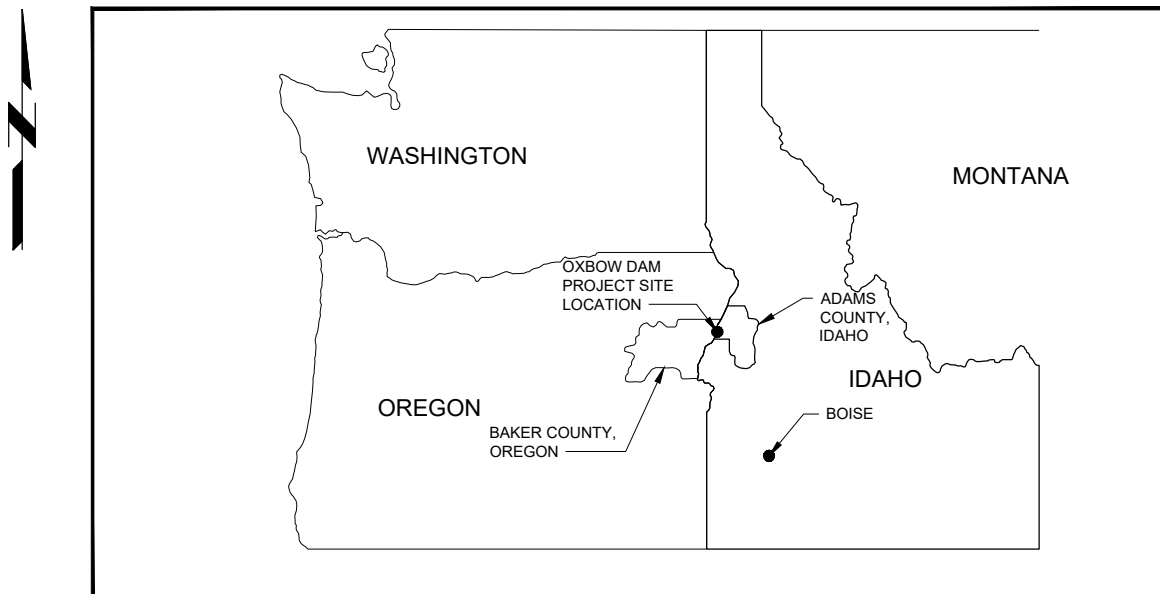


OXBOW DEVELOPMENT SERVICE SPILLWAY REMEDIATION

FERC PROJECT NO. 1971-ID/OR

AUGUST 23, 2023



VICINITY MAP

SCALE: NTS

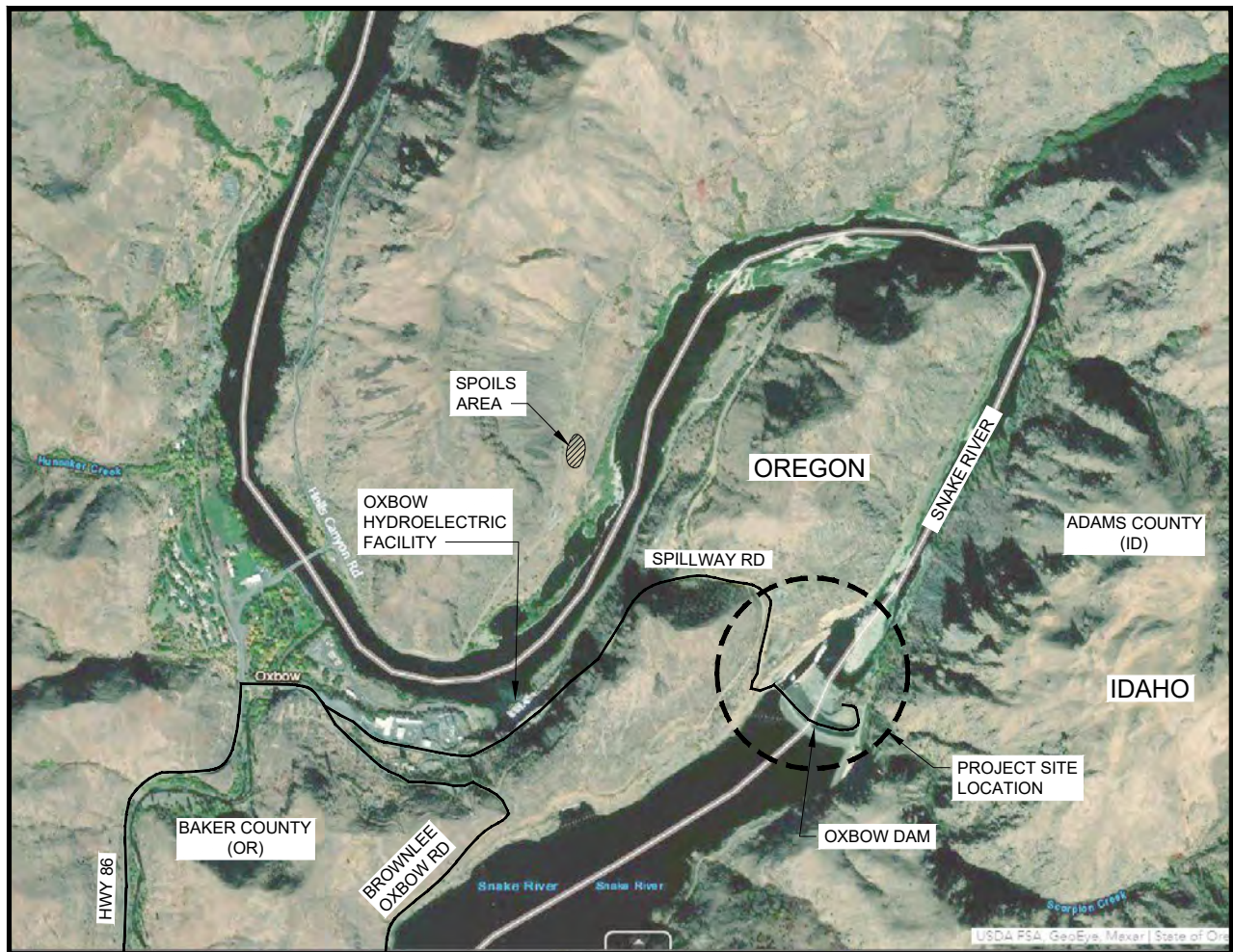
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4. OVERALL SITE PLAN
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7. EROSION & SEDIMENT CONTROL - SITE PLAN
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11. DEMOLITION - SITE PLAN
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*OXBOW SERVICE SPILLWAY
COVER SHEET & VICINITY MAP*

FIGURE 1

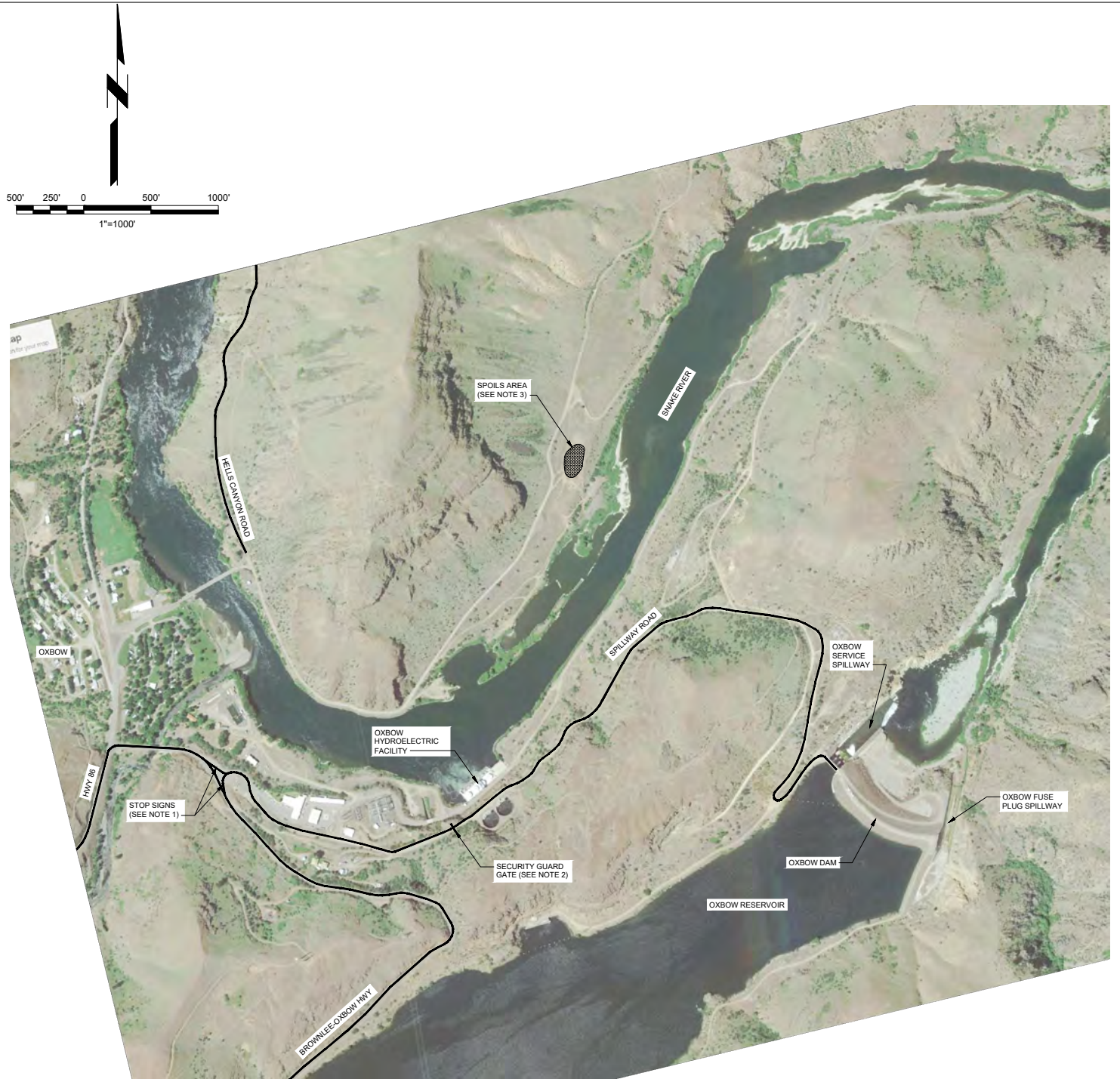
AUGUST 23, 2023



SITE MAP
SCALE: NTS

*OXBOW SERVICE SPILLWAY
SITE MAP*

FIGURE 2
AUGUST 23, 2023



OVERALL SITE PLAN

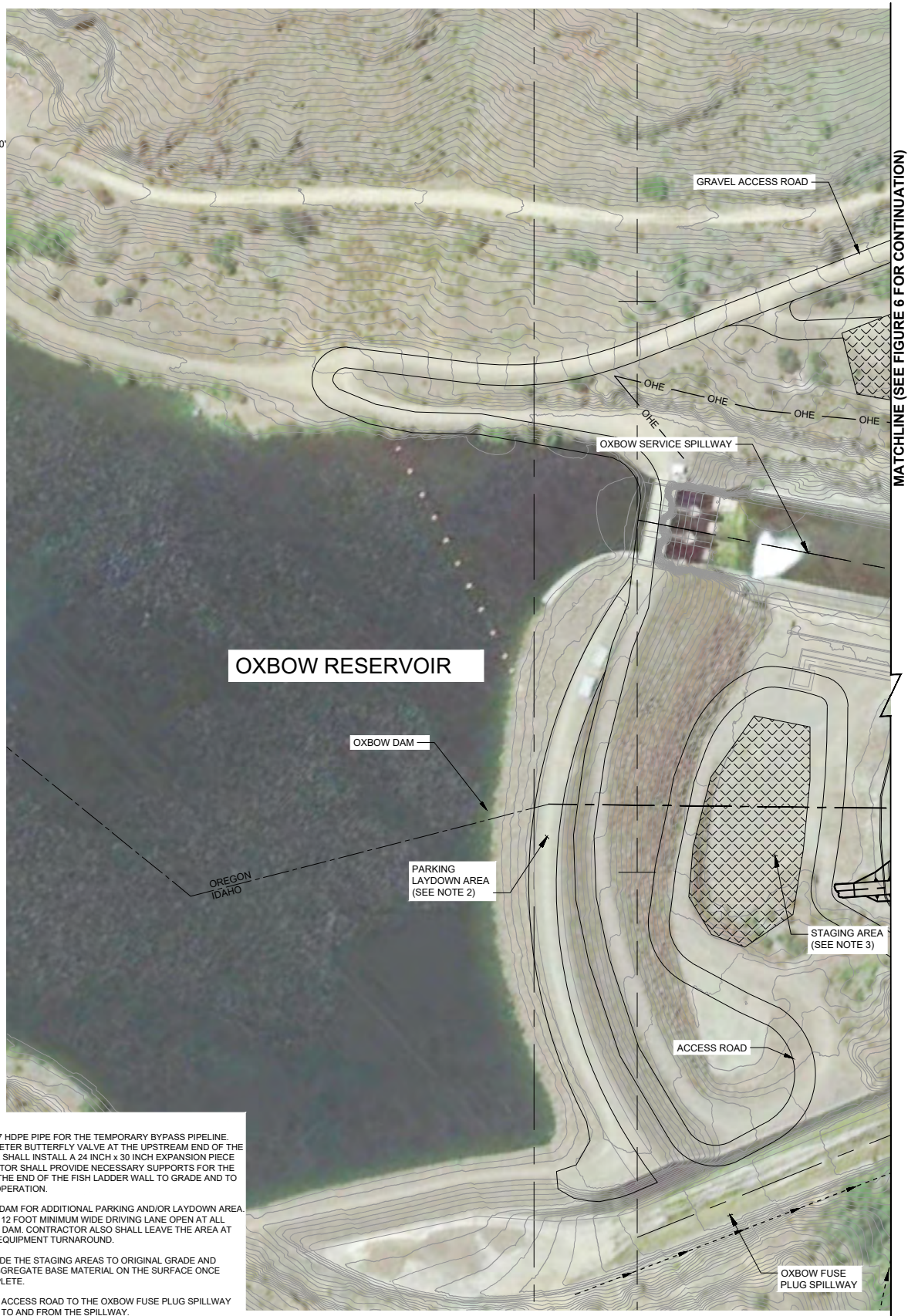
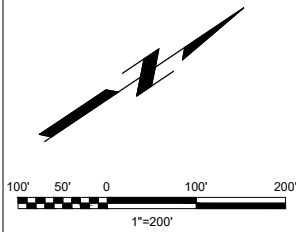
1" = 1000'-0"

NOTES:

- CONTRACTOR SHALL REPLACE THE TWO EXISTING YIELD SIGNS LOCATED AT THE EXIT FROM THE OXBOW SPILLWAY ROAD TO THE BROWNLEE-OXBOW ROAD WITH OWNER APPROVED STOP SIGNS.
- CONTRACTOR SHALL PROVIDE A FULL-TIME SECURITY GUARD AT THE EXISTING CRASH GATE DURING ACTIVE CONSTRUCTION PERIODS TO MONITOR INCOMING AND OUTGOING TRAFFIC TO ENSURE ALL OWNER REQUIRED SECURITY AND SAFETY PROTOCOLS ARE MET.
- SPOILS AREA SHOWN IS OWNED AND MAINTAINED BY THE OWNER. THIS AREA CAN BE USED BY THE CONTRACTOR FOR DEPOSITION OF EXCESS ROCK AND SOIL MATERIAL FROM THE CONSTRUCTION SITE. ALL OTHER SPOIL MATERIAL, INCLUDING CONCRETE, SHALL BE HAULED OFFSITE BY AND AT THE EXPENSE OF THE CONTRACTOR.

OXBOW SERVICE SPILLWAY OVERALL SITE PLAN

FIGURE 4
AUGUST 23, 2023



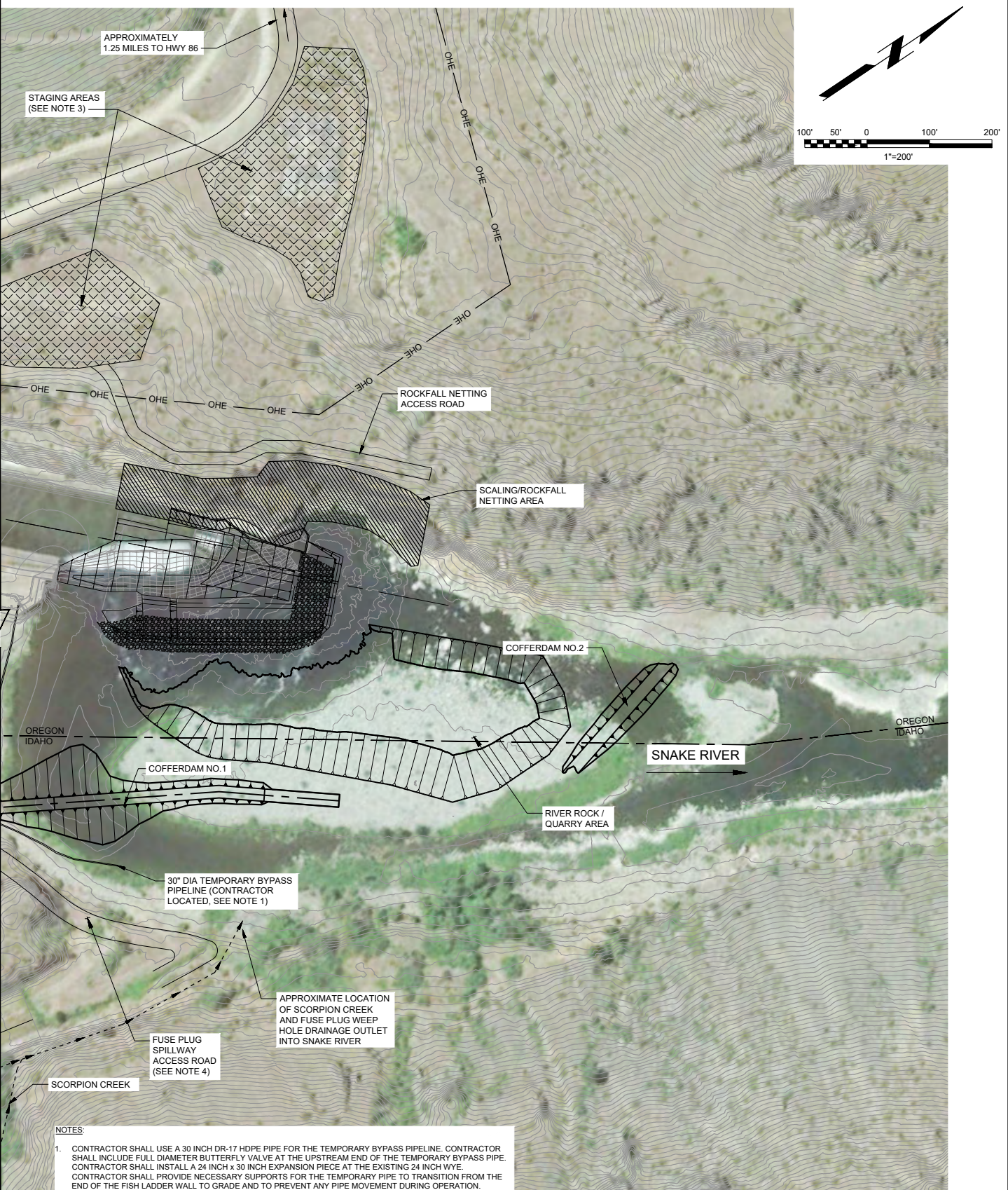
NOTES:

1. CONTRACTOR SHALL USE A 30 INCH DR-17 HDPE PIPE FOR THE TEMPORARY BYPASS PIPELINE. CONTRACTOR SHALL INCLUDE FULL DIAMETER BUTTERFLY VALVE AT THE UPSTREAM END OF THE TEMPORARY BYPASS PIPE. CONTRACTOR SHALL INSTALL A 24 INCH x 30 INCH EXPANSION PIECE AT THE EXISTING 24 INCH WYE. CONTRACTOR SHALL PROVIDE NECESSARY SUPPORTS FOR THE TEMPORARY PIPE TO TRANSITION FROM THE END OF THE FISH LADDER WALL TO GRADE AND TO PREVENT ANY PIPE MOVEMENT DURING OPERATION.
2. CONTRACTOR MAY USE THE TOP OF THE DAM FOR ADDITIONAL PARKING AND/OR LAYDOWN AREA. HOWEVER, CONTRACTOR SHALL LEAVE A 12 FOOT MINIMUM WIDE DRIVING LANE OPEN AT ALL TIMES FOR OWNER ACCESS ACROSS THE DAM. CONTRACTOR ALSO SHALL LEAVE THE AREA AT THE SOUTH END OF THE DAM OPEN FOR EQUIPMENT TURNAROUND.
3. CONTRACTOR SHALL REPAIR AND REGRADE THE STAGING AREAS TO ORIGINAL GRADE AND PLACE 6 INCHES MINIMUM OF COURSE AGGREGATE BASE MATERIAL ON THE SURFACE ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE.
4. CONTRACTOR SHALL KEEP THE EXISTING ACCESS ROAD TO THE OXBOW FUSE PLUG SPILLWAY OPEN AT ALL TIMES FOR OWNER ACCESS TO AND FROM THE SPILLWAY.

**OXBOW SERVICE SPILLWAY
OXBOW DAM SITE PLAN
FIGURE 5**

AUGUST 23, 2023

MATCHLINE (SEE FIGURE 5 FOR CONTINUATION)

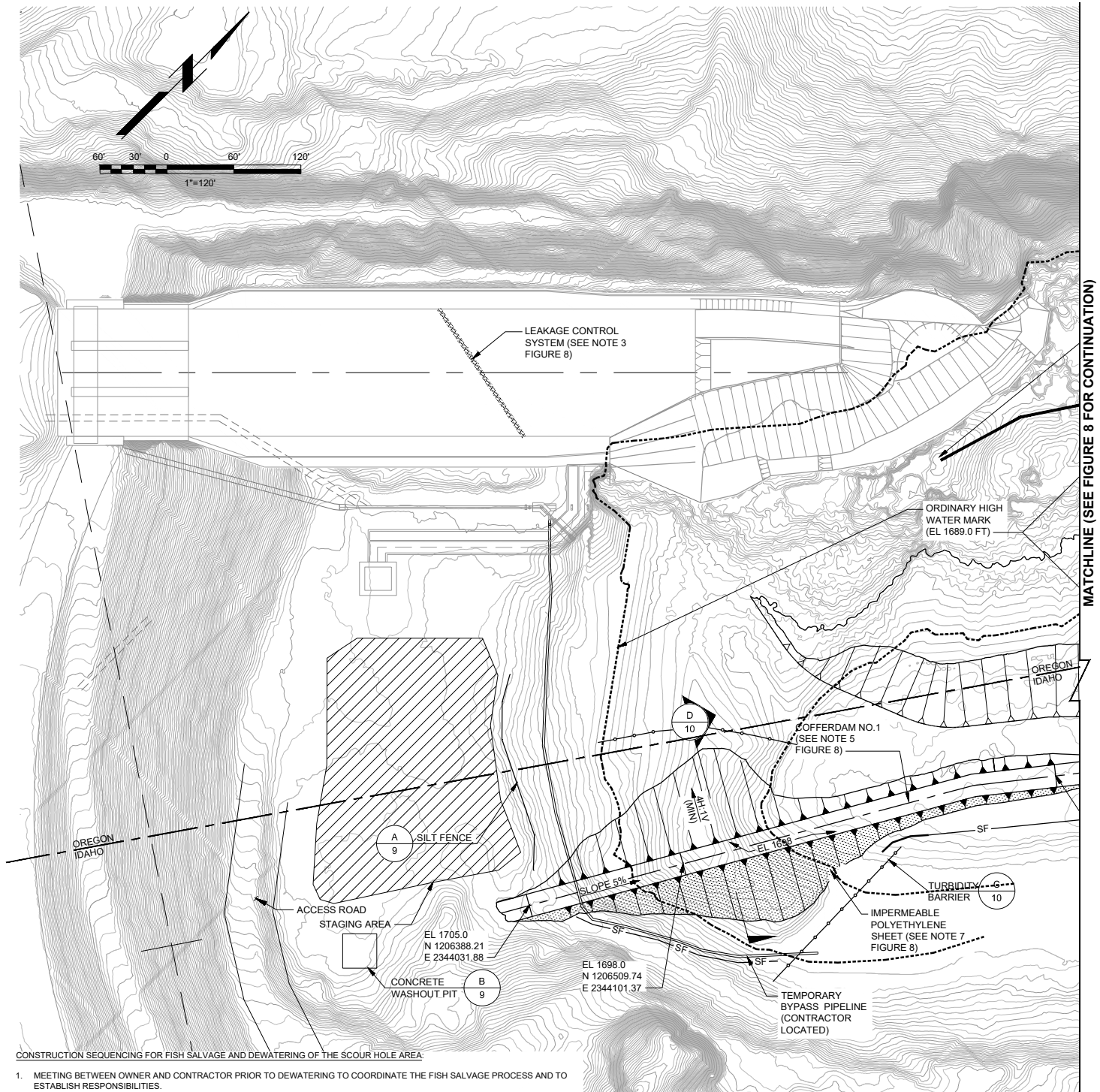


NOTES:

1. CONTRACTOR SHALL USE A 30 INCH DR-17 HDPE PIPE FOR THE TEMPORARY BYPASS PIPELINE. CONTRACTOR SHALL INCLUDE FULL DIAMETER BUTTERFLY VALVE AT THE UPSTREAM END OF THE TEMPORARY BYPASS PIPE. CONTRACTOR SHALL INSTALL A 24 INCH x 30 INCH EXPANSION PIECE AT THE EXISTING 24 INCH WYE. CONTRACTOR SHALL PROVIDE NECESSARY SUPPORTS FOR THE TEMPORARY PIPE TO TRANSITION FROM THE END OF THE FISH LADDER WALL TO GRADE AND TO PREVENT ANY PIPE MOVEMENT DURING OPERATION.
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3. CONTRACTOR SHALL REPAIR AND REGRADE THE STAGING AREAS TO ORIGINAL GRADE AND PLACE 6 INCHES MINIMUM OF COURSE AGGREGATE BASE MATERIAL ON THE SURFACE ONCE CONSTRUCTION IS SUBSTANTIALLY COMPLETE.
4. CONTRACTOR SHALL KEEP THE EXISTING ACCESS ROAD TO THE OXBOW FUSE PLUG SPILLWAY OPEN AT ALL TIMES FOR OWNER ACCESS TO AND FROM THE SPILLWAY.

*OXBOW SERVICE SPILLWAY
OXBOW DAM SITE PLAN
FIGURE 6*

AUGUST 23, 2023



CONSTRUCTION SEQUENCING FOR FISH SALVAGE AND DEWATERING OF THE SCOUR HOLE AREA:

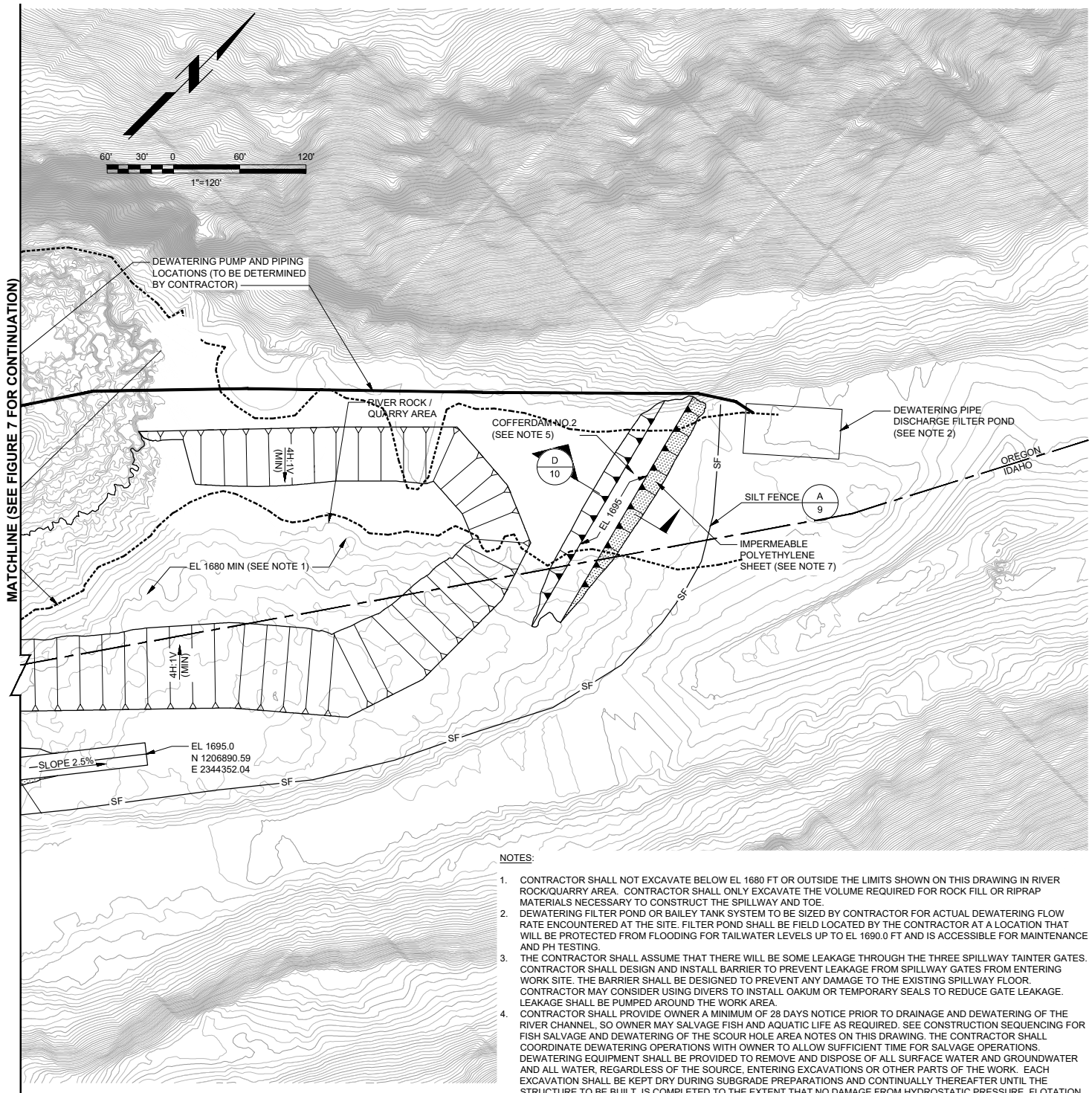
1. MEETING BETWEEN OWNER AND CONTRACTOR PRIOR TO DEWATERING TO COORDINATE THE FISH SALVAGE PROCESS AND TO ESTABLISH RESPONSIBILITIES.
2. CONTRACTOR SHALL WORK WITH OWNER TO ESTABLISH LOTO ON PRIMARY SPILL GATES. CONTRACTOR TO BE PROVIDED WITH LOCKS AND KEYS FOR THE GATE.
3. OWNER OPENS ONE OF THE PRIMARY SPILL GATES TO ALLOW 100 CFS RELEASE THROUGH THE SPILLWAY.
4. OWNER CLOSES BYPASS SLIDE GATE AND THEN THE FIXED-CONE VALVE.
5. CONTRACTOR INSTALLS TEMPORARY 30-INCH HDPE BYPASS PIPELINE AS SHOWN ON DRAWINGS, INCLUDING INSTALLATION OF 24-INCH BUTTERFLY VALVE, 24x30 EXPANSION PIECE, AND ALL NECESSARY SUPPORTS TO STABILIZE THE PIPE TO PREVENT MOVEMENT.
6. CONTRACTOR CLOSES BUTTERFLY VALVE AND FIXED-CONE VALVE AND OPENS SLIDE GATE TO FULL-OPEN POSITION.
7. CONTRACTOR OPENS 24-INCH BUTTERFLY VALVE AND OBSERVES THE FLOW TO ASSURE NO PIPE MOVEMENT OR UNEXPECTED DOWNSTREAM EROSION.
8. OWNER CLOSES PRIMARY SPILL GATE.
9. CONTRACTOR SEALS PRIMARY SPILL GATES WITH DIVERS TO MINIMIZE GATE LEAKAGE.
10. CONTRACTOR PICKS OWNER'S BOAT FROM BOAT TRAILER AND SETS BOAT IN SCOUR HOLE AREA WITH A CRANE.
11. OWNER INITIATES CLEARING PROCESS TO REMOVE FISH FROM COFFERDAM NO. 1 IN-WATER AREA.
12. CONTRACTOR BEGINS INSTALLATION OF COFFERDAM NO. 1. DURING INSTALLATION, OWNER WILL CONTINUE LARGE SCALE FISH SALVAGE BY BOAT AND NET AND WILL TRANSFER THE FISH TO THE NEW COFFERDAM NO. 1 AREA. THEN, THE CONTRACTOR SHALL HELP THE OWNER RELOCATE THE FISH OVER THE COFFERDAM TO THE OPEN STREAM DOWNSTREAM OF THE COFFERDAM.
13. CONTRACTOR TO COMPLETE COFFERDAM NO. 1 INSTALLATION, INCLUDING THE POLYETHYLENE SHEET BARRIER.
14. OWNER COMPLETES LARGE SCALE FISH SALVAGE WITH BOAT.
15. CONTRACTOR LIFTS OWNER'S BOAT OUT OF SCOUR HOLE AREA AND BACK ONTO THE BOAT TRAILER.
16. CONTRACTOR STARTS DEWATERING THE SCOUR HOLE, USING THE NECESSARY PUMPS, PIPING, FILTER POND, AND DEWATERING IMPLEMENTS AS SHOWN ON THE DRAWINGS AND IN CONFORMANCE WITH THE USACE 401 PERMIT.
17. CONTRACTOR TO DRAW THE WATER LEVEL DOWN IN 3 FT ELEVATION INTERVALS TO ALLOW OWNER TO WALK THE PERIMETER MULTIPLE TIMES BETWEEN EACH DRAW DOWN INTERVAL TO SALVAGE FISH. CONTRACTOR SHALL COORDINATE CLOSELY WITH OWNER TO NOT STRAND LIVE FISH DURING THIS PROCESS.
18. CONTRACTOR TO CONTINUE DEWATERING PROCESS UNTIL ALL OF THE FISH HAVE BEEN SALVAGED. CONTRACTOR SHALL NOT BEGIN ANY EXCAVATION OR DEMOLITION WORK IN THE SCOUR HOLE AREA UNTIL ALL FISH HAVE BEEN REMOVED BY THE OWNER AND THE OWNER HAS GIVEN THE CONTRACTOR THE NOTICE TO PROCEED.

EROSION & SEDIMENT CONTROL - SITE PLAN

1" = 120'-0"

*OXBOW SERVICE SPILLWAY
EROSION & SEDIMENT CONTROL
SITE PLAN
FIGURE 7*

AUGUST 23, 2023



EROSION & SEDIMENT CONTROL - SITE PLAN

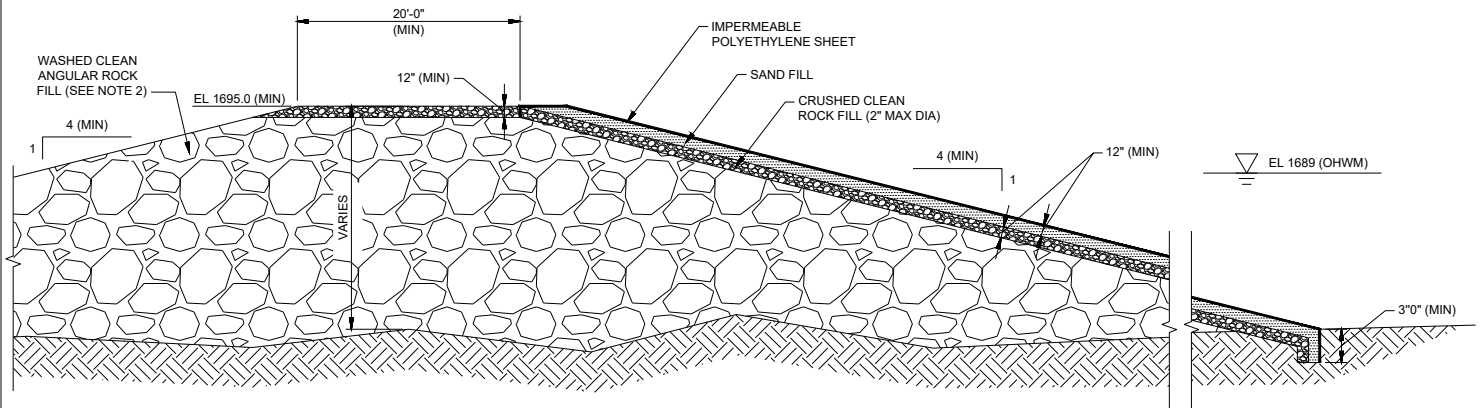
1" = 120'-0"

NOTES:

1. CONTRACTOR SHALL NOT EXCAVATE BELOW EL 1680 FT OR OUTSIDE THE LIMITS SHOWN ON THIS DRAWING IN RIVER ROCK/QUARRY AREA. CONTRACTOR SHALL ONLY EXCAVATE THE VOLUME REQUIRED FOR ROCK FILL OR RIPRAP MATERIALS NECESSARY TO CONSTRUCT THE SPILLWAY AND TOE.
2. DEWATERING FILTER POND OR BAILEY TANK SYSTEM TO BE SIZED BY CONTRACTOR FOR ACTUAL DEWATERING FLOW RATE ENCOUNTERED AT THE SITE. FILTER POND SHALL BE FIELD LOCATED BY THE CONTRACTOR AT A LOCATION THAT WILL BE PROTECTED FROM FLOODING FOR TAILWATER LEVELS UP TO EL 1690.0 FT AND IS ACCESSIBLE FOR MAINTENANCE AND PH TESTING.
3. THE CONTRACTOR SHALL ASSUME THAT THERE WILL BE SOME LEAKAGE THROUGH THE THREE SPILLWAY TAILER GATES. CONTRACTOR SHALL DESIGN AND INSTALL BARRIER TO PREVENT LEAKAGE FROM SPILLWAY GATES FROM ENTERING WORK SITE. THE BARRIER SHALL BE DESIGNED TO PREVENT ANY DAMAGE TO THE EXISTING SPILLWAY FLOOR. CONTRACTOR MAY CONSIDER USING DIVERS TO INSTALL OAKUM OR TEMPORARY SEALS TO REDUCE GATE LEAKAGE. LEAKAGE SHALL BE PUMPED AROUND THE WORK AREA.
4. CONTRACTOR SHALL PROVIDE OWNER A MINIMUM OF 28 DAYS NOTICE PRIOR TO DRAINAGE AND DEWATERING OF THE RIVER CHANNEL, SO OWNER MAY SALVAGE FISH AND AQUATIC LIFE AS REQUIRED. SEE CONSTRUCTION SEQUENCING FOR FISH SALVAGE AND DEWATERING OF THE SCOUR HOLE AREA NOTES ON THIS DRAWING. THE CONTRACTOR SHALL COORDINATE DEWATERING OPERATIONS WITH OWNER TO ALLOW SUFFICIENT TIME FOR SALVAGE OPERATIONS. DEWATERING EQUIPMENT SHALL BE PROVIDED TO REMOVE AND DISPOSE OF ALL SURFACE WATER AND GROUNDWATER AND ALL WATER, REGARDLESS OF THE SOURCE, ENTERING EXCAVATIONS OR OTHER PARTS OF THE WORK. EACH EXCAVATION SHALL BE KEPT DRY DURING SUBGRADE PREPARATIONS AND CONTINUALLY THEREAFTER UNTIL THE STRUCTURE TO BE BUILT, IS COMPLETED TO THE EXTENT THAT NO DAMAGE FROM HYDROSTATIC PRESSURE, FLOTATION, OR OTHER CAUSE WILL RESULT.
5. THE TEMPORARY BYPASS PIPELINE AND COFFERDAM NO. 1 SHALL BE INSTALLED PRIOR TO INSTALLATION OF COFFERDAM NO. 2 TO ALLOW INSTALLATION OF COFFERDAM NO. 2 IN THE DRY. COFFERDAMS AND ACCESS RAMPS SHALL BE CONSTRUCTED FROM CLEAN WASHED ANGULAR FILL MATERIAL. AGGREGATE BASE MATERIAL SHALL BE USED FOR DRIVING SURFACE. CONTRACTOR SHALL PROVIDE ANY NECESSARY EROSION PROTECTION TO MEET WATER TURBIDITY STANDARDS.
6. CONTRACTOR SHALL MEET ALL GOVERNING REGULATIONS FOR CONTROL OF NOXIOUS WEEDS.
7. CONTRACTOR SHALL INSTALL AN IMPERMEABLE POLYETHYLENE SHEET LINER, 6 MIL MINIMUM THICKNESS, ON THE DOWNSTREAM FACE OF TEMPORARY COFFERDAM NO.1 AND NO. 2 TO SERVE AS A WATER BARRIER. LINER MATERIAL SHALL COMPLY WITH REQUIREMENTS OF ASTM D4397. LINER SHALL BE TRENCHED INTO THE TOE OF THE COFFERDAMS A MINIMUM OF 3 FEET. SEE SECTION D, SHT G-012 FOR BEDDING BENEATH THE POLYETHYLENE SHEETING.

*OXBOW SERVICE SPILLWAY
EROSION & SEDIMENT CONTROL
SITE PLAN
FIGURE 8*

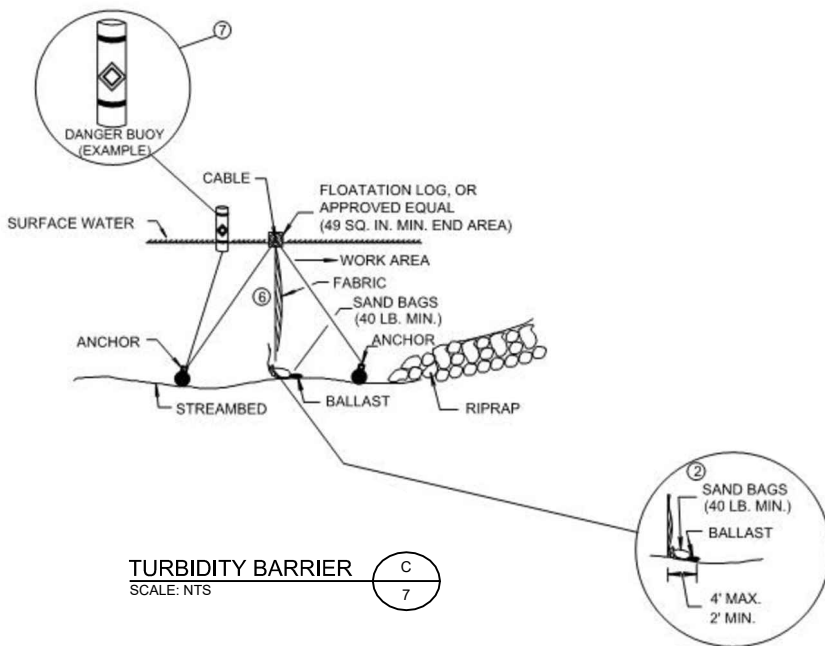
AUGUST 23, 2023



COFFERDAM - SECTION D
SCALE: 1"=1/16"

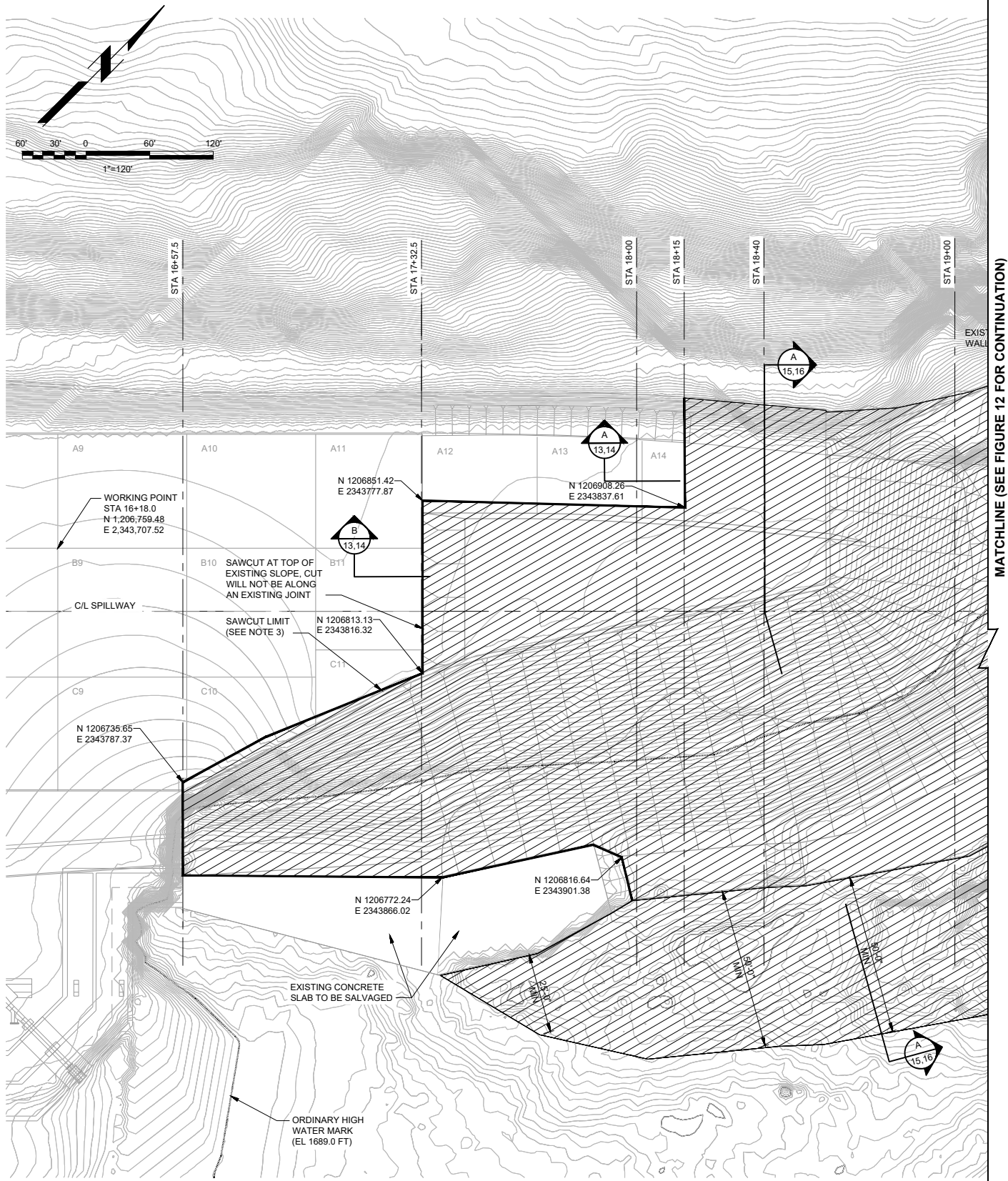
NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF COFFERDAMS. SECTION VIEW SHOWN ABOVE SHOWS MINIMUM REQUIREMENTS FOR A ROCK FILLED STRUCTURE; HOWEVER, CONTRACTOR MAY DESIGN THE STRUCTURE USING OTHER MATERIALS AND TYPES (PORTABLE, EARTHEN, CELLULAR, STEEL, ETC.). COFFERDAM DESIGN SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN OREGON AND IDAHO.
2. COFFERDAM FILL MATERIAL SHALL BE INORGANIC AND FREE FROM ASHES, CINDERS, TRASH, DEBRIS AND OTHER DELETERIOUS MATERIALS. MATERIAL SHALL BE WASHED PRIOR TO PLACEMENT TO REMOVE FINES. PLACED FILL MATERIAL SHALL HAVE NO MORE THAN 10 PERCENT PASSING #200 SIEVE PER ASTM D6913.



TURBIDITY BARRIER C
SCALE: NTS

OXBOW SERVICE SPILLWAY
EROSION & SEDIMENT CONTROL
SECTION & DETAILS
FIGURE 10
AUGUST 23, 2023



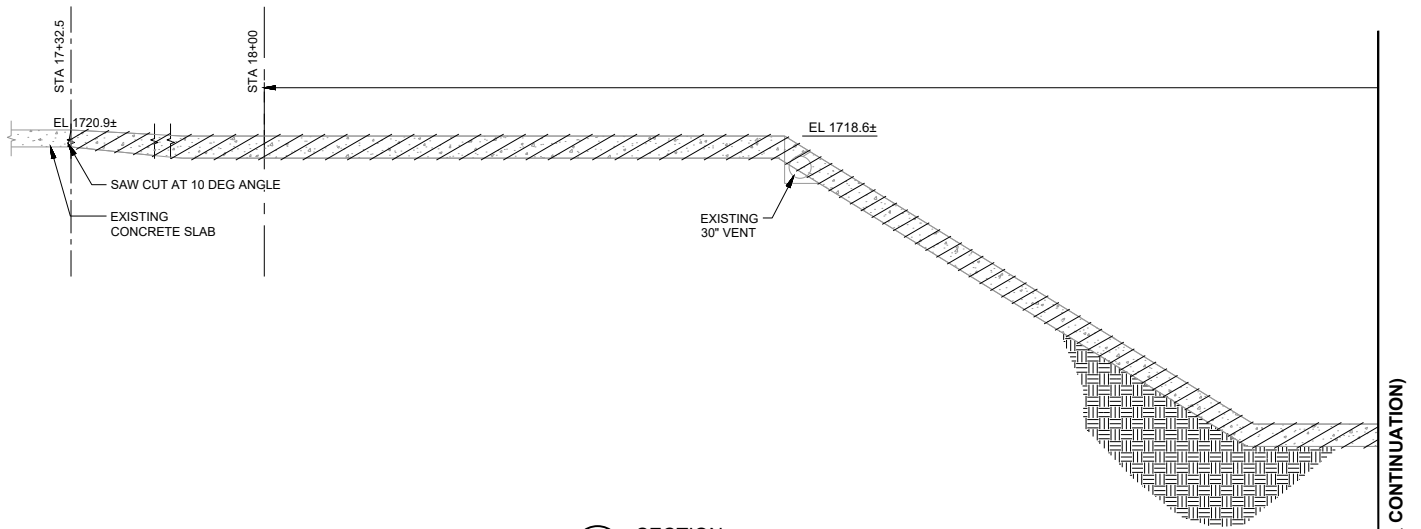
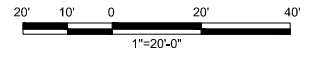
NOTES:

1. CONCRETE THICKNESS VARIES. MINIMUM THICKNESS FROM BORINGS WAS 30 INCHES.
2. CONTRACTOR SHALL REMOVE CYCLOPEAN CONCRETE TO THE LINES AND GRADES NECESSARY FOR THE NEW SPILLWAY CONCRETE. ANY LOOSE OR DETERIORATED CYCLOPEAN CONCRETE SHALL BE REMOVED AND REPLACED WITH CONCRETE FILL.
3. CONTRACTOR SHALL PROTECT EXISTING SPILLWAY SLABS AND WALLS UPSTREAM OF THE SAWCUT LINES FROM DAMAGE.

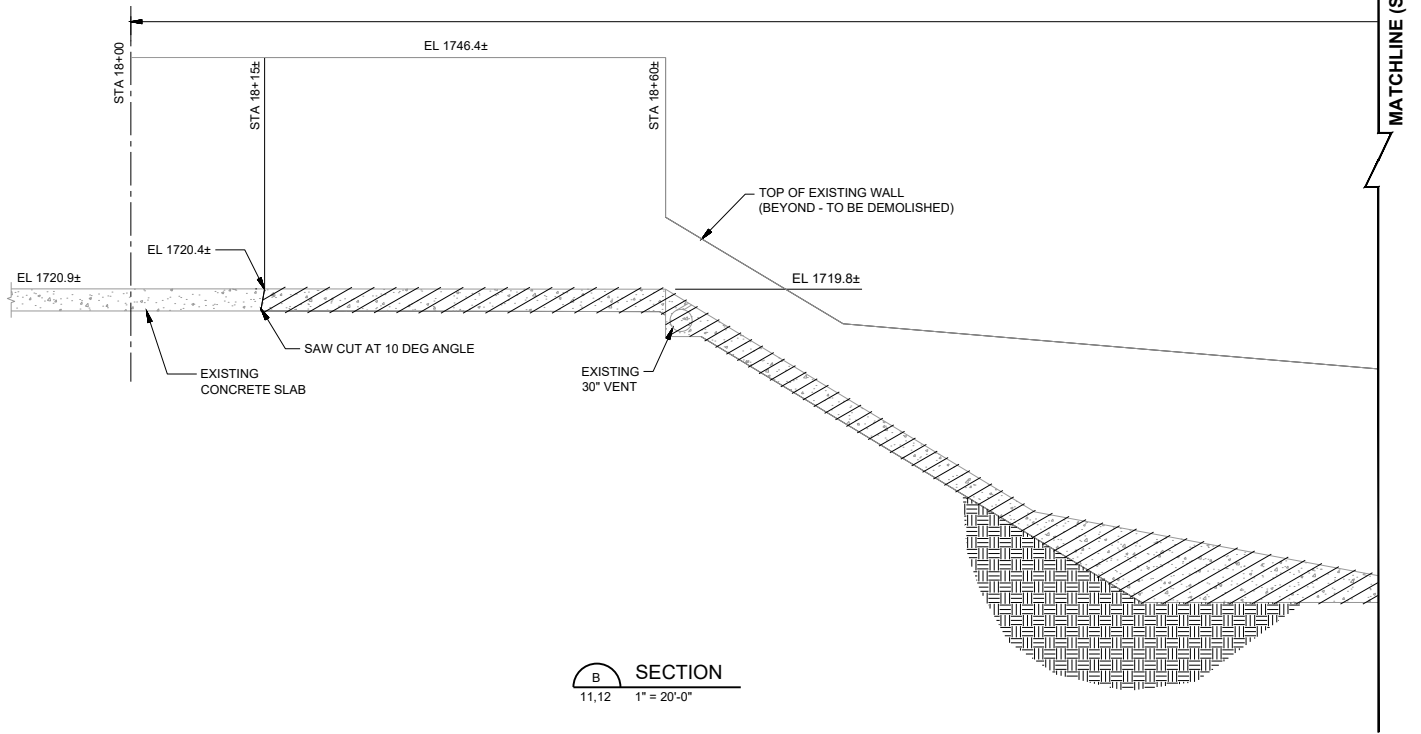
DEMOLITION - SITE PLAN

1" = 40'-0"

*OXBOW SERVICE SPILLWAY
DEMOLITION
SITE PLAN
FIGURE 11
AUGUST 23, 2023*



SECTION A
11,12 1" = 20'-0"

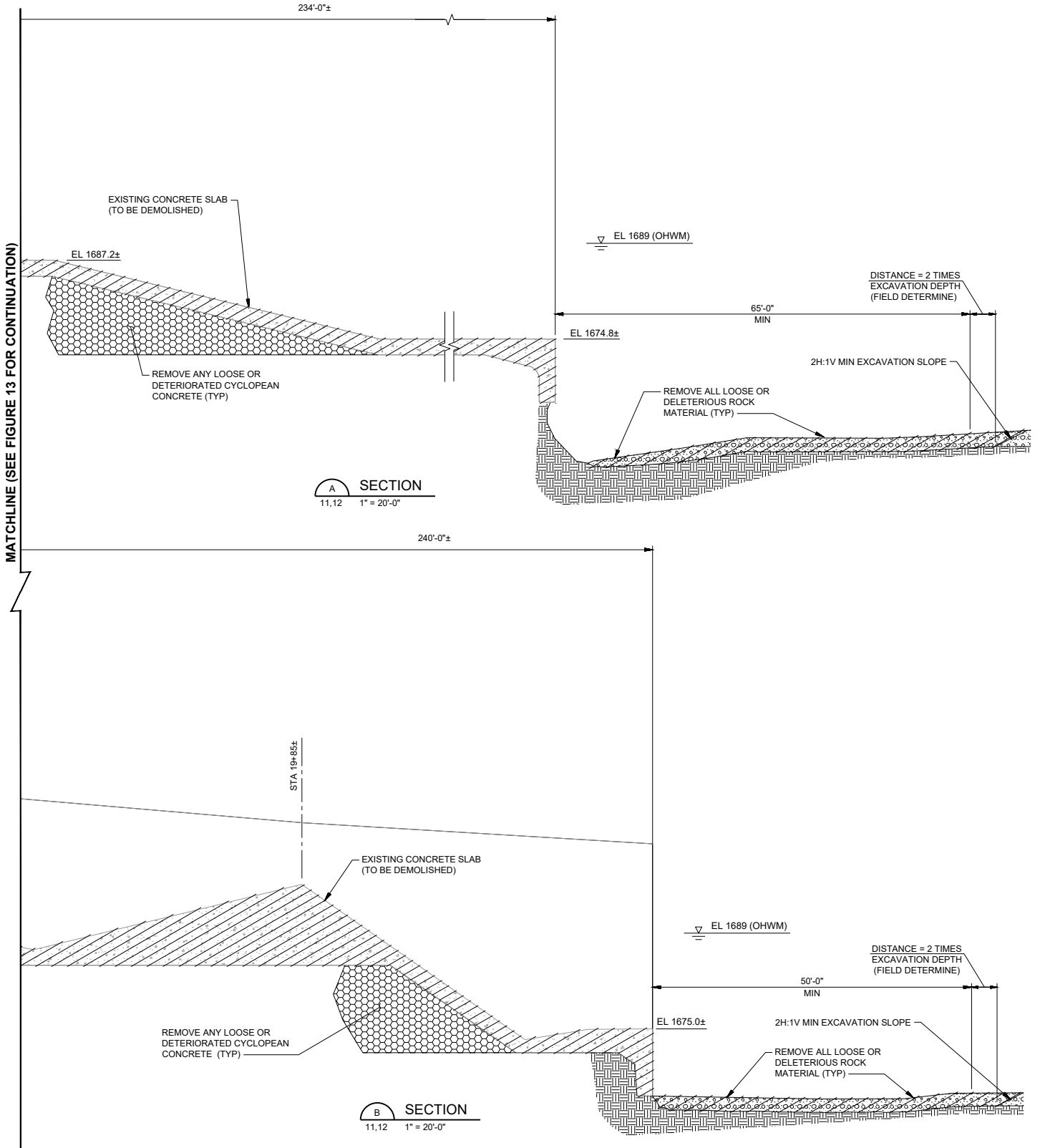
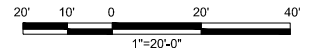


SECTION B
11,12 1" = 20'-0"

MATCHLINE (SEE FIGURE 14 FOR CONTINUATION)

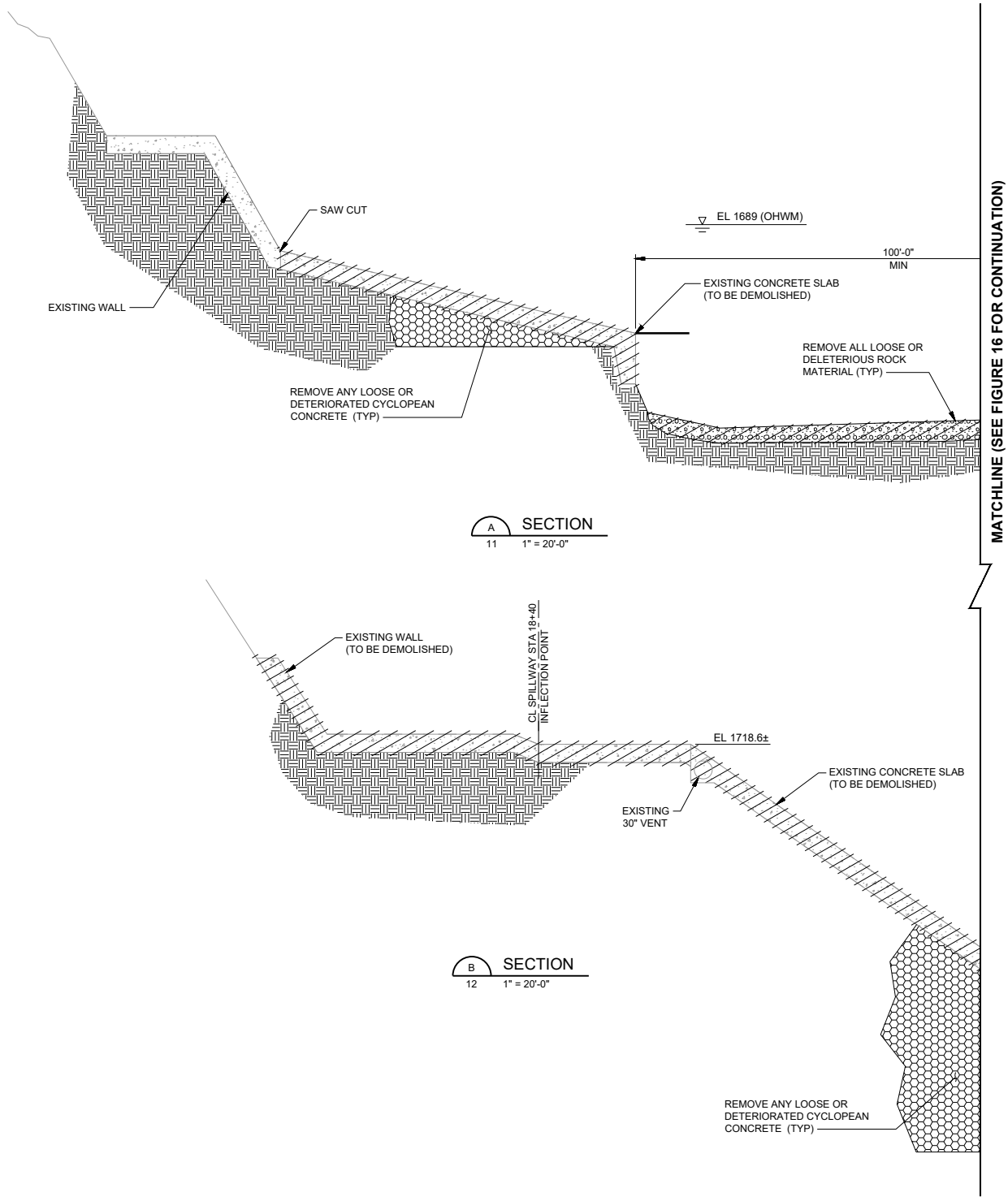
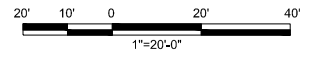
*OXBOW SERVICE SPILLWAY
DEMOLITION SECTION*

FIGURE 13
AUGUST 23, 2023



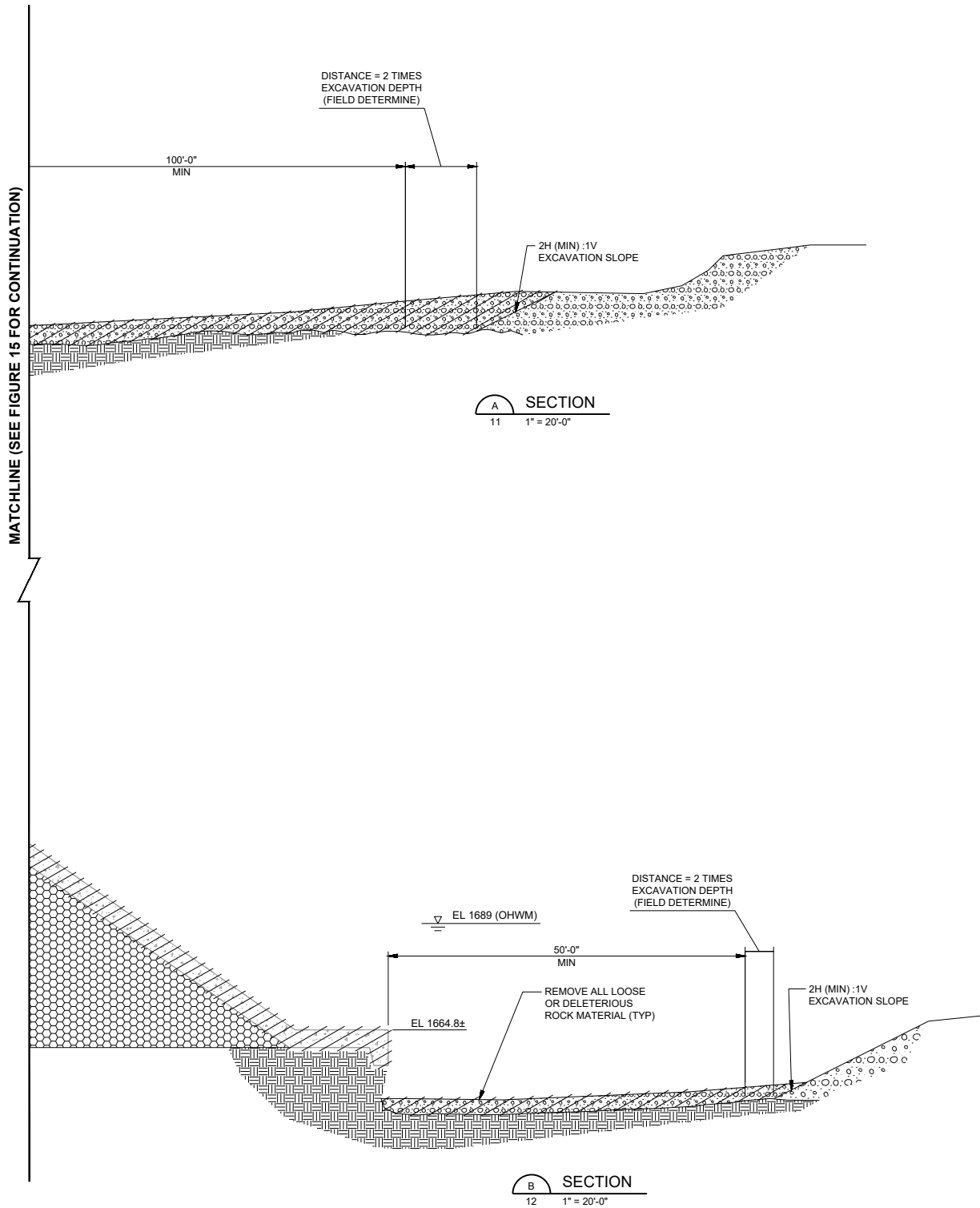
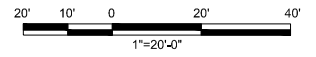
*OXBOW SERVICE SPILLWAY
DEMOLITION SECTION*

FIGURE 14
AUGUST 23, 2023



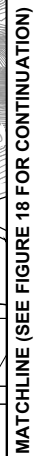
*OXBOW SERVICE SPILLWAY
DEMOLITION SECTIONS*

FIGURE 15
AUGUST 23, 2023



*OXBOW SERVICE SPILLWAY
DEMOLITION SECTIONS*

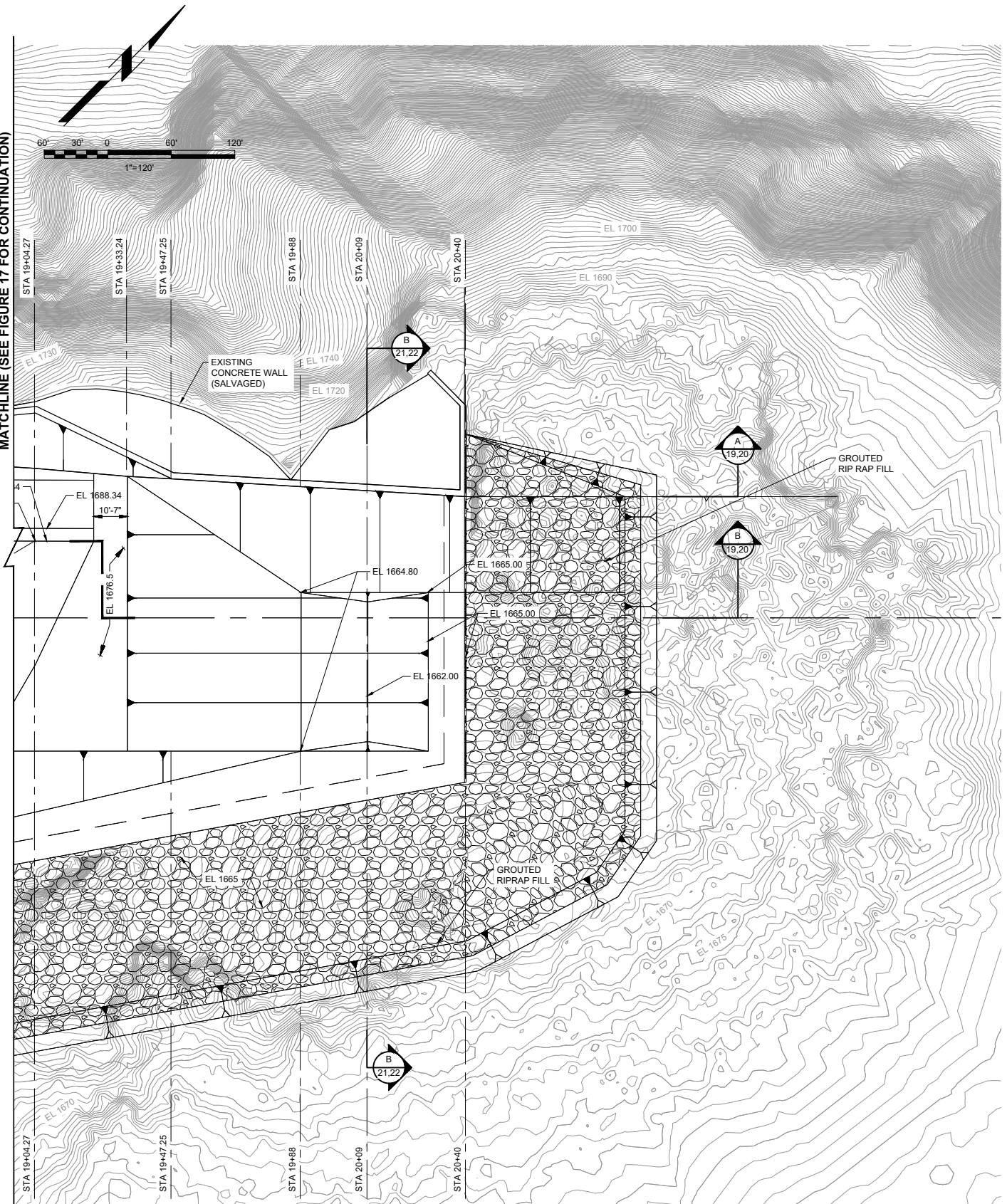
FIGURE 16
AUGUST 23, 2023



1" = 40'-0"

FIGURE 17
AUGUST 23, 2023

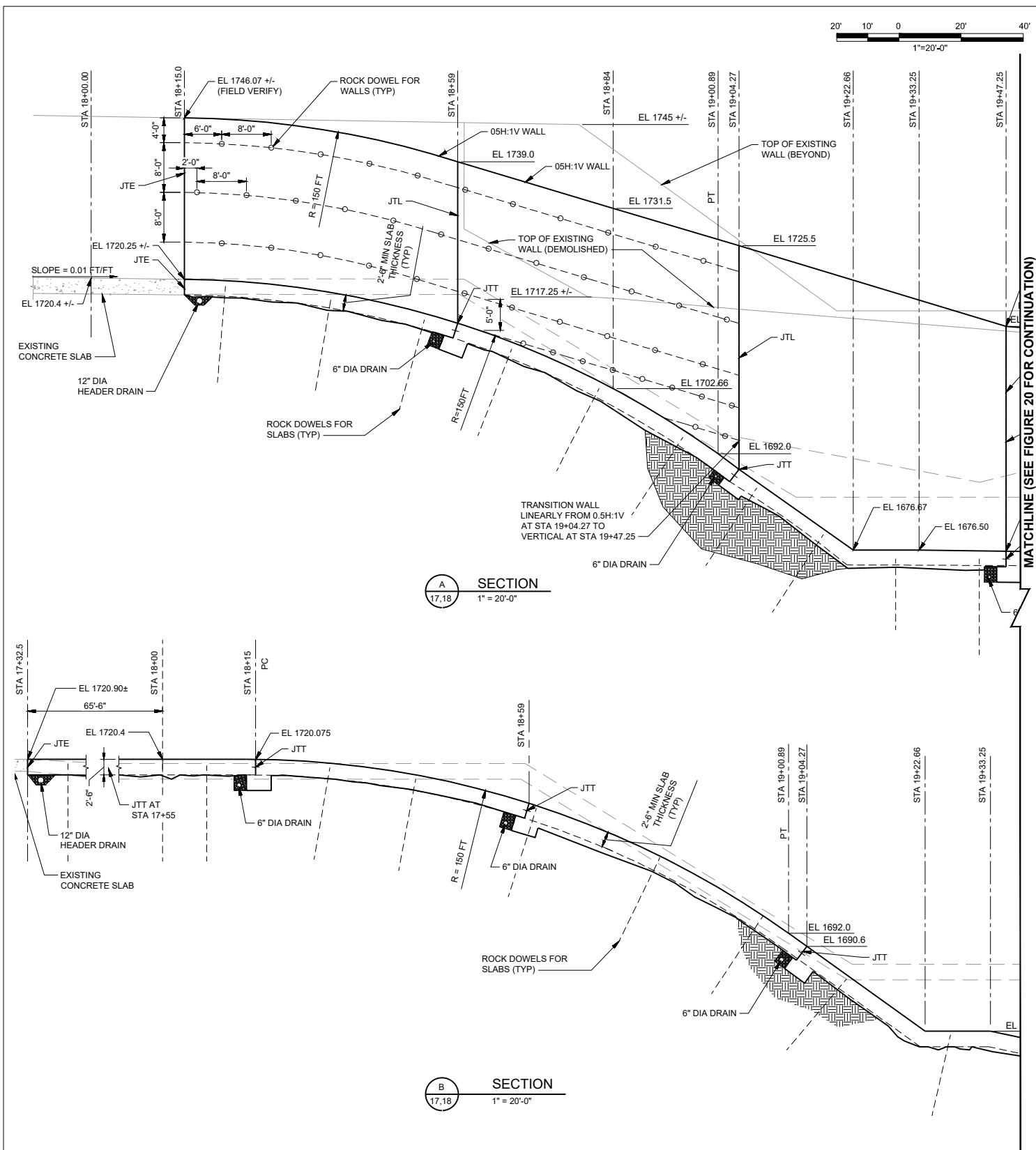
MATCHLINE (SEE FIGURE 17 FOR CONTINUATION)

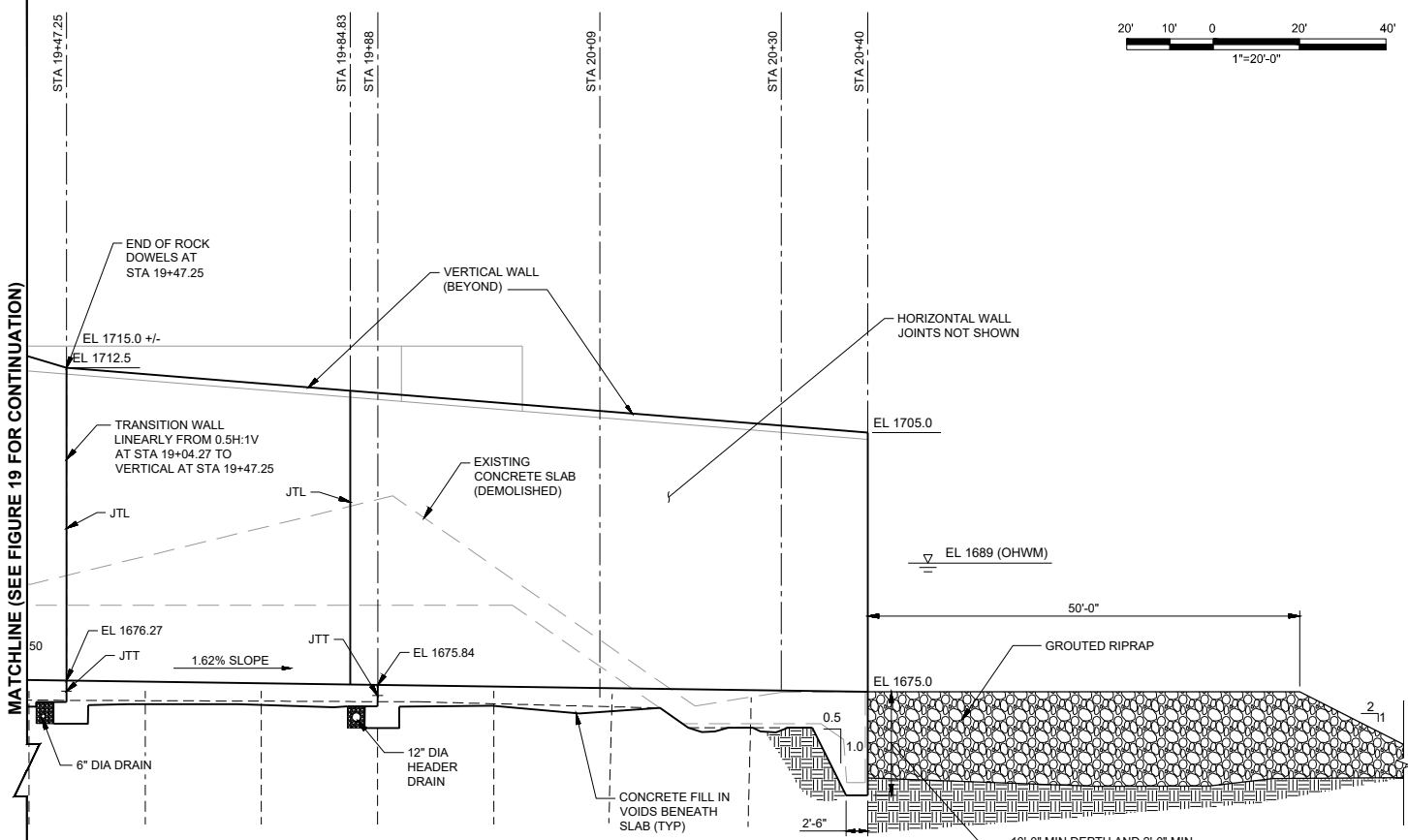


SPILLWAY PLAN
1" = 40'-0"

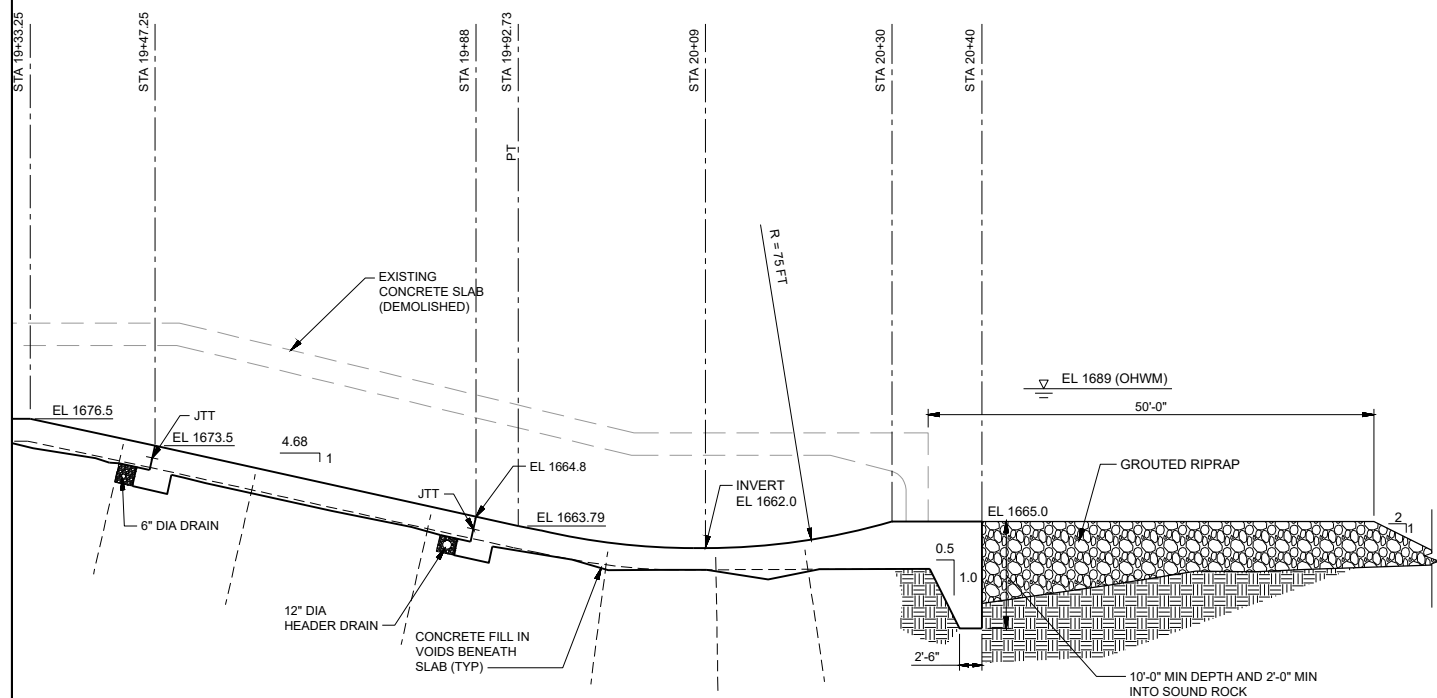
*OXBOW SERVICE SPILLWAY
SPILLWAY PLAN*

FIGURE 18
AUGUST 23, 2023





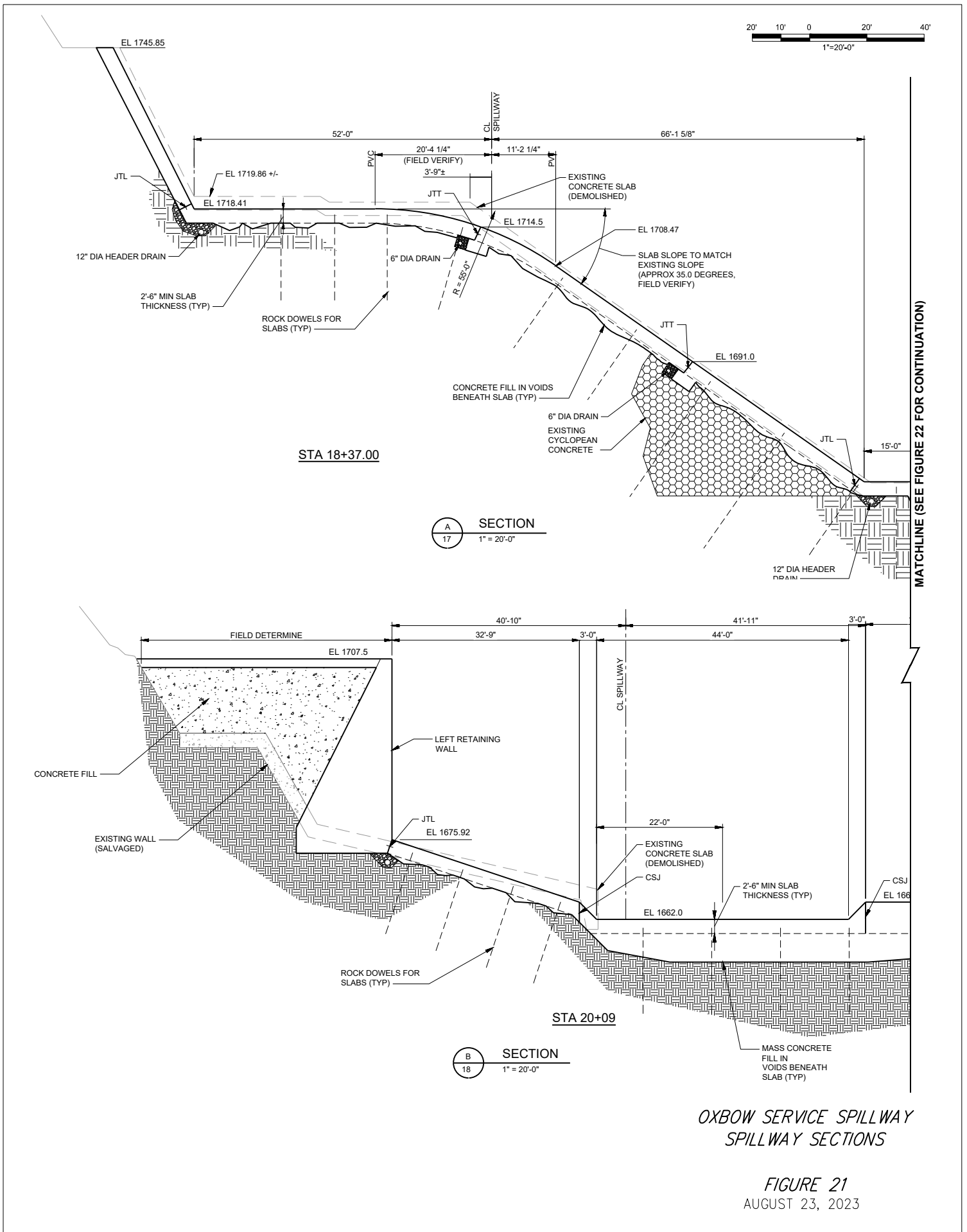
A
SECTION
17.18
1" = 20'-0"

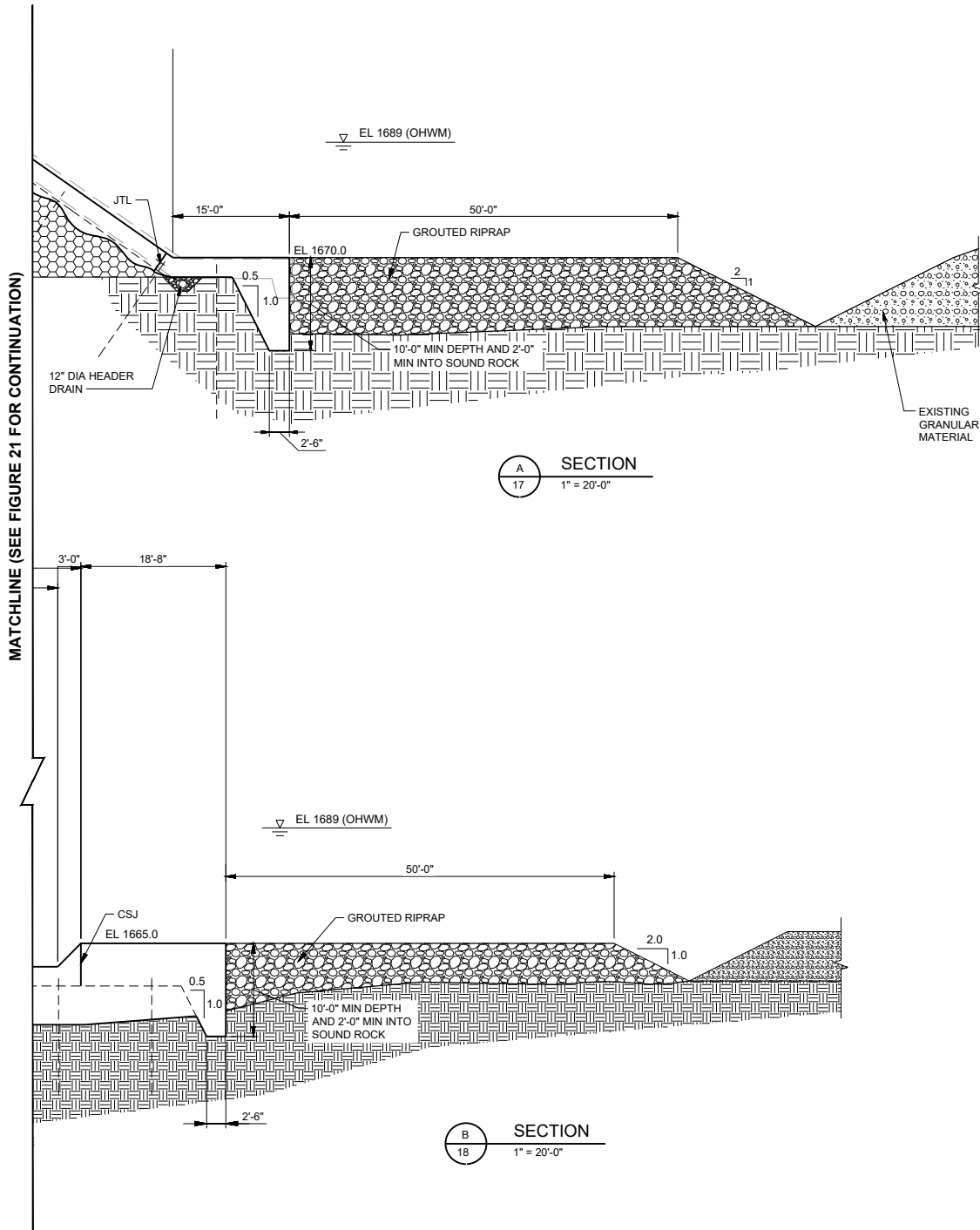
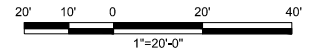


B
SECTION
17.18
1" = 20'-0"

**OXBOW SERVICE SPILLWAY
SPILLWAY SECTIONS**

FIGURE 20
AUGUST 23, 2023





*OXBOW SERVICE SPILLWAY
SPILLWAY SECTIONS*

FIGURE 22
AUGUST 23, 2023