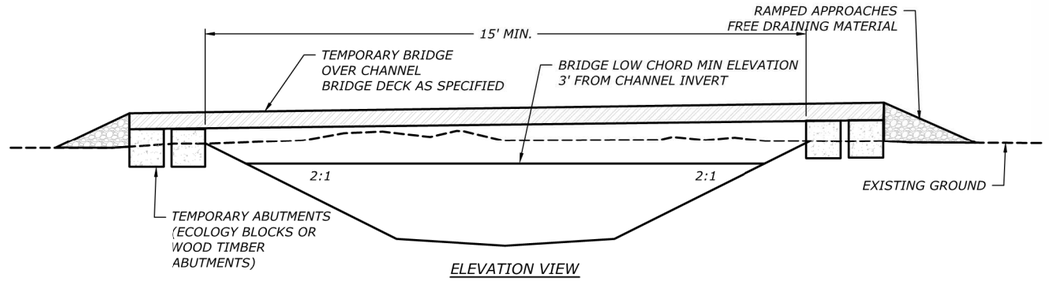
2 BULK BAG COFFERDAM
NTS



SECTION VIEW (SINGLE BULK BAG)



SECTION VIEW (DOUBLE BULK BAG)



ELEVATION VIEW

TEMPORARY BRIDGE NOTES:
1. CONTRACTOR TO DESIGN TEMPORARY BRIDGE FOR CHANNEL CROSSINGS.
2. BRIDGE SHALL BE LOCATED SUCH THAT ONLY ONE SPAN IS USED AT CHANNEL CROSSINGS.
3. END OF BRIDGE SHALL BEAR ON HIGH BANKS WITH SUFFICIENT BEARING CAPACITY TO PREVENT SLOUGHING OR COLLAPSE OF CHANNEL BANKS.
4. CONCRETE ECOLOGY BLOCKS OR WOOD ABUTMENTS MAY BE USED TO SUPPORT ENDS OF TEMPORARY BRIDGE AS NEEDED.
5. BRIDGES MAY BE CONSTRUCTED FROM LOGS, RAIL CAR BEDS OR APPROVED EQUAL AND DECKED WITH STEEL SHEET, WOOD LAGGING OR APPROVED EQUAL.

5 TEMPORARY BRIDGE
NTS

GENERAL EROSION AND SEDIMENT CONTROL AND WORK AREA ISOLATION NOTES:
1. THE DETAILS SHOWN ON THIS SHEET ARE EXAMPLES OF ACCEPTABLE METHODS TO USE DURING CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR IS RESPONSIBLE FOR DEVELOPING AND SUBMITTING A COFFERDAM, PUMPING, AND DEWATERING PLAN FOR REVIEW AND APPROVAL BY THE CONTRACTING AGENCY OR ENGINEER. THE PLAN SHALL INCLUDE SUFFICIENT DETAIL OF MEANS AND METHODS SATISFYINGLY MEETING THE PROJECT SPECIFICATIONS AND PERMIT REQUIREMENTS. IF APPROVED, OTHER METHODS MAY BE USED SUCH AS UTILIZING INFLATABLE BLADDERS, PLATES, OR BARRIERS OF VARIOUS MATERIALS. COFFERDAMS SHALL INCLUDE PLASTIC LINER OR FINE MESH SILT FENCE TO REDUCE TURBIDITY AND FINES FROM ENTERING THE FREE FLOWING PORTION OF LIVE WATER.
2. COFFERDAMS SHALL BE CONSTRUCTED TO ACCOMMODATE ALL FLOW CONDITIONS AND WATER SURFACE ELEVATIONS EXPECTED DURING CONSTRUCTION PLUS A MINIMUM OF 1-FOOT OF FREEBOARD. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH WATER QUALITY STANDARDS, SAFETY AND CONSTRUCTION STANDARDS, DAMAGE OR LOSS TO EQUIPMENT, MATERIALS, AND DAMAGES TO PRIVATE PROPERTY.
3. THE CONTRACTING AGENCY IS RESPONSIBLE FOR MEASURING TURBIDITY HOWEVER THE CONTRACTOR SHALL ADHERE TO THE SPECIAL PROCEDURES REGARDING IN-STREAM WORK, TURBIDITY, AND DEWATERING (DRAWINGS G2 AND G3). ADDITIONALLY, THIS PROJECT SHALL ADHERE TO HIP CONSERVATION MEASURES. CONSERVATION MEASURES ARE SUMMARIZED ON DRAWINGS G4 AND G5 AND SHALL BE STRICTLY ADHERED TO.
4. THE CONTRACTOR SHALL NOTIFY THE OWNER AND CONTRACTING OFFICER AT LEAST 5 DAYS BEFORE EACH COFFERDAM INSTALLATION DATE SO THAT FISH SALVAGE ACTIVITIES CAN BE SCHEDULED. ANTICIPATED COFFERDAM LOCATIONS ARE SHOWN IN THE PLANS.
5. FILL MATERIAL FOR BULK BAGS SHALL BE CLEAN, WASHED, AND ROUNDED MATERIAL MEETING STANDARD SPECIFICATIONS FOR DRAIN ROCK, STREAMBED AGGREGATES, STREAMBED SEDIMENTS, OR STREAMBED COBBLES. MATERIAL USED TO FILL BULK BAGS SHALL BE DISPOSED OF IN ACCORDANCE WITH THE PERMITS.
6. DEWATERING PUMP DISCHARGE FROM WITHIN COFFERDAM WORK AREAS SHALL BE RELEASED ONTO FLOODPLAIN AREAS AWAY FROM WETLANDS AND CONSTRUCTION ACTIVITIES. DISCHARGE SHALL BE COMPLETELY INFILTRATED PRIOR TO REACHING WETLANDS OR SURFACE WATERS UNLESS APPROVED BY THE CONTRACTING OFFICER. ALL RETURN FLOWS MUST MEET PERMIT REQUIREMENTS FOR TURBIDITY.
7. EXCAVATIONS ASSOCIATED WITH CHANNEL, FLOODPLAIN, AND WOOD HABITAT STRUCTURES SHALL BE DEWATERED IN ACCORDANCE WITH THE SPECIFICATIONS.
8. ALL PUMP INTAKES SHALL BE SCREENED FOR FISH PROTECTION AS REQUIRED BY NOAA.
9. ALL EARTHWORK ACTIVITIES AND WOOD HABITAT STRUCTURE CONSTRUCTION WITHIN THE ORDINARY HIGH WATER CHANNEL SHALL CONFORM TO THE WATER QUALITY STANDARDS ESTABLISHED BY REGULATORY AGENCY PERMITS FOR THIS PROJECT.

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

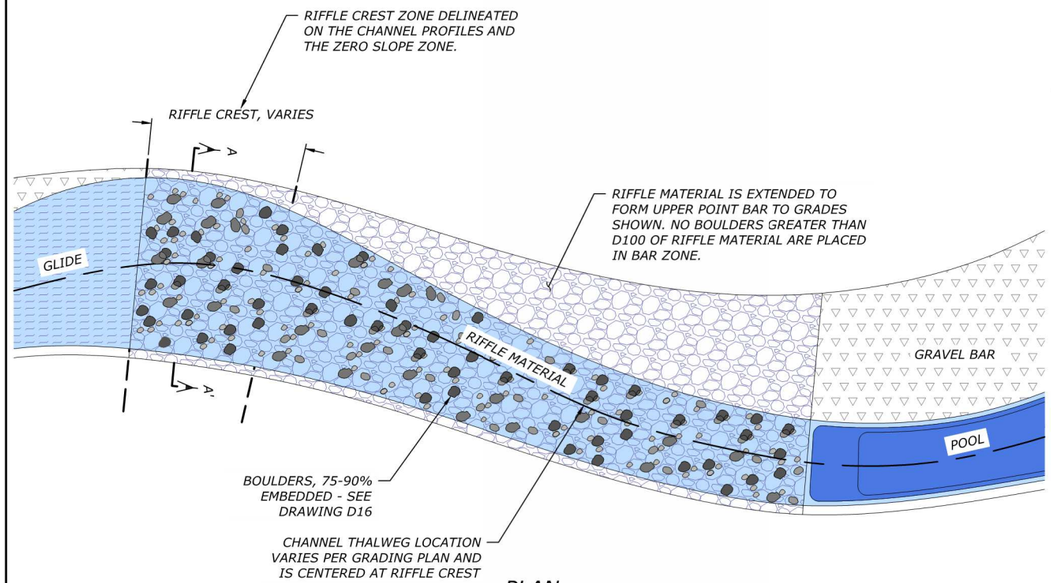
DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
DETAILS
ACCESS AND STAGING

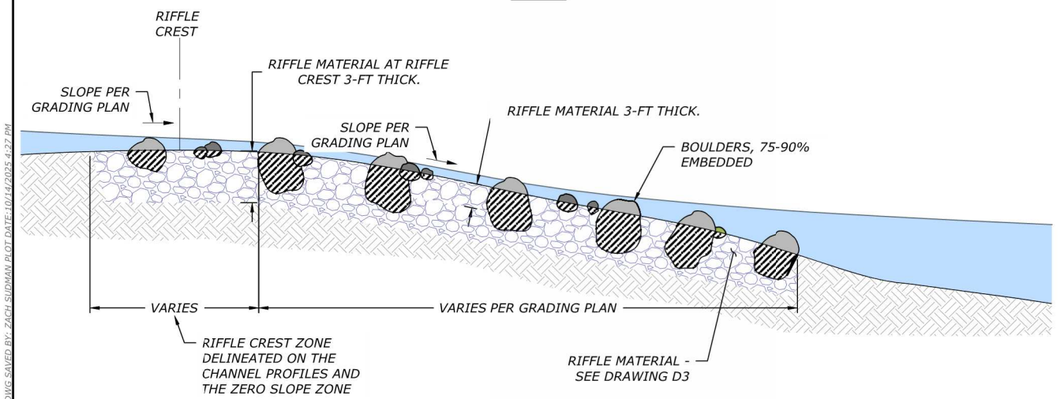
DRAWING NO.
D1
SHEET 41 OF 57

RIFFLE OVERVIEW NOTES:

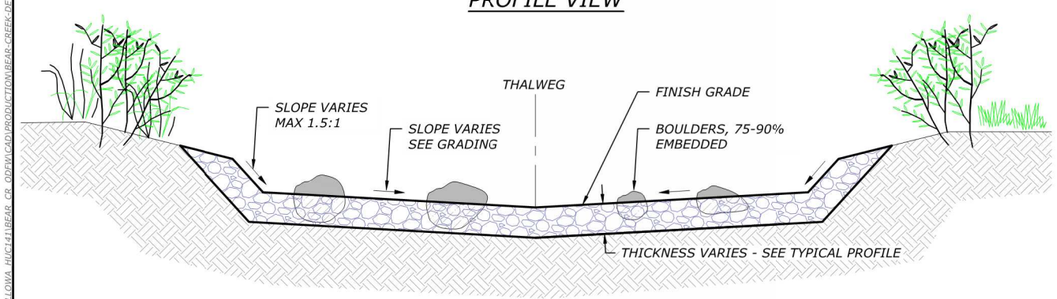
CONSTRUCTED RIFFLES ARE TO BE INSTALLED AT LOCATIONS SHOW IN THE GRADING PLANS. RIFFLES SHALL BE OVER EXCAVATED AND REPLACED UNLESS DIRECTED BY ENGINEER. IF IN-SITU MATERIAL MEETS THE SPECIFICATION PER THE GRADATION THEN RIFFLE SHALL BE GRADED WITHOUT OVER-EXCAVATION AND PLACEMENT OF CONSTRUCTED RIFFLE MATERIAL. OTHERWISE, RIFFLE SHALL BE OVER-EXCAVATED AND CONSTRUCTED RIFFLE MATERIAL INSTALLED PER THE RIFFLE CONSTRUCTION STEPS OUTLINED ON THIS DRAWING.



PLAN



PROFILE VIEW

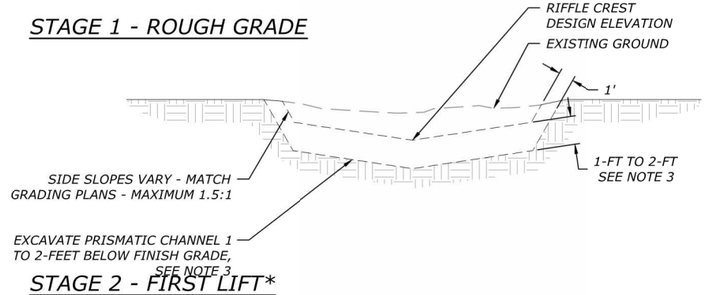


SECTION A-A'

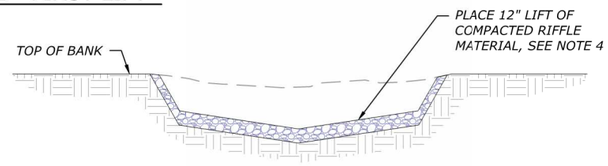
6 CONSTRUCTED RIFFLE
NTS

CONSTRUCTION SEQUENCING

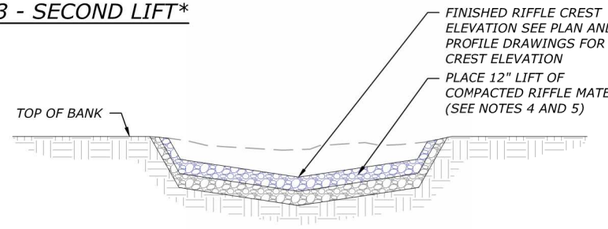
STAGE 1 - ROUGH GRADE



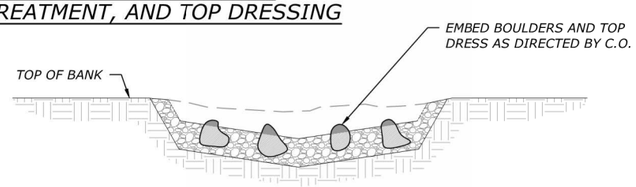
STAGE 2 - FIRST LIFT*

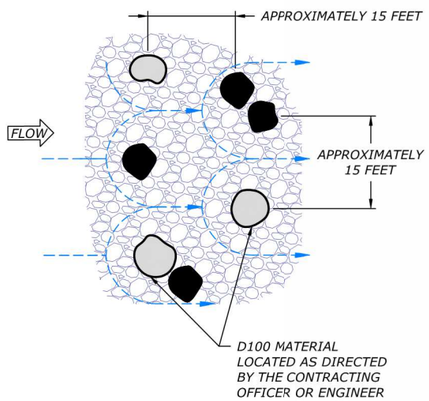


STAGE 3 - SECOND LIFT*



STAGE 4 - BOULDER PLACEMENT, BANK TREATMENT, AND TOP DRESSING





BOULDER PLACEMENT

CONSTRUCTED RIFFLE NOTES:

1. STOCKPILE CHANNEL MATERIALS PER DESIGN SPECIFICATIONS. MATERIALS ARE TO BE STOCKPILED IN THE IMMEDIATE PROJECT AREA OR TRANSPORTED FROM THE SORTING AREA AS NEEDED.
2. THREE PLACEMENTS ARE REQUIRED AS FOLLOWS:
   - 2.1. CONSTRUCTED RIFFLE MATERIAL
   - 2.2. LARGE AND SMALL BOULDERS (FOR EMBEDMENT)
   - 2.3. ROUGHNESS ROCK (TOP DRESSING)
3. TREAT EXISTING CHANNEL BED BY REMOVING ORGANICS AND CREATING A PRISMATIC WORKING SURFACE FOLLOWING CHANNEL THALWEG AND DESIGN CONTOURS ON GRADING DRAWINGS. ROUGH GRADE FROM FINISH GRADE TO SPECIFIED RIFFLE MATERIAL DEPTH IN CHANNEL BED IN ACCORDANCE WITH PLAN AND PROFILE DRAWINGS. ROUGH GRADE BANKS BY 1-FT TO SLOPES SHOWN ON GRADING PLANS AND NOT EXCEEDING 1.5:1.
4. RIP EXISTING CHANNEL BED AT MINIMUM 1" DEEP TO CREATE A BETTER BONDING SURFACE BETWEEN THE TWO LAYERS.
5. CREATE MATERIAL FROM NATIVE ALLUVIUM FROM PROJECT EXCAVATIONS MEETING THE SPECIFICATIONS FOR CONSTRUCTED RIFFLE MATERIAL. COMPACT RIFFLE MATERIAL IN 12-INCH LIFTS USING TRACKED 300 SERIES EXCAVATOR, OR SIMILAR EQUIPMENT AS APPROVED BY C.O. TRACK ON MATRIX MATERIAL SUFFICIENTLY TO COMPACT MATERIAL.
6. REPEAT RIFFLE CONSTRUCTION BY PLACING ANOTHER 12-INCH LIFT WHERE REQUIRED TO MEET DESIGN FG AND CROSS SECTION SHAPE.
7. BOULDERS OF VARIOUS SIZES (LARGE AND SMALL - SEE RIFFLE MATERIALS DRAWING, DRAWING 62522) ARE TO BE ADDED TO THE RIFFLE TO CREATE DIVERSE FLOW PATHS AND HABITAT, SEE DRAWING 62538.
8. TOP DRESS WITH COARSE RIFFLE MATERIAL AS NEEDED AND DIRECTED BY C.O. TO ADD SOME INITIAL ROUGHNESS TO THE CHANNEL AND FORM A NATURAL APPEARANCE.
9. FOR THOSE AREAS WHERE HABITAT STRUCTURES OR BANK TREATMENTS ARE TO BE PLACED ADJACENT TO THE CONSTRUCTED RIFFLE, THE RIFFLE WILL BE CONSTRUCTED BEFORE PLACEMENT OF HABITAT STRUCTURES OR BANK TREATMENTS.
10. RIFFLES AND CHANNELS THAT ARE MARKED AS COMPLETE BY THE CONTRACTOR SHALL NOT BE DRIVEN ON BY MACHINERY TO PREVENT OVER COMPACTION OR MOVEMENT OF MATERIAL WITHOUT APPROVAL FROM C.O..

CONSTRUCTED RIFFLE MATERIAL	
PHASE 1 VOLUME (CY)	3,534
PHASE 2 VOLUME (CY)	2,583
TOTAL VOLUME (CY)	6,117

NOTE: RIFFLE MATERIAL IS TO BE DEVELOPED UTILIZING ON-SITE EXCAVATIONS.

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

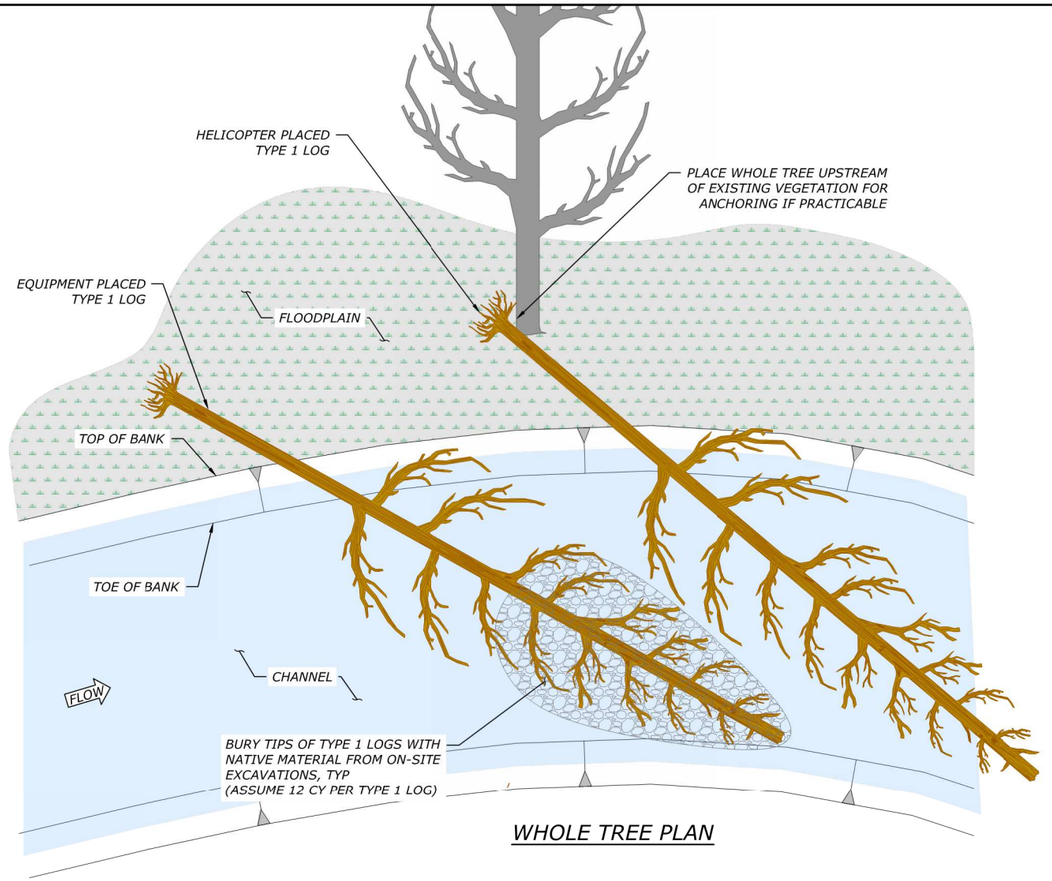
GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

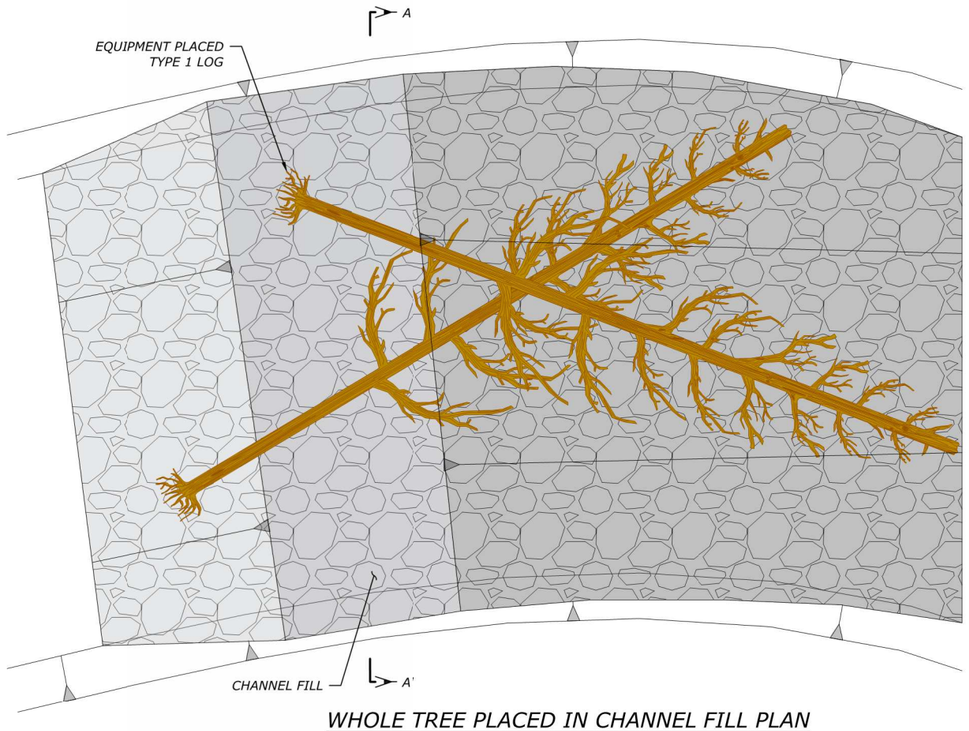
DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
DETAILS
CONSTRUCTED RIFFLE

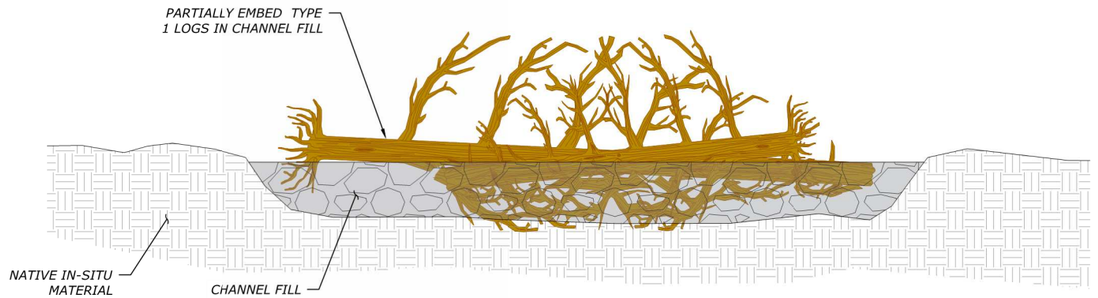
DRAWING NO.
D2
SHEET 42 OF 57



WHOLE TREE PLAN



WHOLE TREE PLACED IN CHANNEL FILL PLAN



WHOLE TREE PLACED IN CHANNEL FILL SECTION

NOTES:
1. THIS DETAIL COVERS ALL CONSTRUCTION SCENARIOS FOR WHOLE TREE PLACEMENT: HELICOPTER PLACED, HELICOPTER DELIVERED EQUIPMENT PLACED, AND EQUIPMENT SOURCED & PLACED.
2. THE EXACT LOCATION OF STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
3. SEE STRUCTURE SCHEDULE FOR NUMBER OF STRUCTURES, LOCATIONS, LOGS, AND ASSOCIATED MATERIAL QUANTITIES.
4. WHOLE TREES SHALL BE HANDLED TO REDUCE LOSS OF LIMBS, FOLIAGE, ETC..
5. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

WHOLE TREE MATERIAL SCHEDULE					
LOG TYPE	SIZE (DBH)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	24" (MIN.)	YES	4.5	YES	1 EA

7 WHOLE TREE STRUCTURE
NTS

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

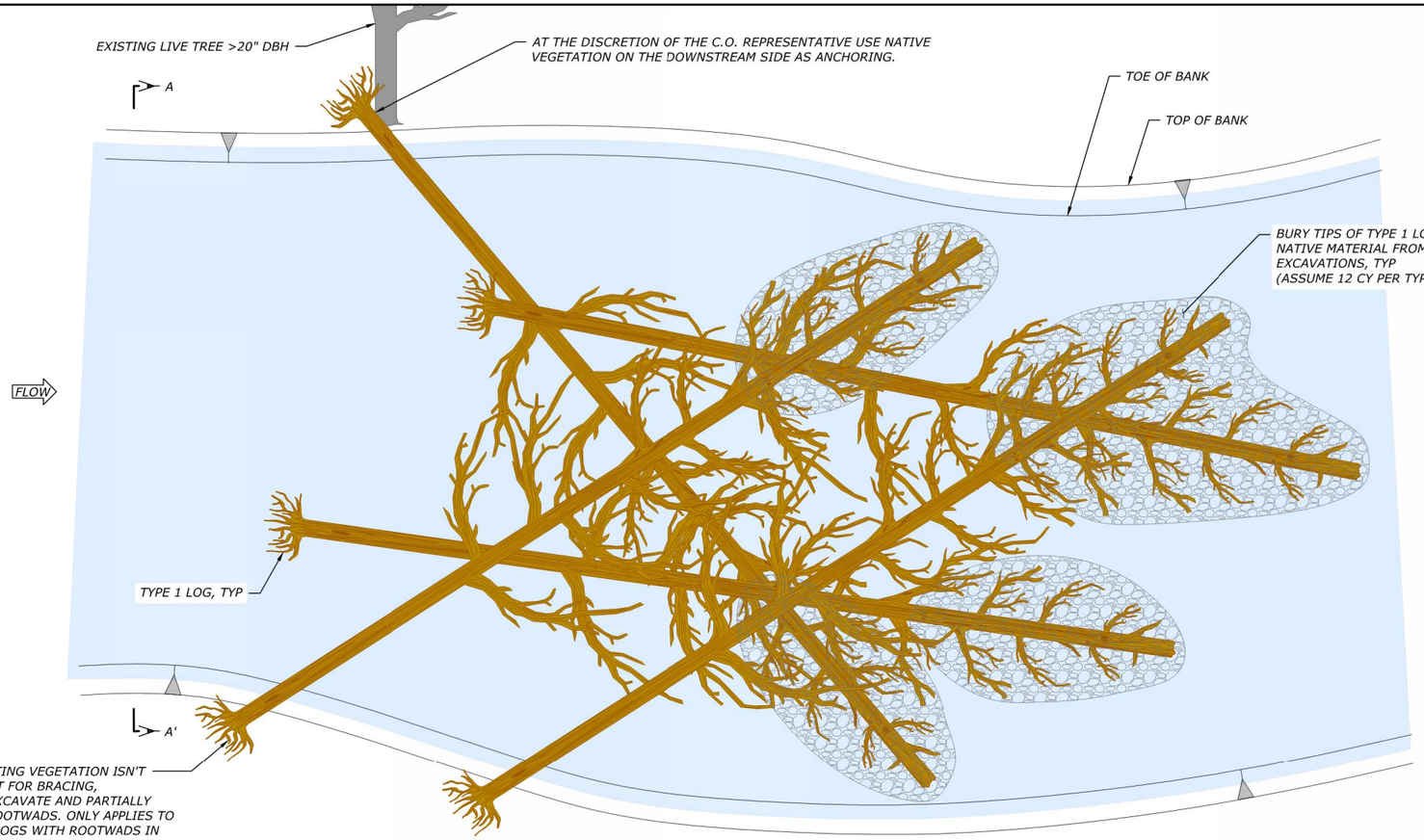
WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

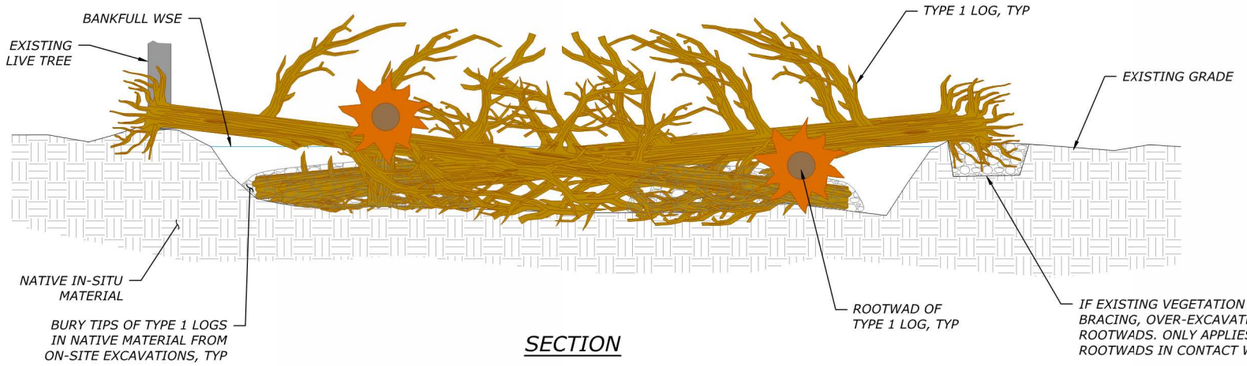
DRAWING NAME
DETAILS

WHOLE TREE

DRAWING NO.
D3
SHEET 43 OF 57

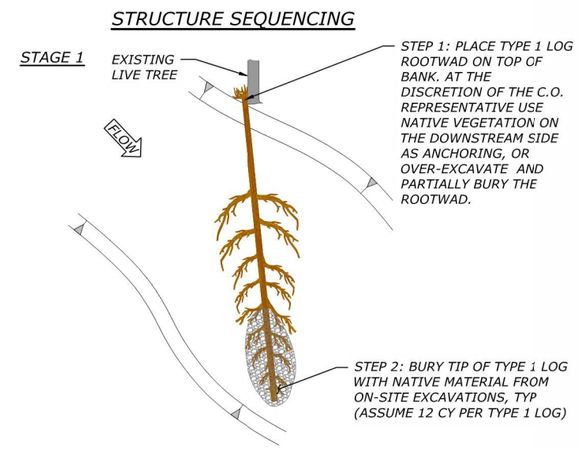


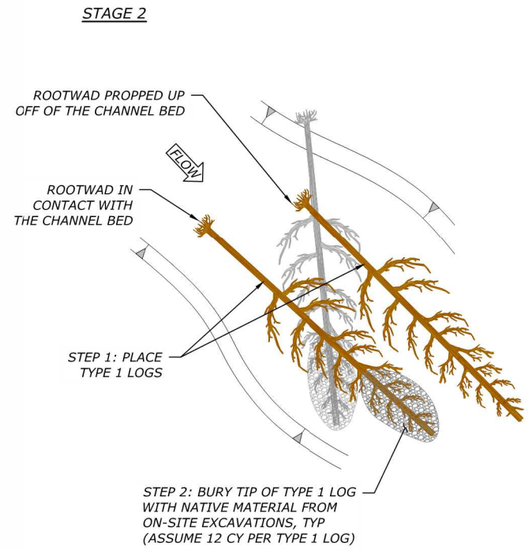
PLAN

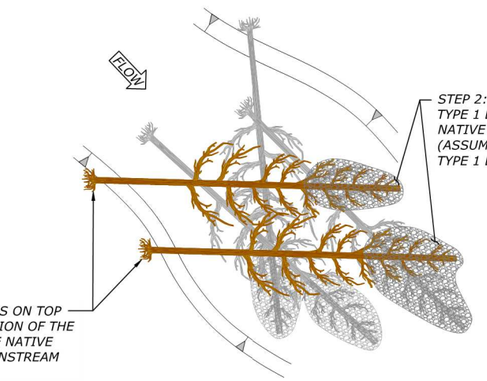


SECTION

STRUCTURE SEQUENCING







NOTES:

1. THIS DETAIL COVERS BOTH CONSTRUCTION SCENARIOS: WOOD DELIVERED VIA HELICOPTER AND PLACED WITH EQUIPMENT, AND WOOD SOURCED WITH EQUIPMENT AND PLACED WITH EQUIPMENT.
2. THE EXACT LOCATION OF STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
3. SEE STRUCTURE SCHEDULE FOR NUMBER OF STRUCTURES, LOCATIONS, LOGS, AND ASSOCIATED MATERIAL QUANTITIES.
4. WHOLE TREES SHALL BE HANDLED TO REDUCE LOSS OF LIMBS, FOLIAGE, ETC..
5. RACKING AND SLASH MATERIAL SHALL BE INCORPORATED INTO THE STRUCTURE WHILE PLACING LAYERS SUCH THAT IT IS WOVEN INTO STRUCTURE IN BETWEEN PLACED LOGS AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
6. WHEN UTILIZING EXISTING VEGETATION AS PASSIVE ANCHORS THERE SHALL BE AT A MINIMUM A TREE OF 20" DBH ON THE DOWNSTREAM SIDE, THIS REQUIREMENT MAY BE WAIVED AT THE DISCRETION OF THE C.O. REPRESENTATIVE.
7. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

CHANNEL SPANNING JAM MATERIAL SCHEDULE					
LOG TYPE	SIZE (DBH)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	24" (MIN.)	YES	4.5	YES	5 EA
RACKING BUNDLES	4" - 16"	OPTIONAL	NA	YES	1 EA (ONE BUNDLE)

8 CHANNEL SPANNING JAM (EQUIPMENT PLACED)
NTS

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

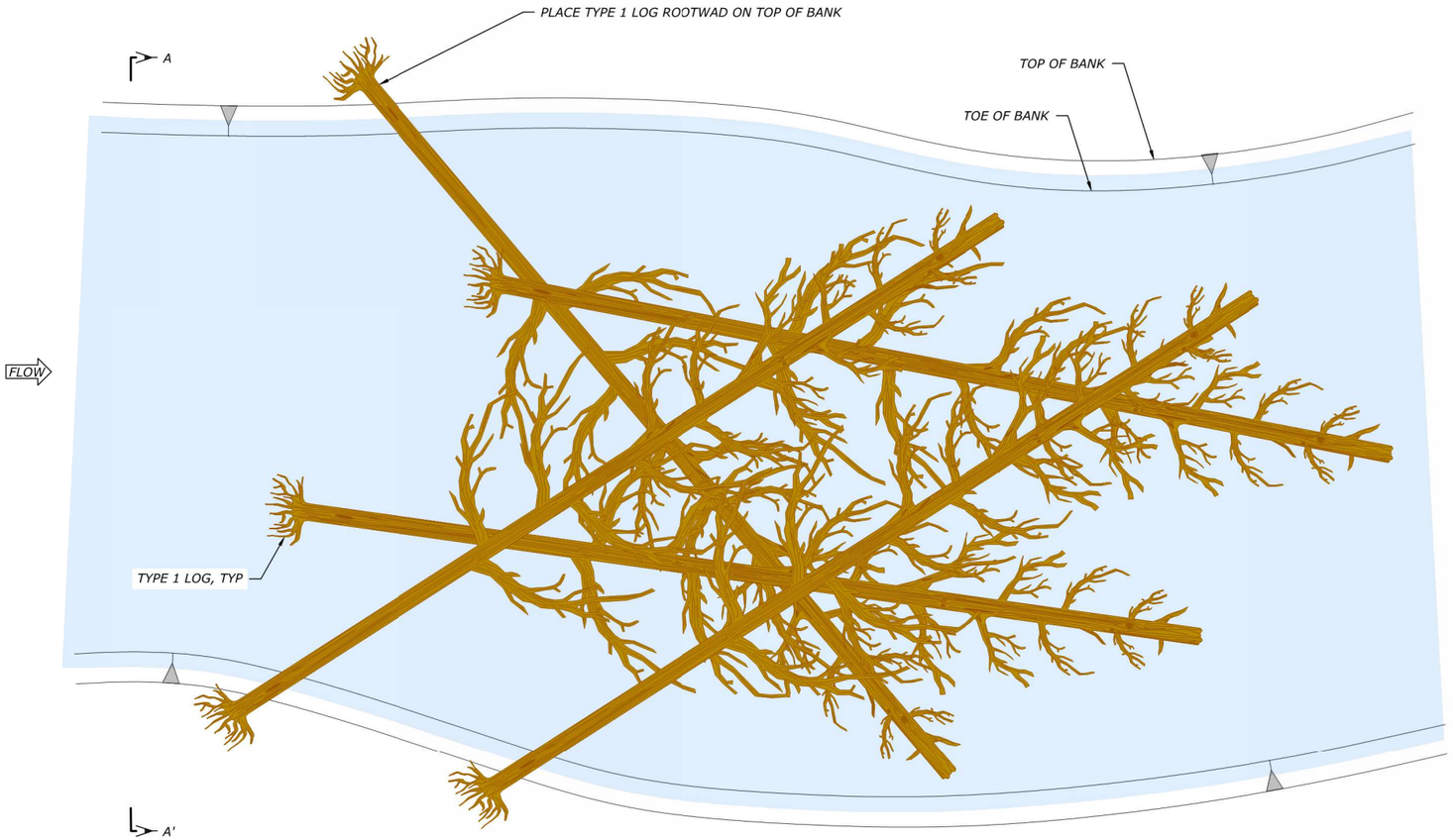
WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

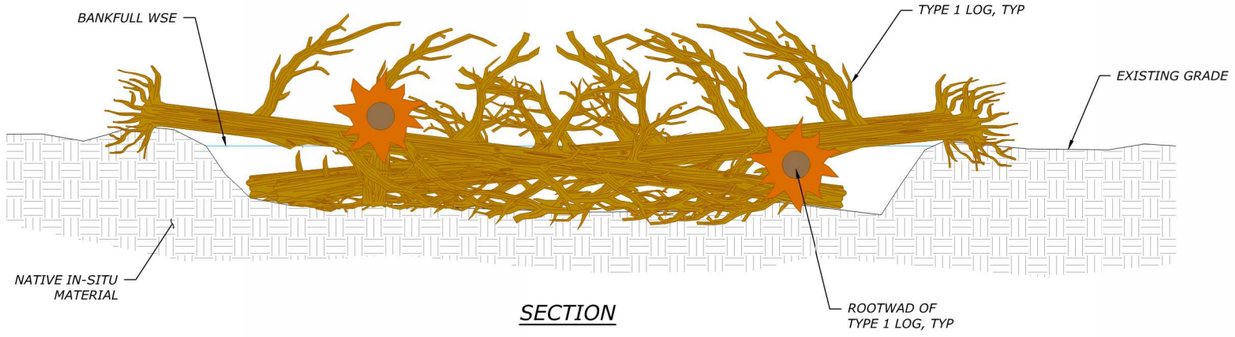
DRAWING NAME
DETAILS

CHANNEL SPANNING JAM (EQUIPMENT)

DRAWING NO.
D4
SHEET 44 OF 57



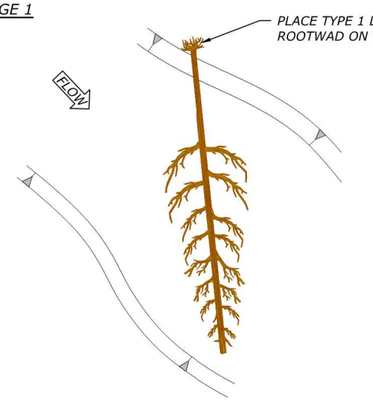
PLAN



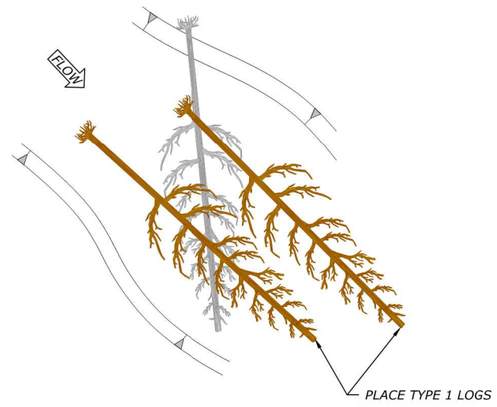
SECTION

STRUCTURE SEQUENCING

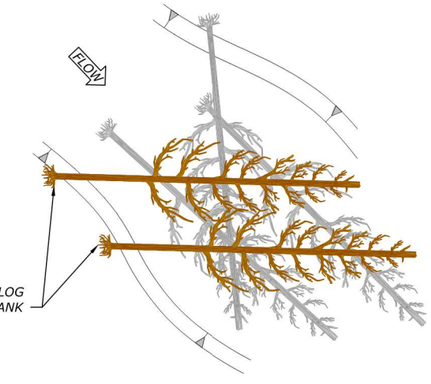
STAGE 1



STAGE 2



STAGE 3



NOTES:

1. THIS DETAIL COVERS THE CONSTRUCTION SCENARIO WHERE WOOD IS DELIVERED AND PLACED VIA HELICOPTER.
2. THE EXACT LOCATION OF STRUCTURE SHALL BE LOCATED PRIOR TO INSTALLATION FOR APPROVAL BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
3. SEE STRUCTURE SCHEDULE FOR NUMBER OF STRUCTURES, LOCATIONS, LOGS, AND ASSOCIATED MATERIAL QUANTITIES.
4. WHOLE TREES SHALL BE HANDLED TO REDUCE LOSS OF LIMBS, FOLIAGE, ETC..
5. RACKING AND SLASH MATERIAL SHALL BE INCORPORATED INTO THE STRUCTURE WHILE PLACING LAYERS SUCH THAT IT IS WOVEN INTO STRUCTURE IN BETWEEN PLACED LOGS AT EACH STEP THROUGHOUT CONSTRUCTION AS DIRECTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
6. WHEN UTILIZING EXISTING VEGETATION AS PASSIVE ANCHORS THERE SHALL BE AT A MINIMUM A TREE OF 20" DBH ON THE DOWNSTREAM SIDE, THIS REQUIREMENT MAY BE WAIVED AT THE DISCRETION OF THE C.O. REPRESENTATIVE.
7. LOG PLACEMENT MAY BE ADJUSTED IN THE FIELD BY THE CONTRACTING OFFICER TO PROVIDE VARIABILITY FROM STRUCTURE TO STRUCTURE.

CHANNEL SPANNING JAM MATERIAL SCHEDULE

LOG TYPE	SIZE (DBH)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	QUANTITY
TYPE 1	24" (MIN.)	YES	4.5	YES	5 EA
RACKING BUNDLES	4" - 16"	OPTIONAL	NA	YES	1 EA (ONE BUNDLE)

9 CHANNEL SPANNING JAM (HELICOPTER PLACED)
NTS

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
DETAILS

CHANNEL SPANNING JAM (HELICOPTER)

DRAWING NO.
D5
SHEET 45 OF 57