

# TECHNICAL MEMORANDUM



To: Eric Cousens<sup>1</sup>, Maranda Nemeth<sup>2</sup>

From: Keith Kantack, P.G.<sup>3</sup>, Marcel Young-Scaggs, P.E.<sup>4</sup> and Cameron Twombly, E.I.T.<sup>5</sup>

Date: September 19, 2025

Project: Littlefield Dam Removal

Re: Existing Conditions Memo

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This memorandum provides a brief assessment of the existing conditions at the Littlefield Dam Removal site.

## BACKGROUND

The Littlefield Dam (the Dam) sits on the Little Androscoggin River (the River) in Auburn, Maine (the City), approximately four miles upstream of the confluence with the Androscoggin River (Figure 1). The Dam was built in the early 1900s as a hydroelectric generating station. The left embankment of the Dam was breached in the March 1936 flood, which marked the end of its operations. In the 1980s, there was an effort to repair and reactivate the Dam, but the project never came to fruition (Littlefield Hydro Company, 1987). The Dam is currently owned by the Martindale Country Club (the Dam owner), which sits on the right bank of the river and is supportive of the proposed dam removal.

Though it is breached, the Dam continues to block upstream passage of resident fish. According to the Maine Stream Habitat viewer, there are over 200 Atlantic salmon (*Salmo salar*) habitat units and over 8,000 acres of potential river herring ponds upstream of the dam. While there are five dams downstream of the site (two on the Little Androscoggin and three on the Androscoggin), removal of the Littlefield Dam is an important part of a larger restoration effort within the Little Androscoggin watershed as well as across the region. In combination with downstream fish passage efforts, this project has the potential to reconnect habitat for sea run fish species like American shad (*Alosa sapidissima*), blueback herring (*Alosa aestivalis*), alewife (*Alosa pseudoharengus*), Atlantic salmon, American eel (*Anguilla rostrata*), and sea lamprey (*Petromyzon marinus*) (NOAA Fisheries, 2020)

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<sup>1</sup> City of Auburn, Deputy Director of Public Services

<sup>2</sup> NOAA Fisheries, Office of Habitat Conservation, Restoration Center

<sup>3</sup> Inter-Fluve, Geomorphologist, Project Manager

<sup>4</sup> Inter-Fluve, Engineer-of-Record

<sup>5</sup> Inter-Fluve, Design Engineer

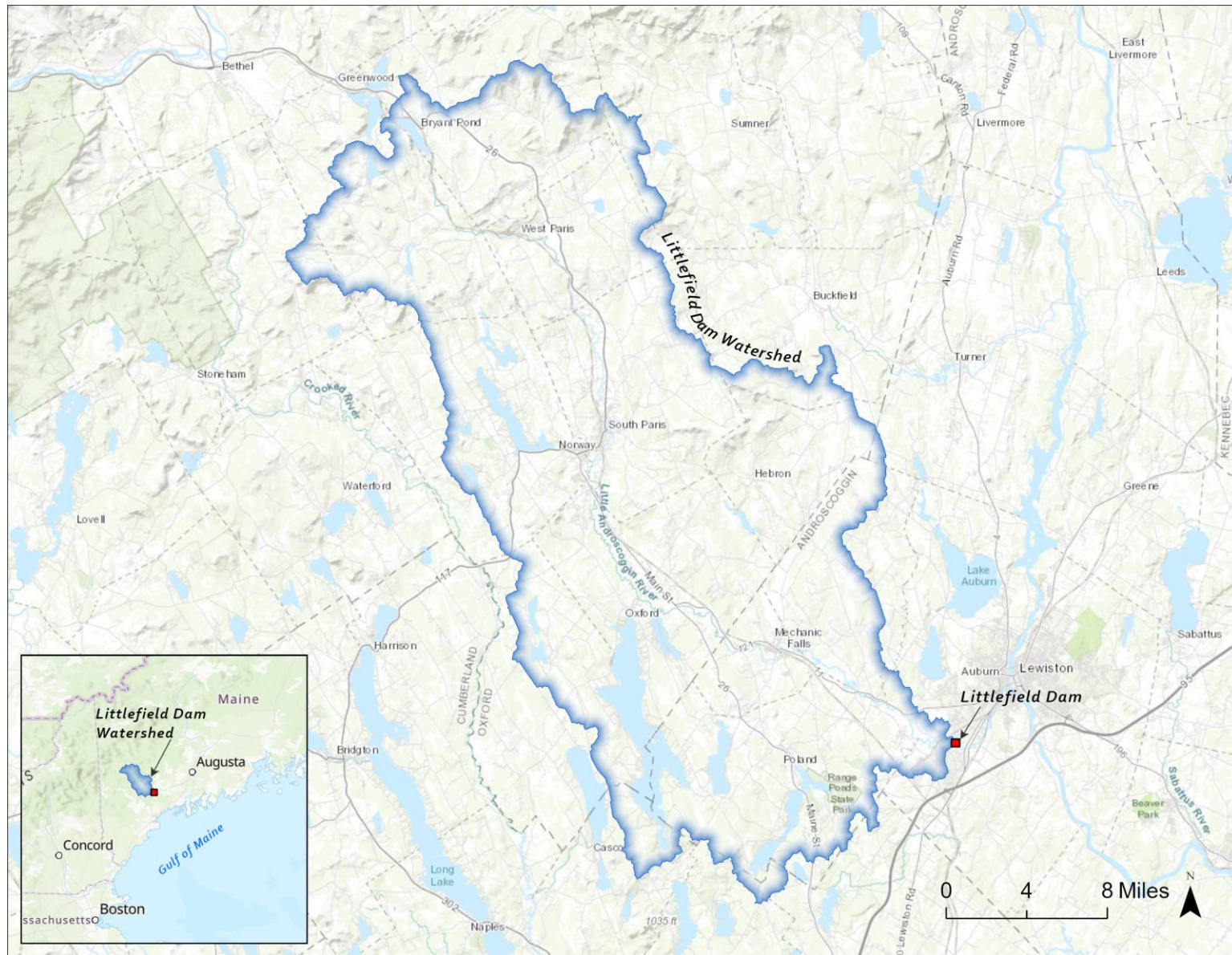


Figure 1. Map of the Little Androscoggin Watershed upstream of the Littlefield Dam.

## **EXISTING CONDITIONS**

Inter-Fluve performed a site survey and assessment of the Project area in June and July of 2025, with additional site visits in May and August. The survey included the collection of topographic data of the dam structure and adjacent upland areas using a real time kinematic (RTK) GPS. Bathymetric data of the river channel and dam impoundment was collected using the same methods.

### **GEOMORPHIC SETTING**

The Littlefield Dam sits at the downstream end of a steep and relatively confined reach of the Little Androscoggin River. This reach stands in contrast to the broad floodplain and meandering channel upstream and downstream of the site (Figure 4 and Figure 5). This localized steepness, known as a knickzone, is caused by the durable granite bedrock that underlies this section of river. Dams have commonly been located along knickzones to harness the increased energy of the stream and take advantage of outcrops of stable bedrock. This geomorphic context is important to consider during a dam removal. The abundance of ledge on the banks and bed of the river provides stability to the channel profile and planform, alleviating concerns over headcutting in the event of a dam removal. This eliminates a common challenge for dam removals, where channel adjustments post-removal can impact upstream infrastructure. However, when bedrock has been historically modified to enhance power utilization it may present challenges for fish passage following dam removal. The extent to which this is an issue won't be known until the dam is removed and will be addressed with an adaptive management approach.

### **DAM STRUCTURES**

The extent of Littlefield Dam that remains in the channel is approximately 350 feet long and constructed of approximately 3,500 cubic yards of concrete. A photo of the Dam is shown in Figure 2 and the layout of the site is shown in Figure 6. The concrete is in poor condition with widespread spalling. The Dam is currently breached on the river left and right side of the dam, with remnant structures associated with the Dam in the overbank areas on both sides of the channel. On the left there is an abutment that amounts to a minimal volume of concrete. On the right, there is a dam structure approximately 140 feet long which ties into an earthen berm connected to the hillslope. This masonry structure amounts to approximately 100 cubic yards of stone and mortar.

Approximately 750 feet upstream of the Dam, we discovered a remnant dam during the site survey (Figure 3). The timber and rock structure creates a drop of approximately 2 feet under low flow conditions. The remnant dam may present a fish passage barrier at low flow and is therefore being considered for removal as a part of the Project.

### **ACCUMULATED SEDIMENT**

As expected, limited accumulated sediment was observed in the impoundment. The scarcity of sediment is a result of two primary factors. Dam breaches shorten impoundments and allow for elevated flow

velocities, resulting in low trapping efficiency. Additionally, very little sediment is delivered to the impoundment because the contributing watershed, like much of New England, yields very little sediment. The small pocket of sediment that was observed (Figure 6), was composed of sand.

## **WATER INTAKES**

There are water intakes upstream and downstream of the Dam (Figure 6). The water intake for irrigation at the Martindale Country Club is located approximately 1,300 feet upstream of dam. The Pioneer Plastics water intake is approximately 1,100 feet downstream of the Dam. Neither intake will be affected by the removal of the Littlefield Dam or remnant dam. The analysis supporting this finding is presented in the following sections.



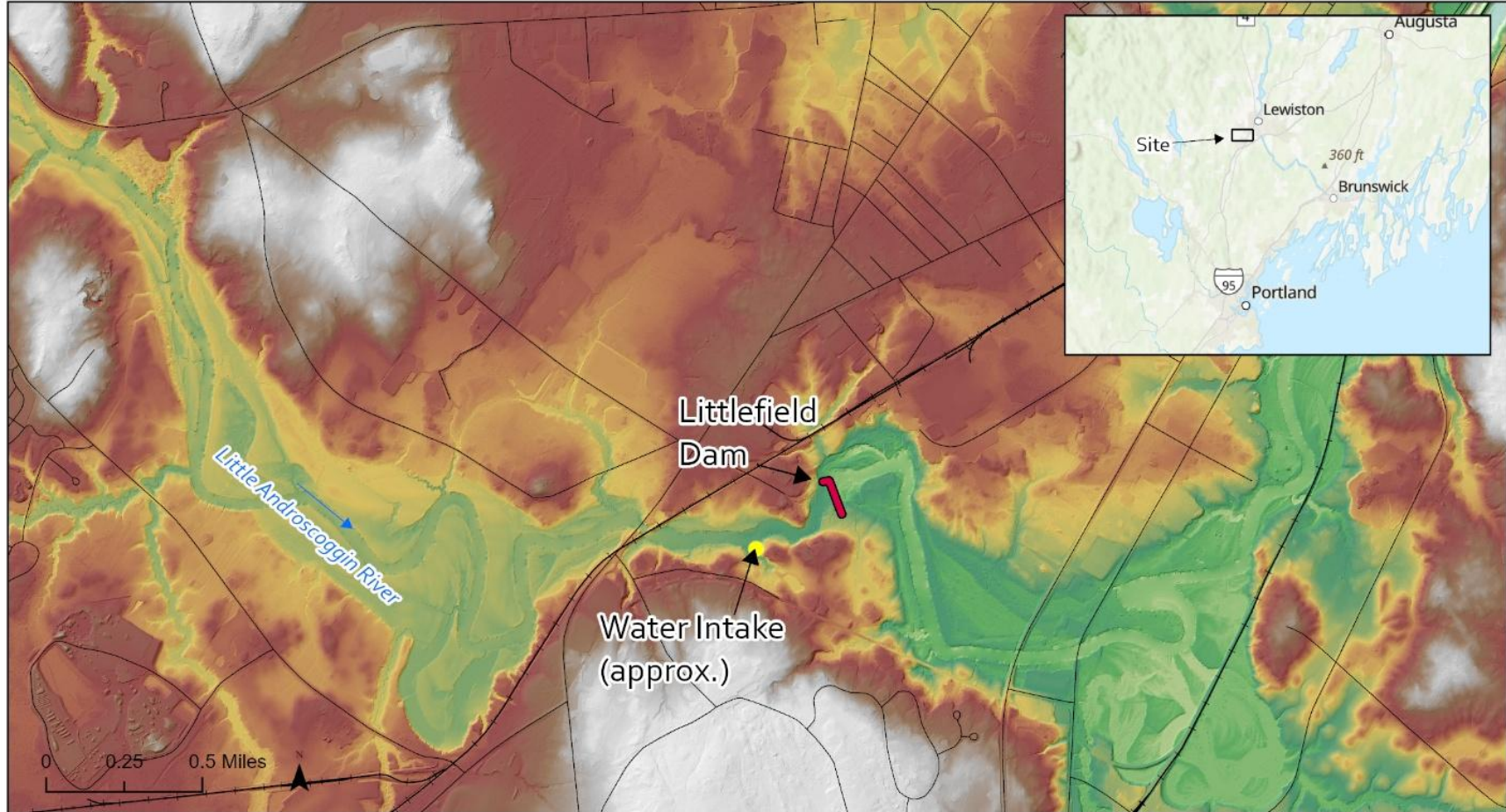


***Figure 2. Drone photo of the Littlefield Dam. Photo taken May 1, 2025.***



***Figure 3. Looking upstream at the remnant dam. Photo taken August 28, 2025.***





**Figure 4. Lidar elevation model of the site and surrounding landscape. The steep and confined reach that the Dam sits along is apparent in contrast to the broad floodplain and meandering planform upstream and downstream of the site.**

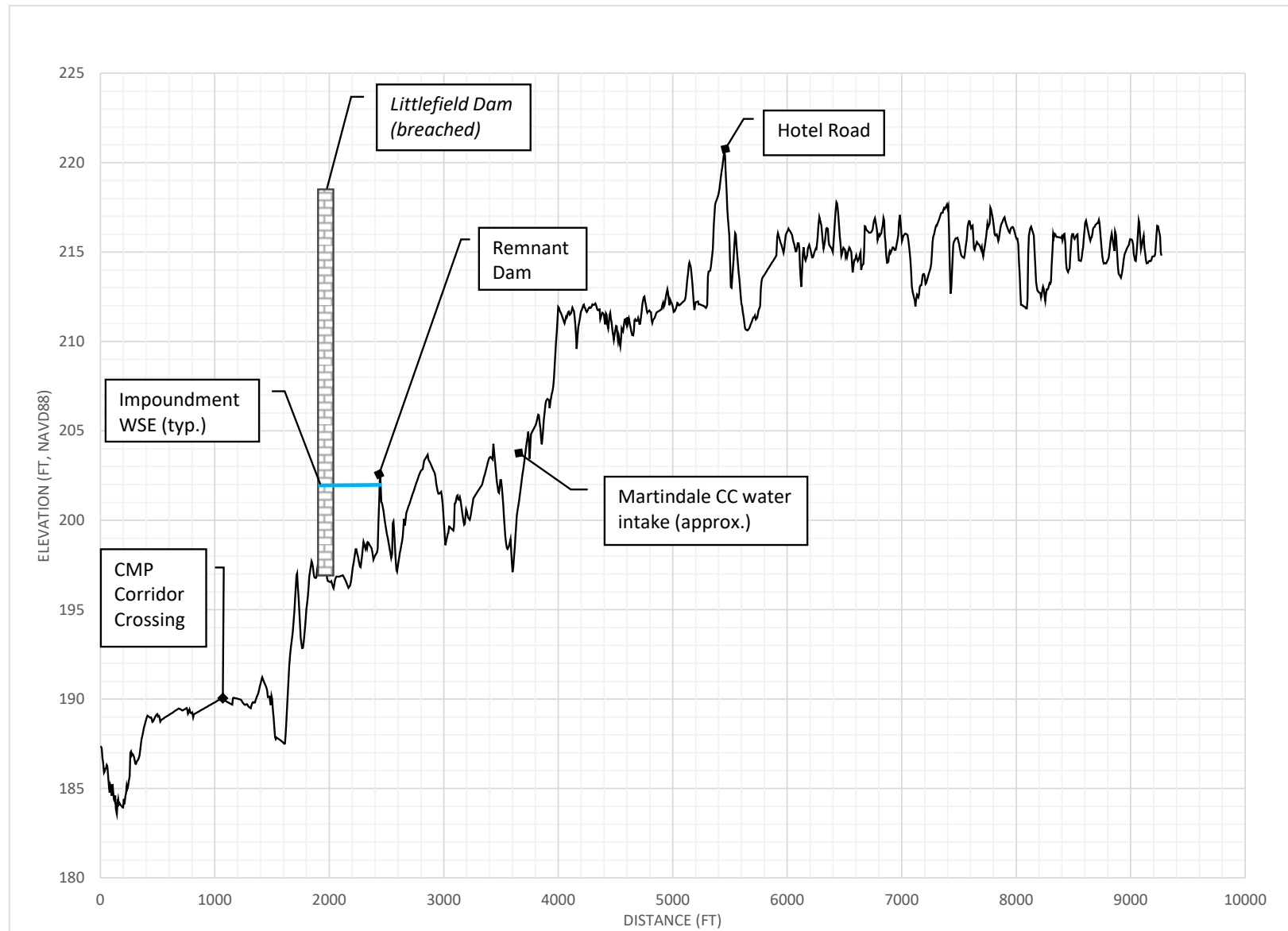


Figure 5. Lidar-derived longitudinal profile of the Little Androscoggin River.



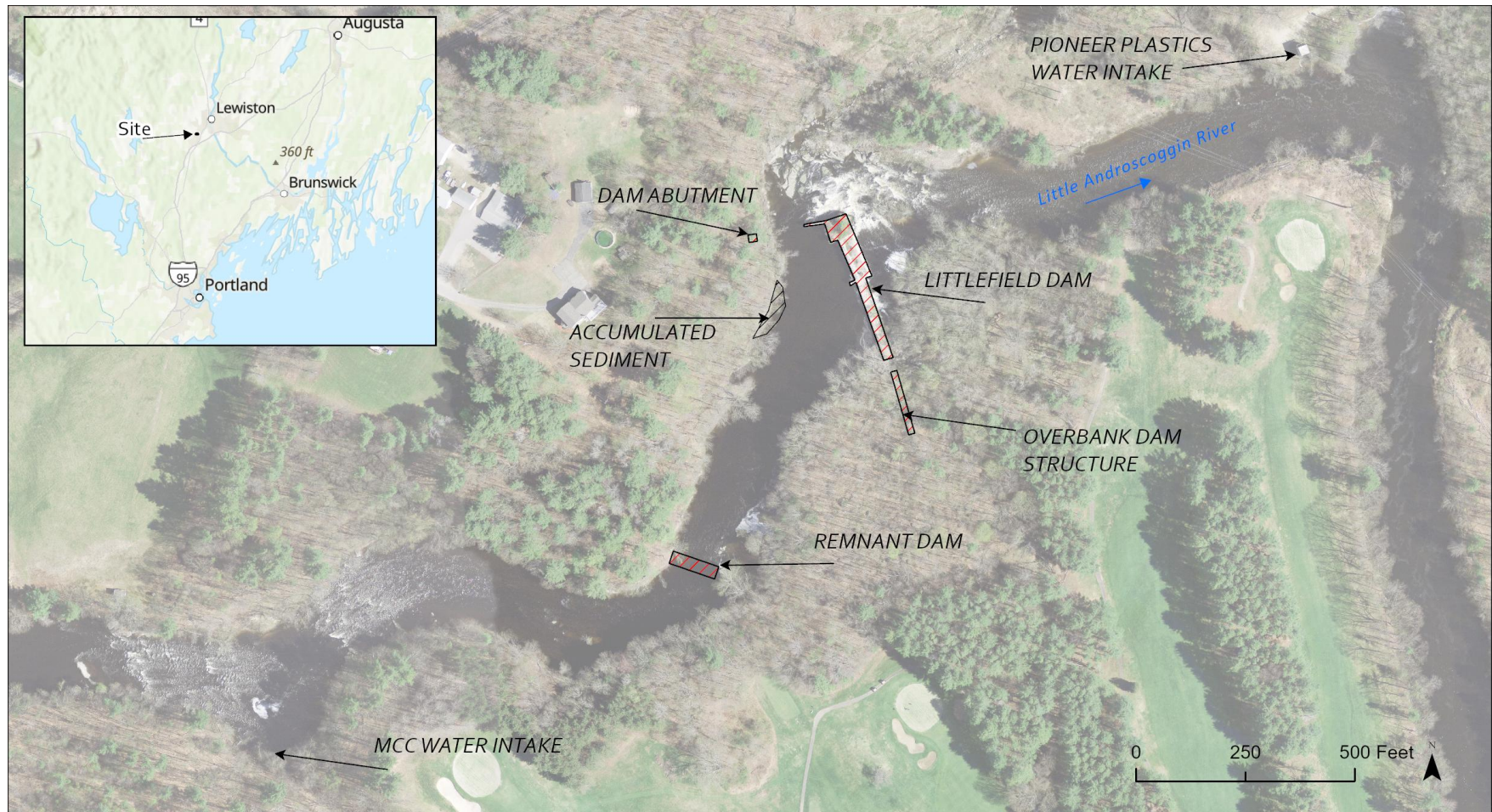


Figure 6. Aerial image of site with key features labeled.

## SUMMARY

The site sits at a knickzone on the Little Androscoggin River, with bedrock forming the banks and bed of the channel. The dam is breached, which reduces the size and sediment trapping efficiency of the impoundment. As a result, there is a minor amount of accumulated sediment in the impoundment. A remnant dam was discovered upstream of the impoundment, which may impact fish passage in the event of a dam removal and should itself be considered for removal as part of the project. The dam removal is not expected to impact any infrastructure adjacent to the project area, including the Martindale Country Club and Pioneer Plastics water intakes.

## REFERENCES

- Littlefield Hydro Company. (1987). *Application for FERC License - Littlefield Hydro*.
- NOAA Fisheries. (2020). *Androscoggin River Watershed Comprehensive Plan for Diadromous Fishes. Greater Atlantic Region Policy Series 20-01*.

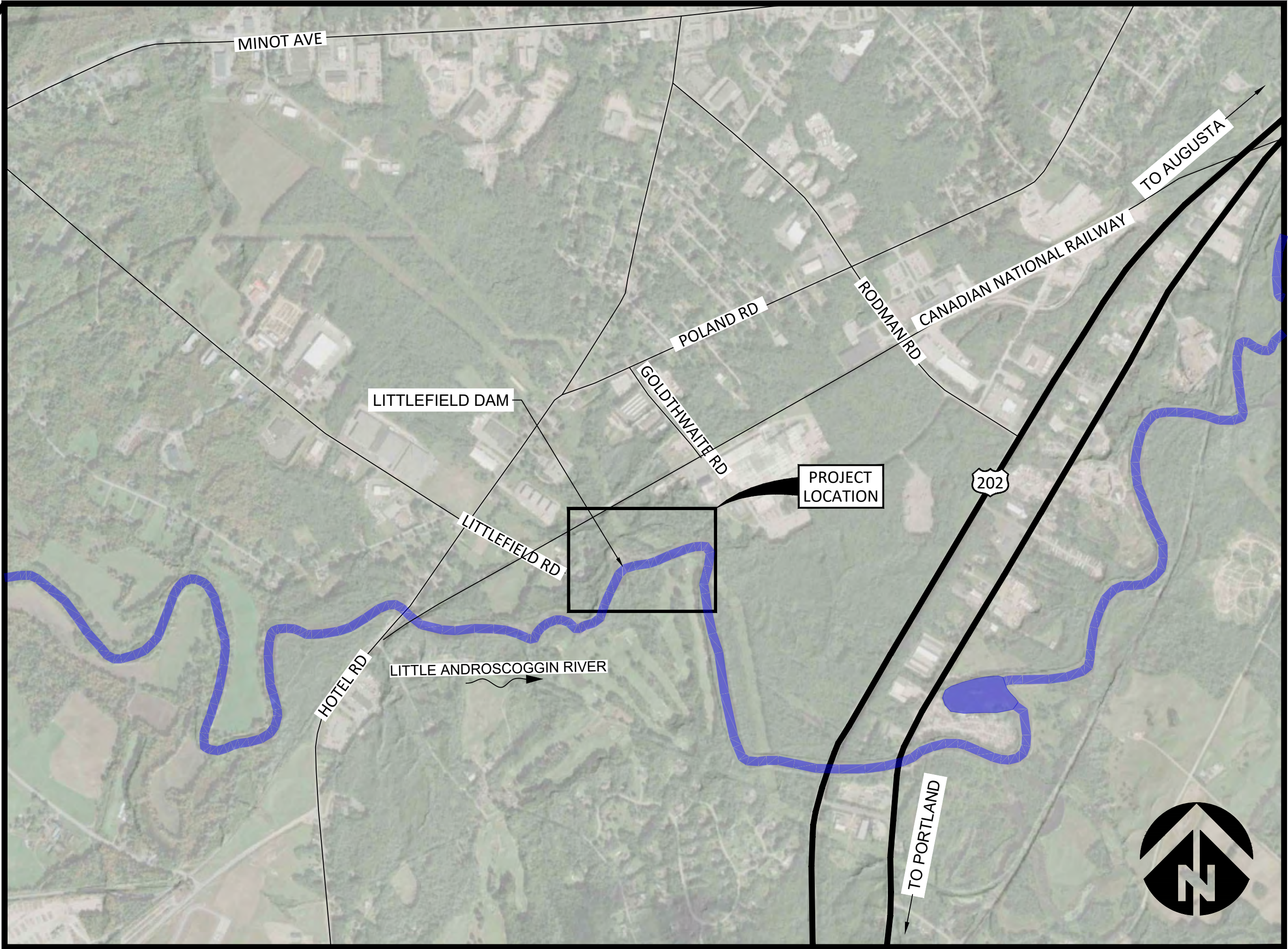
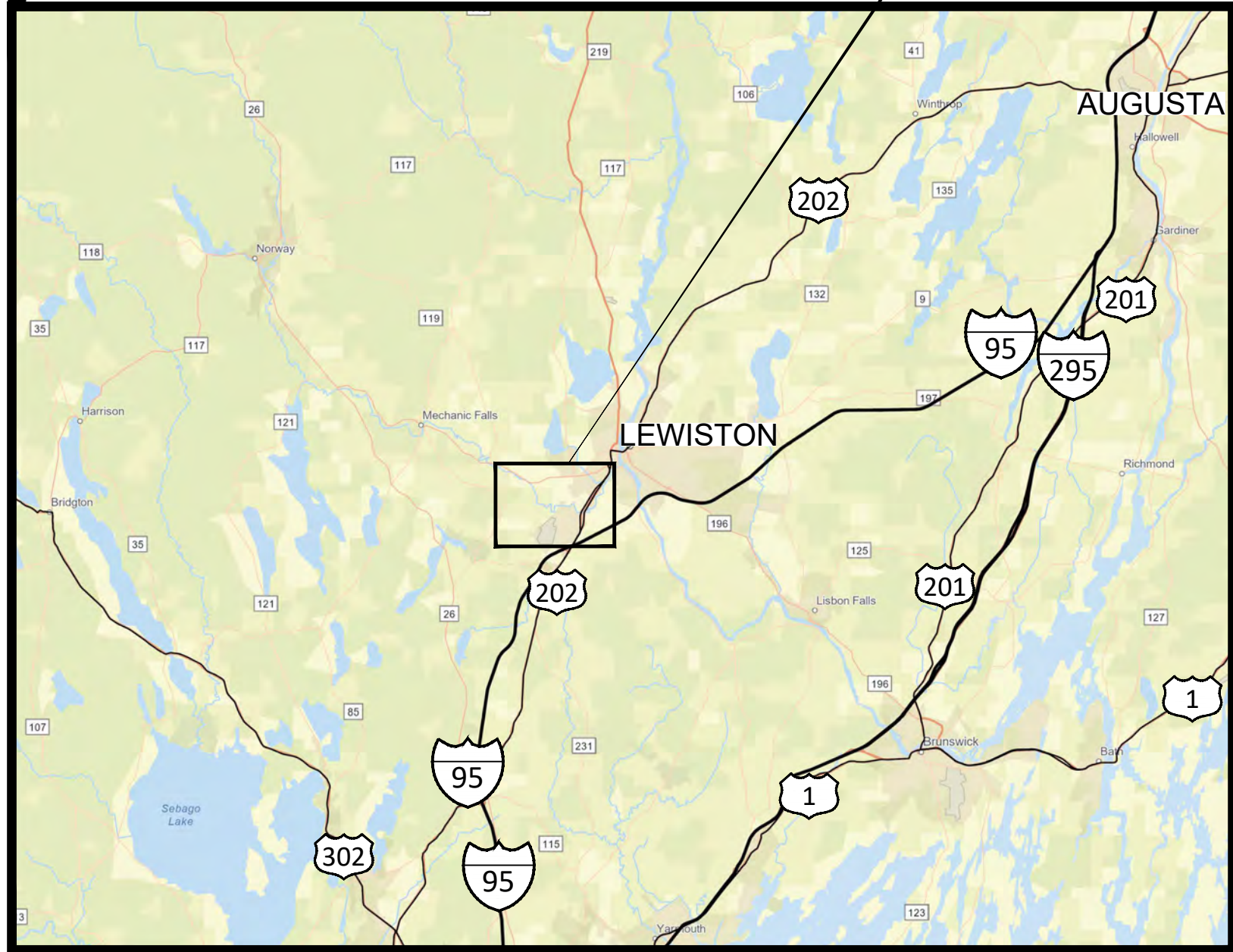
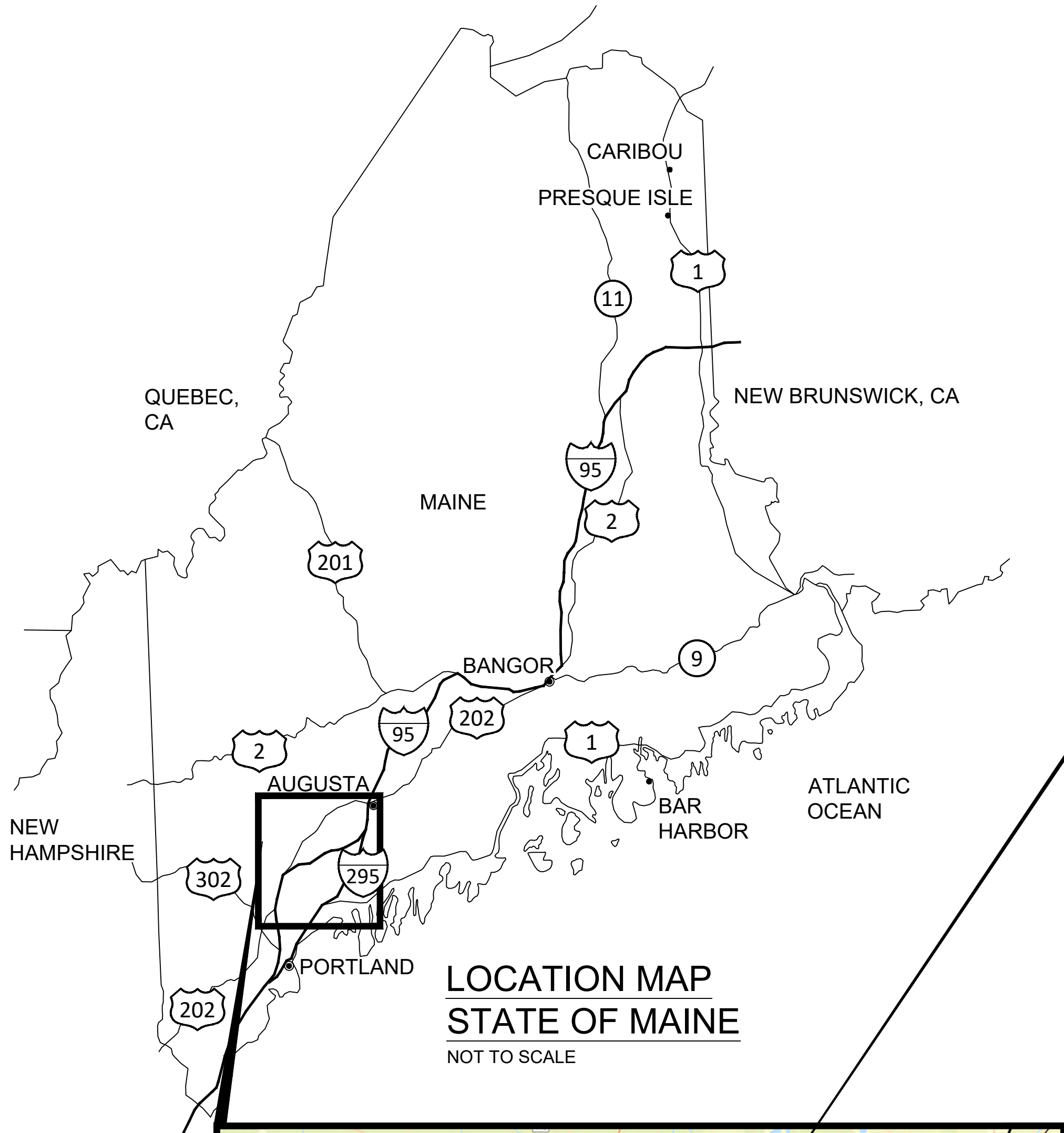
## ATTACHMENTS

A: LITTLEFIELD DAM REMOVAL BASEMAP AND PROPOSED CONDITIONS



# LITTLE ANDROSCOGGIN RIVER LITTLEFIELD DAM REMOVAL 50% DESIGN CITY OF AUBURN, MAINE

SEPTEMBER 2025



## SHEET INDEX

- 1 COVER, SHEET INDEX, VICINITY MAPS
- 2 EXISTING CONDITIONS AND SURVEY CONTROL
- 3 ACCESS, STAGING, WATER AND EROSION CONTROL, SEQUENCING
- 4 PROPOSED SITE PLAN AND PROFILE
- 5 DEMOLITION PLAN
- 6 DEMOLITION PROFILES
- 7 GRADING SECTIONS
- 8 DETAILS - BANK TREATMENT
- 9 DETAILS - SURFACE FABRIC
- 10 PLANTING PLAN
- 11 RESOURCE AREA MAP
- 12 EROSION CONTROL DETAILS

CONTRACTOR SHALL VERIFY LOCATIONS OF ALL  
BURIED AND ABOVE GRADE UTILITIES. CALL DIGSAFE  
FOR BURIED UTILITY LOCATIONS BEFORE  
COMMENCING GROUND DISTURBING ACTIVITIES

## COORDINATES:

LATITUDE: 44°03'56.16" N  
LONGITUDE: 70°15'52.57" W

WATERBODY: LITTLE ANDROSCOGGIN RIVER

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NO.	BY	DATE	REVISION DESCRIPTION

LP	KK/CT	KK/MYS
DRAWN	DESIGNED	CHECKED
MYS	8/30/2025	25-05-11
APPROVED	DATE	PROJECT

CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
50% DESIGN

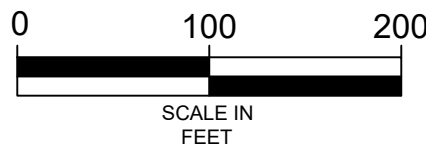


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COVER, SHEET INDEX, VICINITY  
MAPS

SHEET
1 OF 12





LEGEND

- EXISTING CONTOUR (2 FT)
- TAXLOTS
- 10+00 --- EXISTING CHANNEL ALIGNMENT
- OH — EXISTING OVERHEAD UTILITIES
- WI — EXISTING WATER INTAKE
- OHW — EXISTING ORDINARY HIGH WATER
- [Pattern] EXISTING DAM
- [Triangle] CONTROL POINT

- NOTES:
- HORIZONTAL COORDINATE SYSTEM IS NAD83 (2011), MAINE STATE PLANE, WEST ZONE, US FEET. VERTICAL DATUM IS NAVD88, US FEET.
  - TOPOGRAPHIC AND BATHYMETRIC SURVEY DATA WERE COLLECTED BY INTER-FLUVE IN JUNE 2025 AND AUGUST 2025. RTK GPS, TOTAL STATION, AND SONAR EQUIPMENT WERE UTILIZED. BATHYMETRIC CONTOURS SHOULD BE CONSIDERED APPROXIMATE.
  - LIDAR DATA COLLECTED IN MAY 2020 BY NOAA. ACCESSED FROM DIGITAL COAST MAY 2025.
  - PARCEL BOUNDARIES AND OWNERSHIP WERE OBTAINED THE CITY OF AUBURN IN AUGUST 2025.
  - UTILITIES SHOWN BASED ON GIS LINEWORK OBTAINED FROM THE CITY OF AUBURN, SUMMER 2025.

CONTROL POINTS				
POINT #	DESCRIPTION	ELEVATION	NORTHING	EASTING
101	CAPPED REBAR*	227.67	447832.92	2926348.05
102	CAPPED REBAR	200.40	449415.05	2927832.67
103	PK NAIL	212.69	449032.11	2927090.88
104	PAINT	205.18	449138.88	2926979.74
105	CAPPED REBAR*	239.52	449177.46	2926051.04

\* CONTROL POINT 101 AND 105 ARE NOT LOCATED IN THE PLAN VIEW EXTENTS PROVIDED. CONTROL POINT 101 IS LOCATED TO THE SOUTHWEST OF THE SITE, NEAR THE MARTIDALE PUMPHOUSE. CONTROL POINT 105 IS LOCATED TO THE NORTHWEST OF THE SITE, AT THE INTERSECTION OF LITTLEFIELD ROAD AND CANADIAN NATIONAL RAILWAY.

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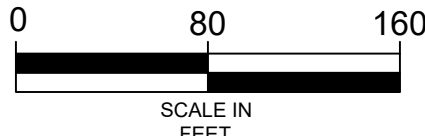
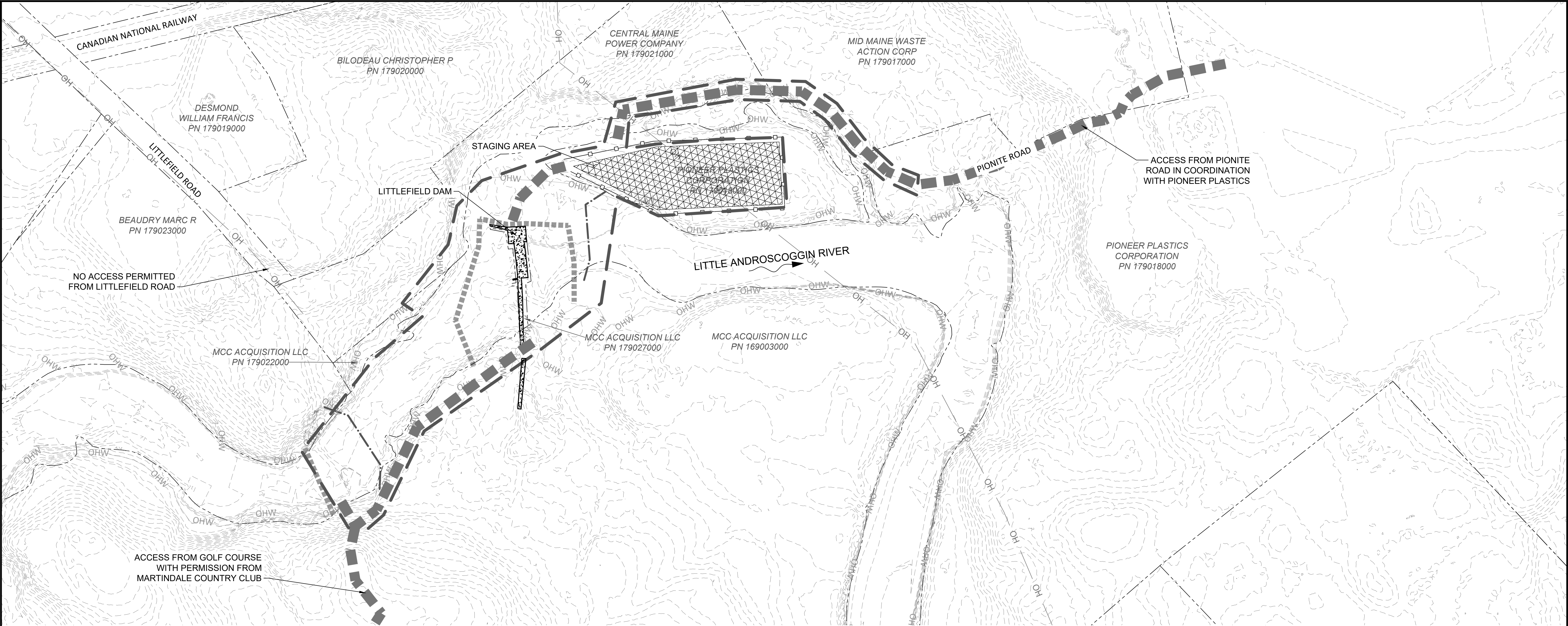


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EXISTING CONDITIONS AND  
SURVEY CONTROL

SHEET
2 OF 12





LEGEND

- ---

OH

OHW

---

EXISTING CONTOUR (2 FT)

TAXLOTS

EXISTING OVERHEAD UTILITIES

EXISTING ORDINARY HIGH WATER

EXISTING DAM

LIMITS OF DISTURBANCE
- SILT FENCE

TEMPORARY ACCESS

TEMPORARY STAGING

WORK AREA ISOLATION

TURBIDITY CURTAIN

SUGGESTED CONSTRUCTION SEQUENCING

1. MOBILIZE TO SITE.
2. ESTABLISH EROSION CONTROL AROUND SITE.
3. CLEARING AND GRUBBING, ESTABLISH ACCESS AND STAGING.
4. ISOLATE WORK AREA AT THE DAM.
5. ESTABLISH TEMPORARY CROSSING EITHER BY COLLAPSING THE DAM TO DRIVE ACROSS, OR BY CREATING A TEMPORARY CROSSING DOWNSTREAM OF THE DAM.
6. ESTABLISH TEMPORARY CROSSING EITHER BY COLLAPSING THE DAM TO DRIVE ACROSS, OR BY CREATING A TEMPORARY CROSSING DOWNSTREAM OF THE DAM.
7. ESTABLISH ACCESS TO DAM REMNANT, EITHER ALONG RIVER RIGHT OVER BANK AREA OR FROM MARTINDALE CC.
8. REMOVE REMNANT DAM.
9. RESTORE ACCESS ROUTE TO REMNANT DAM.
10. ISOLATE AND REMOVE RIGHT HALF OF LITTLEFIELD DAM.
11. ISOLATE AND REMOVE LEFT HALF OF LITTLEFIELD DAM.
12. MODIFY LEDGE FOR FISH PASSAGE, AS NEEDED.
13. INSTALL BANK TREATMENTS.
14. INSTALL PLANTINGS.
15. RESTORE STAGING AND ACCESS AREAS.
16. REMOVE EROSION CONTROL.
17. DEMOBILIZATION..

EROSION CONTROL NOTES:

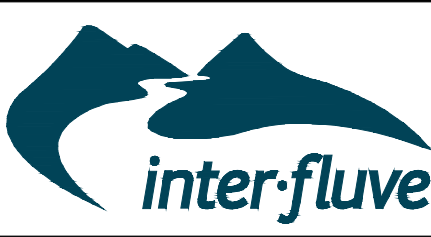
1. ALL SPECIFIC EROSION CONTROL BEST MANAGEMENT PRACTICES, INCLUDING WORK AREA ISOLATION, SEDIMENT CONTAINMENT, AND POLLUTION PREVENTION MEASURES SHALL COMPLY WITH ALL PROJECT PERMITS, PROJECT SPECIFICATIONS, THE MAINE DOT BEST MANAGEMENT PRACTICES FOR EROSION CONTROL AND SEDIMENTATION CONTROL MANUAL (MEDOT 2008), AND THE MAINE DEP EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS (MEDEP 2014).
2. THE CONTRACTOR SHALL SUBMIT A PROJECT SPECIFIC SOIL EROSION AND WATER POLLUTION CONTROL PLAN FOR REVIEW AND APPROVAL BY THE ENGINEER PRIOR TO MOBILIZATION TO THE PROJECT SITE.
3. ALL AREAS OF EXPOSED SOIL SHALL BE SEEDED WITH NATIVE VEGETATIVE SPECIES UPON COMPLETION OF FINISHED GRADING IN EACH AREA OF THE PROJECT SITE.

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NO.	BY	DATE	REVISION DESCRIPTION

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DRAWN	DESIGNED	CHECKED
MYS	8/30/2025	25-05-11
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CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
50% DESIGN

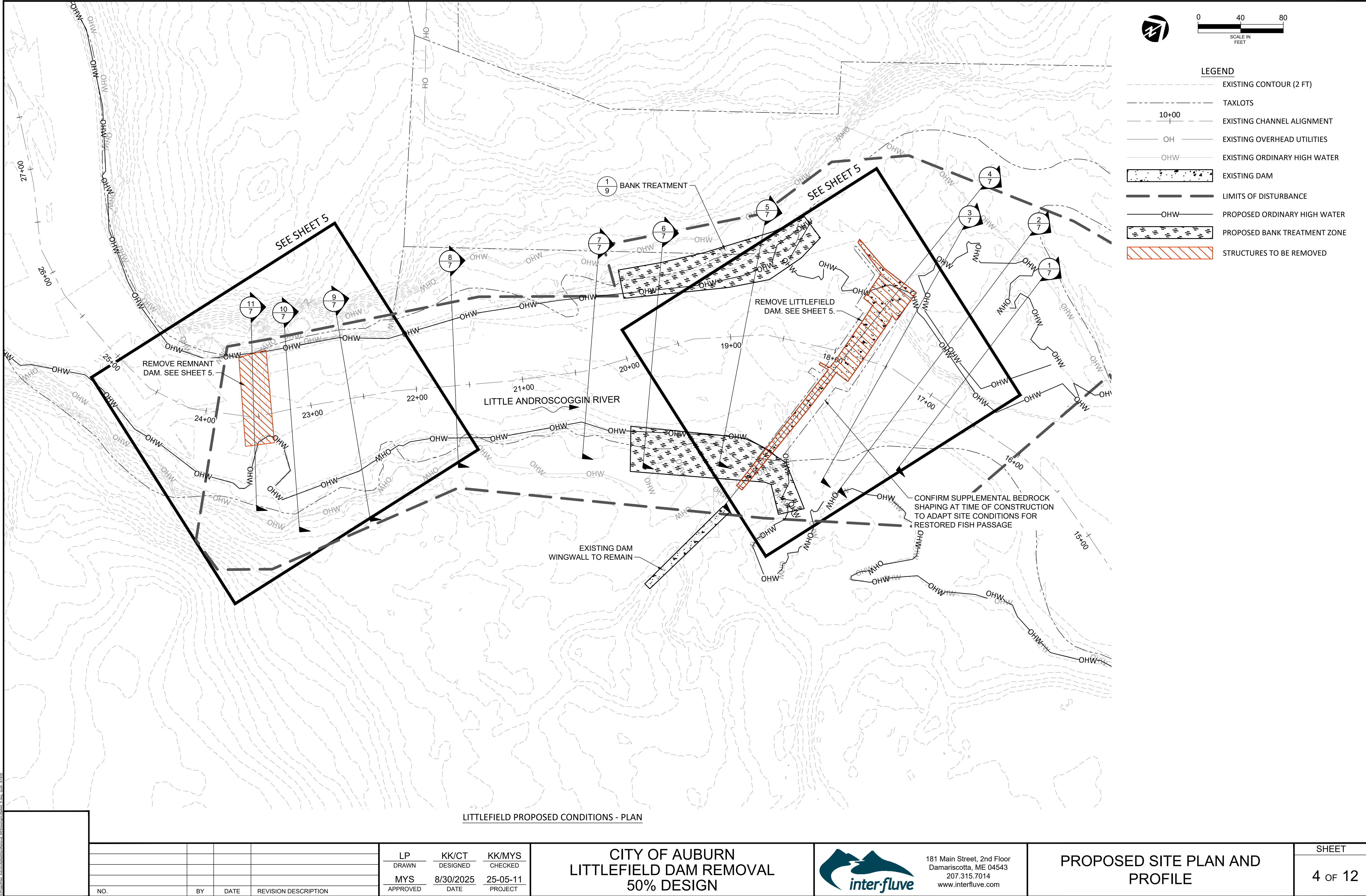


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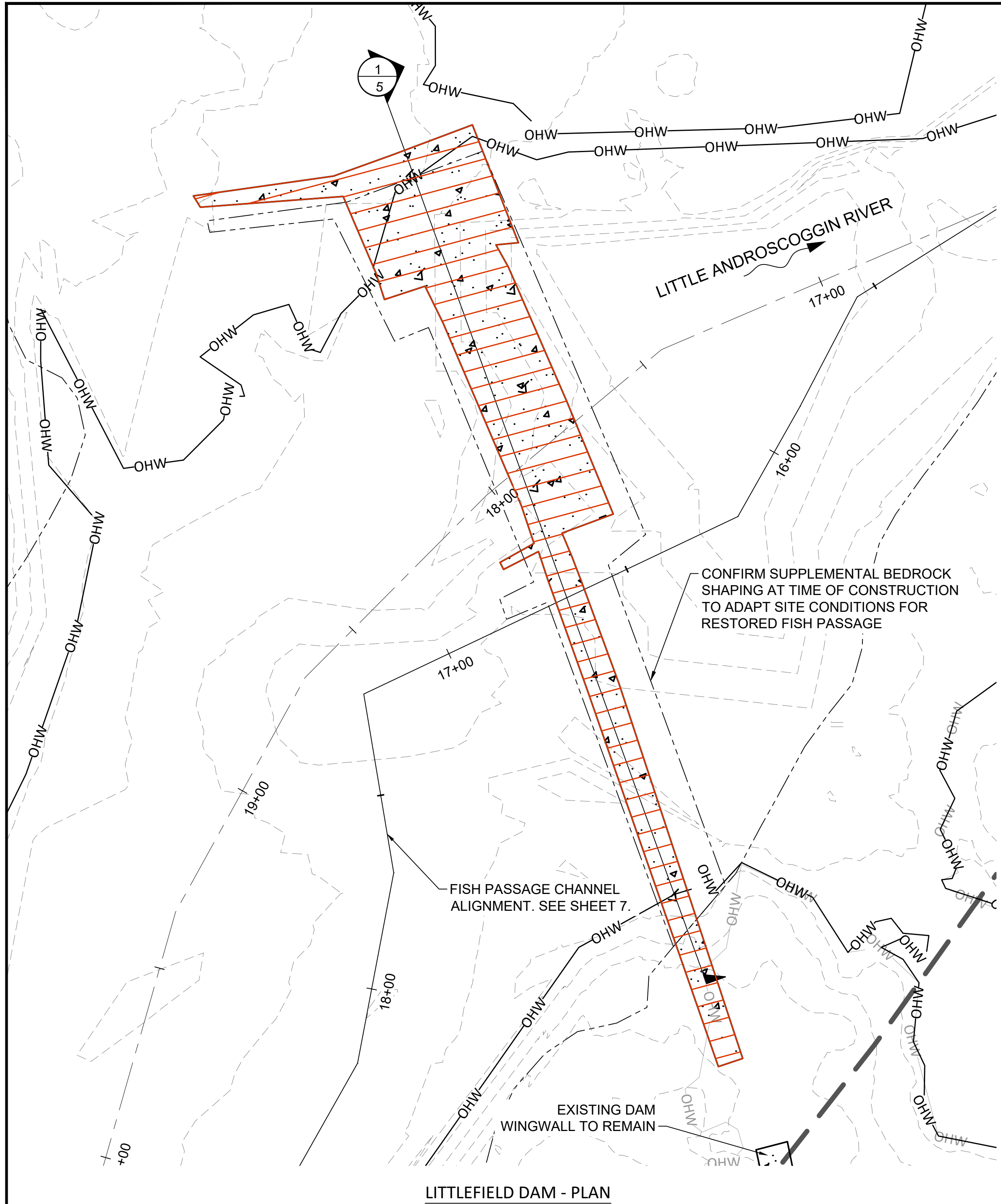
ACCESS, STAGING, WATER AND  
EROSION CONTROL, SEQUENCING

SHEET
3 OF 12

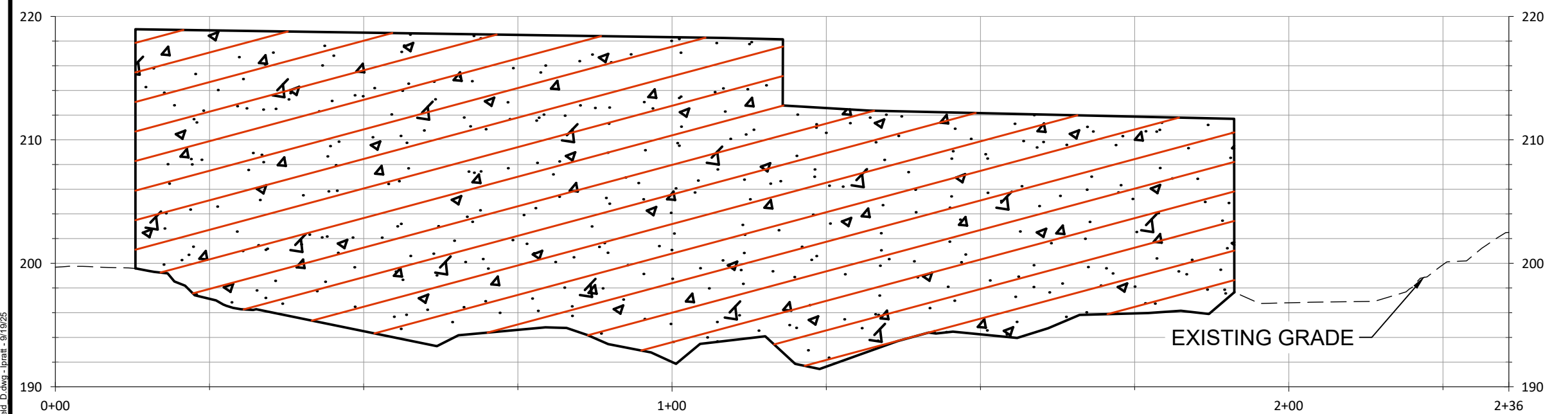




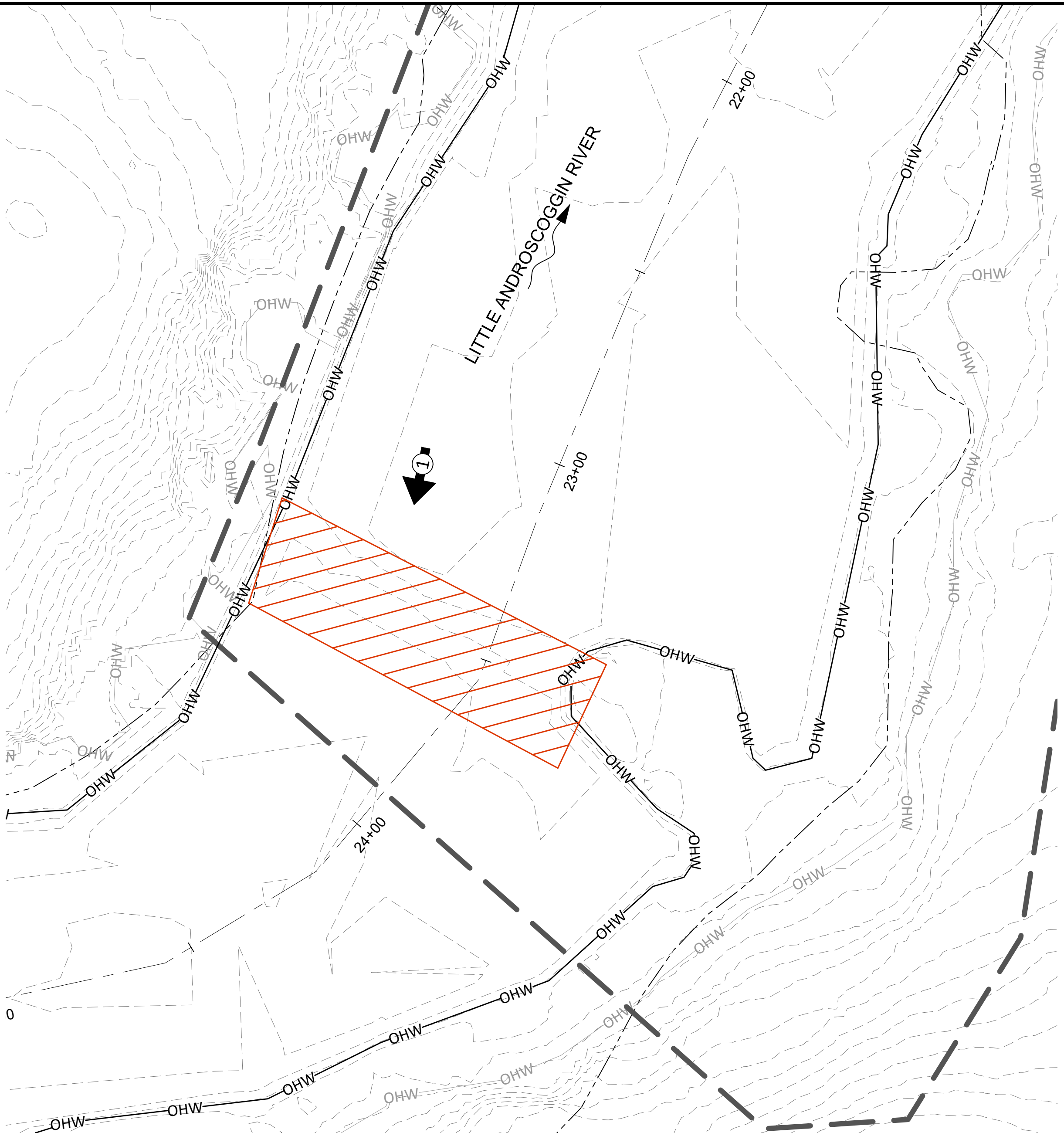




LITTLEFIELD DAM - PLAN



1 SECTION  
5 1" = 10'



REMNANT DAM - PLAN

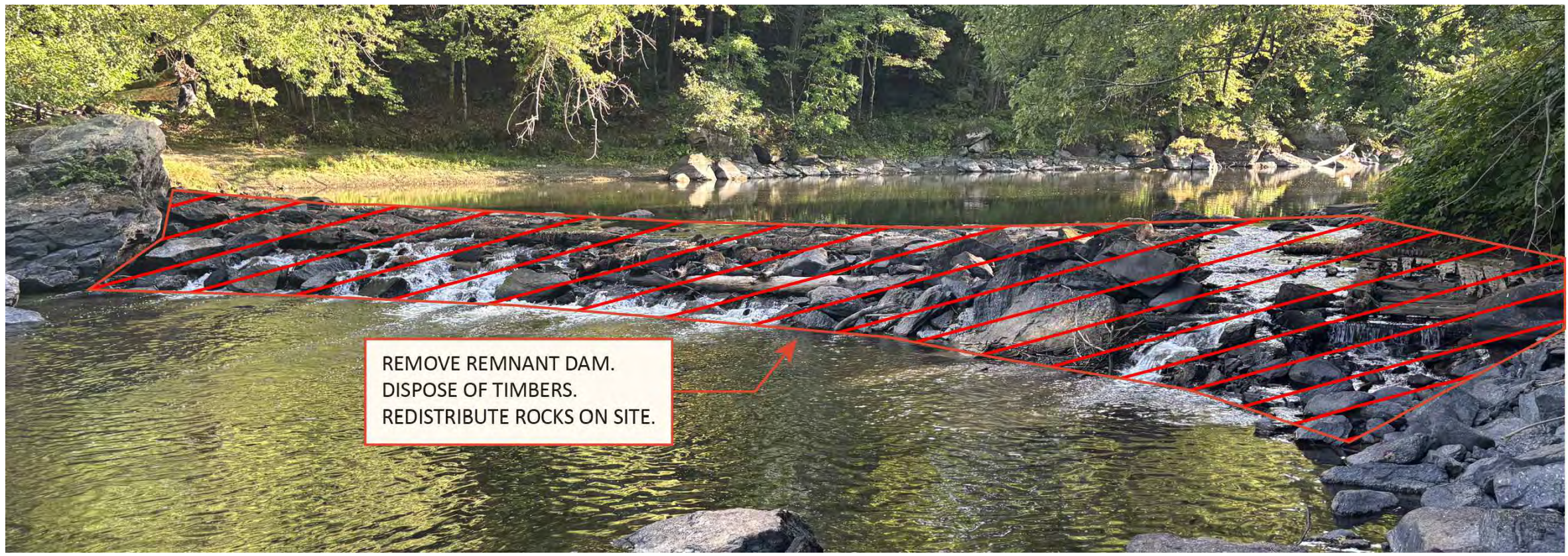
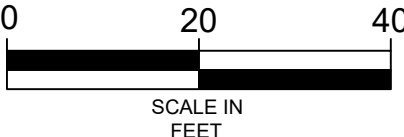


PHOTO 1 - FROM DOWNSTREAM OF REMNANT DAM

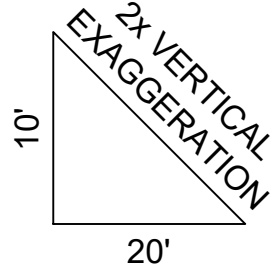


LEGEND

- EXISTING CONTOUR (2 FT)
- TAXLOTS
- 10+00 PROPOSED FISH PASSAGE ALIGNMENT
- OH EXISTING OVERHEAD UTILITIES
- WI -WI -WI EXISTING WATER INTAKE PIPE
- OHW EXISTING ORDINARY HIGH WATER
- 10+00 EXISTING DAM
- 10+00 PROPOSED FISH PASSAGE ALIGNMENT
- OHW PROPOSED ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- STRUCTURE TO BE REMOVED
- PHOTO LOCATION AND DIRECTION

PROFILE LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- WATER SURFACE ELEVATION (WSE)



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NO.	BY	DATE	REVISION DESCRIPTION

LP	KK/CT	KK/MYS
DRAWN	DESIGNED	CHECKED
MYS	8/30/2025	25-05-11
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CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
50% DESIGN

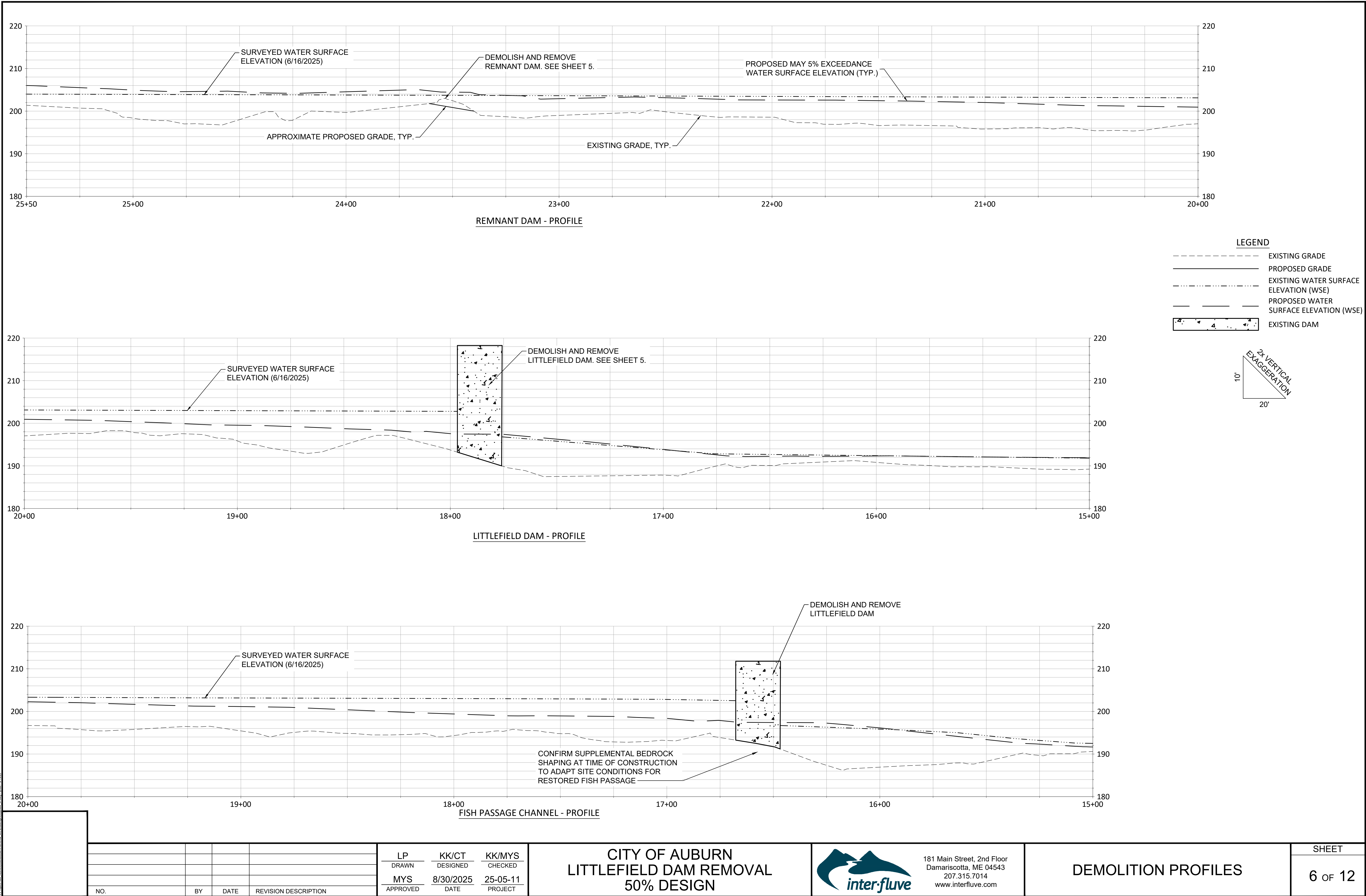


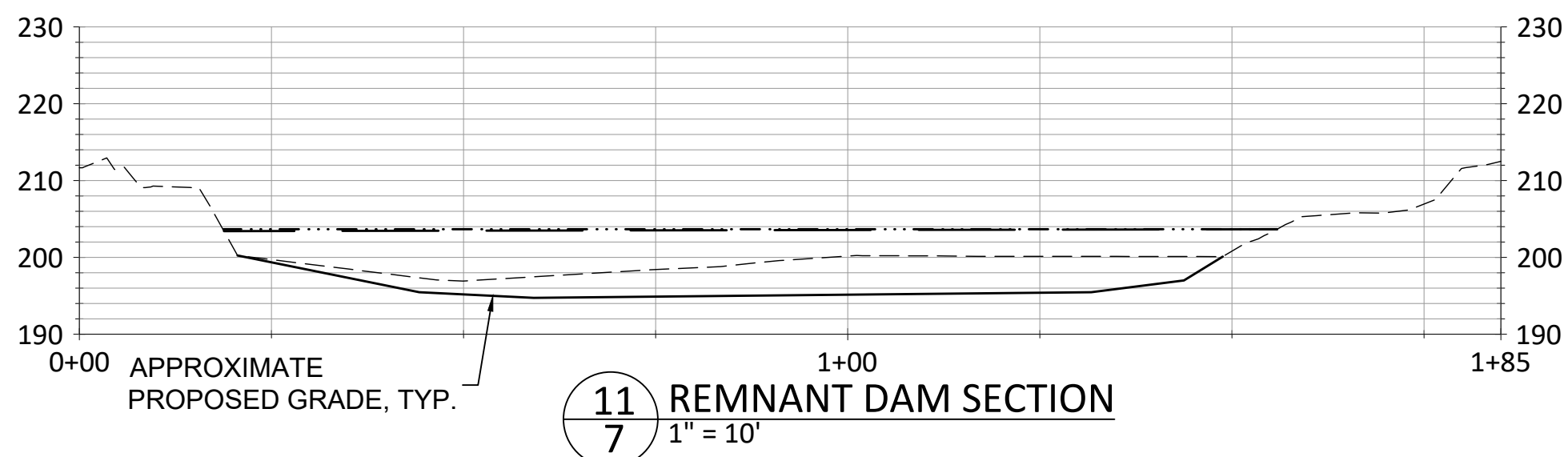
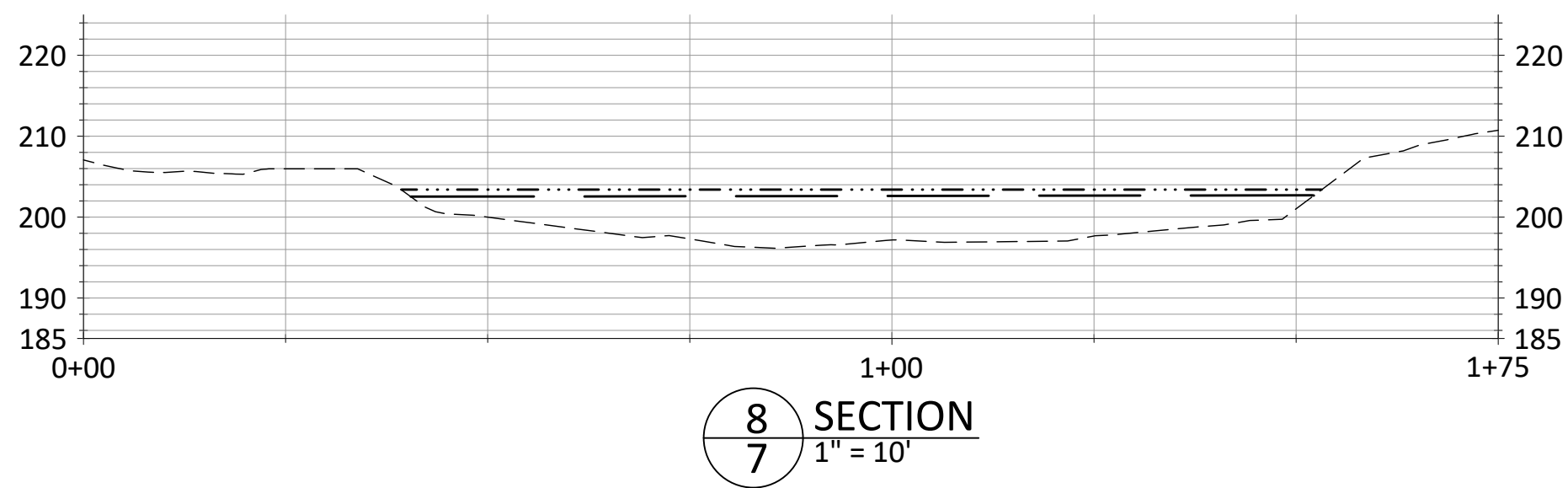
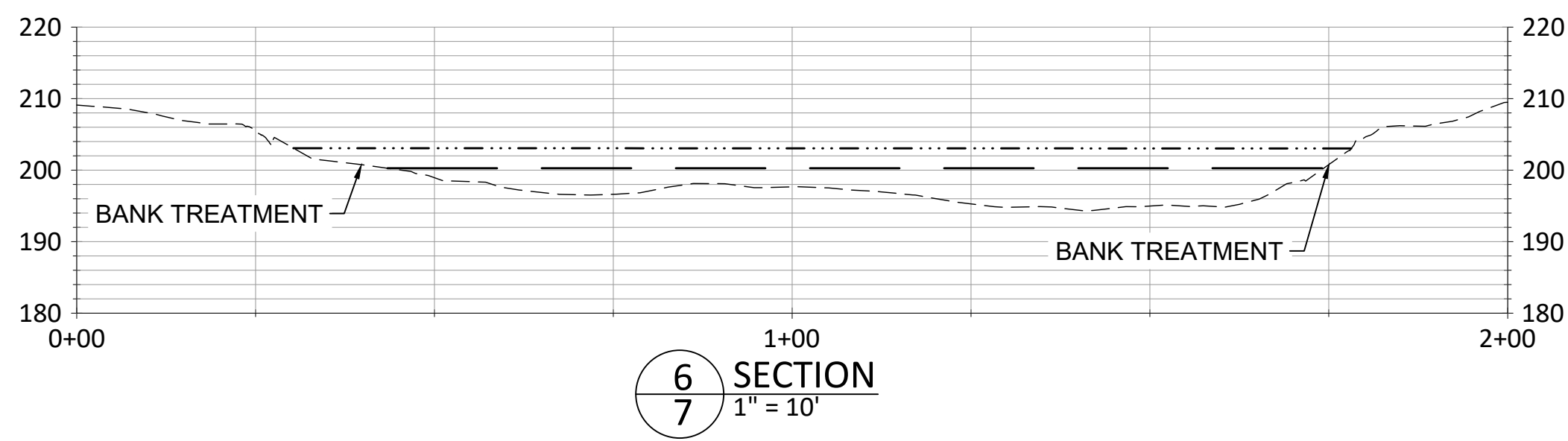
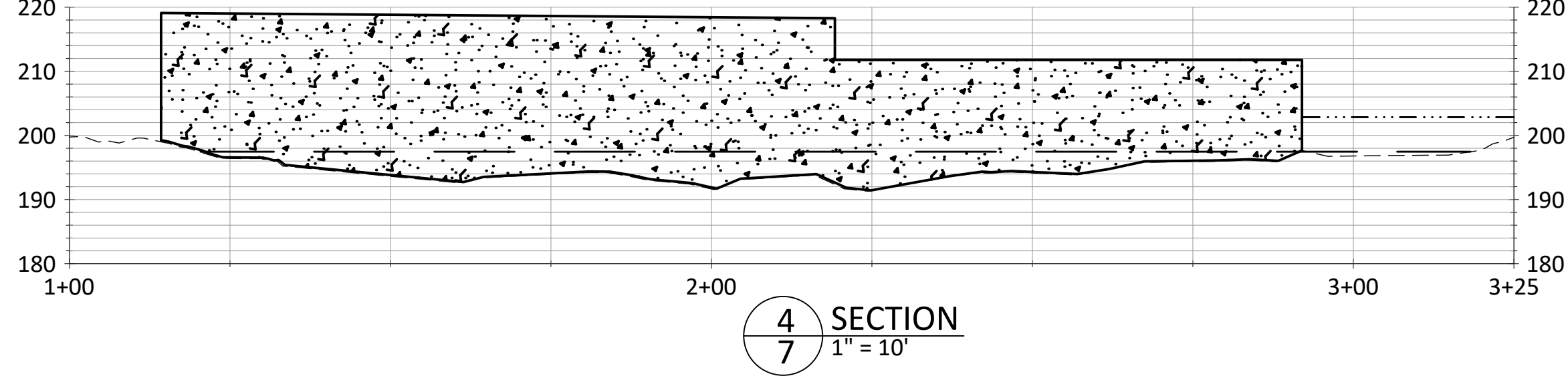
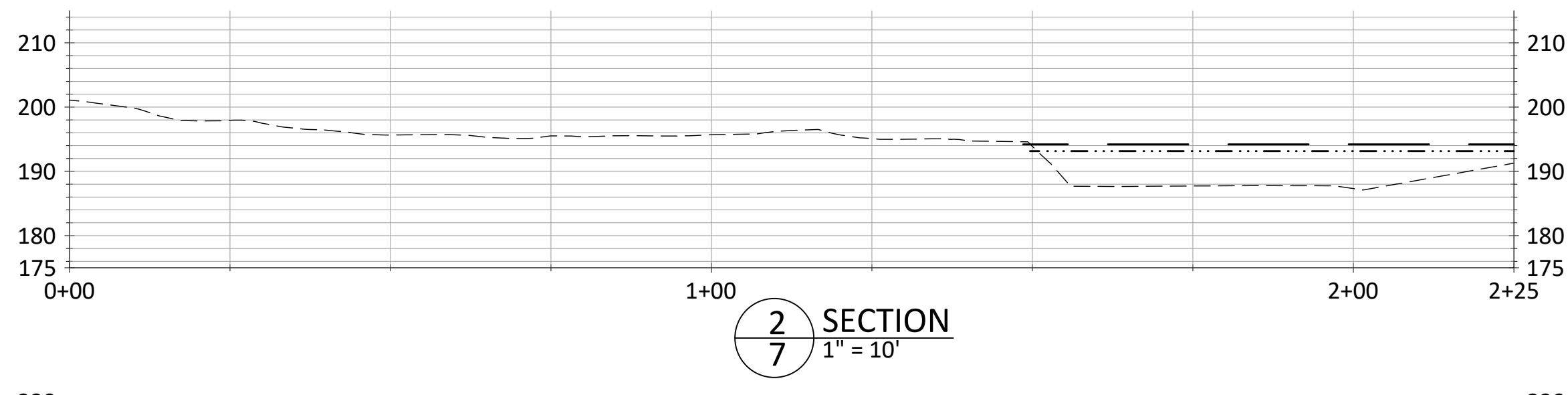
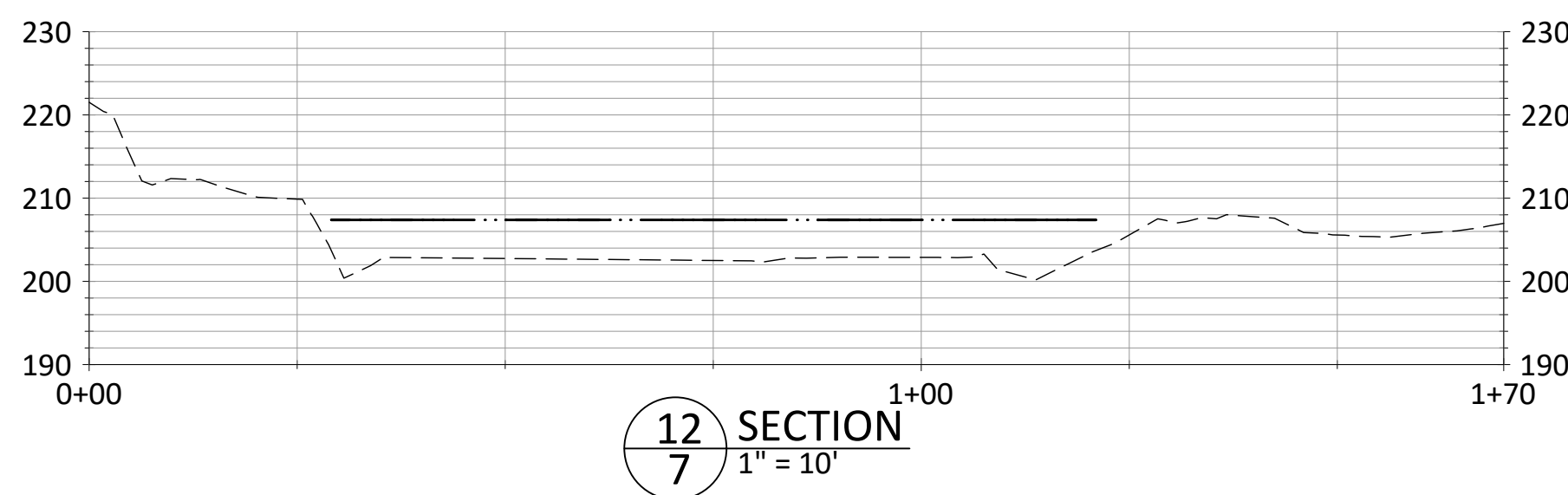
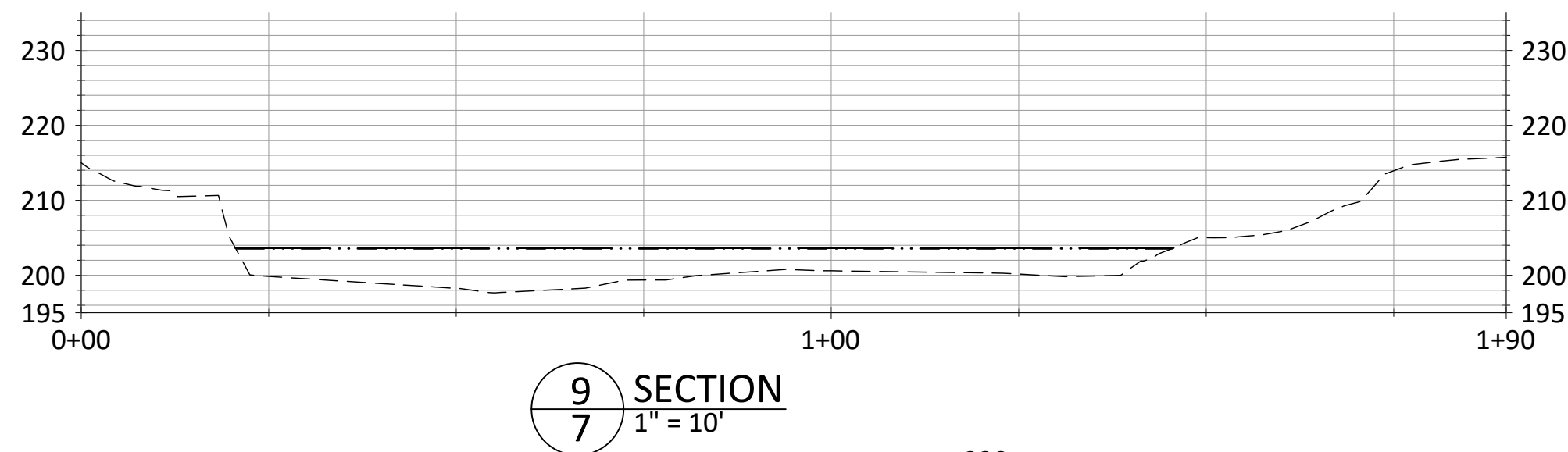
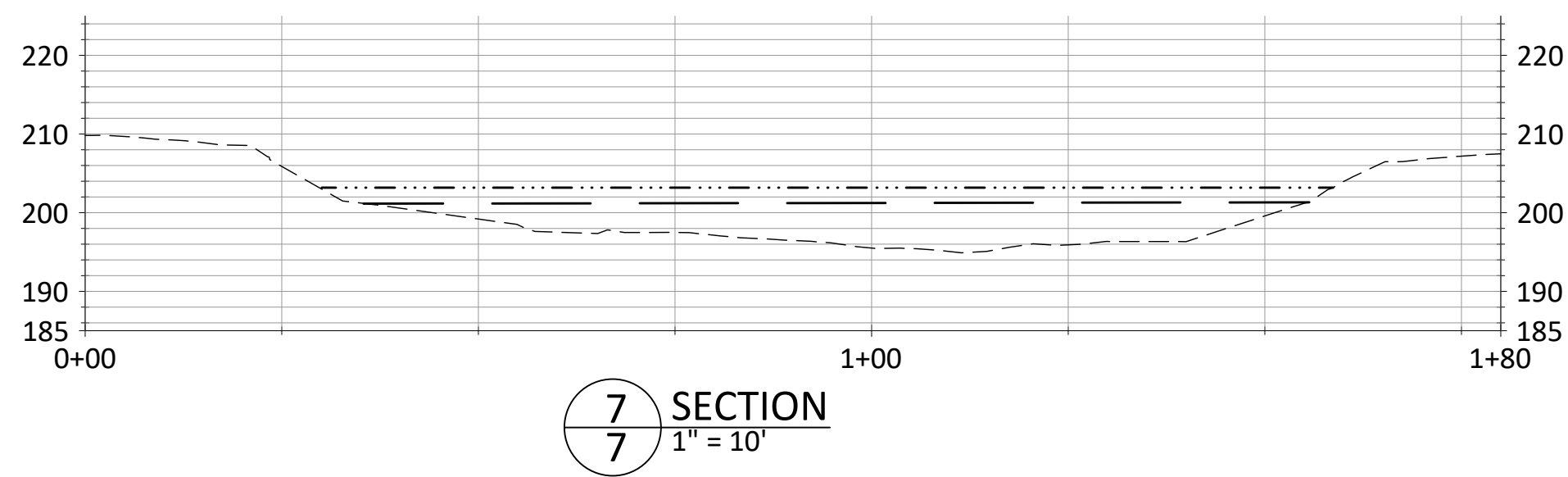
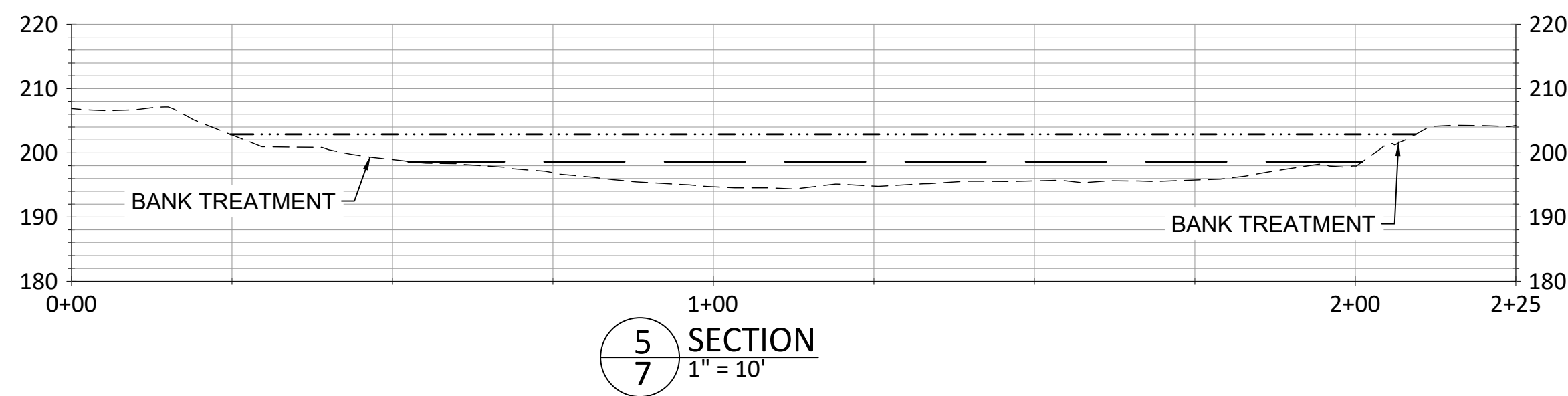
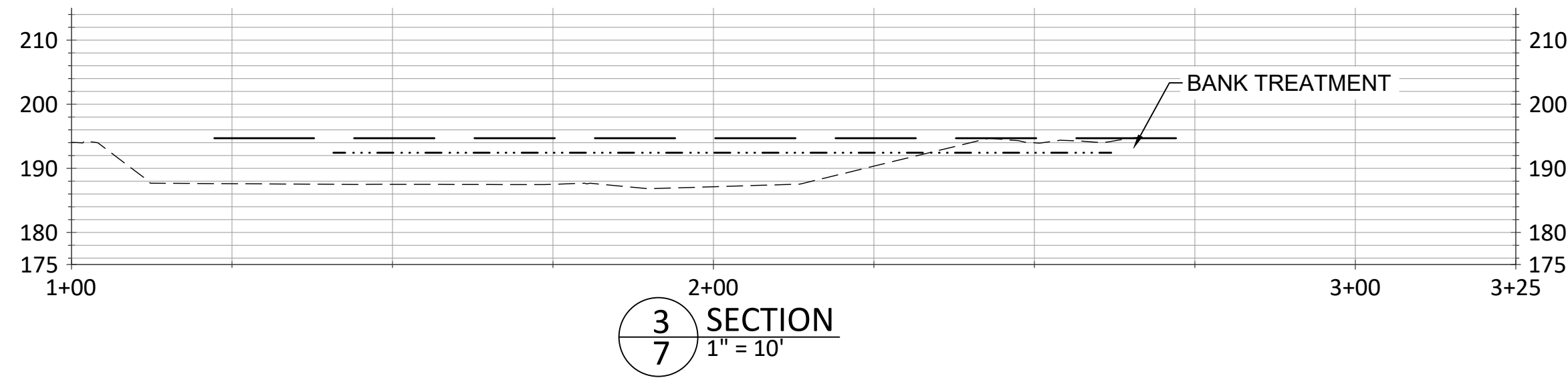
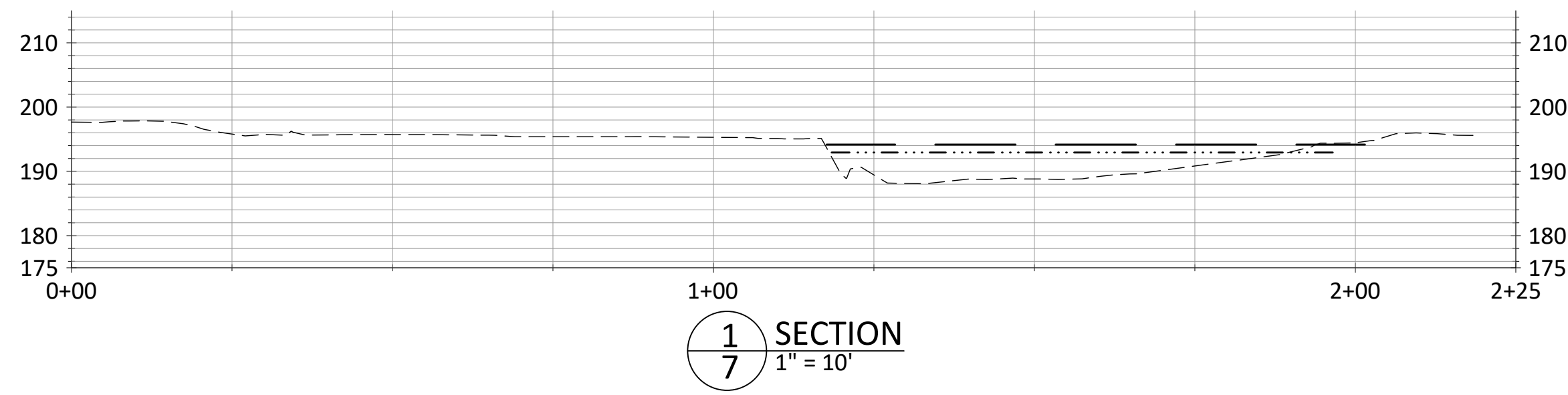
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DEMOLITION PLAN

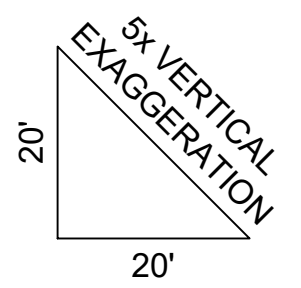
SHEET  
5 OF 12







- LEGEND**
- EXISTING GRADE
  - [Pattern] EXISTING DAM
  - . - . - EXISTING WATER SURFACE ELEVATION (WSE)
  - PROPOSED GRADE
  - . - . - PROPOSED WATER SURFACE ELEVATION (WSE)



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NO.	BY	DATE	REVISION DESCRIPTION

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MYS	8/30/2025	25-05-11
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CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
50% DESIGN

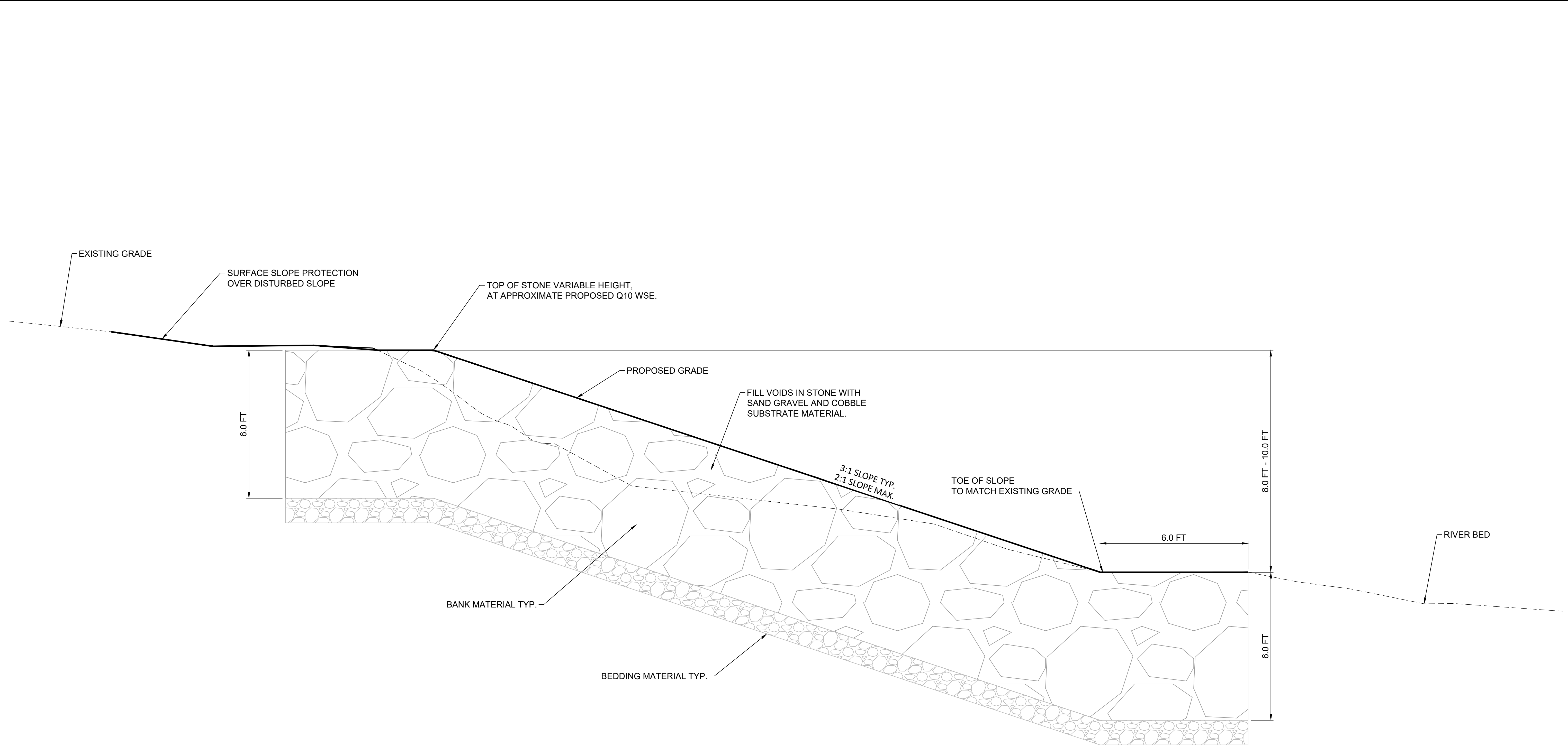


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GRADING SECTIONS

SHEET

7 OF 12



1 BANK TREATMENT DETAIL  
9 NOT TO SCALE

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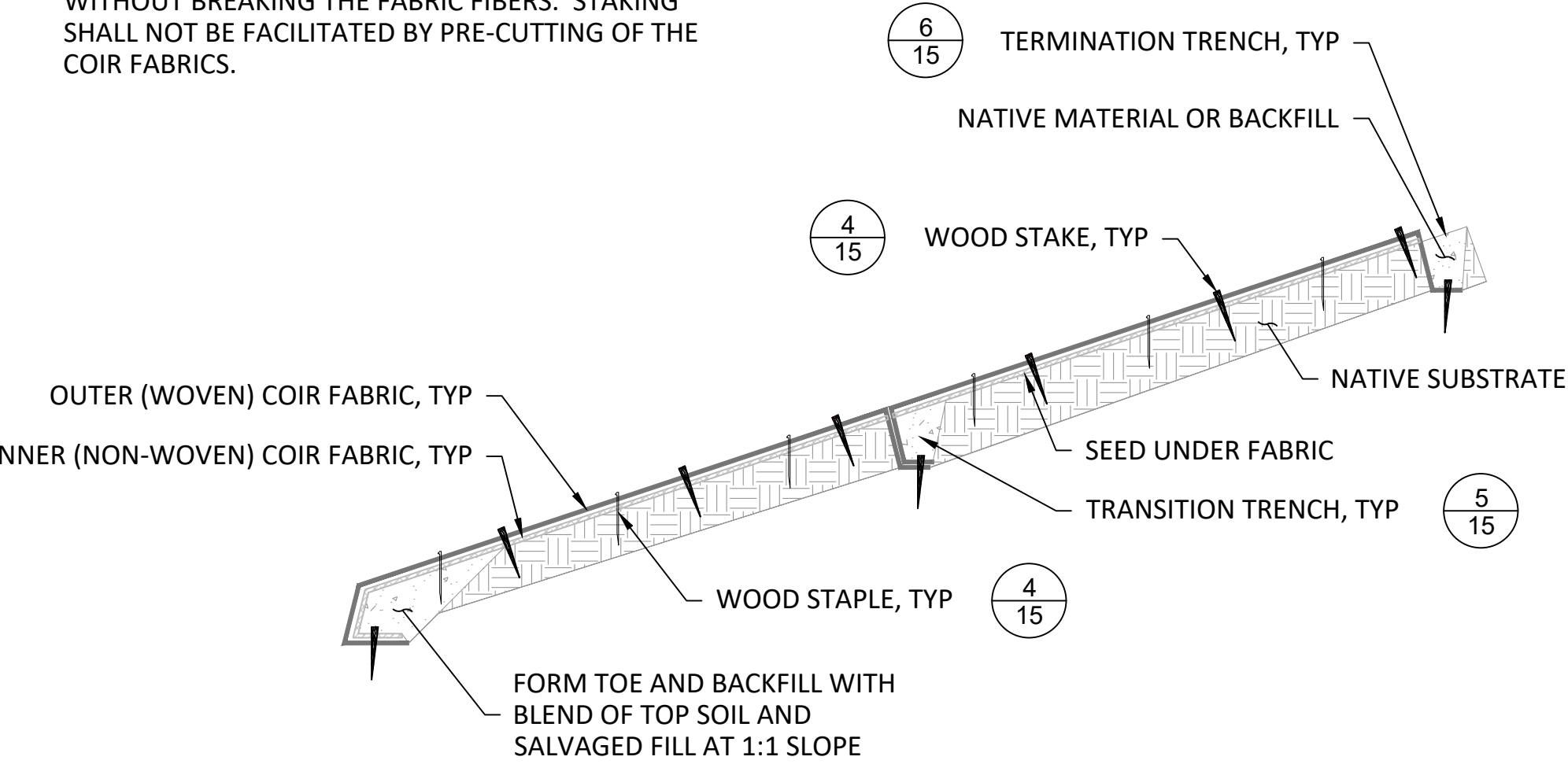
DETAILS - BANK TREATMENT

SHEET
8 OF 12

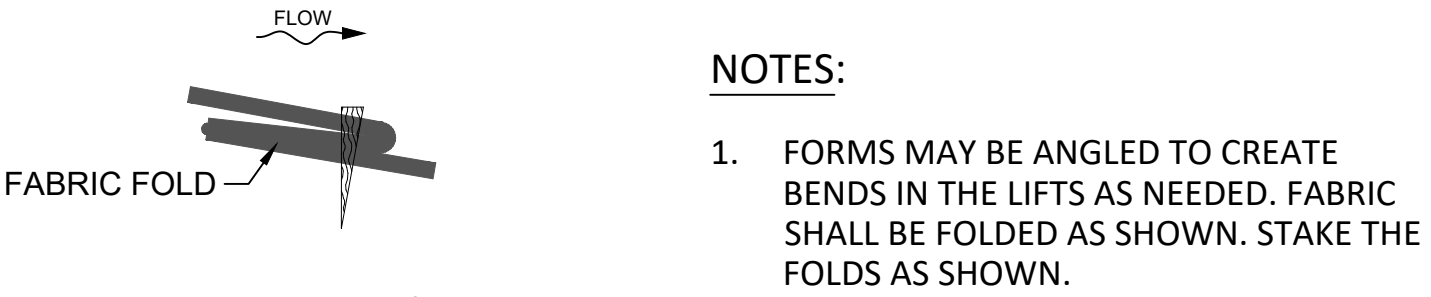
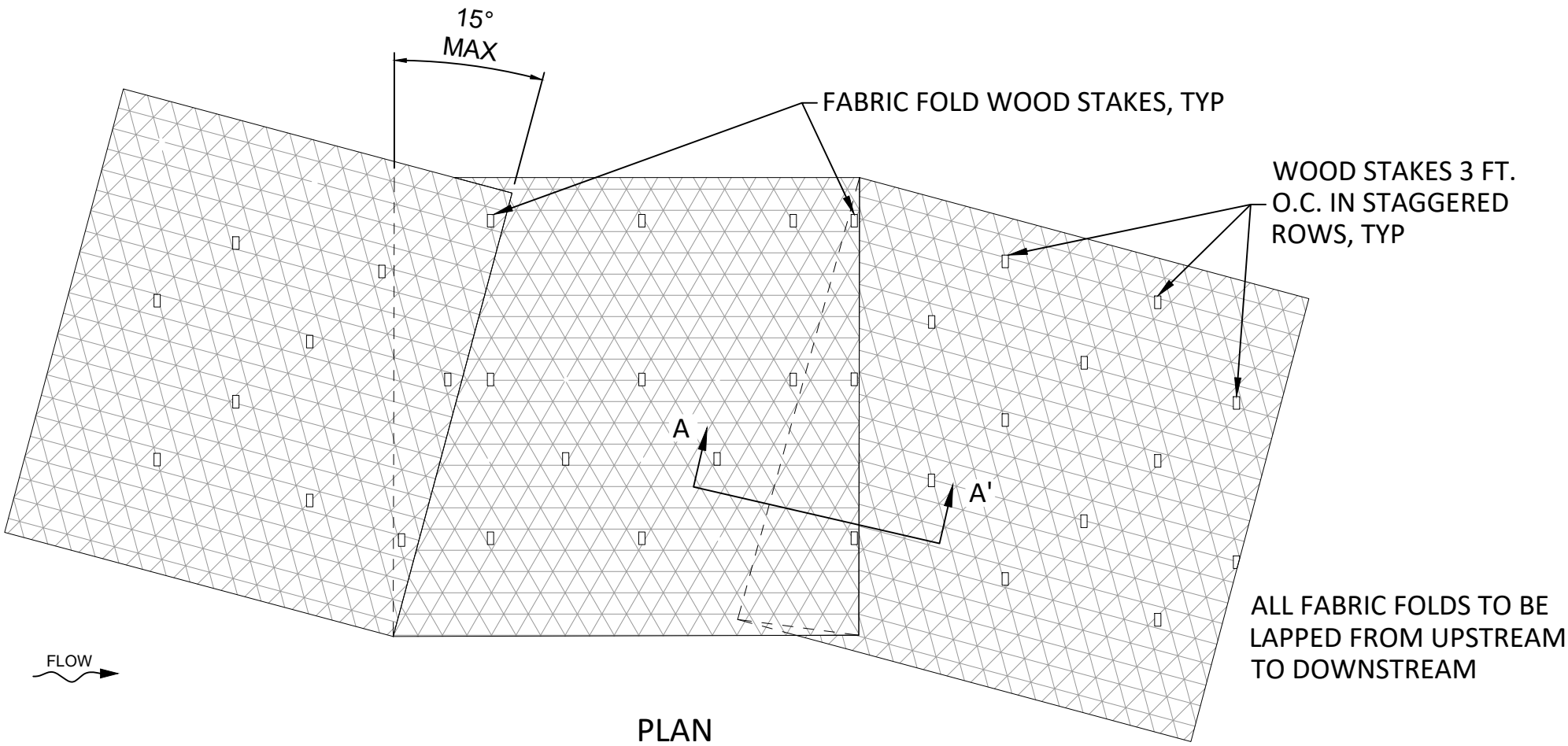


NOTES:

1. INSERT AND DRIVE WOOD STAKES BETWEEN THE FIBERS OF THE WOVEN COIR FABRIC. FIBERS AT WOOD STAKE LOCATION SHALL BE MANUALLY STRETCHED TO ACCOMMODATE THE WOOD STAKE WITHOUT BREAKING THE FABRIC FIBERS. STAKING SHALL NOT BE FACILITATED BY PRE-CUTTING OF THE COIR FABRICS.



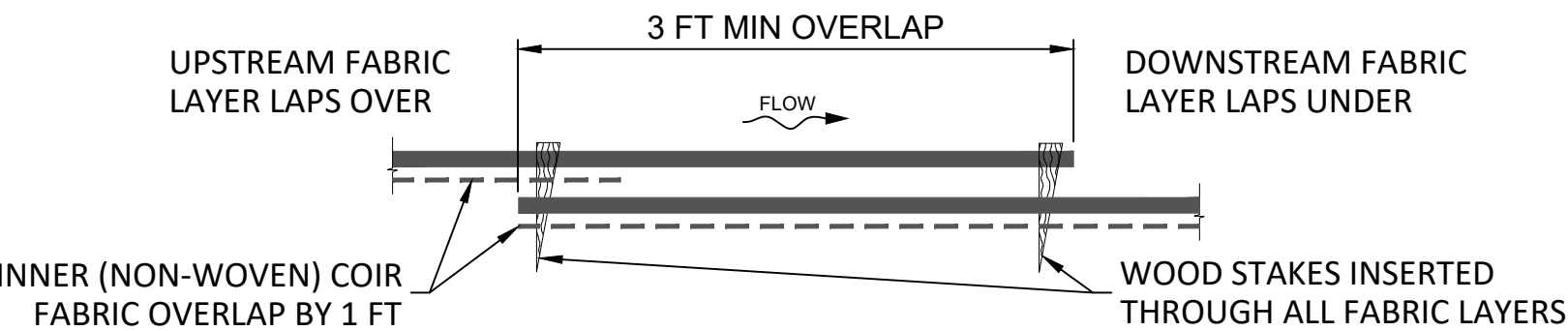
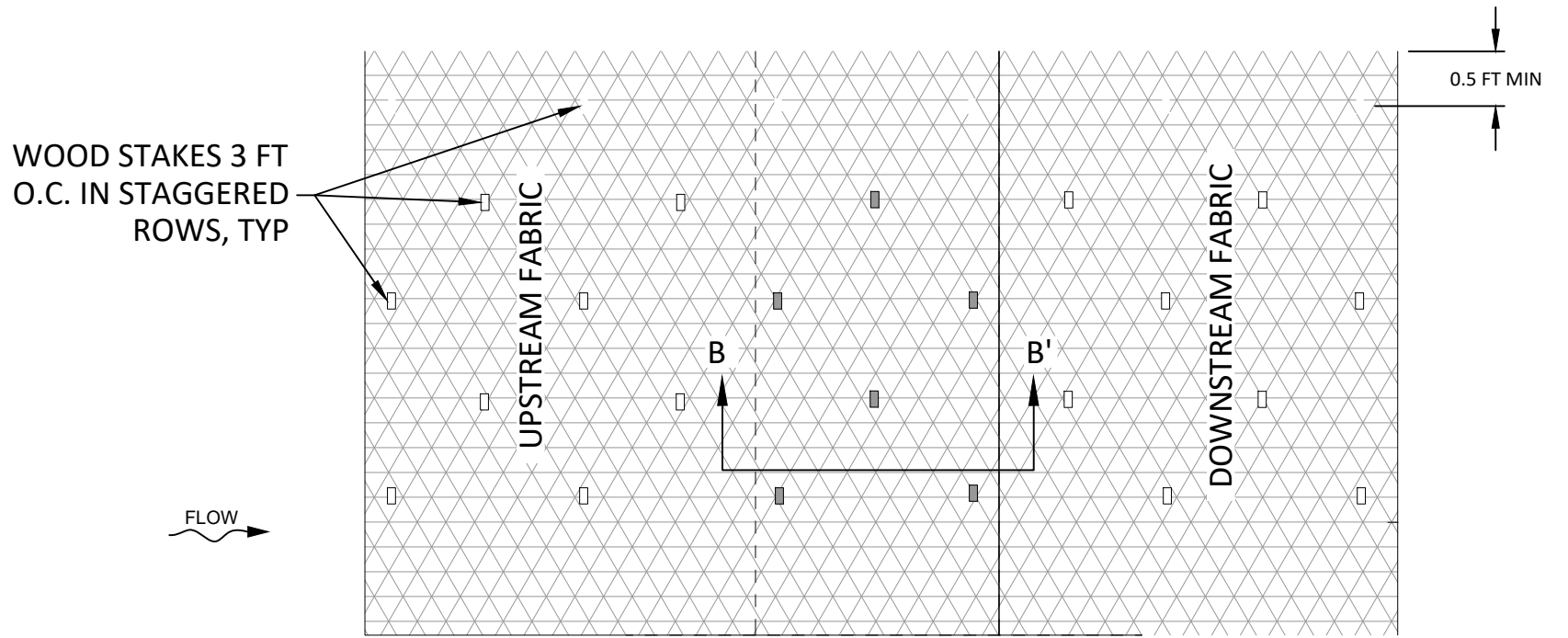
1 SURFACE FABRIC  
NOT TO SCALE



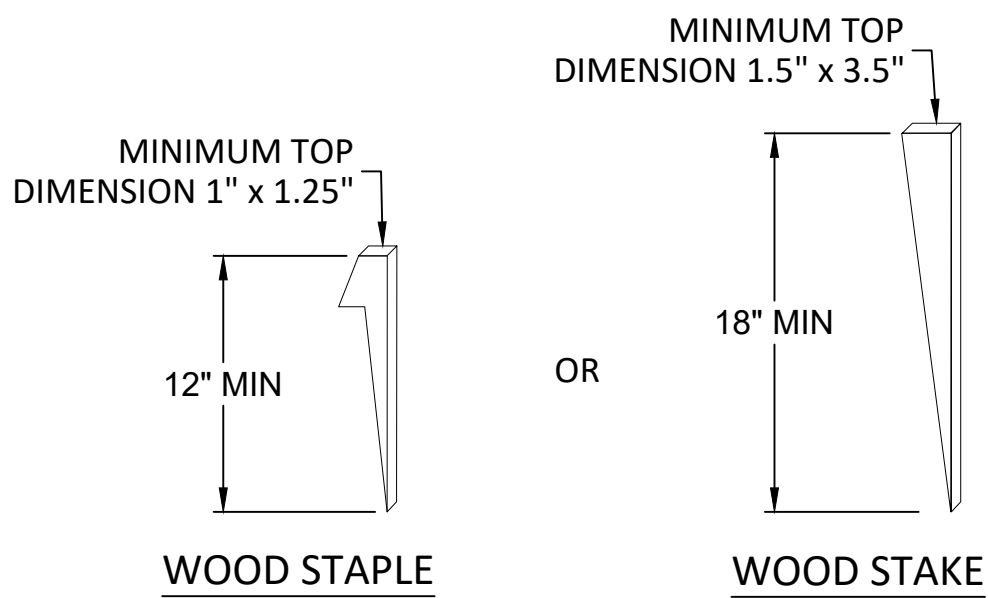
NOTES:

1. FORMS MAY BE ANGLED TO CREATE BENDS IN THE LIFTS AS NEEDED. FABRIC SHALL BE FOLDED AS SHOWN. STAKE THE FOLDS AS SHOWN.

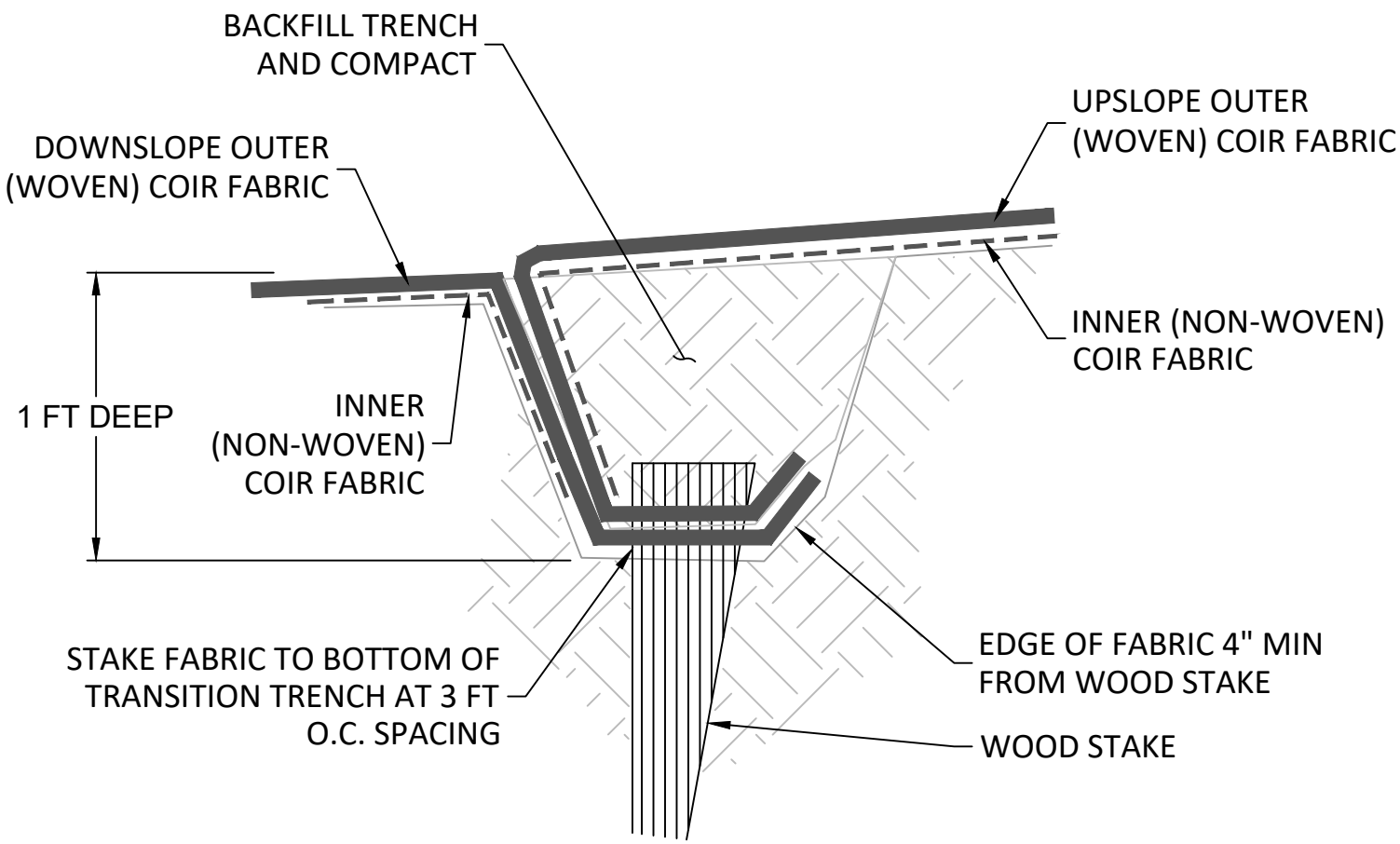
2 FOLDING OF CONTINUOUS OUTER COIR FABRIC AT BENDS  
NOT TO SCALE



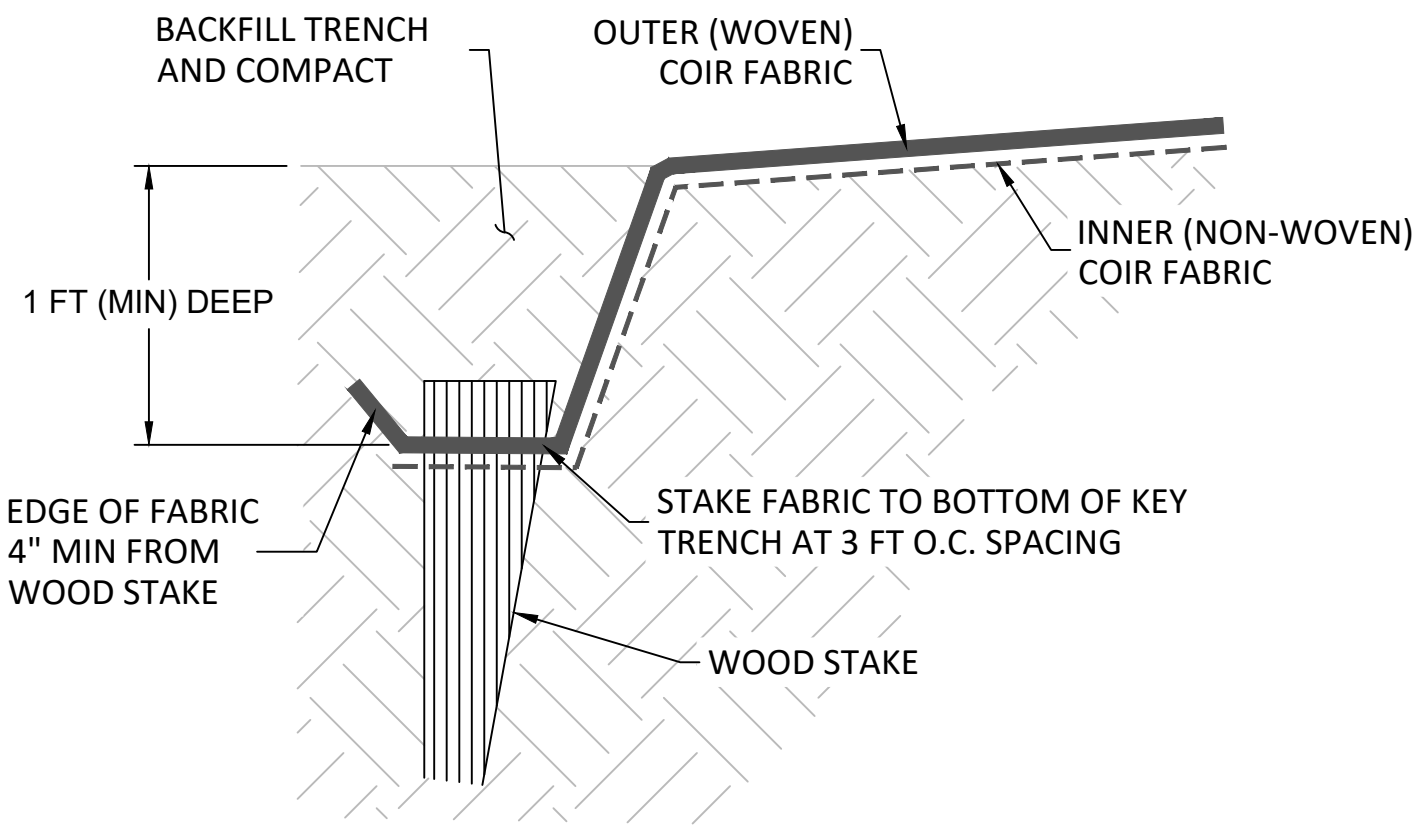
3 OUTER FABRIC JOINING  
NOT TO SCALE



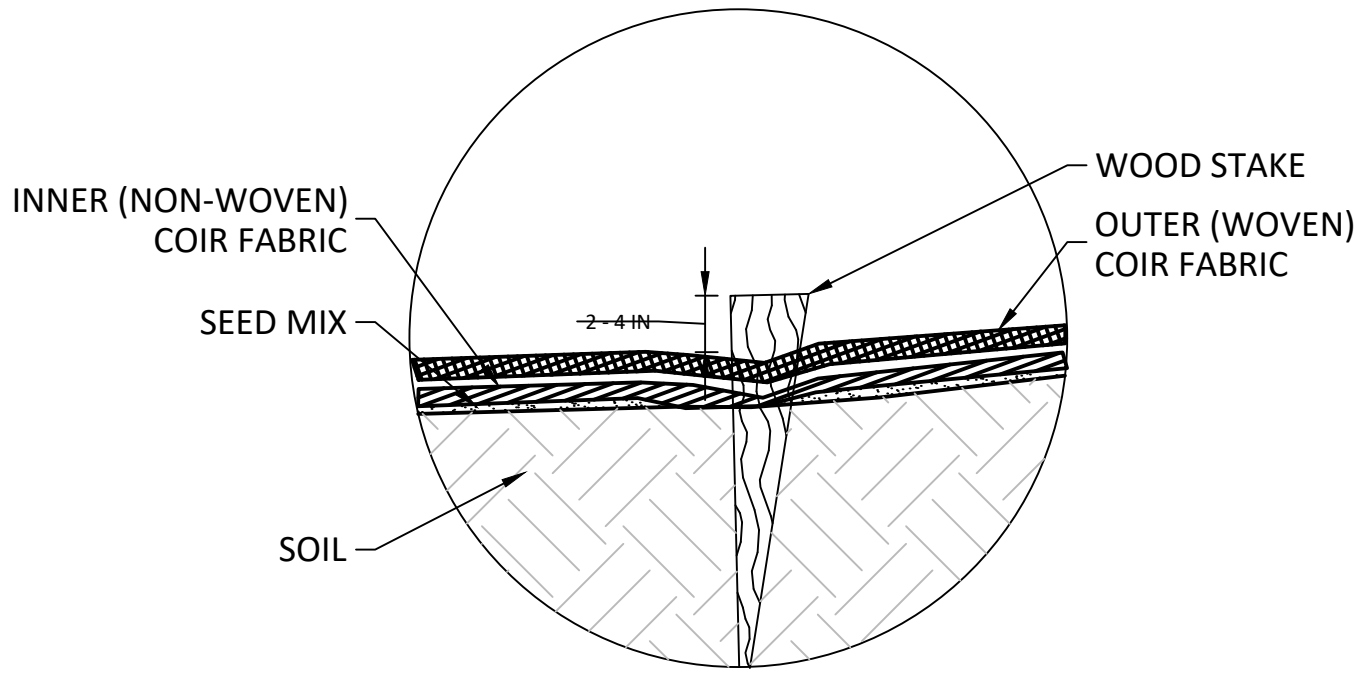
4 WOOD STAKE AND WOOD STAPLE  
NOT TO SCALE



5 JOINT TRENCH  
NOT TO SCALE



6 TERMINATION TRENCH  
NOT TO SCALE



7 BIODEGRADABLE FABRICS AND STAKES  
NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

LP	KK/CT	KK/MYS
DRAWN	DESIGNED	CHECKED
MYS	8/30/2025	25-05-11
APPROVED	DATE	PROJECT

CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
50% DESIGN



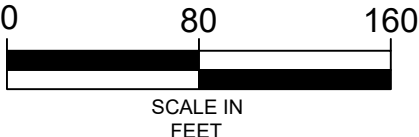
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DETAILS - SURFACE FABRIC

SHEET

9 OF 12





LEGEND

- EXISTING CONTOUR (2 FT)
- TAXLOTS
- OH EXISTING OVERHEAD UTILITIES
- WI EXISTING WATER INTAKE PIPE
- OHW EXISTING ORDINARY HIGH WATER
- OHW PROPOSED ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- PLANTING ZONE - RIPARIAN
- PLANTING ZONE - CONSERVATION SEED MIX

LITTLEFIELD DAM - PLAN

NO.	BY	DATE	REVISION DESCRIPTION

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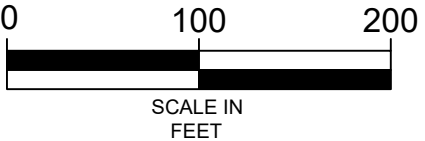
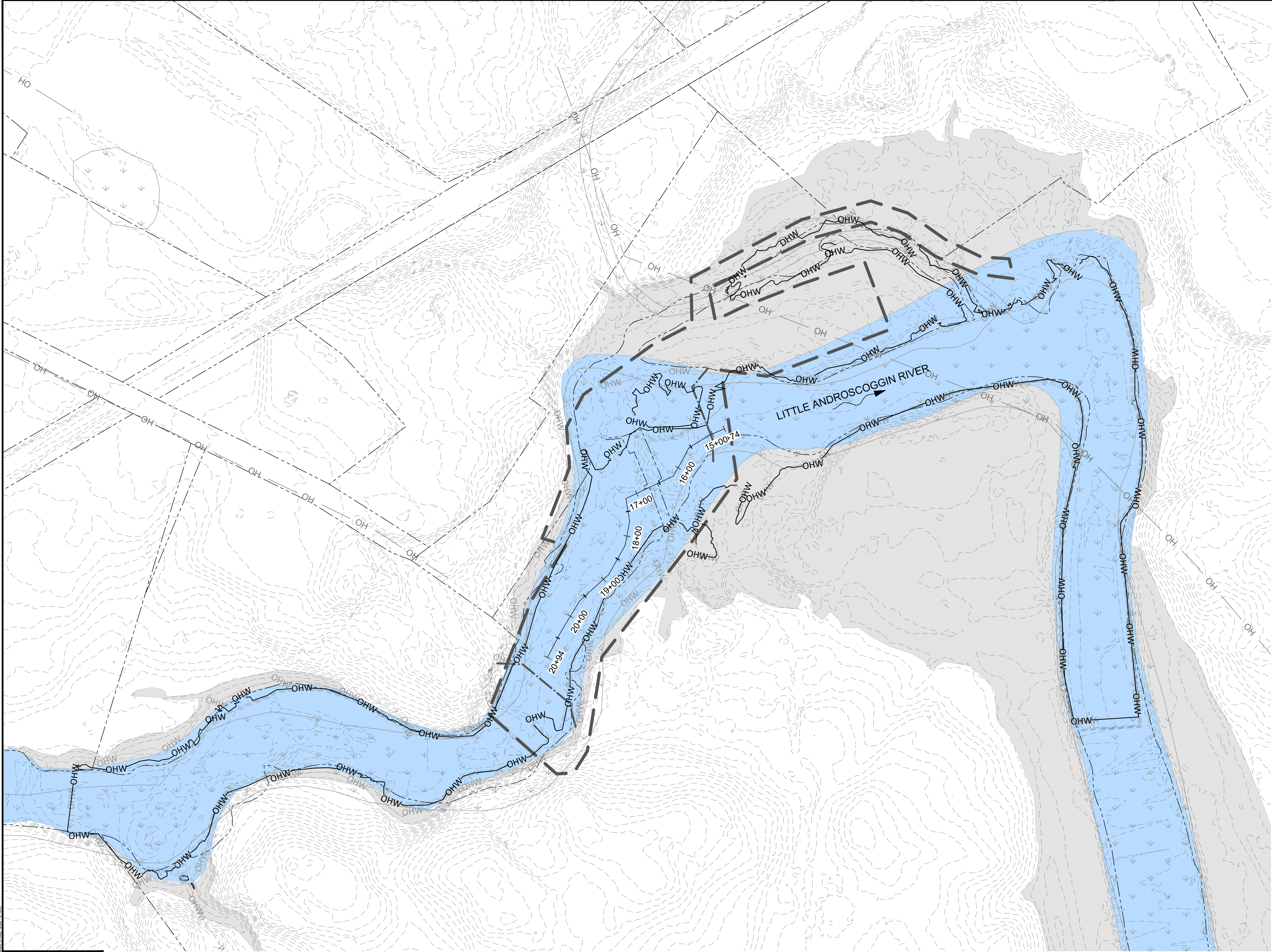
CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
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PLANTING PLAN





LEGEND

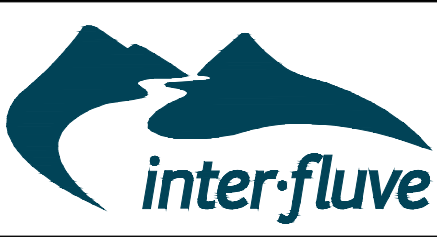
- EXISTING CONTOUR (2 FT)
- TAXLOTS
- OH EXISTING OVERHEAD UTILITIES
- OHW EXISTING ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- OHW PROPOSED ORDINARY HIGH WATER
- EXISTING NWI WETLANDS
- EXISTING FEMA AE ZONE
- EXISTING FEMA FLOODWAY

LITTLEFIELD DAM - PLAN

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CITY OF AUBURN  
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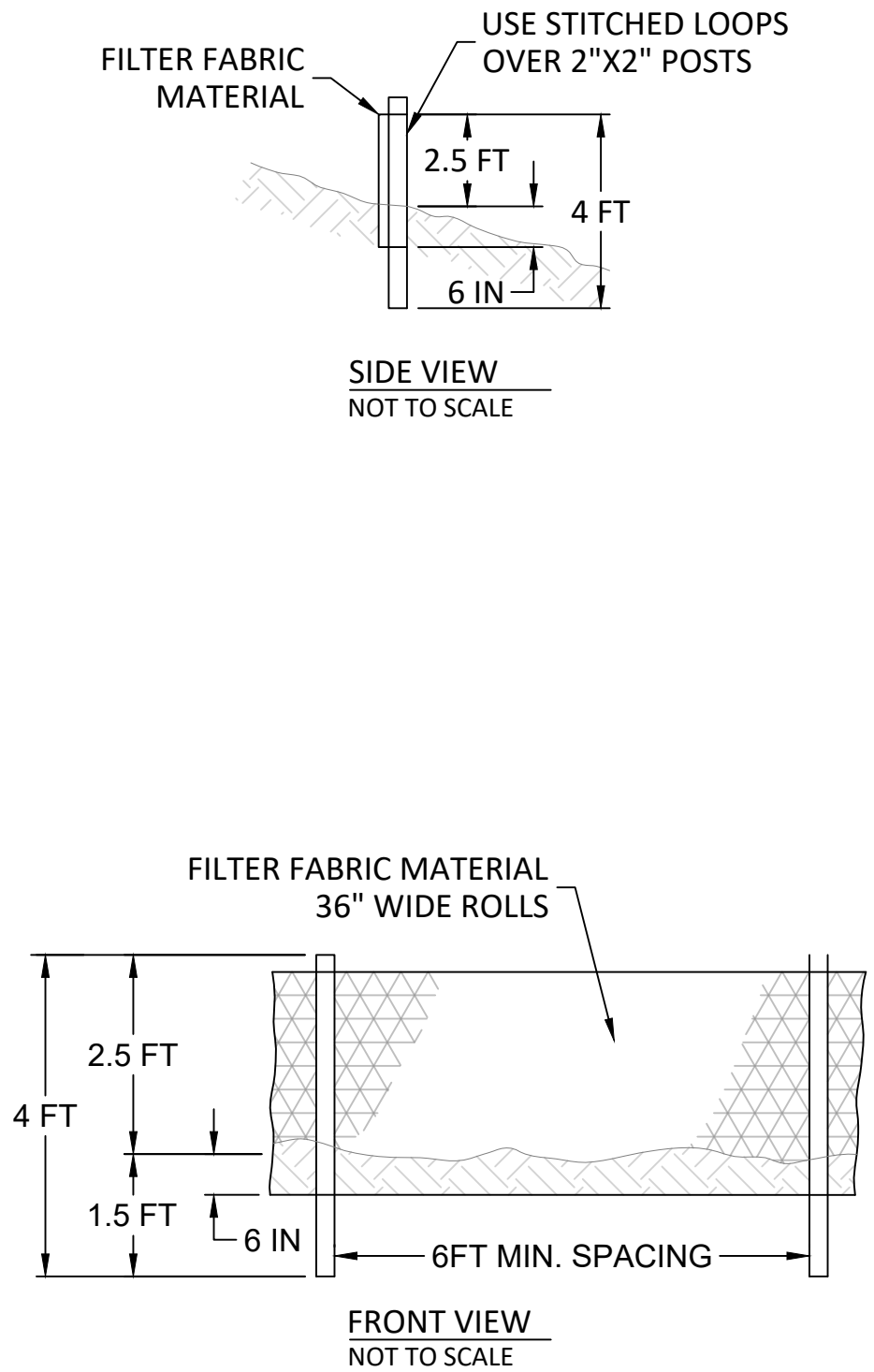
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RESOURCE AREA MAP



SILT FENCE NOTES

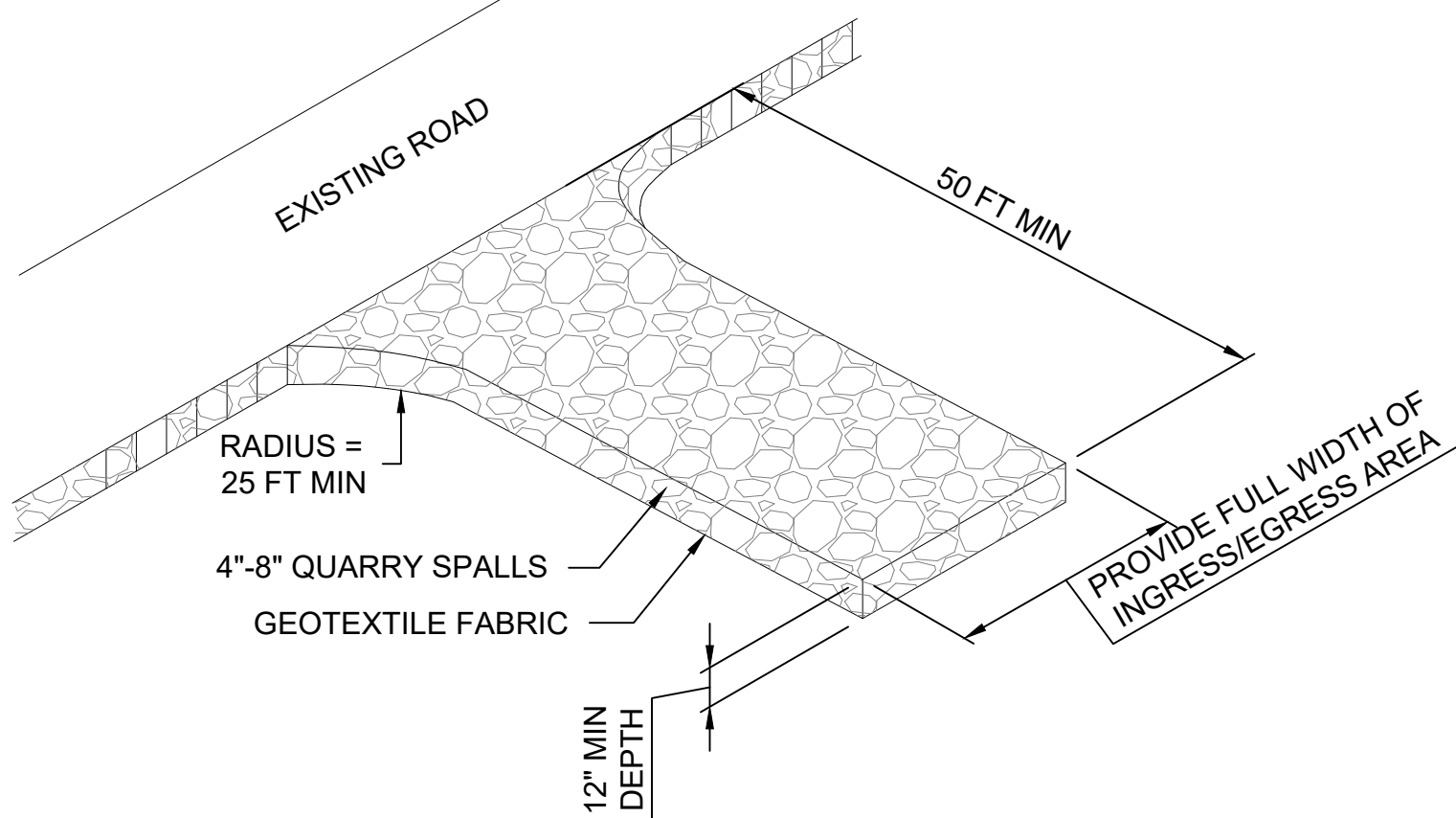
1. DETAIL PROVIDED FOR GENERAL REPRESENTATION. LOCATIONS AND DESIGN DETAILS TO BE DETERMINED BY THE CONTRACTOR IF SELECTED FOR USE IN CONTROL OF WATER PLAN.
2. THE FILTER FABRIC SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, FILTER CLOTH SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST. ALTERNATIVELY, OVERLAP AND INTERLOCK TWO POSTS WITH ATTACHED FABRIC AS APPROVED BY THE OWNER'S REPRESENTATIVE.
3. THE SILT FENCE IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE PLAN ALONG THE DOWNHILL PERIMETER OF DISTURBED AREAS. THE FENCE POST SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES APART.
4. THE FILTER FABRIC SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES. ALL EXCAVATED MATERIAL FROM SILT FENCE INSTALLATION SHALL BE BACK-FILLED AND COMPACTED ALONG THE ENTIRE DISTURBED AREA.
5. STANDARD OR HEAVY DUTY SILT FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2 INCHES X 2 INCHES POST INSTALLATION.
6. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED, OR AS DIRECTED BY THE OWNER'S REPRESENTATIVE.



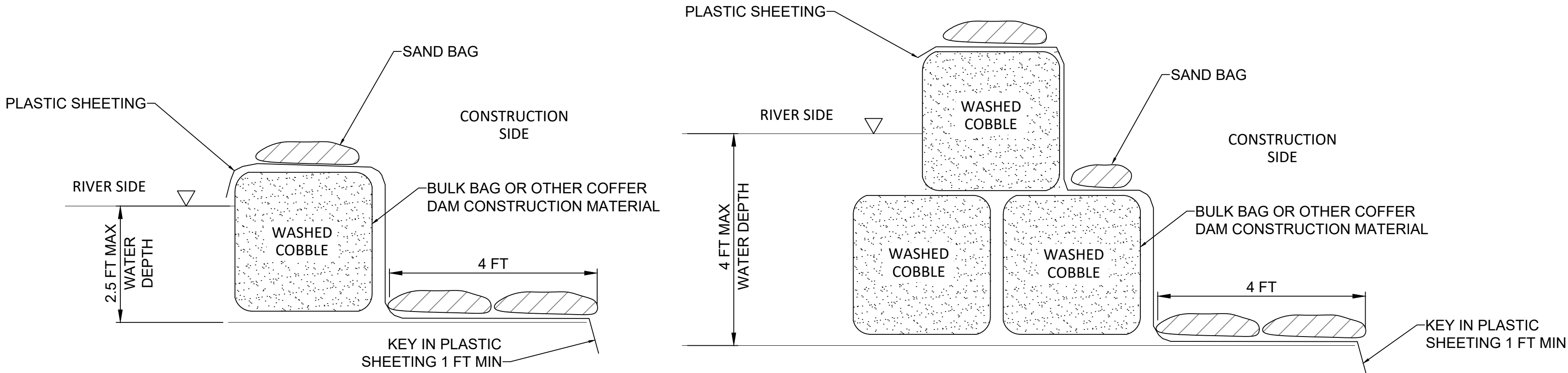
1  
12 TYPICAL DETAIL - SILT FENCE  
NOT TO SCALE

CONSTRUCTION ENTRANCE NOTES:

1. STABILIZED ACCESS MUST BE USED IN ALL AREAS OF THE SITE WITH VEHICLE TRAFFIC AND PARKING.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
3. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
4. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



3  
12 TYPICAL DETAIL - CONSTRUCTION ENTRANCE  
NOT TO SCALE



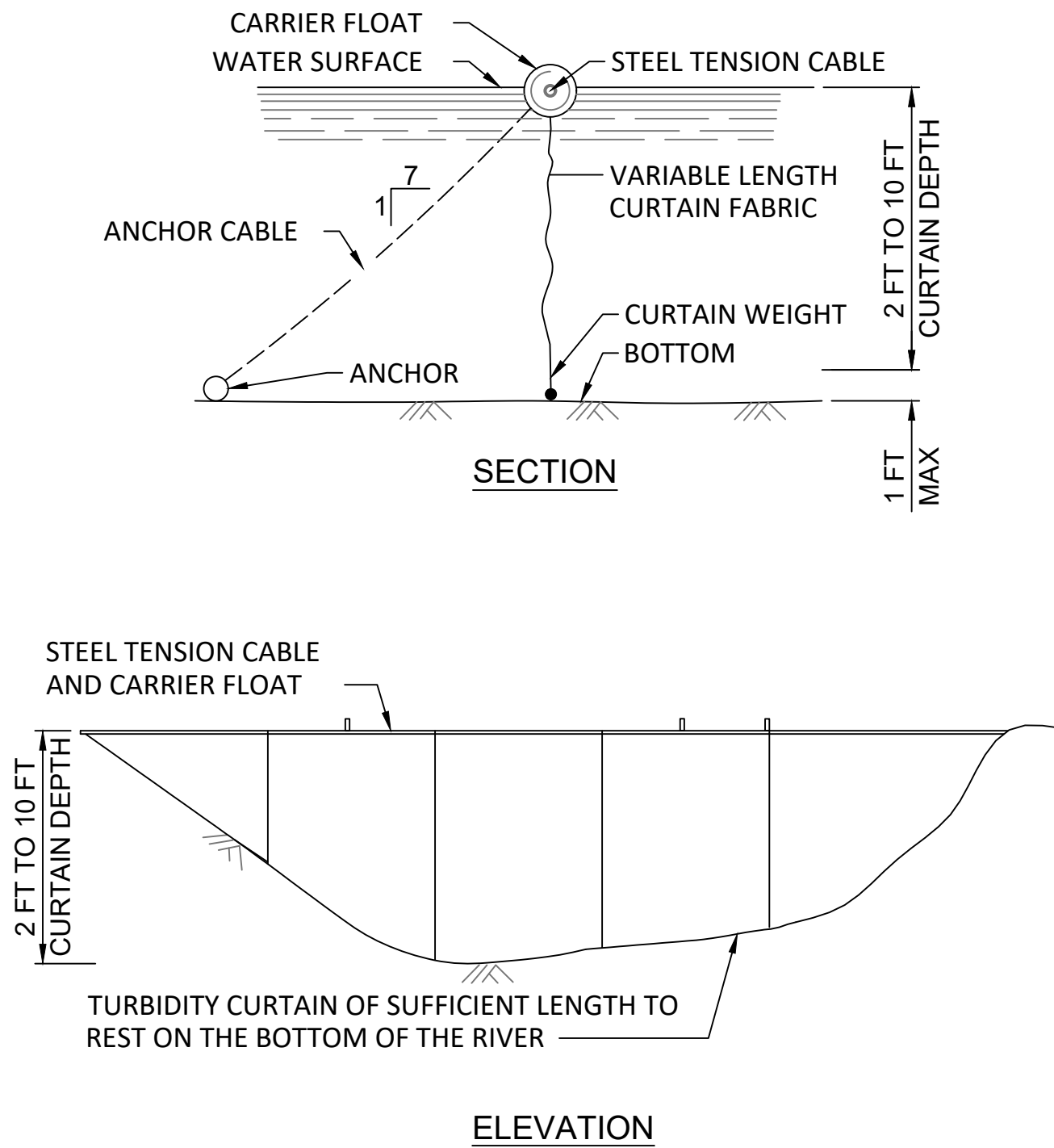
2  
12 TYPICAL DETAIL - BULK BAG COFFER DAM  
NOT TO SCALE

BULK BAG COFFERDAM NOTES:

1. BULK BAG COFFERDAM SHALL BE CONSTRUCTED OF SEVERAL UNITS OF BULK BAGS FILLED WITH NATIVE ALLUVIUM OR CLEAN GRAVEL, AND ABUTTED SIDE BY SIDE TO CREATE A ROW THAT ISOLATES THE CONSTRUCTION SITE. IF NECESSARY, BULK BAGS SHALL BE CUBE-SHAPED POLYPROPYLENE WOVEN FABRIC BAGS WITH FULLY OPEN TOP, FLAT BOTTOM, FOUR LOOPS, MINIMUM 2-TON WEIGHT CAPACITY, MINIMUM 5:1 SAFETY FACTOR.
2. IF WATER DEPTH EXCEEDS 85% OF THE BULK BAG HEIGHT, AN ADDITIONAL TOP ROW OF BULK BAGS SHALL BE INSTALLED, SUPPORTED BY TWO BOTTOM ROWS OF BULK BAGS.
3. BULK BAG COFFERDAM SHALL BE SEALED BY COVERING THE COFFERDAM WITH PLASTIC SHEETING HELD IN PLACE BY STANDARD SANDBAGS FILLED WITH PEA GRAVEL. THE PLASTIC SHEETING SHALL BE DRAPED ALONG THE CHANNEL BOTTOM WITH OUTWARD EDGE OF SHEETING MINIMUM 4-FEET FROM TOE OF COFFERDAM. PLASTIC SHEETING SHALL BE MINIMUM 6-MIL THICKNESS. ROLL LENGTH SHALL BE LONG ENOUGH TO ENSURE THAT ENTIRE LENGTH OF COFFERDAM WILL BE COVERED WITHOUT A SEAM. MINIMUM 12-FT WIDE ROLL SHALL BE USED FOR SINGLE LAYER BULK BAG COFFERDAM. MINIMUM 16-FT WIDE ROLL SHALL BE USED FOR 2-LAYER STACKED BULK BAG COFFERDAM.
4. THE TERMINAL ENDS OF THE COFFERDAM, WHERE IT CONNECTS TO CHANNEL BANK OR HIGH GROUND, SHALL BE SEALED WITH PLASTIC SHEETING AND STANDARD SANDBAGS.
5. REGULARLY OBSERVE COFFERDAM AND WATERWAY FOR TURBIDITY LEAKS. IF LEAKS ARE DETECTED, CEASE CONSTRUCTION ACTIVITY TO REPAIR OR MODIFY COFFERDAM.
6. COFFERDAM SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION IS COMPLETED AND WHEN THERE IS NO VISUALLY DETECTABLE DIFFERENCE IN TURBIDITY BETWEEN THE ISOLATED CONSTRUCTION WATER AND BACKGROUND LEVEL IN THE RECEIVING WATER.

TURBIDITY CURTAIN NOTES:

1. DETAIL PROVIDED FOR GENERAL REPRESENTATION. LOCATIONS AND DESIGN DETAILS TO BE DETERMINED BY THE CONTRACTOR IF SELECTED FOR USE IN CONTROL OF WATER PLAN.
2. ONLY TURBIDITY CURTAINS OF TYPE II OR GREATER STRENGTH SHALL BE ACCEPTED. THE TURBIDITY CURTAIN IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE DRAWINGS. FISH SHALL BE SALVAGED FROM THE ENCLOSED AREA.
3. THE TURBIDITY CURTAIN SHALL BE A CONTINUOUS ROLL OF GEOTEXTILE FABRIC SUFFICIENT TO ENCLOSE THE ENTIRE WORK AREA AND PREVENT A VISUALLY DETECTABLE DIFFERENCE IN TURBIDITY BETWEEN THE BACKGROUND AND COMPLIANCE TURBIDITY MONITORING SITES. IF ADDITIONAL FABRIC IS NEEDED TO ENCLOSE WORK AREA, SEE "PANEL CONNECTORS."
4. FABRIC - WITHIN NAVIGABLE WATERS, THE FABRIC SHALL BE A BRIGHT COLOR (YELLOW OR ORANGE) TO ATTRACT THE ATTENTION OF ANY BOATERS OR SWIMMERS. THE FABRIC SELECTION SHALL TAKE INTO ACCOUNT THE VOLUME OF WATER THAT MUST PASS THROUGH BASED ON THE ANTICIPATED VOLUME OF WATER FLOWING INTO THE PROTECTED AREA. THE FABRIC SELECTION SHALL ALSO TAKE INTO ACCOUNT THE EXPECTED POLLUTANT PARTICLE SIZE BASED ON THE PRIMARY SEDIMENT IDENTIFIED.
5. PANEL CONNECTORS - IF ADDITIONAL FABRIC PANELS ARE NEEDED, THE SEAMS OF THE FABRIC SHALL BE GLUED, WELDED, OR SEWN AND SHALL HAVE 90% OF THE STRENGTH CHARACTERISTICS AS THE FABRIC. IF ADJACENT PANELS ARE NECESSARY, THEY SHALL BE CONNECTED USING ONE OF THE FOLLOWING METHODS: A) SEW THE PANELS TOGETHER USING TWO STITCH LINES PER SEAM AND A STITCH DENSITY OF SIX TO TEN STITCHES PER INCH, B) JOIN THE PANELS OF FABRIC USING GROMMETED HOLES AND ROPE LACING. THE HOLES SHALL BE ONLY SLIGHTLY LARGER THAN THE ROPE TO MINIMIZE LEAKAGE. C) USE COMMERCIALY AVAILABLE ALUMINUM SLIDE-CONNECTORS.
6. THE TURBIDITY CURTAIN SHALL BE OF SUFFICIENT LENGTH TO REST ON THE BOTTOM OF THE RIVER.
7. FLOTATION - FLOTATION SEGMENTS SHALL BE RETAINED INTO A SEWN OR HEAT WELDED SEAM ALONG THE ENTIRE TOP OF THE TURBIDITY CURTAIN TO FORM A CONTINUOUS FLOAT. POSSIBLE FLOTATION MATERIAL INCLUDES EXPANDED POLYSTYRENE, FLOATS, OR CLOSED CELL SOLID PLASTIC FOAM FLOATS.
8. LOAD LINE - TURBIDITY CURTAINS SHALL REQUIRE A LOAD LINE. THE LOAD LINE SHALL BE A MINIMUM 5/16" STEEL CABLE INSTALLED IN THE SLEEVE WITHIN THE FLOTATION SEGMENTS OR JUST BELOW THE FLOATS IF IN ITS OWN SLEEVE.
9. MOORING - THE TURBIDITY CURTAIN SHALL BE PROPERLY ANCHORED BOTH ONSHORE AND IN THE WATER. THE TURBIDITY CURTAIN SHALL EXTEND UP ONTO SHORE AND BE TIED TO A POST OR STABLE, LARGE DIAMETER TREE (8" DIAMETER OR MORE AT BREAST HEIGHT). THE ANCHORING SYSTEM SHALL BE DESIGNED BASED ON THE ANTICIPATED CONDITIONS. THE IN-WATER ANCHOR SYSTEM SHALL CONSIST OF AN ANCHOR, CHAIN, ANCHOR LINE, BUOY, CROWN BUOY, AND MOORING CABLE - AS NEEDED. THE CURTAIN SHALL BE ANCHORED EVERY 100 FEET AT A MINIMUM. FOR HIGHER FLOW SITUATIONS - WHERE THE CURRENT APPROACHES 5 FPS AND/OR WAVES OVER 1 FOOT ARE ANTICIPATED - THE TURBIDITY CURTAIN SHALL BE ANCHORED EVERY 50 FEET. TURBIDITY CURTAINS SUBJECT TO REVERSING CURRENTS, WAVES, OR FLOW FROM BOTH SIDES SHALL BE ANCHORED ON BOTH SIDES. THE ANCHORS SHALL BE PLACED SUCH THAT THE SLOPE OF THE ANCHOR LINE IS 7 HORIZONTAL TO 1 VERTICAL - THIS WILL MINIMIZE THE STRESS ON THE SILT CURTAIN AND INCREASE THE HOLDING POWER OF THE ANCHOR. A MINIMUM 1/2" DIAMETER ROPE SHALL BE USED FOR THE ANCHOR LINE.
10. REMOVAL - THE TURBIDITY CURTAIN SHALL ONLY BE REMOVED WHEN A THERE IS NO VISUALLY DETECTABLE DIFFERENCE IN TURBIDITY BETWEEN THE BACKGROUND AND COMPLIANCE TURBIDITY MONITORING SITES.



3  
12 TYPICAL SECTION - FLOATING SILT CURTAIN  
NOT TO SCALE

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NO.	BY	DATE	REVISION DESCRIPTION

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MYS	8/30/2025	25-05-11
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CITY OF AUBURN  
LITTLEFIELD DAM REMOVAL  
50% DESIGN

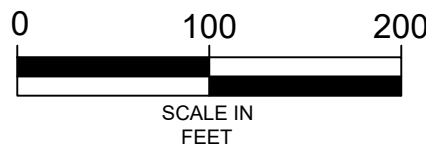
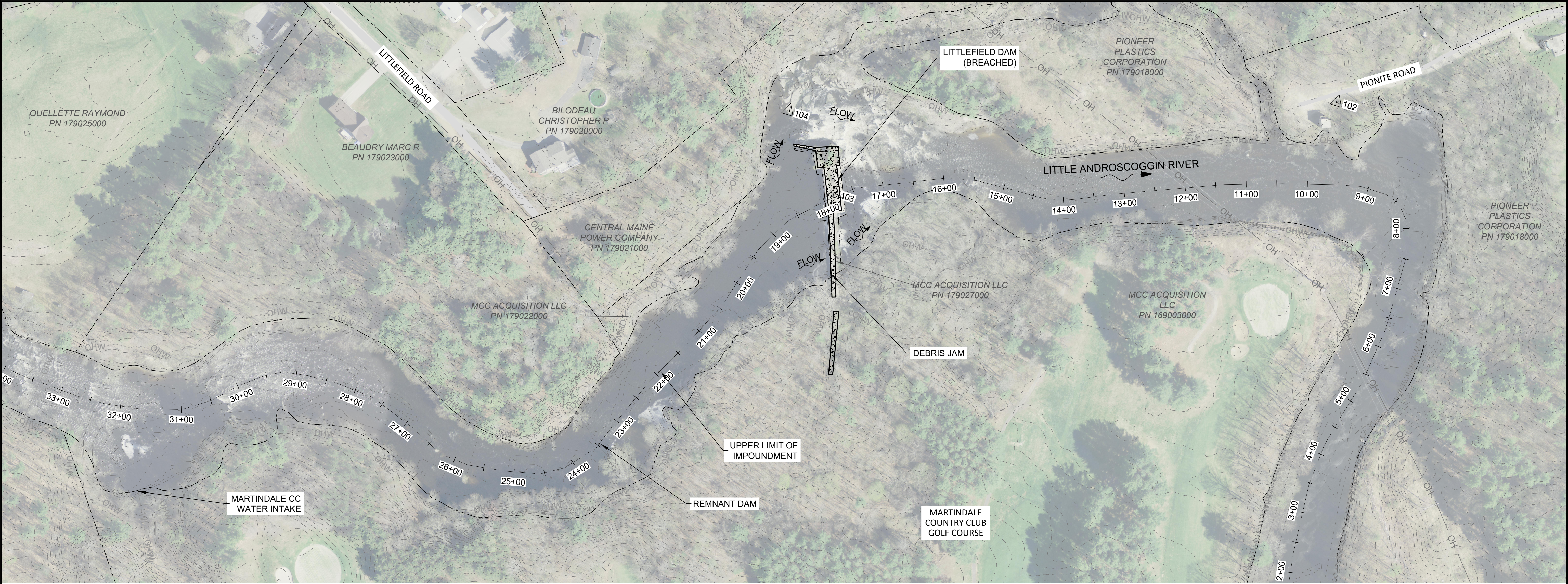


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EROSION CONTROL DETAILS

SHEET  
12 OF 12





LEGEND

- EXISTING CONTOUR (2 FT)
- TAXLOTS
- 10+00 --- EXISTING CHANNEL ALIGNMENT
- OH — EXISTING OVERHEAD UTILITIES
- WI — EXISTING WATER INTAKE
- OHW — EXISTING ORDINARY HIGH WATER
- [Pattern] EXISTING DAM
- [Triangle] CONTROL POINT

- NOTES:
- HORIZONTAL COORDINATE SYSTEM IS NAD83 (2011), MAINE STATE PLANE, WEST ZONE, US FEET. VERTICAL DATUM IS NAVD88, US FEET.
  - TOPOGRAPHIC AND BATHYMETRIC SURVEY DATA WERE COLLECTED BY INTER-FLUVE IN JUNE 2025 AND AUGUST 2025. RTK GPS, TOTAL STATION, AND SONAR EQUIPMENT WERE UTILIZED. BATHYMETRIC CONTOURS SHOULD BE CONSIDERED APPROXIMATE.
  - LIDAR DATA COLLECTED IN MAY 2020 BY NOAA. ACCESSED FROM DIGITAL COAST MAY 2025.
  - PARCEL BOUNDARIES AND OWNERSHIP WERE OBTAINED THE CITY OF AUBURN IN AUGUST 2025.
  - UTILITIES SHOWN BASED ON GIS LINEWORK OBTAINED FROM THE CITY OF AUBURN, SUMMER 2025.

CONTROL POINTS				
POINT #	DESCRIPTION	ELEVATION	NORTHING	EASTING
101	CAPPED REBAR*	227.67	447832.92	2926348.05
102	CAPPED REBAR	200.40	449415.05	2927832.67
103	PK NAIL	212.69	449032.11	2927090.88
104	PAINT	205.18	449138.88	2926979.74
105	CAPPED REBAR*	239.52	449177.46	2926051.04

\* CONTROL POINT 101 AND 105 ARE NOT LOCATED IN THE PLAN VIEW EXTENTS PROVIDED. CONTROL POINT 101 IS LOCATED TO THE SOUTHWEST OF THE SITE, NEAR THE MARTIDALE PUMPHOUSE. CONTROL POINT 105 IS LOCATED TO THE NORTHWEST OF THE SITE, AT THE INTERSECTION OF LITTLEFIELD ROAD AND CANADIAN NATIONAL RAILWAY.

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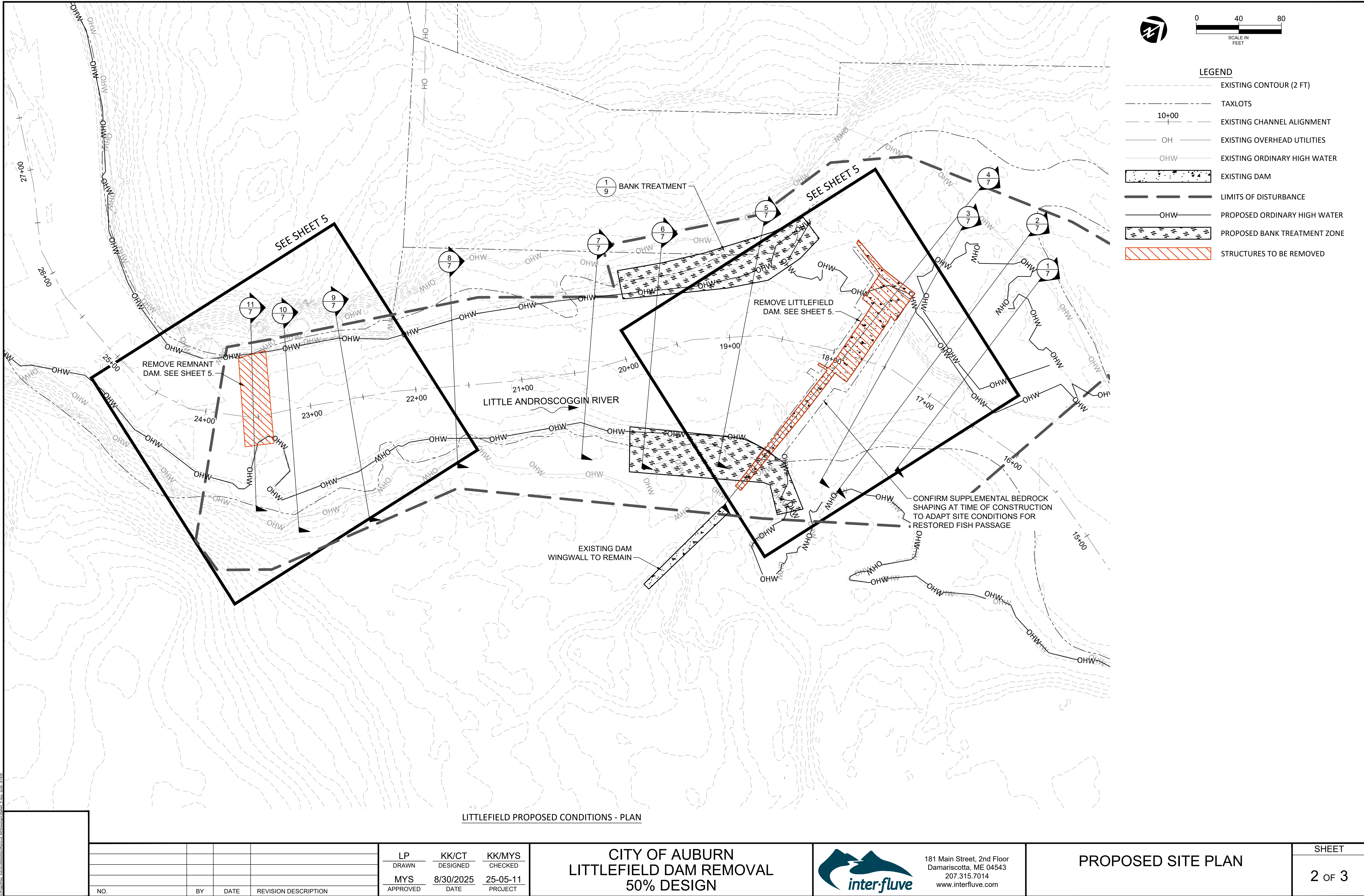


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SITE BASEMAP AND  
SURVEY CONTROL

SHEET
1 OF 3





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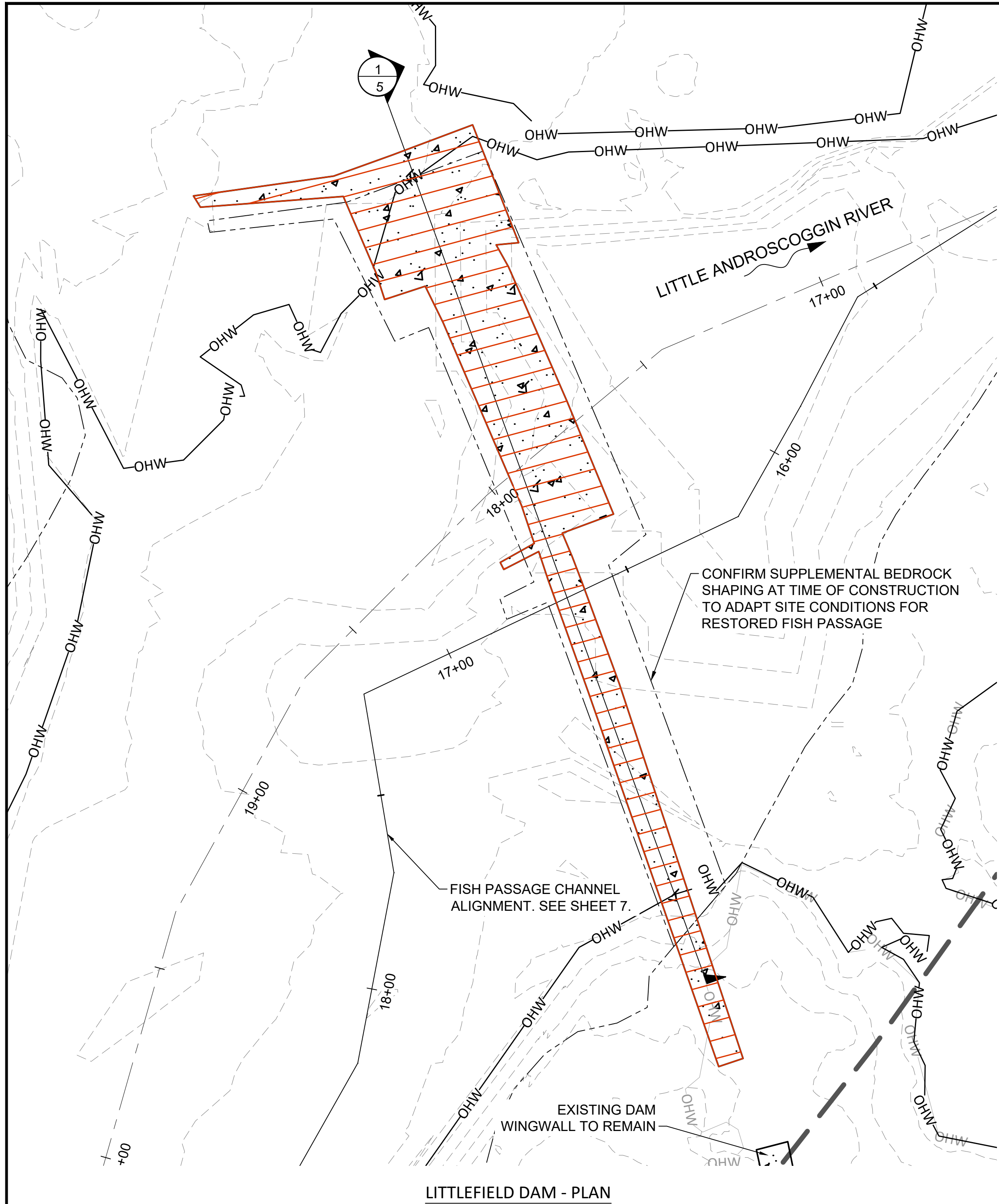
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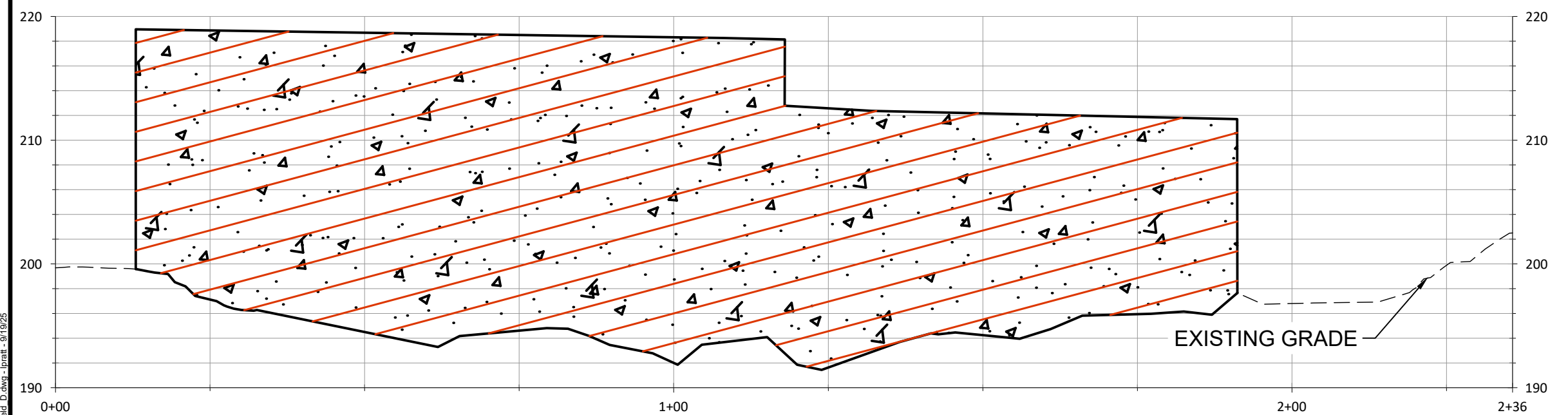
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PROPOSED SITE PLAN

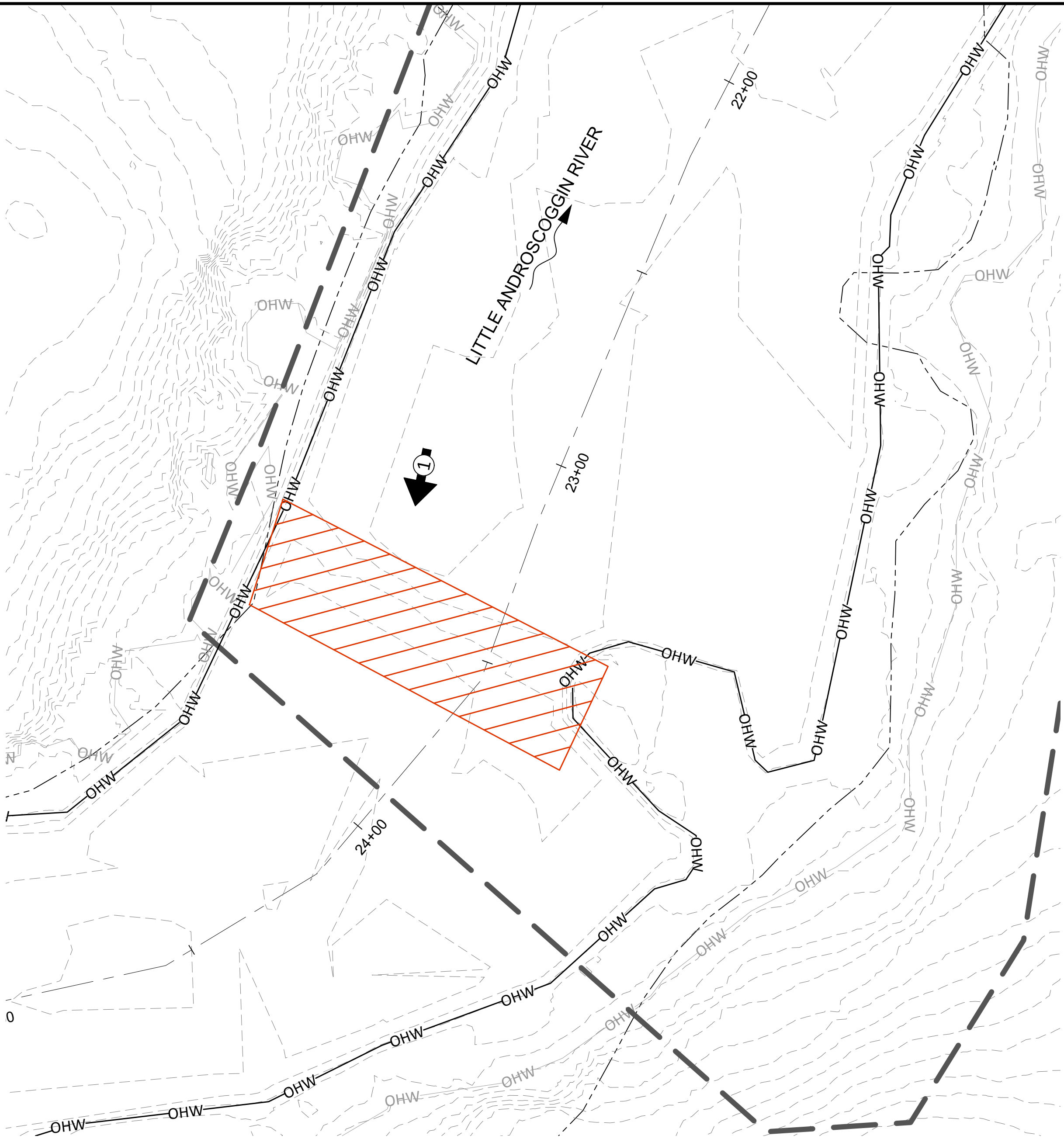




LITTLEFIELD DAM - PLAN



1 SECTION  
5 1" = 10'



REMNANT DAM - PLAN

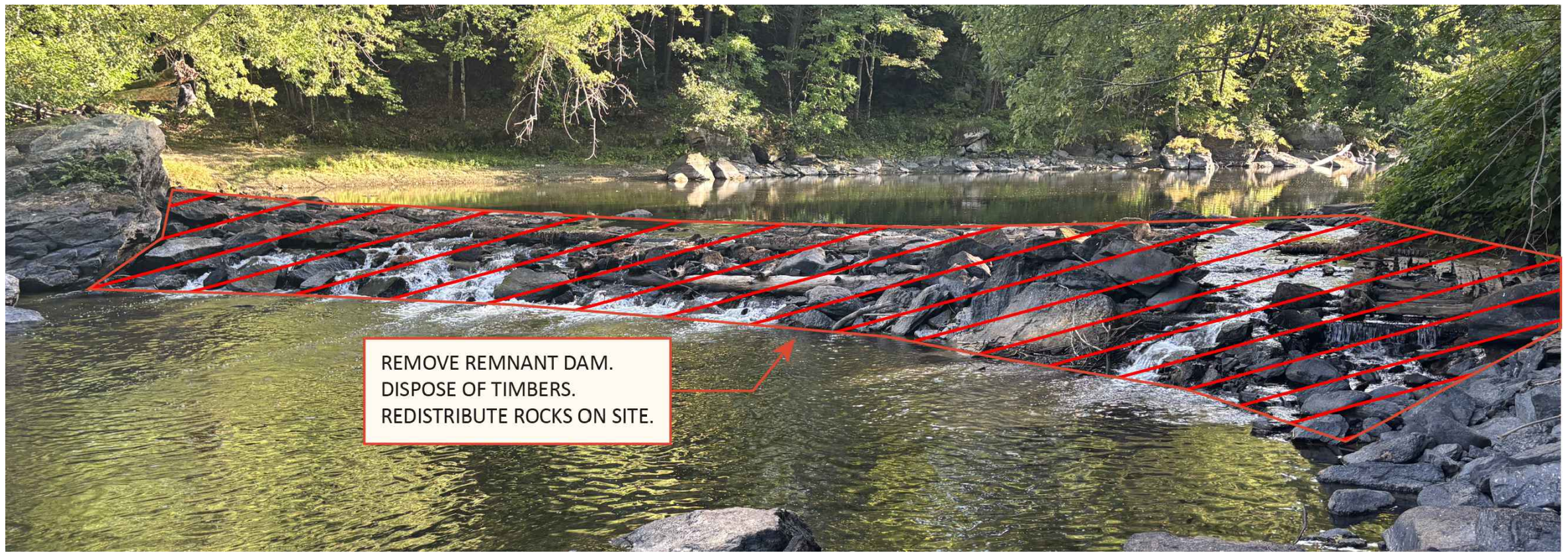
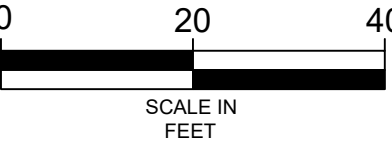


PHOTO 1 - FROM DOWNSTREAM OF REMNANT DAM

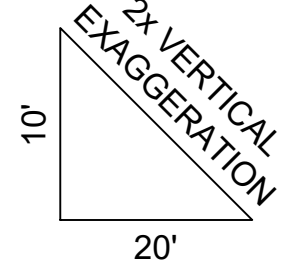


LEGEND

- EXISTING CONTOUR (2 FT)
- TAXLOTS
- 10+00 PROPOSED FISH PASSAGE ALIGNMENT
- OH EXISTING OVERHEAD UTILITIES
- WI -WI -WI EXISTING WATER INTAKE PIPE
- OHW EXISTING ORDINARY HIGH WATER
- 10+00 EXISTING DAM
- 10+00 PROPOSED FISH PASSAGE ALIGNMENT
- OHW PROPOSED ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- STRUCTURE TO BE REMOVED
- PHOTO LOCATION AND DIRECTION

PROFILE LEGEND

- EXISTING GRADE
- PROPOSED GRADE
- WATER SURFACE ELEVATION (WSE)



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DEMOLITION PLAN

SHEET
3 OF 3