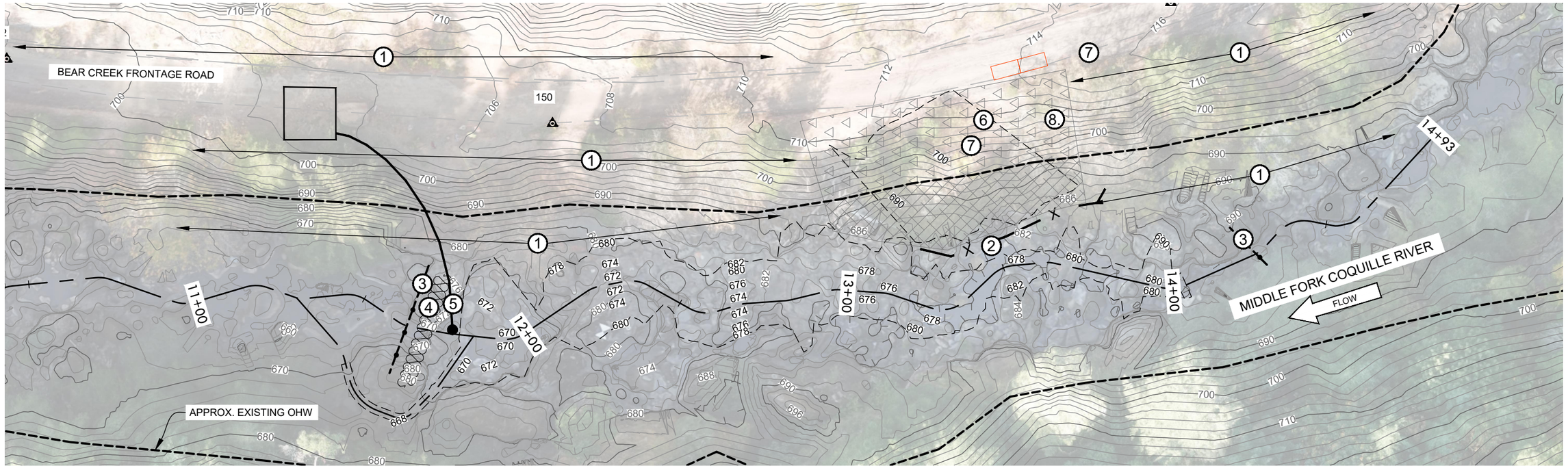
Exhibit D: ENGINEERING DESIGNS 2



GENERAL NOTES

ALL BEST MANAGEMENT PRACTICES SHALL BE IMPLEMENTED PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES. SEE ARBO II GENERAL CONSERVATION MEASURES (DRAWINGS 1.1 - 1.2) AND LAMPREY AND FRESHWATER MUSSEL CONSERVATION MEASURES (DRAWINGS 1.3 - 1.4).

CARE AND DIVERSION OF WATER NOTES

1. CONTRACTOR SHALL SUBMIT A DEWATERING AND WORK AREA ISOLATION (STREAM BYPASS) PLAN THAT LIMITS DEWATERED STREAM LENGTH TO PROJECT ENGINEER FOR APPROVAL PRIOR TO BEGINNING CONSTRUCTION. IT IS ANTICIPATED THAT THE WORK AREA WILL BE DRY DURING CONSTRUCTION.

2. THE PREFERRED WORK AREA ISOLATION TECHNIQUE SHALL INCORPORATE PUMPING WHEN NEEDED TO REDUCE TURBIDITY IN THE WORK AREA.

3. STATIONARY POWER EQUIPMENT, SUCH AS GENERATORS, WITHIN 150-FEET OF THE WATER SHALL HAVE SECONDARY CONTAINMENT TO PREVENT SPILLS OR LEAKS FROM REACHING THE WATER.

4. ALL POWER EQUIPMENT WITHIN 150-FEET OF THE WATER SHALL BE INSPECTED DAILY FOR FLUID LEAKS AND REPAIRED, PRIOR TO USE WITHIN 150-FEET, IF A LEAK IS DETECTED. THE CONTRACTOR MUST KEEP DAILY INSPECTION REPORTS IN A DIARY.

5. PUMPS USED FOR DEWATERING SHALL HAVE INTAKE SCREENS THAT MEET THE MOST CURRENT VERSION OF NMFS' AND OFDW' FISH SCREEN CRITERIA OR BE OPERATED IN AN AREA WHERE FISH ARE NOT ABLE TO ENTER.

6. AT COMPLETION OF PROJECT RE-WATER THE CONSTRUCTION SITE SLOWLY TO PREVENT LOSS OF SURFACE FLOW DOWNSTREAM, AND TO PREVENT RELEASE OF SUSPENDED SEDIMENT.

FLOW CONDITIONS DURING IN-WATER WORK

7. THE PROJECT WILL BE IMPLEMENTED DURING THE IN-STREAM WORK WINDOW JULY 1 - SEPTEMBER 15. ANTICIPATED FLOWS ARE SUMMARIZED IN TABLE 1 (THIS DRAWING).

FISH PASSAGE

8. THERE IS CURRENTLY NO FISH PASSAGE DURING THE IN-WATER WORK WINDOW (JULY 1 - SEPTEMBER 15) DUE TO SIGNIFICANT JUMP HEIGHTS AND LACK OF FLOW. THEREFORE, NO FISH PASSAGE WILL BE PROVIDED DURING CONSTRUCTION.

1 BEST MANAGEMENT PRACTICES PLAN

1" =30'

FISH SALVAGE NOTES

1. CONTRACTOR SHALL COORDINATE WITH OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW) TO REMOVE EXISTING FISH AT THE PROJECT SITE PRIOR TO ISOLATION AND DEWATERING THE AREA. CONTRACTOR SHALL NOTIFY ODFW A MINIMUM OF 10 BUSINESS DAYS PRIOR TO BEGINNING WORK AREA ISOLATION. FISH SALVAGE TO BE CONDUCTED BY TRAINED FISHERIES BIOLOGISTS AND PER ODFW AND NOAA RULES. IF POSSIBLE ALLOW FISH SPECIES TO MIGRATE OUT OF WORK AREA. IF NECESSARY, A BACKPACK ELECTROSHOCKER OR SEINE NET (MADE FROM 9.5 MM STRETCHED NYLON MESH) MAY BE USED TO REMOVE FISH FROM THE ISOLATED WORK AREA.

2. IN COFFERDAM WORK AREAS AND OTHER ISOLATED AREAS, WATER WILL BE DRAWN DOWN TO HELP CONSOLIDATE FISH AND IMPROVE SALVAGE EFFORTS. REDUCING WATER VOLUME WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE DONE USING PUMPS FITTED WITH APPROVED FISH SCREENS THAT PREVENT IMPINGEMENT OR ENTRAINMENT OF FISH.

3. WATER WILL BE DRAWN DOWN IN A CONTROLLED MANNER WITH FISH SALVAGE CREWS CONTINUOUSLY MONITORING THE PUMPS, NEWLY EXPOSED AREAS, AND FISH NUMBERS FOR CROWDING. IF ISOLATED POCKETS OR POOLS OCCUR, THEY WILL BE DEFISHED AND PUMPING WILL BE REDUCED ONCE MANAGEABLE WATER LEVELS ARE OBTAINED.

4. ALL CAPTURED AQUATIC LIFE WILL BE IMMEDIATELY PUT INTO DARK COLORED FIVE GALLON BUCKETS FILLED WITH CLEAN RIVER WATER FOR THE PERIOD BETWEEN CAPTURE AND RELEASE. FISH SPECIES AND LIFE STAGE WILL BE DOCUMENTED AND FISH WILL BE RELEASED IN A SAFE ENVIRONMENT IN THE STREAM.

CONSTRUCTION NOTES

1. PRESERVE AND PROTECT EXISTING VEGETATION.
2. INSTALL SEDIMENT FENCE, OR APPROVED EQUIVALENT, AT TOE OF TEMPORARY CHANNEL ACCESS (SEE DRAWING 2.7).
3. INSTALL FISH BLOCK NET AND EXCLUSION BERM UPSTREAM AND DOWNSTREAM OF WORK AREA (SEE DRAWING 2.8). BLOCK NETS OR EXCLUSION BERMS TO REMAIN IN PLACE FOR THE DURATION OF THE IN-WATER WORK.
4. INSTALL FLOATING SILT CURTAIN (SEE DETAIL DRAWING 2.8).
5. USE SUMPED PUMPS WITH SCREENS TO DEWATER ISOLATED WORK AREA (SEE DRAWING 2.8). DISCHARGE PUMPED WATER TO DEWATERING BAG (SEE DRAWING 2.8). REMOVE AQUATIC LIFE FROM ISOLATED WORK AREA (SEE FISH SALVAGE NOTES THIS DRAWING).
6. CONSTRUCT TEMPORARY CHANNEL ACCESS (SEE DRAWING 2.5). SALVAGE AND STOCKPILE ALL TREES REMOVED DURING TEMPORARY CHANNEL ACCESS DEVELOPMENT FOR REUSE IN SITE RESTORATION (SEE DRAWING 4.0).
7. RESTORE TEMPORARY ACCESS ROUTES AND DISTURBED AREAS TO SIMILAR OR BETTER THAN PRE-WORK CONDITIONS.
8. RESTORE ALL DAMAGED OR DISTURBED STREAMBANKS TO A NATURAL SLOPE PATTERN AND PROFILE SUITABLE FOR ESTABLISHMENT OF PERMANENT WOODY VEGETATION. RESTORE DISTURBED AREAS OUTSIDE LIMITS OF ROADWAYS WITH NATIVE VEGETATION AT A DISTRIBUTION AND DENSITY THAT MATCHES PRE-PROJECT CONDITIONS. SEE REVEGETATION PLAN ON DRAWING 4.0. IMPLEMENT SHORT-TERM STABILIZATION MEASURES UNTIL PERMANENT EROSION CONTROL MEASURES (PLANT RESTORATION) ARE EFFECTIVE.

TABLE 1. ANTICIPATED FLOWS DURING IN-WATER WORK WINDOW

FLOW DURATION EXCEEDANCE PROBABILITY	JULY	AUGUST	SEPTEMBER	WEIGHTED AVERAGE FLOW DURING IWW	ANTICIPATED DAYS OF FLOW EXCEEDANCE IN A 31-DAY MONTH
	(cfs) / (GPM)	(cfs) / (GPM)	(cfs) / (GPM)	(cfs) / (GPM)	
95%	± 4 / 1690	± 2 / 1060	± 2 / 1020	± 3 / 1260	30
50%	± 9 / 4010	± 5 / 2130	± 4 / 1920	± 6 / 2690	16
25%	± 12 / 5590	± 6 / 2710	± 6 / 2510	± 8 / 3600	8
10%	± 17 / 7410	± 8 / 3390	± 9 / 3940	± 11 / 4910	4
5%	± 19 / 8710	± 9 / 3970	± 13 / 5800	± 14 / 6160	2

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BEST MANAGEMENT PRACTICES

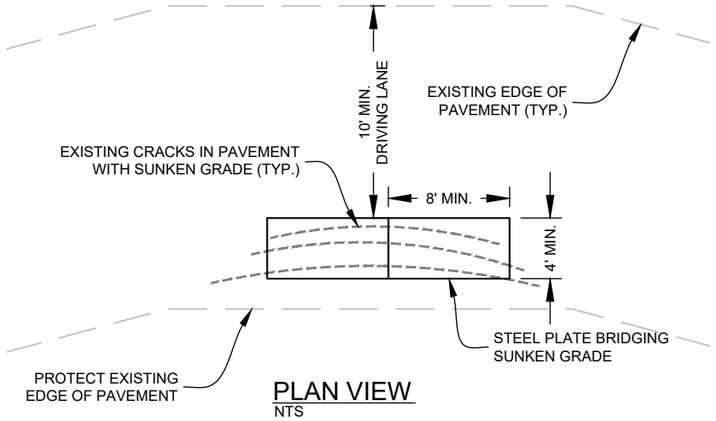
MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

NO.	DATE	BY	DESCRIPTION	CHK
0	6/15/23	MCK	FINAL DESIGN	SW

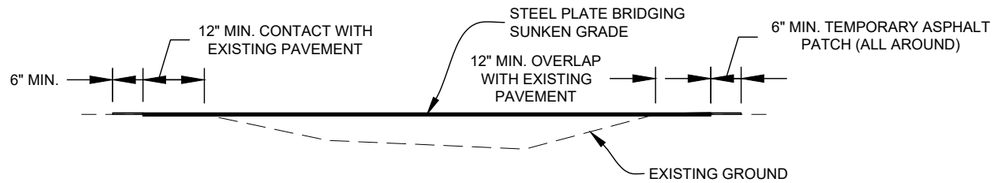
PROJECT NUMBER
RDG-22-274

DRAWING NUMBER
2.6

Drawing 13 of 21



PLAN VIEW
NTS

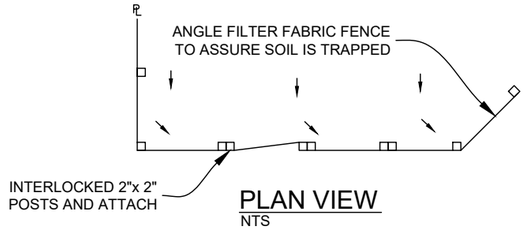


PROFILE
NTS

STEEL PLATE NOTES:

1. STEEL PLATES SHALL BE 1" MIN. THICK AND SUPPORT HS20 LOADING.
2. PLACE STEEL PLATES IN FIRM CONTACT WITH EXISTING PAVEMENT. DO NOT EXCAVATE OR GRIND EXISTING PAVEMENT.
3. SECURE STEEL PLATES WITH TEMPORARY ASPHALT PATCH AROUND ENTIRE EDGE OF PLATE.
4. REMOVE PLATE AND TEMPORARY ASPHALT PATCH AT COMPLETION OF CONSTRUCTION.

1 TEMPORARY STEEL PLATE



PLAN VIEW
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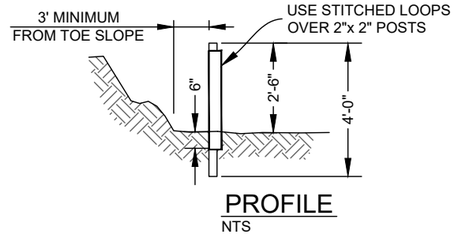

PROFILE
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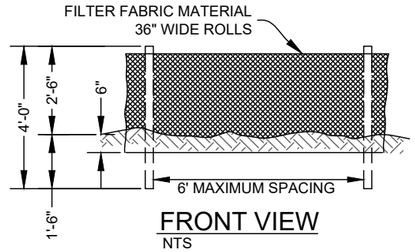


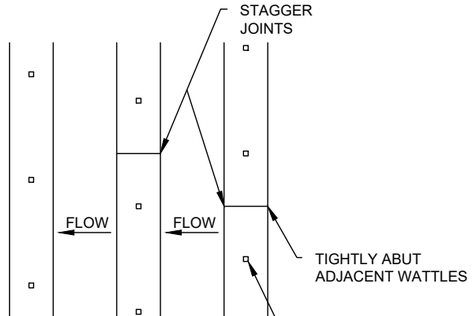
FRONT VIEW
NTS

NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
2. 2"x 2" FIR, PINE OR STEEL FENCE POSTS.
3. POSTS TO BE INSTALLED ON UPHILL SIDE OF SLOPE.
4. COMPACT BOTH SIDES OF FILTER FABRIC TRENCH.
5. PANELS MUST BE PLACED ACCORDING TO SPACING ON TABLE BELOW.

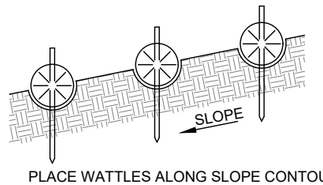
BARRIER SPACING FOR GENERAL APPLICATION

% SLOPE	SLOPE	MAX SPACING ON SLOPE
<10%	<10:1	300 ft
10-15%	10:1 to 7.5:1	150 ft
15-20%	7.5:1 to 5:1	100 ft
20-30%	5:1 to 3.5:1	50 ft
30-50%	3.5:1 to 2:1	25 ft

2 TYPICAL SILT FENCE INSTALLATION



PLAN VIEW
NTS



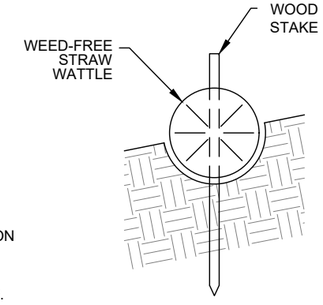
PLACE WATTLES ALONG SLOPE CONTOURS

PROFILE
NTS

STRAW WATTLE NOTES:
1. STAKING SPECIFICATIONS:
   A. 1"x2" WOODEN STAKES.
   B. ADDITIONAL STAKES MAY BE INSTALLED ON DOWNHILL SIDE OF WATTLES ON STEEP SLOPES OR HIGHLY EROSIVE SOILS.
2. SPACING IN ACCORDANCE WITH TABLE 3-12.

TABLE 3-12 BARRIER SPACING FOR GENERAL APPLICATION

% SLOPE	SLOPE	MAX SPACING ON SLOPE
<10%	<10:1	300 ft
10-15%	10:1 to 7.5:1	150 ft
15-20%	7.5:1 to 5:1	100 ft
20-30%	5:1 to 3.5:1	50 ft
30-50%	3.5:1 to 2:1	25 ft



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3 TYPICAL STRAW WATTLE INSTALLATION

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BMP DETAILS

MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

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0	6/15/23	MCK	FINAL DESIGN	SW

PROJECT NUMBER
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2.7

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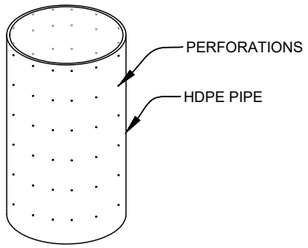
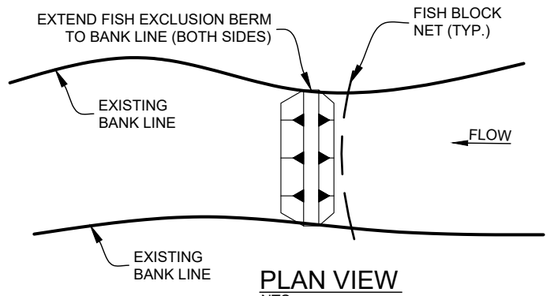


SUMPED PUMP NOTES

1. THE WATER PUMP SHALL BE A GASOLINE-ENGINE WATER PUMP CAPABLE OF PASSING SOLIDS UP TO 1-1/16 INCH DIAMETER. PUMP SUCTION INTAKE SHALL BE SCREENED WITH STRAINER. PLACE STRAINER IN "SUMP" CONSTRUCTED FROM PERFORATED HDPE PIPE.
2. INSTALL SUMP IN LOWEST PORTION OF DE-WATERED WORK AREA, AND GRADE WORK AREA TO DRAIN TO SUMP.
3. PUMP SCREEN MUST MEET NMFS STANDARDS IF FISH ARE IN THE WORK AREA.
4. SEE TABLE 1, DRAWING 2.6 FOR ANTICIPATED RIVER FLOWS.

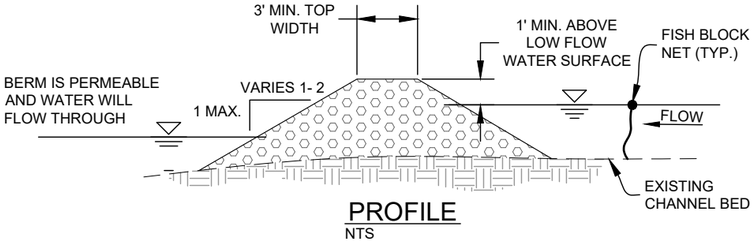
1 SUMPED INTAKE - TYPICAL



PLAN VIEW
NTS

NOTES:

1. FISH BLOCK NET WILL BE SUPPLIED AND INSTALLED BY ODFW STAFF.
2. CONTRACTOR SHALL CONSTRUCT FISH EXCLUSION BERM AFTER FISH SALVAGE IS COMPLETE WITHIN ISOLATED WORK AREA (SEE FISH SALVAGE NOTES ON DRAWING 2.6).
3. CONSTRUCT FISH EXCLUSION BERM WITH 4-INCH TEMPORARY BERM ROCK (SEE DRAWING 3.3).
4. INSPECT AND MAINTAIN FISH EXCLUSION BERM FOR THE DURATION OF IN-WATER WORK. REMOVE DEBRIS CLOGGING MATRIX.
5. NOTCH FISH EXCLUSION BERM TO DEVELOP A LOW-FLOW CHANNEL AS DIRECTED BY THE ENGINEER AT THE COMPLETION OF CONSTRUCTION.



PROFILE
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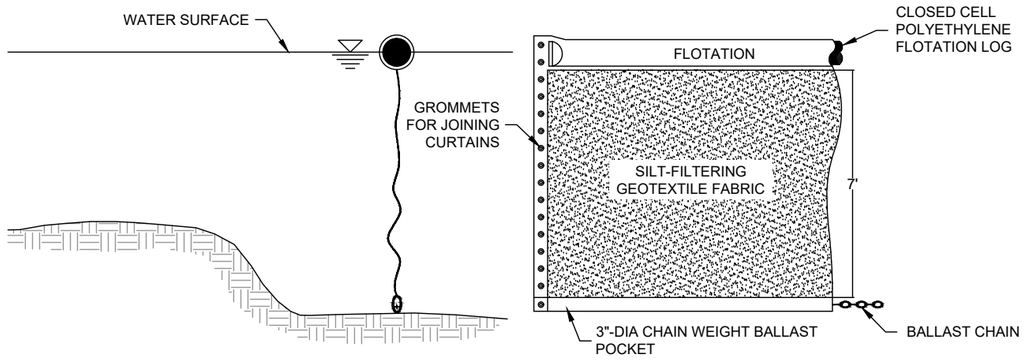
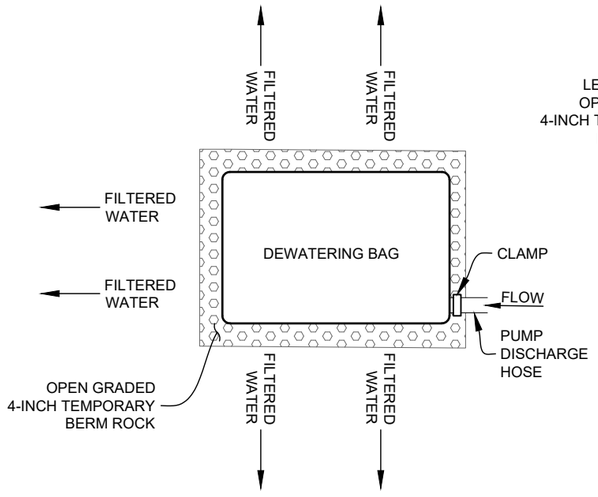
3 FISH EXCLUSION BERM

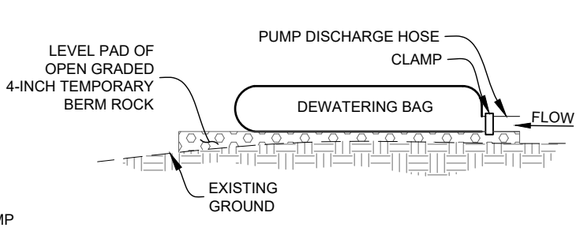


FLOATING SILT CURTAIN SHALL BE A "LAYFIELD FSC 13" OR APPROVED EQUAL. THE BODY OF THE FLOATING SILT CURTAIN IS MADE FROM A STRONG, HIGH-FILTRATION FABRIC THAT RETAINS FINE SILTS AND SEDIMENTS ON-SITE. THE FLOAT AND BOTTOM SLEEVE ARE CONSTRUCTED FROM A UV-STABLE, HIGH-STRENGTH POLYETHYLENE (I.E. RIPSTOP-TYPE MATERIAL). THE FLOATING SILT CURTAIN IS INCREASED IN LENGTH BY JOINING ADDITIONAL SECTIONS OF CURTAIN, WHICH TYPICALLY COMES IN 50' LENGTHS.

2 FLOATING SILT CURTAIN



PLAN VIEW
NTS



PROFILE
NTS

DEWATERING FILTRATION BAG SIZE	MAXIMUM FILTRATION CAPACITY (GPM)
4' X 6'	228
7.5' X 7.5'	534
10' X 10'	950
10' X 15'	1,425
15' X 15'	2,137
15' X 30'	4,275
15' X 65'	9,262

NOTES:

1. UNFOLD THE DEWATERING BAG ON A STABILIZED AREA OVER DENSE VEGETATION, STRAW, OR OTHER COVER.
2. PLACE BAG OVER OPEN GRADED 4-INCH TEMPORARY BERM ROCK TO ACHIEVE MAXIMUM FILTRATION AND DRAINAGE.
3. INSERT DISCHARGE HOSE INTO DEWATERING BAG A MINIMUM OF 6 INCHES AND TIGHTLY SECURE WITH CLAMP.
4. REPLACE UNIT WHEN FULL OF SEDIMENT OR WHEN THE SEDIMENT HAS REDUCED THE FLOW RATE OF THE PUMP DISCHARGE TO AN IMPRACTICAL RATE.
5. BAG MAY BE CUT IN PLACE AND ACCUMULATED SEDIMENT USED TO SUPPLEMENT PLANTING AREAS.
6. DISPOSE OF ALL UNIT COMPONENTS AT COMPLETION OF CONSTRUCTION.

4 DEWATERING BAG

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DOUGLAS COUNTY, OR

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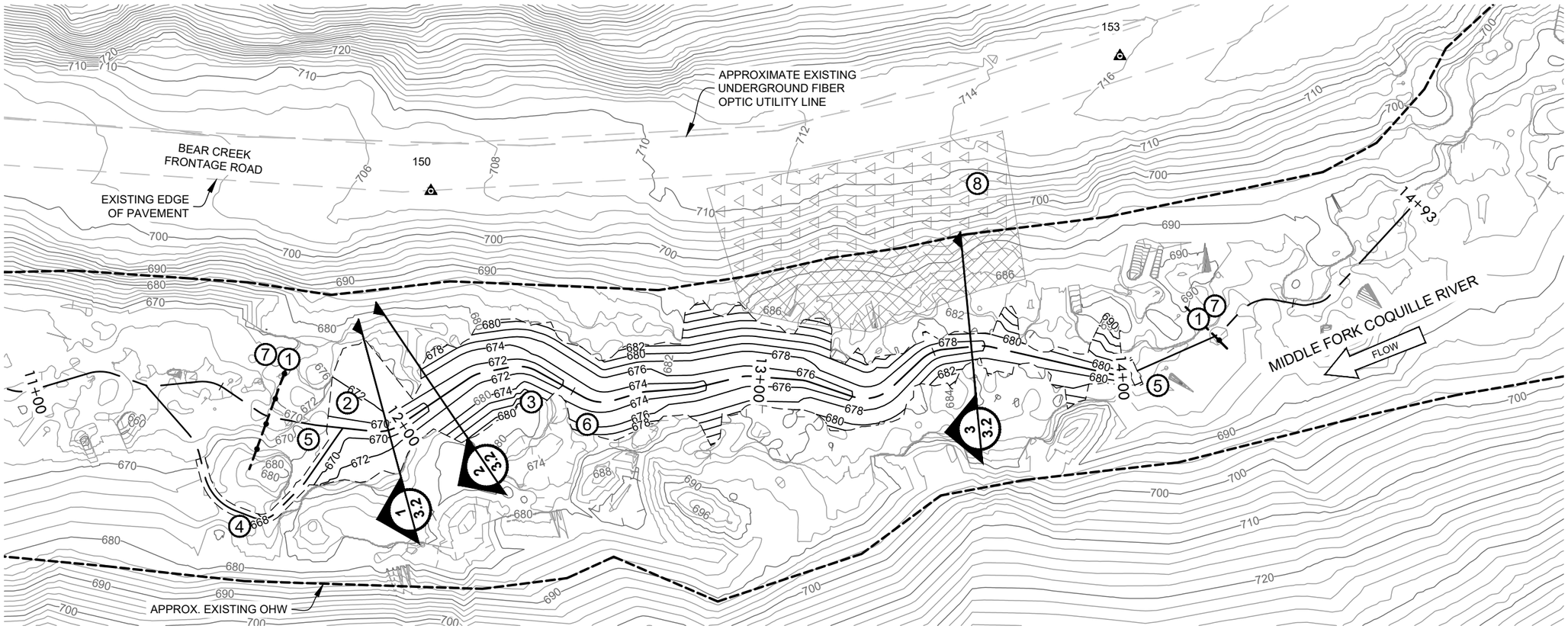
PROJECT NUMBER
RDG-22-274

DRAWING NUMBER
2.8



1 CHANNEL MODIFICATION PLAN

1" = 30'

GENERAL NOTES

1. MODIFIED CHANNEL WILL PROVIDE VOLITIONAL FISH PASSAGE IN MIDDLE FORK COQUILLE RIVER PAST LOCATION OF THE FALLS.
2. MODIFIED CHANNEL SHALL UTILIZE EXISTING BOULDERS FOR CHANNEL ROUGHNESS AND FILL IN SCOUR HOLE DOWNSTREAM OF FALLS.
3. CHANNEL BREAKLINES AND BOULDERS FOR MODIFICATION WILL BE MARKED IN THE FIELD BY THE ENGINEER.

CONSTRUCTION NOTES

1. INSTALL WORK AREA ISOLATION MEASURES PER BEST MANAGEMENT PRACTICES DRAWING 2.6.
2. CONDUCT FISH SALVAGE PER FISH SALVAGE NOTES ON DRAWING 2.6 AND CONSERVATION MEASURES (DRAWINGS 1.1 TO 1.4).
3. MODIFY EXISTING BOULDERS IN CHANNEL TO MEET DESIGN PROFILE (SEE DRAWING 3.1), SECTIONS (SEE DRAWING 3.2) AND GRADATION (SEE DRAWING 3.3). EXISTING BOULDERS MAY BE PLACED IN SCOUR HOLE DOWNSTREAM OF FALLS CREST (APPROX. STA. 11+70 TO STA. 12+10).
4. MODIFY EXISTING BOULDERS IN SOUTH BANK PASSAGE CHANNEL TO MEET DESIGN PROFILE (SEE DRAWING 3.1).
5. GRADE LOW-FLOW CHANNEL TRANSITIONS FROM MODIFIED CHANNEL TO EXISTING CHANNEL AS DIRECTED BY THE ENGINEER.
6. PLACE STREAMBED MATRIX (SEE DRAWING 3.3) IN AND AROUND MODIFIED BOULDERS TO SUPPORT SURFACE FLOW IN LOW-FLOW CHANNEL.
7. REMOVE FISH BLOCK NETS AFTER IN-WATER WORK IS COMPLETE. NOTCH LOW-FLOW CHANNEL IN FISH BLOCK BERM (SEE DRAWING 2.8).
8. REMOVE TEMPORARY CHANNEL ACCESS AND REVEGETATE (SEE DRAWING 4.0).

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CHANNEL MODIFICATION PLAN

MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

NO.	DATE	BY	DESCRIPTION	CHK
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PROJECT NUMBER
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DRAWING NUMBER
3.0

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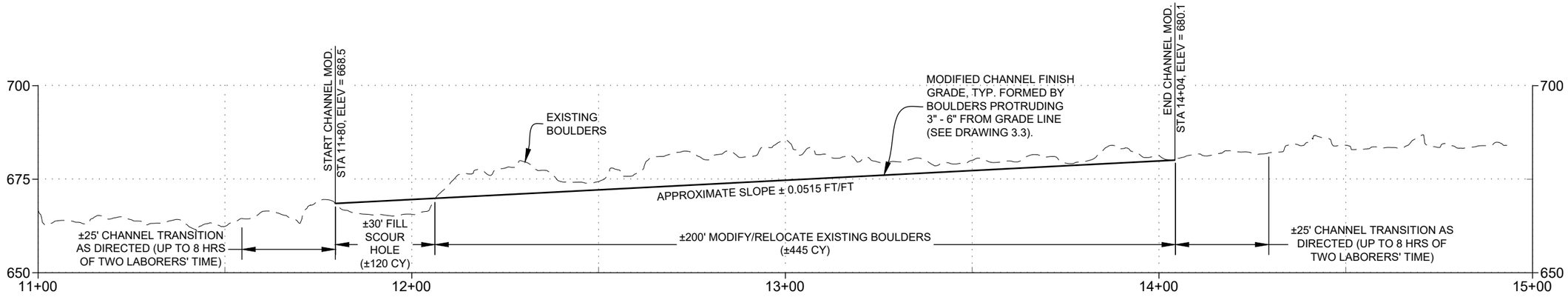
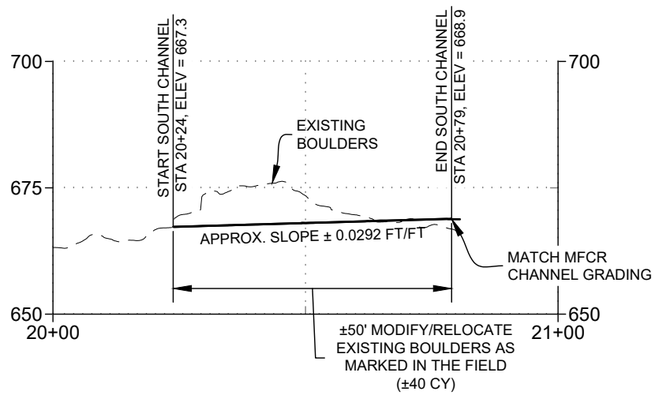


1 PROPOSED RIVER PROFILE

HORIZ 1" = 30'
VERT 1" = 30'



2 SOUTH BANK PASSAGE PROFILE

HORIZ 1" = 30'
VERT 1" = 30'

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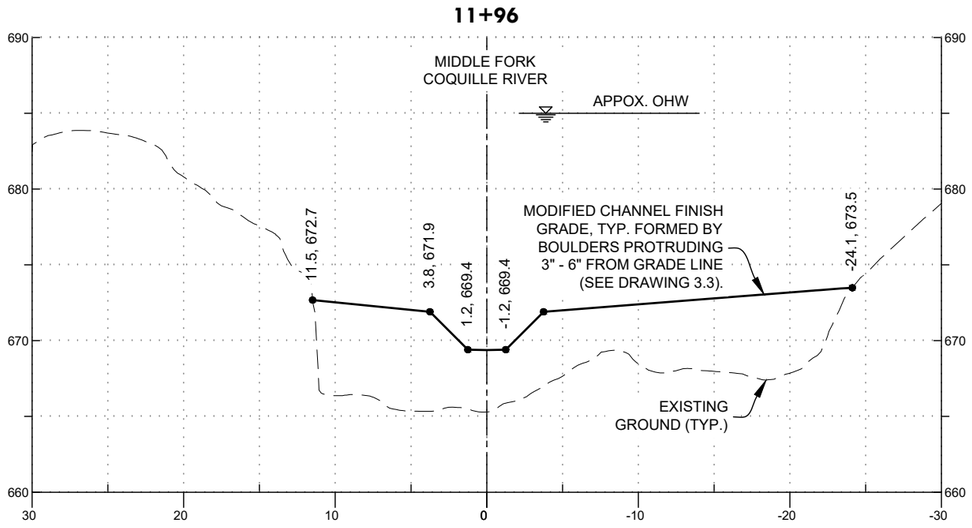
CHANNEL MODIFICATION PROFILES

MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

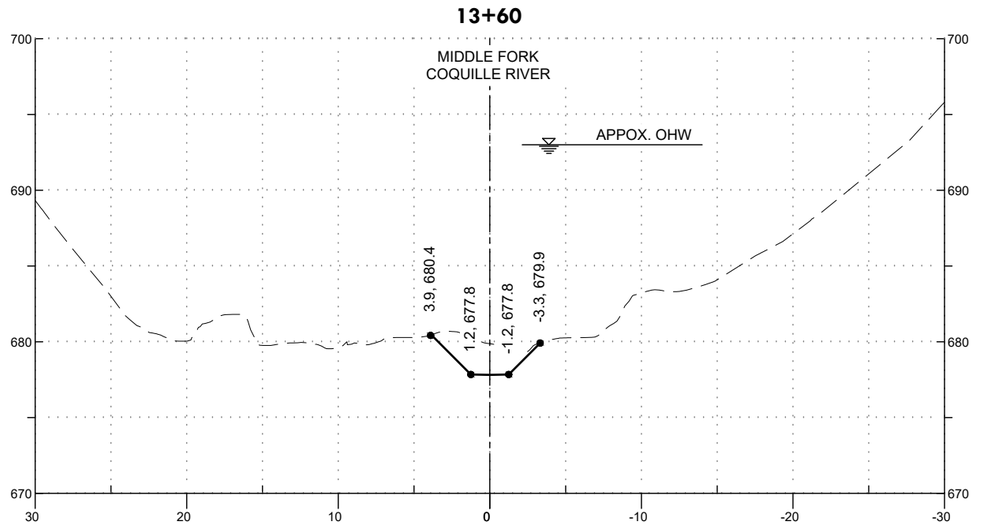
NO.	DATE	BY	DESCRIPTION	CHK
0	6/15/23	MCK	FINAL DESIGN	SW

PROJECT NUMBER
RDG-22-274

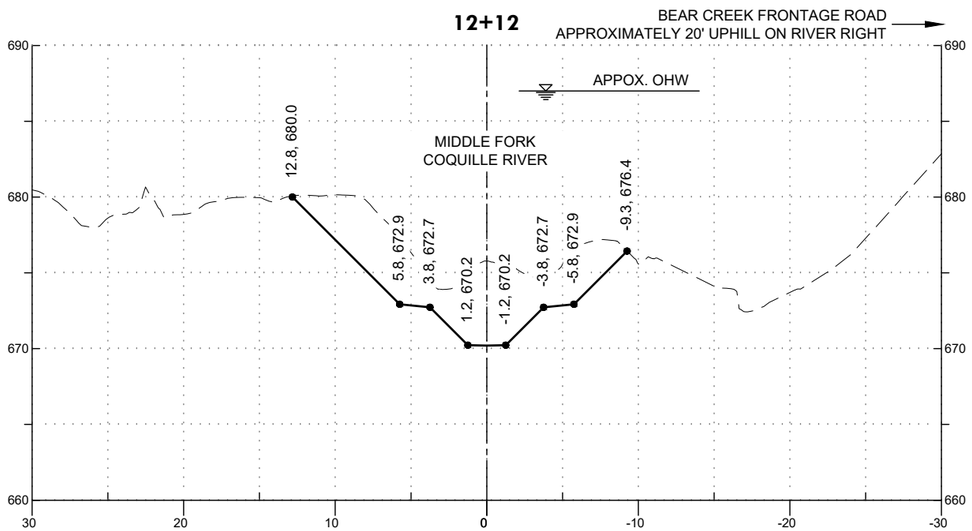
DRAWING NUMBER
3.1



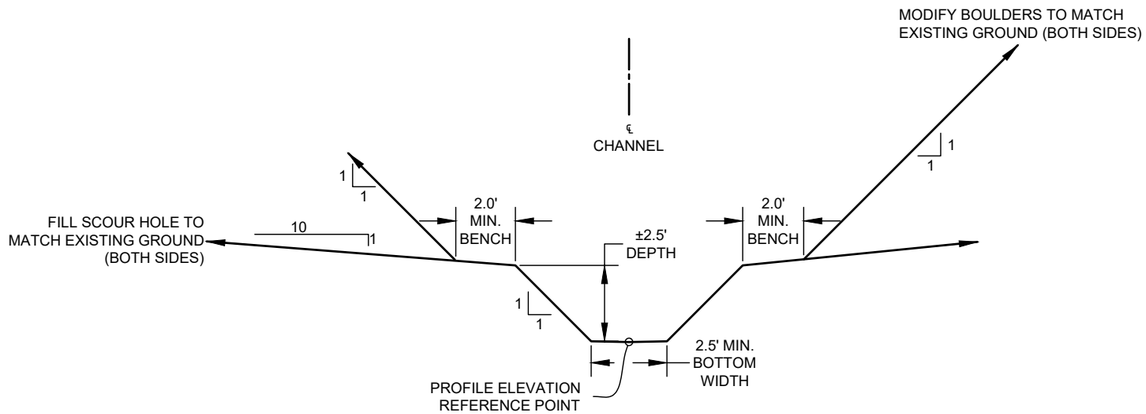
1 SECTION DOWNSTREAM OF FALLS
SECTION LOOKING DOWNSTREAM
HORIZ 1" = 10'
VERT 1" = 10'



2 SECTION UPSTREAM OF FALLS
SECTION LOOKING DOWNSTREAM
HORIZ 1" = 10'
VERT 1" = 10'



3 SECTION AT CREST OF FALLS
SECTION LOOKING DOWNSTREAM
HORIZ 1" = 10'
VERT 1" = 10'



4 TYPICAL CHANNEL SECTION
SECTION LOOKING DOWNSTREAM
HORIZ 1" = 5'
VERT 1" = 5'

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CHANNEL MODIFICATION SECTIONS

MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

NO.	DATE	BY	DESCRIPTION	CHK
0	6/15/23	MCK	FINAL DESIGN	SW

PROJECT NUMBER
RDG-22-274

DRAWING NUMBER
3.2

ESTIMATED QUANTITIES

MATERIAL	EST. VOLUME
SELECT GENERAL BACKFILL	± 30 CY
4-INCH TEMPORARY BERM ROCK	± 50 CY
TEMPORARY ACCESS ROCK	± 80 CY
ODOT RIPRAP, CLASS 100	± 30 CY
STREAMBED MATRIX ROCK	± 120 CY

*NOTE: ESTIMATED VOLUMES ARE "NEAT LINE" ESTIMATES

MATERIAL NOTES

1. ALL IMPORTED ROCK MATERIAL SHALL BE FREE OF INVASIVE SPECIES AND CERTIFIED WEED-FREE.
2. STREAMBED MATERIALS MAY NOT BE SOURCED FROM AREAS WITHIN ACTIVE CHANNELS AND MAY NOT BE CRUSHED ROCK.
3. ALL MATERIALS SHALL BE UNIFORMLY GRADED FROM THE SMALLEST TO LARGEST PARTICLE SIZE SPECIFIED.

SELECT GENERAL BACKFILL GRADATION

PERCENT PASSING BY WEIGHT	AVERAGE PARTICLE SIZE (INCHES)
100	3
50 - 90	1
35 MAX.	0.003 (NO. 200)
SELECT GENERAL BACKFILL SHALL BE WELL-GRADED COMPACTABLE MATERIAL CONTAINING NO PARTICLE WITH ANY DIMENSION GREATER THAN 3 INCHES.	

STREAMBED MATRIX ROCK GRADATION

PERCENT PASSING BY WEIGHT	AVERAGE PARTICLE SIZE (INCHES)
100	2.5
50 - 90	2
20 - 50	1.5
0 - 20	1
STREAMBED MATRIX ROCK SHALL BE CLEAN, DURABLE, OPEN-GRADED ROUNDED AGGREGATE.	

4-INCH TEMPORARY BERM ROCK GRADATION

PERCENT PASSING BY WEIGHT	AVERAGE PARTICLE SIZE (INCHES)
100	4
50 - 90	3.75
0 - 50	3.5
4-INCH TEMPORARY BERM ROCK SHALL BE CLEAN, DURABLE, OPEN-GRADED SUBANGULAR AGGREGATE.	

TEMPORARY ACCESS ROCK GRADATION

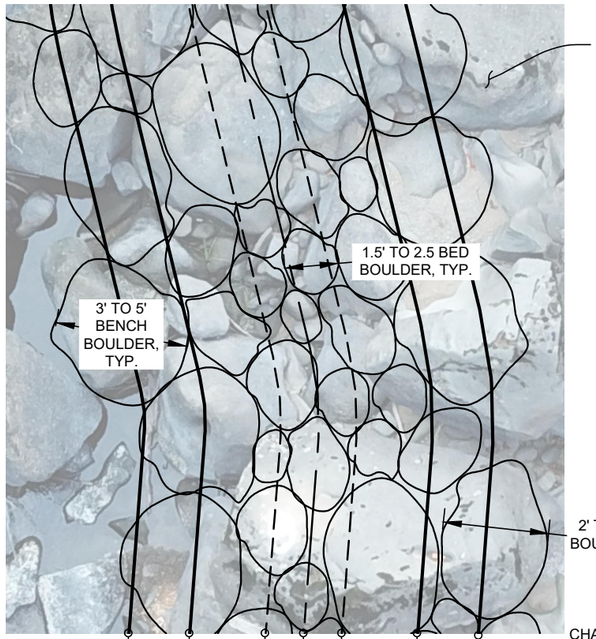
PERCENT PASSING BY WEIGHT	AVERAGE PARTICLE SIZE (INCHES)
100	6
60 - 90	4
40 - 70	3
20 - 50	2
0 - 20	1
2 MAX.	0.2
TEMPORARY ACCESS ROCK SHALL BE CLEAN, DURABLE, OPEN-GRADED SUBANGULAR TO SUBROUNDED AGGREGATE.	

RIPRAP, CLASS 100 GRADATION

PERCENT (BY WEIGHT)	WEIGHT OF ROCK (LB)
20	100 - 60
30	60 - 25
40	25 - 2
10 - 0	2 - 0
RIPRAP SHALL BE HARD, ANGULAR, AND DURABLE ROCK WITHOUT ORGANIC MATTER, SHALE, OR SEAMS.	

BOULDER GRADATION

CHANNEL LOCATION	DIAMETER RANGE (FT)
BED	1.5 TO 2.5
BANKS	2 TO 3
BENCH	3 TO 5
CUT SLOPE	4 TO > 6
BOULDERS SHALL BE MODIFIED FROM EXISTING BOULDERS TO BE SUBANGULAR TO SUBROUNDED.	



1 TYPICAL STREAMBED SECTION
SECTION LOOKING DOWNSTREAM
HORIZ 1" = 5'
VERT 1" = 5'

STREAMBED NOTES

1. THE MODIFIED CHANNEL STREAMBED WILL PROVIDE A DISCRETE THALWEG CHANNEL FOR FISH PASSAGE AT ALL FLOWS WITH DEFINED THALWEG, BANKS AND BENCHES. THE MODIFIED CHANNEL STREAMBED WILL BE HYDRAULICALLY COMPLEX WITH MULTIPLE BOULDERS PROTRUDING FROM THE BED AND BANKS TO PROVIDE LOW-VELOCITY REFUGIA.
2. MODIFY OR RELOCATE EXISTING BOULDERS TO MEET DESIGN PROFILE GRADE (DRAWING 3.1) AND TYPICAL SECTION (DRAWING 3.2), TOLERANCE ±0.25'. MANIPULATE ROCKS TO MAXIMUM SIZE AT APPROXIMATE GRADE AND AND THALWEG WITH BOULDERS PROTRUDING 3" - 6" FROM FINISH GRADE LINE.
3. PLACE BOULDERS IN FIRM CONTACT WITH ADJACENT BOULDERS (MINIMUM THREE POINTS OF CONTACT).
4. PLACE EXCESS BOULDERS IN RANDOM DISTRIBUTION ON SOUTH (LEFT) CHANNEL OUTSIDE OF BANK LINES MARKED IN THE FIELD.
5. PLACE STREAMBED MATRIX ROCK BETWEEN BANKS OF MODIFIED CHANNEL STREAMBED AND WASH INTO STREAMBED TO FILL VOIDS BETWEEN BOULDERS.

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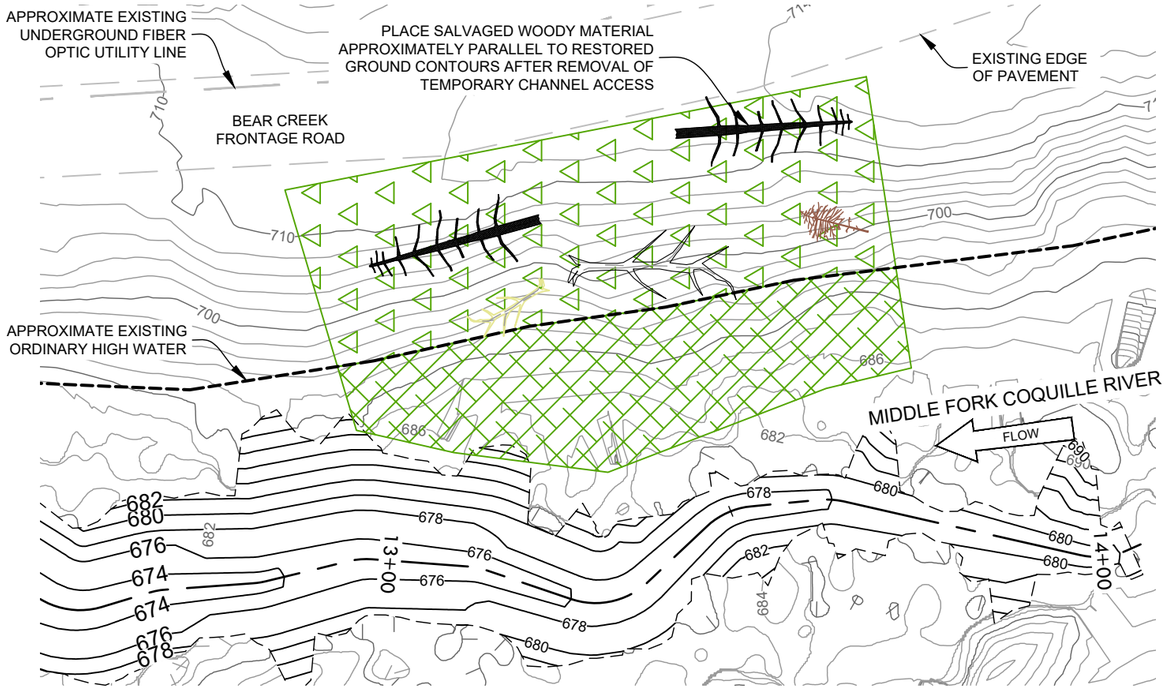
STREAMBED DETAILS

MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

NO.	DATE	BY	DESCRIPTION	CHK
0	6/15/23	MCK	FINAL DESIGN	SW

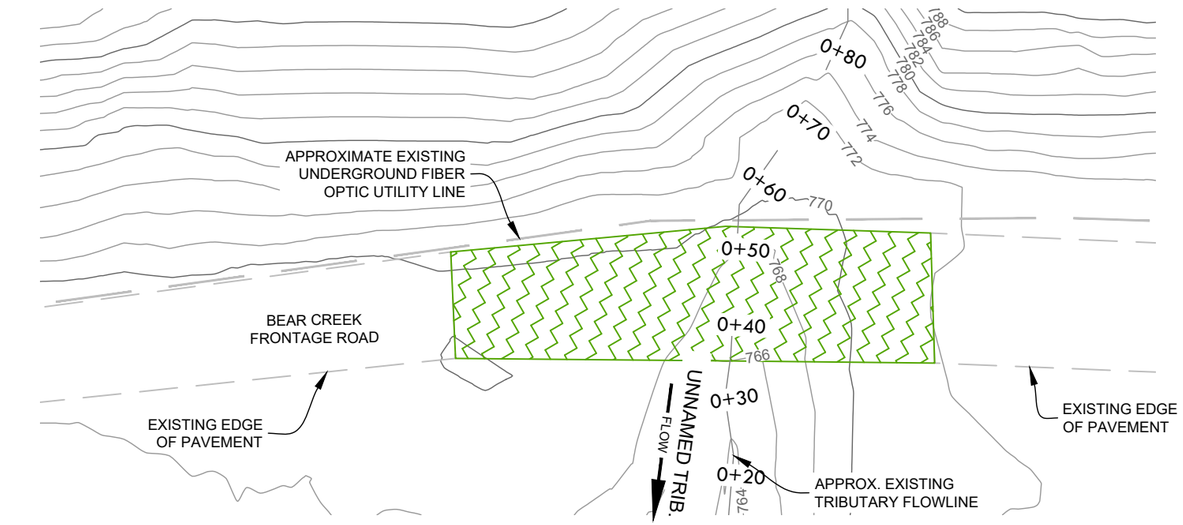
PROJECT NUMBER
RDG-22-274

DRAWING NUMBER
3.3



1 FALLS REVEGETATION PLAN

1" = 20'



2 TRIBUTARY REVEGETATION PLAN

1" = 20'

FALLS PLANTING SCHEDULE

ZONE	COMMON NAME	GENUS AND SPECIES	MIN. ON-CENTER SPACING (FT)	SIZE	QUANTITY
UPLAND (±1,870 SF)	DOUGLAS FIR	*PSEUDOTSUGA MENZIESII*	40	5 GALLON	2
	BIG LEAF MAPLE	*ACER MACROPHYLUM*	40	5 GALLON	2
	NOOTKA ROSE	*ROSA NUTKANA*	10	1 GALLON	8
	STINK CURRANT	*RIBES BRACETOSUM*	5	1 GALLON	15
RIPARIAN (±1,180 SF)	RED ALDER	*ALNUS RUBRA*	15	TALL 1 GALLON	4
	SITKA WILLOW	*SALIX SITCHENSIS*	10	LIVE STAKE	12
	VINE MAPLE	*ACER CIRCINATUM*	10	1 GALLON	2
	BLUE ELDERBERRY	*SAMBUCUS CAERULEA*	5	1 GALLON	5
TOPSOIL, EROSION CONTROL SEEDING, AND WEED-FREE STRAW MULCH (SEE REVEGETATION NOTES, DRAWING 4.1).				**TOTAL**	**50**
				SUBTOTAL TREES	20
				SUBTOTAL SHRUBS	30

TRIBUTARY PLANTING SCHEDULE

ZONE	COMMON NAME	GENUS AND SPECIES	MIN. ON-CENTER SPACING (FT)	SIZE	QUANTITY
RIPARIAN (±1,050 SF)	RED ALDER	*ALNUS RUBRA*	20	TALL 1 GALLON	2
	BIG LEAF MAPLE	*ACER MACROPHYLUM*	30	5 GALLON	2
	NOOTKA ROSE	*ROSA NUTKANA*	10	1 GALLON	2
	COYOTE BUSH	*BACCHARIS PILULARIS*	5	1 GALLON	5
	STINK CURRANT	*RIBES BRACETOSUM*	5	1 GALLON	5
TOPSOIL, EROSION CONTROL SEEDING, AND WEED-FREE STRAW MULCH (SEE REVEGETATION NOTES, DRAWING 4.1).				**TOTAL**	**16**
				SUBTOTAL TREES	4
				SUBTOTAL SHRUBS	12

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REVEGETATION PLAN

MIDDLE FORK COQUILLE RIVER FISH PASSAGE
DOUGLAS COUNTY, OR

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PROJECT NUMBER
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4.0

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REVEGETATION NOTES

1. STOCKPILE ALL WOODY MATERIAL, NATIVE VEGETATION, TOPSOIL, AND NATURAL RIVER MATERIAL DISPLACED DURING CONSTRUCTION AND USE FOR SITE RESTORATION. THE STOCKPILED MATERIALS SHALL BE INCORPORATED INTO COVER OF DISTURBED AREAS TO RESTORE THE SITE TO NATURAL CONDITIONS WHILE MINIMIZING THE POTENTIAL FOR EROSION.

2. **ALL DISTURBED AREAS OUTSIDE OF THE EXISTING PAVEMENT LIMITS SHALL BE BROADCAST SEEDED WITH A TEMPORARY "EROSION CONTROL" SEED MIX AND COVERED WITH STERILE STRAW.**
   - 2.1. THE EROSION CONTROL SEED MIX SHALL BE A NATIVE SEED MIX CONSISTING OF RED FESCUE, BLUE WILDRYE AND STERILE CEREAL RYES. BLM MAY BE ABLE TO PROVIDE THE EROSION CONTROL SEED MIX.
   - 2.2. THE SEED MIX SHALL BE APPLIED AT A RATE OF 30 POUNDS PER ACRE AND RAKED ONE-QUARTER INCH INTO THE SOIL AND COMPACTED WITH A 5,000 POUND OR LESS TRACKED VEHICLE AND
   - 2.3. STERILE STRAW MULCH SHALL BE APPLIED OVER SEEDED AREAS AT A RATE OF 2 TONS PER ACRE OR APPROXIMATELY 1-2 INCHES THICK.

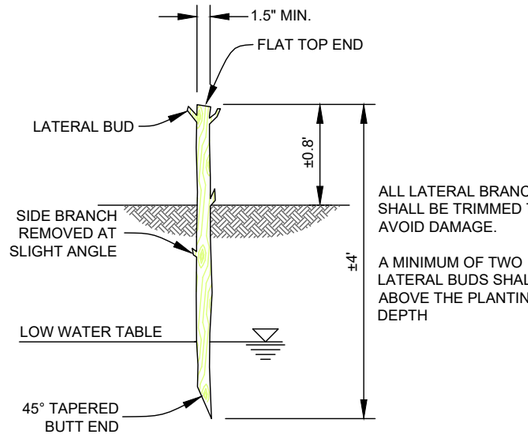
3. ALL PLANT MATERIAL MUST BE CLASSIFIED AS NATIVE FROM THIS REGION AND NON-CLONAL IN ORIGIN. ALL NATIVE PLANT MATERIAL TO BE USED IN PLANTING AREAS SHALL ORIGINATE FROM PARENT SOURCES WITHIN 50 MILES OF SITE. SEED SOURCE MUST BE AS LOCAL AS POSSIBLE.

4. INSTALL TREE AND SHRUB SPECIES IN RANDOM GROUPINGS, AVOIDING LINEAR ROWS OR AS DIRECTED IN FIELD, WITHIN CLOSE PROXIMITY OF EXISTING PLANTINGS OR NEWLY PLANTED MATERIAL. THE INTENT IS TO REPLICATE NATURAL PLANT COMMUNITIES BY PROVIDING A LAYERED UNDERSTORY CANOPY WITH A MIXTURE OF TREES.

5. **THE PLANTING AND SEEDING AREA IS TO COVERED WITH TOPSOIL. IF THIS TOPSOIL IS DEEMED BY PROJECT ENGINEER TO BE INADEQUATE, IMPORTED MATERIAL SHALL BE USED TO POCKET PLANT THE PLANTS.**

6. THOROUGHLY WATER ALL PLANTS IMMEDIATELY FOLLOWING INSTALLATION TO PROVIDE MAXIMUM SOIL CONTACT AND TO ELIMINATE AIR POCKETS. **AFTER PLANTING EACH PLANT, PROVIDE A TWO (2) INCH LAYER OF MULCH AROUND DISTURBED AREA.**

7. NO PESTICIDES, INCLUDING HERBICIDE, WILL BE ALLOWED WITHIN 150 FT OF THE WATER. MECHANICAL, HAND, OR OTHER METHODS MAY BE USED TO CONTROL WEEDS AND UNWANTED VEGETATION. FERTILIZER APPLICATION WITHIN 50 FT OF THE WATER IS NOT ALLOWED.

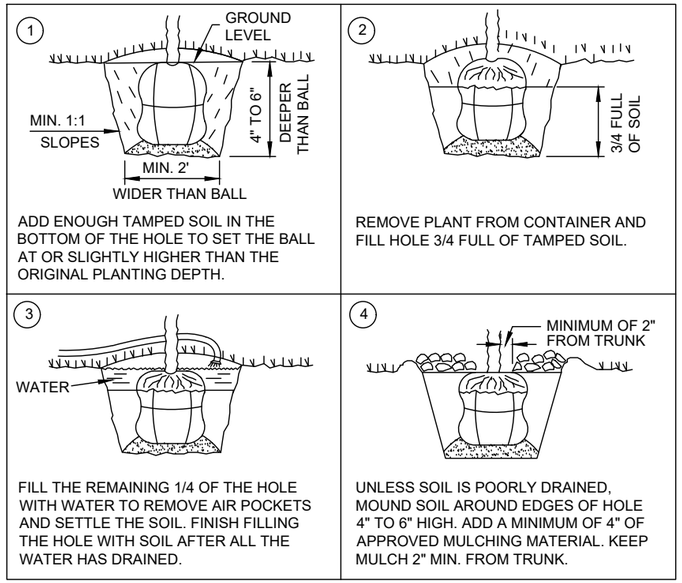


1 LIVE STAKING DETAIL

NOT TO SCALE

LIVE STAKE PLANTING NOTES:

1. HARVEST STAKES FROM MFCR CHANNEL UPSTREAM OF FALLS.
2. LIVE STAKES SHALL HAVE MINIMUM DIAMETER OF 1.5" AND MINIMUM LENGTH 4'. THE STAKES SHALL BE CUT FROM NEARBY PLANTS IF POSSIBLE, OR LOCAL 'ECOTYPES'. STAKES SHALL HAVE SIDE BRANCHES CLEANLY REMOVED WITH BARK INTACT, BASAL ENDS CUT AT AN ANGLE AND TOPS CUT SQUARE.
3. STAKES SHALL BE CUT AND INSTALLED ON THE SAME DAY.
4. STAKES SHALL BE INSTALLED WHILE IN THE DORMANT STAGE, NOVEMBER 1 TO FEBRUARY 15, UNLESS IRRIGATION IS PROVIDED.
5. STAKES SHALL BE INSTALLED WITH 80% OF THE STAKE LENGTH INSTALLED INTO THE GROUND WITH FIRM SOIL IN CONTACT WITH THE WILLOW STAKE. A PIECE OF REBAR SHALL BE USED AS A PILOT HOLE FOR THE STAKE.
6. TAMP STAKES INTO GROUND WITH A DEAD BLOW HAMMER (HAMMER HEAD FILLED WITH SHOT OR SAND).
7. ALTERNATE INSTALLATION PROCEDURES MAY BE USED UPON CONSULTATION WITH PROJECT ENGINEER.
8. REFER TO NATURAL RESOURCES CONSERVATION SERVICE TECHNICAL NOTE 38, "SUGGESTIONS FOR I INSTALLING HARDWOOD CUTTINGS (SLIPS, WHIPS, LIVE STAKES, POLES, POSTS) AND LIVE FASCINES (PACIFIC NORTHWEST REGION, WEST OF CASCADES)" FOR ADDITIONAL LIVE STAKE GUIDANCE.



2 CONTAINER PLANTING DETAIL

NOT TO SCALE

CONTAINER PLANTING NOTES:

1. CONTAINER PLANTS SHALL BE OF THE SIZE SPECIFIED IN THE PLANTING SCHEDULE (SEE DRAWING 4.0).
2. MINIMIZE THE TIME BETWEEN DELIVERY OF PLANTS AND INSTALLATION.
3. INSTALL CONTAINER PLANTS PER DETAIL 2 AND ON-CENTER SPACING PER PLANTING SCHEDULE.
4. ALTERNATE INSTALLATION PROCEDURES MAY BE USED UPON CONSULTATION WITH PROJECT ENGINEER.

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