

Chapter 253

Dam Safety Permit Application

Bel Air Dam (MA 01061) Removal Project Pittsfield, MA

Applicant:

City of Pittsfield, MA

Submitted to:

**Massachusetts Department of Conservation and Recreation
Office of Dam Safety**

Submitted By:



September 2024

September 5, 2024

Massachusetts Department of Conservation and
Recreation
Office of Dam Safety, Permits
10 Park Plaza Suite 6620
Boston, MA 02116

**Subject: Chapter 253 Dam Safety Permit Application for Bel Air Dam (MA01061) Removal
Project Pittsfield, Massachusetts**

Dear Permit Reviewers:

On behalf of the City of Pittsfield and MassDCR Office of Dam Safety, AECOM respectfully submits the enclosed application for a Chapter 253 Dam Safety Permit for the proposed removal of the Bel Air Dam (MA01061) located in Pittsfield, Massachusetts. The purpose of the project is to address the current structural deficiencies of the dam and the current public safety concerns for this High Hazard Dam.

The Bel Air Dam Removal Project is anticipated to take place from April 2025 through December 2026. A Chapter 253 Dam Safety Permit is required to implement the measures recommended in the Phase II – Inspection and Investigation Report, dated February 2020. These measures include demolishing the auxiliary spillway and training walls to eliminate the impoundment, and reconstructing the stream channel to closely following the draining pattern that is depicted in the existing bathymetric survey. Additionally, approximately 35,500 cubic yards of contaminated sediment will be removed from the site. The remaining sediment that will be subject to Massachusetts Contingency Plan reporting requirements will be covered with an impenetrable “cap”. The impenetrable “cap” will consist of an 8-inch deep geocell layer which will be covered by 12-inches of clean fill. Final plans and specifications are anticipated to be available in October 2024.

To facilitate your review, we have enclosed the following:

- Permit Application Form
- Attachment 1 Design Report
 - Appendix A Preliminary Design Documentation
 - Appendix B Site Photographs
 - Appendix C Emergency Action Plan
 - Appendix D 75% Design Documentation
- Attachment 2 Locus and Drainage Maps
- Attachment 3 MEPA Documentation
- Attachment 4 Massachusetts Historical Commission Determination

The following regulatory notifications and permit applications are currently in progress or completed:

- MassDEP Chapter 91 Waterways License and Permit Application – Submitted July 5, 2024
- USACE 404 Pre-Construction Notification – Submitted June 27, 2024
- Notice of Intent to the Pittsfield Conservation Commission – Submitted July 17, 2024
- Massachusetts Department of Environmental Protection (DEP) 401 WQC – WQC issued on August 23, 2024.
- MEPA Notice of Ecological Restoration Project – Submitted February 7, 2024. No determination was made within 10 days of the close of the comment period, that an Environmental Notification Form was required to be submitted. Attachment 3 contains MEPA Documentation which indicated that “Accordingly, any Agency Action required for the Project may be taken at this time if required to obtain a Restoration Order of Conditions, provided that the Agency Action is deemed to be conditioned on the ultimate issuance of the Restoration Order of Conditions.” No Environmental Notification Form is required. The Bel Air Dam removal project is eligible for a Restoration Order of Conditions.
- Massachusetts Historical Commission (MHC) Project Notification Form (PNF) – Submitted January 17, 2024. MHC has completed their review and determined no effect, see Attachment 4.

If you have any questions, please contact me at (978) 905-2100 or jillian.flanagan@aecom.com. Thank you for your time and assistance.

Sincerely,



Jillian Flanagan
Environmental Scientist
Jillian.flanagan@aecom.com
(978) 905-2100

cc: Peter M. Marchetti, Mayor, City of Pittsfield
Jim McGrath, Park, Open Space and Natural Resource Program Manager, City of Pittsfield
Rob Lowell, Deputy Chief, Design and Engineering
Jennifer Doyle-Breen, AECOM
Doug Gove, AECOM

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Attachment 4 Massachusetts Historical Commission Determination



CHAPTER 253 PERMIT APPLICATIONS

1. COVER SHEET (check application being submitted)

PART A – JURISDICTIONAL DETERMINATION/PERMIT EXEMPTION APPLICATION

(Submit Part A pages of form with narrative for minor dam maintenance)

PART B – FULL PERMIT APPLICATION AND DESIGN REPORT

(Part A not required if submitting Part B for major dam work)

Dam

Name: Bel Air Dam

Date: 9/5/2024

Location (City or Town): Pittsfield

Dam ID Number: MA 016061

Hazard Classification: High (Class 1) Hazard Potential

Size Classification: Intermediate

Owner(s)

Name: City of Pittsfield: Peter M. Marchetti, Mayor

Address: 70 Allan Street Pittsfield, MA 01201

Telephone: (413) 499-9321

E-mail: mayorsoffice@cityofpittsfield.org

Any person(s), who proposes to construct, repair, materially alter, breach or remove a dam, pursuant to M.G.L. Chapter 253, as amended by Chapter 330 of the Acts of 2002, must file with the Commissioner a Chapter 253 Dam Safety Permit application (**Part B**). Minor maintenance-related work does not require a Chapter 253 Dam Safety Permit; however, the owner(s) must file for a determination / exemption for other than routine activities that may affect safety conditions using the **Part A** application. No work is to commence either before a determination is made by the Commissioner for minor work or before a permit is issued for major work. If the Commissioner determines that the proposed work falls within the jurisdiction of M.G.L. Chapter 253 the Owner(s) must apply for a permit using the **Part B** application. If an owner believes that the proposed work is major, they may submit the **Part B** application without prior submittal of Part A.

The application and notices shall be sent by certified mail to DCR, Office of Dam Safety, Permits. All permit applications must comply with design and construction criteria as specified in 302 CMR 10.00: Dam Safety Rules and Regulations effective November 4, 2005.

Certain dams and reservoirs as defined in 302 CMR 10.00 are excluded from filing. Also, the approval of the Commissioner shall not apply to small dams or embankments constructed for irrigation, detention, storage tanks, or other purposes that impounds less than 15 acre-feet, regardless of height and is not in excess of 6 feet in height, regardless of storage capacity provide that any discharge(s) shall not materially affect property. However, the Commissioner shall make the final determination by taking into consideration factors such as height, type of structure, condition of structure, volume of impoundment, extent of downstream development, and other factors deemed appropriate by the Commissioner.

Any action taken by the Commissioner in regard to this application does not release the owner(s) from the requirements of any other law or regulatory authority.



PART A – JURISDICTIONAL DETERMINATION/PERMIT EXEMPTION APPLICATION
(for routine maintenance)

Part A Instructions: If an exemption from Chapter 253 permit requirements is requested, provide the information described below:

1. Cover Sheet (page 1 of form)
 2. Signature Section (page 3 of form)
 3. Completed Checklist (page 4 of form)
 4. Narrative Description with supporting drawings, sketches and photographs
-

2. SIGNATURE SECTION PART A

The proposed work described in this application is believed to be minor maintenance by the undersigned. The proposed minor maintenance will be performed in a manner that will maintain or enhance the safety of the dam without changing the dam hazard classification or altering (other than to repair) the permitted features of the dam.

Applicant(s) Is Applicant also the Owner? Yes() No()

Name(s) _____
Street: _____
City/Town: _____ State: ____ Zip: _____
Telephone: _____ Fax: _____ Email Address: _____

Signature and Title _____ Date: _____

Owner(s) (complete only if the Applicant is not the Owner)

Name(s) _____
Street: _____
City/Town: _____ State: ____ Zip: _____
Telephone: _____ Fax: _____ Email Address: _____

Signature and Title _____ Date: _____

Licensed professional civil engineer registered in Massachusetts (optional but recommended)

Name: _____
Company: _____
Street: _____
City/Town: _____ State: ____ Zip: _____
Telephone: _____ Fax: _____ Email Address: _____

Signature: _____ Date: _____

Massachusetts Professional Engineer Stamp and License Number:

(PART A cont.)

3. CHECKLIST PART A

No application, either Part A or Part B, is required for routine maintenance (e.g. mowing of grass and brush clearing, painting, valve exercise or lubrication) or permitted water adjustments for pond maintenance and flood operation. Submit Part A form if in doubt about the need for DCR review of an activity.

Typical minor maintenance activities for which a Part A application is appropriate include, but are not limited to, the following items.

- | | |
|---|--------------|
| 1. Minor Earthwork/masonry maintenance and repair? | Yes() No() |
| 2. Riprap maintenance and repair? | Yes() No() |
| 3. Vegetation and tree maintenance?
(larger than brush, less 6”diameter) | Yes() No() |
| 4. Rodent damage control? | Yes() No() |
| 5. Traffic damage controls and erosion? | Yes() No() |
| 6. Mechanical maintenance to outlets? | Yes() No() |
| 7. Electrical maintenance? | Yes() No() |
| 8. Cleaning? | Yes() No() |
| 9. Concrete maintenance? | Yes() No() |
| 10. Metal component maintenance? | Yes() No() |
| 11. Other as specified: | Yes() No() |

4. NARRATIVE DESCRIPTION (attach to this form)

Describe the proposed minor maintenance in sufficient detail to provide a clear understanding of the proposed work. Describe all activities noted above and any work not covered by the checklist. Provide drawings, sketches and photographs showing the locations and features affected by the routine maintenance.

STOP HERE if requesting a jurisdictional determination / exemption.

If applying for a Permit, proceed to PART B.

PART B – CHAPTER 253 PERMIT APPLICATION AND DESIGN REPORT

Part B Instructions: Any person(s), who proposes to construct, repair, materially alter, breach or remove a dam, pursuant to M.G.L. Chapter 253, as amended by Chapter 330 of the Acts of 2002, must file with the Commissioner a Chapter 253 Dam Safety Permit application, as included in this Part B Design Report. The Part B Chapter 253 Permit Application / Design Report shall include the following sections*:

1. Cover Sheet
- Table of Contents (applicant's format, listing items 1, 2, 3, 4, and applicable sections of 5)
2. Chapter 253 Application Fee and Permit Fees Documentation
3. Signature Section
4. Data Forms
 - a. General Information
 - b. Hazard Potential Changes
 - c. Hydrologic, Hydraulic and Structural Considerations
 - d. Design Data
5. Design Report with Typically Required Supporting Information and Documents (see Section 5 for typically required supporting information and documents)

*If an applicant is proposing a limited alteration to the dam, sections that are not applicable because of the alteration limits may be omitted.

An applicant is strongly encouraged to submit a preliminary report or analyses containing enough of the information listed above so that the Commissioner can provide preliminary concurrence with hazard classification, site investigation, and design concept for the proposed project, especially for new dams or projects where the hazard classification may change, or design concepts are non-routine.

Approval or denial of a permit will be issued within 60 days from the time the final design report and permit application is received.

Permitting of this application does not release the applicant from the requirements of any other related regulatory authority authorization, notification, and permitting. Such authorization, notification, and permitting may include but are not limited to:

Local Conservation Commission: M.G.L. Chapter 131 License and Town/City Wetlands Protection by-laws (Wetlands Protection Act).

Mass. Department of Environmental Protection (DEP): M.G.L. Chapter 131 License and M.G.L. Chapter 91, 401 Water Quality Certification. Required if an Individual Section 404 permit is required by The U.S. Army Corps of Engineers.

Mass. Executive Office of Energy and Environmental Affairs (EOEEA), 100 Cambridge St., Suite 900, Boston, MA 02114. Mass. Environmental Policy Act (MEPA): Environmental Notification Form (ENF) and Environmental Impact Report (EIR). **Note: If MEPA Certificate is required, the Office of Dam Safety requires a copy of the Certificate before M.G.L. Chapter 253 Dam Safety Permit can be issued.**

Please see **Attachment 3** for MEPA Documentation.

Coastal Zone Federal Consistency Review.

Massachusetts Coastal Zone Management Office (CZM). presence of dams in the coastal zone, in conjunction with Section 404 permit.

Mass. Department of Fish and Game (DFG), 251 Causeway St., Suite 400, Boston, MA 02114 and your local Town/City Board of Health. M.G.L. Chapter 139 of The Acts of 2000 - Control of beaver population and removal of beaver dams.

DFG Field Headquarters, 1 Rabbit Hill Rd., Westborough, MA 01581 – Emergency drawdowns, controlled flows, and fish ladders.

Mass. Historical Commission, 220 Morrissey Boulevard, Boston, MA 02125. Phone: 617-727-8470. M.G.L. Chapter 9, Sections 26 through 27C and regulations 950 CMR 71.00, Section 106 National Historic Preservation Act.

Please see **Attachment 4** for the Massachusetts Historical Commission Determination.

Mass. Highway Department (MHD), 10 Park Plaza, Boston MA 02116 and/or the local Highway Department. Presence of road over dam and/or bridge over/behind dam.

U.S. Department of the Army Corps of Engineers. New England District Regulatory Branch, 696 Virginia Rd., Concord, MA 01742-2751 Phone: 978-318-8111 - Section 404 of the Clean Water Act Permit.

(PART B cont.)

2. CHAPTER 253 APPLICATION FEE AND PERMIT FEES DOCUMENTATION

(a) The fee to apply for a Chapter 253 Dam Safety Permit to construct, materially alter, perform major repairs, breach or remove a dam is \$50.00

(b) The fee for review and issuance of a Chapter 253 Dam Safety Permit is based on the size and cost of the proposed project (construction and engineering) as follows:

1. For a dam construction project costing up to \$100,000.00 the fee will be \$250.00
2. For a dam construction project costing from \$100,000.00 to \$500,000.00 the fee will be \$500.00
3. For a dam construction project costing between \$500,000.00 and \$1,000,000.00 the fee will be \$750.00
4. For any dam project over \$1,000,000.00, the fee will be \$1,000.00

The estimated cost of the proposed project:

- (a) The estimated cost of engineering: \$500,000
- (b) The estimated cost of construction: \$19 million

The total estimated cost: \$19.5 million

Please enclosed check or money order payable to: The Commonwealth of Massachusetts, Office of Dam Safety – Permits Section

Exclusions: The Commonwealth, its agencies, authorities and political sub-divisions, including municipalities, are exempt from the payment of fees.

Minimum Submission Requirements:

With this application submit one set of bounded (utilizing plastic comb bindings) final design report with 11”x 17” design drawings. An electronic copy of the design report and drawings in PDF (compatible with Adobe Reader Version 6.0 or later) format presented on compact disc (CD-R media, closed for future recording). CD’s shall be protected by jewel case and contain a label indicating the dam project name, NID ID #, the Town in which the dam is located, and the date of the design report.

All required submittals shall be sent by certified mail to:

Department of Conservation and Recreation
Office of Dam Safety, Permits
John Augustus Hall
180 Beaman Street
West Boylston, MA01583

(PART B cont.)

3. SIGNATURE SECTION

This application describes proposed construction, repair, material alterations, breaches, and/or removal of a dam, pursuant to M.G.L. Chapter 253, as amended by Chapter 330 of the Acts of 2002. The information included in this application is believed to be accurate and to address the requirements of the application and 302 CMR 10.00.

Applicant(s) Is Applicant also the Owner? Yes () No(**X**)

Name(s) Rob Lowell, Deputy Chief, Design and Engineering
Street: 10 Park Plaza Suite 6620
City/Town: Boston State: MA Zip: 02116
Telephone: 508-509-1757
Email Address: robert.lowell@mass.gov

Signature and Title _____ Date: September 4, 2024

Owner(s) (complete only if the Applicant is not the Owner)

Name(s) City of Pittsfield: Peter M. Marchetti, Mayor
Street: 70 Allen Street
City/Town: Pittsfield State: MA Zip: 01201
Telephone: 413-499-9321
E-mail Address: mayorsoffice@cityofpittsfield.org

Signature and Title  Date: 8/27/24

Licensed professional civil engineer registered in Massachusetts

Name: Doug Gove, PE
Company: AECOM
Street: 250 Apollo Drive
City/Town: Chelmsford State: MA Zip: 01824
Telephone: 617-721-7005 Fax: _____ Email Address: Doug.gove@aecom.com

Signature:  Date: August 26, 2024

Massachusetts Professional Engineer Stamp and License Number: MA 43239



(PART B cont.)

4. DATA FORMS

a. General Information:

1. Dam location (City/Town); attach locus map and local access to the dam.

The dam is located in Pittsfield, MA. See locus map in **Attachment 2.**

2. Dam Name(s): Bel Air Dam

3. Impoundment Name(s): Bel Air Pond

4. Assessor's Information (city or town tax assessors office):

Map Number: N/A

Section Number: N/A

Lot(s) Number: H120012021 and H130006020

Record Owner(s) and Address: J. Barry Hollister 51 Holmes Road Pittsfield, MA 01201 / City of Pittsfield

Registry Location: Middle Berkshire District Registry of Deed

Book and Page: Book 1050 Page 1041

Present and/or Prospective owner(s):

Name: City of Pittsfield

Address: 70 Allen Street Pittsfield, MA 01201

Telephone: 413-499-9361

5. Name of US Geological Survey map quadrangle: Pittsfield, MA 42.4710, -73.24823

6. Name of reservoir or waterway: West Branch of the Housatonic River

7. Purpose of the dam structure: Formally used for power, no current purpose.

8. Nature of work to be performed:

a. New dam? Yes () No (**X**)

b. Alteration or major repair of existing dam? Yes (**X**) No ()

c. Other nearby repair, pond, bridge, highway, or other work effecting dam? Yes () No (**X**)

d. Summary description of dam and other work:

The full removal of the Bel Air Dam will include the demolition of the existing dam to eliminate the impoundment, restoration of the hydraulic connectivity of the original waterway by the reconstruction a stream channel, the dredging of accumulated contaminated sediment, bank stabilization, and revegetation with native species. Additionally, the pedestrian bridge over the dam will be removed.

(PART B cont.)

4. DATA FORMS (cont.)

b. Hazard Potential Changes

HAZARD POTENTIAL CLASSIFICATION TABLE

Hazard Classification	Description
High Hazard (Class I)	Dams located where failure will likely cause loss of life and serious damage to home(s), industrial or commercial facilities, important public utilities, main highway(s) or railroad(s).
Significant Hazard (Class II)	Dams located where failure may cause loss of life and damage home(s), industrial or commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important facilities.
Low Hazard (Class III)	Dams located where failure may cause minimal property damage to others. Loss of life is not expected.

1. For repairs or alterations of existing dams, will the proposed work alter the hazard classification of the dam? Yes (**X**) No ()

If yes, use the above table to determine the new hazard classification. Provide supporting documentation in the design report that describes the basis of the classification (investigations, analyses to determine inundation areas, evaluations, etc.) and the areas, people, structures, properties, transit facilities, and other features that would be affected by a failure of the dam.

This project will remove the existing Bel Air Dam structure; thus, no Hazard Classification is applicable as there will no longer be a dam.

2. For new dams, use the above table to determine the hazard classification. Provide supporting documentation in the design report that describes the basis of the classification (investigations, analyses to determine inundation areas, evaluations, etc.) and the areas, people, structures, properties, transit facilities, and other features that would be affected by a failure of the dam.
Note: Approval to construct a new significant hazard potential dam or high hazard potential dam will be contingent upon the submission of a suitable Emergency Action Plan to the Commissioner.

No new permanent dams will be constructed during this project.

c. Hydrologic, Hydraulic and Structural Considerations

SPILLWAY DESIGN FLOOD (SDF) DESIGN CRITERIA

Provide SDF criteria for size, hazard class and whether existing or new dam, see 302 CMR 10.14 (6) Spillway Design

Hydrologic, hydraulic and structural design procedures should be used, as established by one of the following: The U.S Army Corps of Engineers, the U.S. Bureau of Reclamation, the U.S. Soil Conservation Service and other procedures universally accepted as sound engineering practice.

1. Contributory drainage area (sq. mi.): 22.8 square miles
(Attach topographic map with outline of drainage area) Maps are provided in Attachment 2.
2. Design storm duration: 24-hours
Rainfall Intensity (inches/hour): Existing 0.65 inches/hour (15.5 inches in 24 hours) / Proposed 0.30 inches/hour (7.17 inches in 24 hours)
3. Runoff (%): Existing 80.6% / Proposed 49.3% Inches: Existing 12.49 inches / Proposed 3.54 inches
4. Peak Outflow (cfs): ½ PMF 13,308 cfs
5. Previous known flood of record
(month/year): Unknown
6. Maximum SDF level elevation: El. 1042.4 feet NAVD88
7. Is maximum SDF level above dam crest? Yes () No ()
(If yes, describe overtopping protection: There is currently no overtopping protection)
8. Addition information: N/A

d. Design Data

1. Datum used: NAVD88
2. Type of structure (earth, concrete, etc.): Existing Stone masonry and Earth Embankment / Proposed No Structure
3. Maximum structural height of the dam (feet): Existing 26.5 Feet / Proposed None
4. Crest length (ft): Existing 56 feet / Proposed None
Crest width (ft): Existing 5 feet / Proposed None
5. Top elevation of dam: Existing El. 1036.6 feet / Proposed None
6. Present river or channel elevation at dam (ft): Existing El. 1028.7 / Proposed None
7. Normal pool elevation (ft): Existing El. 1027.5 / Proposed El. 1015.0 feet
8. Normal pool surface area (acre): Existing 3 acres / Proposed 0.0 acres
9. Normal impoundment (acre-ft): Existing 24 acre-feet / Proposed 0.0 acre-feet
10. Maximum pool elevation (ft): Existing El. 1042.4 feet (1/2 PMP) / Proposed 1020.5 feet (100-year storm)

4. DATA FORMS (cont.)

11. Maximum pool surface area (acre): Existing 8.2 acres / Proposed 0.0 acres
12. Maximum impoundment (acre-ft): Existing 56 acre-feet / Proposed 0.0 acres
13. Freeboard, as measured from the SDF pool elevation to the crest of dam (ft): Existing 10.6 feet / Proposed None
14. Slope protection description: Currently there is no slope protection. Proposed slope protection includes the planting of native species, "Bio-D Blocks" will be installed, and stone will be placed on the stream bed and banks to withstand predicted future velocities.
15. Primary Spillway information:
 - Spillway type: Existing Sluiceway / Proposed No Spillway
 - Top elevation: Existing El. 1032.3 feet / Proposed None
 - Dimensions (ft): Existing Two stone culverts 3 ft W x 4 ft H x 8 ft L / Proposed None
 - Capacity (cfs): Existing 420 cfs / Proposed None
 - Percentage of design flood: Existing ½ PMF / 13,308 / Proposed N/A
16. Emergency Spillway information: N/A – No Emergency Spillway
 - Spillway type: N/A
 - Top elevation: N/A
 - Dimensions (ft): N/A
 - Capacity (cfs): N/A
 - Percentage of design flood: N/A
17. Low Level Outlet (s): N/A – No Low-Level Outlets
 - Type(s): N/A
 - Invert elevation(s): N/A
 - Dimension(s) (ft): N/A
 - Capacity (cfs): N/A
 - Percentage of design flood: N/A

(PART B cont.)

**5. DESIGN REPORT
WITH SUPPORTING INFORMATION AND DOCUMENTS**

The Design Report is formatted by the applicant and includes sections from the outline list given below that are applicable to the proposed dam project. See Dam Safety Regulations, 302 CMR 10.09 and 10.14 for technical analyses and level of detail required. If an applicant is proposing a limited alteration to the dam, sections that are not applicable because of the alteration limits may be omitted.

- A. Project Description
 - 1. Existing Conditions
 - 2. Proposed Modifications
- B. Investigations, Analyses, Designs
 - 1. Geotechnical (subsurface investigations and descriptions, stability evaluations and analyses, borrow investigations, related designs, etc.)
 - 2. Seepage (investigations, stability evaluations and analyses, related designs, etc.)
 - 3. Hydrologic and Hydraulic (investigations and analyses for hazard classification, SDF, freeboard, outlets, wave run up, related designs, etc.)
 - 4. Structural (investigations, analyses, designs, etc.)
- C. Construction Considerations
 - 1. Proposed Construction Schedule
 - 2. Control of Water Requirements
 - a. General Description - Draining/Lowering, Maintaining, and Monitoring Pool
(Note: Construction with full pool should be avoided)
 - b. Cofferdam Requirements
 - 3. Other Hazards and Mitigation (e.g. deep excavations, earth support, slope stability)
 - 4. Critical Activities Requiring Engineering Monitoring
 - 5. Construction Emergency Action Plan Considerations
- D. Proposed Reservoir Filling Schedule and Monitoring during Filling
- E. References
- F. Figures and Photographs (as needed to describe location, conditions, and proposed modifications)
- G. Contract Plans (can be a separate attachment)
- H. Contract Specifications (can be a separate attachment)
- I. Maintenance and Operation Plan (can be a separate attachment)
- J. Emergency Action Plans (required for all high and significant hazard dams; can be a separate attachment)
 - 1. Emergency Action Plan During Construction
 - 2. Emergency Action Plan After Completion of Construction

ATTACHMENT 1
FINAL DESIGN REPORT

Bel Air Dam Removal Design Report



Dam Name: Bel Air Dam
NID#: MA01061
Town: Pittsfield
Date: September 2024



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Appendix D	75% Design Plans

1.0 PROJECT DESCRIPTION

Bel Air Dam is part of the Massachusetts Department of Conservation and Recreation (MassDCR) Office of Dam Safety's (ODS's) pilot Abandoned Dams program. As part of the abandoned dam's program, MassDCR is seeking to address safety concerns pertaining to dams in the Commonwealth that have no identifiable owner. The full removal of Bel-Air Dam is based upon the recommendations in the Phase II Inspection and Alternatives Analysis Evaluation Report, dated February 2020, (**Appendix A**), and subsequent communication with MassDCR ODS and the City of Pittsfield.

1.1 Existing Conditions

The dam impounds the West Branch of the Housatonic River, approximately 1.1 miles downstream of Pontoosuc Lake. The West Branch watershed is approximately 22.8 square miles at the Bel Air Dam site. The impoundment has a normal water surface area of three acres and stores 56 acre-feet of water, although sediment accumulation has reduced this capacity. The minimum water surface elevation upstream of the dam is 1,026.0 feet NAVD88, which is the invert of the sluiceway opening at the dam. Downstream of the dam the mean water surface elevation is approximately 1,014 feet NAVD88.

Bel Air Dam is a combined earthen embankment, stone masonry, and concrete structure. Looking downstream from right to left, the dam consists of an earthen embankment, a stone masonry auxiliary spillway (original principal spillway), an earthen and stone masonry embankment, a stone masonry and concrete sluiceway structure, and an earthen bank. The auxiliary spillway is uncontrolled and has a length of 56.5 feet, a crest width of 5 feet, and structural height of 26.5 feet. The sluiceway consists of two stone culverts side by side, each culvert being 3 feet wide, 4 feet high, and 8 feet long. The total length of the dam is approximately 200 feet, including the embankments and masonry structures.

The sluiceway currently acts as the principal spillway. Flow passes through the sluiceway culvert entrance (invert El. 1026) on the left side of the dam and flows into a diversion channel that turns 90 degrees to the right and discharges directly downstream of the auxiliary spillway. The level of the impoundment was previously controlled by sluice gates installed on the upstream face of the sluiceway entrance. MassDCR ODS removed the sluice gates in 2007 to lower the level of the impoundment behind the dam. Since the removal of the gates, flow has been observed passing over the uncontrolled auxiliary spillway when the capacity of the sluiceway is exceeded. There

are no trash racks on the sluiceway, which has led to debris restricting its capacity and increasing the frequency of flow passing over the auxiliary spillway. There is no known low-level outlet for emergency draw down.

At the northern end of the parcel that includes the impoundment, the water surface consists of approximately 800 feet of linear, confined stream channel flowing under Wahconah Street and continuing south before discharging to the ponded area extending approximately 400 feet upstream of the dam. The impoundment is bordered by relatively dense vegetation on both sides, including many invasive species. On the eastern side of the impoundment the bank is steep and abuts residential properties on Lenox Avenue. The western edge of the ponded impoundment borders Wahconah Street and is within close proximity to the toe of the embankment along Wahconah Street. In the upstream extent, grades on the west are substantially less steep between the edge of the stream and the toe of the embankment along the road. There are four stormwater outfalls discharging into the impoundment and tributary stream on the western bank. The dam is classified as High (Class I) Hazard Potential dam in accordance with Massachusetts Dam Safety Regulations (*302 CMR 10*). See site photographs in **Appendix B**.

1.2 Proposed Modifications

The full removal of the Bel Air Dam includes the demolition of the existing dam to eliminate the impoundment, restoration of the hydraulic connectivity of the original waterway by the reconstruction of a stream channel, the dredging of accumulated contaminated sediment, bank stabilization, and revegetation with of native herbaceous and woody species. No new impervious surface will be created as a result of this project. The following sections describe the design and construction work that will occur on the individual components of the dam.

1.2.1 Dam Removal

Work will include clearing vegetation on both sides of the existing dam within the limit of work for construction access, excavation, and grading. It is anticipated that a phased breach would be completed by removing individual courses of rock at one-foot intervals to slowly dewater the impoundment. The final breach would be carried down to El. 1,014 feet-NAVD88. Removal of the dam will include demolition of the existing stone masonry, dam spillway, and appurtenant structures to eliminate the impoundment. The auxiliary spillway and training walls will also be demolished. The adjacent embankment will be reconstructed by backfilling the principal spillway with salvaged masonry stone and other suitable material that was recovered during the dam

demolition process. Additionally, the pedestrian bridge over the dam will be removed. The bridge is immediately above the dam and must be removed to access the dam to implement removal activities.

1.2.2 Dredging

The proposed removal of the impoundment and the reconstruction of the stream channel will require management of sediment that is remaining on-site as well as excess sediment that will be disposed out-of-state.

Based on the analysis of accumulated sediment in the Bel Air impoundment it is estimated that approximately 35,500 cubic yards of sediment will be dredged from the impoundment area to establish a new stream profile, banks, and 20-foot floodplain bench. The selection of either hydraulic dredging under wet conditions, mechanical dredging under partially dry conditions, or a combination of the two, will be decided by the construction contractor selected to implement the work in order to maximize value for the Commonwealth and to encourage innovative approaches that efficiently and effectively accomplish the project goals. However, regardless of the selected dredging technique(s), the contractor will be held to performance criteria which are identified below for each technique and will be described in a performance specification developed for bidding. The limit of work and associated impacts will be the same regardless of which technique is implemented.

The Dredge Contractor will be responsible for providing a Dredge Work Plan for review and approval by MassDCR prior to starting work at the site. Side slopes for all dredging activities will be no steeper than 3H:1V, the estimated natural angle of repose, unless otherwise specified on the project drawings. For either dredging approach, it is anticipated that a flow by-pass system will be established to divert typical stream flows around the work area. This would be accomplished by installing a cofferdam immediately downstream of the Wahconah Street culvert which would divert typical streamflow into a by-pass channel along the western edge of the work area. As needed the cofferdam may be adjusted as construction proceed but will be within the limit-of-work shown on the project plans.

For either dredging approach, the Dredge Contractor will be required to install best management practices implemented to minimize generation of suspended solids from dredging activities. All work areas will be surrounded by compost filter sock product which shall be Filtrex SiltSoxx®, with 12-inch diameter and green color mesh, or equivalent. Filter socks will be inspected weekly

and after each runoff event. Damaged socks shall be re-secured according to manufacturer's specifications or replaced within 24 hours of inspection. Sediment shall be removed and appropriately dispose of any accumulated sediment when it reaches 1/2 inch above ground height of the barrier. If filter socks are needed on the concrete pad at the staging area, they will be anchored with 50 lb (min.) sandbags every 10-ft on center.

Turbidity curtains will be installed prior to start of dredging. If river conditions allow, the turbidity curtain(s) shall enclose the entire dredge area and swing radius of the mechanical excavator at the transloading area. Landside and in-water anchor locations shall be coordinated with MassDCR or their representative at the time of construction based on field conditions. The Dredge Contractor shall submit to MassDCR or their representative the following for acceptance prior to procurement of turbidity curtain materials: manufacturer, supplier, dimensions, skirt length, float diameter, fabric type(s), ballast and middle loadline, anchor weight, buoy diameters, rope diameter and type, and other specifications required by the Engineer.

1.2.2.1 Mechanical Dredging

Mechanical dredging may be preferred by the contractor in all or some of the areas identified for dredging, particularly in the upper reaches of the stream tributary to the ponded portion of the impoundment, since water is shallower upstream of the ponded area and may not be conducive to hydraulic dredging. If the contractor elects to conduct mechanical dredging, it is anticipated that an amphibious excavator or an articulated long-reach excavator would be used and be either barge-mounted or used from shore. Work areas would be surrounded by sediment erosion controls to limit sediment generation, and these would be relocated as necessary as work proceeds from one location to another within the dredge area.

There are two approaches that are acceptable for sediment management after mechanical dredging:

1. Management of sediment near the point of dredging to allow for gravity draining, water management, and receiving facility required sampling prior to being loaded into transport trucks.
2. Loading sediment using the dredge machine into trucks for transport to the adjacent staging area for management and sampling prior to off-site, out-of-state disposal. The Dredge Contractor will be responsible for preventing water from leaking from the trucks.

1.2.2.2 Hydraulic Dredging

Hydraulic dredging would use a suction, high-pressure discharge, high-heated centrifugal pump, or suitable equivalent on a modular floating barge used to agitate consolidated sediment from the dredge prism. If Hydraulic dredging is implemented, it is anticipated that the contractor would pump the slurry via pipeline to the staging area. Alternatively, dredged material could be staged on the project site. If hydraulic dredging is used, the dredge head would be enclosed by a turbidity curtain to minimize sediment resuspension. Additional controls that may be implemented by the contractor to minimize sediment resuspension include:

- Flush lines to prevent backflow;
- Raise cutterhead to hover above sediment surface;
- Maintain constant control of cutterhead to optimize slurry solids;
- Adjust dredge rate;
- Dredge from upstream to downstream;
- Perform incremental cuts; and
- Conduct comprehensive debris clearance.

Dredge slurry would be chemically conditioned and dewatered. Material would be sampled in accordance with the receiving facility's requirements prior to being trucked off-site for ultimate out-of-state disposal.

1.2.3 Stream Channel Restoration

With the proposed dam removal, the connectivity of the West Branch of the Housatonic River will be restored. Following sediment removal, a stream channel will be constructed, and bank grading and stabilization will occur. The preliminary stream channel design assumes that the channel alignment would closely follow the drainage pattern depicted in the existing bathymetric survey.

A HEC-RAS model at Bel Air Dam was developed to evaluate the full removal alternative. The model was developed using a design approach that considered natural channel design principals to restore channel conditions through the location of the existing dam. This approach uses regional hydraulic regression curves that relate drainage area to bankfull discharge and bankfull channel dimensions (width, depth, and cross-sectional area) at surveyed gaged locations within a physiographic region.

Bankfull discharge is an important stream feature for determining the relationships between drainage area size and stream channel dimensions. Bankfull discharge is the transition between the channel and its floodplain and is thus a morphologically significant streamflow (Leopold et al, 1964). Bankfull discharge is the flow that moves the most sediment over time and occurs every one to two years or 1.5 years on average.

The entire state of Massachusetts is located in the New England Province. There are no published regional hydraulic regression curves for the New England Province. Therefore, regional hydraulic regression curves from other physiographic regions were considered that would have similar physiographic conditions. These curves include Scientific Investigations Report 2005-5147 (Appalachian Plateau, Ridge and Valley and Piedmont Provinces), Scientific Investigations Report 2004-5247, (Appalachian Plateau Province) and Vermont Regional Hydraulic Geometry Curves, 2006 (New England Province).

Bankfull channel templates were prepared and added to the design channel invert at the base of the dam. These templates were then added to the existing cross sections upstream of the dam using the proposed profile where sediment refusal depths are projected. Bankfull floodplain benches were added to both sides of the bankfull design channel to provide additional flow capacity.

The resulting HEC-RAS model consists of a 1,600-foot-long reach of the West Housatonic River extending from about 80 feet downstream of the dam location to about 50 feet upstream of the Wahconah Street bridge upstream of the dam. The restored reach begins about 1,200 feet upstream of the dam location and consists mainly of a 40-foot-wide channel with a maximum bankfull depth of 3.5 feet and approximately 20-foot-wide floodplain benches along the stream channel except at the outside outer bends adjacent to pools and/or where existing topography and property lines limit the extent of achievable floodplain.

Downstream boundary conditions were estimated based on the tailwater rating curve developed from the FEMA Flood Insurance Study (FIS) results. Flow profiles were calculated for the 2-year flood to evaluate the stream stability under normal flow conditions, and for the flows used in the FIS, i.e., 10-, 50-, 100- and 500-year floods (**Table 1**). The hydraulic profile for the 2-year flow indicates uniform hydraulic depths ranging from 2 to 3 feet over the length of the restored channel with maximum flow velocities of 7.0 feet per second in the steepest section of the reach. The

shear stresses at the bottom of the channel were calculated to range from 1.0 to 2.0 pounds per square foot.

Table 1. HEC-RAS Simulation – Boundary Conditions

Flood Event	Discharge (cfs)	Downstream W.S El. (feet-NAVD88)
2-year	340	1015.0
10-year	1,040	1016.9
50-year	2,016	1019.6
100-year	2,476	1020.6
500-year	4,234	1023.5

Due to the velocities anticipated to occur during storm events, the stream channel has been designed to include a reinforced bed consisting of a mix of small and large rock, which is natural in color. The project drawings include the details of the stream substrate material, which will be placed to a depth of 12-inches in the pools and 24-inches in riffle sections. In order to place the stream substrate material, all existing sediment will be excavated to a depth at, or below, denser material (based on sediment sampling conducted to date). It is anticipated that removal of all finer-grained sediment from the stream channel and immediate banks will remove sources of contamination, however the placement of 12 to 24 inches of rock material will provide an additional level of protection against migration of any fine materials downstream.

The removal of the Bel Air Dam will lower the water surface elevation between Wahconah Street bridge and the location of the removed dam. Based on the hydraulic analysis completed for the development of the channel restoration design, the dam removal will lower the water surface elevation upstream of the Wahconah Street bridge by approximately 2.0 feet during the 100-year flood event. Along the reach between the bridge and the location of the removed dam, the water surface elevation in the restored channel will be lowered by between 1.1 feet immediately downstream of the bridge, and 16.8 feet at the location of the removed dam. Due to the very small storage capacity provided by Bel Pond, the dam does not affect the flow rate during flood events. As a result, during the 100-year flood event, the water surface elevation downstream of the removed dam will not be impacted by the removal of the dam. The Bel Dam Removal Project will not adversely impact flooding in relation to the built environment.

A subsurface investigation was conducted at Bel Air Dam to assess the subsurface conditions at the site with a particular interest in the existing underwater sediments that will remain at the stream channel banks once the dam is removed. The subsurface investigation was performed by Geologic Earth Exploration of Norfolk, MA between February 14 and 19, 2024. A total of eighteen

borings were performed and nine vibracores were collected from a small barge within the impoundment. The findings indicate that weak organic silts are present just below the existing mudline of the channel and extend to depths varying between 8 and 17 feet below the bottom of the channel. Laboratory testing was performed on the sediment samples to obtain strength properties for analysis. The current proposed configurations of the channel bank slopes were analyzed for slope stability and veneer stability (in areas where surficial geotextile treatments are proposed) using engineering software and accepted geosynthetic theory. The analyses results show that the proposed configurations have acceptable factors of safety, therefore confirming the proposed banks will be stable under the anticipated conditions.

Final construction activities will include the stabilization of remaining exposed sediment with a native seed mix and erosion control blankets. In two areas where steep slopes prevail, contaminated sediments will be entirely removed along the stream channel, allowing the installation of “Bio-D” blocks planted with live woody stakes. In addition, three areas that will be disturbed for construction access will be restored with native woody plantings, including the areas at the northwestern and northeastern ends of the project near the discharge of the existing stream below Wahconah Street and the area near the existing dam, as depicted on the project plans. Three drainage channels from the stormwater outfalls on the west side of the impoundment (Wahconah Street) will be constructed and armored with stone to withstand potentially high velocity of water discharging from the outfalls during large storm events.

1.3 Sediment Management

The sediment within the inundated areas upstream of Bel Air Dam has been characterized during two sampling events occurring in 2019 and 2021. The sediment sampling results were compared against the Massachusetts Contingency Plan (MCP) Method 1 S-1, Reportable Concentrations (RCS)-1, and MassDEP published background levels for polycyclic aromatic hydrocarbons (PAHs) and metals in natural soils to assess sediment management options. The results indicated that there are elevated levels of chemical parameters exceeding MCP RCS-1 and RCS-2 reporting limits for chromium (Cr), lead (Pb), arsenic (As), Polycyclic aromatic hydrocarbons (PAH), and Extractable Petroleum Hydrocarbons (EPHs).

1.3.1 Off-Site Sediment Management

The construction of the new stream channel and adjacent banks is estimated to generate approximately 35,500 cubic yards of excess sediment requiring off-site disposal. Sediment within

the stream channel itself will be excavated to refusal. However, existing data does not characterize the denser material below accumulated sediments. Therefore, a mix of small and large rock, which is natural in color will be placed on the stream channel - both to provide a stable substrate that will not erode and to also to provide an impenetrable barrier above remaining denser material, which will prevent animals burrowing or people digging into the area below the stream channel. The project drawings include the details of the stream substrate material, which will be placed to a depth of 12-inches in the pools and 24-inches in riffle sections. In order to place the stream substrate material, all existing sediment will be excavated to a depth at, or below, denser material (based on sediment sampling conducted to date). It is anticipated that removal of all finer-grained sediment from the stream channel and immediate banks will remove sources of contamination, however, the placement of 12 to 24 inches of rock material will provide an additional level of protection against migration of any fine materials downstream.

As a result of sediment data collected to date, the material excavated to create the new stream channel, banks, and floodplain will be required to be disposed of out-of-state. The table below, **Table 2**, includes potential disposal sites.

Table 2. Sediment Disposal Locations

Vendor	Landfill/Reuse Facility		Type
Green Rock	LaFarge Holcim	Ravena, New York	Beneficial Reuse
Green Rock	Seneca Meadows Landfill	Waterloo, New York	Beneficial Reuse as Alternative Daily Cover
Green Rock	Seneca Meadows Landfill	Waterloo, New York	Disposal in Landfill
Waste Management	Turnkey Landfill	Rochester, New Hampshire	Disposal in Landfill
Waste Management	High Acres Landfill	Perinton/Macedon, New York	Disposal in Landfill

1.3.2 On-Site Sediment Management

After the full dam removal, and subsequent elimination of the impoundment, the lowering of the current water level will result in the exposure of sediment beyond the edge of the stream banks/floodplain. Once exposed sediments in the upland area qualify as soil, under the MCP, the material is then subject to notification requirements to MassDEP. Due to the RC exceedances, a risk assessment screening determined that that the material that will become soil in the future is not suitable for direct exposure to humans or wildlife. Consequently, material remaining outside of the future stream channel will be covered with an impenetrable “cap” consisting of an 8-inch

deep geocell layer which will be covered by 12-inches of clean fill. Due to the need to avoid penetration of the cap, woody plantings will not be installed in areas that include the cap; these areas will instead be seeded with a native seed mix and covered with a degradable erosion control blanket. Geotextile fabric would be placed at the interface of the sediments and the geocell as a physical marker.

1.4 Effluent Control and Dewatering

Based on receiving landfill information gathered in 2021, sediment management at the project site will include gravity dewatering to remove free-draining liquids and the addition of a solidification reagent before transportation off site. Removed sediment will either be placed temporarily on the adjacent downstream parcel, or, as noted above, may be managed on-site prior to being loaded onto trucks for out-of-state disposal.

1.4.1 Dewatering – Mechanical Dredge

Passive dewatering of sediments from the mechanical dredge within the site may be allowed provided that the Dredge Contractor has prepared for adequate space for temporary stockpiling and management of the decant water, solidification reagent, and mixing operation. Operational requirements include but will not be limited to:

- Installation of sediment and erosion controls to clear trees and brush.
- Removal and management of trees and brush for transportation offsite.
- Grading and lining of area set aside for temporary stockpiling of sediment such that decant water can be collected for temporary storage, settling and testing prior to onsite discharge or offsite management.
- Lining should prevent unrestricted percolation of decant water and a finish work surface which allows for use of equipment to enhance dewatering including but not limited methods such as turning, mechanical augers and windrowing may be used to enhance the dewatering process and reduce dewatering time. The base of the area would consist of compacted sub-grade, free of protrusions and lined with non-woven geotextile (8 oz./SY) subject to Engineer approval. A woven coated polyethylene (WCPE) would extend beyond the stockpile area.
- The maximum amount of time sediments may be stockpiled on site is 48 hours.
- The addition of solidification/stabilization reagents (e.g., Portland cement, Calciment™ or lime kiln dust) may be used to enhance the dewatering process.
- Managed sediments must meet over-the-road requirements for transport and disposal.

- If after allowing 48 hours of dewatering sediment cannot meet requirements, material must be transported to the staging area for further management.
- Decant water would be discharged back into the West Branch of the Housatonic River. Sampling would be done to confirm that the effluent meets the discharge requirements of the US EPA Dewatering and Remediation General permit. Contractor shall provide any treatment required on decant water to meet limits.

1.4.2 Dewatering – Hydraulic Dredge

Dewatering of hydraulically dredged sediment is anticipated to take place at the staging area downstream of the dam, in which case the contractor may use a pipe system to transport the dredge slurry to the staging area where it would be chemically conditioned and dewatered.

Operational requirements include but will not be limited to:

- Sediment Disposal Area (SDA) Layout: There is an existing concrete pad at the staging area that will be used for laying-out the stockpiles or tubes to be dewatered prior to construction of the SDA, a sump location will be established in an existing low point within the existing dewatering area. Sump design and location will be determined by the Contractor performing the work and shall be subject to approval by MassDCR and/or their representative. The base of the SDA will consist of graded and compacted subgrade, free of protrusions, and will be lined with a non-woven geotextile.
- Polymer Delivery System: A flocculant may be introduced to the dredged material to expedite containment and consolidation of the sediment while simultaneously releasing low turbidity filtrate
- Decant water would be discharged back into the West Branch of the Housatonic River. Sampling would be done to confirm that the effluent meets the discharge requirements of the US EPA Dewatering and Remediation General permit. Contractor shall provide any treatment required on decant water to meet limits.

2.0 INVESTIGATIONS, ANALYSES, DESIGNS

The Preliminary Design Documentation in **Appendix A** provides analyses and information for geotechnical, seepage, hydrologic and hydraulic, and structural investigations.

3.0 CONSTRUCTION CONSIDERATIONS

3.1 Proposed Construction Schedule

It is anticipated that the project will be advertised for bidding in fall 2024, with the goal of securing a construction contract by December 31, 2024. Construction is anticipated to begin in winter or early spring 2025 and will require two construction seasons to complete, with the final dam removal and stream restoration work completed by the end of 2026.

3.2 Control of Water Requirements

A temporary cofferdam will be installed upstream of the existing dam within the limits of work prior to construction. Streamflow will be diverted around areas of work when necessary to facilitate construction. Work will be stopped if a large storm event occurs. A phased dewatering will occur inside of the temporary cofferdam. The original stream channel of the West Branch of the Housatonic River will be reconstructed, leading to the re-connectivity of the waterway.

3.3 Other Hazards and Mitigation

Construction period impacts to the West Branch of the Housatonic River will be minimized through the use of erosion and sedimentation controls. Erosion control barriers such as silt fences, and straw bales will be implemented. Additionally, erosion-control blankets will be installed on the cleared embankment and if dewatering occurs outside of the concrete pad in the staging area, then polyethylene sheeting will be installed to line the area used to stockpile material. During construction, a temporary cofferdam will be installed upstream of the existing spillway, inside of the proposed limit of work, to by-pass flow around the work area.

Measures will be taken to control turbidity during project activities. Silt curtains will be used around any dredging occurring under wet conditions, and the work area to be surrounded by sediment and erosion controls for any dredging occurring under dry conditions. A flow by-pass system would be installed to divert flowing water away from active dredge areas. This would allow for the flow to be by-passed around the active dredge areas at the project site to minimize the potential for sediment re-suspension or turbidity. The selected flow diversion or bypass pump must be able to handle a minimum of 80% of the daily flow or 20 cubic feet per second (10,000 gallons per minute). Any turbidity generated during this activity would be addressed through the use of a settling basin or frac tanks. During deep excavation events, water would be excluded from the excavation area. If excessive turbidity is produced, a small diameter pump can be used to pump water to the channel

or to a filter bag to remove suspended fine materials. If material is collected in filter bags, it would be added to the sediment stockpile for sampling and disposal.

General construction safety procedures will be followed to minimize the potential for events which could result in spills, releases, or other environmental damage. During construction, work locations will be secured to prevent unauthorized entry. Supplemental signs, construction barriers, etc. will be used as necessary to provide safety to construction workers during the construction process in accordance with OSHA and other applicable regulations. Waste material, debris, and trash will be cleaned from the work site at the end of each day and placed in trash barrels and/or dumpsters, which will be disposed of off-site. Dumping of spoils material, waste, or other debris into wetland resource areas and/or buffer zones will not be allowed.

Emissions that exceed national or state air quality standards are not expected, however short-term impacts to air quality in the project area may occur. Impacts may be due to the temporary operation of heavy machinery associated with construction activities. Short-term impacts to air quality could occur due to stockpiling and on-site management of contaminated sediments before transport out-of-state for final disposal. Best management practices such as reducing idling times of construction vehicles, watering exposed sediment, and continuous air quality monitoring will be implemented during construction. If air exceedances of chemical constituents in the sediment are detected, then construction activities will halt while measures are implemented to assess and address the exceedances.

Short-term impacts to traffic on the project area roads during construction would be minimal. Increased activity of the project site could temporarily disrupt local vehicle and pedestrian traffic on Wahconah Street due to the presence of construction equipment traveling on the street and the potential need for a lane closure. This impact will be mitigated through the preparation of a Traffic and Pedestrian Management Plan by the contractor and coordinated with the City of Pittsfield.

3.4 Critical Activities Requiring Engineering Monitoring/Emergency Action Plan Considerations

The Emergency Action Plan (EAP) is provided in **Appendix C**. Many of the items identified in the EAP as triggering action are the same as those that should be monitored during construction and include the following:

- Any seismic event regardless of how slight;

- Other situations which may lead to damage at the structure;
- Water level of the impoundment is at an unsafe level and is rising; threatening to overtop the dam;
- Discharges resulting in significant erosion and/or scour;
- Any developing erosion, settlement, or upheaval occurring on the downstream slope or at the toe of the dam that is considered to be controllable;
- Any undocumented leakage through any dam structure considered to be Controllable;
- Water has overtopped or will overtop the dam;
- Any uncontrollable erosion, settlement, or upheaval occurring on the downstream slope or at the toe of the dam;
- Any uncontrollable leakage through any dam structure resulting in degradation to the structural integrity of the dam;
- A dislocation or failure of any structure which allows for an expanding, uncontrollable discharge of water through the spillway or dam indicating a breach is occurring; and
- Dam is failing, is about to fail, or has failed

While these actions attempt to generalize responses to the observed conditions, the judgment of the primary observer and/or knowledgeable person(s) must be utilized. While some conditions such as breaching, overtopping, and severe piping can dictate an immediate evacuation; others will require the observer to determine the extent of the concern and the probability of the concern being addressed within a timely fashion.

4.0 CONTRACT PLANS AND SPECIFICATIONS

The 75% Design Plans are provided in **Appendix D**. The 100% design plans and specifications are anticipated to be available in October 2024.

5.0 MAINTENANCE AND OPERATION PLAN

Following the completion of this project there will be no operation and maintenance plan needed, as there will be no longer be a standing dam.

6.0 EMERGENCY ACTION PLAN

The EAP is provided in **Appendix C**. Following the completion of this project there will be no need for an EAP as there will no longer be a dam at the project location.

7.0 REFERENCES

AECOM 2020. FINAL DRAFT Bel Air Dam (MA01061) Phase II Investigation and Alternatives Analysis Evaluation Report. For MassDCR ODS, Dam Maintenance and Repair Unit

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Appendix D
75% Design Plans

MASSACHUSETTS DEPARTMENT OF CONSERVATION AND RECREATION BEL AIR DAM REMOVAL PITTSFIELD, MA

JUNE 2024



PROJECT

MASS DCR
ABANDONED DAMS
BEL AIR DAM REMOVAL
CONTRACT NO.
P19-3264-D4A

CLIENT

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PROJECT NUMBER

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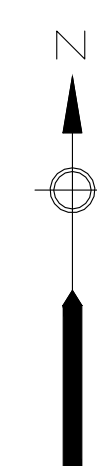
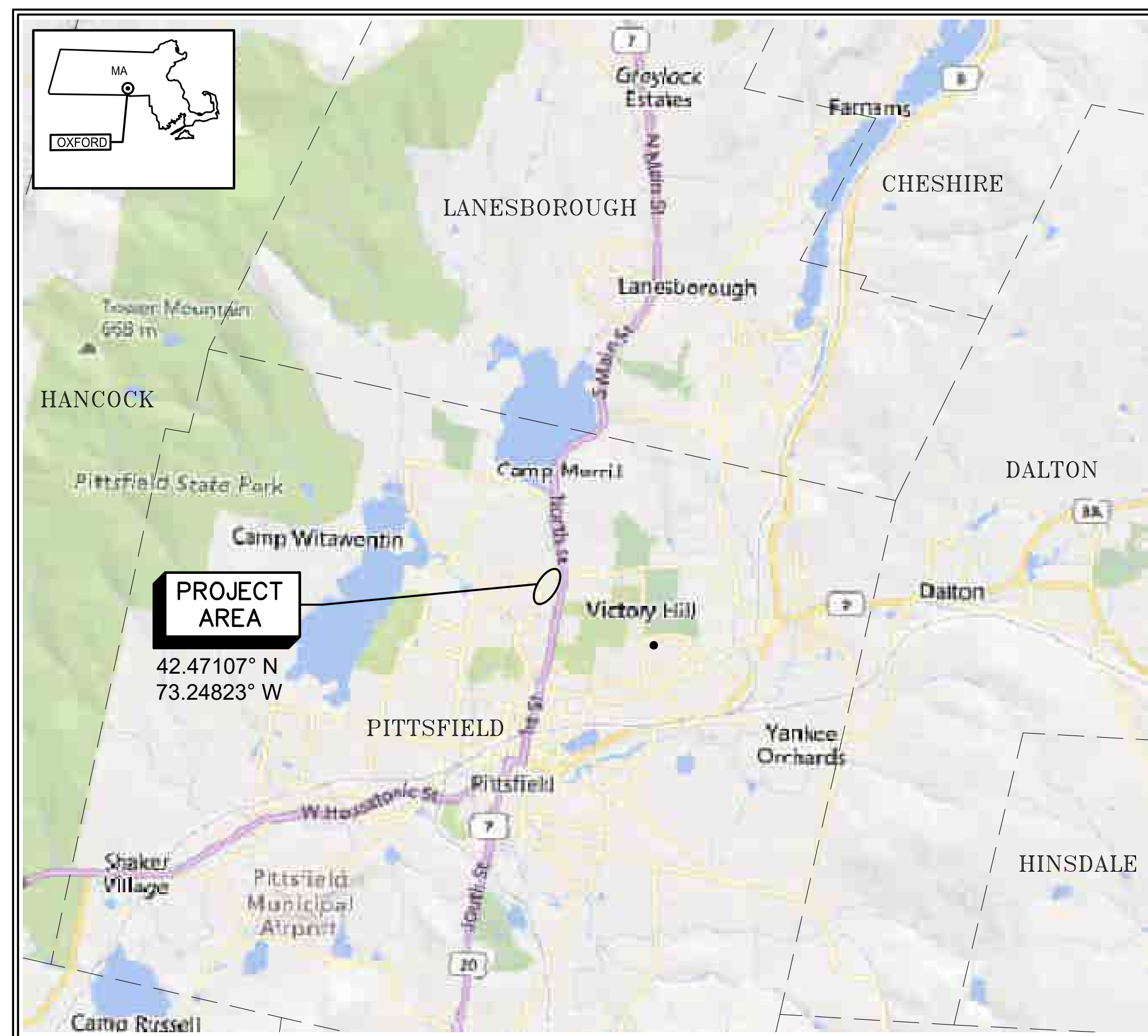
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Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

DISCIPLINE

GENERAL
SHEET TITLE

**BEL AIR DAM REMOVAL
COVER SHEET, LOC. PLAN
AND INDEX OF DRAWINGS
SHEET NUMBER**

00 G-001

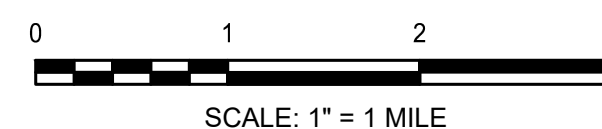


INDEX OF DRAWINGS

DRAWING NO.	DRAWING TITLE
GENERAL	
00 G-001	COVER SHEET, LOCATION PLAN AND INDEX OF DRAWINGS
CIVIL	
00 C-001	LEGEND, ABBREVIATIONS AND GENERAL NOTES
00 C-101	EXISTING CONDITIONS AND IMPACTED WOTUS PLAN
00 C-102	STAGING AND SITE ACCESS PLAN
00 C-103	PROPOSED CHANNEL GRADING PLAN
00 C-104	MATERIALS PLAN
00 C-201	PROPOSED CHANNEL PROFILE
00 C-301	SECTIONS 1 OF 3
00 C-302	SECTIONS 2 OF 3
00 C-303	SECTIONS 3 OF 3
99 C-501	DETAILS I
99 C-502	DETAILS II
99 C-503	DETAILS III
99 C-504	DETAILS IV

LOCATION PLAN

APPROXIMATE SCALE: 1" = 1 Mile



PATH: \\P:\MAPS\POLITANOS\NACONE\DRIVE - AECOM\60604936 - MASSDCR SIX ABANDONED DAMS\SHEETS\GIBEL AIR DAM\00 G-001 BEL PERMIT.DWG
 LAST UPDATE: Monday, June 24, 2024 10:25:58 AM
 PLOT DATE: Monday, June 24, 2024 10:27:24 AM

PROJECT

**MASS DCR
ABANDONED DAMS
BEL AIR DAM REMOVAL
CONTRACT NO.
P19-3264-D4A**

CLIENT

**Massachusetts Department
of Conservation and
Recreation**

251 Causeway Street, Suite 600
Boston, MA 02114-2119
617.626.1250 tel 617.626.1351 fax
www.mass.gov/orgs/departement-of-conservation-recreation

CONSULTANT

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHELMSFORD, MA 01824
PHONE: (978) 905-2100
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REGISTRATION

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60604936

Designed By:	BR
Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

DISCIPLINE

**CIVIL
SHEET TITLE**

**BEL AIR DAM REMOVAL
LEGEND, ABBREVIATIONS
AND GENERAL NOTES
SHEET NUMBER**

00 C-001

LEGEND

EXISTING	PROPOSED
BOUND FOUND	LIMIT OF WORK
BENCH MARK	TEMPORARY CONSTRUCTION ENTRANCE
UTILITY POLE	EROSION CONTROL BARRIER
GUY WIRE	DEMOLITION
CATCH BASIN	STRUCTURE
DRAIN MANHOLE	MINOR CONTOUR
UTILITY MANHOLE	MAJOR CONTOUR
DIRECTIONAL FLOW ARROW	SPOT ELEVATION
EXISTING SPOT GRADE	NEW TREELINE
STAKE LOCATED	CHAIN LINK FENCE
WATER SHUTOFF	COORDINATE LOCATION
APPROXIMATE PROPERTY LINE	SEED MIX
EXISTING CONTOUR	
EDGE OF GRAVEL	
EDGE OF BITUMINOUS	
EDGE OF WATER	
RIVER THREAD	
METAL HAND RAIL	
WIRE FENCE	
CHAIN LINK FENCE	
METAL GUARDRAIL/DECK RAILING	
UNDERGROUND STORMDRAIN	
OVERHEAD WIRES	
EDGE OF BRUSH/TREELINE	
DECIDUOUS TREE (SIZE)	

ABBREVIATIONS

BIT.	BITUMINOUS
BOT	BOTTOM
C.I.P.	CAST IRON PIPE
C.M.P.	CORRUGATED METAL PIPE
CONC.	CONCRETE
DH	DRILL HOLE
EL./ELEV.	ELEVATION
INV	INVERT
MAG	MAG NAIL
ELEV.	RETAINING
R.O.W.	RIGHT-OF-WAY
RR	RAILROAD
S&M	STONE AND MORTAR
SPK	SPIKE
UP	UTILITY POLE
VGC	VERTICAL GRANITE CURB
W.S.	WATER STOP

GENERAL PLAN NOTES

- TOPOGRAPHIC SURVEY IS BASED ON AN ON-THE-GROUND SURVEY PERFORMED ON JUNE 4TH AND 5TH, 2019, BY ALPHA SURVEY GROUP, LLC.
- THE HORIZONTAL DATUM FOR THIS PROJECT IS THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 (NAD83), CORS ADJUSTMENT (NA2011/GEOID 12a) AS DETERMINED BY REDUNDANT GPS OBSERVATIONS MADE ON MAY 20TH, 2019 UTILIZING KEYSTONE PRECISION INSTRUMENTS' KEYNET GPS VIRTUAL REFERENCE SYSTEM (VRS) NETWORK.
- NO UTILITY INVESTIGATION WAS PERFORMED FOR THIS PROJECT. UTILITY LOCATION SHALL BE PERFORMED BY THE CONTRACTOR IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY WORK. CALL "DIG SAFE" AT 811.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF THE EXISTING FEATURES AND STRUCTURES WITHIN AND ADJACENT TO THE WORK. IN THE EVENT OF DAMAGE, THE REPAIRS OR REPLACEMENT SHALL BE COMPLETED AT THE CONTRACTOR'S EXPENSE AS APPROVED BY THE ENGINEER.
- ALL PIPES OR OTHER UTILITIES DAMAGED DURING THE CONTRACTOR'S OPERATIONS SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR OR REPLACE AT NO COST TO THE OWNER.
- EXISTING CONDITIONS ARE SHOWN ON THE PLANS IN A SCREENED (LIGHTER) PENWEIGHT. PROPOSED WORK IS SHOWN IN BOLDER PENWEIGHT.
- THE CONTRACTOR IS RESPONSIBLE FOR PERFORMING ALL WORK AS INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER OR OWNER IN CONFORMANCE WITH ALL APPLICABLE CODES AND IN A PROPER AND WORKMANLIKE MANNER.
- THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL WASTE BUILDING MATERIAL, CONCRETE, MASONRY, TREES, SHRUBS, DEBRIS AND OTHER MATERIALS NECESSARY FOR THE SATISFACTORY COMPLETION OF THE WORK AND AS REQUIRED BY THE OWNER. CONSTRUCTION DEBRIS SHALL BE DISPOSED OF IN STRICT ACCORDANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL LAWS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY LOCAL STREET OPENING OR BUILDING PERMITS AND FOR COORDINATING INSPECTIONS AS REQUIRED. PERMIT FEES SHALL BE PAID DIRECTLY BY THE CONTRACTOR AND SHALL BE INCLUDED IN THE APPROPRIATE ITEM OF THE BID. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE PERMITS OBTAINED BY THE OWNER AND REFERENCED IN SPECIFICATION 0110.

DEMOLITION NOTES

- DAMAGE DUE TO DEMOLITION OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
- PATCH AND FINISH EXPOSED SURFACES TO MATCH THE ADJACENT AREA UNLESS OTHERWISE INDICATED OR SPECIFIED.

EROSION PROTECTION NOTES

- EROSION PROTECTION MEASURES SHALL BE CHECKED AND MAINTAINED ON A DAILY BASIS. SEDIMENT DEPOSITS UPSTREAM OF THE BALES SHALL BE REMOVED ON A REGULAR BASIS.
- REPAIR OR REPLACEMENT OF EROSION CONTROL MEASURES SHALL BE MADE PROMPTLY AS NEEDED, OR AS DIRECTED BY THE ENGINEER. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES REQUIRED BY THE OWNER DUE TO CONTRACTOR NEGLIGENCE SHALL BE REQUIRED AT NO ADDITIONAL COST TO THE OWNER.
- EROSION CONTROL BLANKETS SHALL BE INSTALLED AS QUICKLY AS POSSIBLE ALONG DISTURBED SLOPES WITH POTENTIAL TO ERODE.
- TO MINIMIZE EROSION AND SEDIMENTATION DUE TO CONSTRUCTION, THE CONTRACTOR SHALL FOLLOW THE GENERAL CONSTRUCTION SEQUENCE SHOWN BELOW. MODIFICATIONS TO THE SEQUENCE NECESSARY TO THE CONTRACTOR'S SCHEDULE SHALL BE SUBMITTED IN WRITING AND APPROVED BY THE OWNER AND ENGINEER PRIOR TO PROCEEDING. ANY WORK PERFORMED WITHOUT THE APPROVAL IS AT THE RISK OF THE CONTRACTOR. INCLUDE APPROPRIATE TEMPORARY AND PERMANENT EROSION AND SEDIMENTATION CONTROL MEASURES.
 - INSTALL ALL PERIMETER EROSION PROTECTION MEASURES AS INDICATED ON THE PLANS AND AS INDICATED BY THE EROSION PROTECTION NOTES PRIOR TO THE COMMENCEMENT OF EARTH WORK.
 - DURING CONSTRUCTION EVERY EFFORT SHALL BE MADE TO MANAGE SURFACE RUN-OFF QUALITY.
 - A SILT FENCE SHALL BE CONSTRUCTED AROUND MATERIAL STOCKPILES IN A MANNER TO PROVIDE ACCESS AND AVOID EROSION OUTSIDE OF THE AREA.
 - CONSTRUCT TEMPORARY CULVERTS AND DIVERSION CHANNELS AS REQUIRED.
 - BEGIN PERMANENT AND TEMPORARY INSTALLATION OF SEED, MULCH AND RIPRAP.
 - DAILY, OR AS REQUIRED, CONSTRUCT TEMPORARY BERMS, DRAINS, DITCHES, SILT FENCES, SEDIMENT TRAPS, ETC. MULCH AND SEED AS REQUIRED.
 - REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER SEEDED AREAS HAVE BECOME FIRMLY ESTABLISHED AND CONSTRUCTION IS COMPLETE.
 - DURING THE COURSE OF THE WORK AND UPON COMPLETION, THE CONTRACTOR SHALL REMOVE ALL SEDIMENT DEPOSITS, EITHER ON OR OFF SITE, FROM DRAIN PIPES, DITCHES, CURB LINES, ETC., RESULTING FROM SOIL EROSION AND/OR CONSTRUCTION OPERATIONS. MATERIAL SHALL NOT BE DEPOSITED NEAR WETLANDS AND/OR WATER COURSES.
 - DISCHARGES INTO STREAMS OR WATERWAYS SHALL BE IN ACCORDANCE WITH THE CONTRACTORS WATER MANAGEMENT PLAN.

TRAFFIC MANAGEMENT

- CONTRACTOR SHALL COORDINATE A TRAFFIC MANAGEMENT PLAN WITH LOCAL AUTHORITIES PRIOR TO THE START OF THE PROJECT PER SPECIFICATION 01063.
- CONTRACTOR TO PROVIDE ALL REQUIRED SIGNAGE, FLAGGING, AND TRAFFIC CONTROL DEVICES AS PART OF THE TRAFFIC MANAGEMENT PLAN.

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 LAST UPDATE: Thursday, June 6, 2024 9:16:02 AM
 PLOT DATE: Monday, June 24, 2024 10:27:43 AM

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60604936

Designed By: **JPM**

Drawn By: **SN**

Dept Check: **CB**

Proj Check: **D. GOVE**

Date: **JUNE 2024**

Scale: **AS NOTED**

DISCIPLINE

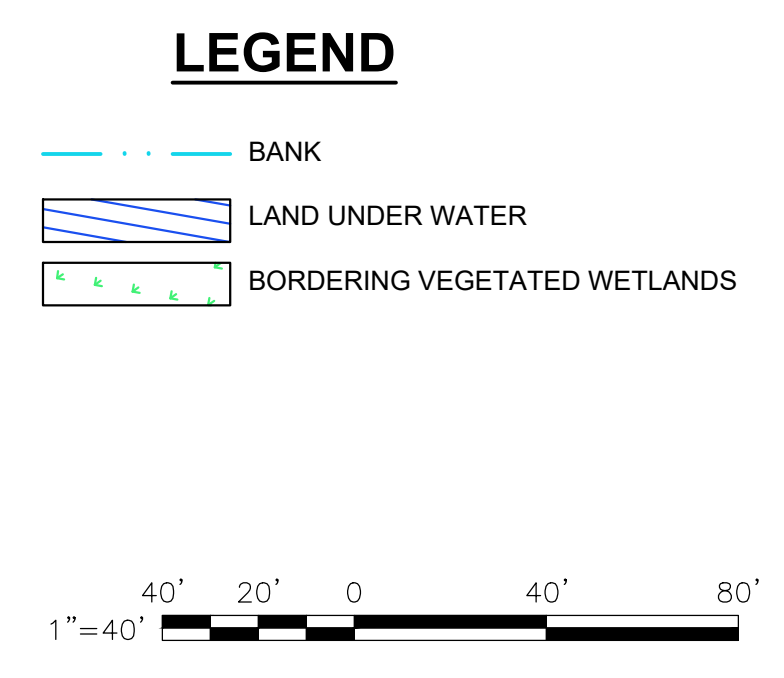
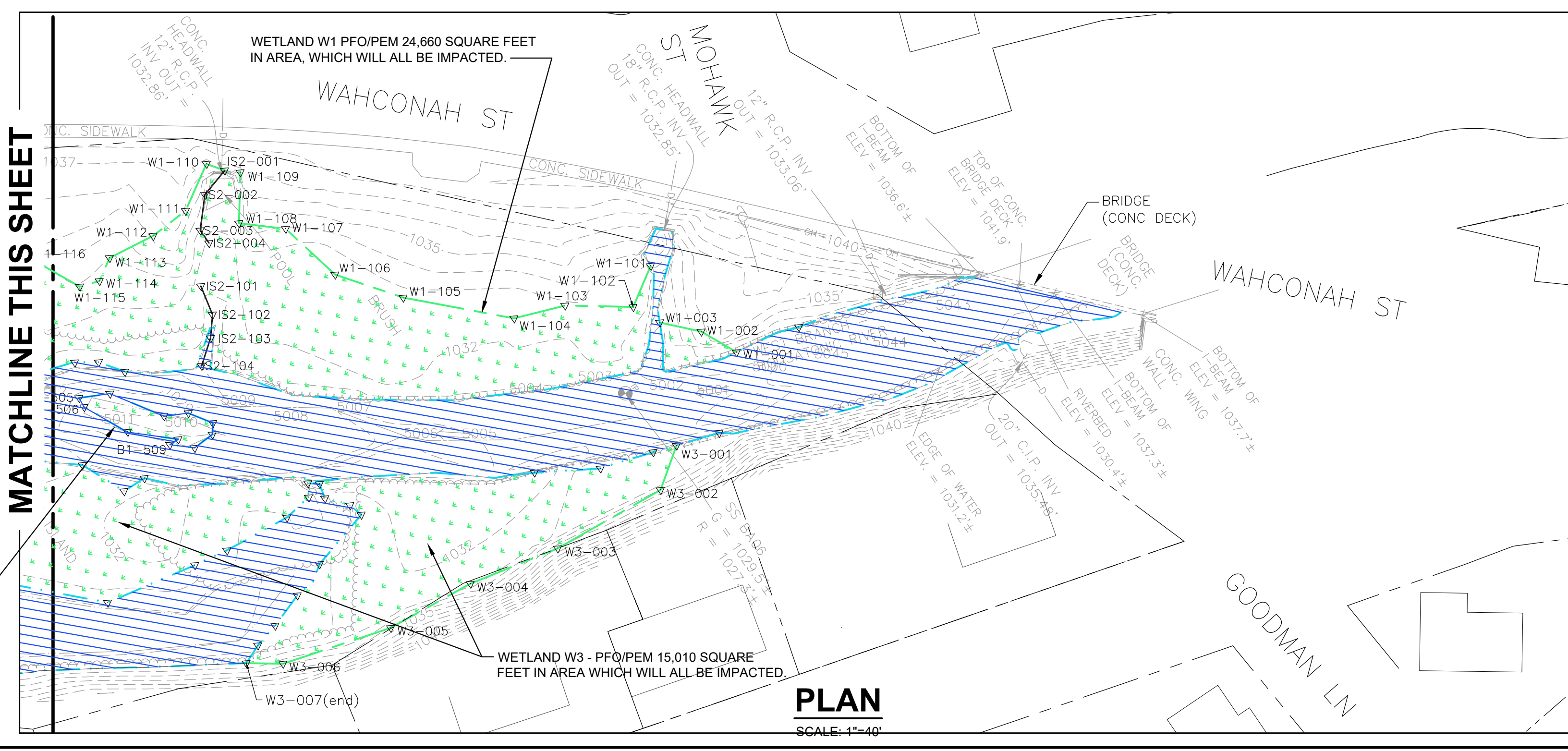
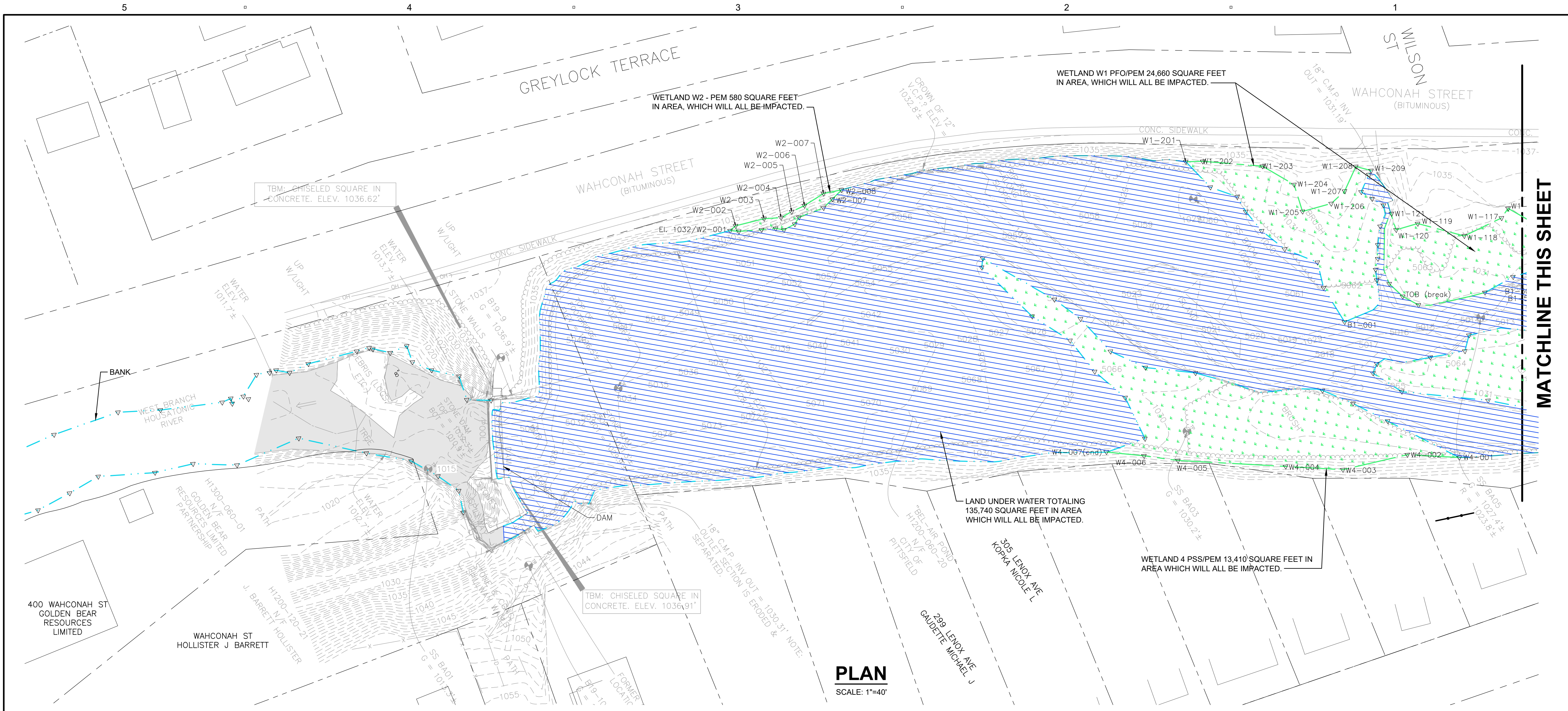
CIVIL

SHEET TITLE

**EXISTING CONDITIONS
AND IMPACTED LUW**

**PLAN
SHEET NUMBER**

00 C-101



MATCHLINE THIS SHEET

MATCHLINE THIS SHEET

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LAST UPDATE: Wednesday, July 3, 2024 11:06:05 AM
PLOT DATE: Friday, July 12, 2024 11:02:22 PM

PROJECT

MASS DCR
 ABANDONED DAMS
 BEL AIR DAM REMOVAL
 CONTRACT NO.
 P19-3264-D4A

CLIENT

Massachusetts Department
 of Conservation and
 Recreation
 251 Causeway Street, Suite 600
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Proj Check: **D. GOVE**

Date: **JUNE 2024**

Scale: **AS NOTED**

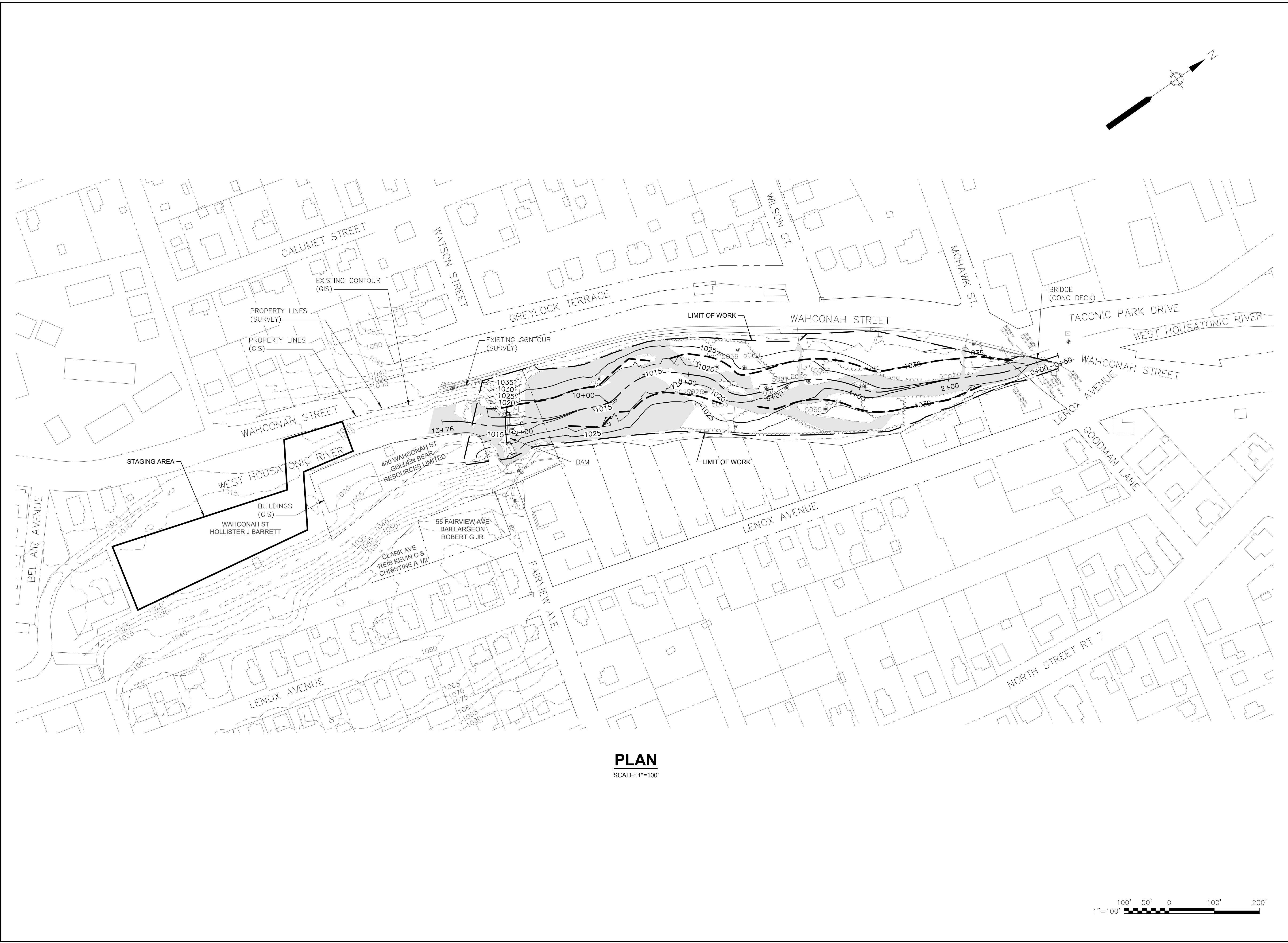
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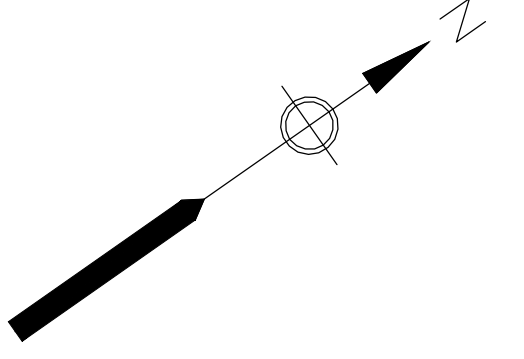
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BEL AIR DAM REMOVAL
STAGING AND SITE
ACCESS PLAN
SHEET NUMBER

00 C-102



PLAN
 SCALE: 1"=100'



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 PLOT DATE: Monday, June 24, 2024 10:40:02 AM

D
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 A

5 4 3 2 1

5 4 3 2 1

PROJECT
MASS DCR
ABANDONED DAMS
BEL AIR DAM REMOVAL
CONTRACT NO.
P19-3264-D4A

CLIENT
 Massachusetts Department
 of Conservation and
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 251 Causeway Street, Suite 600
 Boston, MA 02114-2119
 617.626.1250 tel 617.626.1351 fax
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Designed By: **JPM**

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Proj Check: **D. GOVE**

Date: **JUNE 2024**

Scale: **AS NOTED**

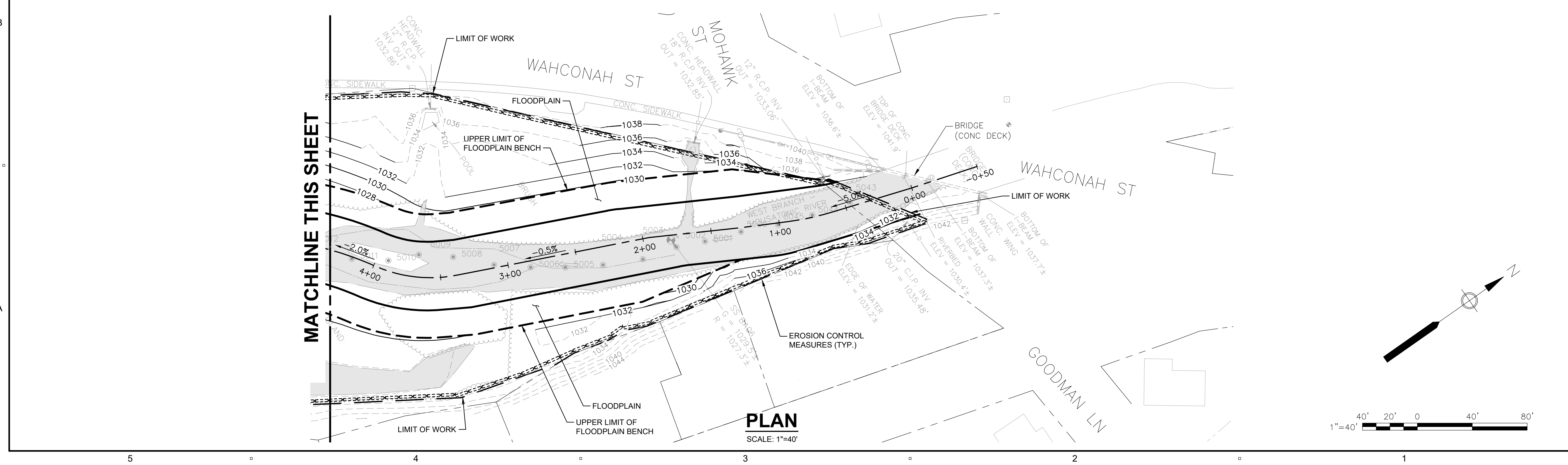
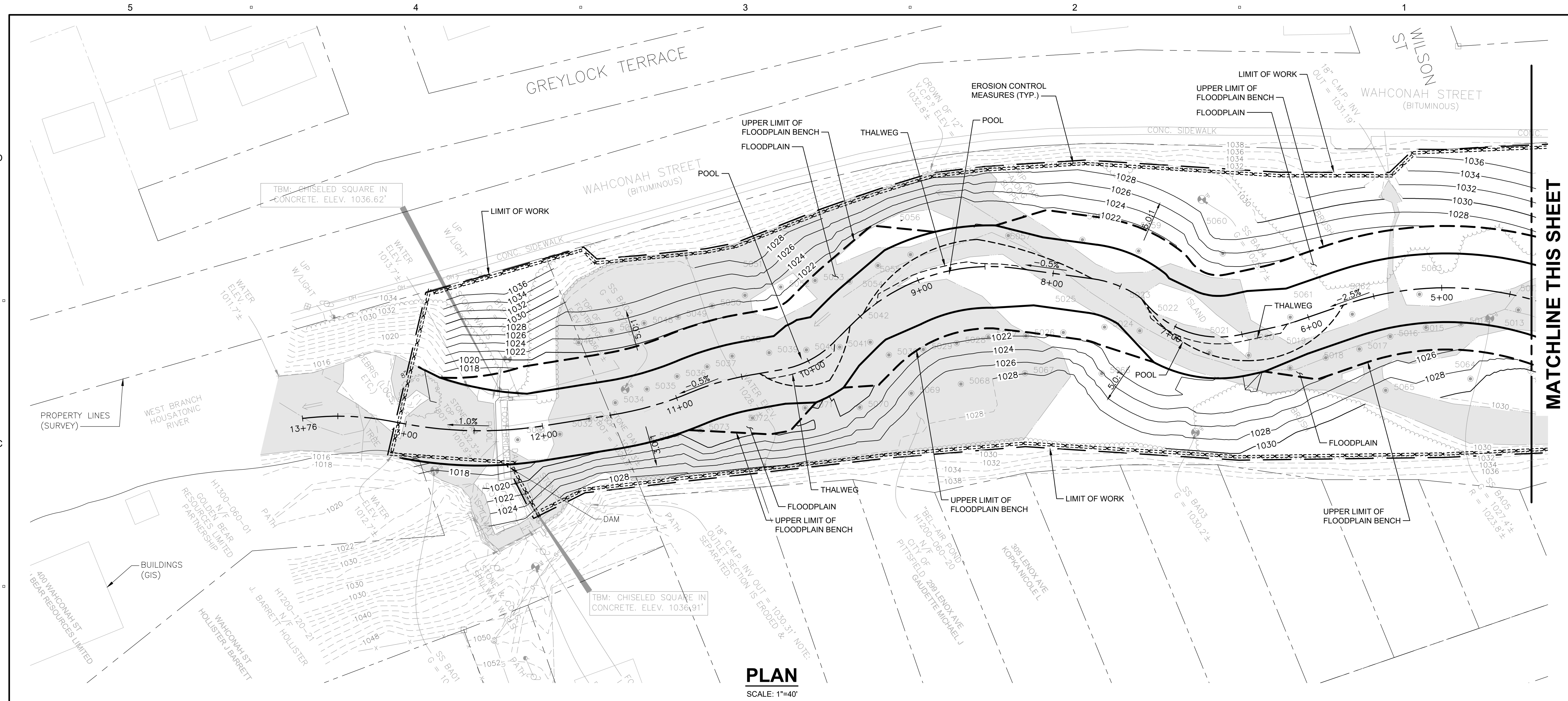
DISCIPLINE

CIVIL

SHEET TITLE

BEL AIR DAM REMOVAL
PROPOSED CHANNEL
GRADING PLAN
SHEET NUMBER

00 C-103



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I/R	DATE	DESCRIPTION

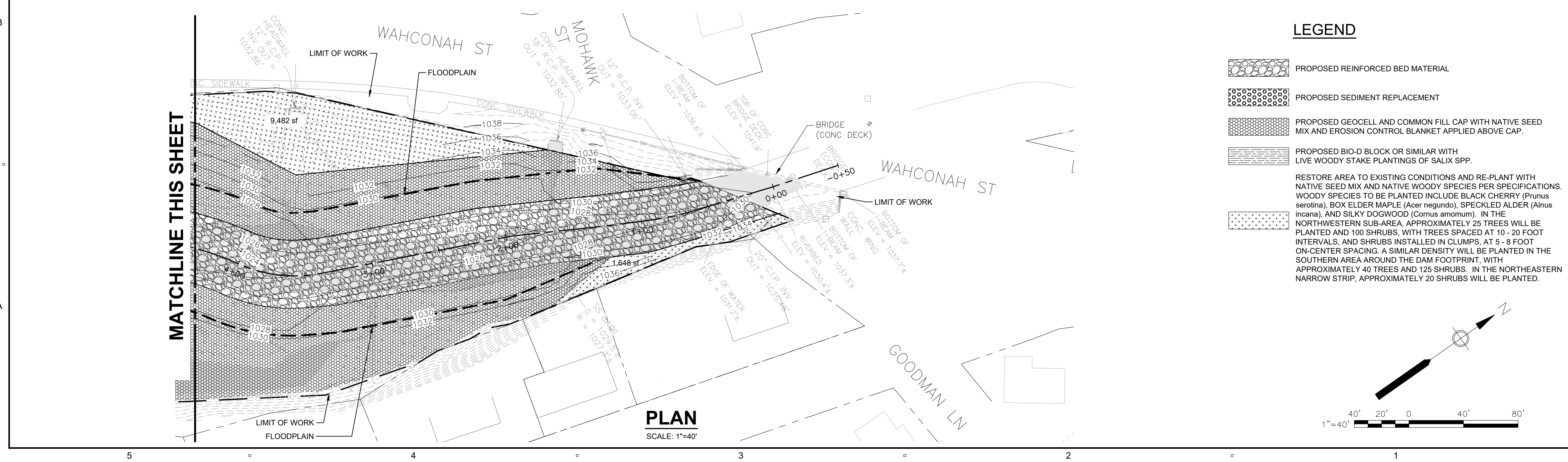
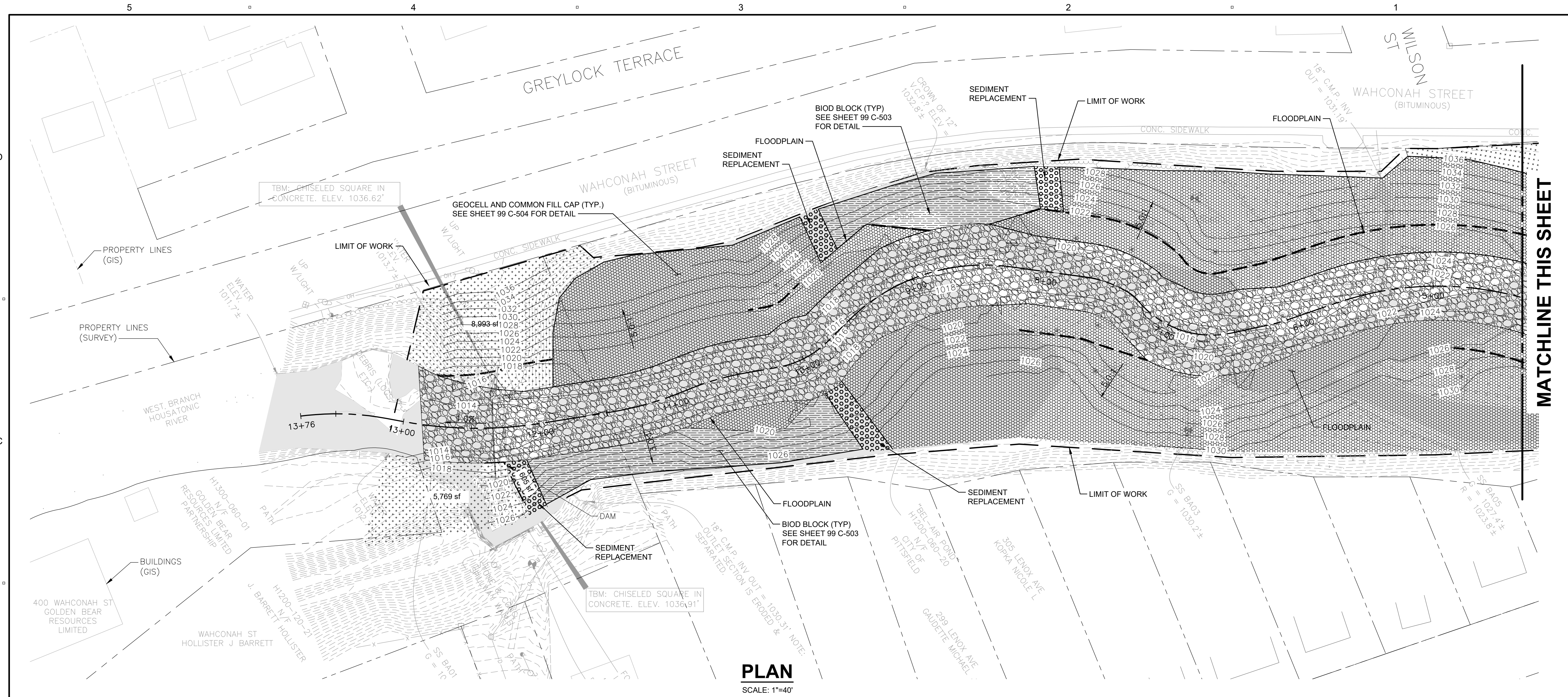
60604936

Designed By:	BR
Drawn By:	SN
Dept Check:	JDB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

CIVIL

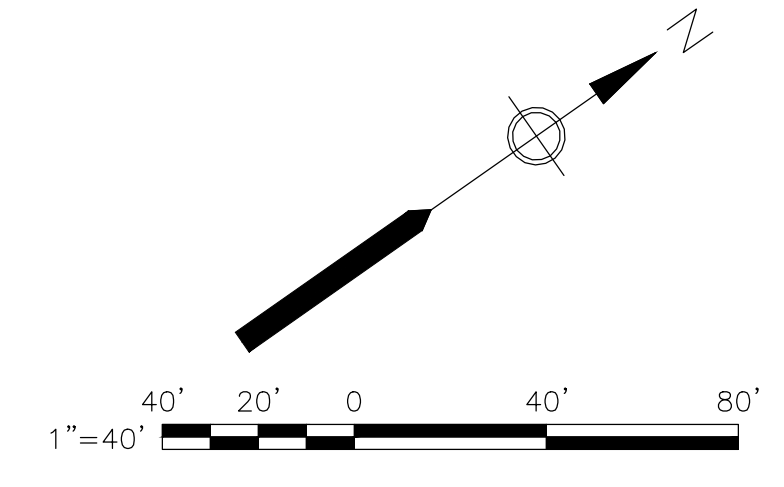
BEL AIR DAM REMOVAL
MATERIALS PLAN

00 C-104



LEGEND

- PROPOSED REINFORCED BED MATERIAL
 - PROPOSED SEDIMENT REPLACEMENT
 - PROPOSED GEOCELL AND COMMON FILL CAP WITH NATIVE SEED MIX AND EROSION CONTROL BLANKET APPLIED ABOVE CAP.
 - PROPOSED BIO-D BLOCK OR SIMILAR WITH LIVE WOODY STAKE PLANTINGS OF SALIX SPP.
- RESTORE AREA TO EXISTING CONDITIONS AND RE-PLANT WITH NATIVE SEED MIX AND NATIVE WOODY SPECIES PER SPECIFICATIONS. WOODY SPECIES TO BE PLANTED INCLUDE BLACK CHERRY (Prunus serotina), BOX ELDER MAPLE (Acer negundo), SPECKLED ALDER (Alnus incana), AND SILKY DOGWOOD (Cornus amomum). IN THE NORTHWESTERN SUBAREA, APPROXIMATELY 25 TREES WILL BE PLANTED AND 100 SHRUBS, WITH TREES SPACED AT 10 - 20 FOOT INTERVALS, AND SHRUBS INSTALLED IN CLUMPS, AT 5 - 8 FOOT ON-CENTER SPACING. A SIMILAR DENSITY WILL BE PLANTED IN THE SOUTHERN AREA AROUND THE DAM FOOTPRINT, WITH APPROXIMATELY 40 TREES AND 125 SHRUBS. IN THE NORTHEASTERN NARROW STRIP, APPROXIMATELY 20 SHRUBS WILL BE PLANTED.



PATH: I:\PROJECTS\MASSDCR\ABANDONED DAMS\PROJECTS\CIBEL\AR00 C-104 BEL.DWG
 LAST UPDATE: Thursday, June 27, 2024 8:11:34 AM
 PLOT DATE: Thursday, June 27, 2024 8:29:30 AM

PROJECT

MASS DCR
 ABANDONED DAMS
 BEL AIR DAM REMOVAL
 CONTRACT NO.
 P19-3264-D4A

CLIENT

Massachusetts Department
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PROJECT NUMBER

60604936

Designed By: **JM**

Drawn By: **SN**

Dept Check: **CB**

Proj Check: **D. GOVE**

Date: **JUNE 2024**

Scale: **AS NOTED**

DISCIPLINE

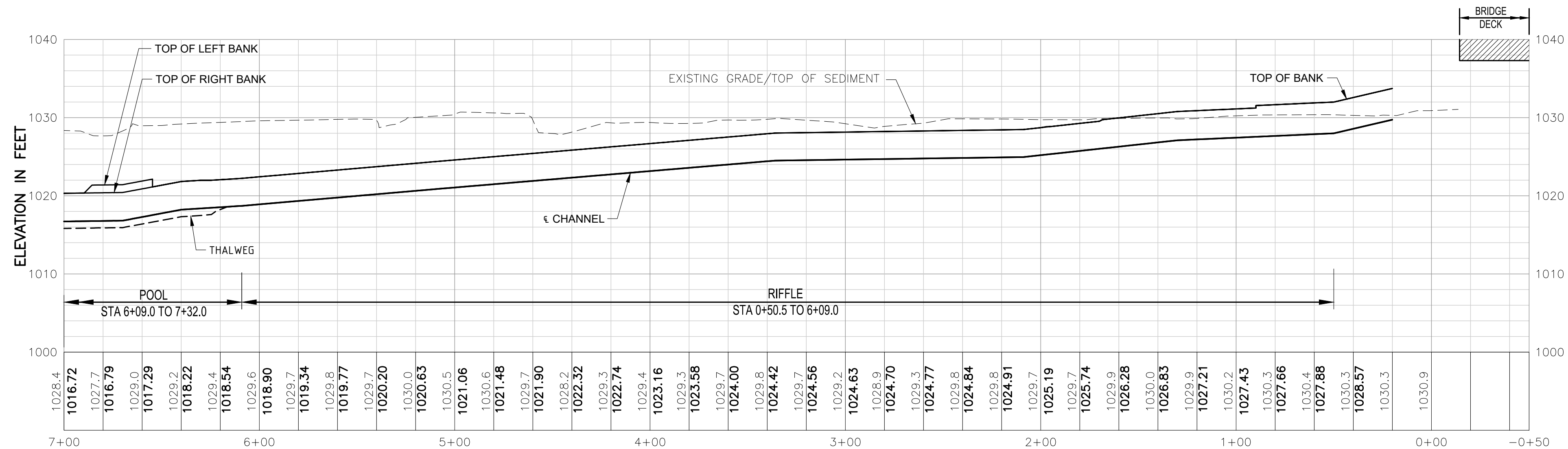
CIVIL

SHEET TITLE

**BEL AIR DAM REMOVAL
 PROPOSED CHANNEL
 PROFILE
 SHEET NUMBER**

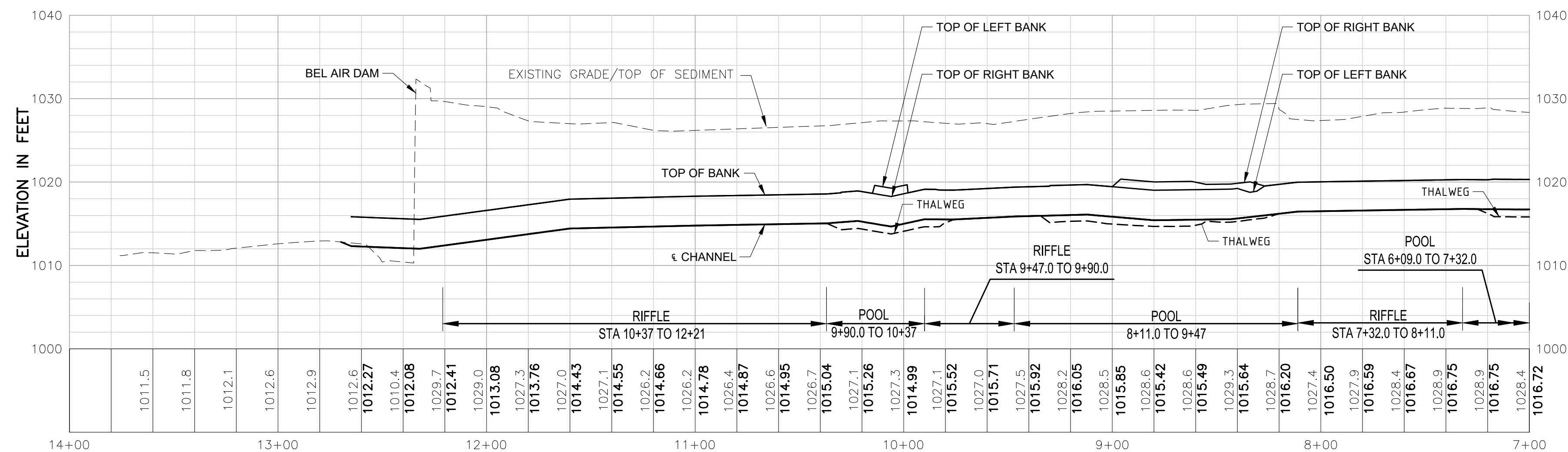
00 C-201

CONTINUATION THIS SHEET



PROFILE - BEL AIR CHANNEL

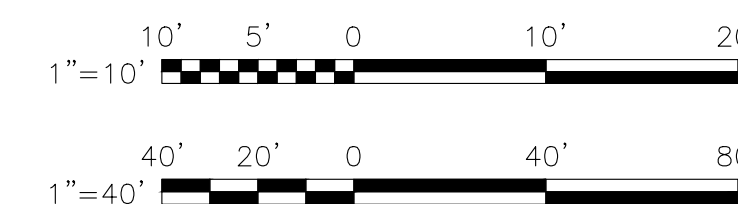
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 1"=10' VERT



PROFILE - BEL AIR CHANNEL

SCALE: 1"=40' HORZ
 1"=10' VERT

CONTINUATION THIS SHEET



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 LAST UPDATE: Wednesday, June 5, 2024 1:56:48 PM
 PLOT DATE: Monday, June 24, 2024 10:31:11 AM

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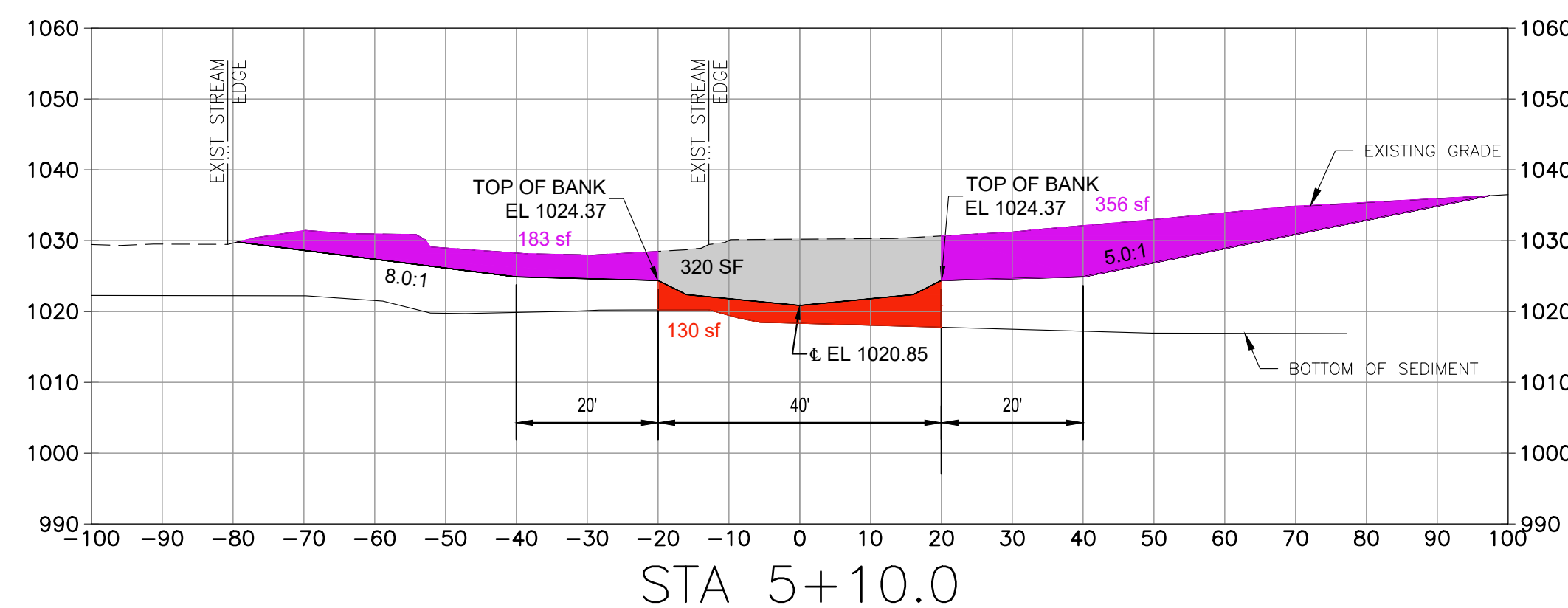
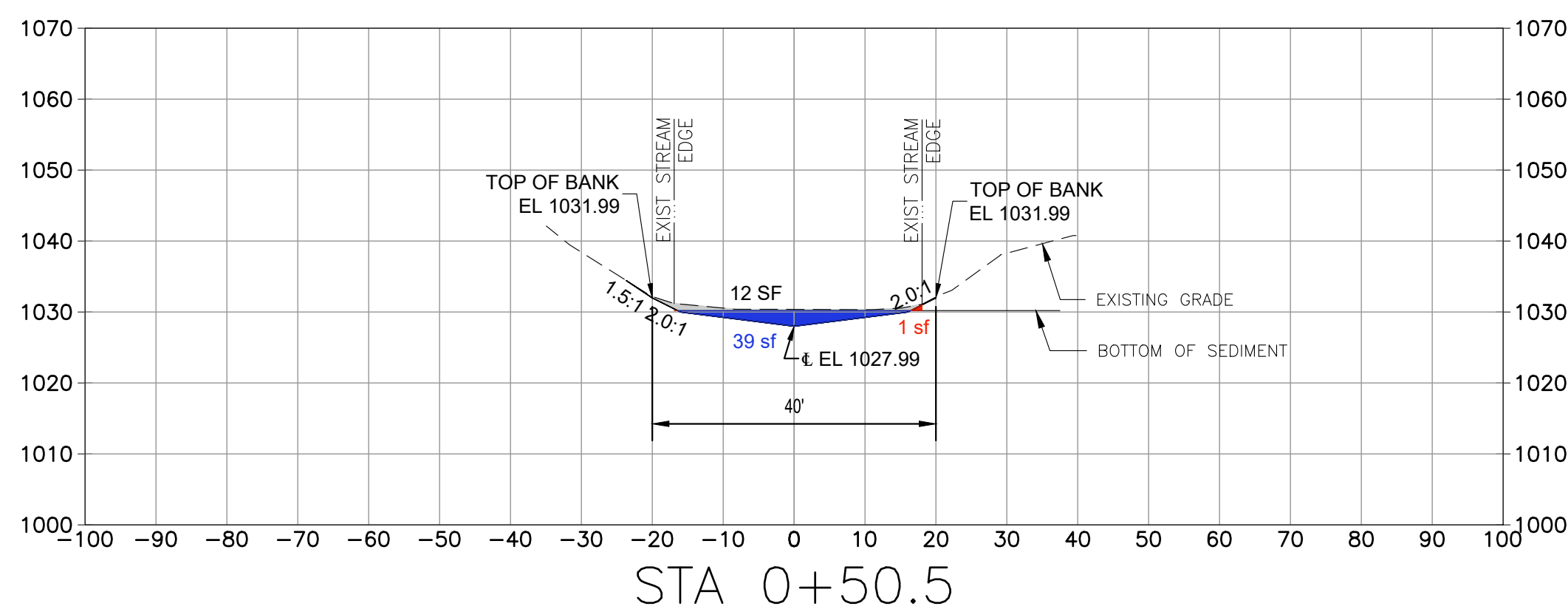
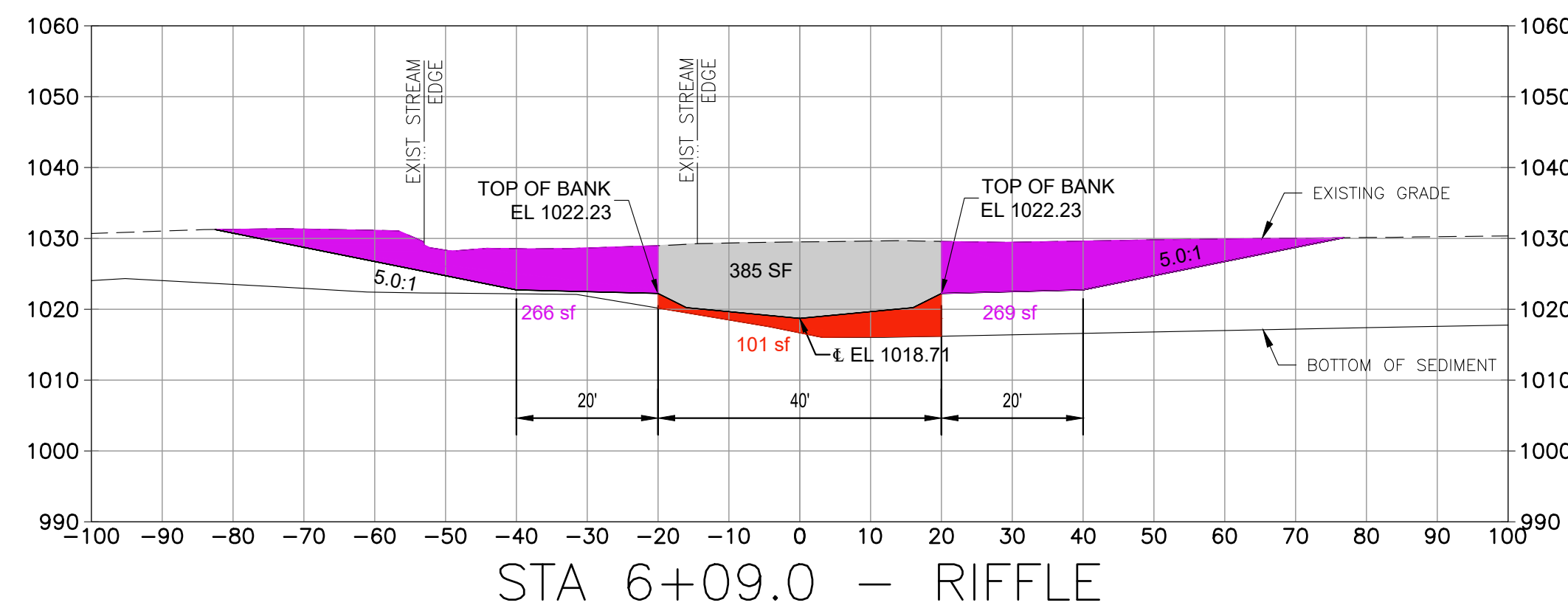
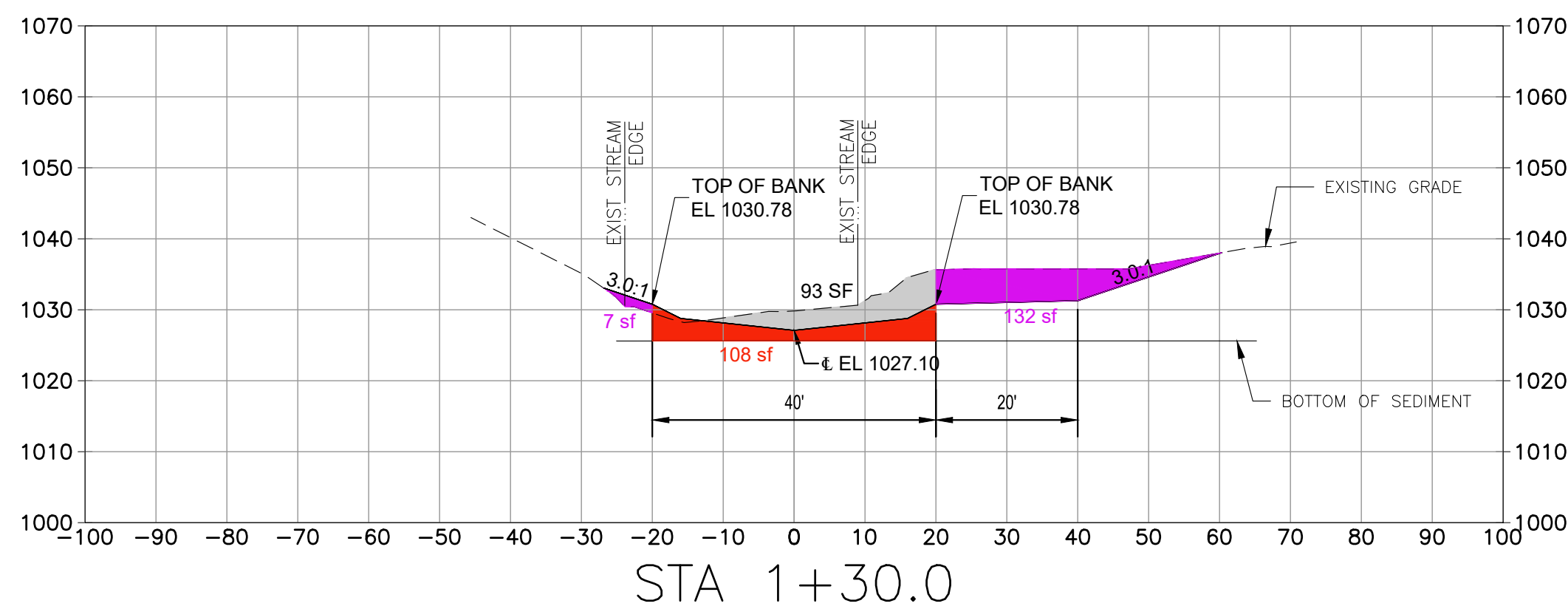
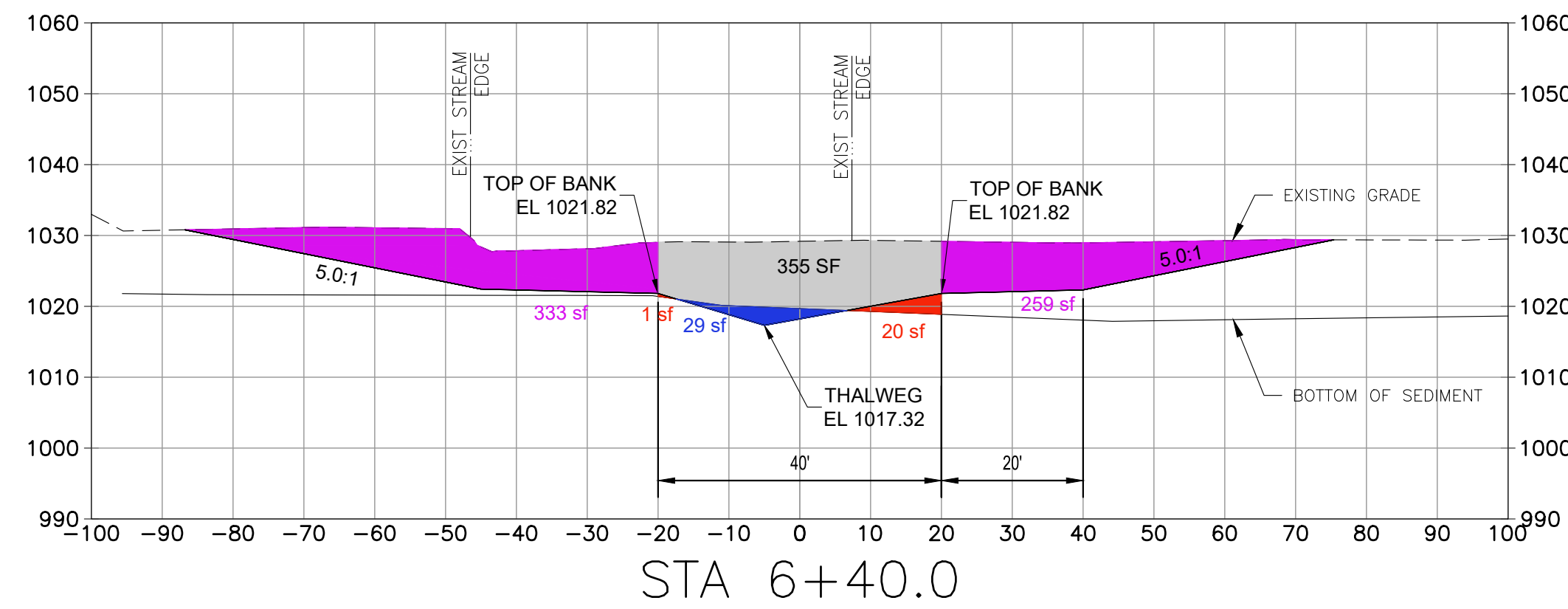
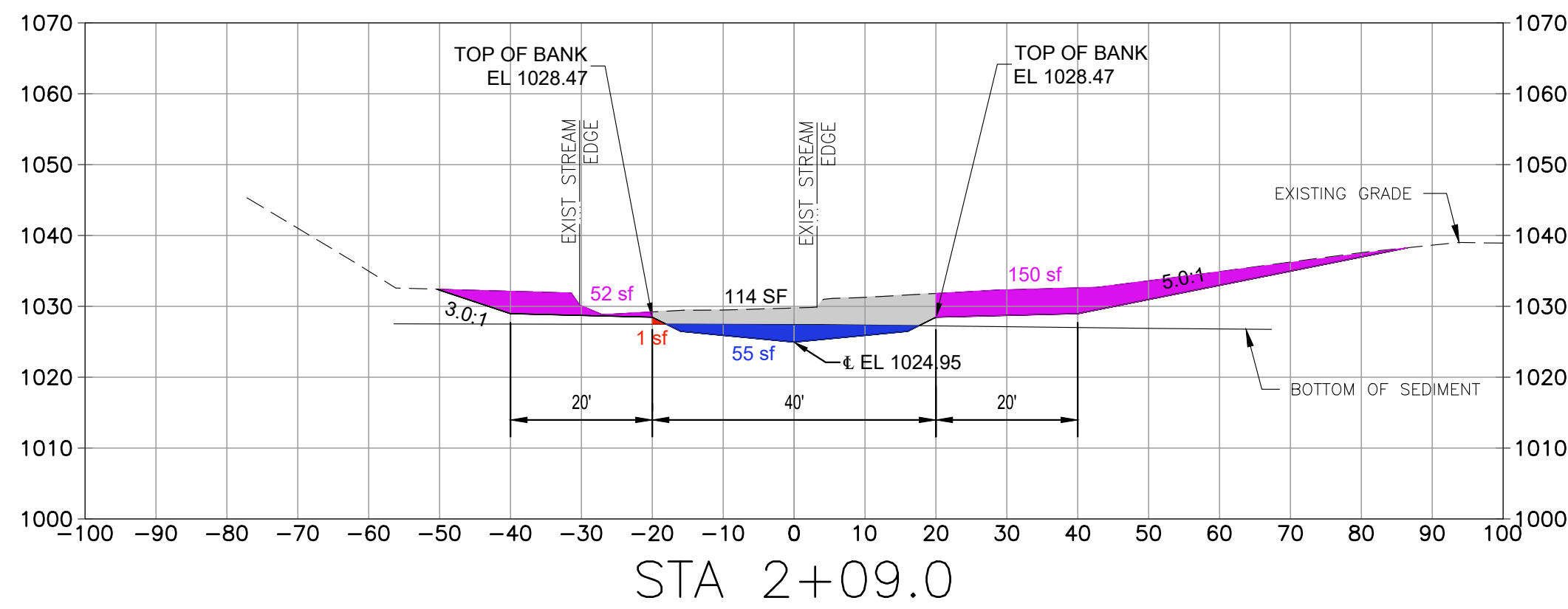
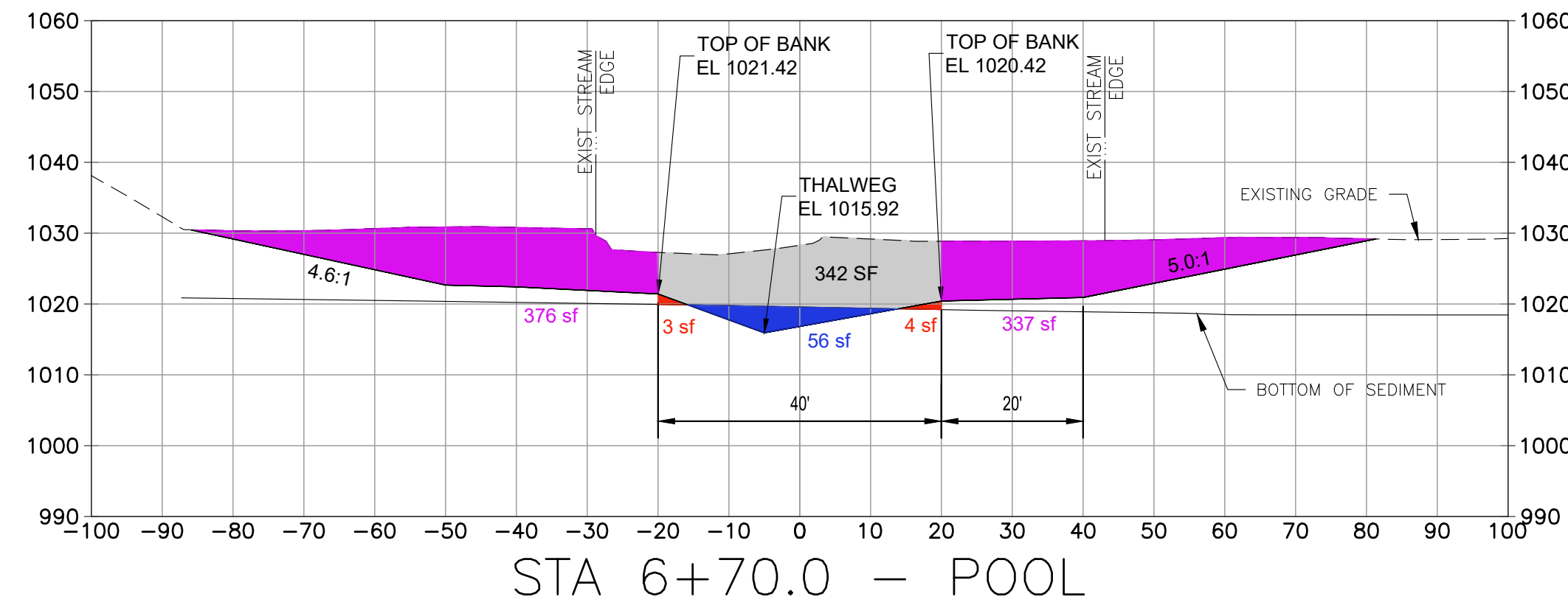
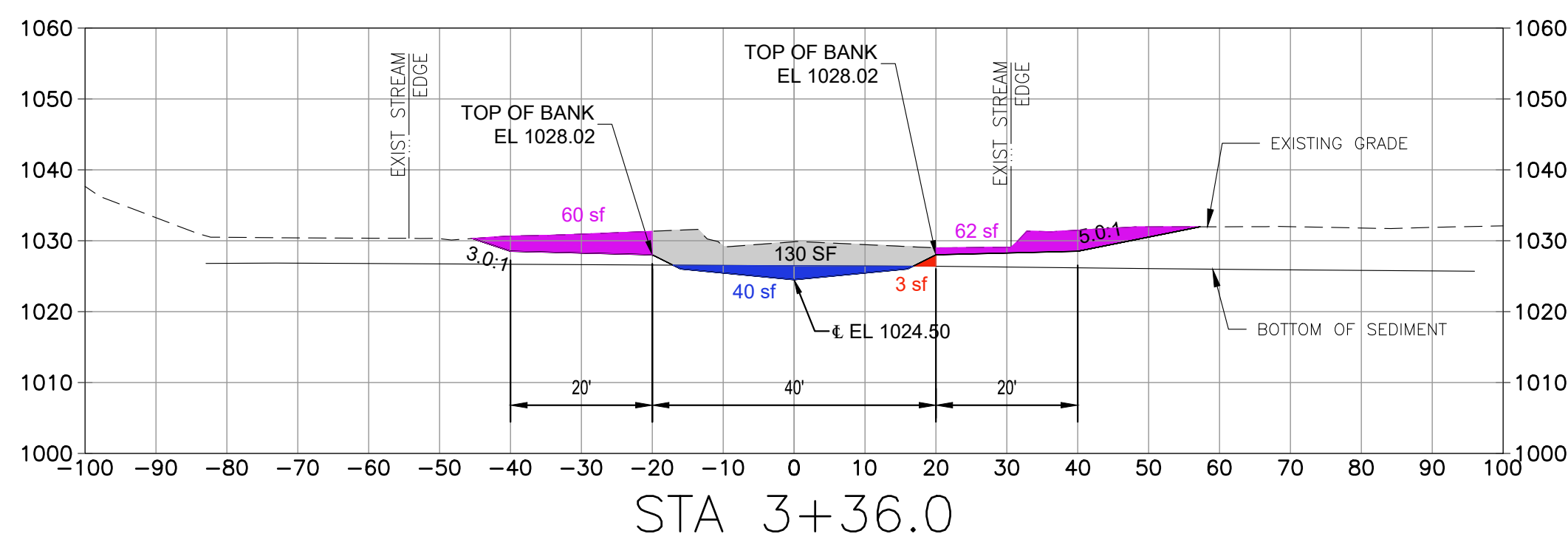
CIVIL

SHEET TITLE

BEL AIR DAM REMOVAL
 SECTIONS 1 OF 3

SHEET NUMBER

00 C-301

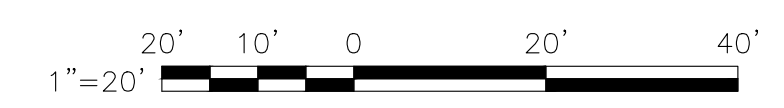


LEGEND

- SEDIMENT TO BE EXCAVATED TO CREATE STREAM PROFILE
- COARSE MATERIAL TO BE EXCAVATED TO CREATE STREAM PROFILE
- SEDIMENT TO BE EXCAVATED TO CREATE FLOODPLAIN BENCH
- SEDIMENT TO BE EXCAVATED AND REPLACED WITH STONE TO CREATE STREAM PROFILE

SECTIONS - BEL AIR CHANNEL

SCALE: 1"=20' HORZ
 1"=20' VERT



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 LAST UPDATE: Wednesday, June 5, 2024 1:57:19 PM
 PLOT DATE: Monday, June 24, 2024 10:31:23 AM

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60604936

Designed By: **JPM**

Drawn By: **SN**

Dept Check: **CB**

Proj Check: **D. GOVE**

Date: **JUNE 2024**

Scale: **AS NOTED**

DISCIPLINE

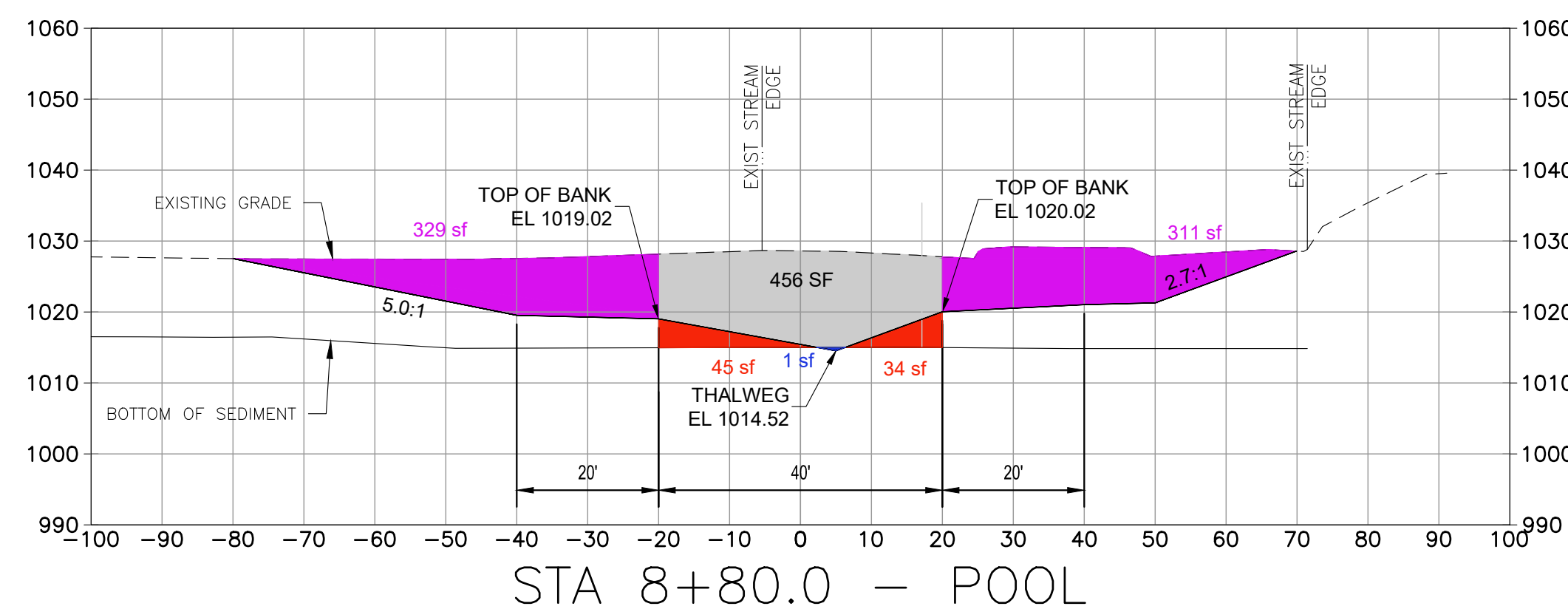
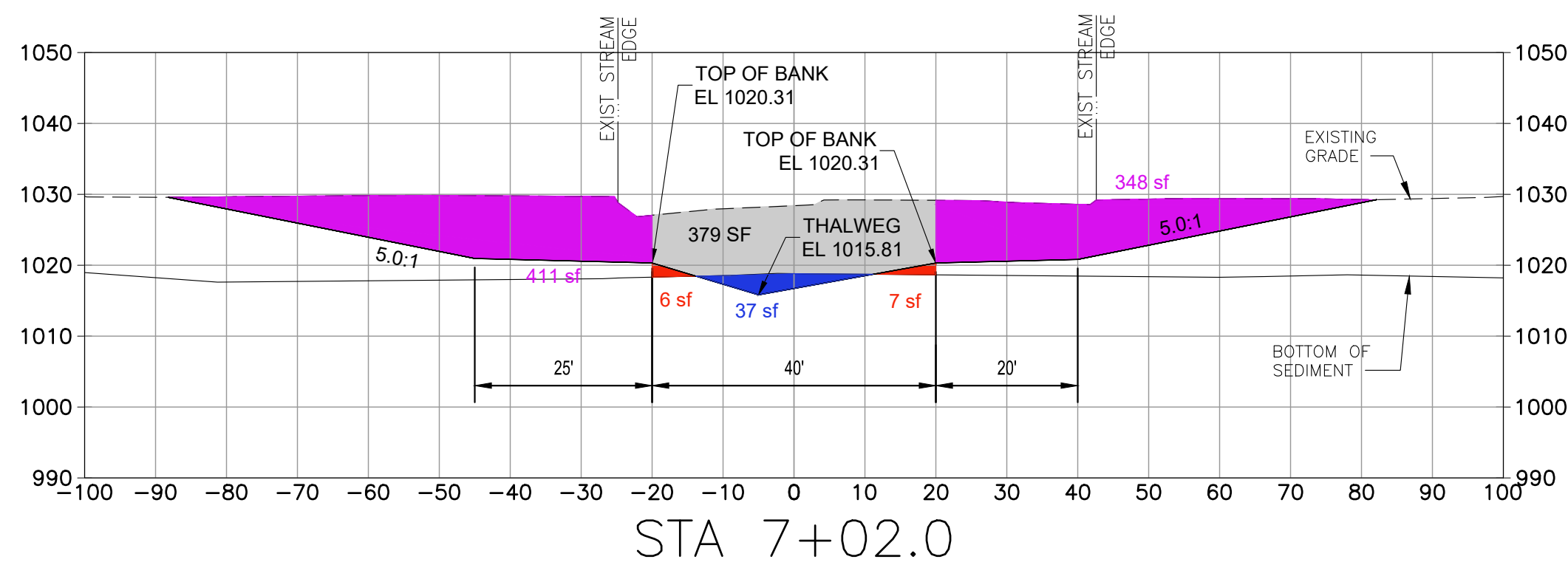
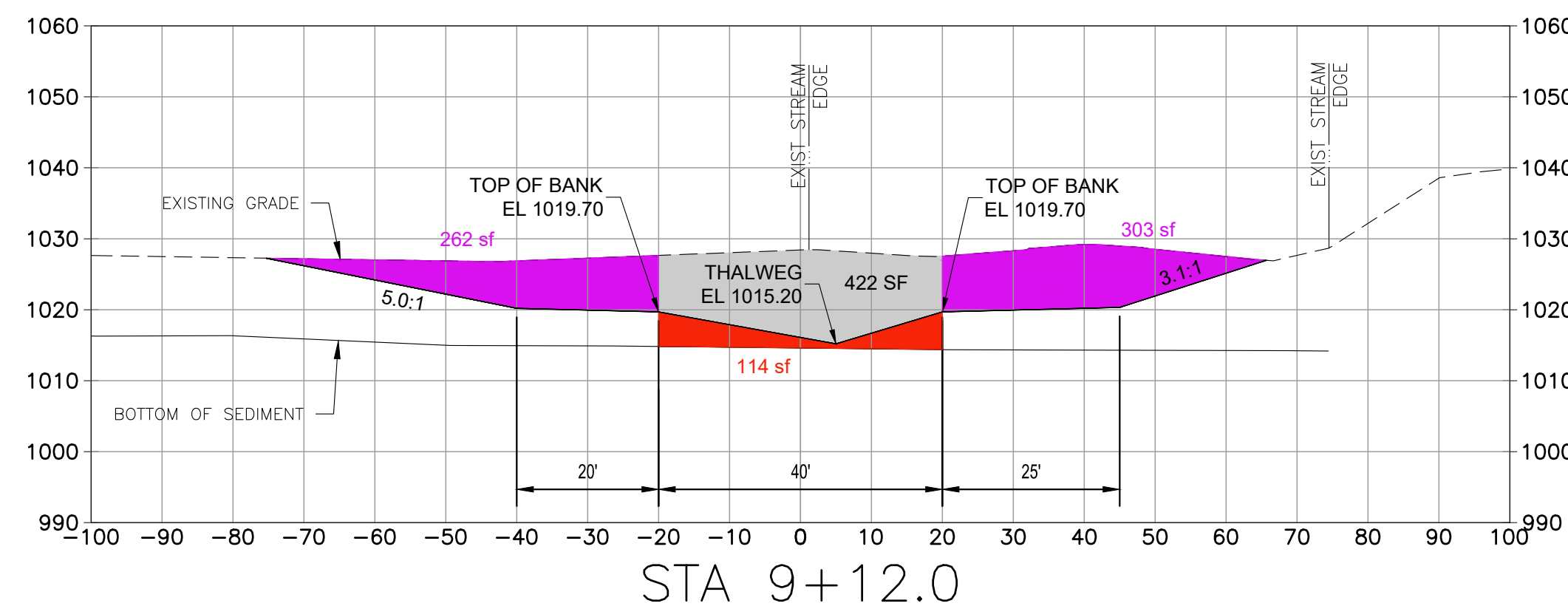
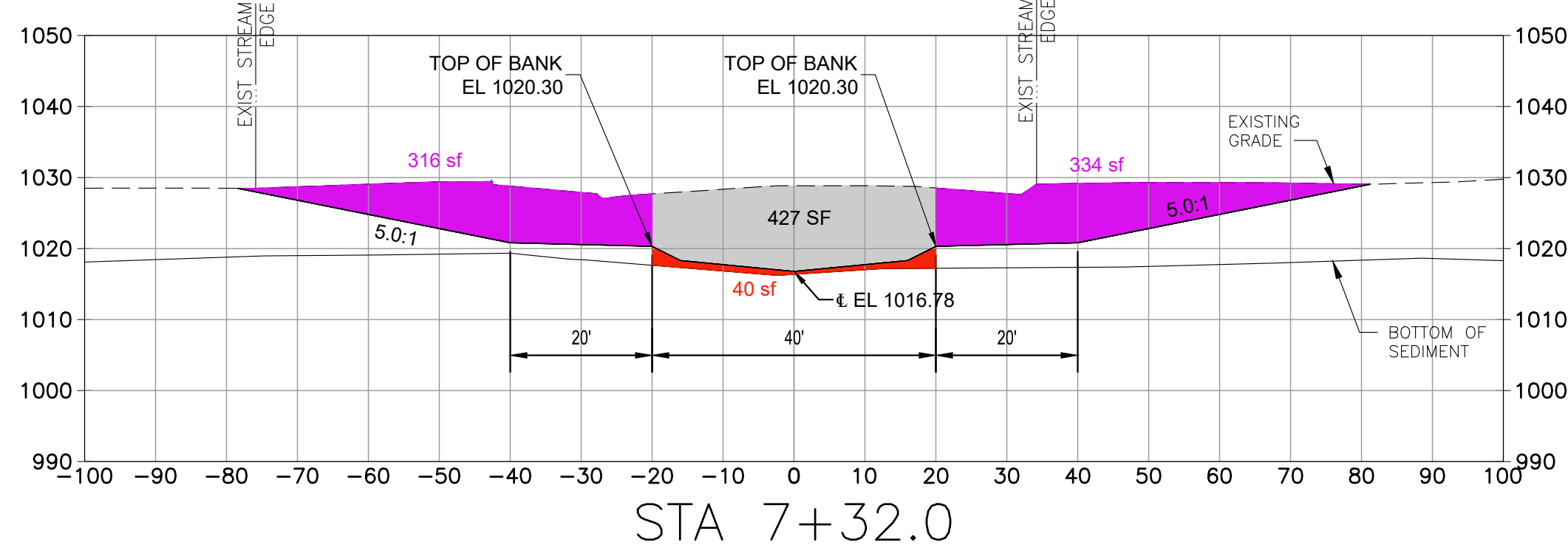
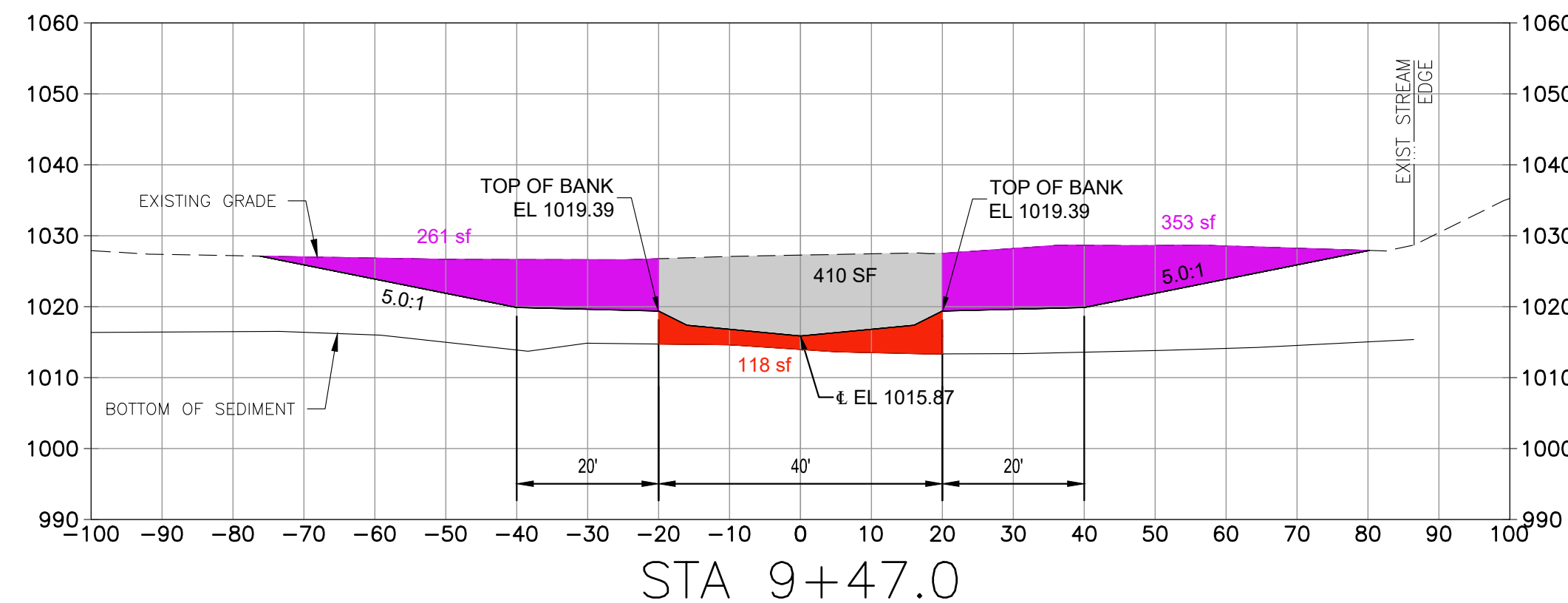
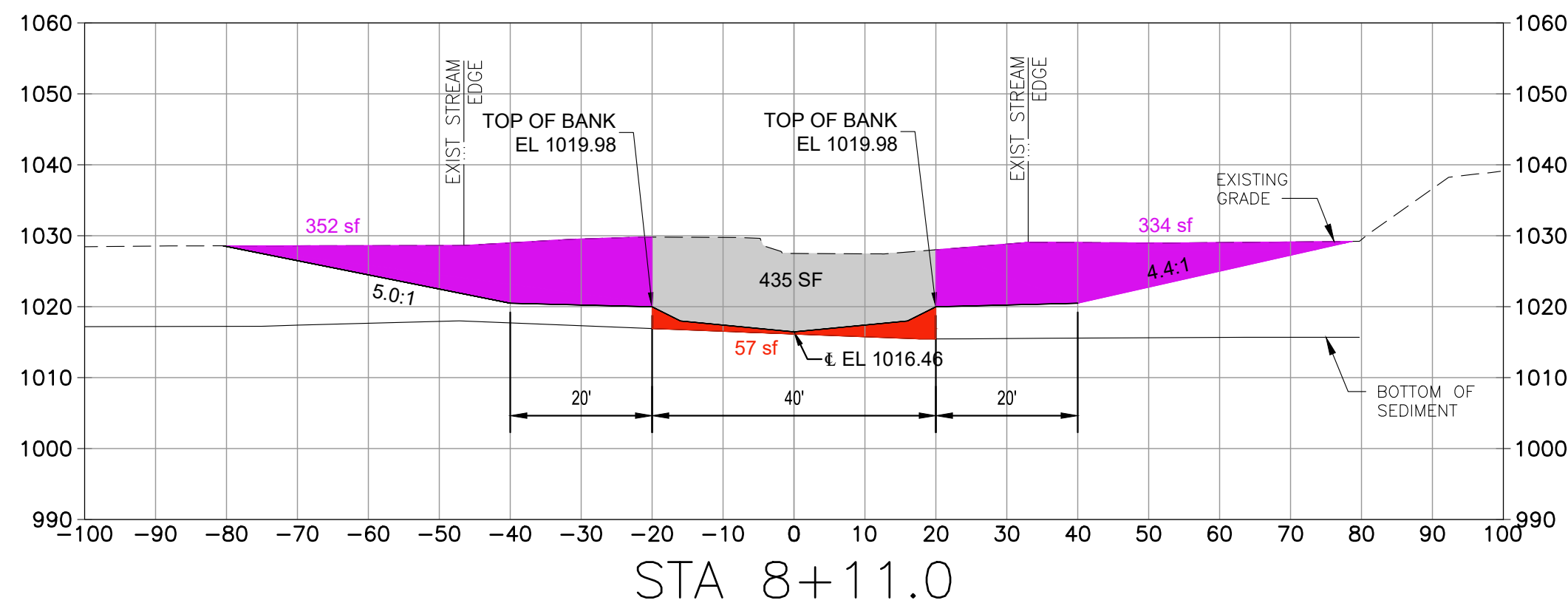
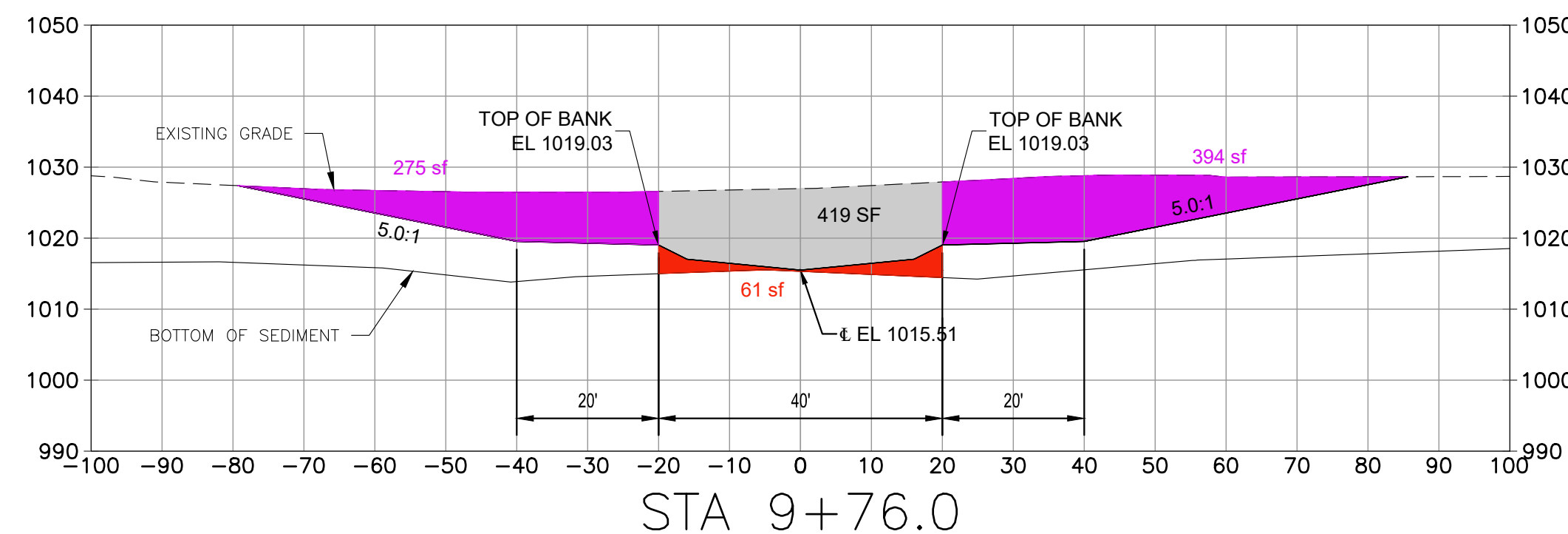
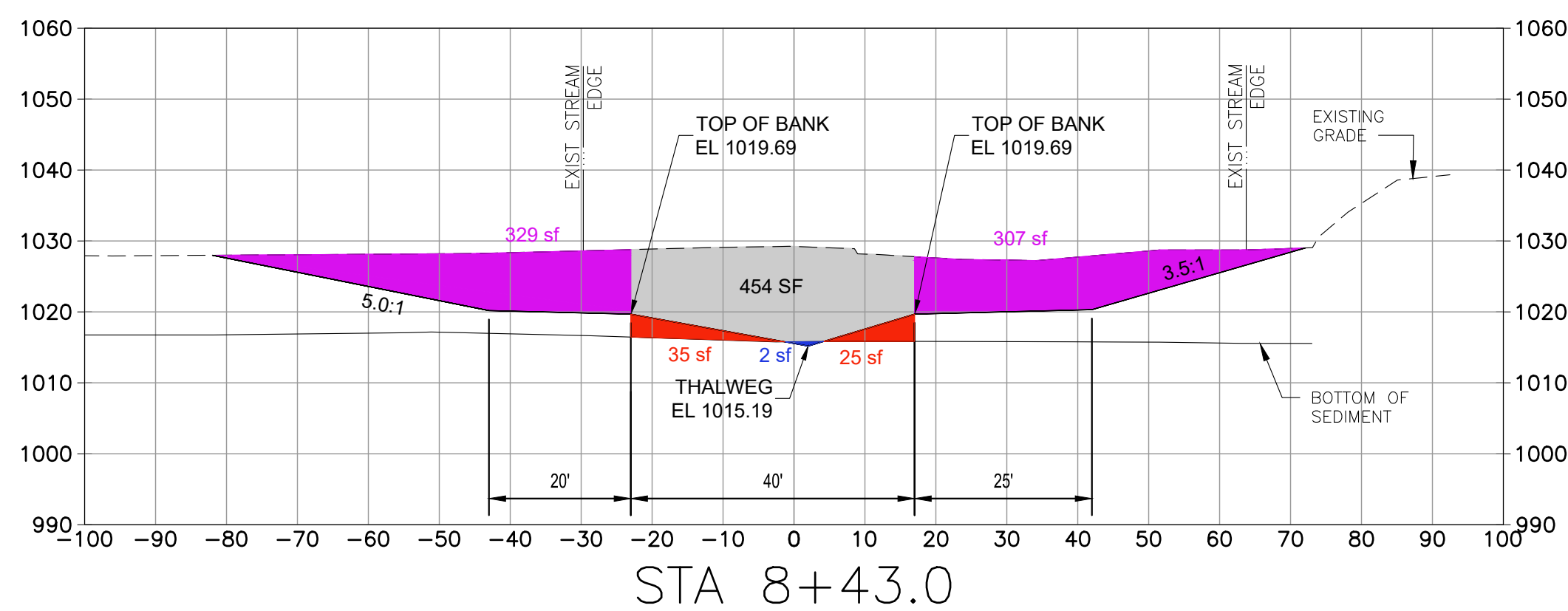
CIVIL

SHEET TITLE

BEL AIR DAM REMOVAL
SECTIONS 2 OF 3

SHEET NUMBER

00 C-302



LEGEND

- SEDIMENT TO BE EXCAVATED TO CREATE STREAM PROFILE
- COARSE MATERIAL TO BE EXCAVATED TO CREATE STREAM PROFILE
- SEDIMENT TO BE EXCAVATED TO CREATE FLOODPLAIN BENCH
- SEDIMENT TO BE EXCAVATED AND REPLACED WITH STONE TO CREATE STREAM PROFILE

SECTIONS - BEL AIR CHANNEL

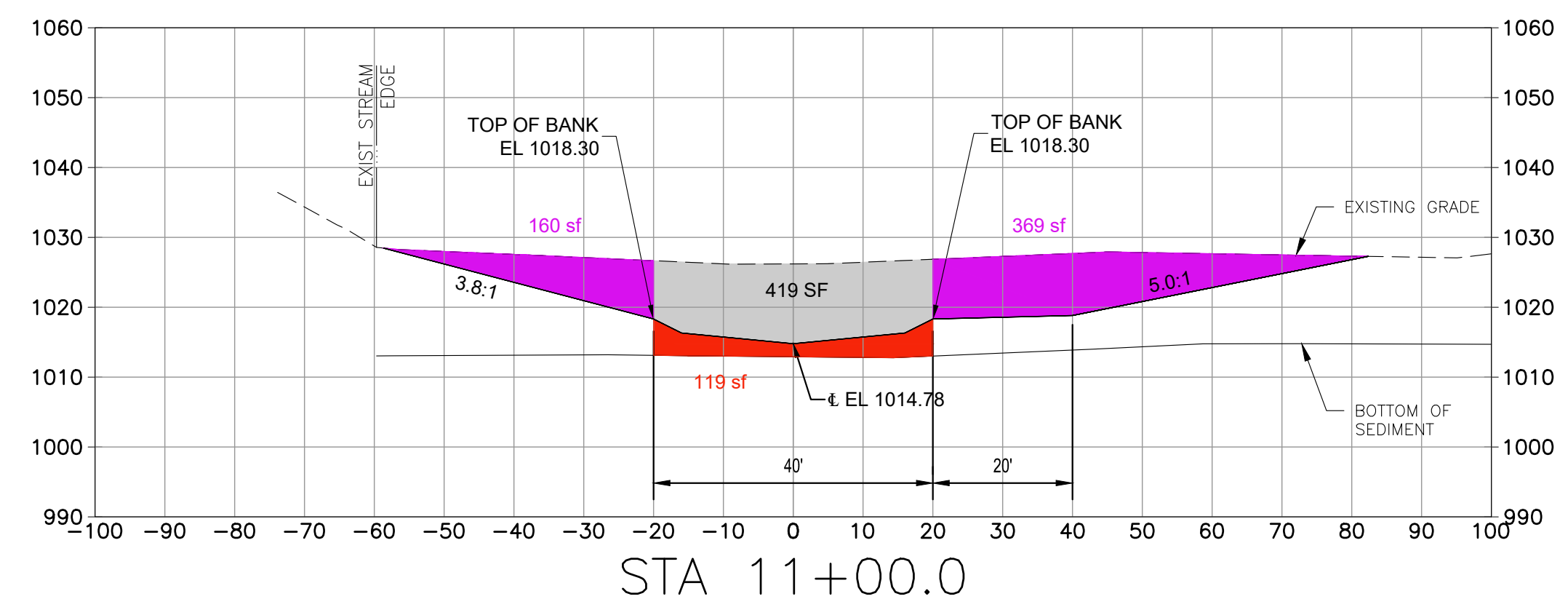
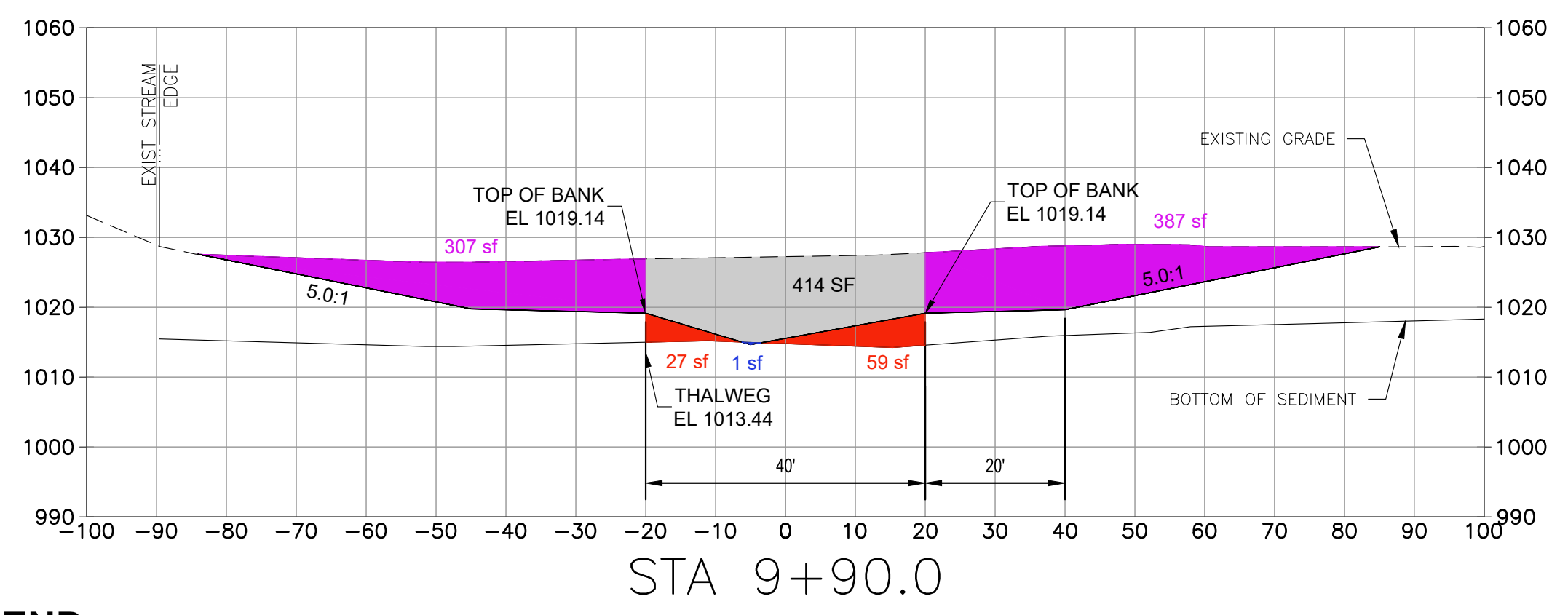
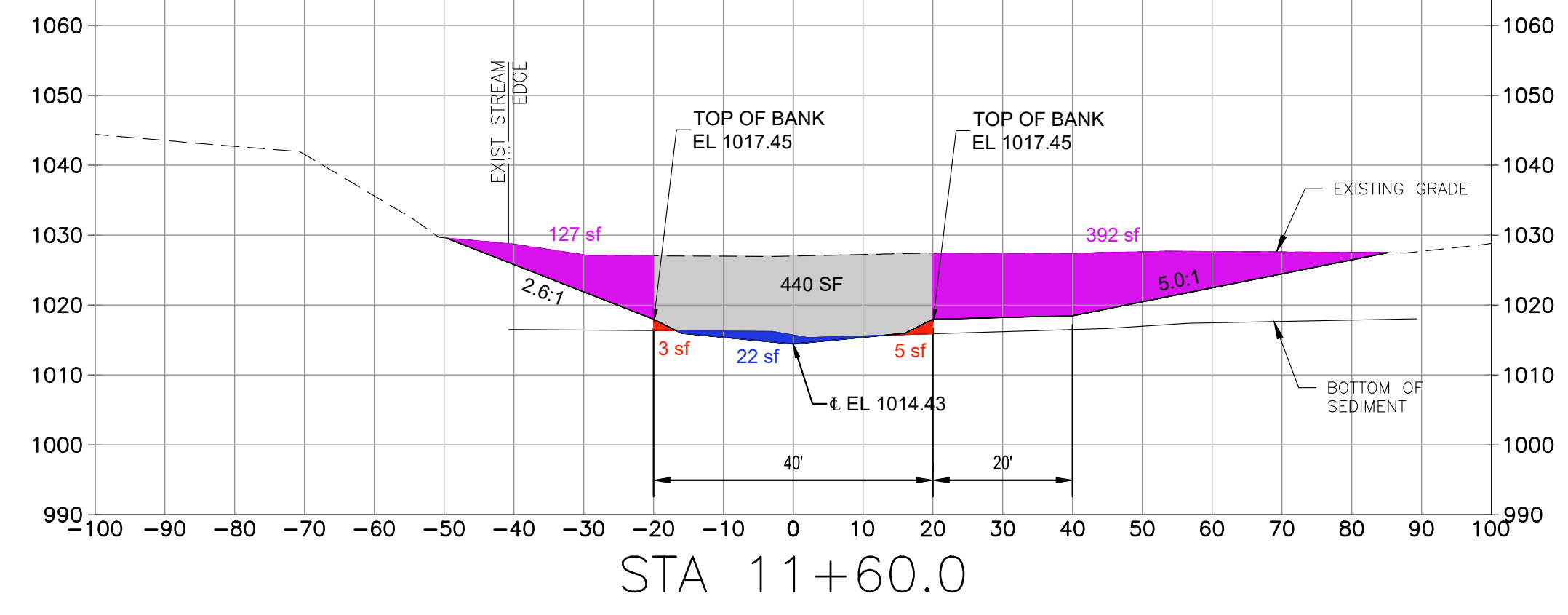
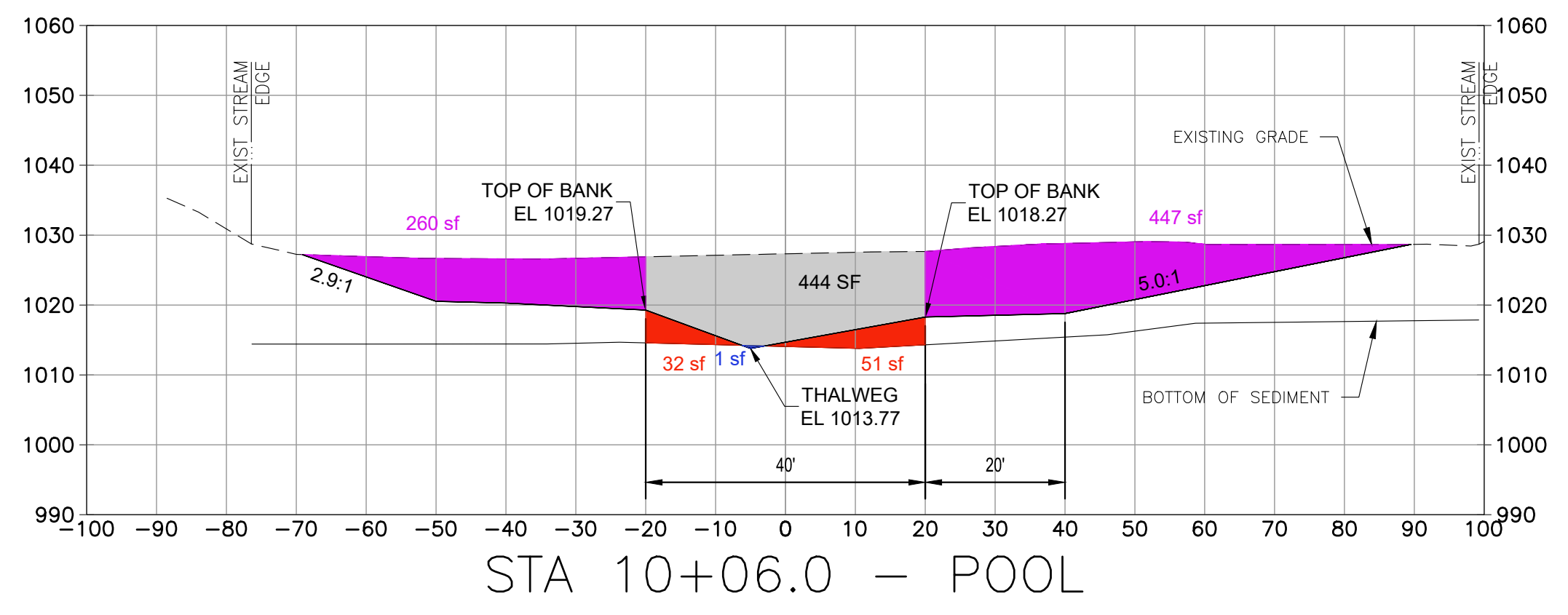
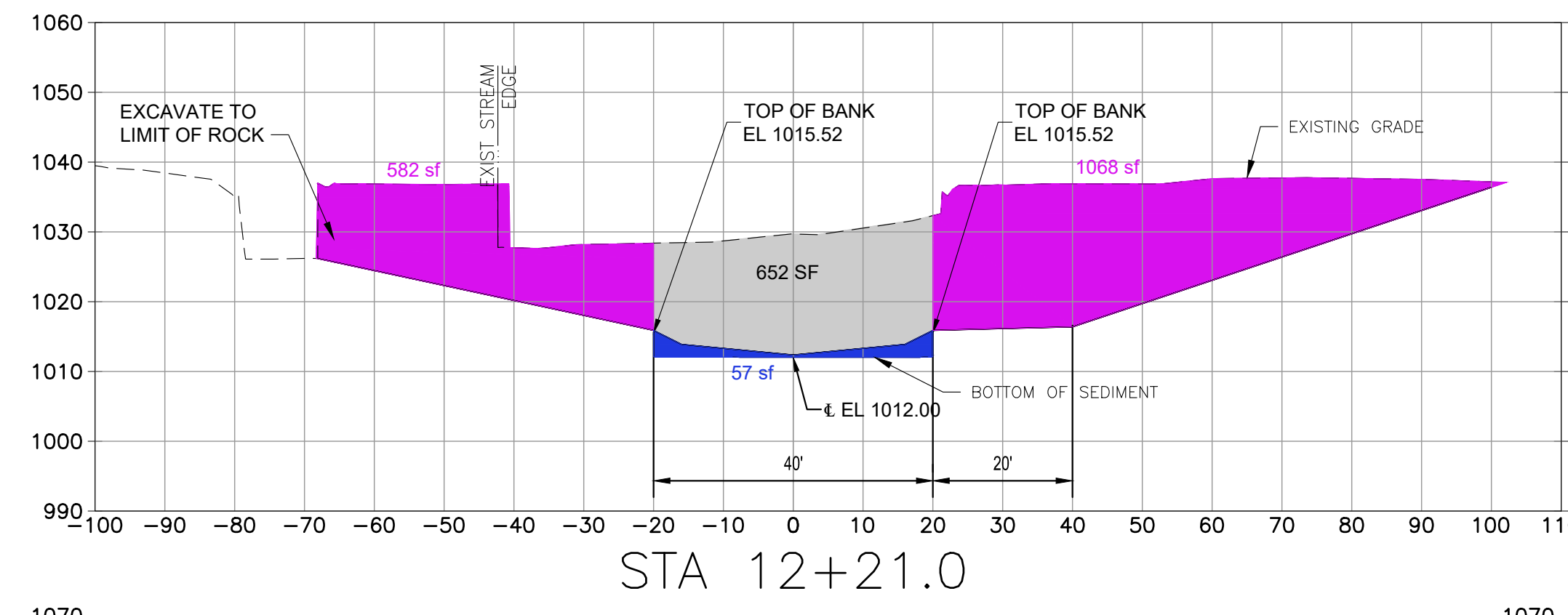
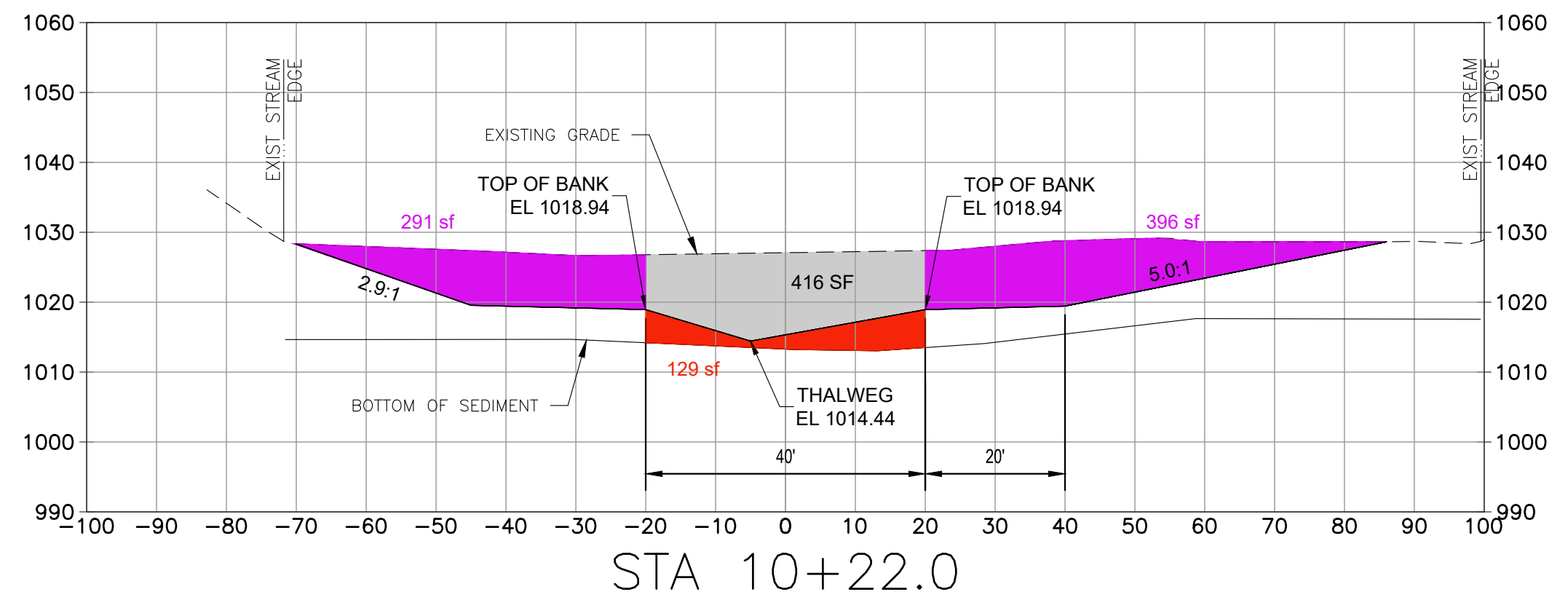
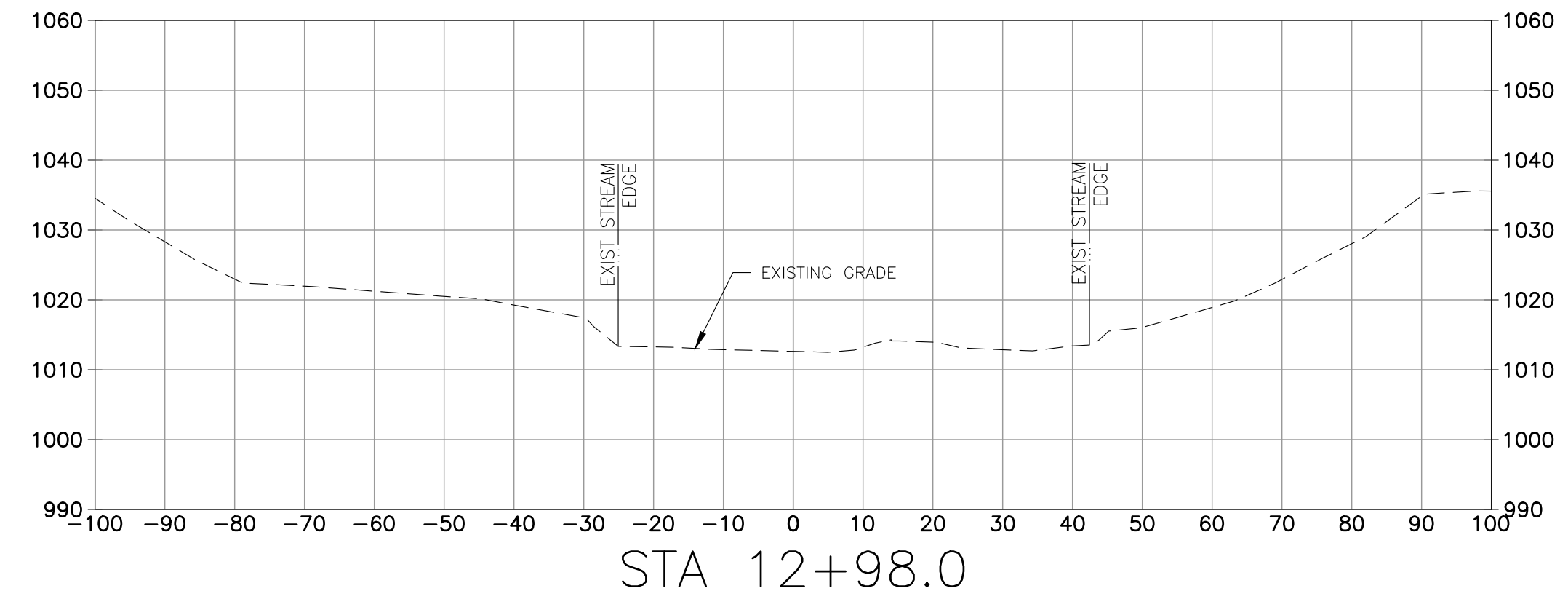
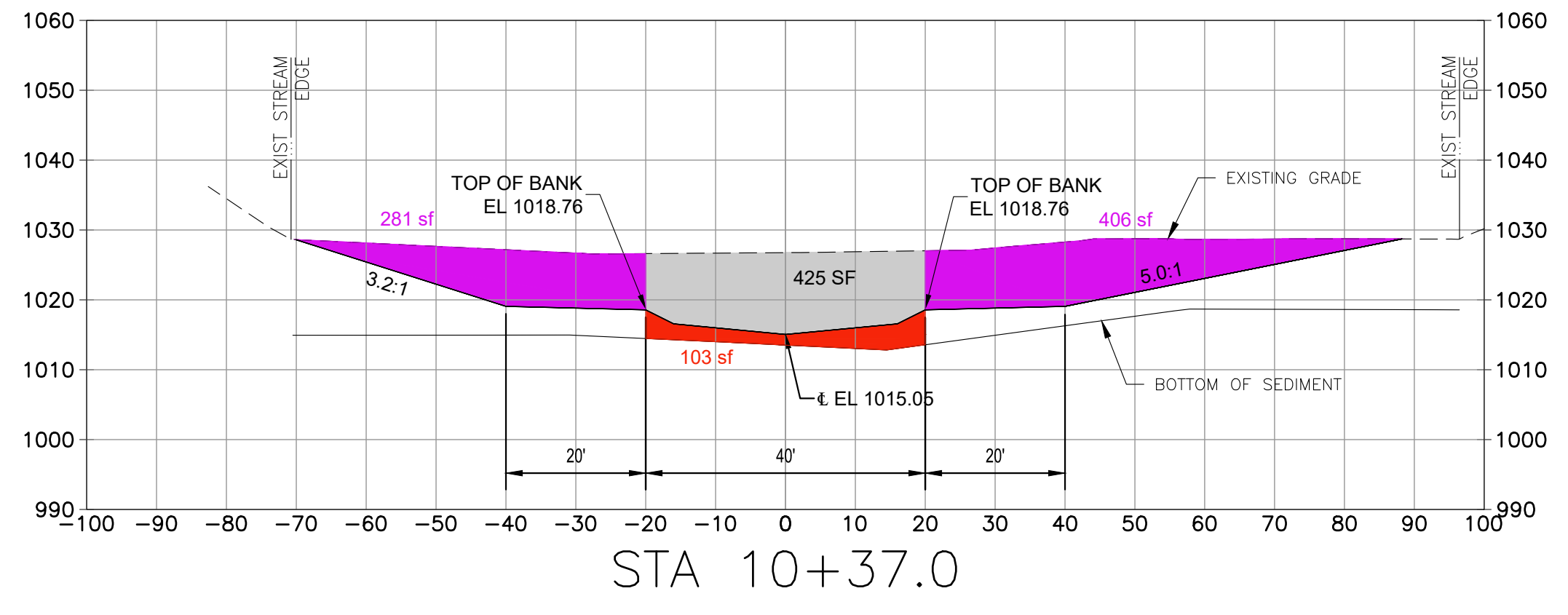
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 1"=20' VERT



I/R	DATE	DESCRIPTION

60604936

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Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

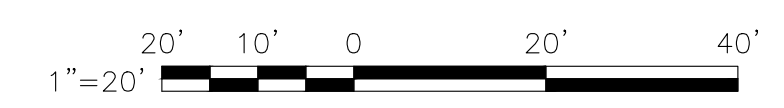


LEGEND

- SEDIMENT TO BE EXCAVATED TO CREATE STREAM PROFILE
- COARSE MATERIAL TO BE EXCAVATED TO CREATE STREAM PROFILE
- SEDIMENT TO BE EXCAVATED TO CREATE FLOODPLAIN BENCH
- SEDIMENT TO BE EXCAVATED AND REPLACED WITH STONE TO CREATE STREAM PROFILE

SECTIONS - BEL AIR CHANNEL

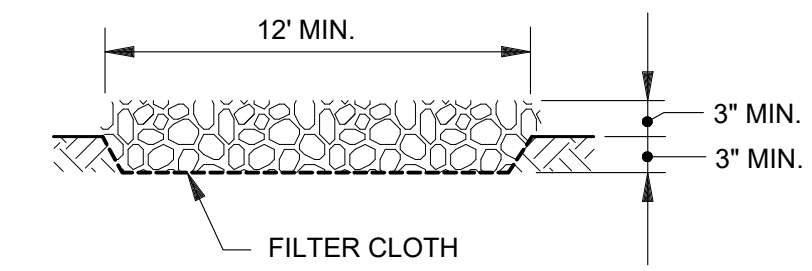
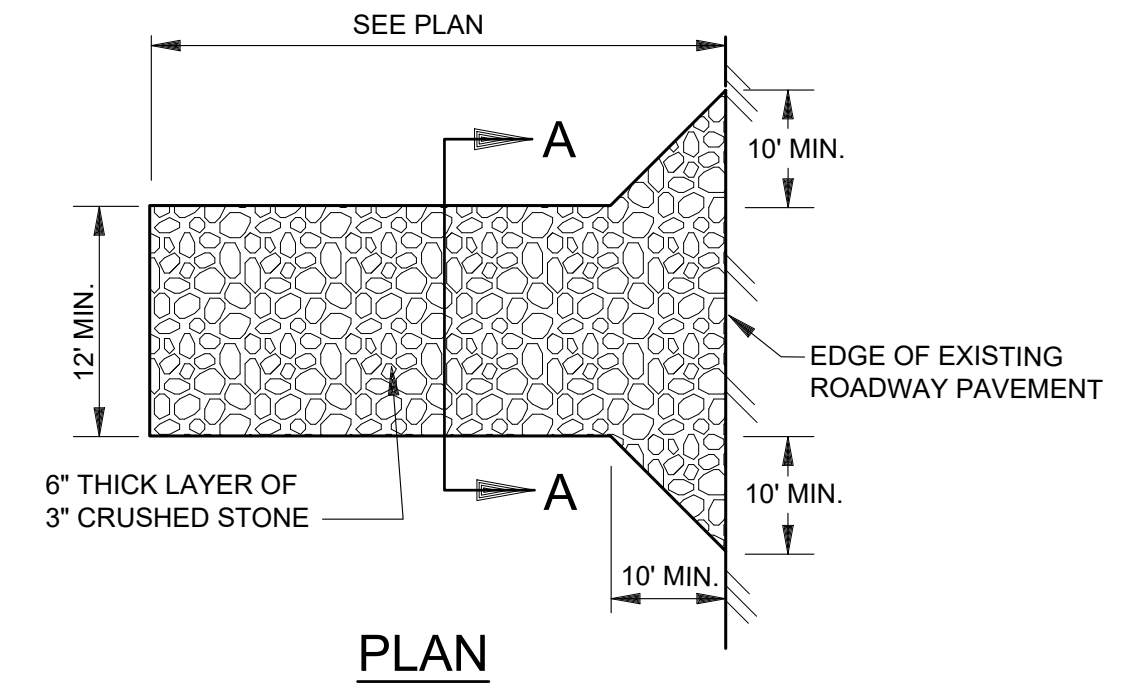
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 1"=20' VERT



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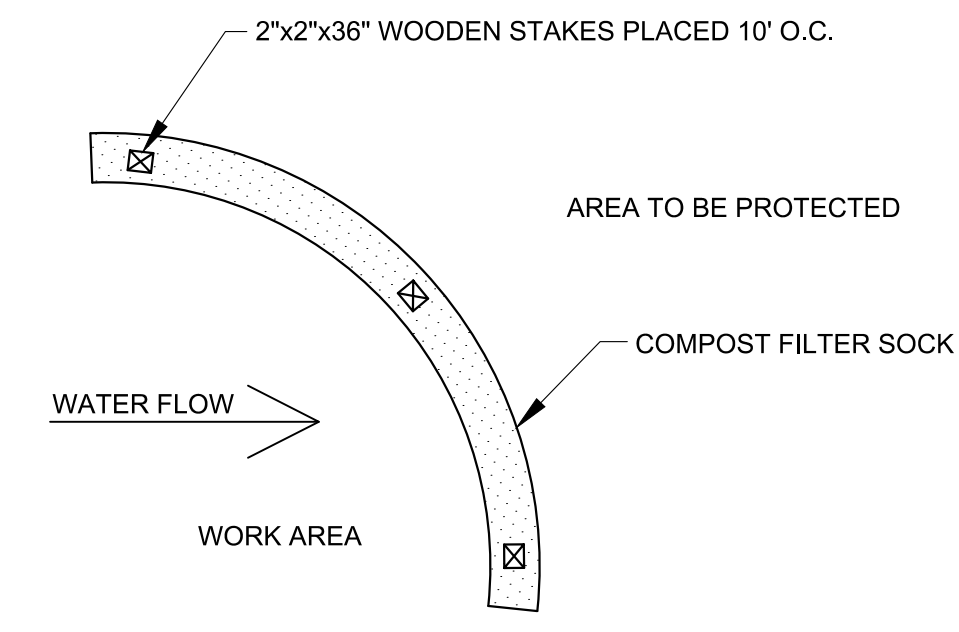
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Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED



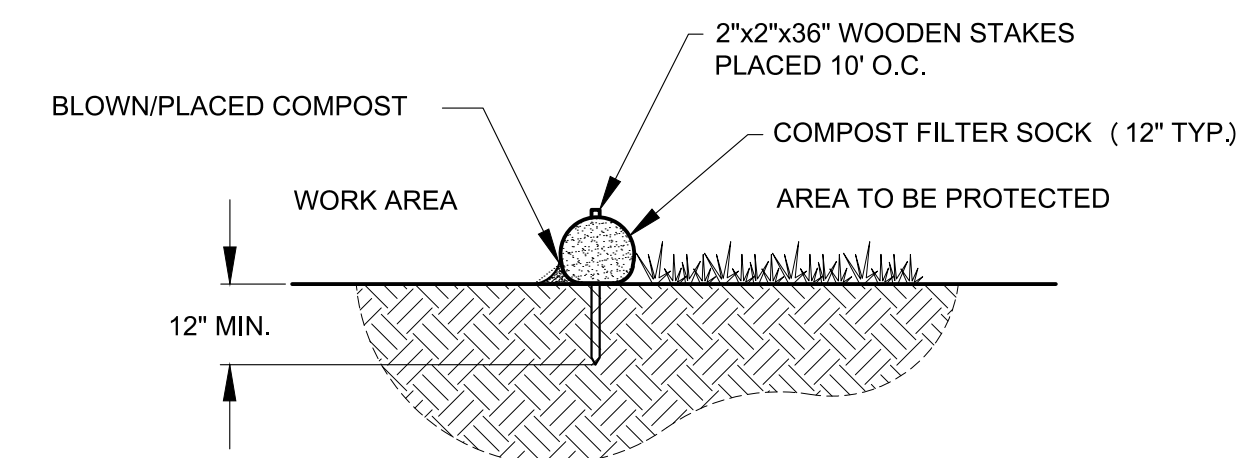
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TEMPORARY CONSTRUCTION
ENTRANCE

NOT TO SCALE



PLAN

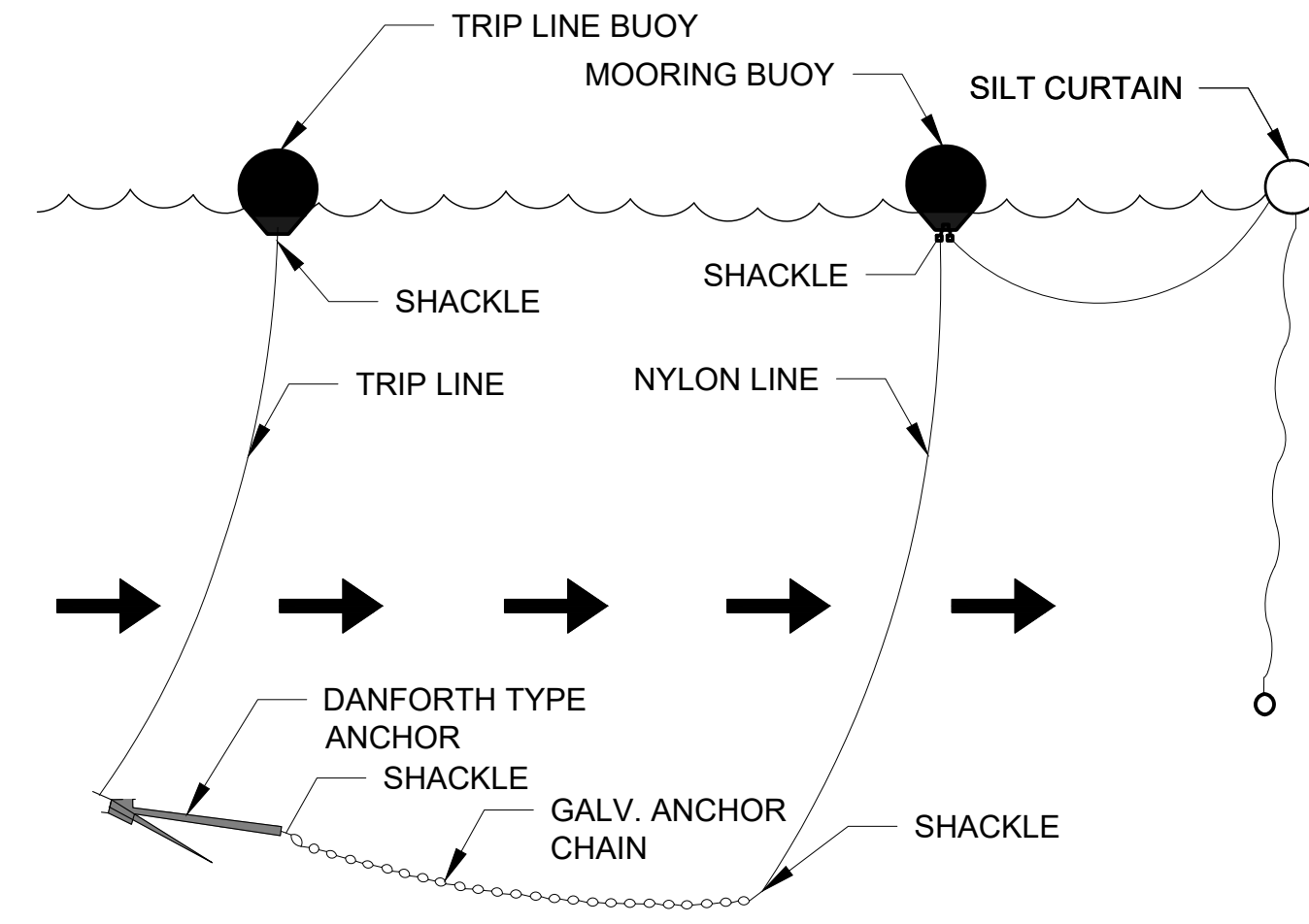


SECTION

NOTES:

- SEE SPECIFICATION FOR COMPOST FILTER SOCK AND COMPOST FILL MATERIAL REQUIREMENTS.

COMPOST SILT SOCK
 NOT TO SCALE



NOTES:

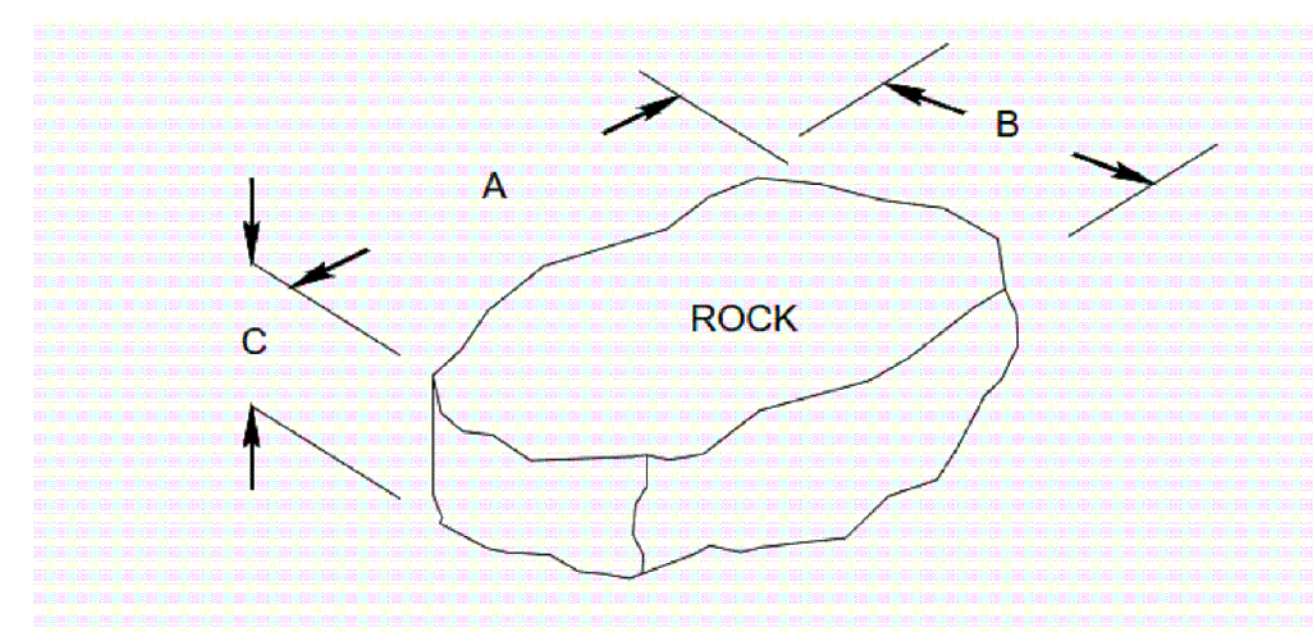
- THE GALVANIZED ANCHOR CHAIN MAY BE REMOVED IN AREAS OF LOWER FLOW (I.E. TRIBUTARIES) AND IF APPROVED BY THE OWNER'S REPRESENTATIVE.

ANCHOR DETAIL
 SCALE: NTS

STREAM SUBSTRATE MIXTURE SPECIFICATIONS

STREAM SUBSTRATE BED MIXTURE UTILIZED IN THE BED OF THE STREAM WITHIN THE STREAM CHANNEL TO PROVIDE A STABLE SUBSTRATE OR FILL AREA.

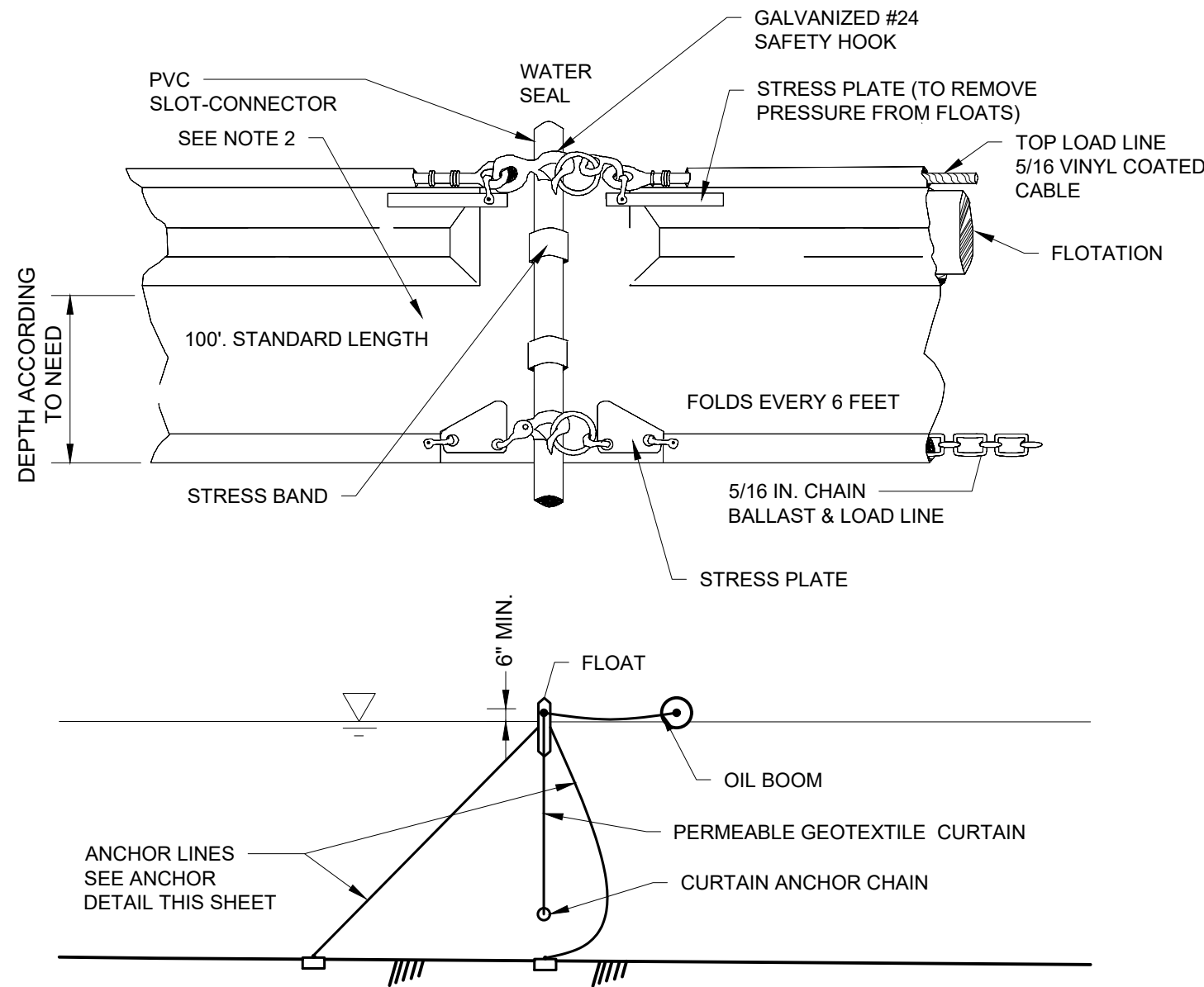
GENERALLY, STREAM SUBSTRATE MIXTURE SHALL CONSIST OF LARGE STONE MIXED WITH SMALL STONE, AND FINE AGGREGATE. THE STREAM SUBSTRATE MIXTURE MUST MEET THE MATERIAL SPECIFICATIONS PROVIDED IN THE TABLE BELOW.



- EACH STREAM SUBSTRATE MIXTURE SHALL CONTAIN THE PERCENTAGE BY VOLUME OF THE MATERIALS SPECIFIED IN THE STREAM SUBSTRATE MIXTURE TABLE.
- SUBSTRATE WILL BE NATURAL IN COLOR (BROWN, YELLOW, TAN OR GRAY). NO WHITE ROCK SHALL BE ALLOWED.
- SUBSTRATE SHALL BE FREE OF IMPURITIES AND CONTAMINANTS
- SUBSTRATE SHALL BE NATURAL AND FREE OF SLAG.
- SIZING IS BASED ON THE INTERMEDIATE B-AXIS OF THE ROCK.
- FOR MIN. THICKNESS DEPTHS GREATER THAN 1.5 FEET THE BED MIXTURE SHOULD BE PLACED IN LIFTS NO GREATER THAN 12 INCHES. THE CONTRACTOR SHALL INSPECT THE INSTALLATION OF STREAM SUBSTRATE MIXTURE TO ENSURE THE PLACEMENT IS INSTALLED AS HOMOGENEOUS AS POSSIBLE VISUALLY FREE OF LARGE VOIDS. LARGE VOIDS SHOULD BE WASHED WITH ADDITIONAL FINE AGGREGATE OR SALVAGABLE STREAM BED MATERIAL IF NEEDED.
- ADDITIONAL AVAILABLE ON SITE SALVAGABLE STREAM BED MATERIAL SHOULD BE BLENDED AND BACKWASHED INTO THE ROCK TO FILL VOIDS, IF NECESSARY.
- REFER TO THE GRADING PLAN AND PROFILE FOR THE LIMITS OF PLACEMENT.

STREAM SUBSTRATE MIXTURE TABLE AND SPECS

STREAM SUBSTRATE MIXTURE TABLE				
ID	MATERIAL CATEGORY	INTERMEDIATE B-AXIS SIZE RANGE	APPROX. % BY VOLUME	MIN. THICKNESS (FT)
RIFLE/RUN/GLIDE	LARGE STONE	MASS DOT CLASS 4 RIPRAP D50 = 14"	20%	2.0'
	SMALL STONE	MASS DOT CLASS 3 RIPRAP D50 = 10"	60%	
	FINE AGGREGATE	SALVAGED STREAM BED MIXTURE OR COMPARABLE AGGREGATE SIZE D50 = 2.5"	20%	
POOL	SMALL STONE	SALVAGED STREAM BED MIXTURE OR COMPARABLE AGGREGATE SIZE D50 = 2.5"	100%	1.0'



NOTES:

- ANCHOR CURTAINS PER ANCHOR DETAIL THIS SHEET.
- TURBIDITY CURTAIN SHALL BE A GEOSYNTHETIC HAVING A FILTRATION APPARENT OPEN SIZE (AOS) OF 0.220 MM MAXIMUM FOR NON-WOVEN GEOTEXTILES, AND AOS OF 0.425 MM MAXIMUM FOR WOVEN TEXTILES, OR SUITABLE ALTERNATIVE.
- ALL CURTAIN ANCHOR POINTS SHALL HAVE SUFFICIENT HOLDING POWER TO RETAIN THE CURTAIN UNDER THE EXISTING CURRENT CONDITIONS, PRIOR TO PUTTING THE FURLED CURTAIN INTO THE WATER.
- THE FURLED CURTAIN SHALL BE SECURED TO THE UPSTREAM ANCHOR POINT AND THEN SUBSEQUENTLY ATTACHED TO EACH NEXT DOWNSTREAM ANCHOR POINT UNTIL THE ENTIRE CURTAIN IS IN POSITION.
- FURLING LINES SHALL NOT BE CUT UNTIL LOCATION IS ASCERTAINED AND INSPECTED.
- ANCHOR LINES SHALL BE ATTACHED TO THE FLOTATION DEVICE AND NOT TO THE BOTTOM OF THE CURTAIN.
- WEIGHTS SHALL BE LOCATED AT 10' INTERVALS ALONG LENGTH OF CURTAIN. WEIGHTS SHALL BE A MINIMUM OF 5 POUNDS AND EXTEND 12" BELOW THE CURTAIN.
- FLOATS SHALL BE SPACED ON 5' INTERVALS WITH A MINIMUM OF 2 FLOATS FOR EACH CURTAIN.
- OIL BOOM MATERIAL, TYPE, AND HEIGHT SHALL BE SUBJECT TO ENGINEER APPROVAL.
- BUOYANCY PROVIDED BY THE FLOAT SHALL BE SUFFICIENT TO SUPPORT THE WEIGHT OF THE TURBIDITY CURTAIN AND MAINTAIN A MINIMUM FREEBOARD OF 6" ABOVE THE WATER SURFACE.

TURBIDITY CURTAIN AND OIL BOOM
 SCALE: NTS

PROJECT

MASS DCR
 ABANDONED DAMS
 BEL AIR DAM REMOVAL
 CONTRACT NO.
 P19-3264-D4A

CLIENT

Massachusetts Department
 of Conservation and
 Recreation

251 Causeway Street, Suite 600
 Boston, MA 02114-2119
 617.626.1250 tel 617.626.1351 fax
 www.mass.gov/orgs/departement-of-conservation-recreation

CONSULTANT

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELMSFORD, MA 01824
 PHONE: (978) 905-2100
 www.aecom.com

REGISTRATION

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60604936

Designed By:	BR
Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

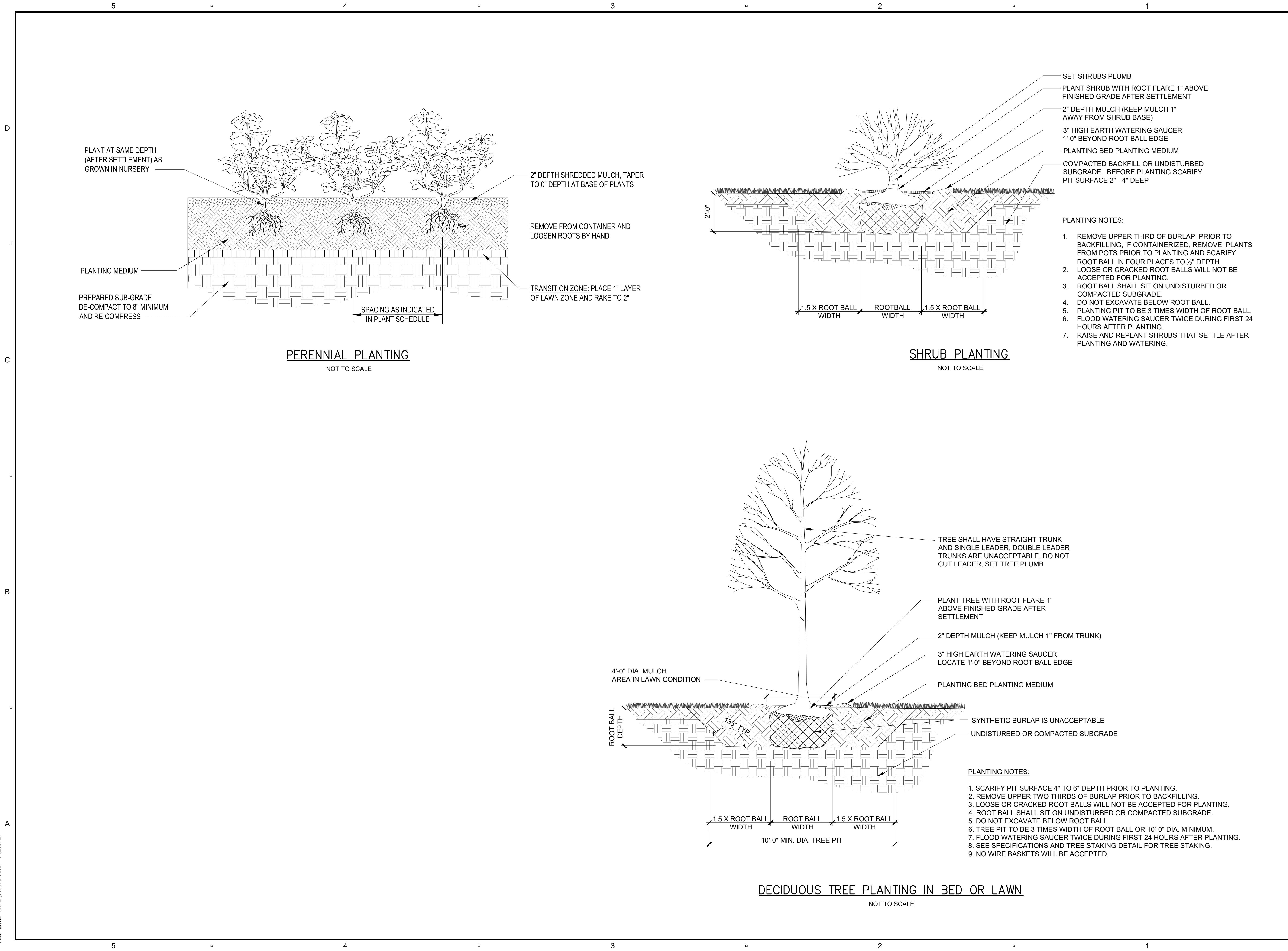
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CIVIL
SHEET TITLE

BEL AIR DAM REMOVAL
CIVIL DETAILS II

SHEET NUMBER

99 C-502



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PROJECT

MASS DCR
 ABANDONED DAMS
 BEL AIR DAM REMOVAL
 CONTRACT NO.
 P19-3264-D4A

CLIENT

Massachusetts Department
 of Conservation and
 Recreation
 251 Causeway Street, Suite 600
 Boston, MA 02114-2119
 617.626.1250 tel 617.626.1351 fax
 www.mass.gov/orgs/department-of-conservation-recreation

CONSULTANT

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 CHELMSFORD, MA 01824
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PROJECT NUMBER

60604936

Designed By:	BR
Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

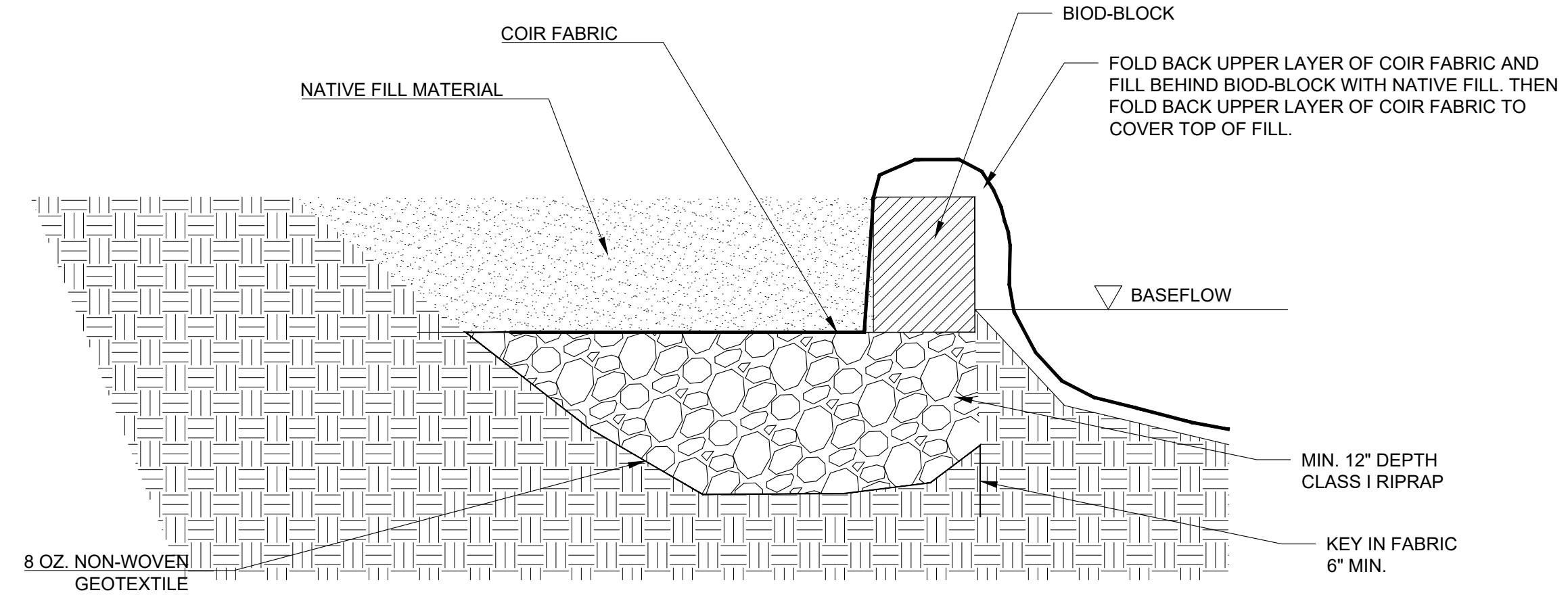
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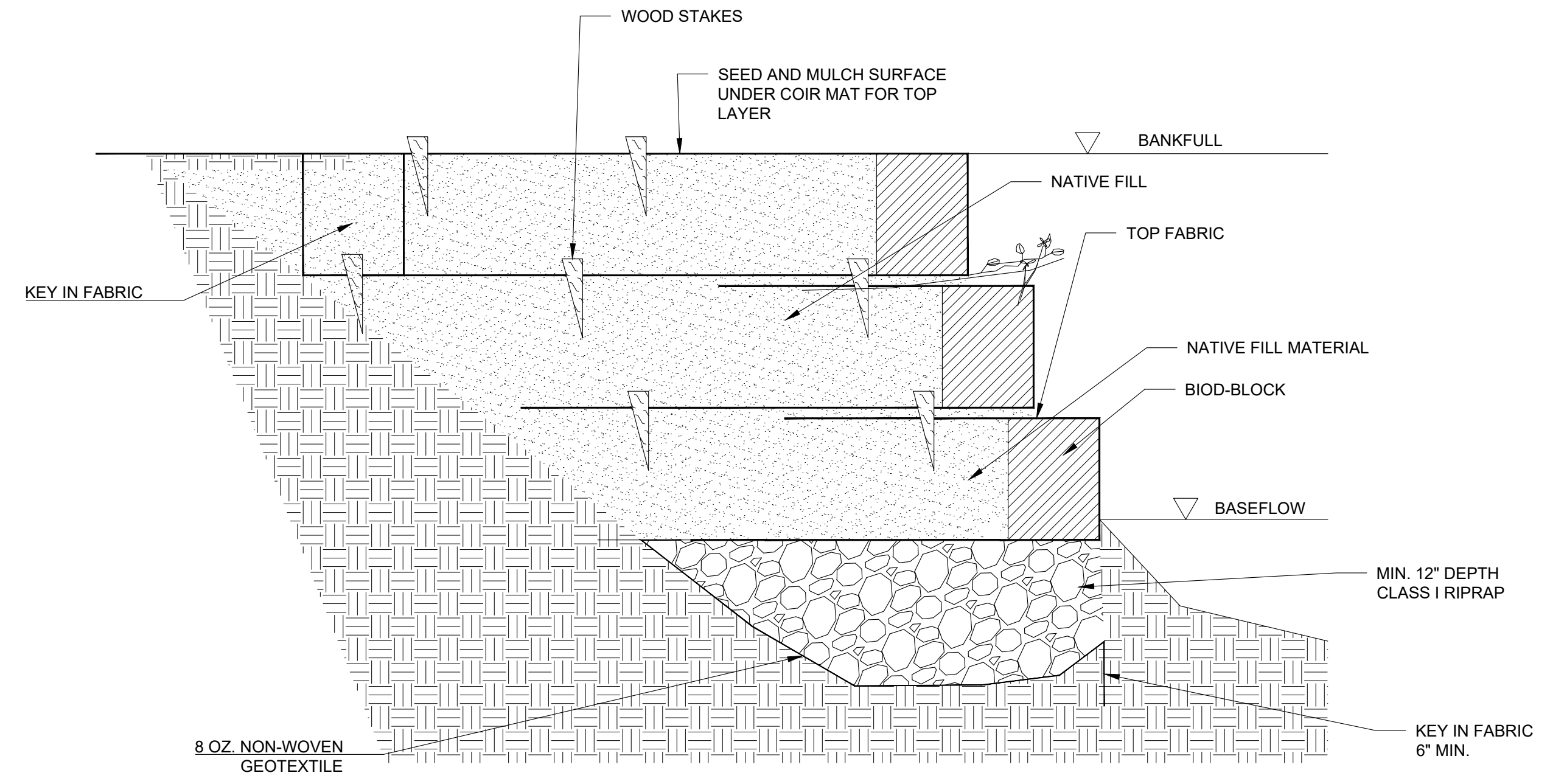
BEL AIR DAM REMOVAL
CIVIL DETAILS III

SHEET NUMBER

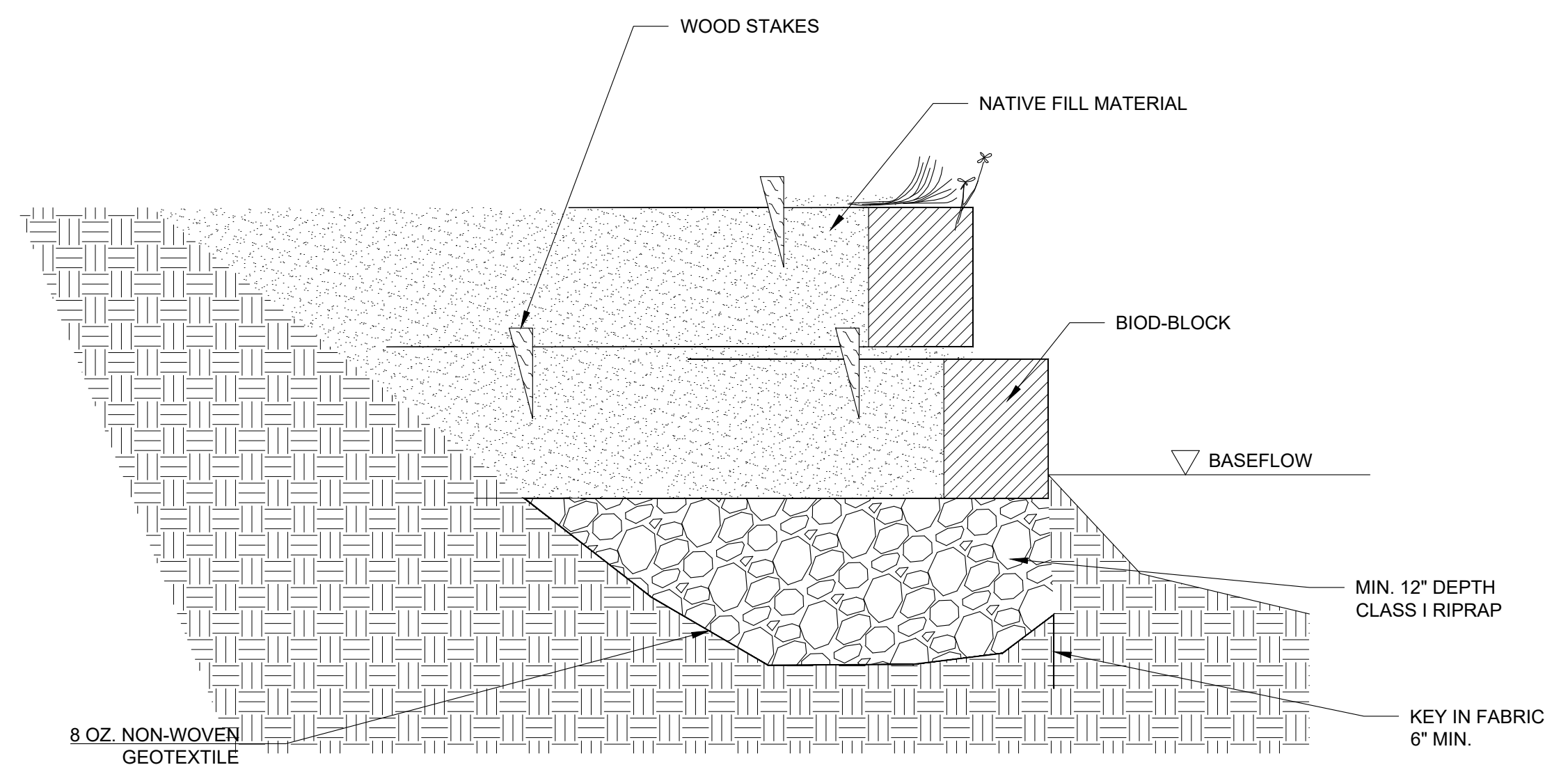
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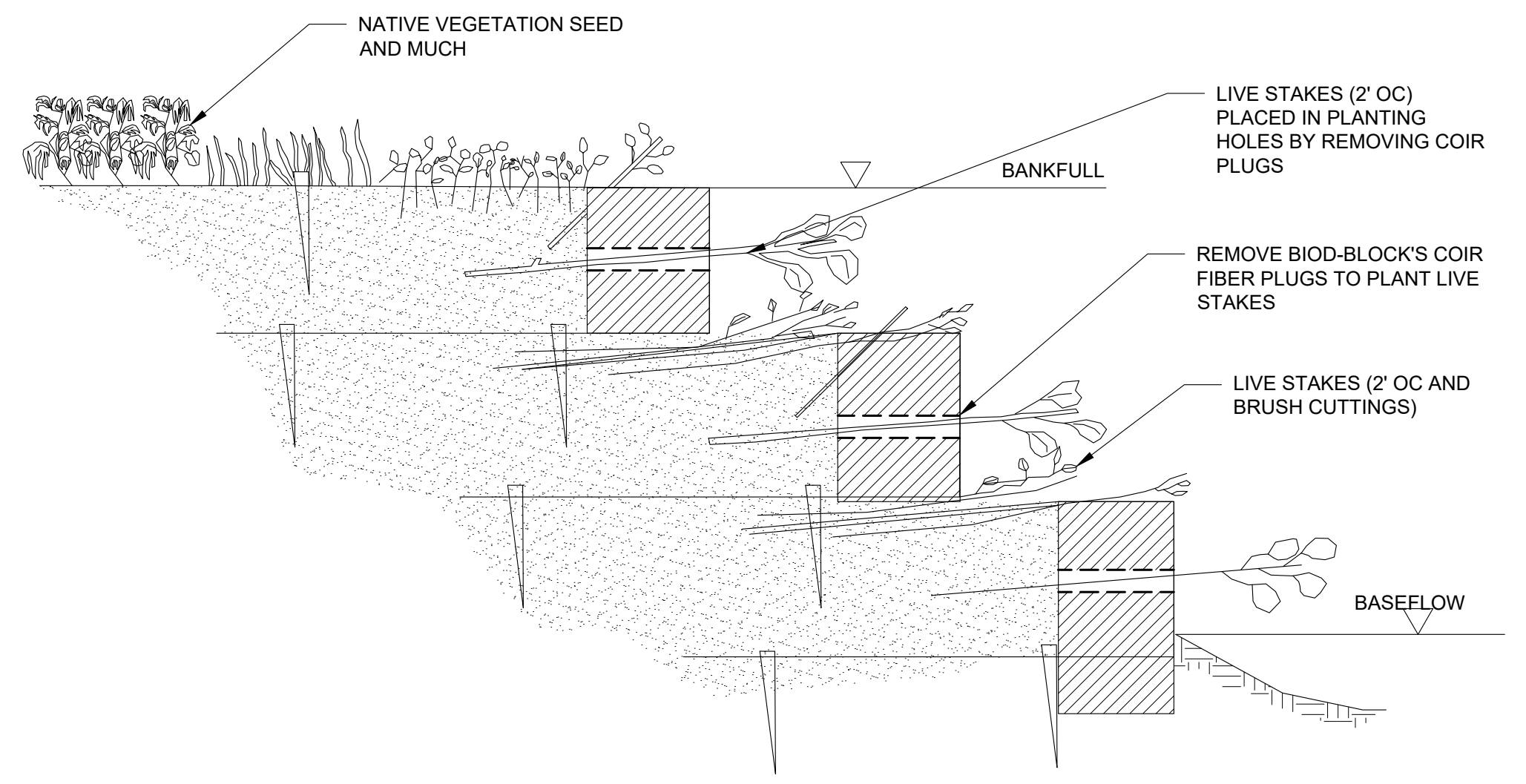
STEP 1



STEP 3



STEP 2



STEP 4

NOTES

1. TO MAKE 12-IN TALL SOIL LIFTS, USE BIOD-BLOCK 12-300. TO MAKE 16 IN TALL SOIL LIFTS, USE BIOD-BLOCK 16-300 OR BIOD-BLOCK 16-400 WHICH HAS LONGER FABRIC AND WILL INCREASE THE SAFETY OF THE CONSTRUCTED SOIL LIFTS.
2. PLACE BIOD-BLOCK UNIT ON LEVEL SURFACE, KEEPING THE FEMALE END TOWARDS DOWNSTREAM DIRECTION.
3. USE MINIMUM 2 IN X 2 IN X 24 IN WOOD STAKES AT EVERY 2 FT. TO ANCHOR THE BOTTOM FABRIC TO THE GROUND BEFORE FILLING WITH SOIL AND 2 IN X 2 IN X 36 IN WOOD STAKES ON THE TOP FABRIC AFTER FILLING WITH SOIL.
4. REPEAT THE COIR BLOCK INSTALLATION PROCEDURE DESCRIBED ABOVE TO MAKE SOIL LIFT LAYERS AS NEEDED TO BANKFULL ELEVATION.
5. EACH PLANTING HOLE IS PRE-FILLED WITH A COIR FIBER PLUG. LIVE PLANT CUTTING CAN BE PLANTED THROUGH THESE HOLES DURING CONSTRUCTION OR LATER. COIR FIBER PLUGS CAN BE EASILY PULLED OUT TO EXPOSE THE HOLE IN THE MIDDLE OF THE FIBER BLOCK. WHEN PLANTING THROUGH THE BLOCK IS NECESSARY, REMOVE THE COIR PLUG AND INSERT LIVE PLANT THROUGH THE HOLE INTO THE MIDDLE OF THE SOIL LAYER.
6. REINFORCED SOIL COIR LIFT MAY BE USED IN PLACE OF BIOD-BLOCK WHERE APPLICABLE.

1 BIOD-BLOCK COIR BLOCK SYSTEM
 NOT TO SCALE

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PROJECT

MASS DCR
 ABANDONED DAMS
 BEL AIR DAM REMOVAL
 CONTRACT NO.
 P19-3264-D4A

CLIENT

Massachusetts Department
 of Conservation and
 Recreation
 251 Causeway Street, Suite 600
 Boston, MA 02114-2119
 617.626.1250 tel 617.626.1351 fax
 www.mass.gov/orgs/department-of-conservation-recreation

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ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60604936

Designed By:	BR
Drawn By:	SN
Dept Check:	JDB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

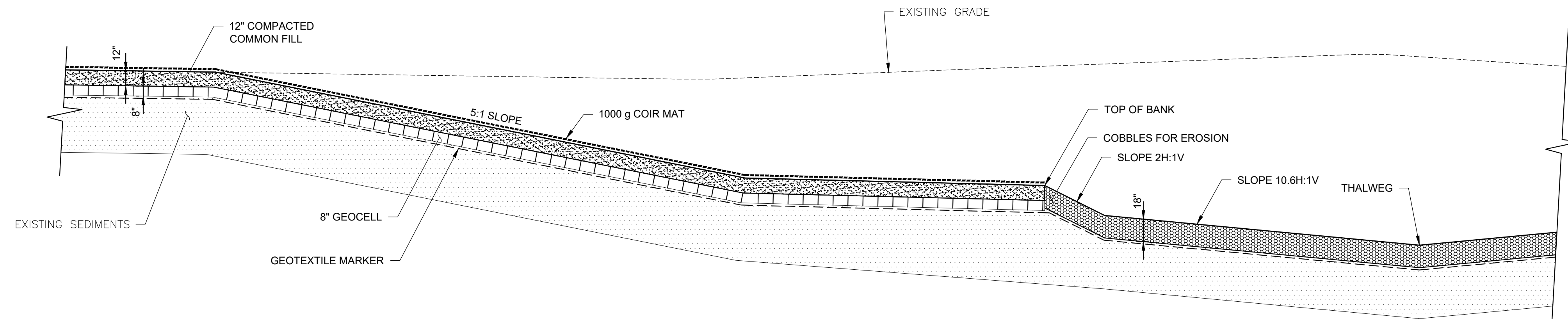
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CIVIL
 SHEET TITLE

BEL AIR DAM REMOVAL
 CIVIL DETAILS IV

SHEET NUMBER

99 C-504

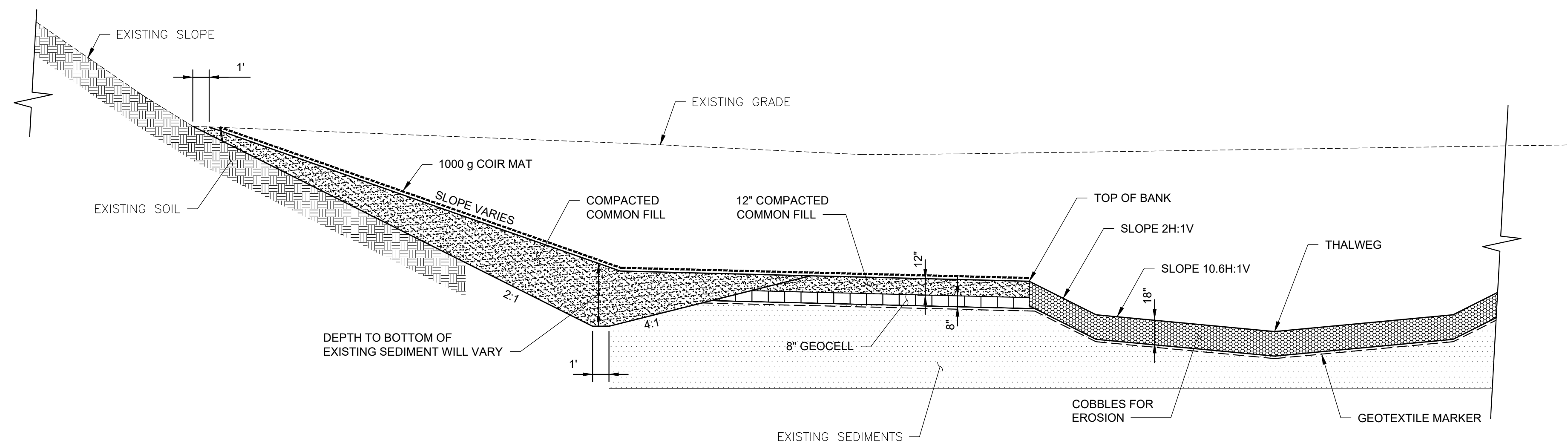


NOTE:

EXTEND GEOCELL AND COMMON GRANULAR FILL COVER TO TOE OF WESTERN SLOPE ALONG WAHCONAH STREET AND/OR TOE OF EASTERN SLOPE BEHIND RESIDENCES ON LENOX AVENUE.

TYPICAL DETAIL - IMPACTED SEDIMENT SLOPE

SCALE: 1" = 5'

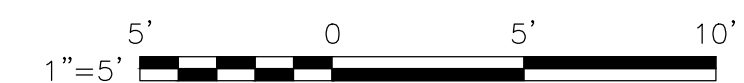


NOTE:

COMPACTED COMMON FILL SHALL CONTAIN LESS THAN 20% FINES AND SHALL BE COMPACTED TO 90% OF THE MATERIAL'S MODIFIED PROCTOR. ONLY ORGANIC SILTS/SEDIMENTS SHALL BE EXCAVATED.

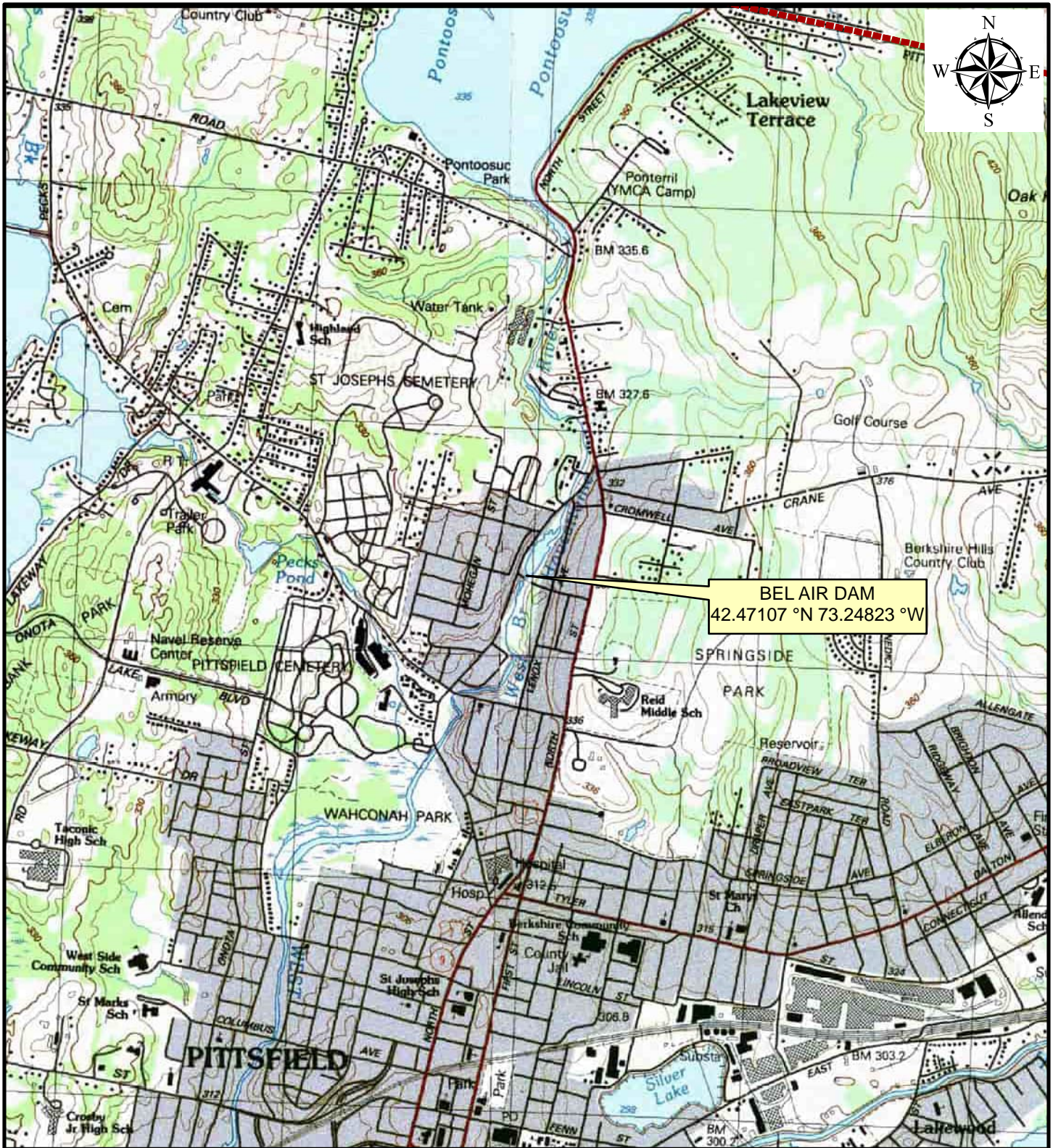
TYPICAL DETAIL - SEDIMENT REPLACEMENT

SCALE: 1" = 5'

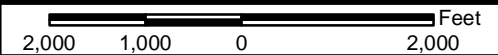


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 PLOT DATE: Tuesday, June 25, 2024 12:16:42 PM

ATTACHMENT 2
LOCUS AND DRAINAGE MAPS

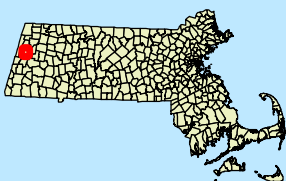


BEL AIR DAM
 42.47107 °N 73.24823 °W



LOCUS MAP

Project No:
01.0018802.42



Bel Air Dam
NID# MA01061
Pittsfield, Massachusetts

Drawn by:
PJS

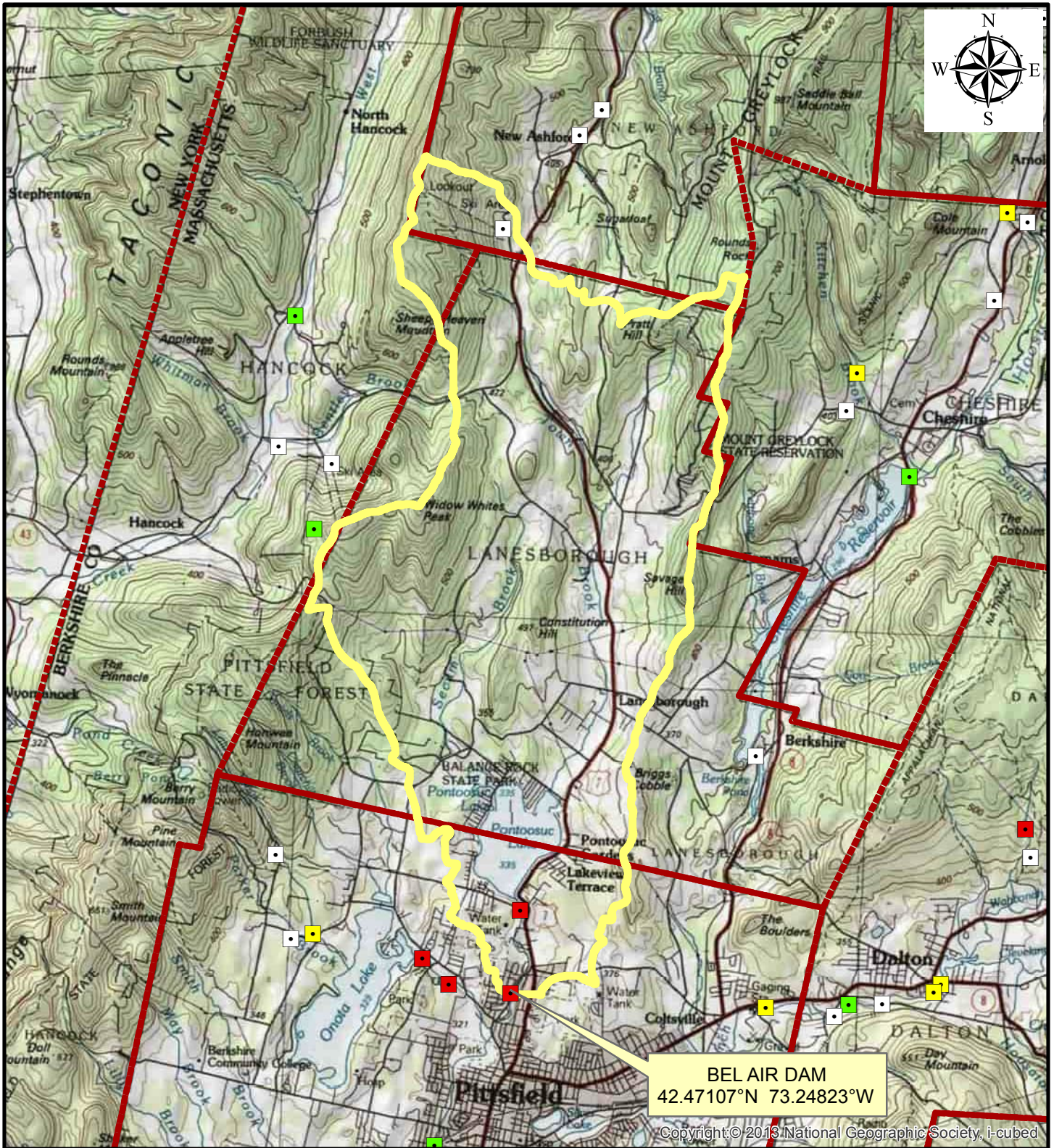
Checked by:
TEJ

Date:
JUNE 2015

BASE MAP: USGS Topographic Map
 PITTSFIELD EAST 1988 AND PITTSFIELD WEST 1988

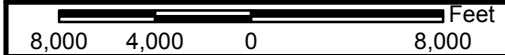
Figure No:

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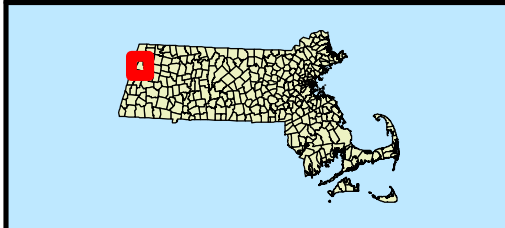
BEL AIR DAM
42.47107°N 73.24823°W

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DRAINAGE AREA

Project No:
01.0018802.42



**Bel Air Dam
NID# MA01061
Pittsfield, Massachusetts**

Drawn by:
PJS

Checked by:
TEJ

Date:
JUNE 2015

BASE MAP: USGS Topographic Map

Figure No:

3

ATTACHMENT 3
MEPA DOCUMENTATION

From: Mejia, Josbel (EEA) <Josbel.Mejia@mass.gov>
Sent: Monday, March 11, 2024 7:41 AM
To: Flanagan, Jillian
Cc: Wu, Christina Y (DEP); Wong, David W (DEP)
Subject: Ecological Restoration Notice: Bel Air Dam
Attachments: Notice of Ecological Restoration - Bel Air Dam

This Message Is From an External Sender

This message came from outside your organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

[Report Suspicious](#)

Hello,

This is to confirm that, under 301 CMR 11.01(2)(b)4., the Secretary has not issued a determination, within 10 days of the close of the comment period, that an ENF is required for this project.

Accordingly, any Agency Action required for the Project may be taken at this time if required to obtain a Restoration Order of Conditions, provided that the Agency Action is deemed to be conditioned on the ultimate issuance of the Restoration Order of Conditions.

If the Restoration Order of Conditions is denied, or if the project is permitted as an Ecological Restoration Limited Project under 310 CMR 10.24(8) and 10.53(4), then the project must undergo MEPA review, and any conditional Agency Actions shall not become effective until MEPA review is completed. Consistent with 301 CMR 11.12(6), the Agency may reconsider the Agency Action and any conditions thereof following the completion of MEPA review.

Sincerely,

Josbel Mejia (Joe)
Pronouns: He/Him
Mass. Environmental Policy Act (MEPA) Office
100 Cambridge Street – Boston, MA 02114

ATTACHMENT 4
MASSACHUSETTS HISTORICAL
COMMISSION DETERMINATION

RECEIVED

JAN 19 2024

MASS. HIST. COMM
RC. 74334

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A

MASSACHUSETTS HISTORICAL COMMISSION

220 MORRISSEY BOULEVARD

BOSTON, MASS. 02125

617-727-8470, FAX: 617-727-5128

After review of MHC files and the materials you submitted, it has been determined that this project is unlikely to affect significant historic or archaeological resources.

PROJECT NOTIFICATION FORM

Project Name: DCR Six Abandoned Dams - Bel Air Dam Removal

Location / Address: East side of Wahconah Street, West side of Fairview Avenue

City / Town: Pittsfield

Project Proponent

Name: City of Pittsfield, c/o Jim McGrath, Park, Open Space and Natural Resource Manager

Address: 70 Allen Street

City/Town/Zip/Telephone: Pittsfield, MA 02201

[Signature]
MHC#RC 74334
Edward L. Bell 12 February 2024 Date
Deputy State Historic Preservation Officer
Massachusetts Historical Commission
cc: Jonathan K. Patton, DCR
William Salomina, DCR
Jillian Flanagan, AECOM

Agency license or funding for the project (list all licenses, permits, approvals, grants or other entitlements being sought from state and federal agencies).

Agency Name	Type of License or funding (specify)
DCR	ARPA Funding; Dam Safety Permit
FEMA	Conditional Letter of Map Revision
MassDEP	401 Water Quality Certification, Chapter 91 Waterways License
MEPA	Ecological Restoration Project Expedited Review Approval
Pittsfield Conservation Commission	Wetland Protection Act Order of Conditions
USACE	Section 404/10 Approval
USFWS	Endangered Species Consultation

Project Description (narrative):

The proposed project consists of a full removal of the existing Bel Air Dam to eliminate the impoundment and restore the hydraulic connectivity of the original waterway. Specifically, this project proposes to remove a hazardous dam and rehabilitate the space for environmental benefit. The Bel Air Dam is classified as High (Class 1) Hazard Potential Dam in accordance with Massachusetts Dam Safety Regulations (302 CMR 10). From 2019 and 2022 sediment study, elevated levels of chromium, arsenic, lead, PAHs, and EPHs are present in the sediment. Once the dam is removed the contaminated sediment will be above the hydraulic grade line and fit the characteristics of potentially accessible soil. Due to this, there is the need to excavate an estimated 35,500 cubic yards of sediment six inches below the hydraulic grade line from the impoundment upstream of the dam. The remaining sediment will be resampled following the dredging and post-construction. After sediment removal a low-flow stream channel will be

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH

APPENDIX A (continued)

reconstructed, and an adjacent vegetated wetland and floodplain will be created.

Does the project include demolition? If so, specify nature of demolition and describe the building(s) which are proposed for demolition.

Yes, the project includes demolition. Demolition will not include any mapped historic structures or archeological sites. The full removal of the Bel Air Dam, its spillway, and appurtenant structures will occur. The dam was abandoned in the 1940's and is considered a High (Class 1) Hazzard Potential Dam.

Does the project include rehabilitation of any existing buildings? If so, specify nature of rehabilitation and describe the building(s) which are proposed for rehabilitation.

No rehabilitation of any existing buildings will occur.

Does the project include new construction? If so, describe (attach plans and elevations if necessary).

The reconstruction of a low-flow channel will occur as well as the restoration (bank grading and stabilization) of the existing stream bed of the West Branch of the Housatonic River. See attached preliminary concept plans.

To the best of your knowledge, are any historic or archaeological properties known to exist within the project's area of potential impact? If so, specify.

DCR Archaeologists conducted a desktop assessment along with a site walkover and judgmental coring of the project for potential archaeological impacts (See Appendix). The dam was constructed in 1832 for powering a woolen mill downstream. One building associated with this business, the 1861 Pittsfield Woolen Company building (MHC# PIT.185) remains about .1 miles south of the dam, outside of the APE. There were two previous Phase I archaeological surveys covering this area, MHC reports 25-400 and 25-822. These reports are the result of large regional surveys conducted for the expansion of the Route 7 bypass, and the construction of a natural gas pipeline respectively. The dam has never been recorded within the State's historic resources and it is recommended that a MHC Form F-structure form be submitted for review.

The walkover and coring of the project impact areas by DCR Archaeologists has determined that the banks of the West Housatonic River, within the project area, have disturbed soils and are not archaeologically sensitive. If proposed dredging is limited to dam sediment and avoids disturbing areas above the natural streambed, then in the opinion of DCR Archaeologists this project, as proposed is unlikely to impact significant historic or prehistoric archaeological resources within Pittsfield.

950 CMR: OFFICE OF THE SECRETARY OF THE COMMONWEALTH
APPENDIX A (continued)

What is the total acreage of the project area?

Woodland	<u>0.07</u>	acres	Productive Resources:		
Wetland *	<u>4.30</u>	acres	Agriculture	<u>0</u>	acres
Floodplain	<u>0.52</u>	acres	Forestry	<u>0</u>	acres
Open Space	<u>0</u>	acres	Mining/Extraction	<u>0</u>	acres
Developed**	<u>1.54</u>	acres	Total Project Acreage	<u>6.44</u>	acres
Other***	<u>0.01</u>	acres			

* Wetland is water, LUW, and BVW added together

** This is developed open space and impervious

*** Grasslands

What is the acreage of the proposed new construction? 0 acres

What is the present land use of the project area?

Land use within the project area include earthen embankments on both sides of the dam with overgrowth of dense trees and shrubs. Erosion occurs on both sides near the abutment area with exposed tree roots and depressed areas. There are also impervious surfaces, riparian corridors, and several vegetated peninsulas in the project area.

Please attach a copy of the section of the USGS quadrangle map which clearly marks the project location.

An aerial locus map is included in this submittal package.

This Project Notification Form has been submitted to the MHC in compliance with 950 CMR 71.00.

Signature of Person submitting this form:



Date: January 17, 2024

Name: Jillian Flanagan

AECOM

Address: 250 Apollo Drive

City/Town/Zip: Chelmsford, MA 01824

Telephone: 978-905-2100

REGULATORY AUTHORITY

950 CMR 71.00: M.G.L. c. 9, §§ 26-27C as amended by St. 1988, c. 254.

7/1/93

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