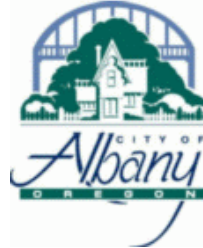


# COX CREEK DAM REMOVAL AND FISH PASSAGE IMPROVEMENT

## PROJECT PARTNERS



## PROPERTY OWNER AND SITE LOCATION

OWNER:  
ATI WAH CHANG (CONTACT DOUG PENNINGTON)  
1600 NE OLD SALEM ROAD  
ALBANY, OREGON 97321

SITE LOCATION:  
310 WAVERLY DRIVER NE  
ALBANY, OREGON 97321

## PROJECT DESCRIPTION

THE CALAPOOIA WATERSHED COUNCIL IS PARTNERING WITH ATI WAH CHANG AND THE CITY OF ALBANY TO REMOVE A LOW HEAD CONCRETE DAM FROM COX CREEK, A TRIBUTARY TO THE WILLAMETTE RIVER NEAR ALBANY, OREGON. ORIGINALLY CONSTRUCTED TO PROVIDE A WATER SOURCE FOR A MEAT PACKING PLANT THAT FORMERLY OCCUPIED THE ATI WAH CHANG PROPERTY, THE DAM IS NO LONGER IN USE. THE DAM IS A FISH PASSAGE BARRIER POTENTIALLY IMPACTING RESIDENT AND MIGRATORY FISH SPECIES INHABITING THE ALBANY REACH OF THE WILLAMETTE RIVER. THE DAM REMOVAL IN CONJUNCTION WITH A RIPARIAN RESTORATION PROJECT AT THE COX CREEK - WILLAMETTE RIVER CONFLUENCE, AND OTHER RIVER CORRIDOR RESTORATION EFFORTS THAT ARE CURRENTLY UNDERWAY THROUGH THE ALBANY REACH, ARE EXPECTED TO IMPROVE OFF-CHANNEL AND RIPARIAN HABITAT AVAILABILITY AND QUALITY. THE DAM REMOVAL WILL ALSO RESTORE MORE NATURAL CHANNEL PROCESSES INCLUDING SEDIMENT AND DEBRIS CONTINUITY, NATIVE VEGETATION RECRUITMENT, AND INSTREAM HABITAT CREATION.

## SPATIAL REFERENCE

SURVEY CONTROL USED FOR THE PROJECT IS PROVIDED ON DRAWING 2.0 AND COORDINATES CORRESPOND TO THE TOP CENTER OF CONTROL MARKERS.

LIDAR AND FIELD DATA:  
HORIZONTAL PROJECTION: OREGON STATE PLAN NORTH  
HORIZ DATUM: NAD83 UNITS: US SURVEY FEET  
VERT DATUM: NAVD88 (GEOID 09) UNITS: US SURVEY FEET

BENCHMARK:  
ELEVATIONS FOR THIS SURVEY ARE BASED ON A ALUMINUM CAP LOCATED ALONG A WALKING TRAIL WITHIN THE CITY OF ALBANY TALKING WATER GARDEN APPROXIMATELY 300' EAST OF WAVERLY DRIVE AND 200' NORTH OF COX CREEK. ALUMINUM CAP IS STAMPED "RDG HYDRO" PER RIVER DESIGN GROUP, BENCHMARK ELEVATION IS 211.95 (NAVD88).

## PROJECT PERMITTING

JOINT REMOVAL/FILL PERMIT: US ARMY CORPS / OREGON DEPARTMENT OF STATE LANDS

OREGON DEPARTMENT OF FISH AND WILDLIFE - FISH PASSAGE AND SCREENING PROGRAM REVIEW/APPROVAL

STATE HISTORIC PRESERVATION OFFICE (SHPO), SECTION 106

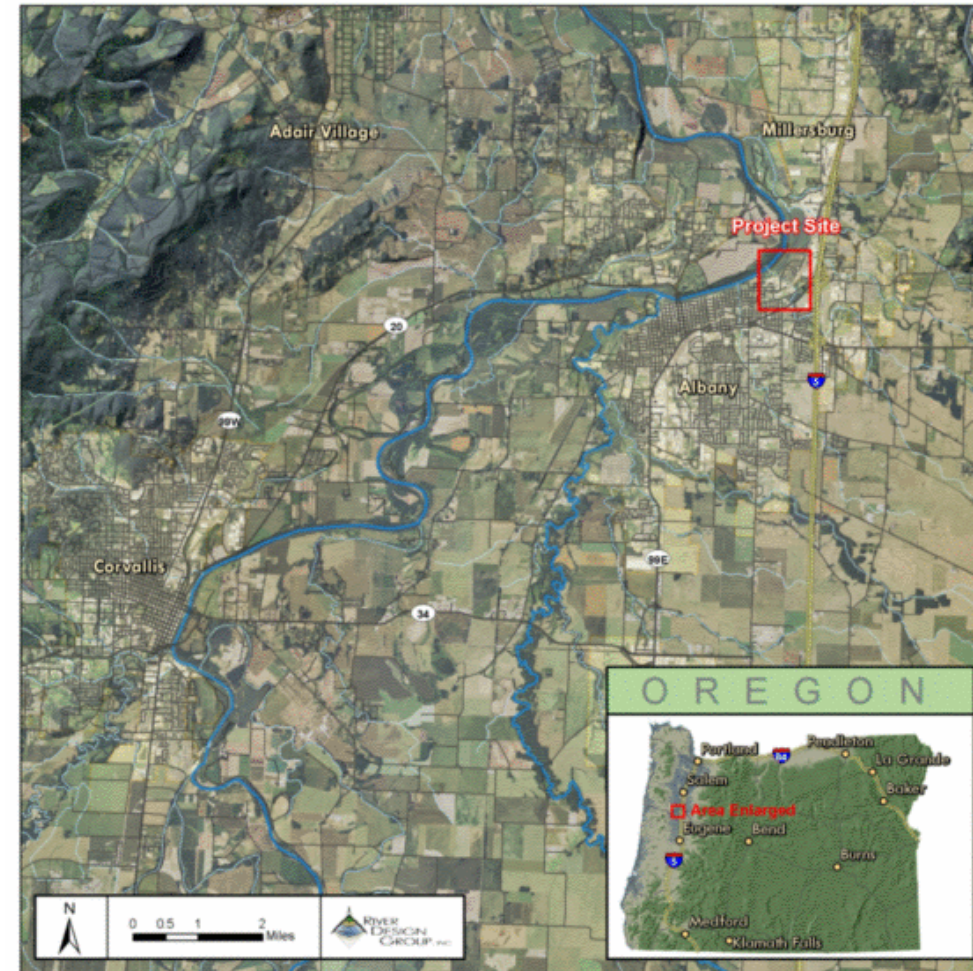
## DRAWING INDEX

1.0	COVER PAGE AND NOTES
2.0	EXISTING CONDITIONS
3.0	DAM REMOVAL AND FISH PASSAGE
4.0	ENGINEERED RIFFLE
5.0	SITE ACCESS AND STAGING
5.1	WORK AREA ISOLATION AND EROSION CONTROL NOTES

## REUSE OF DRAWINGS

THESE DRAWINGS, THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF RIVER DESIGN GROUP, INC. (RDG) AND ARE NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF RDG. LIKEWISE, THESE DRAWINGS MAY NOT BE ALTERED OR MODIFIED WITHOUT AUTHORIZATION OF RDG. DRAWING DUPLICATION IS ALLOWED IF THE ORIGINAL CONTENT IS NOT MODIFIED.

## PROJECT VICINITY MAP



**TAX LOT 300 (TAX MAP 11S 3W 5DA) CITY OF ALBANY, LINN COUNTY, OREGON (6.95 ACRES)  
SE 1/4 OF THE NE 1/4 OF SECTION 05, T.11S., R.03W., WILLAMETTE MERIDIAN  
LINN COUNTY, OREGON  
USGS QUADRANGLE: ALBANY, OR**

LEGEND	
	SURVEY BENCHMARKS
	PROJECT CENTERLINE
	EXISTING SIDEWALK
	EXISTING MANHOLE
	EXISTING SANITARY LINE
	EXISTING RETIRED SANITARY LINE
	EXISTING UTILITY EASEMENT
	EXISTING ELECTRICAL FENCE
	EXISTING ORDINARY HIGH WATER (OHW)
	EXISTING GROUND CONTOUR (1')
	PROPOSED GROUND CONTOUR (5')
	PROPOSED GROUND CONTOUR (1')
	PROPOSED GROUND CONTOUR (5')
	FLOATING SILT CURTAIN
	FISH BLOCK NET

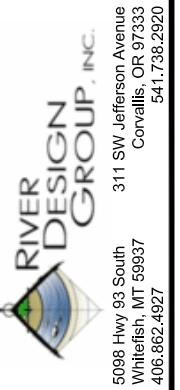
## ENGINEER OF RECORD



## COVER PAGE AND NOTES

COX CREEK DAM REMOVAL

ALBANY, OR



NO.	DATE	BY	DESCRIPTION	CHK
0	04/03/13	RTB	ISSUED FOR BID	SW

PROJECT NUMBER  
RDG-12-005

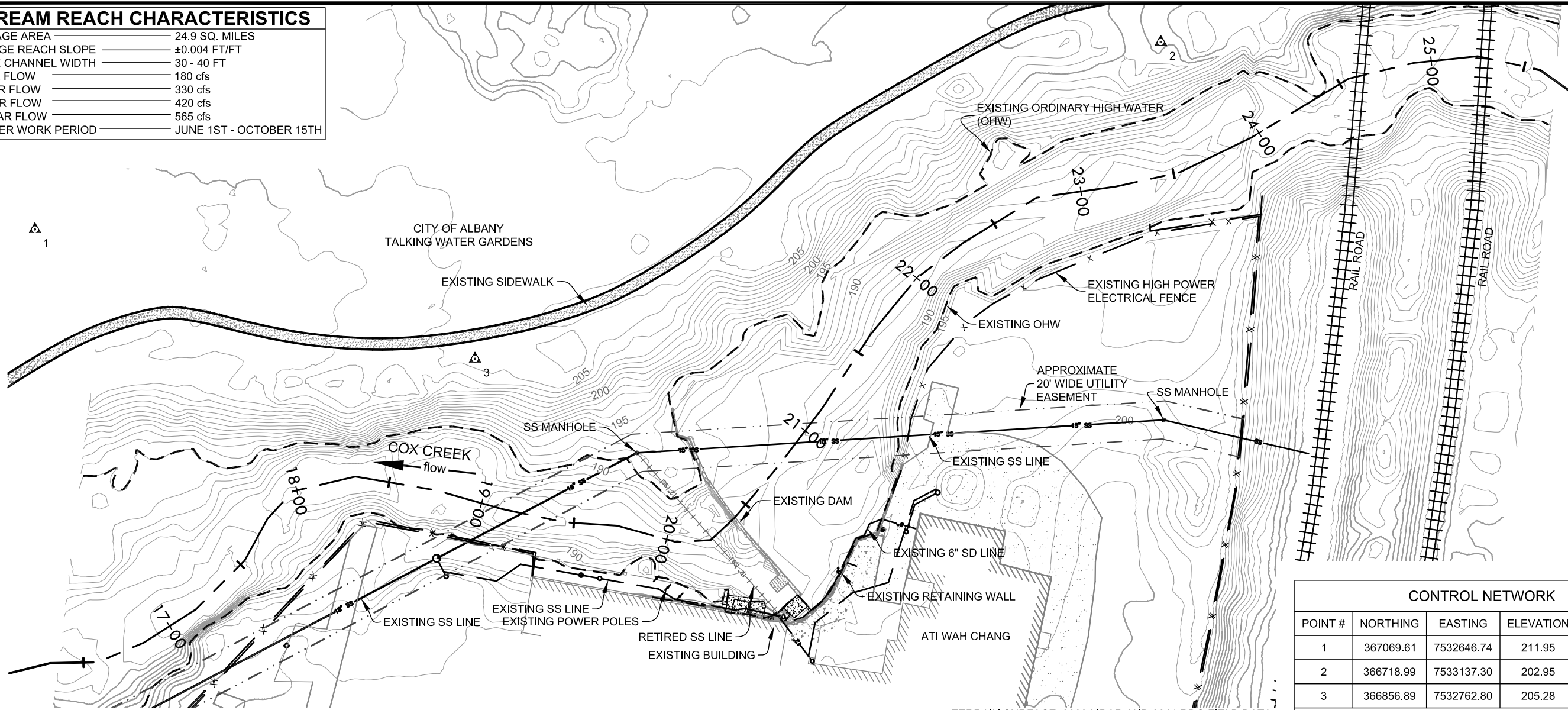
DRAWING NUMBER

1.0

Drawing 1 of 6

**STREAM REACH CHARACTERISTICS**

DRAINAGE AREA	24.9 SQ. MILES
AVERAGE REACH SLOPE	±0.004 FT/FT
ACTIVE CHANNEL WIDTH	30 - 40 FT
2-YEAR FLOW	180 cfs
10-YEAR FLOW	330 cfs
25-YEAR FLOW	420 cfs
100-YEAR FLOW	565 cfs
IN WATER WORK PERIOD	JUNE 1ST - OCTOBER 15TH

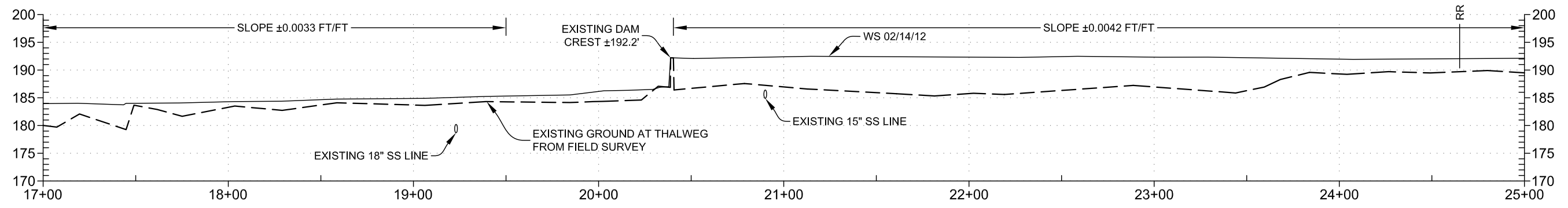


**1 EXISTING SITE LAYOUT**  
1" = 60'

CONTROL NETWORK				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	367069.61	7532646.74	211.95	SET IR W/ CAP
2	366718.99	7533137.30	202.95	SET IR W/ CAP
3	366856.89	7532762.80	205.28	SET IR W/ CAP

NOTE:  
INFORMATION IS NOT A LAND SURVEY AND IS PRIMARILY A TOPOGRAPHIC ANALYSIS FOR RESTORATION DESIGN PURPOSES

COORDINATE SYSTEM: OREGON STATE PLANE NORTH  
HORIZ DATUM: NAD83  
VERT DATUM: NAVD88 (GEOID 09)  
UNITS: U.S. SURVEY FEET



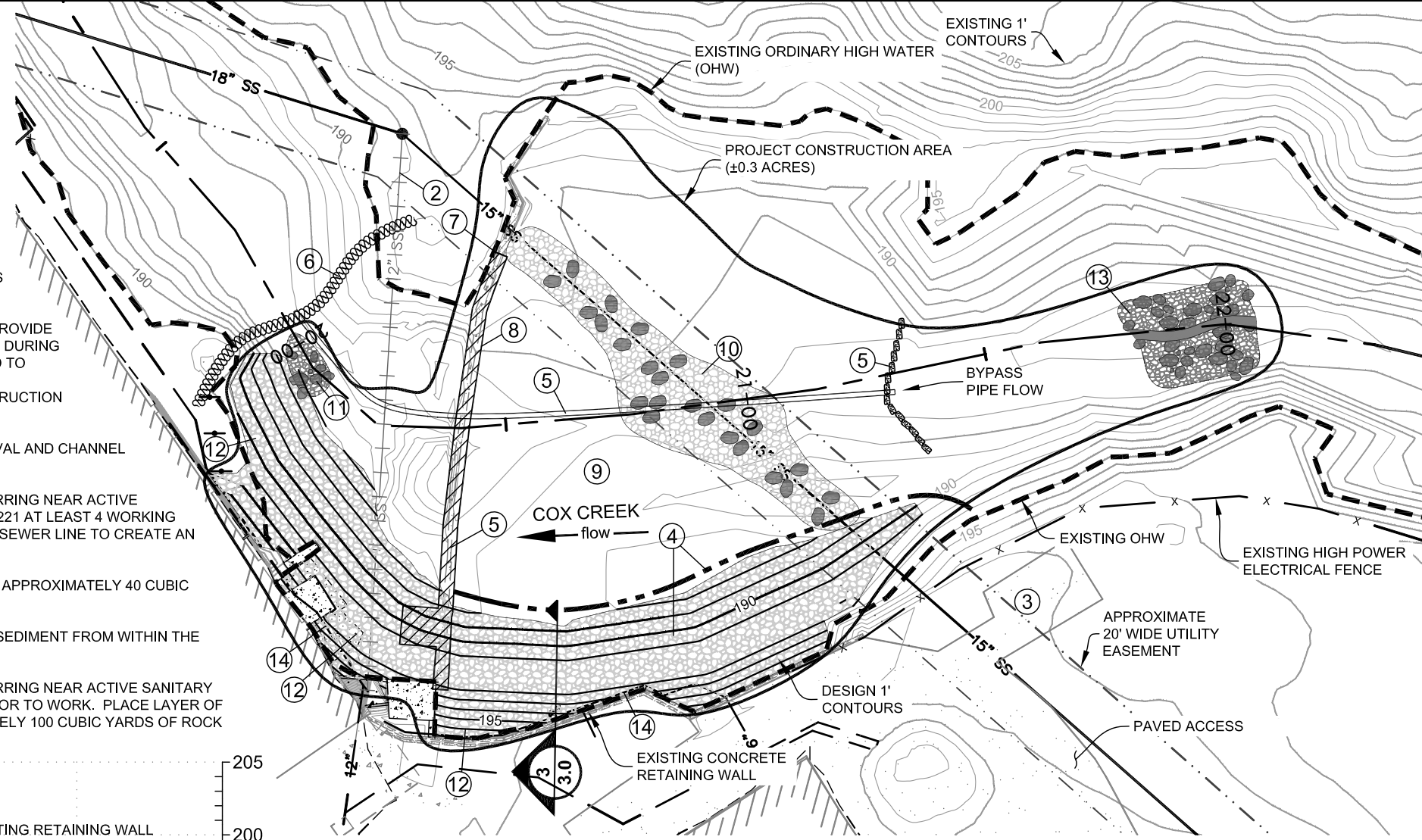
**2 EXISTING LONG PROFILE**  
HORIZ 1" = 60'  
VERT 1" = 20'

**EXISTING CONDITIONS**  
COX CREEK DAM REMOVAL  
ALBANY, OR

NO.	DATE	BY	DESCRIPTION	CHK
0	04/03/13	RTB	ISSUED FOR BID	SW

# CONSTRUCTION SEQUENCE & NOTES

- ① CONTRACTOR SHALL CONTACT CITY OF ALBANY (BRIAN KUEHN 541-971-6557) AT LEAST 4 WORKING DAYS PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES TO HAVE COX CREEK AUGMENTED FLOW REDUCED FROM THE S-A CANAL. COORDINATE WITH PROJECT ENGINEER TO DETERMINE AUGMENTED FLOW AMOUNT. COX CREEK EXPECTED FLOW DURING CONSTRUCTION TO BE 5-6 CFS. CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE CITY OF ALBANY AT THE COMPLETION OF THE PROJECT TO HAVE THE WATER TURNED BACK ON.
- ② CONTRACTOR TO VERIFY THAT RETIRED 12" SS LINE HAS BEEN PROPERLY SEALED.
- ③ ACCESS DAM FROM ATI WAH CHANG PROPERTY (DOUG PENNINGTON 541-926-4211 ext 6729) ON RIVER LEFT, COORDINATE OPENING IN EXISTING ELECTRICAL FENCE WITH WAH CHANG.
- ④ INSTALL FLOATING SILT CURTAIN (DRAWING 5.1) FROM DAM (LEFT SIDE) UP TO ACCESS POINT. INSTALL ACCESS ROAD UP TO DAM USING CLASS 200 RIPRAP AND COMPACT PER SECTION 3 THIS SHEET. APPROXIMATELY 120 CUBIC YARDS.
- ⑤ BREAK AN OPENING INTO EXISTING CONCRETE DAM AND DRAIN RESERVOIR. CONTRACTOR TO PROVIDE 48 HOURS NOTICE PRIOR TO LOWERING RESERVOIR TO ALLOW FOR FISH SALVAGE BEFORE AND DURING RESERVOIR DRAWDOWN. A BACKPACK ELECTROFISHING UNIT AND NETTING TEAM WILL BE USED TO REMOVE FISH FROM THE PROJECT SITE. AFTER DRAWDOWN, CONTRACTOR SHALL INSTALL A TEMPORARY 12 INCH BYPASS PIPE TO ALLOW COX CREEK FLOW TO PASS THROUGH THE CONSTRUCTION SITE DECREASING TURBIDITY. INSTALL SAND BAGS AT PIPE INLET TO DIRECT BYPASS FLOWS.
- ⑥ INSTALL FISH BLOCK NET BELOW THE PROJECT AREA TO ISOLATE PROJECT DURING DAM REMOVAL AND CHANNEL IMPROVEMENTS.
- ⑦ CITY OF ALBANY INSPECTION STAFF TO BE PRESENT DURING CONSTRUCTION ACTIVITIES OCCURRING NEAR ACTIVE SANITARY SEWER LINES, INCLUDING POTHOLING, COORDINATE WITH KEVIN HAMILTON 541-497-6221 AT LEAST 4 WORKING DAYS PRIOR TO WORK. SAWCUT CONCRETE DAM STRUCTURE 5 FT LEFT OF EXISTING SANITARY SEWER LINE TO CREATE AN ISOLATED SECTION OF CONCRETE DAM TO BE LEFT IN PLACE FOR HISTORICAL PURPOSES.
- ⑧ REMOVE CONCRETE DAM AND RECYCLE CONCRETE OFF SITE AT THE CONTRACTOR'S EXPENSE. APPROXIMATELY 40 CUBIC YARDS OF CONCRETE REMOVAL.
- ⑨ EXCAVATE AND PROPERLY DISPOSE OF APPROXIMATELY 250 CUBIC YARDS OF CONTAMINATED SEDIMENT FROM WITHIN THE RESERVOIR AREA.
- ⑩ CITY OF ALBANY INSPECTION STAFF TO BE PRESENT DURING CONSTRUCTION ACTIVITIES OCCURRING NEAR ACTIVE SANITARY SEWER LINES, COORDINATE WITH KEVIN HAMILTON 541-497-6221 AT LEAST 4 WORKING DAYS PRIOR TO WORK. PLACE LAYER OF CLASS 200 RIPRAP OVER ACTIVE SEWER LINE PER PLAN AND PROFILE THIS SHEET. APPROXIMATELY 100 CUBIC YARDS OF ROCK AND APPROXIMATELY 24 2'-3' BOULDERS FOR FLOW CONSOLIDATION.
- ⑪ CONSTRUCT ENGINEERED RIFFLE PER DRAWING 4.0.
- ⑫ INSTALL CLASS 200 RIPRAP AT 2:1 SLOPE PER SECTION 3 THIS SHEET AGAINST EXISTING BUILDING AND RETAINING WALL. APPROXIMATELY 160 CUBIC YARDS.
- ⑬ CONTRACTOR TO PROVIDE 48 HOURS NOTICE PRIOR TO CONSTRUCTING RIFFLE PER DRAWING 4.0. INSTALL FISH BLOCK NETS, ONE ABOVE AND ONE BELOW THE PROPOSED RIFFLE TO ISOLATE AREA AND PERFORM FISH SALVAGE. CONSTRUCT ENGINEERED RIFFLE PER DRAWING 4.0.
- ⑭ PRESERVE AND PROTECT EXISTING UTILITY LINES TO THE FULLEST EXTENT PRACTICABLE, COORDINATE PROTECTION PLAN WITH ATI WAH CHANG.



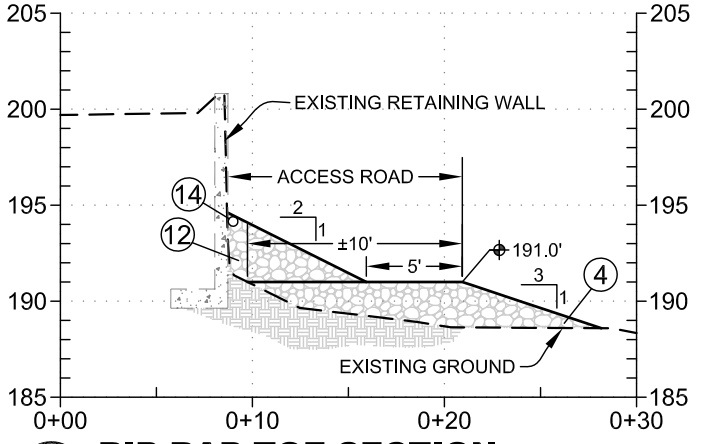
**1 PROPOSED CHANNEL LAYOUT**  
1" = 30'

**PROJECT QUANTITIES**

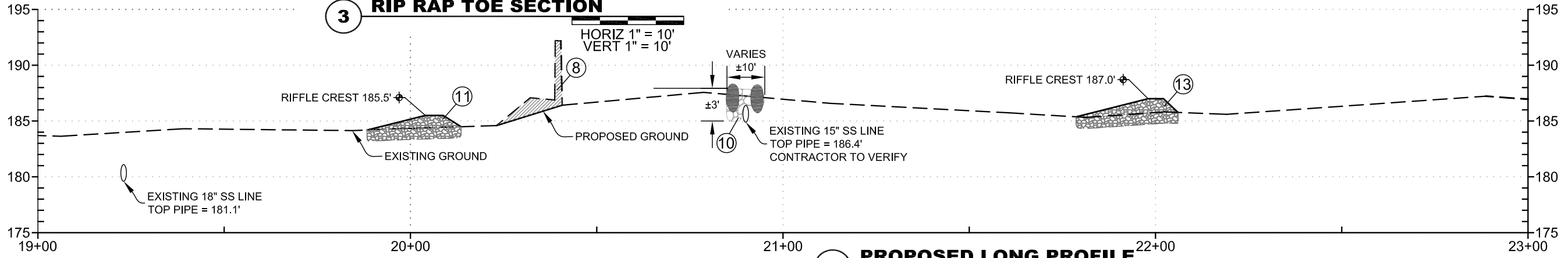
CUT/FILL	EST. VOLUME
GROSS EXCAVATION (DAM REMOVAL)	40 CUBIC YARDS
GROSS EXCAVATION (SEDIMENT)	250 CUBIC YARDS
GROSS FILL (RIPRAP/RIFFLES)	420 CUBIC YARDS
NET FILL	130 CUBIC YARDS

**CLASS 200 RIPRAP**

D <sub>50</sub> = 12 INCHES
D <sub>100</sub> = 18 INCHES



**3 RIP RAP TOE SECTION**  
HORIZ 1" = 10'  
VERT 1" = 10'



**2 PROPOSED LONG PROFILE**  
HORIZ 1" = 30'  
VERT 1" = 10'

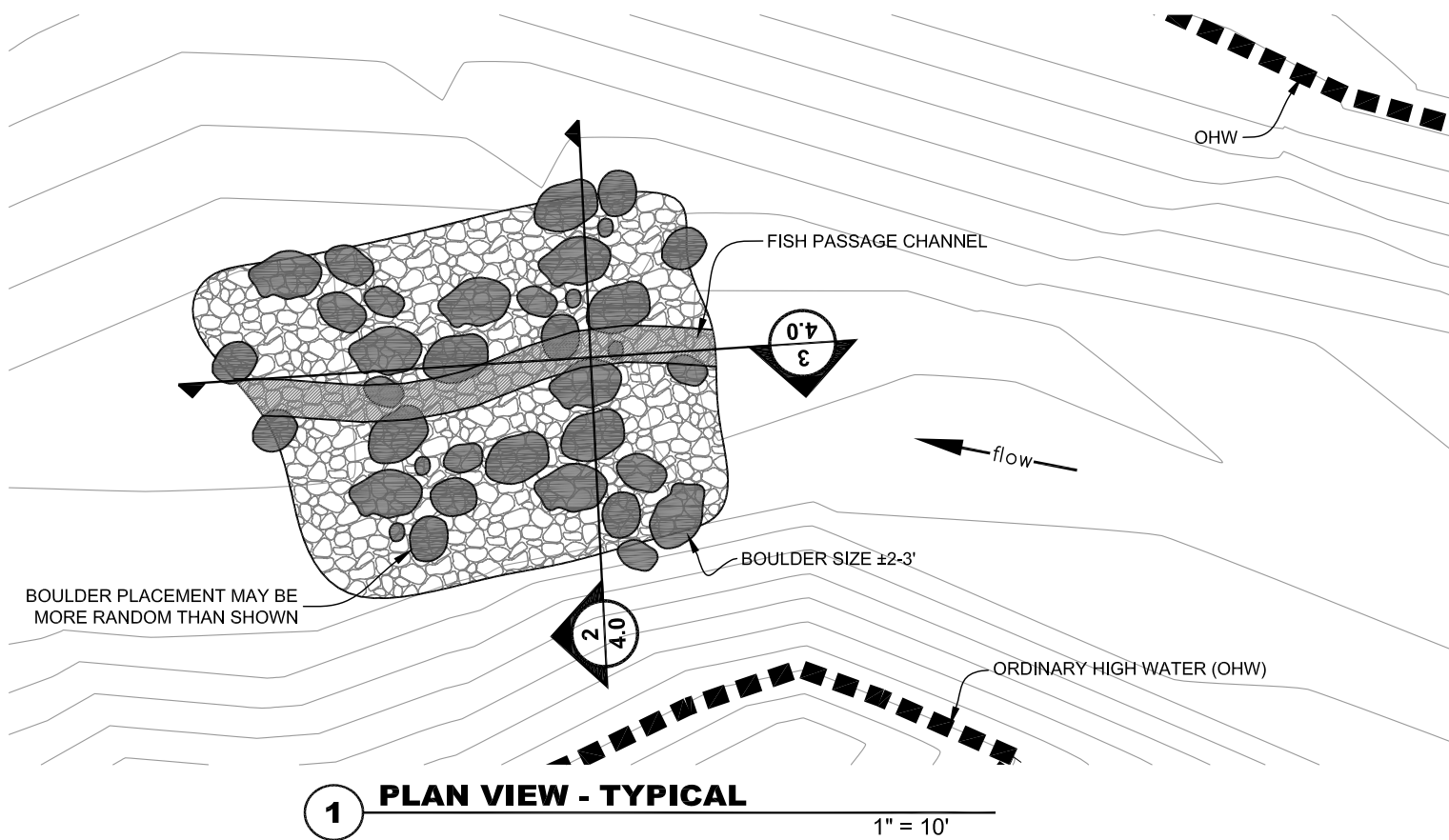
**DAM REMOVAL AND FISH PASSAGE**  
**COX CREEK DAM REMOVAL**  
ALBANY, OR

NO.	DATE	BY	DESCRIPTION	CHK
0	04/03/13	RTB	ISSUED FOR BID	SW

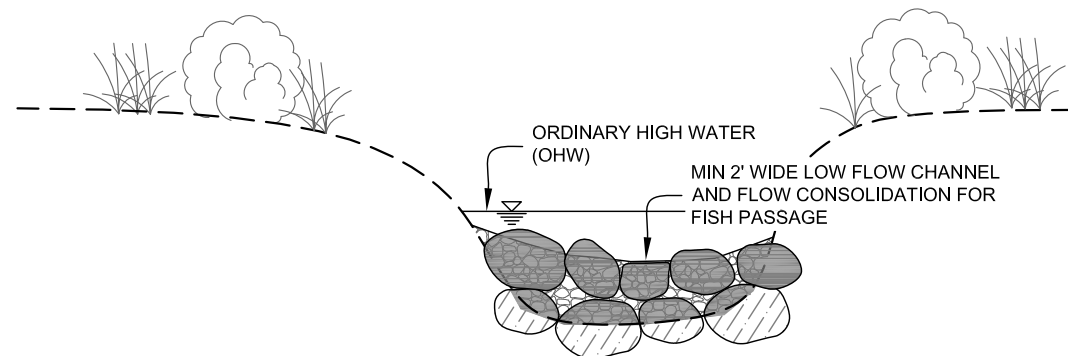
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**3.0**

Drawing 3 of 6



**1 PLAN VIEW - TYPICAL**  
1" = 10'



**2 STRUCTURE SECTION - TYPICAL**  
NOT TO SCALE

**DESIGN INTENT**

THE INTENT OF THE GRADED RIFFLE IS TO CONTROL CHANNEL GRADE THROUGH THE DAM REMOVAL PROJECT AREA. THE STRUCTURE IS BROAD AND DEFORMABLE ALLOWING STREAMBED SORTING. FISH PASSAGE IS ACHIEVED BY CREATING A TWO FOOT WIDE LOW FLOW CHANNEL THROUGH THE CREST OF THE RIFFLE.

THE STRUCTURE IS DESIGNED TO BE NATURAL IN APPEARANCE AND SHALL BE SUBMERGED AT ALL FLOW LEVELS. THE STRUCTURE IS DESIGNED TO HAVE NO ABRUPT EFFECT ON THE WATER SURFACE PROFILE. A MATRIX OF LARGE, IMMOBILE AND IRREGULARLY-PLACED BOULDERS FORMS THE BACKBONE OF THE STRUCTURE.

**CONSTRUCTION NOTES**

OVER- EXCAVATE FOOTPRINT TO SPECIFIED STRUCTURE DIMENSIONS AND STOCKPILE OR HAUL EXCAVATED MATERIAL FOR USE AS BACKFILL. USE ROCK MATERIALS WITH SIZE AS SPECIFIED. USE ALLUVIUM WITH SPECIFIED GRADATION.

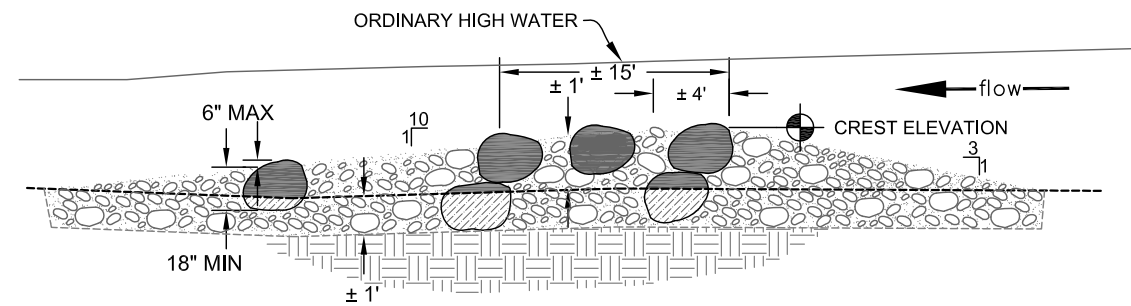
COBBLES AND GRAVELS SHALL BE CLEAN OF FINE SEDIMENT AND SANDS AND PLACED TO THE SPECIFIED STRUCTURE NEATLINES.

AFTER GRAVEL IS IN PLACE, THE SURFACE SHALL BE WASHED WITH WATER TO ALLOW THE FINES TO WORK INTO OPEN SPACES AND SEAL THE GRAVEL SUBSTRATE. SAND SHALL BE ADDED UNTIL THE GRAVEL IS "SEALED" AND WASH WATER FLOWS ON TOP OF THE GRAVELS.

THE PROJECT INSPECTOR SHALL INSPECT THE EXCAVATION EXTENTS, MATERIALS AND FINAL ELEVATIONS OF THE STRUCTURE PRIOR TO FINAL CHANNEL SHAPING.

SHAPE THE CHANNEL TO THE SPECIFIED FEATURE DIMENSIONS UPSTREAM AND DOWNSTREAM OF STRUCTURE.

NOTIFY THE PROJECT INSPECTOR OF ANY PROPOSED CHANGES PRIOR TO IMPLEMENTATION. THE PROJECT INSPECTOR RESERVES THE RIGHT TO MODIFY STRUCTURE DESIGN SPECIFICATIONS DURING CONSTRUCTION, IF WARRANTED, DUE TO UNFORESEEN CONDITIONS.



**3 STRUCTURE PROFILE - TYPICAL**  
NOT TO SCALE

**GRADED RIFFLE ROCK GRADATION**

PARTICLE SIZE DISTRIBUTION	ROCK SIZE (INCHES)
D <sub>100</sub>	+20
D <sub>84</sub>	12
D <sub>50</sub>	6
D <sub>16</sub>	4

ESTIMATED RIFFLE MATRIX FILL:  
STA 20+00 10 CY  
STA 22+00 30 CY

BOULDER QUANTITY (2'-3' DIA.):  
STA 20+00 15 BOULDERS  
STA 22+00 50 BOULDERS

NO.	DATE	BY	DESCRIPTION	CHK
				SW
0	04/03/13	RTB	ISSUED FOR BID	

PROJECT NUMBER  
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DRAWING NUMBER

**4.0**



**1 SITE ACCESS AND STAGING**

1" = 100'



**SITE ACCESS AND STAGING**

COX CREEK DAM REMOVAL

ALBANY, OR

**RIVER DESIGN GROUP, INC.**  
 5098 Hwy 93 South  
 Whitefish, MT 59937  
 406.862.4927

311 SW Jefferson Avenue  
 Corvallis, OR 97333  
 541.738.2920

NO.	DATE	BY	DESCRIPTION	CHK
0	04/03/13			

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DRAWING NUMBER

**5.0**

Drawing 5 of 6

## EROSION CONTROL NOTES

AT A MINIMUM, EROSION CONTROL MEASURES SHOWN ON THIS PLAN SHALL BE IN PLACE PRIOR TO COMMENCING CONSTRUCTION.

DURING CONSTRUCTION, ALL EROSION CONTROLS SHALL BE INSPECTED BY THE PROJECT INSPECTOR DAILY TO ENSURE THEY ARE WORKING ADEQUATELY.

- (1) IF INSPECTION SHOWS THAT THE EROSION CONTROLS ARE INEFFECTIVE, WORK CREWS WILL BE MOBILIZED IMMEDIATELY TO MAKE REPAIRS, INSTALL REPLACEMENTS, OR INSTALL ADDITIONAL CONTROLS AS NECESSARY.
- (2) SEDIMENT MUST BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL.

CONTRACTOR SHALL PROVIDE MEASURES TO PREVENT MOVEMENT OF SOIL INTO WATERWAYS OR WETLANDS, E.G. FILTER BAGS, SEDIMENT TRAPS OR CATCH BASINS, VEGETATIVE STRIPS, BERMS, JERSEY BARRIERS, FIBER BLANKETS, BONDED FIBER MATRICES, GEOTEXTILES, MULCHES OR COMPOST, WATTLES AND SEDIMENT FENCES.

CONTRACTOR SHALL PROVIDE MEASURES TO PREVENT STOCKPILE EROSION DURING RAIN EVENTS OR WHEN THE STOCKPILE SITE IS NOT MOVED OR RESHAPED FOR MORE THAN 48 HOURS, BY SURROUNDING PILES WITH COMPOST BERMS, COVERING PILES WITH IMPERVIOUS MATERIALS OR OTHER EQUALLY EFFECTIVE METHODS.

CONTRACTOR SHALL PROVIDE MEASURES TO PREVENT CONSTRUCTION VEHICLES FROM TRACKING SEDIMENT OFFSITE OR ONTO ROADWAYS WHERE IT IS SUBJECT TO WASHING INTO STORM DRAINS, WATERWAYS, OR WETLANDS; INCLUDING GRAVEL ACCESS PADS, WHEEL WASH STATIONS, OR OTHER EQUALLY EFFECTIVE METHODS.

CONTRACTOR SHALL INSTALL REMOVABLE PADS OR MATS TO PREVENT SOIL COMPACTION IN ALL TEMPORARY CONSTRUCTION ACCESS POINTS AND STAGING AREAS IN RIPARIAN OR WETLAND AREAS.

CONTRACTOR SHALL PREPARE AND HAVE ON-SITE A SPILL CONTAINMENT AND CONTROL PLAN WITH NOTIFICATION PROCEDURES, EQUIPMENT, SPECIFIC CLEANUP AND DISPOSAL INSTRUCTIONS FOR ALL PRODUCTS USED ON SITE.

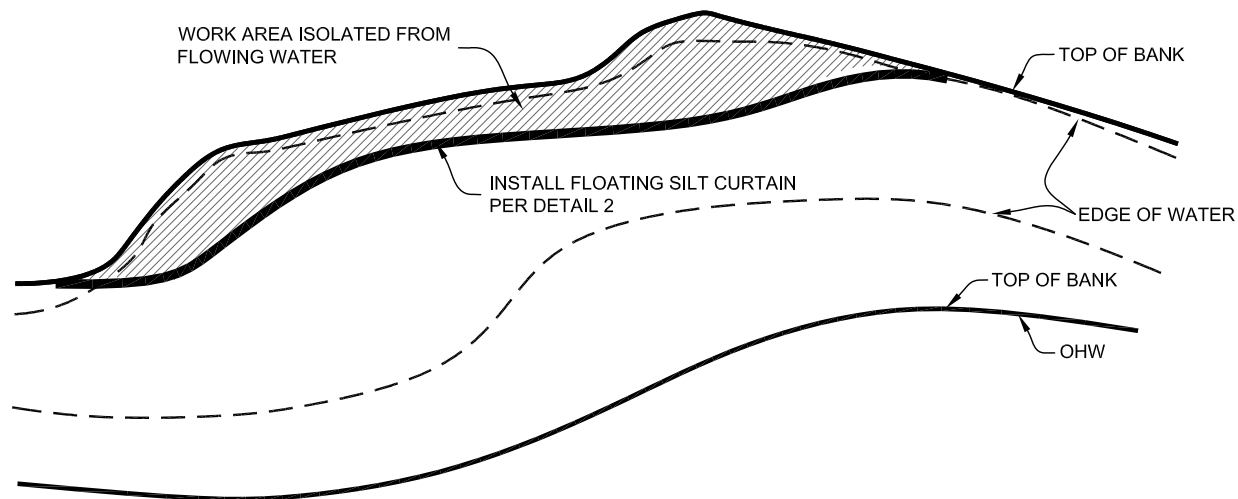
CONTRACTOR SHALL HAVE AN EMERGENCY SUPPLY OF SEDIMENT CONTROL MATERIALS ON HAND (SILT FENCE, STRAW BALES, ETC.), AN OIL ADSORBING FLOATING BOOM, AND ABSORBENT PADS.

STATIONARY POWER EQUIPMENT, SUCH AS GENERATORS, WITHIN 150 FEET OF THE WATER SHALL BE DIAPERED TO PREVENT LEAKS.

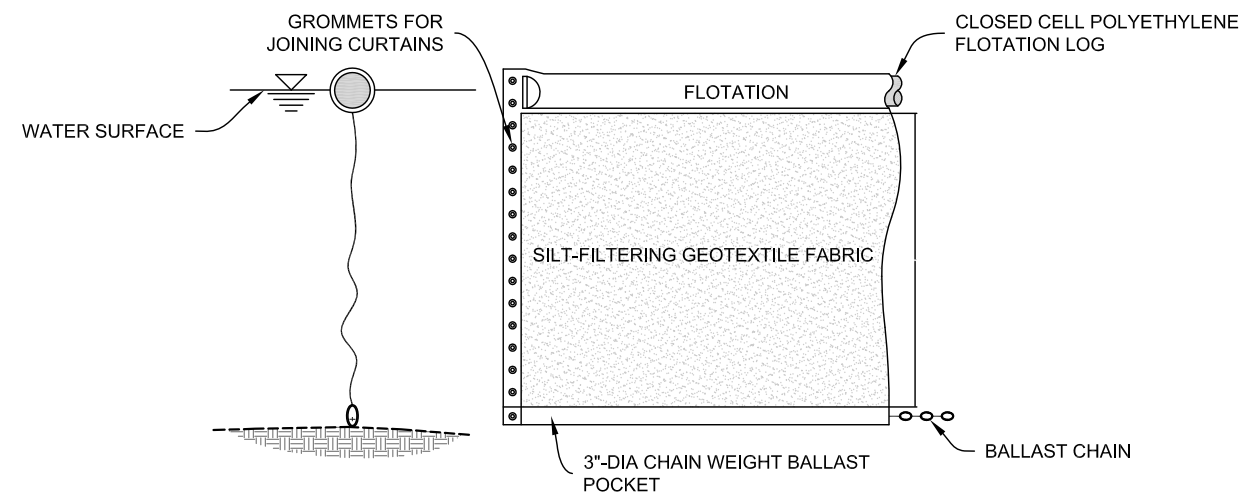
ALL POWER EQUIPMENT WITHIN 150 FEET OF THE WATER SHALL BE INSPECTED DAILY FOR FLUID LEAKS AND REPAIRED. THE CONTRACTOR MUST KEEP DAILY INSPECTION REPORTS IN A DIARY.

ALL EQUIPMENT TO REMAIN WITHIN THE BOUNDS OF THE CONSTRUCTION STAGING AREA, ACCESS ROADS, OR PROJECT CONSTRUCTION AREA.

DUST CONTROL: ALL HEAVY USE AREAS ARE TO BE MAINTAINED IN A CONDITION THAT MINIMIZES DUST ON THE PROJECT SITE AND THE CONTRACTOR SHALL HAVE ACCESS TO A WATER TRUCK FOR DUST MANAGEMENT IF REQUIRED. THE PROJECT INSPECTOR WILL NOTIFY THE CONTRACTOR TO MOBILIZE DUST CONTROL ACTIVITIES (INCLUDING WATERING) IF CONDITIONS REQUIRE.



### 1 WORK AREA ISOLATION - TYPICAL NOT TO SCALE



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



EXAMPLE OF FLOATING SILT CURTAIN PLACEMENT

NO.	DATE	BY	DESCRIPTION	CHK	
				SW	SW
0	04/03/13	RTB	ISSUED FOR BID		

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5.1