

Attachment A
Detailed Project Description

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1.0 Introduction

On behalf of the Massachusetts Department of Conservation and Recreation (MassDCR), Office of Dam Safety (ODS), AECOM is submitting this Notice of Intent (NOI) for an Ecological Restoration Project application pursuant to the Massachusetts Wetlands Protection Act (*WPA; MGL Ch. 131 s. 40*) and its implementing regulations (*310 CMR 10.00*) for the removal of Bel Air Dam. Bel Air Dam is located in the City of Pittsfield, Massachusetts in Berkshire County, east of Wahconah Street and west of Fairview Avenue. A locus map of the project location and surrounding area is provided in **Attachment B**.

Bel Air Dam is part of the Massachusetts Department of Conservation and Recreation (MassDCR) Office of Dam Safety's (ODS) pilot Abandoned Dams program. As part of this program, MassDCR is seeking to address safety concerns pertaining to dams in the Commonwealth that have no identifiable owner. In general, MassDCR seeks to partner with a municipality or other interested party in order to implement a Repair Alternative. If a municipality or other interested party will commit to achieving property ownership, then MassDCR will implement required dam repairs prior to property acquisition by others. Given no municipal or private party interest in achieving dam ownership, the Full or Partial Removal Alternatives are preferred. In the case of Bel Air Dam, neither the City of Pittsfield nor any other interested party has expressed willingness to take ownership of the dam; therefore, the MassDCR ODS is proposing to remove the dam. The proposed project will remove the Bel Air Dam on the West Branch of the Housatonic River and thereby restore the natural connectivity of a waterway, meeting the definition of an Ecological Restoration Project defined in *310 CMR 10.04*.

The proposed project is a Dam Removal Project as listed in *310 CMR 10.13(2)*, and proposes removal of the entire dam structure, restoration of a natural stream channel in the area of the current impoundment, establishment of adjacent floodplain, and installation of native herbaceous and woody species. The project area historically contained riparian habitat which has been degraded due to the impoundment. Changes to the environment caused by the presence of the dam include alteration of water temperatures and chemistry, river flow characteristics, and silt loads. The proposed project will also remove contaminated sediment that has accumulated upstream of the dam and includes elevated levels of chromium, arsenic, lead, polynuclear aromatic hydrocarbons (PAHs), and extractable petroleum hydrocarbons (EPHs). Project activities will occur within jurisdictional areas protected under the Massachusetts Wetlands Protection Act and its implementing regulations, including Land Under

Water (LUW), Bordering Vegetated Wetlands (BVWs), Bank, 200-foot Riverfront Area, and Bordering Land Subject to Flooding (BLSF).

1.1 Project Site Description and Background

The Bel Air Dam is located east of Wahconah Street and west of Fairview Avenue in Pittsfield, MA. The construction of Bel Air Dam was contracted in 1832. The dam was originally used for power generation for a woolen mill until the 1920s. The original sluiceway along the left side of the dam directed flow into a canal to power the carding machines and looms operated by the mill. The canal ran parallel to the West Branch of the Housatonic River for approximately 1,500 feet. In the 1940s, plans were developed to abandon the canal as the mill was no longer used for wool production. A cutoff wall was constructed that now directs the sluiceway flow into the river directly downstream of the dam.

According to records at the Berkshire Middle District Registry of Deeds and on the City of Pittsfield Tax Assessor records, the owner of the parcel including Bel Air Dam is identified as J. Barry Hollister and the owner of the parcel including the impoundment upstream of the dam is identified as the City of Pittsfield. However, additional legal research has been unable to confirm that the City of Pittsfield is the current owner of the upstream parcel, which was never conveyed from a previous owner who is deceased with no identifiable heirs. No tax taking by the City of Pittsfield has been found. J. Barry Hollister is also deceased with no heirs for the dam identified, and in addition Mr. Hollister owed unpaid real estate taxes on the parcel before his death. The City is in the process of taking both properties under eminent domain to facilitate implementation of the dam removal construction activities. See **Attachment C** for abutter information.

Bel Air 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. Downstream of the dam the West Branch continues flowing south through the Berkshires in Massachusetts and through New York to Long Island Sound. The impoundment has a normal water surface area of 3 acres and is reported to have a storage capacity of 56 acre-feet, although sediment accumulation has reduced this capacity. The water elevation on the upstream side of the Dam is 1,026.0 feet NAVD88 and is controlled by the spillway outlet elevation, while the water elevation on the downstream side of the dam 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.

A Phase II visual, structural, and geotechnical investigation was conducted by AECOM in 2019 (AECOM, 2020). The condition of the dam was found to be UNSAFE and STRUCTURALLY DEFICIENT. The results of the Phase II Investigation are summarized below and excerpted text from the Phase II Report are provided in **Attachment D**:

- Earthen embankments on both sides of the dam: Overgrown with dense trees and shrubs; erosion is observed on both sides near the abutment area; exposed tree roots and depressed areas are noted on the left abutment contact area; downstream slopes exhibit steep earth slopes with no apparent surficial protection.
- Masonry retaining walls: The mortar joints are deteriorated and exhibit areas where voids from missing mortar and/or missing stones exist, as well as areas where vegetation is growing in or adjacent to the stone masonry components and their joints.
- Masonry sluiceway and auxiliary spillway: The mortar joints are deteriorated and exhibit areas where voids from missing mortar and/or missing stones exist, as well as areas

where vegetation is growing in or adjacent to the stone masonry components and their joints; seepage is exhibited in many areas across the auxiliary spillway section.

- **Hydraulic Compliance:** The dam does not have adequate spillway capacity. Under the existing conditions, it is estimated that the water surface level will reach El. 1,042.4 feet-NAVD88, or approximately 5.8 feet above the top of the dam during the Spillway Design Flood event.
- **Embankment Stability:** Factors such as the steep downstream slope and the loose density of the embankment and native soils are triggering low factors of safety along the right embankment. Analyses indicate that the saturated, native loose silty sands, are susceptible to liquefaction.
- **Structural Stability:** The existing auxiliary spillway section did not meet the required factors of safety for a High Hazard Potential dam.
- **Sediment Quality:** Sample results demonstrate that the impounded sediment may not be suitable for release downstream during construction or reuse on site due to the levels of detected contaminants including metals, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs), polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs).

Additionally, a pedestrian bridge crosses above the auxiliary spillway and is constructed of steel beams and a concrete deck. The bridge has been condemned by the City of Pittsfield and is fenced off due to the deterioration of the structural elements being deemed to make the bridge unsafe for occupants. A gated chain link fence and no trespassing signs restrict access to the bridge. Debris has accumulated along the auxiliary spillway around the concrete piers supporting the bridge.

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. See site photographs in **Attachment E**.

Bel Air Dam is located upstream of several business and residences, and according to the dam's Emergency Action Plan (**Attachment F**) *"a flood resulting from a dam failure would pose a threat to life and property in areas downstream of Bel Air Dam (MassDCR ODS, 2017)." A failure of the dam may cause loss of life and substantial damage to buildings, roadways, and other infrastructure. Therefore, the dam is classified as a High Hazard potential dam. AECOM conducted a visual structural and geotechnical condition assessment on May 23, 2019. Consistent with previous inspections, the condition of the dam was found to be Unsafe and Structurally Deficient. Measures must be taken for the Bel Air dam to become compliant with the State's Dam Safety Regulations.*

1.2 Coordination with the City of Pittsfield

The Office of Dam Safety and AECOM met with staff from the City of Pittsfield on May 5, 2019, to gather additional background information and discuss the goals of the project as part of a preliminary community outreach effort. The City of Pittsfield has expressed support for the proposed dam removal, as there has been a history of public safety concerns associated with the dam site. The project will address safety concerns of the dam and will ultimately create accessible recreational space for adjacent communities. The integration of community greenspace will have significant human and environmental health benefits for the City of Pittsfield. On December 5, 2023, MassDCR and AECOM held a public outreach meeting, for Pittsfield residents, to provide information and updates on the project. A website is under development to provide the community updates and information on this project.

2.0 Ecological Restoration Project

This NOI is being filed as an Ecological Restoration Project with the City of Pittsfield. The proposed dam removal will restore the natural connectivity of the West Branch of the Housatonic River, meeting the definition of an Ecological Restoration Project defined in *310 CMR 10.04*. The project area historically contained riparian habitat which has been degraded due to the impoundment. Changes to the environment caused by the presence of the dam include the alteration of water temperatures and chemistry, river flow characteristics, and silt

loads. A Notice of Ecological Restoration was sent to the MEPA office on 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. The MEPA decision further 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 – see **Attachment G**. The Bel Air Dam removal project is eligible for a Restoration Order of Conditions (*310 CMR 10.13*).

The project furthers the following WPA (*M.G.L. c. 131, § 40*) interests: flood control, storm damage prevention, prevention of pollution, and the protection of fisheries and wildlife habitat. Removal of the dam will remove a hazard that could lead to substantial downstream storm damage if the dam were to fail. The creation of floodplain habitat adjacent to the restored stream channel will contribute to the flood control interest of the WPA and its implementing regulations. Removal of the accumulated sediment will remove a source of pollution. Removal of the dam will allow for the restoration of the stream channel, which will contribute to fisheries habitat by improving hydrologic connectivity and water quality. Planting native species will contribute to enhancing wildlife habitat along the restored stream corridor. A notice of this NOI will be published in the July 24, 2024, *Environmental Monitor*, see **Attachment H**.

2.1 Ecological Restoration Goals

Goals of the Bel Air restoration project include:

- Improve hydrologic connectivity, restore a natural hydrologic regime, and increase sediment transport by the removal of a dam and reconstruction of approximately 1,200 feet of stream channel.
- Lower risk of flooding in the immediate project vicinity by lowering the 100-year floodplain elevation.
- Improve water quality by removing accumulated sediment in the existing ponded impoundment and tributary stream and restoring a natural flow regime.
- Improve wildlife habitat adjacent to the restored stream by removal of invasive species and installation of native seed and plants.

To achieve the project's restoration goals, the removal of the Bel Air Dam structure and the reconstruction of a stream channel is proposed. There will no longer be an impoundment,

instead there will be a free-flowing river, which will improve aquatic resource and riparian habitat functions. This project would restore the environment to its historic condition by reconnecting the West Branch of the Housatonic River, which will offset the temporary impacts and loss of Land Under Water (LUW) in the proposed project location.

3.0 Project Design Components

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. No new impervious surface will be created as a result of this project, as a result no Stormwater Report is included in the NOI however, a Stormwater Report Checklist is included as **Attachment I**. See Project Plans in **Attachment J** and the Construction Sequence in **Attachment K**. The approximate cost of dam removal is estimated to be approximately \$20 million. The Commonwealth of Massachusetts has designated a portion of federal funds received as part of the American Rescue Plan Act (ARPA) to be used to fund the construction project needed to remove the Bel Air Dam.

The following sections describe the design and the construction work that will occur on the individual components of the dam.

3.1 Dam Removal

Work will include clearing vegetation on both sides of the existing dam within the limit of work (LOW) 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.

3.2 Dredging

Massachusetts dredging guidelines are provided in the 401 Water Quality Certification (WQC) regulations (314 CMR 9.00). The 401 WQC regulations are intended to protect Massachusetts waters and wetlands by requiring that all dredging projects meet surface water quality standards and comply with the Wetlands Protection Act regulations (310 CMR 10.00). 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 (**Attachment L**) 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 LOW and associated impacts to LUW 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 BMPs 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.

3.2.1 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. Transloading of 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.

3.2.2 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 and pump the slurry via a fused for flexible HPDE-pipeline to the staging area. 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.

The Dredge Contractor would be responsible for installing a 6-inch HPDE pump to the staging area where dredge slurry is to be chemically conditioned and dewatered using geotextile tubes. Material would then be sampled from the tubes in accordance with the receiving facility's requirements prior to being trucked off-site for ultimate out-of-state disposal.

3.3 Staging and Access

All work will take place either on the impoundment's parcel, parcel H130006020, located in the City of Pittsfield or in the construction staging and sediment management at 370 Wahconah Street (parcel H120012021), downstream of the dam. This parcel was previously used for light industrial activities and contains concrete slabs of former building footprints that remained from former mill buildings. In September 2010, the City of Pittsfield engaged a consultant to perform a Method 1 Risk Characterization, which was concluded that the conditions on site did not pose a significant risk to human health, public safety, public welfare, or environment (TRC, 2010).

It is anticipated a lane closure will be necessary on Wahconah Street to facilitate construction traffic and sediment transport from the dredging area to the staging area. Although much of the means and methods of construction will be determined by the contractor, it is expected that construction access to the parcel upstream of the dam will be accomplished at the northern end

of parcel along Wahconah Street between the two most northern outfalls due to presence of steep slopes adjacent the road in the southern portion.

3.4 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, see **Figure 1**.

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 – 24 inches of rock material will provide an additional level of protection against migration of any fine materials downstream.

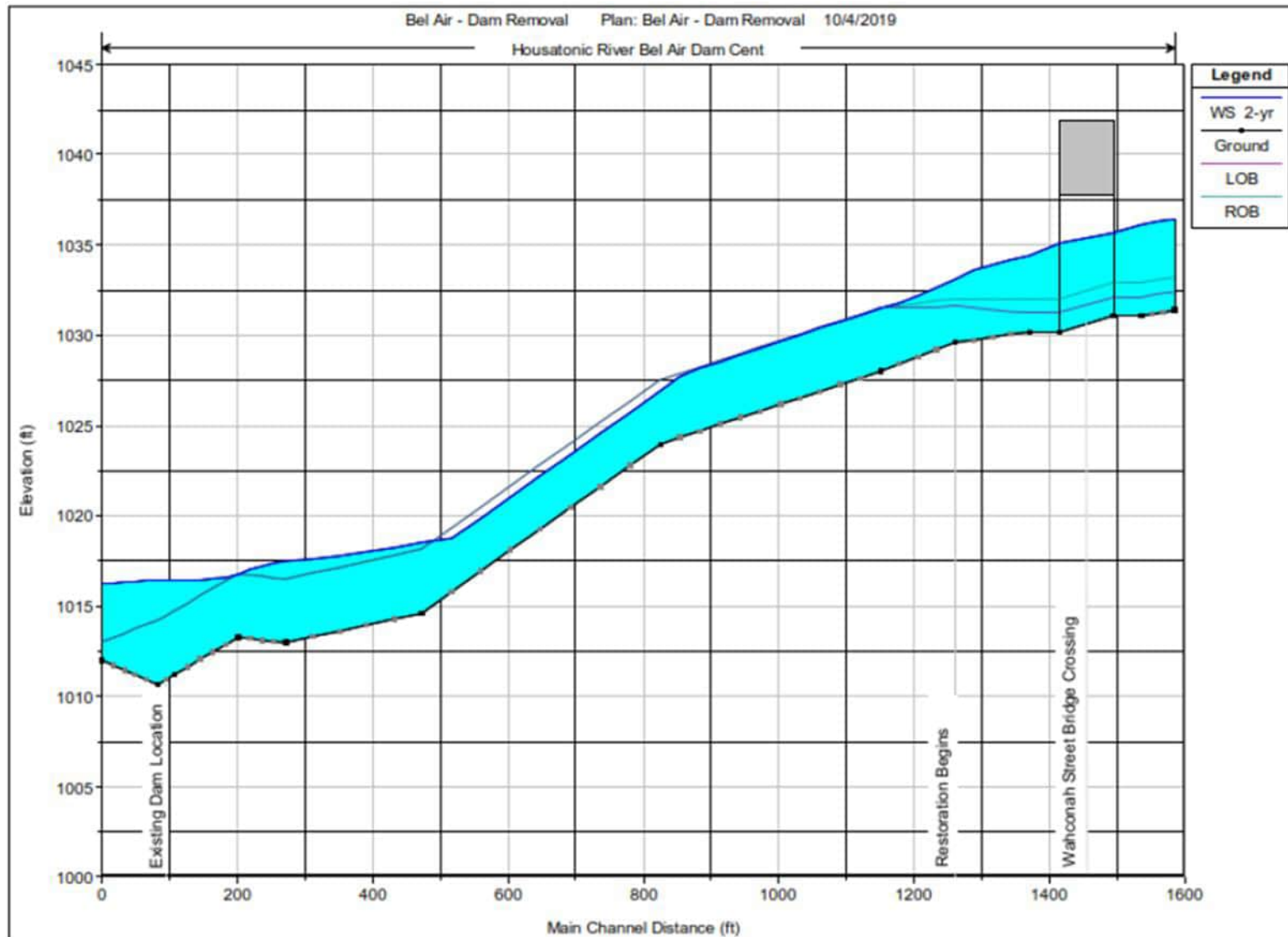
The removal of the Bel Air Dam will significantly lower the water surface elevation between Wahconah Street bridge and the location of the removed dam. Based on the hydraulic analysis completed for the development of the channel restoration design, the dam removal will lower the water surface elevation 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.

Figure 1. 2-Year Hydraulic Profile after Full Dam Removal



4.0 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 (**Attachment L**). The sediment sampling results were compared against the MCP Method 1 S-1, 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).

4.1 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 - 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

4.2 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 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.

4.3 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.

4.3.1 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) of 20-mil thickness extending ten (10) feet beyond the SMA top of berm will be installed on top of the geotextile liner.
- 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.

4.3.2 Dewatering – Hydraulic Dredge

Dewatering of hydraulically dredged sediment would take place at the staging area downstream of the dam. The Dredge Contractor shall install an HDPE pipe of 6" minimum diameter to the sediment dewatering area (SDA) where dredge slurry is to be chemically conditioned and dewatered using geotextile tubes. 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 geotubes. 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 (8 oz./SY) subject to Engineer approval. A woven coated polyethylene (WCPE) of 20-mil thickness extending ten (10) feet beyond the SMA top of berm will be installed on top of the geotextile liner.

- **Polymer Delivery System:** The flocculant will be introduced to the dredge discharge line prior to the geotextile tube manifold system to expedite containment and consolidation of the sediment while simultaneously releasing low turbidity filtrate from the tubes. Main components of the polymer make-down system comprise of an activation chamber, dilution water chamber, NEMA 4X control system, and a neat polymer pump. A VeloBlend Model VM-30P-6000-Rp-1-A-2 Liquid Polymer Blending System, with polymer flow rates ranging from 1.5 to 30 gallons per hour (GPH) and dilution water flow rates ranging from 60 to 6000 GPH or comparable will be used for flocculant injection or similar for Engineer review and approval. The system shall consist of pumps and make-down delivery systems, hoses, piping, valves, fittings and necessary injection port appurtenances to deliver and control the necessary chemical conditioning program to the dredge discharge pipeline prior to the geotextile tubes. Dewatering polymers (coagulants, and flocculants), water treatment system and chemicals, fuels, pumps, and generators shall be placed in secondary containment. A clean water intake pump shall be installed to pull fresh water from the river and discharge it to the flocculant make-down unit. This water should be managed by a HH125C pump or equivalent.
- **Geotextile Tube System:** Slurry that has been mixed with the polymers will be conveyed to the header pipe and into geotextile tubes that have been opened for flow. Geotextile tube filling shall be performed as per the manufacturer's recommendations. The tubes shall not be filled higher than the manufacturer's recommended height. Other height and width specifications may be required by the Engineer to assure sliding, overturning, bearing capacity, and global stability of the tube system. The Sediment Dewatering Contractor shall submit a plan for filling of the geotextile tube with dredged material to the Engineer for approval.
- 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.

4.0 Alternative Analysis Summary

4.1 No Action

The no action alternative would result in no removal or modification to the existing Bel Air Dam. The dam is currently in unsafe condition and structurally deficient with deteriorating infrastructure and observed seepage. Based on a Phase II Dam Inspection, the dam has been determined to be Unsafe. The dam is classified as a High Hazard Potential Dam (Class 1) in accordance with Massachusetts Dam Safety Regulations (*302 CMR 10.00*). The dam must comply with the Massachusetts Dam Safety Regulations, which require that the dam safely pass the current safety design flood (SDF), which is the FEMA 100-year flood. Under current conditions, Bel Air dam cannot pass the 100-year flood. For these reasons, the no-action alternative was dismissed.

4.2 Repair

The repair alternative would involve restoring the dam to meet the latest Massachusetts Dam Safety Regulations (*302 CMR 10.00*) design parameters. The recommended repairs, discussed in the Phase II Report, would involve lengthening the principal spillway to span 125 linear feet in order to pass the SDF. Approximately 34 linear feet of new spillway and a new training wall would be constructed along the right side of the dam as part of the spillway lengthening. A new mass concrete section would be added to the downstream side of the existing dam to address stability deficiencies. A geomembrane liner was proposed for the upstream face of the existing stone masonry dam to mitigate seepage. Ground improvements, such as soil grouting were recommended along the remaining portions of the right embankment in order to address deficiencies in slope stability.

Sediment removal quantities necessary under a repair alternative would range from approximately 6,500 cubic yards which would be limited to the construction area needed to implement dam repairs, to 40,000 cubic yards, which would involve the removal of upstream sediment that exceeds Massachusetts Contingency Plan Method S-1 and RCS-1 soil standards.

This alternative would involve ongoing operation and maintenance (O&M) costs of a High Hazard dam. Estimated O&M costs ranged from approximately \$4,500 to \$9,500 per year. Construction costs ranged from \$8.4 million to \$16.3 million for this alternative, depending on the dredging extent.

MassDCR ODS has consulted extensively with the City of Pittsfield regarding Bel Air Dam, and the City does not wish to take long-term ownership of the dam and implement required ongoing operation and maintenance tasks, due to costs and lack of municipal staffing. Therefore, the repair alternative was dismissed.

4.3 Partial Removal

The partial removal of the dam would reduce the height and storage capacity of the spillway, resulting in the dam being reclassified as non-jurisdictional by the Office of Dam Safety (ODS). As defined in the Dam Safety Regulations, a non-jurisdictional dam must be under 6 feet in height or have a storage capacity of less than 15 acre-feet. This alternative was eliminated from consideration after consultation with the ODS and based on the lack of public interest in keeping the impoundment. The costs for this alternative have not been evaluated.

4.4 Full Removal

The preferred and selected alternative for the Bel Air Dam is a full dam removal. The full removal alternative would consist of the demolition of the existing dam structure to eliminate the impoundment. A stream channel would be reconstructed and approximately 35,500 cubic yards of contaminated sediment would be dredged. This alternative is preferred as there would be no ongoing costs for the operation and maintenance of the dam and the City of Pittsfield and residents expressed no interest in keeping the impoundment or owning the dam. The full removal will have ecological benefits of restoring the connectivity the West Branch of the Housatonic River. This alternative will also provide environmental and health benefits from the removal of contaminated sediments within the impoundment and capping of sediments remaining in the future above the stream water level.

5.0 Wetlands Investigation

5.1 Methodology of Wetland Investigation

An off-site wetlands investigation was conducted in addition to on-site wetland delineations. This desktop investigation included the consultation of various sources of information relevant to topography, wetlands, flood plains, rare wetland species, and other sensitive receptors in the vicinity of the proposed project area. Off-site resources consulted included the U.S. Geological Survey (USGS) topographic map, the Federal Emergency Management Agency (FEMA) flood zone maps, the MassDEP wetlands MassGIS data overlay, the Massachusetts Natural Heritage and Endangered Species Program (NHESP) MassGIS overlay for Estimated Habitat of Rare

Wildlife, Priority Habitat of Rare Species, Certified Vernal Pools, and the Areas of Critical Environmental Concern (ACEC) Program MassGIS layer, among others.

In addition to the consultation of existing mapping materials and documents, an AECOM professional wetland scientist (PWS) conducted onsite resource area delineations at the project site June 5-6, and 20-22, 2023 in accordance with Section 404 of the Clean Water Act (33 *CFR* 328); the Corps of Engineers Wetlands Delineation Manual (*Technical Report Y-87-1*; ACOE 1987) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (USACE 2012); the Massachusetts Wetlands Protection Act (WPA) regulations (310 *CMR* 10.00); and MassDEP's publication entitled Delineating Bordering Vegetated Wetlands under the Massachusetts Wetlands Protection Act. Delineation data sheets are provided as **Attachment M**.

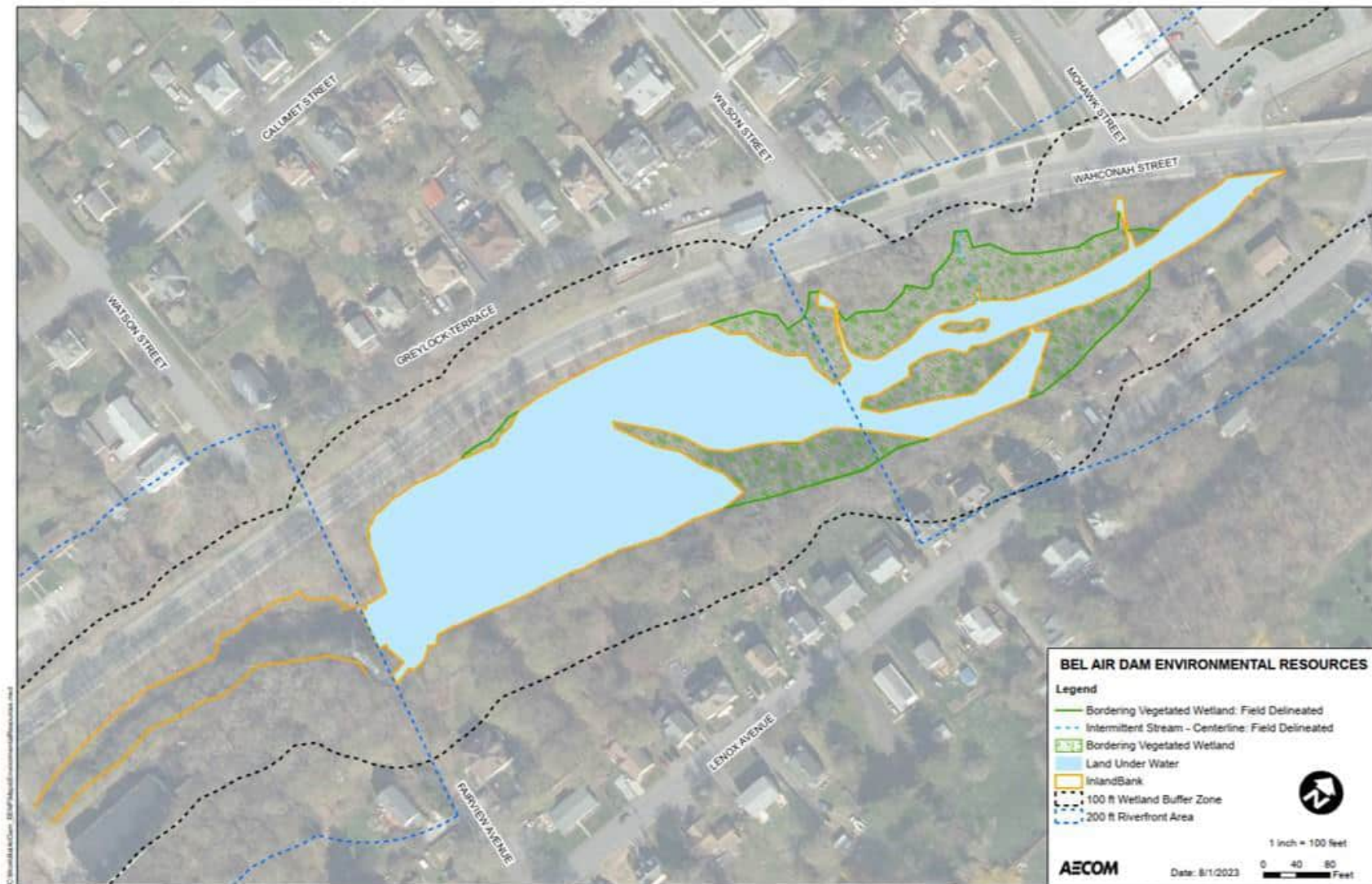
5.2 Findings of Wetland Investigation

Wetland resource areas protected under the Massachusetts Wetlands Protection Act and implementing regulations (310 *CMR* 10.00) that are present at the site include Land Under Water (LUW), Bordering Vegetated Wetlands (BVWs), Bank, 200-foot Riverfront Area, and Bordering Land Subject to Flooding (BLSF). In addition, a 100-foot Buffer Zones to BVW and Bank are present at the site. The boundaries of these resource areas are illustrated on Sheet C-101 in **Attachment J** and on **Figure 2**. The off-site investigation concluded that no portion of the LOW is located within mapped NHESP Habitats, Certified Vernal Pools, or within an ACEC, see **Attachment N**.

5.2.1 Land Under Water

LUW is present within the West Branch of the Housatonic River, upstream of the dam and within the discharge stream. The mean annual flood level was determined using a HEC-HMS model of the watershed that was developed to simulate a range of flood events. These elevations, as well as field confirmation, were used to identify the LUW limits in the project area, as illustrated on Sheet C-101 in **Attachment J**.

Figure 2. Bel Air Dam Environmental Resources



5.2.2 Bordering Vegetated Wetlands

Five BVWs were identified at the project site during an August 2023 site visit, as described below and in the wetland delineation data sheets provided in **Attachment M**:

Wetland W1

The “W1” flagging series includes wetland flag segments W1-001 to W1-003, W1-101 to W1-121, and W1-201 to W1-209 and demarcates the upper boundary of BVW located along the western shore of the West Branch of the Housatonic River. Wetland W1 is a combination of Palustrine Emergent Marsh (PEM) and Palustrine Forested Wetland (PFO). Dominant vegetation includes box elder (*Acer negundo*; FAC) and American elm (*Ulmus americana*; FACW) in the tree stratum, box elder in the sapling/shrub stratum, and spotted Joe Pye weed (*Eutrochium maculatum*; OBL), giant goldenrod (*Solidago gigantea*; FACW), and moneywort (*Lysimachia nummularia*; FACW) in the herb stratum.

Wetland W2

The “W2” flagging series includes wetland flag segment W2-001 to W2-008 and demarcates the upper boundary of a narrow BVW fringe located along the western shore of the dam impoundment. The downgradient boundary of this wetland fringe is demarcated by a discernible break in slope as delineated by Bank segment B1-101 to B1-108. Wetland W2 is a PEM dominated by herbaceous vegetation. Herbaceous vegetation present includes a mix of giant goldenrod, creeping buttercup (*Ranunculus repens*; FAC), a variety of sedges (*Carex* spp.), reed canary grass (*Phalaris arundinacea*; FACW), among other species.

Wetland W3

The “W3” flagging series includes wetland flag segments W3-001 to W3-007 and demarcates the upper boundary of BVW located along the eastern shore of the West Branch of the Housatonic River. Wetland W3 is a combination of PEM and PFO. Dominant vegetation includes box elder and American elm in the tree stratum, box elder and silky dogwood (*Cornus amomum*; FACW) in the sapling/shrub stratum, and giant goldenrod in the herbaceous stratum.

Wetland W4

The “W4” flagging series includes wetland flag segments W4-001 to W4-007 and demarcates the upper boundary of BVW located along the eastern shore of the West Branch of the Housatonic River. Wetland W4 is a combination of PEM and Palustrine Scrub-Shrub (PSS) wetland. Dominant vegetation includes a few American elm and silver maple (*Acer saccharinum*; FACW) in

the tree stratum, silky dogwood, boxelder, and glossy buckthorn (*Frangula alnus*; FAC) in the sapling/shrub stratum, and Joe Pye weed, fringed loosestrife (*Lysimachia ciliata*; FACW), and giant goldenrod in the herbaceous stratum.

Wetland W5

Wetland W5 is a small, low vegetated island located in the middle of (surrounded by) the West Branch of the Housatonic River. This BVW is a PEM and is bounded on all sides by the upper boundary of Bank demarcated by flagging series B1-501 to B1-511. Wetland W5 is dominated by reed canary grass, with lesser coverages of phragmites (*Phragmites australis*; FACW), forget-me-not (*Myosotis scorpioides*; OBL), and smallspike false nettle (*Boehmeria cylindrica*; OBL), among others.

5.2.3 Bank

Bank is present adjacent to the LUW of the West Branch of the Housatonic River and the discharge channel between the mean annual flood level and the mean annual flow level. As with LUW, estimated mean annual flood level and field conditions were used to identify the limits of Bank as illustrated on the drawings in **Attachment J**. The upper limit of Bank was determined by data regarding water level control at the dam combined with field observations of the transition from primarily vegetated wetland to open water area. At the project site the Bank consists of a steep downstream eastern slope, the western bank is significantly less steep in grade. The upstream slope grades at approximately 2.2:1 (horizontal: vertical), and the downstream slope grades at approximately 1:1 (horizontal: vertical). The upstream toe of the slope is approximately El. 1027.6 feet, and the downstream toe of the slope is approximately El. 1013.5 feet.

5.2.4 200-Foot Riverfront Area

The 200-foot riverfront area is found along the stream of the West Branch of the Housatonic River. The area within the LOW for the Project is within 200-Foot Riverfront Area. Within the limits of work, the 200-foot Riverfront Area includes some native and non-native trees and shrubs and remnant stone walls and building foundations.

5.2.5 Bordering Land Subject to Flooding

BLSF coincides with the FEMA 100-year floodplain. The FEMA 100-year flood plain is approximately co-incident with the impoundment upstream and continues downstream parallel to the West Branch of the Housatonic River. Upstream of the dam is El. 1038.0 feet and

downstream of the dam is El. 1020.0 feet.

6.0 Impacts to Resource Areas and Compliance

The resource areas that will be impacted by the proposed removal of Bel Air Dam and its associated construction work are LUW, BVW, Bank, Riverfront Area, and BLSF. Project activities and their associated impacts are categorized and quantified in **Table 3**. The project qualifies for consideration under an Ecological Restoration Project (310 CMR 10.13), regarding the removal of the dam to restore the previously existing waterway.

Table 3. Resource Area Impacts

Resource Area	Impacts	Created	Net Permanent Gain/Loss
Land Under Water	135,740 SF of permanent impacts from the impoundment's removal	49,200 SF new stream channel	Loss of 86,540 SF of LUW
Bank	2,600 LF from the impoundment's removal	2,310 LF from the reconstruction of the stream channel	Loss of 290 LF of Bank
Riverfront Area	81,900 SF from construction period impacts	120,000 SF of new Riverfront Area	Gained 202,000 SF of Riverfront Area
Bordering Land Subject to Flooding	41,000 SF from construction period impacts	34,000 SF of new BLSF from the removal of the impoundment	Gained 75,000 SF of BLSF
Bordering Vegetated Wetlands	54,280 SF of permanent impact to BVWs	0 SF	Loss of 54,280 SF of BVW

* All areas are approximate SF=Square Feet; LF=Linear Feet

6.1 Land Under Water

Within the regulated area of LUW, impacts to LUW will occur upstream of the existing spillway. During construction approximately 135,740 square feet of LUW in the Bel Air impoundment will be disturbed. Permanent LUW impacts will occur due to the pool elevation being lowered to approximately El. 1,014 feet-NAVD88. This will be a phased dewatering of one-foot intervals by removing individual courses of rock. With the removal of the existing dam, the impoundment will be eliminated, significantly reducing the LUW area. However, the construction of a stream channel will include 49,200 square feet of new LUW. Therefore, the net loss of LUW will be approximately 86,540 square feet.

Additional impacts to LUW will be from the dredging of 35,500 cubic yards of accumulated contaminated sediment. This one-time dredging event will alter approximately 96,500 square feet of LUW immediately upstream of the existing spillway. This is considered a permanent impact however, there will be no resulting loss of LUW as a result of dredging.

6.2 Bordering Vegetated Wetlands

Five BVWs were identified during onsite delineations, totaling approximately 54,280 square feet. As a result of the removal of the dam and construction of a stream channel, it is anticipated that the BVWs will be eliminated and replaced with another beneficial riparian or upland resource area. Permanent impacts to BVW will be approximately 54,280 square feet.

6.3 Bank

During construction approximately 2,600 linear feet of Bank will be permanently affected due to the removal of the dam and the elimination of the impoundment and approximately 2,310 linear feet of bank will be created as a result of the stream channel restoration. Bank will be stabilized, and native plantings will be installed after the stream channel is constructed. In total there will be a loss of 290 linear feet of bank.

6.4 200-Foot Riverfront Area

The project area is contained within the 200-foot Riverfront Area. Temporary impacts from construction are approximately 81,900 square feet due to the removal of vegetation needed for construction access; excavation and grading will also occur. With the removal of the dam and the subsequent elimination of the impoundment it is anticipated that 202,000 square feet of Riverfront Area will be gained in the project area.

6.5 Bordering Land Subject to Flooding

Temporary impacts from construction are anticipated to be 41,000 square feet. A HEC-RAS Model conducted with and without the dam determined there will be an increase of BLSF once the dam is removed and approximately 75,000 square feet of BLSF will be gained in the project area.

7.0 Compliance with Ecological Restoration Requirements

The text below describes how the Bel Air Dam Removal Project complies with the Massachusetts Wetlands Protection Act Regulations regarding General Eligibility requirements regarding Ecological Restoration Projects (i.e., 310 CMR 10.13(1)).

(1) An Ecological Restoration Project shall be permitted by a Restoration Order of Conditions if it meets all of the following eligibility criteria:

(a) The project is an Ecological Restoration Project as defined in 310 CMR 10.04, is a project type listed in 310 CMR 10.13(2) through (7), and the applicant has submitted a Notice of Intent that meets all applicable requirements of 310 CMR 10.12.

The proposed project is a dam removal project, which is described in *310 CMR 10.13(2)*. Mass DCR Office of Dam Safety (ODS) has submitted this Notice of Intent to the Pittsfield Conservation Commission that meets all requirement of *310 CMR 10.12*.

(b) The project will further at least one of the interests identified in M.G.L. c. 131, § 40.

The Bel Air Dam Removal Project furthers the following interests identified in *M.G.L. c. 131, § 40*: flood control, storm damage prevention, prevention of pollution, and the protection of fisheries and wildlife habitat. Removal of the dam will remove a hazard that could lead to substantial downstream storm damage if the dam were to fail. The creation of floodplain habitat adjacent to the restored stream channel will contribute to the flood control interest of the WPA and its implementing regulations. Removal of the accumulated and contaminated sediment will remove a source of pollution. Removal of the dam will allow restoration of the channel, which will contribute to fisheries habitat by improving hydrologic connectivity and water quality. Planting of native species will contribute to enhancing wildlife habitat along the restored stream corridor. This NOI includes the following information to support the determination that the project will further the interests identified above:

- Excerpts of the DCR ODS Phase II investigation report documenting the existing Unsafe condition of the dam (**Attachment D**)
- Excerpts of the Emergency Action Plan identifying the storm damage that would occur if the dam were to fail, (**Attachment F**)
- Calculations regarding flood storage capacity of Bordering Land Subject to Flooding maintained/created (Section 6.5)
- Sediment sampling results documenting the contamination present (**Attachment L**)
- Design drawings illustrating proposed stream channel layout, profile, and cross-sections as well as details regarding post-construction native plantings, construction phasing, water management, and sediment/erosion control Best Management Practices (BMPs) (**Attachment J**)
- Hydrologic and Hydraulic model results documenting current flows as well as anticipated flows after dam removal and stream restoration (Section 3.4)
- Geotechnical data regarding stability of designed stream channel banks (Section 3.4)

(c) The project will not have any short-term or long-term adverse effect, as identified by the procedures established by 310 CMR 10.11, on specified habitat sites of Rare Species located within the Resource Areas that may be affected by the project or will be carried out in accordance with a habitat management plan that has been approved in writing by the Natural Heritage and Endangered Species Program and submitted with the Notice of Intent.

This project will not have any short or long-term adverse effects as there are no identified Rare Species at the project site and the project location is not within Estimated

or Priority Habitat as identified by the Natural Heritage and Endangered Species Program. This was confirmed by doing an offsite investigation using the MassGIS online Map Viewer tool and confirmed via email with NHESP staff (**Attachment N**).

(d) To the maximum extent practicable, the project will:

1. avoid adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40, that can be avoided without impeding the achievement of the project's ecological restoration goals;

The Bel Air Dam Removal project will avoid adverse impacts to Resource Areas wherever possible by following best management practices and restoring habitats post-construction. This NOI includes design drawings illustrating proposed elevations and stream configuration as well as plantings and construction period stormwater management BMPs (**Attachment J**).

2. minimize adverse impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40, that are necessary to the achievement of the project's ecological restoration goals; and

The Bel Air Dam Removal project will avoid adverse impacts to Resource Areas wherever possible by following best management practices and restoring habitats post-construction. The NOI includes design drawings illustrating proposed elevations and stream configuration as well as plantings and construction period stormwater management BMPs (**Attachment J**).

3. utilize best management practices such as erosion and siltation controls and proper construction sequencing to prevent and minimize adverse construction impacts to Resource Areas and the interests identified in M.G.L. c. 131, § 40.

An erosion and sedimentation control program will be implemented during the pre-construction and construction phases to minimize impacts to Resource Areas on the project site (Section 8.0). This NOI includes design drawings illustrating details of construction period sediment and erosion controls, such as silt socks, turbidity curtains, sedimentation basins, and other stormwater management BMPs. The project will seek approval under the US EPA Construction General Permit, and a copy of the Stormwater Pollution Prevention Plan (SWPPP) will be provided to the Pittsfield Conservation Commission.

(e) The project will not have significant adverse effects on the interests of flood control and storm damage prevention in relation to the built environment (i.e., the project will not result in a significant increase in flooding or storm damage affecting buildings, wells, septic systems, roads or other human-made structures or infrastructure).

The proposed project will not have significant adverse effects on the interest of flood control and storm damage prevention, in relation to the built environment. If the Bel Air Dam were to fail, downstream properties and infrastructure would be immediately affected and experience significant damage. The NOI includes the following to support the conclusion that there will be no adverse effect on these interests:

- Excerpts of the DCR ODS Phase II investigation report documenting the existing Unsafe condition of the dam (**Attachment D**)
- Excerpts of the Emergency Action Plan identifying the storm damage that would occur if the dam were to fail, (**Attachment F**)
- Calculations regarding flood storage capacity of Bordering Land Subject to Flooding maintained/created (Section 6.5)
- Hydrologic and Hydraulic model results documenting current flows as well as anticipated flows after dam removal and stream restoration (Section 3.4)

(f) If the project will involve the dredging of 100 cubic yards of sediment or more or dredging of any amount in an Outstanding Resource Water, the Notice of Intent includes a Water Quality Certification issued by the Department in accordance with 314 CMR 9.00: 401 Water Quality Certification for Discharge of Dredged or Fill Material, Dredging, and Dredged Material Disposal in Waters of the United States Within the Commonwealth.

The proposed project will involve dredging over 100 cubic yards of sediment. As a result, this project has submitted a 401 Water Quality Certification on June 14, 2024, to MassDEP. The issued Certificate will be submitted to the Pittsfield Conservation Commission when available.

(g) The project will not substantially reduce the capacity of a Resource Area to serve the habitat functions identified in 310 CMR 10.60(2). A project will be presumed to meet this eligibility criteria if the project as proposed in the Notice of Intent will be carried out in accordance with any time of year restrictions or other conditions recommended by the Division of Marine Fisheries for coastal waters, and by the Division of Fisheries and Wildlife for inland waters in accordance with 310 CMR 10.11(3) through (5). As set forth in 310 CMR 10.12(3), a person submitting a Notice of Intent for an Ecological Restoration Project that meets the requirements of 310 CMR 10.12(1) and (2) is exempt from the requirement to perform a wildlife habitat evaluation in accordance with 310 CMR 10.60.

The proposed project will not substantially reduce the capacity of a resource area to serve the habitat functions identified in 310 CMR 10.60(2). No time of year restrictions have been identified in accordance with 310 CMR 10.11(3) through (5) (**Attachment O**). The proposed project meets the requirement of 310 CMR 10.12(1) and (2) is exempt from the requirement to perform a wildlife habitat evaluation in accordance with 310 CMR 10.60.

(h) If the Ecological Restoration Project involves work on a stream crossing, the stream crossing has been designed in accordance with 310 CMR 10.24(10) for work in coastal Effective 10/24/2014 310 CMR: DEPARTMENT OF ENVIRONMENTAL PROTECTION resource areas and 310 CMR 10.53(8) for work in inland resource areas, as applicable.

The proposed Bel Air Dam Removal project will not involve work on a stream crossing.

(i) The Ecological Restoration Project will not result in a discharge of dredged or fill material within 400 feet of the high water mark of a Class A surface water (exclusive of its tributaries) unless the project is conducted by a public water system under 310 CMR 22.00: Drinking Water or a public agency or authority for the maintenance or repair of existing public roads or railways in accordance with 314 CMR 4.06(1)(d)1.

The proposed project will not result in a discharge of dredged or fill material within 400 feet of the high water mark of a Class A surface water. All dredged material will be temporarily stored on-site before being disposed of out-of-state.

j) The Ecological Restoration Project will not result in a discharge of dredged or fill material to a vernal pool certified by the Division of Fisheries and Wildlife.

The discharge of dredged or fill material will not occur in a certified vernal pool, as there are no vernal pools certified by the Division of Fisheries and Wildlife at the project site.

(k) The Ecological Restoration Project will not result in a point source discharge to an Outstanding Resource Water.

The proposed Bel Air Dam Removal will not create a point source discharge, nor is the Bel Air impoundment classified as an Outstanding Resource Water.

7.1 Compliance with Ecological Restoration Dam Removal Project

The text below describes how the Bel Air Dam Removal Project complies with the MA WPA Regulations regarding Dam Removal projects related to Ecological Restoration Projects (i.e., 310 CMR 10.13(2)):

(2) Additional Eligibility Criteria for Dam Removal Projects. If the Ecological Restoration Project is a dam removal project, the project shall be presumed to meet the eligibility criteria set forth in 310 CMR 10.13(1)(d), if the project is consistent with the Department's guidance entitled Dam Removal and the Wetlands Regulations, dated December 2007. If the Ecological Restoration Project is a dam removal project, the Ecological Restoration Project shall be approved by a Restoration Order of Conditions, provided that in addition to the eligibility criteria set forth in 310 CMR 10.13(1), the project meets all of the following eligibility criteria:

(a) The project will not involve the removal of a dam that was constructed or is managed for flood control by a municipal, state or federal agency

The Bel Air dam is not a flood control dam.

(b) The project will not adversely impact public water supply wells or water withdrawals permitted or registered under the Water Management Act, M.G.L. c. 21G, and 310 CMR 36.00: Massachusetts Water Resources Management Program within the reach of the stream impacted by the impoundment.

The Bel Air Dam does not impound a water supply. The dam removal will have no impact on the City of Pittsfield water supply, which is related to other water sources in the City and not related to any impoundments or wells located upstream of the Bel Air Dam on Wahconah Street.

(c) The project will not adversely impact private water supply wells including agricultural or aquacultural wells or surface water withdrawal points.

The Bel Air Dam removal will have no impact on private wells. Based on a review of City of Pittsfield GIS data, there are no private wells located upstream of the Bel Air Dam.

(d) The project provides for the removal of the full vertical extent of the dam such that no remnant of the dam will remain at or below the streambed as determined prior to commencement of the dam removal project, or if such determination cannot be made at that time, as determined during construction of the project.

The proposed project will fully remove the entire vertical extent of the Bel Air Dam.

(e) The project provides for the removal of enough of the horizontal extent of the dam such that after removal no water will be impounded during the 500-year flood event.

The full horizontal extent of the Bel Air Dam will be removed so that no water will be impounded during the 500-year flood event.

(f) The project will not involve a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license.

This project does not involve a hydroelectric facility. The Bel Air Dam was a formerly used for manufacturing and is no longer being used for that purpose.

(g) The applicant has obtained from the Department of Conservation and Recreation Office of Dam Safety a written determination that the dam is not subject to the jurisdiction of the Office under 302 CMR 10.00: Dam Safety, a written determination that the dam removal does not require a permit under 302 CMR 10.00: Dam Safety or a permit authorizing the dam removal in accordance with 302 CMR 10.00: Dam Safety has been issued.

The Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS) has determined that the Bel Air Dam is under jurisdiction of the Office of Dam Safety and will require a Chapter 253 Permit. DCR ODS intends to issue a permit for the dam repair, and this will be submitted to the Pittsfield Conservation Commission when available.

(h) If the project is exempt from the requirement to obtain a license or permit under 310 CMR 9.05(3)(n), the project will not have an adverse effect on navigation or on any docks, piers or boat ramps authorized under 310 CMR 9.00: Waterways. (3) Additional Eligibility Criteria for Freshwater Stream Crossing Repair and Replacement.

Section 310 CMR 9.05(3) only includes subsection a through m. However, the proposed project is not exempt from the requirement to obtain a Chapter 91 license. A pre-application meeting has been held with MassDEP Waterways regarding the requirements of the application and the Chapter 91 license is anticipated to be submitted July 2024. The project will not have an adverse effect on navigation or on any docks, piers, or boat ramps.

8.0 Mitigation and Minimization of Adverse Impacts

To the maximum extent possible the project will avoid and minimize impacts to Resource Areas where it does not impede the project's ecological restoration goals, and the project will utilize best management practices to prevent and minimize adverse construction period impacts.

While the removal of the dam will require a significant amount of dredging and construction, it is ultimately a mitigation effort in and of itself. The removal of the Bel Air Dam will restore the physical, chemical, and biological integrity of the West Branch of the Housatonic River and its associated riparian habitat; there will be a net increase in aquatic resource functions as a result of the dam removal due to the restoration of hydrologic connectivity for fish habitat and passage, removal and/or capping of sediments with elevated chemical constituents, and removal of invasive plant species present at the site. As a result of these improvements, water quality will improve.

8.1 Erosion and Sediment Controls

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 (2-inch or larger) 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.

Temporary devices and structures to control erosion and sedimentation in and around the site will be properly maintained and removed and properly disposed of as soon as the site is stabilized following restoration. Filter socks will be inspected weekly and after each runoff event. Sediment will be removed and accumulated sediment over 0.5-inches above ground height of the barrier will be appropriately disposed of. Turbidity curtains will be installed prior to the start of fill, dredge, and excavation activities. If river conditions allow, the turbidity curtains will enclose the entire dredge area and swing radius of the mechanical excavation and hydraulic dredge head at the transloading area. Any sediment collected by these devices will be removed and placed in an upland location in a manner that prevents its erosion and transport to wetlands or waterways or disposed of off-site. Areas cleared of vegetation for construction access will be revegetated with native plants through a combination of seeding and shrub/tree planting.

8.2 General Construction Procedures

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.

8.3 Invasive Species

The area within and adjacent to the existing impoundment includes non-native fish and vegetation species. During wetland delineation work at the site, non-native carp were observed within the impoundment and the following invasive plant species were noted: multiflora rose (*Rosa multiflora*), common barberry (*Berberis thunbergia*), Norway maple (*Acer platanoides*), common buckthorn (*Rhamnus cathartica*), garlic mustard (*Allaria petiolata*), dames rocket (*Hesperis matronalis*), moneywort (*Lysimachia nummularia*), gill-over-the-ground (*Glechoma hederacea*), oriental bittersweet (*Celastrus orbiculatus*), reed canary-grass (*Phalaris arundinacea*), phragmites (*Phragmites australis*), true forget-me-not (*Myosotis scorpioides*), creeping buttercup (*Ranunculus repens*), Tatarian honeysuckle (*Lonicera tatarica*), and celandine (*Chelidonium majus*).

Restoring the hydrologic connectivity of this segment of the West Branch of the Housatonic River will improve water quality, which will allow native fish species to compete against the non-native carp. In addition, the work would remove the numerous invasive plant species and install

native species – see the attached *Invasive Species Management Plan (Attachment P)*. Due to the need for a sediment cap in many portions of the site, it will not be possible to plant woody species everywhere, however live willow (*Salix* spp) stakes will be installed in the two areas where sediment will be removed and replaced along with a “Bio-D” toe treatment (refer to Drawings). The areas of the cap will be seeded with a fast-growing native seed mix similar to New England Wetland Plants New England Conservation/Wildlife Mix, which will provide erosion control as well as valuable wildlife habitat. The areas at the far northwestern and northeastern ends of the site as well as the area near the existing dam will be planted with native trees and shrubs in addition to a native seed mix (refer to Drawings), since this area does not include sediments with elevated chemical constituents. A mix of native trees and shrubs will be re-planted in this area, including black cherry (*Prunus serotina*), box elder maple (*Acer negundo*), speckled alder (*Alnus incana*) and silky dogwood (*Cornus amomum*). Revegetation the area with native species will improve wildlife habitat value and aesthetics and help to mitigate the loss of LUW at the site.

9.0 Summary

The MassDCR, Office of Dam Safety is proposing the removal of Bel Air Dam located in Pittsfield, Massachusetts. The dam has been deemed hazardous and requires action in order to be compliant with the Dam Safety Regulations. Removal is suggested to mitigate public and environmental health risks. Proposed construction and redevelopment will impact LUW, BVW, Bank, Riverfront Area, and BLSF. Mitigation methods will be implemented during construction to prevent any unintentional effects on nearby environmental resources.

The MassDCR, Office of Dam Safety respectfully requests that the Pittsfield Conservation Commissions find the measures described above adequately protective of the interests identified in the WPA and issue Orders of Conditions approving the work described in this NOI and as shown on the accompanying plans.

10.0 References

- AECOM, February 2020. *Bel Air Dam (MA01061) Phase II Investigation and Alternatives Analysis Evaluation Report*. Prepared for Massachusetts Department of Conservation and Recreation, Office of Dam Safety.
- Chaplin, Jeffery J., 2005. Development of Regional Curves Relating Bankfull Channel Geometry and Discharge to Drainage Area for Streams in Pennsylvania and Selected Areas of Maryland: U.S Geological Survey Scientific Investigations Report 200-5147, 34 p.

Leopold, L. B., Wolman, M. G., and Miller, J. P, 1964. Fluvial processes in geomorphology. San Francisco, Calif., W.H. Freeman and Co.

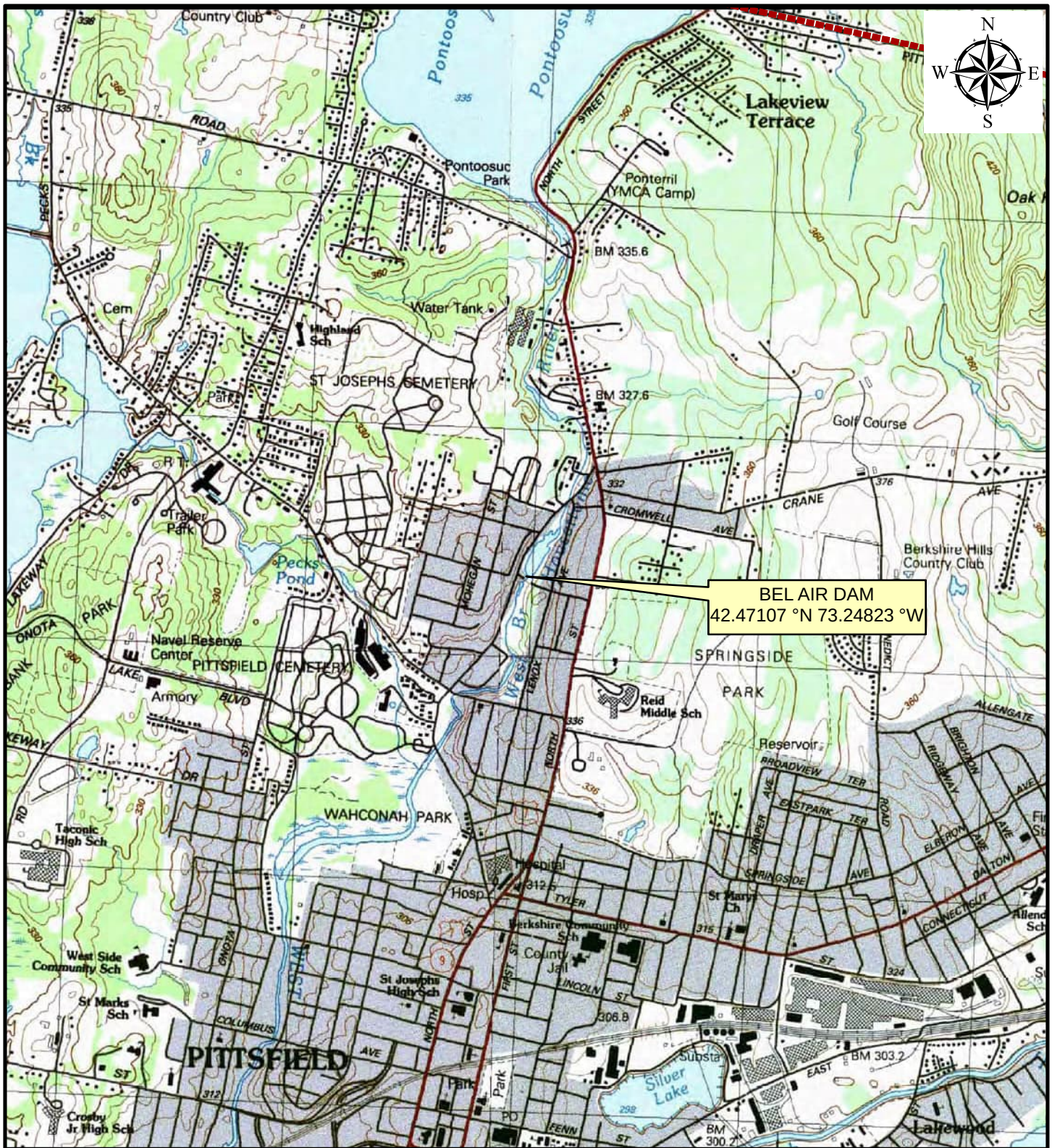
Massachusetts Department of Conservation and Recreation, Office of Dam Safety, (MassDCR ODS) 2017. *Emergency Action Plan* for Bel Air Dam.

River Management Program, Vermont Department of Environmental Conservation, 2006. Vermont Regional Hydraulic Geometry Curves.

TRC Environmental Corporation, 2010. Evaluation of Remedial Options 370 Wahconah Street, Pittsfield, Massachusetts. Memorandum to City of Pittsfield.

Westergard, B.E. Mulvill, C.I. Ernst, S.G. and Baldigo, B.P, 2005. Regional Equations for Bankfull Discharge and Channel Characteristics in New York State-Hydrologic Region 5 in Central New York: U.S. Geological Survey Scientific Investigations Report 2004-5

Attachment B
Locus Map

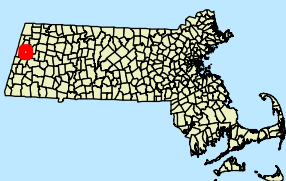


BEL AIR DAM
42.47107 °N 73.24823 °W

2,000 1,000 0 2,000 Feet

LOCUS MAP

Project No:
01.0018802.42



Bel Air Dam NID# MA01061 Pittsfield, Massachusetts

Drawn by:
PJS

Checked by:
TEJ

Date:
JUNE 2015

Figure No:

1



GZA GeoEnvironmental, Inc.
Springfield, Massachusetts

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

Data obtained from the Office of Geographic Information (MassGIS),
Commonwealth of Massachusetts, Information Technology Division

Attachment C
Abutter Information

LIST OF ABUTTERS

JULY 17, 2024

APPLICANT: JAMES MCGRATH

OWNERS: CITY OF PITTSFIELD MISCELLANEOUS

LOCATION: WAHCONAH ST (H13-0006-020)

LIST OF ABUTTERS:

I CERTIFY THAT THE ATTACHED LIST CONTAINS THE NAMES AND ADDRESSES OF THE ABUTTERS AND THE OWNERS OF LAND NEXT TO AND ADJOINING THE LAND OF THE ABUTTERS TO THE PROPERTY COVERED BY THIS APPLICATION.

MEMBER – BOARD OF ASSESSORS

Handwritten signature of Emily A. Schillmeier in cursive script.

Address	Street	ID	Owner 1
	WAHCONAH ST	H120012021	HOLLISTER J BARRETT
98	GREYLOCK TER	H130005002	SMARGIE CHRISTOPHER E
1	WILSON ST	H130005003	PEASLEE SHANE A 1/2@
400	WAHCONAH ST	H130006001	FOUR HUNDRED WAHCONAH LLC
55	FAIRVIEW AVE	H130006003	BAILLARGEON ROBERT G JR
	FAIRVIEW AVE	H130006004	CHUNG THIEU
54	FAIRVIEW AVE	H130006005	CHUNG THIEU
293	LENOX AVE	H130006008	GUERRERO LOUIS R
297	LENOX AVE	H130006009	J REALTY TRUST
299	LENOX AVE	H130006010	GAUDETTE MICHAEL J
305	LENOX AVE	H130006011	KOPKA NICOLE L
311	LENOX AVE	H130006012	GILES NATHAN T
315	LENOX AVE	H130006013	HARRIS EVERETT E E/O
317	LENOX AVE	H130006014	MCCARRON MATTHEW
323	LENOX AVE	H130006015	BERKSHIRE HOME RENTALS LLC
329	LENOX AVE	H130006016	POLIDORO CINDY M
331	LENOX AVE	H130006017	SUPPLE THANOM
339	LENOX AVE	H130006018	DEZIECK KEITH
341	LENOX AVE	H130006019	CRENNAN RON E/O T/L
349	LENOX AVE	H130006022	BUTTERFIELD JOSEPH D
	MOHAWK ST	H130020001	VETERANS HOUSING AUTHORITY
501	WAHCONAH ST	H130020002	OUIMET RONALD N
483	WAHCONAH ST	H130022007	LAPOINTE CLIFFORD A E/O
487	WAHCONAH ST	H130022008	LIN ALLEN
491	WAHCONAH ST	H130022009	BEHANZIN KOTTI ROLAND
495	WAHCONAH ST	H130022010	QUINN NOMINEE TRUST
	WAHCONAH ST	H130022011	VETERANS HOUSING AUTHORITY

Owner 2	Owner Address	Owner City	Owne
	51 HOLMES RD	PITTSFIELD	MA
	98 GREYLOCK TER	PITTSFIELD	MA
PEASLEE ALEXANDER S 1/2@	11 KEELER ST	PITTSFIELD	MA
	82 WENDELL AVE #100	PITTSFIELD	MA
REILLY-BAILLARGEON KAREN ANNE	55 FAIRVIEW AVE	PITTSFIELD	MA
NGO MINH CHIEU H&W	56 FAIRVIEW AVE	PITTSFIELD	MA
NGO MINH CHEIU H&W	56 FAIRVIEW AVE	PITTSFIELD	MA
GUERRERO LOIS M	293 LENOX AVE	PITTSFIELD	MA
	PO BOX 1	DALTON	MA
GAUDETTE TINA M	301 LENOX AVE	PITTSFIELD	MA
	305 LENOX AVE	PITTSFIELD	MA
GILES TISHA R	311 LENOX AVE	PITTSFIELD	MA
HARRIS MARTHA R	315 LENOX AVE	PITTSFIELD	MA
MCCARRON JESSICA	317 LENOX AVE	PITTSFIELD	MA
	6581 SOUTH COOK WAY	CENTENNIAL	CO
	72 HOWE RD	PITTSFIELD	MA
SUPPLE ROBERT	47 SEYMOUR ST	PITTSFIELD	MA
	339 LENOX AVE	PITTSFIELD	MA
CRENNAN ARNOLD R	319 FENN ST-#2	PITTSFIELD	MA
	349 LENOX AVE	PITTSFIELD	MA
%PITTSFIELD HOUSING AUTHORITY	65 COLUMBUS AVE	PITTSFIELD	MA
	194 LANESBORO RD	CHESHIRE	MA
LAPOINTE DORIS T	485 WAHCONAH ST	PITTSFIELD	MA
	1623 THIRD AVE #38J	NEW YORK	NY
	491 WAHCONAH ST	PITTSFIELD	MA
DAVID J SHUFELT TR	P O BOX 606	PITTSFIELD	MA
%PITTSFIELD HOUSING AUTHORITY	65 COLUMBUS AVE	PITTSFIELD	MA

Owner Zip

01201

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01201

01201

01201

01201

01201

01226

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Attachment D
Excerpt from Phase II Report

FINAL DRAFT
Bel Air Dam (MA01061)
Phase II Investigation and
Alternatives Analysis Evaluation Report

Massachusetts Department of Conservation and Recreation
Office of Dam Safety, Dam Maintenance and Repair Unit

February 2020

Prepared for:

Massachusetts Department of Conservation and Recreation
Office of Dam Safety, Dam Maintenance and Repair Unit
251 Causeway Street, Suite 600
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Prepared by:

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Executive Summary

The Department of Conservation and Recreation Office of Dam Safety, Dam Maintenance and Repair Unit (Office of Dam Safety) retained AECOM to prepare a Phase II Investigation and Alternatives Analysis Evaluation Report for the Bel Air Dam (MA01061). The purpose of the report is to investigate the structural integrity of the dam and to evaluate alternatives for complete repair, full removal, and partial removal.

The Bel Air Dam is located in the City of Pittsfield in Berkshire County, Massachusetts, and 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 dam is a combined earthen embankment, stone masonry, and concrete structure with a maximum structural height of approximately 26.5 feet. The reported maximum impoundment storage capacity is 56 acre-feet, although sediment accumulation has reduced this capacity. The dam is classified as a HIGH (Class I) Hazard Potential dam in accordance with Massachusetts Dam Safety Regulations (302 CMR 10) (Dam Safety Regulations). Based on both height and storage, the dam is categorized as an INTERMEDIATE size structure.

The Bel Air Dam investigation was divided into the following parts:

- 1) Obtain and review available reports, investigations, construction records and data previously submitted pertaining to the dam and appurtenant structures;
- 2) Perform a condition assessment to evaluate the current condition of the dam;
- 3) Complete a topographic and bathymetric survey, including sediment sampling and analysis;
- 4) Perform hydrologic and hydraulic studies to assess the spillway hydraulic adequacy;
- 5) Perform a subsurface investigation program;
- 6) Perform stability and seepage analyses of the dam;
- 7) Perform a structural assessment of the dam; and
- 8) Develop preliminary designs for the complete repair, full removal, and partial removal of the dam.

AECOM conducted a visual structural and geotechnical condition assessment on May 23, 2019. Consistent with previous inspections, the condition of the dam was found to be UNSAFE and STRUCTURALLY DEFICIENT. The following bullets summarize the findings of the condition assessment, as well as the findings of the hydraulic, sediment, structural and geotechnical analyses.

- **Condition Assessment:**

- *Earthen embankments on both sides of the dam:* Overgrown with dense trees and shrubs; erosion is observed on both sides near the abutment area; exposed tree roots and depressed areas are noted on the left abutment contact area; downstream slopes exhibit steep earth slopes with no apparent surficial protection.
- *Masonry retaining walls:* The mortar joints are deteriorated and exhibit areas where voids from missing mortar and/or missing stones exist, as well as areas where vegetation is growing in or adjacent to the stone masonry components and their joints.
- *Masonry sluiceway and auxiliary spillway:* The mortar joints are deteriorated and exhibit areas where voids from missing mortar and/or missing stones exist, as well as areas where vegetation is growing in or adjacent to the stone masonry components and their joints; seepage is exhibited in many areas across the auxiliary spillway section.

- **Pedestrian bridge:** Exhibits spalling concrete, exposed rebar, and large collapsed portions of the deck slab; the steel beam and column supports for the concrete deck are rusted and deteriorated; the railing is rusted with missing portions.
- **Hydraulic Compliance:** The dam does not have adequate spillway capacity. Under the existing conditions, it is estimated that the water surface level will reach El. 1,042.4 feet-NAVD88, or approximately 5.8 feet above the top of the dam during the Spillway Design Flood event.
- **Embankment Stability:** Factors such as the steep downstream slope and the loose density of the embankment and native soils are triggering low factors of safety along the right embankment. Analyses indicate that the saturated, native loose silty sands, are susceptible to liquefaction.
- **Structural Stability:** The existing auxiliary spillway section did not meet the required factors of safety for a High Hazard Potential dam.
- **Sediment Quality:** Sample results demonstrate that the impounded sediment may not be suitable for release downstream during construction or reuse on site due to the levels of detected contaminants including metals, polycyclic aromatic hydrocarbons (PAHs), extractable petroleum hydrocarbons (EPHs), polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs).

The above findings were used to develop the preliminary alternative designs and opinion of probable construction costs. As previously stated, the three design alternatives evaluated include complete repair, full removal, and partial removal of the dam. The repair alternative involves restoring the dam to a condition that meets the design parameters of the latest Dam Safety Regulations. The full removal alternative involves the demolition of the existing dam to eliminate the impoundment and restore the hydraulic connectivity of the original waterway. The partial removal alternative would result in the dam being reclassified as non-jurisdictional. As defined in the Dam Safety Regulations, a non-jurisdictional dam would be under 6 feet in height or have a storage capacity less than 15 acre-feet.

To develop planning level costs, AECOM used the American Association of Cost Estimating (AACE) five-level classification system to develop a planning level opinion of construction cost. AACE identifies Class 5 as most preliminary and Class 1 as most accurate and complete. Planning level costs are considered Class 4. The engineering design is typically 1% to 15% complete for a Class 4 estimate. The opinion of construction cost estimate shows that the repair and removal alternatives have similar costs when factoring in the uncertainty in the sediment management approach that will be selected by the stakeholders, and the accuracy of the Class 4 estimate. The environmental benefits of the removal alternative and the cost of ongoing operation and maintenance associated with the repair alternative are not reflected in the construction cost estimate.

Table ES-1 presents a summary of the design evaluation of each alternative and estimated opinion of construction costs. The alternatives are presented for review and selection by the Office of Dam Safety and stakeholders. Potential next steps are provided below.

1. Consult with stakeholders and select preferred alternative.
2. Develop a strategy to proceed with the project that addresses property ownership, responsible parties upon project completion, government/public approvals, and funding.
3. Consult with MassDEP to review sediment analysis. Perform additional sediment sampling and develop a preferred sediment management approach in accordance with MassDEP guidance.
4. Proceed with final design of selected alternative.
5. Perform wetland delineation and update topographic survey.
6. Confirm the applicability of environmental permits.
7. Finalize construction documents and obtain necessary regulatory approvals.

Attachment E
Representative Site Photos

Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 1**Date:**

05/23/2019

Description:

View of pedestrian bridge deterioration looking from right side of dam

**Photo No. 2****Date:**

05/23/2019

Description:

View of down slope of right embankment looking downstream.



Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 3**Date:**

05/23/2019

Description:

View of upstream side of dam. Silt and debris build up above normal operating pool.

**Photo No. 4****Date:**

05/23/2019

Description:

View of vegetation growing from crest of auxiliary spillway and the bottom side of pedestrian bridge.



Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 5**Date:**

05/23/2019

Description:

View of sluiceway from upstream side of dam.

**Photo No. 6****Date:**

05/23/2019

Description:

View of auxiliary spillway from downstream side of dam.



Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 7**Date:**

05/23/2019

Description:

View of sluiceway from downstream side of dam.

**Photo No. 8****Date:**

05/23/2019

Description:

View of transition between original masonry wall and concrete training wall on right side of sluiceway looking at the downstream face of dam.



Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 9**Date:**

05/23/2019

Description:

View of auxiliary spillway from downstream side of dam.

**Photo No. 10****Date:**

05/23/2019

Description:

View of earthen embankment between sluiceway and primary spillway from downstream side of dam.



Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 11**Date:**

05/23/2019

Description:

View of concrete training wall on downstream side of dam sluiceway direction the flow towards river.

**Photo No. 12****Date:**

05/23/2019

Description:

Close up view of end of concrete training wall on downstream side of dam sluiceway direction the flow towards river where it abuts to the original masonry structure.



Client Name:

Massachusetts Department of Conservation and Recreation (DCR)

Site Location:

Bel Air Dam - Pittsfield, MA

Project No.

60604936

Photo No. 13**Date:**

05/23/2019

Description:

View of the top of sluiceway from the downstream side of dam.

**Photo No. 14****Date:**

05/23/2019

Description:

View of the right side of sluiceway from the upstream side of dam.



Attachment F
Excerpt from Emergency Action Plan

EMERGENCY ACTION PLAN

Bel Air Dam-MA01061

Pittsfield, MA



Prepared by DCR-Office of Dam Safety

April 19, 2017

APPROVAL OF EMERGENCY ACTION PLAN

SAMPLE APPROVAL OF EMERGENCY ACTION PLAN

NATID: MA01061

Dam Name: Bel Air Dam

Location: Pittsfield

Owner: N/A

EAP Effective/Review Date: April 2017

The following verification of Emergency Action Plan (EAP) review is required under MGL Chapter 253 and 302 CMR 10.00. This verification of review is to become a part of the EAP and is to accompany the EAP copies submitted to the Department of Conservation and Recreation Office of Dam Safety and Massachusetts Emergency Management Agency. The purpose of this verification is to document that the Emergency Management Director has received and reviewed a draft copy of the EAP and provided comments if necessary.

Signing of this document by the Emergency Management Director acknowledges that the above described review process has taken place.

EMERGENCY MANAGEMENT DIRECTOR

Name: Robert Czerwinski

Title/Town: City of Pittsfield

Signature: Robert Czerwinski

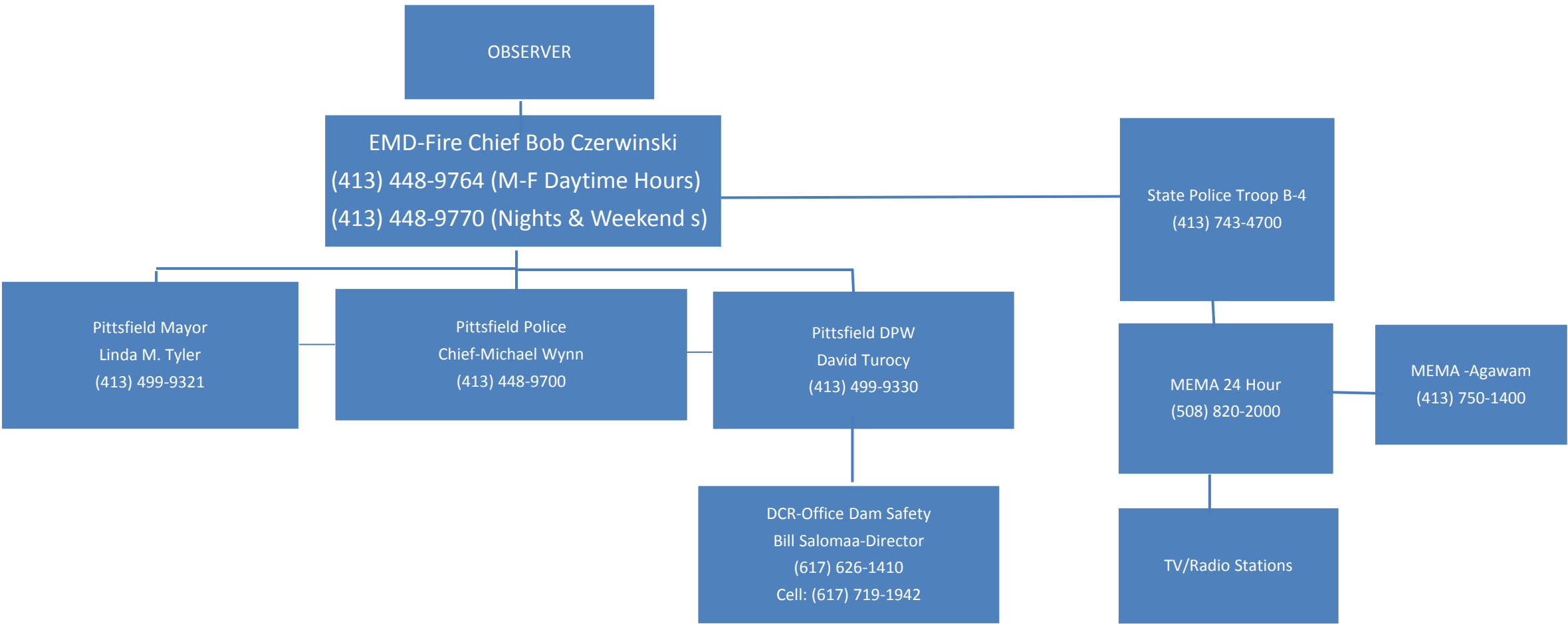
Date: May 3, 2017

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NOTIFICATION FLOWCHART

EMERGENCY NOTIFICATION FLOW CHART



STATEMENT OF PURPOSE

SCOPE

STATEMENT OF PURPOSE

This draft Emergency Action Plan (EAP) for Bel Air Dam has been prepared by the Department of Conservation and Recreation Office of Dam Safety and addresses (in a cursory level of detail) the DCR, City of Pittsfield, and other state agencies' response to an emergency situation associated with a rapid, sudden, uncontrolled release of water from Bel Air Dam. The operational concepts presented within this plan focus on a disaster which would require other than normal, routine responses. A flood resulting from a dam failure would pose a threat to life and property in areas downstream of Bel Air Dam. This dam is classified as a High Hazard, Intermediate Size structure in Unsafe condition.

This draft EAP is a management document intended to be read and understood before an emergency situation occurs. It is intended to outline the activities of local and state emergency management officials.

SCOPE

The EAP sets forth basic procedures, duties and responsibilities to be implemented by the DCR, the City of Pittsfield and other key operational and public safety personnel in the event of an emergency condition at Bel Air Dam.

An "emergency," for the purposes of this EAP, is defined as an impending or actual sudden uncontrolled release of water from Bel Air Dam. This might involve failure of embankments, spillways or other dam related structures.

The major focus of the EAP is the delineation of the extent of inundation resulting from a hypothetical flood associated with a dam failure. A notification plan has been developed that assigns responsibilities to quickly and efficiently warn key operational personnel, local public safety agencies, and state law enforcement and emergency management agencies.

Attachment G
MEPA Review

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 H
Environmental Monitor Notice

Notification of the filing of an Ecological Restoration Notice of Intent to the Pittsfield Conservation Commission

Bel Air Dam is part of the Massachusetts Department of Conservation and Recreation (MassDCR) Office of Dam Safety's (ODS) pilot Abandoned Dams program. As part of this program, MassDCR is seeking to address safety concerns pertaining to dams in the Commonwealth that have no identifiable owner. In the case of Bel Air Dam, neither the City of Pittsfield nor any other interested party has expressed willingness to take ownership of the dam; therefore, the MassDCR ODS is proposing to remove the dam. The proposed project will remove the Bel Air Dam on the West Branch of the Housatonic River and thereby restore the natural connectivity of a waterway, meeting the definition of an Ecological Restoration Project as defined in *310 CMR 10.04*.

The proposed project is a Dam Removal Project as listed in *310 CMR 10.13(2)*, and proposes removal of the entire dam structure, restoration of a natural stream channel in the area of the current impoundment, establishment of adjacent floodplain, and installation of native herbaceous and woody species. The project area historically contained riparian habitat which has been degraded due to the impoundment. Changes to the environment caused by the presence of the dam include alteration of water temperatures and chemistry, river flow characteristics, and silt loads. The proposed project will also remove contaminated sediment that has accumulated upstream of the dam which includes elevated levels of chromium, arsenic, lead, polynuclear aromatic hydrocarbons (PAHs), and extractable petroleum hydrocarbons (EPHs). Project activities will occur within jurisdictional areas protected under the Massachusetts Wetlands Protection Act and its implementing regulations, including Land Under Water (LUW), Bordering Vegetated Wetlands (BVWs), Bank, 200-foot Riverfront Area, and Bordering Land Subject to Flooding (BLSF).

The anticipated NOI submission date to the Pittsfield Conservation Commission is July 18, 2024. The hearing is anticipated to be held August 1, 2024, at 70 Allen Street Pittsfield, MA 01201 in City Council Chambers at 6:00 PM. A copy of the NOI will be available at the Pittsfield Conservation Commission office and a hard copy may be obtained by contacting Jennifer Doyle-Breen by phone at 978-905-2968 or by email at jennifer.doyle-breen@aecom.com.

Attachment I
Stormwater Report Checklist



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

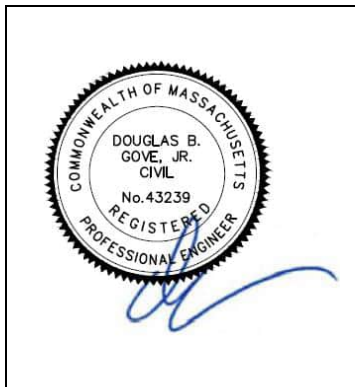
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



July 12, 2024

Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- ☐ New development
- ☒ Redevelopment
- ☐ Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- ☐ No disturbance to any Wetland Resource Areas
- ☐ Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- ☐ Reduced Impervious Area (Redevelopment Only)
- ☒ Minimizing disturbance to existing trees and shrubs
- ☐ LID Site Design Credit Requested:
 - ☐ Credit 1
 - ☐ Credit 2
 - ☐ Credit 3
- ☐ Use of “country drainage” versus curb and gutter conveyance and pipe
- ☐ Bioretention Cells (includes Rain Gardens)
- ☐ Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- ☐ Treebox Filter
- ☐ Water Quality Swale
- ☐ Grass Channel
- ☐ Green Roof
- ☒ Other (describe): There will be no new impervious surface developed as a result of this project.

Standard 1: No New Untreated Discharges

- ☒ No new untreated discharges
- ☐ Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- ☐ Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

N/A - There will be no net increase in impervious surface.

Standard 2: Peak Rate Attenuation

- ☐ Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- ☐ Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- ☐ Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

N/A - There will be no new net increase in impervious surface.

Standard 3: Recharge

- ☐ Soil Analysis provided.
- ☐ Required Recharge Volume calculation provided.
- ☐ Required Recharge volume reduced through use of the LID site Design Credits.
- ☐ Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - ☐ Static
 - ☐ Simple Dynamic
 - ☐ Dynamic Field¹
- ☐ Runoff from all impervious areas at the site discharging to the infiltration BMP.
- ☐ Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- ☐ Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - ☐ Site is comprised solely of C and D soils and/or bedrock at the land surface
 - ☐ M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - ☐ Solid Waste Landfill pursuant to 310 CMR 19.000
 - ☐ Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- ☐ Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- ☐ Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- ☐ The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- ☐ Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

N/A – no new
BMPs are
proposed

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- ☐ A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - ☐ Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - ☐ is within the Zone II or Interim Wellhead Protection Area
 - ☐ is near or to other critical areas
 - ☐ is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - ☐ involves runoff from land uses with higher potential pollutant loads.
 - ☐ The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - ☐ Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

N/A – no new
BMPs are
proposed

Standard 4: Water Quality (continued)

- ☐ The BMP is sized (and calculations provided) based on:
 - ☐ The ½" or 1" Water Quality Volume or
 - ☐ The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- ☐ The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- ☐ A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

N/A – no new
BMPs are
proposed

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- ☐ The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- ☐ The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- ☐ The NPDES Multi-Sector General Permit does **not** cover the land use.
- ☐ LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- ☐ All exposure has been eliminated.
- ☐ All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- ☐ The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

N/A – no new
BMPs are
proposed

Standard 6: Critical Areas

- ☐ The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- ☐ Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- ☒ The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - ☐ Limited Project
 - ☐ Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - ☐ Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - ☐ Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - ☐ Bike Path and/or Foot Path
- ☒ Redevelopment Project
- ☒ Redevelopment portion of mix of new and redevelopment.
- ☐ Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- ☐ The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
- Construction Period Operation and Maintenance Plan;
- Names of Persons or Entity Responsible for Plan Compliance;
- Construction Period Pollution Prevention Measures;
- Erosion and Sedimentation Control Plan Drawings;
- Detail drawings and specifications for erosion control BMPs, including sizing calculations;
- Vegetation Planning;
- Site Development Plan;
- Construction Sequencing Plan;
- Sequencing of Erosion and Sedimentation Controls;
- Operation and Maintenance of Erosion and Sedimentation Controls;
- Inspection Schedule;
- Maintenance Schedule;
- Inspection and Maintenance Log Form.

- ☐ A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.

See project plans in Attachment H and Section 8.0 of Attachment A Narrative



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- ☐ The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- ☒ The project is **not** covered by a NPDES Construction General Permit.
- ☐ The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- ☐ The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

N/A – no new
BMPs are
proposed

Standard 9: Operation and Maintenance Plan

- ☐ The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - ☐ Name of the stormwater management system owners;
 - ☐ Party responsible for operation and maintenance;
 - ☐ Schedule for implementation of routine and non-routine maintenance tasks;
 - ☐ Plan showing the location of all stormwater BMPs maintenance access areas;
 - ☐ Description and delineation of public safety features;
 - ☐ Estimated operation and maintenance budget; and
 - ☐ Operation and Maintenance Log Form.
- ☐ The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - ☐ A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - ☐ A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

No new
stormwater
connections are
proposed;
there four
existing
stormwater
outfalls on the
project site -
however there
are no known
existing or
proposed illicit
discharges

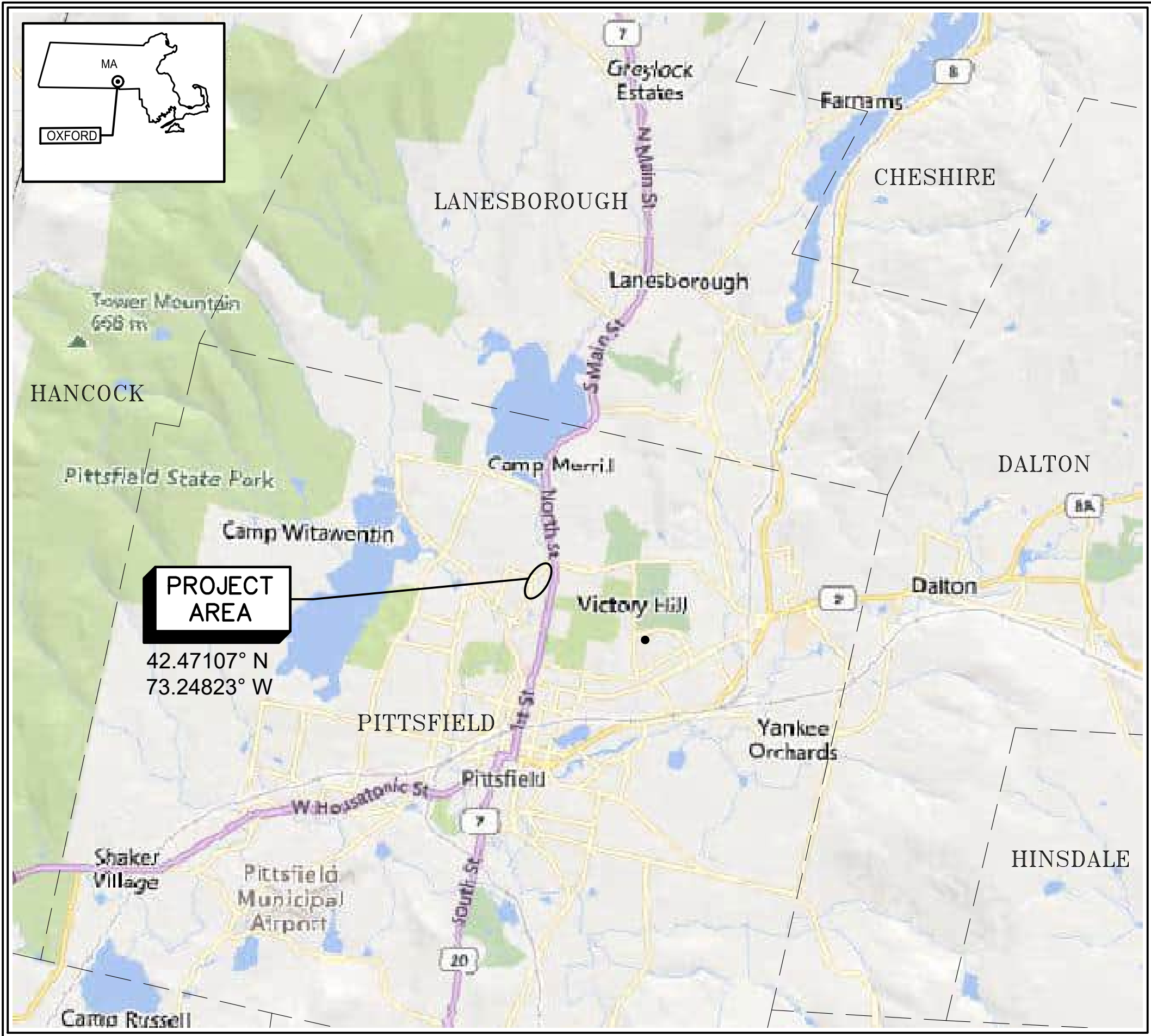
Standard 10: Prohibition of Illicit Discharges

- ☐ The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- ☐ An Illicit Discharge Compliance Statement is attached;
- ☐ NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Attachment J
Project Plans

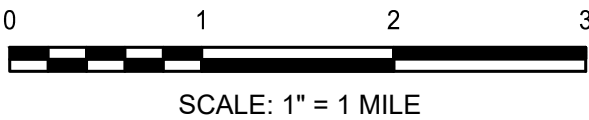
MASSACHUSETTS DEPARTMENT OF
CONSERVATION AND RECREATION
BEL AIR DAM REMOVAL
PITTSFIELD, MA

JUNE 2024



LOCATION PLAN

APPROXIMATE SCALE: 1" = 1 Mile



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



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

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

REGISTRATION

PERMIT REVIEW SET
PRELIMINARY COPY

NOTE: This document is preliminary only and is
not intended for any purpose except review and
comment by the owner and its agents.

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

60604936

Designed By:	JDB
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

PATH: I:\ENR\AECOM\PROJECTS\MASSDCR\604936 - MASSDCR SIX ABANDONED DAMS\SHEETS\C001 BEL.DWG
LAST UPDATE: Thursday, June 6, 2024 9:16:02 AM
PLOT DATE: Monday, June 24, 2024 10:27:43 AM

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), CORRS 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.

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



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.
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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

PROJECT

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

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PROJECT NUMBER

60604936

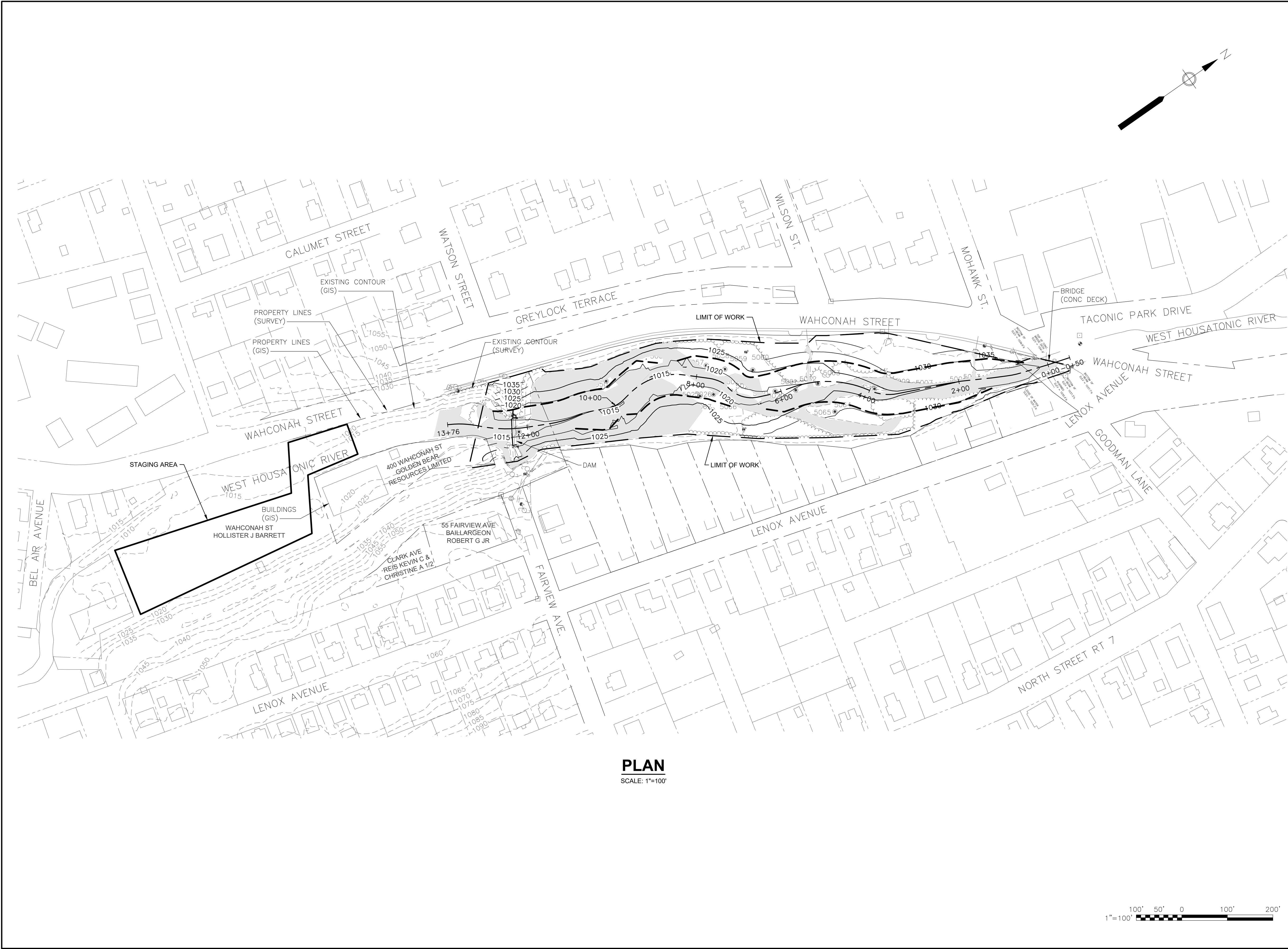
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Drawn By:	SN
Dept Check:	CB
Proj Check:	D. GOVE
Date:	JUNE 2024
Scale:	AS NOTED

DISCIPLINE

CIVIL
SHEET TITLE

BEL AIR DAM REMOVAL
STAGING AND SITE
ACCESS PLAN
SHEET NUMBER

00 C-102



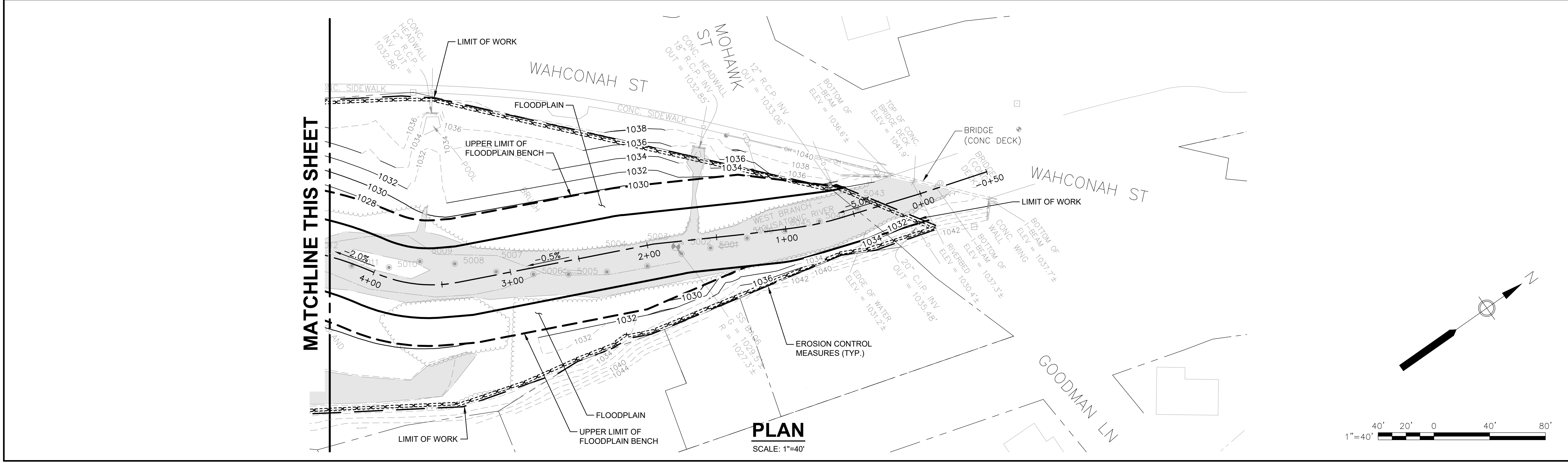
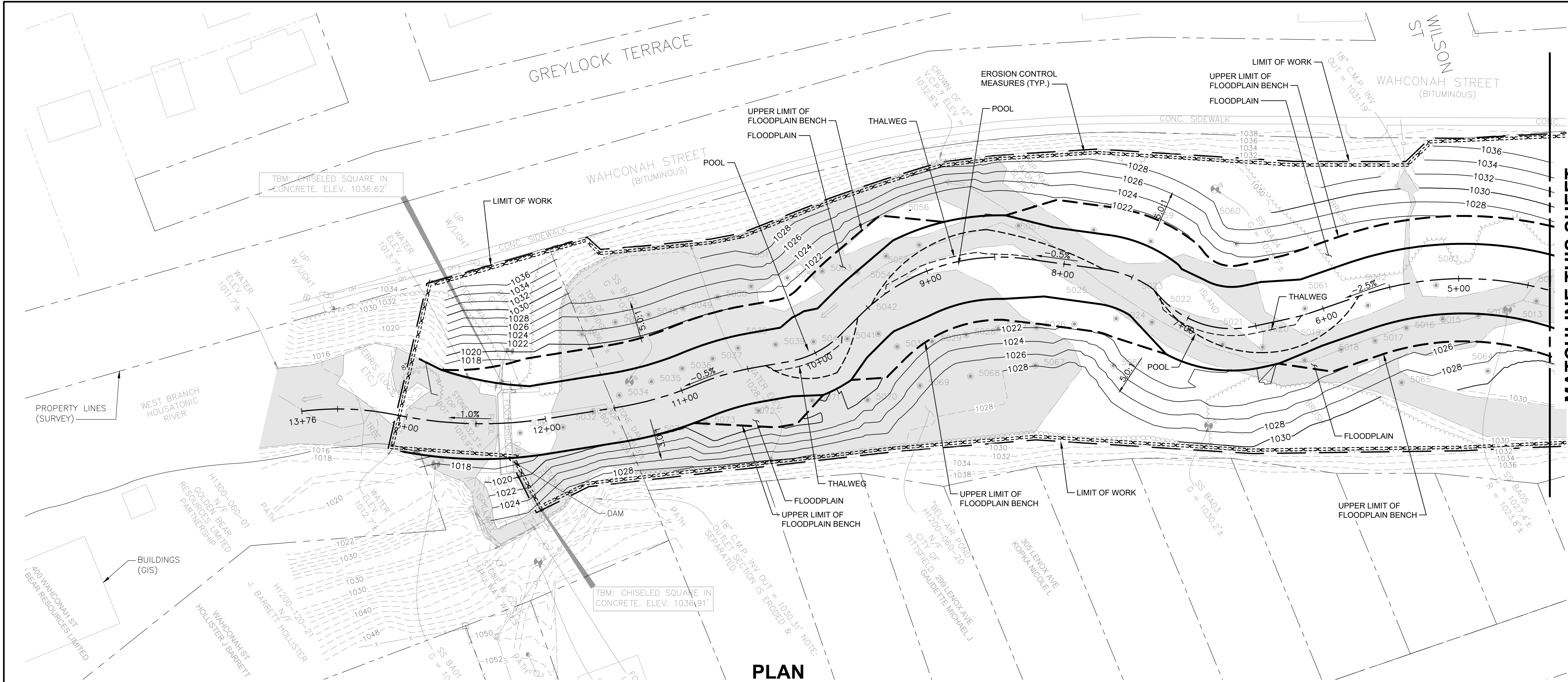
PLAN

SCALE: 1"=100'

100' 50' 0 100' 200'
1"=100'

I/R	DATE	DESCRIPTION

Designed By:	JPM
Drawn By:	SN
Dept Check:	CB
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Scale:	AS NOTED



PROJECT

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

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Date:	JUNE 2024
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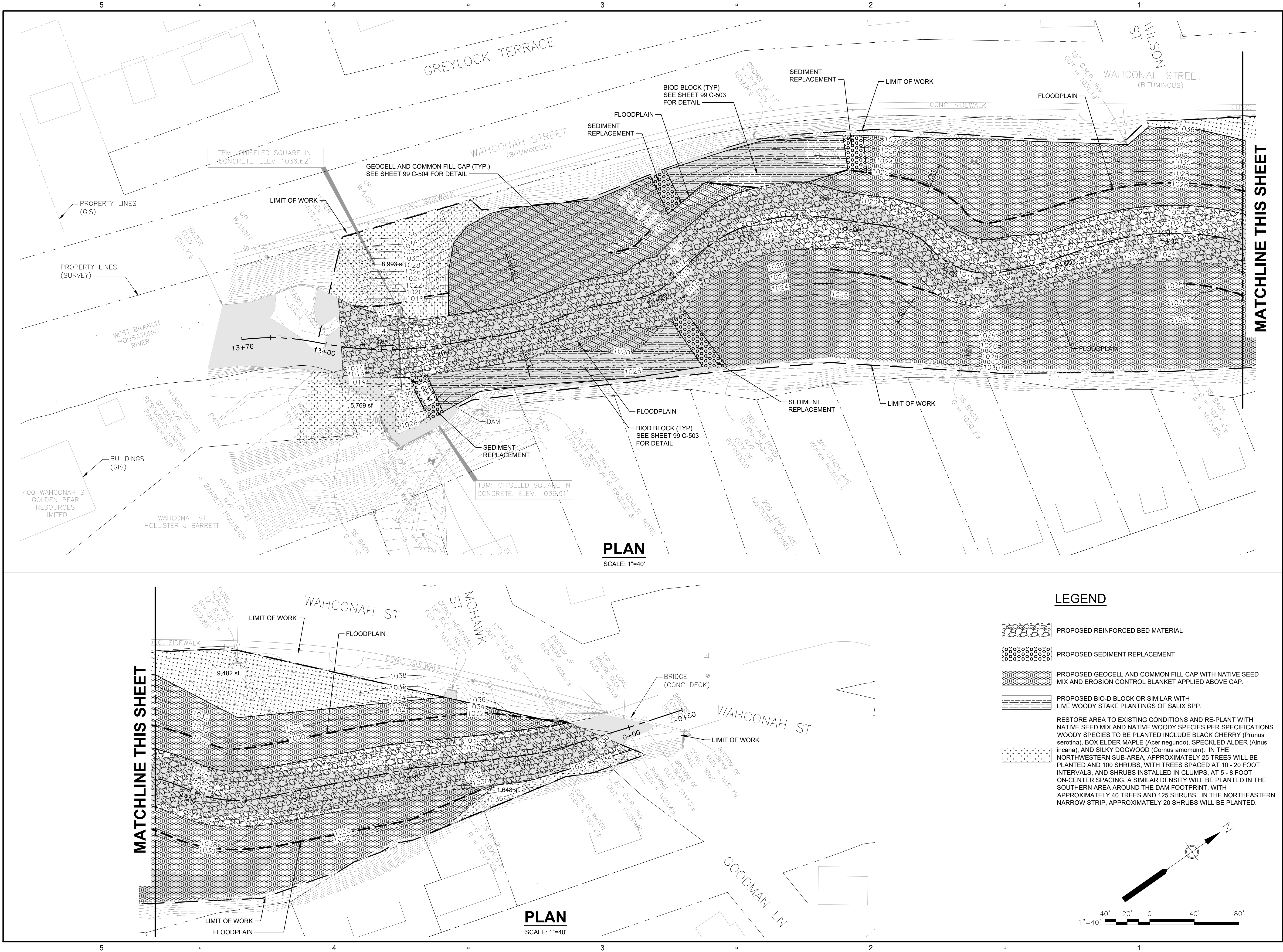
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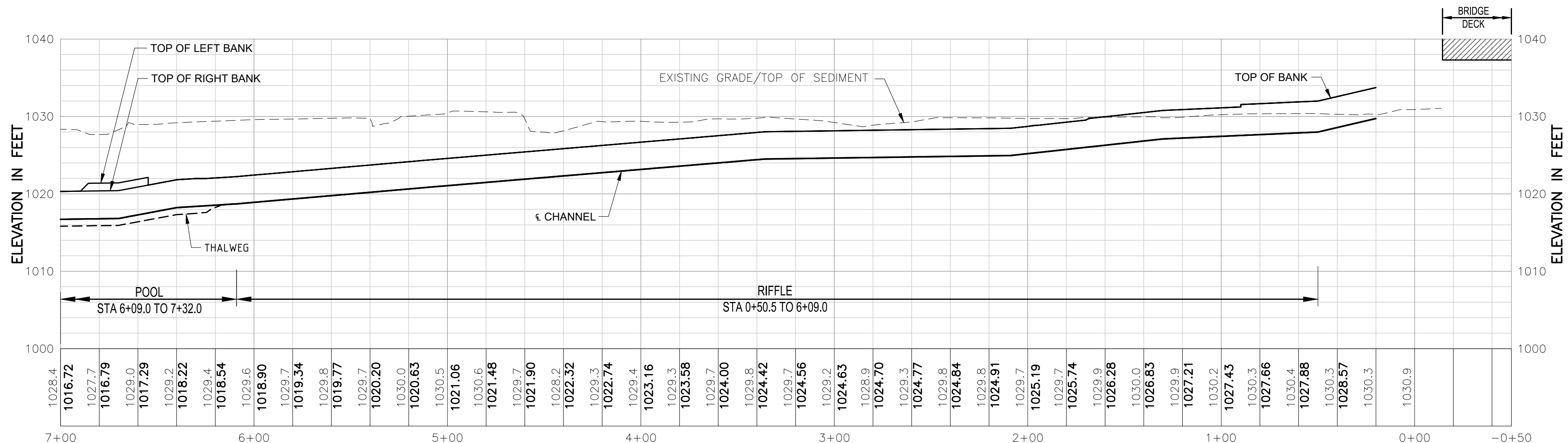
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SHEET TITLE

BEL AIR DAM REMOVAL
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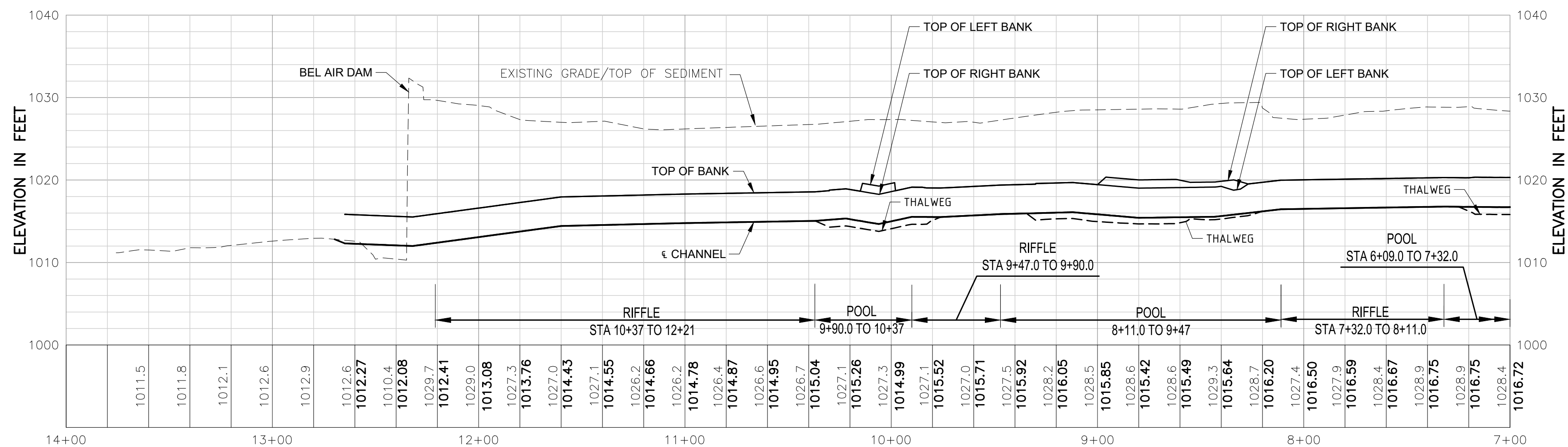
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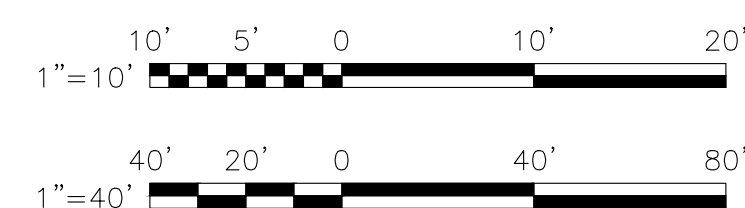




SCALE: 1"=40' HORZ
1"=10' VERT



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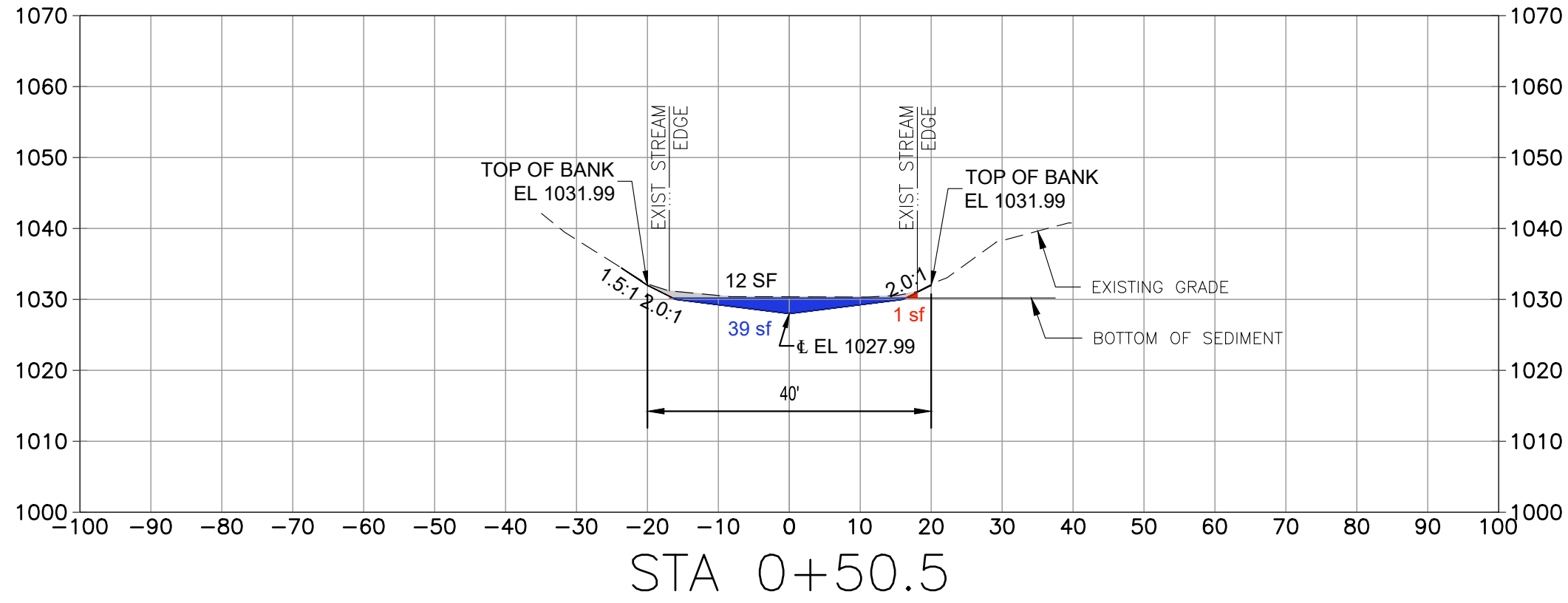
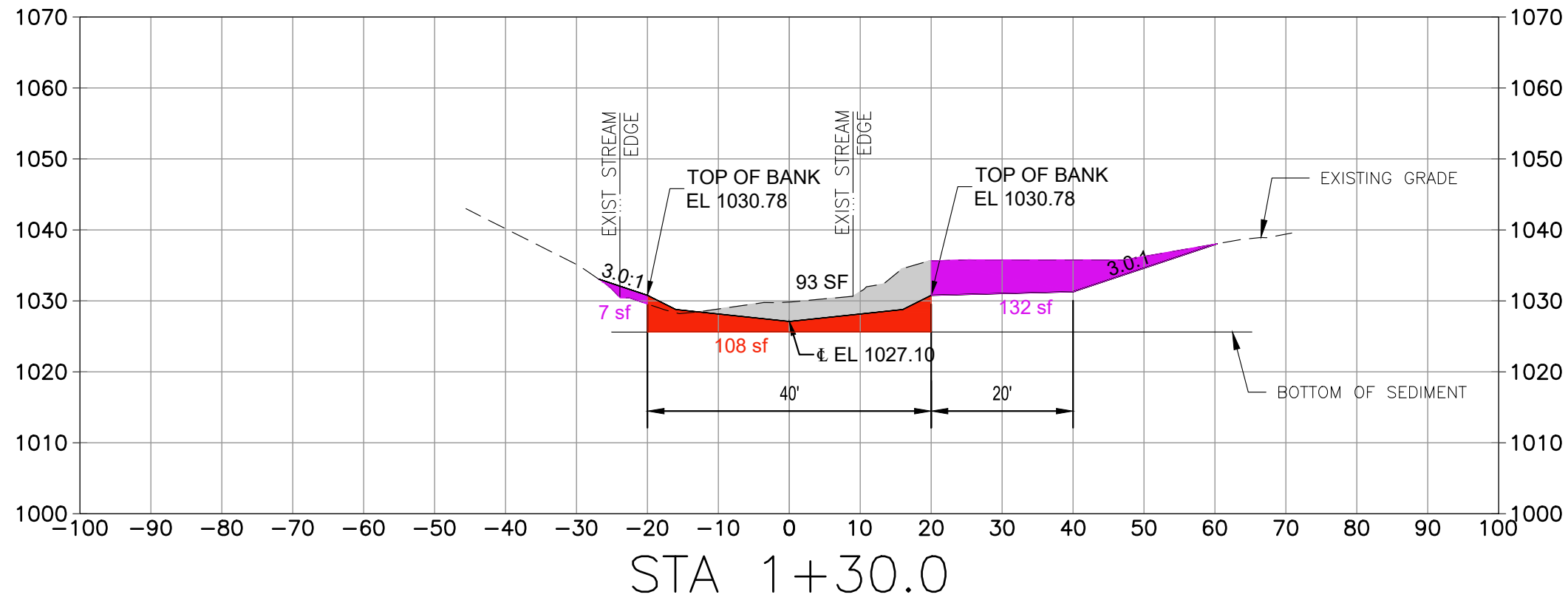
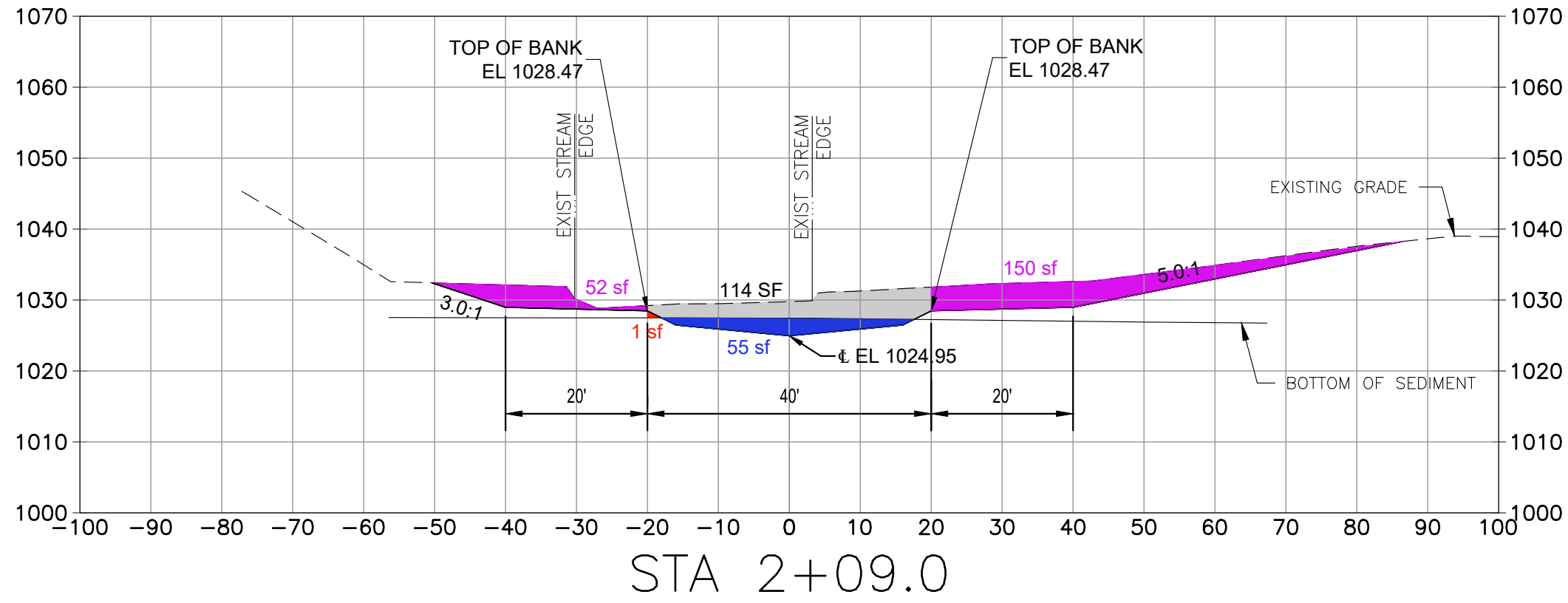
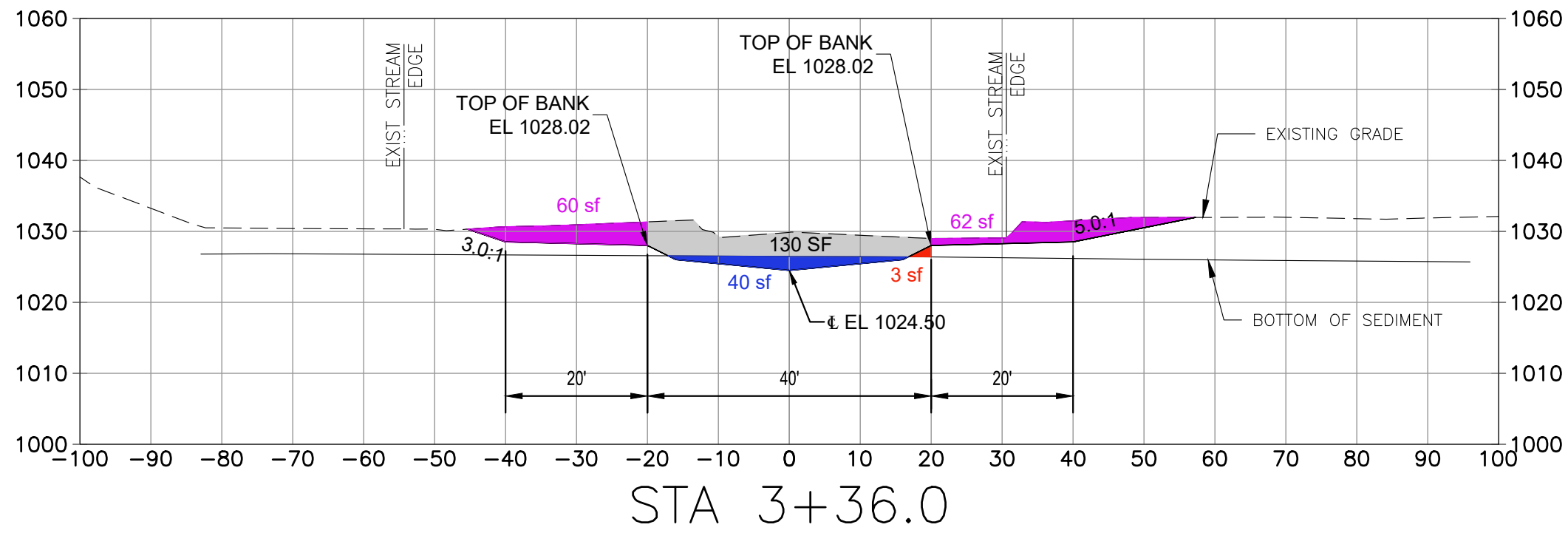
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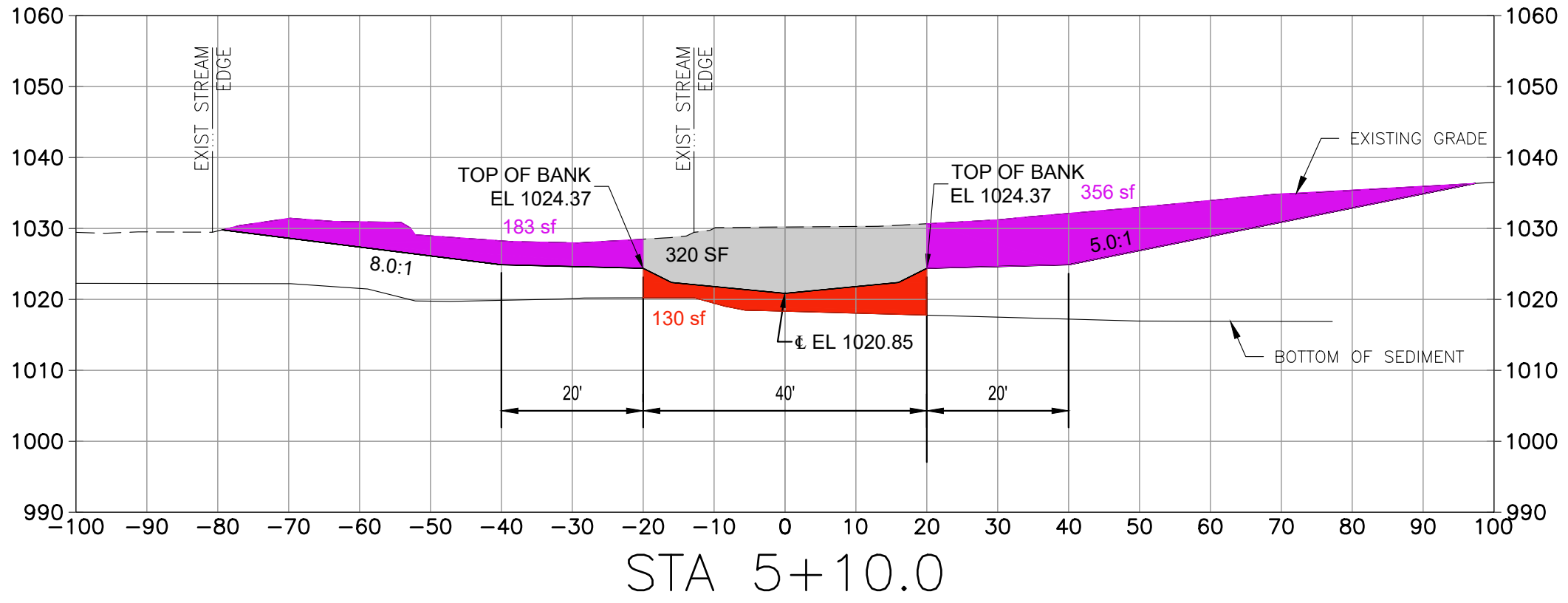
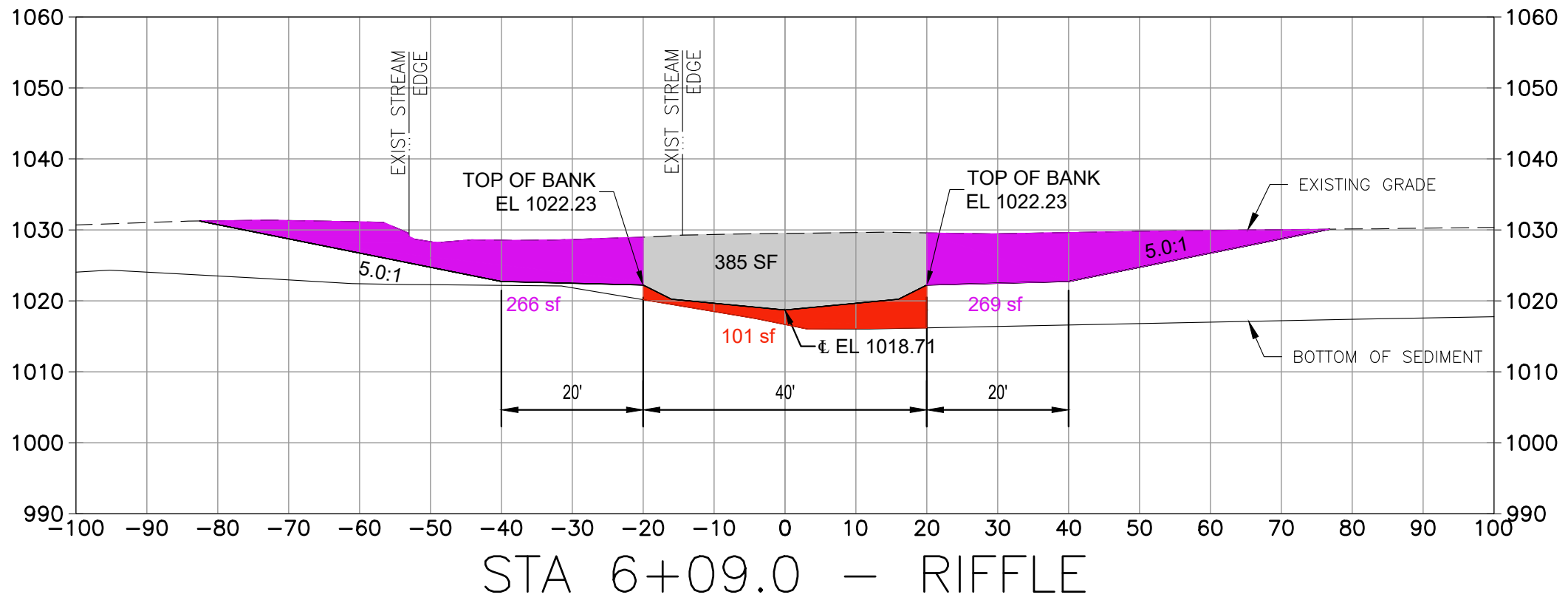
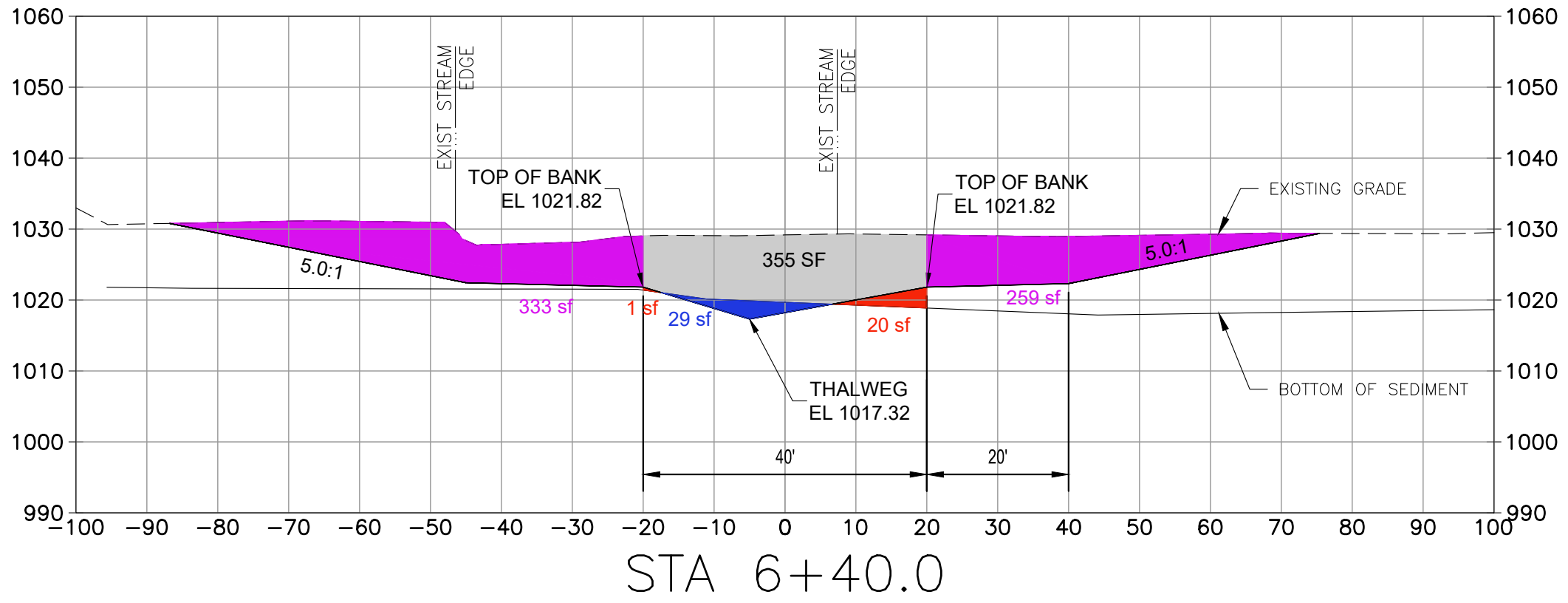
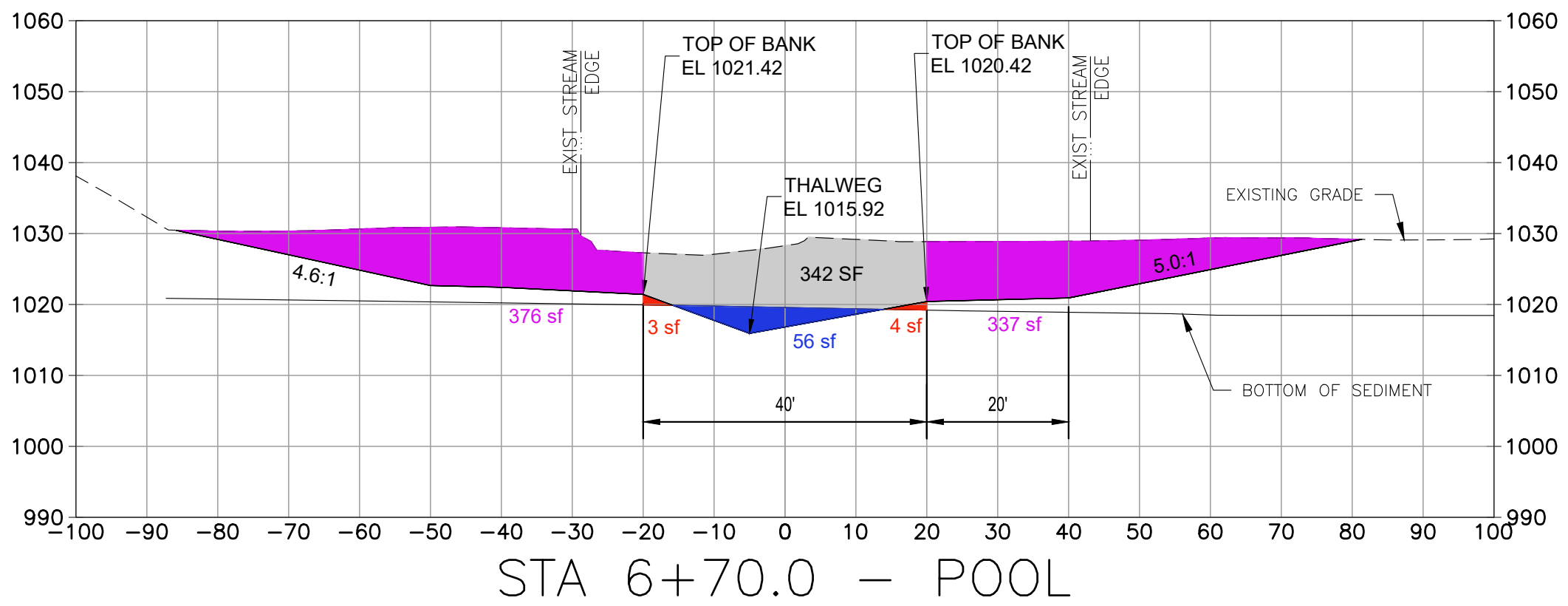
LEGEND

- 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' HORIZ
1"=20' VERT

2



AECOM

PROJECT

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

CLIENT

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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 1 OF 3

SHEET NUMBER

00 C-301

PROJECT

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

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Drawn By: **SN**

Dept Check: **CB**

Proj Check: **D. GOVE**

Date: **JUNE 2024**

Scale: **AS NOTED**

DISCIPLINE

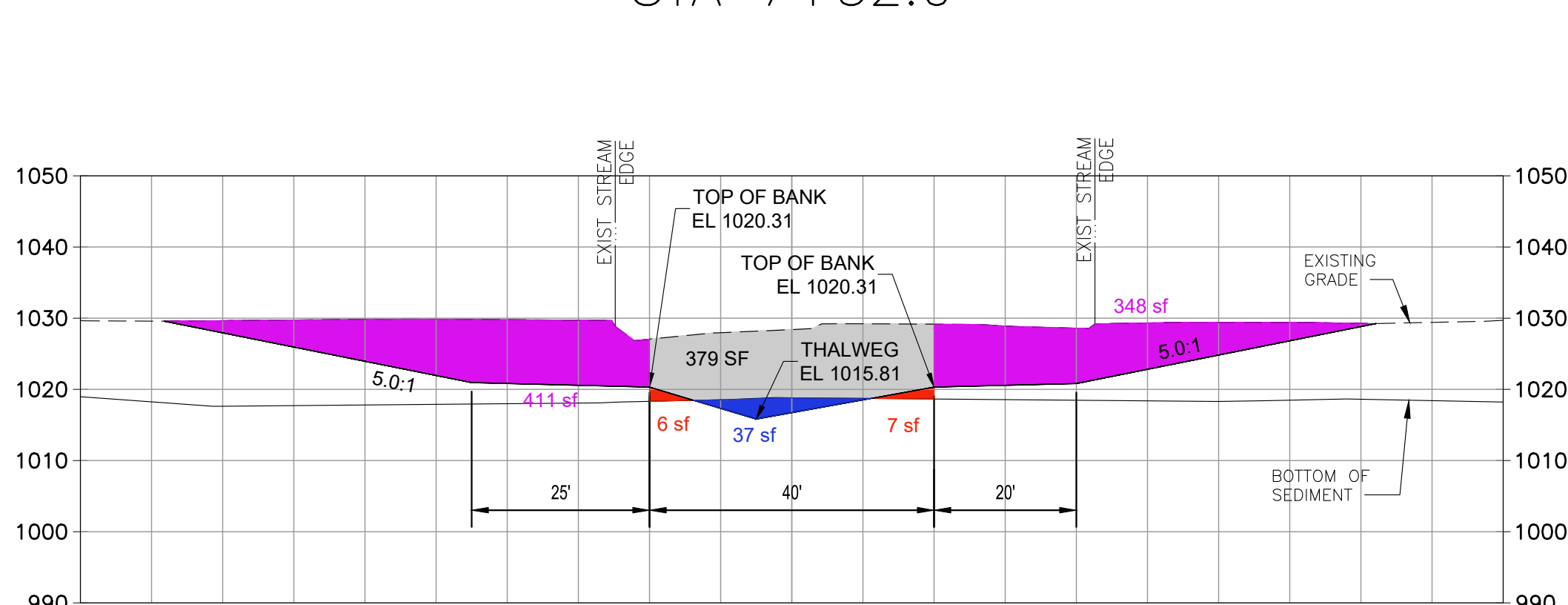
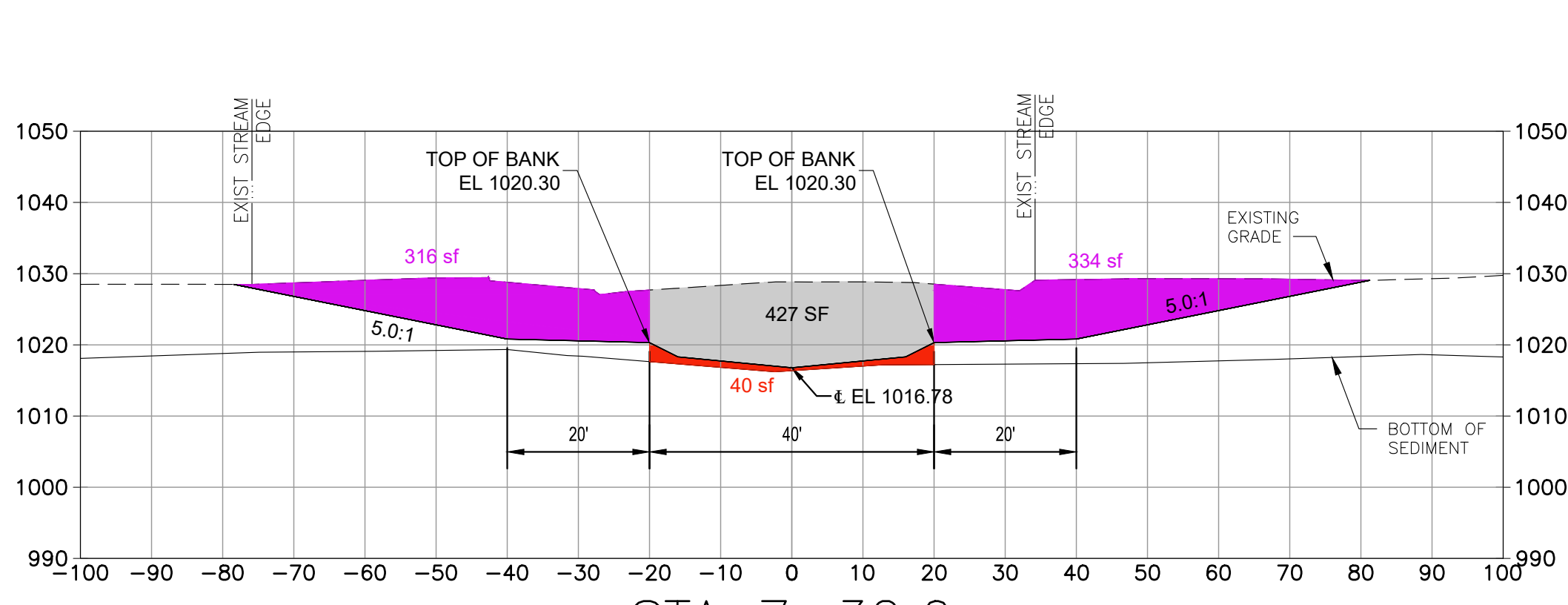
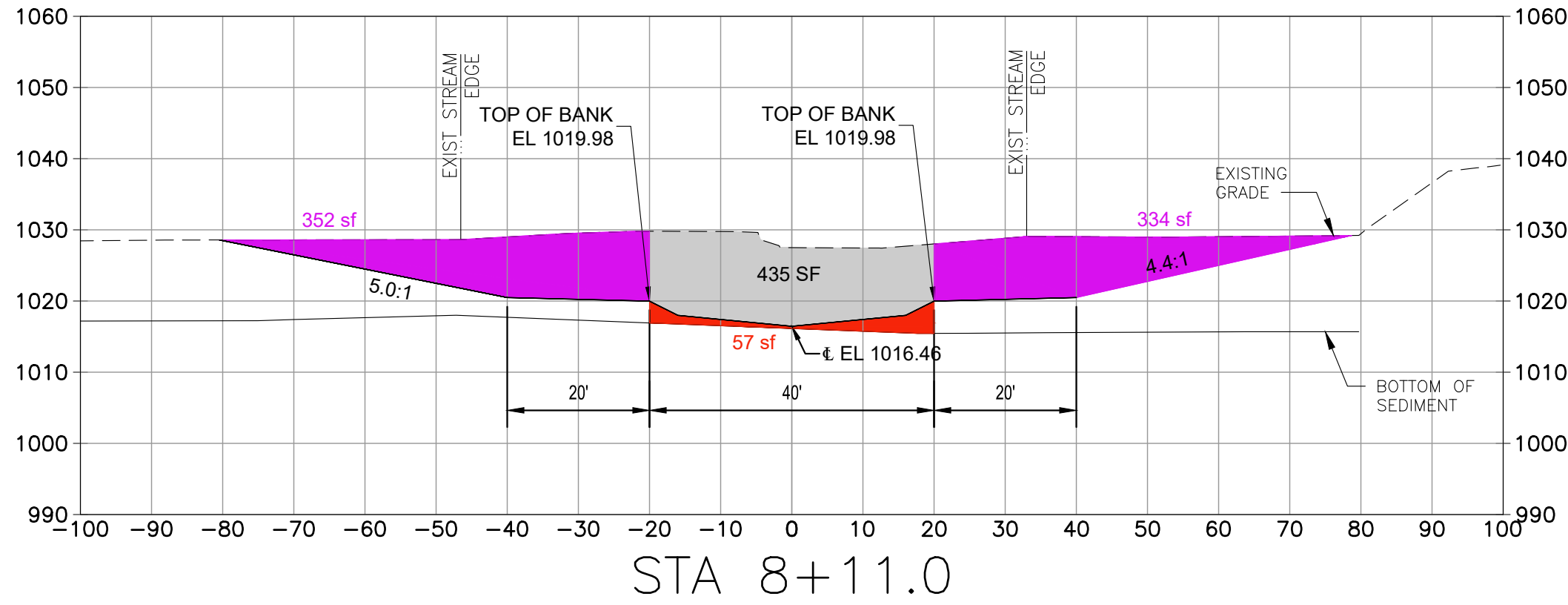
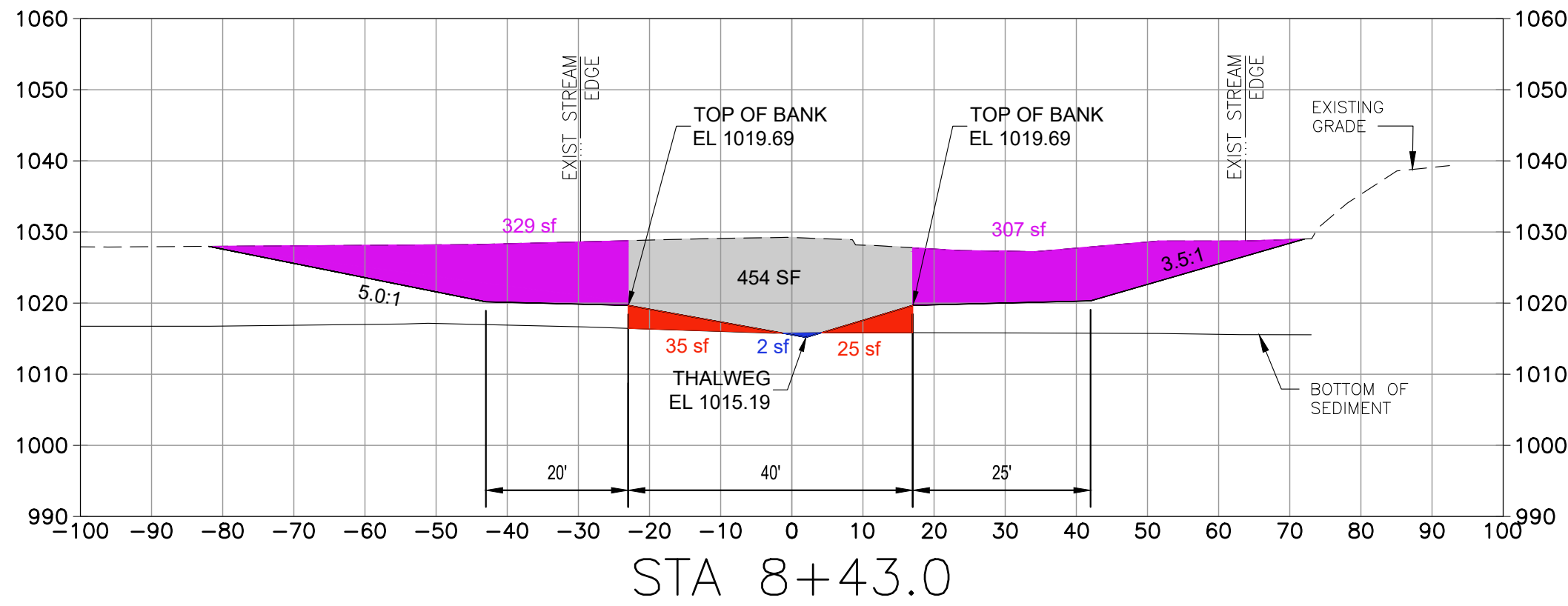
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SHEET TITLE

BEL AIR DAM REMOVAL
SECTIONS 2 OF 3

SHEET NUMBER

00 C-302

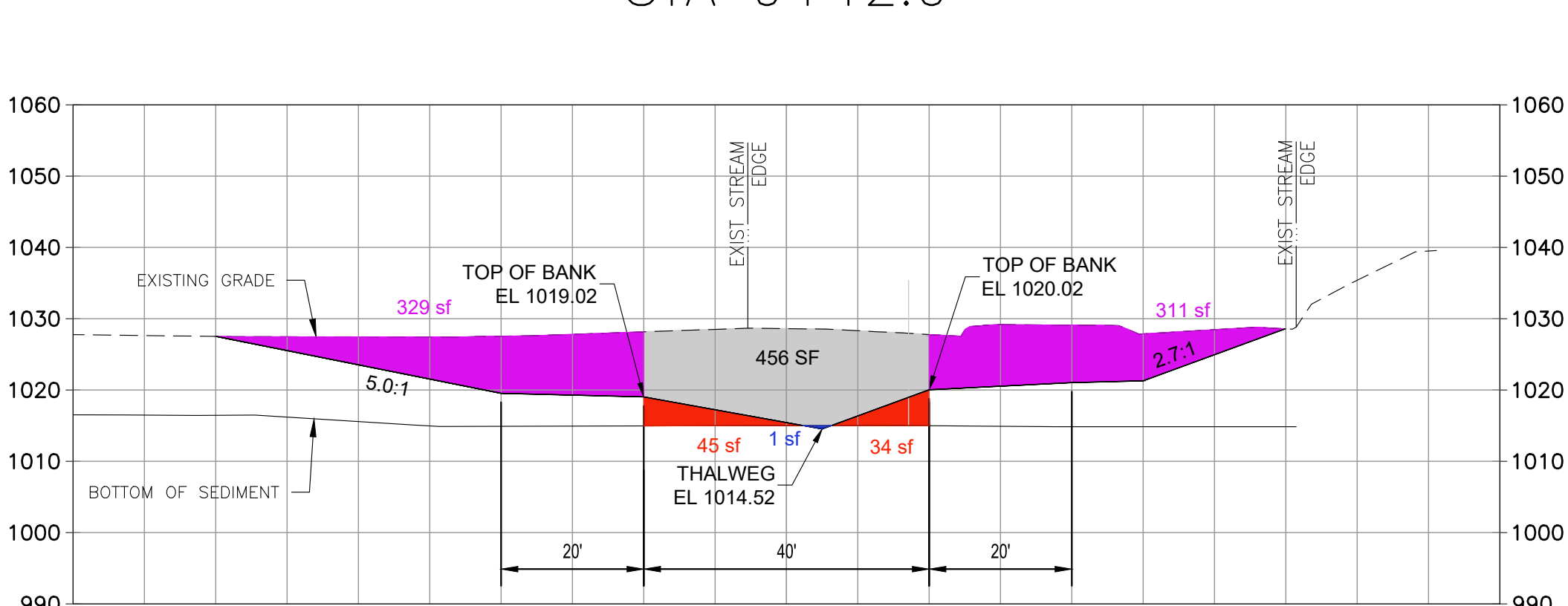
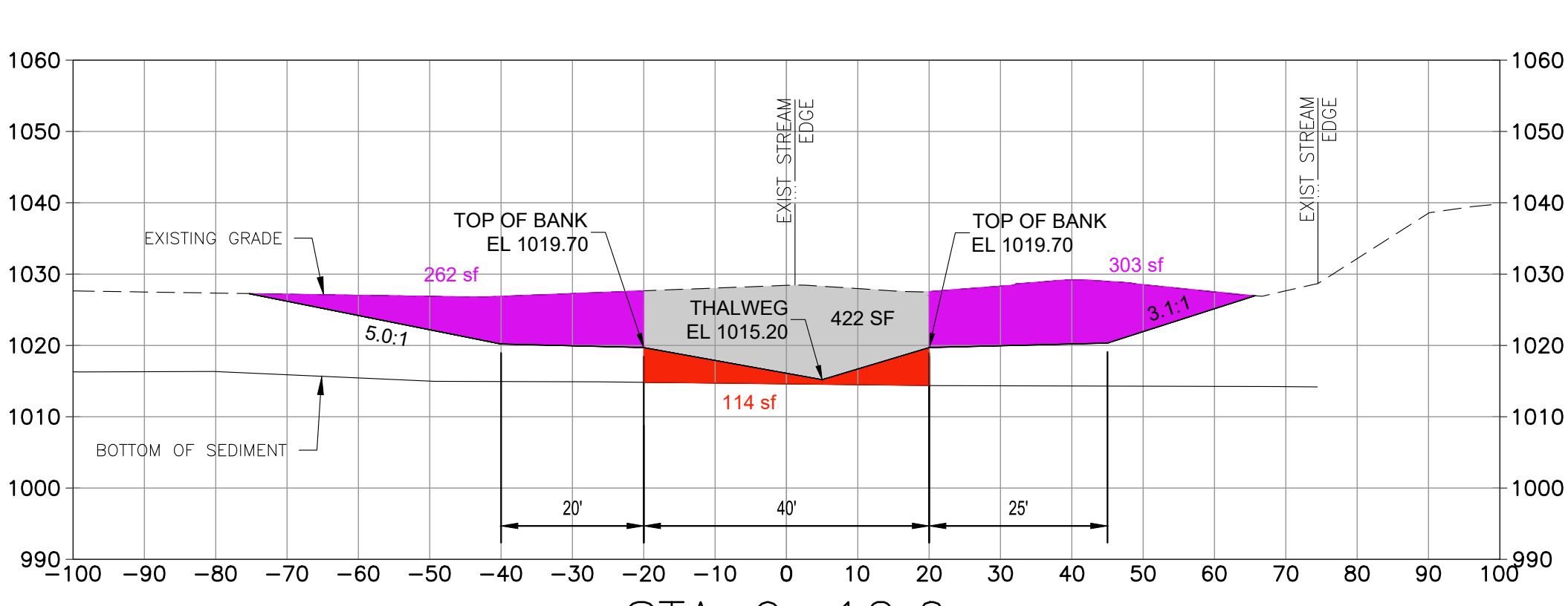
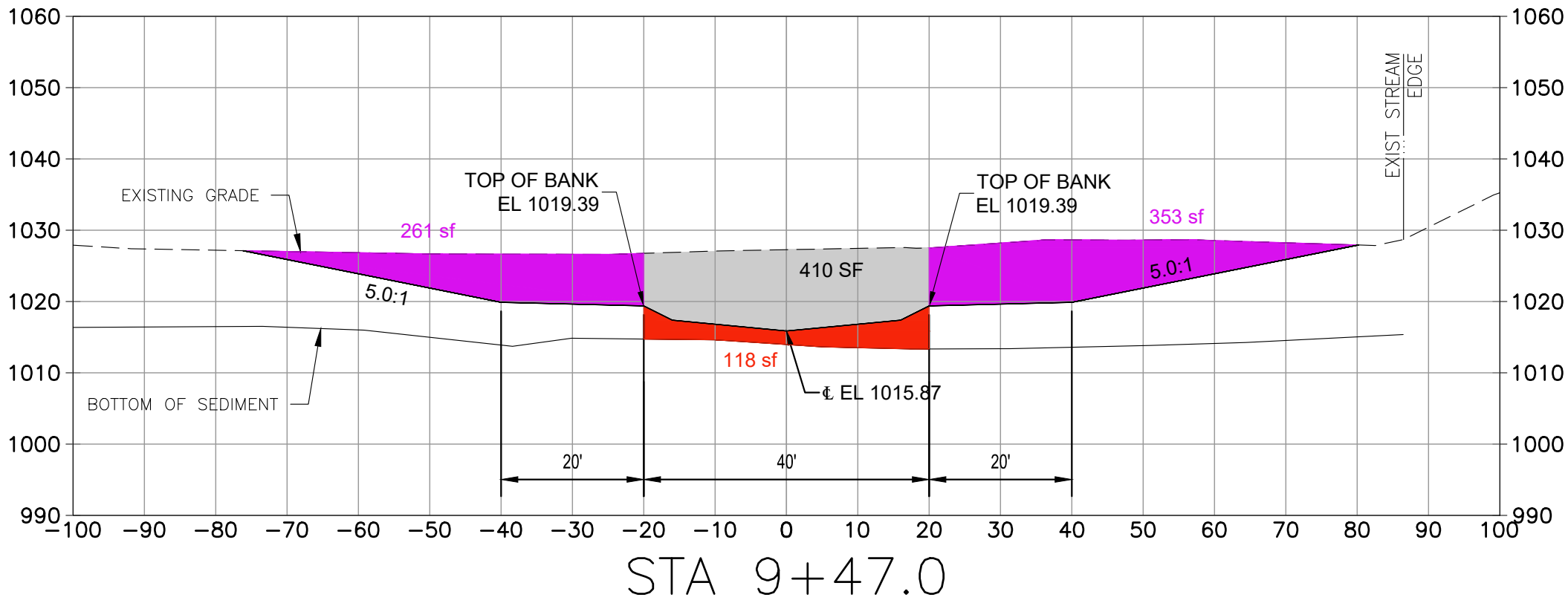
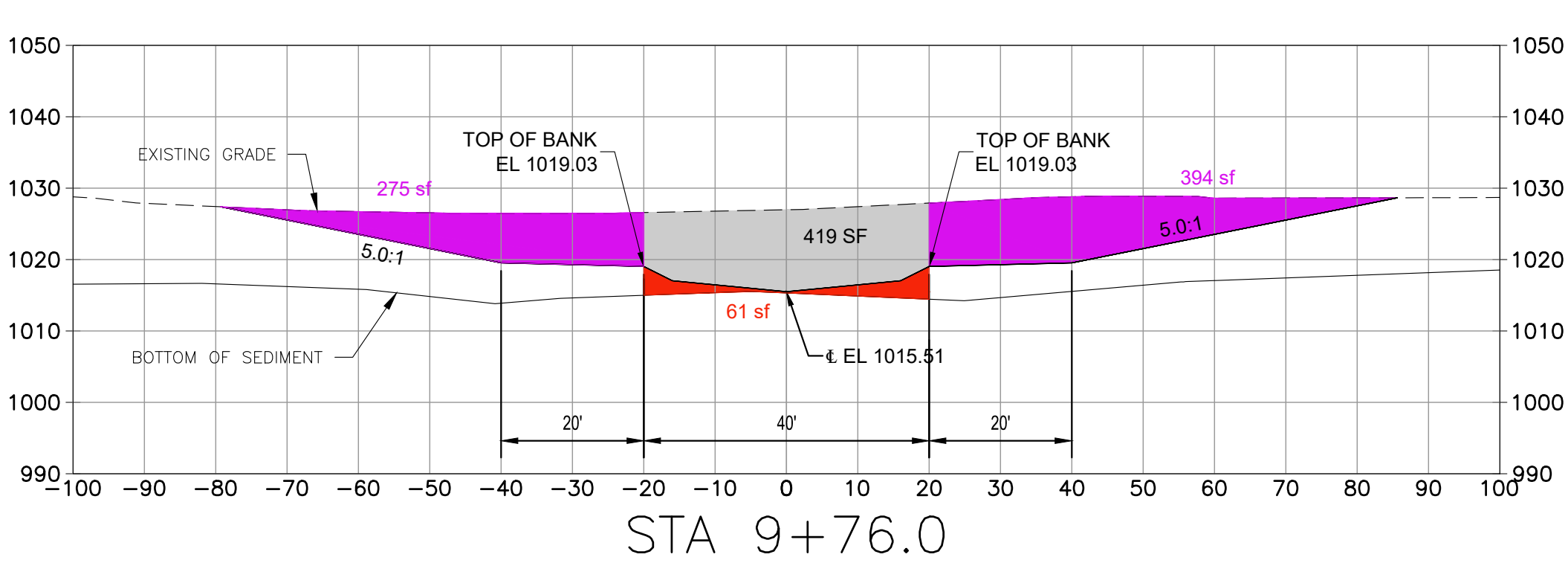


LEGEND

- SEDIMENT TO BE EXCAVATED TO CREATE STREAM PROFILE
- COARSE MATERIAL TO BE EXCAVATED TO CREATE STREAM PROFIE
- 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 10:31:29 AM

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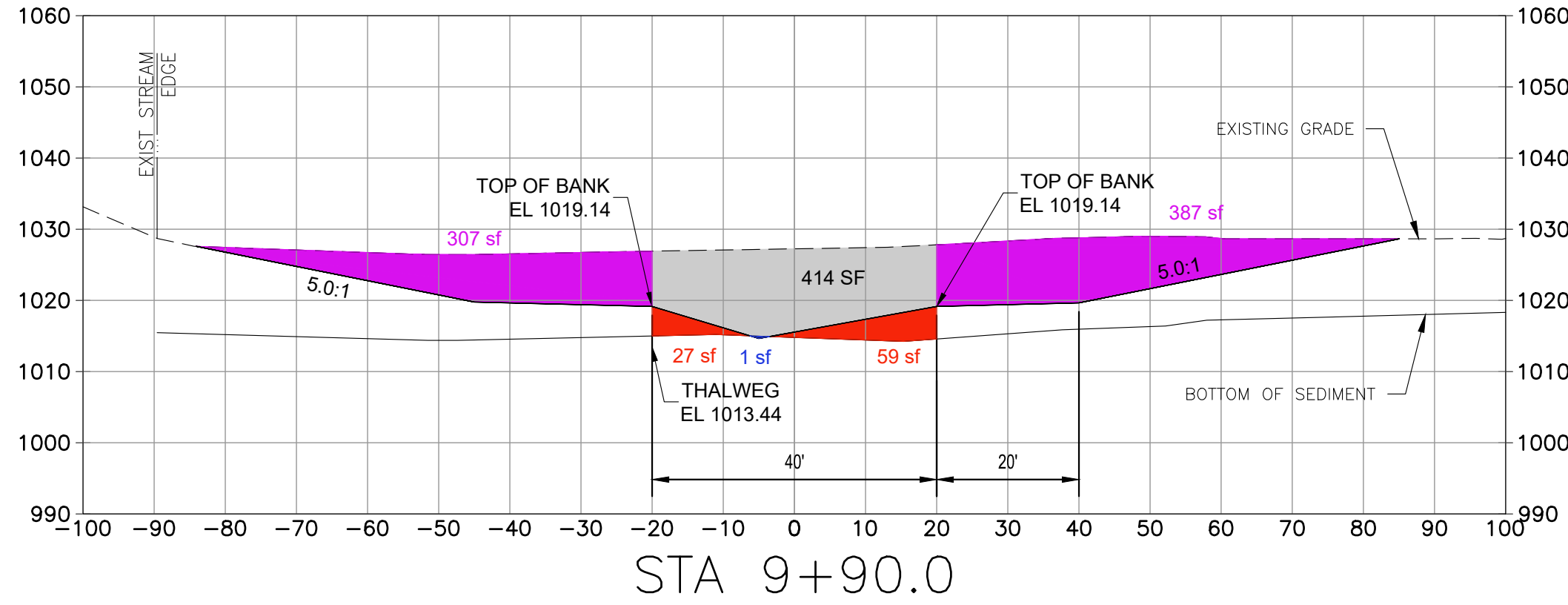
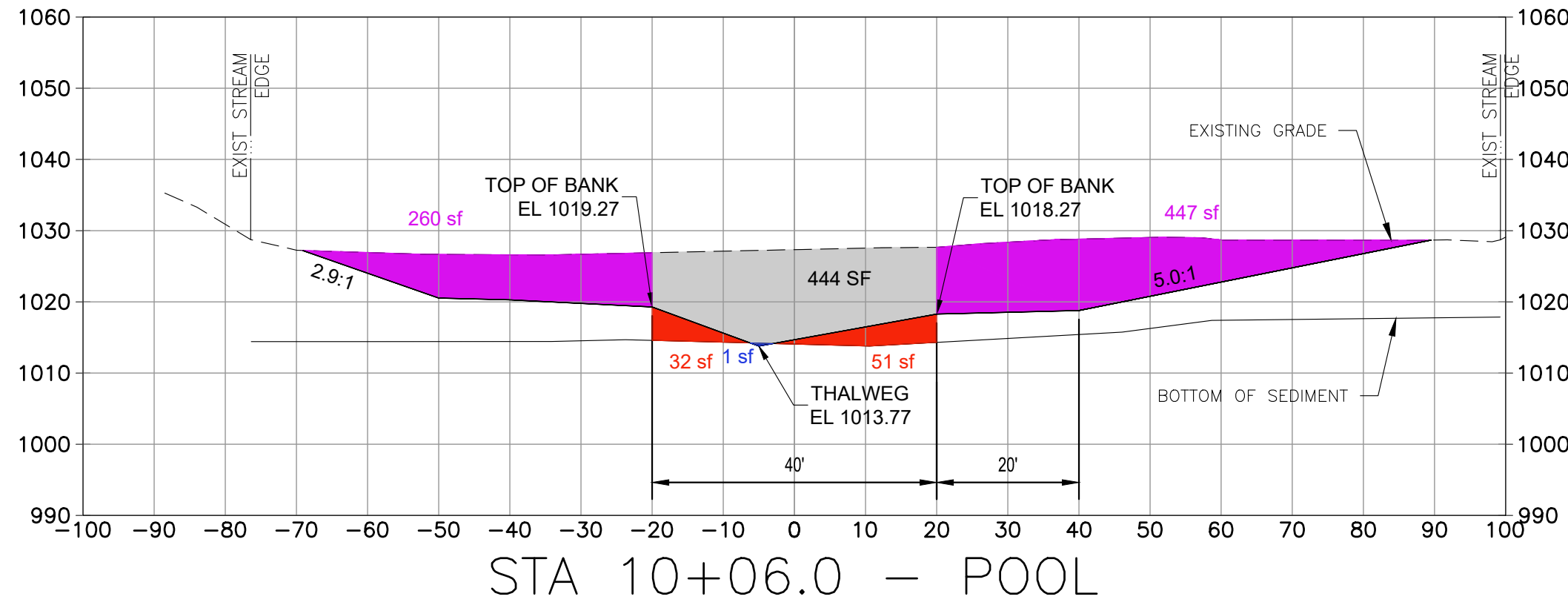
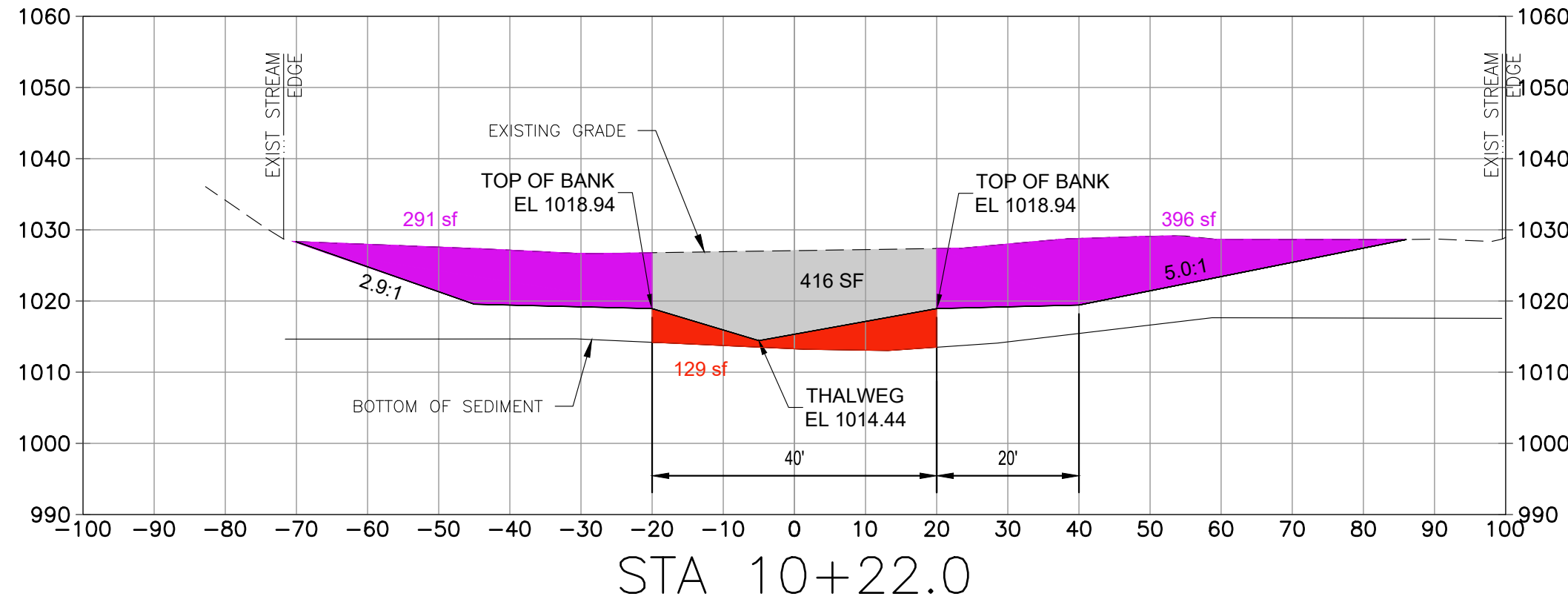
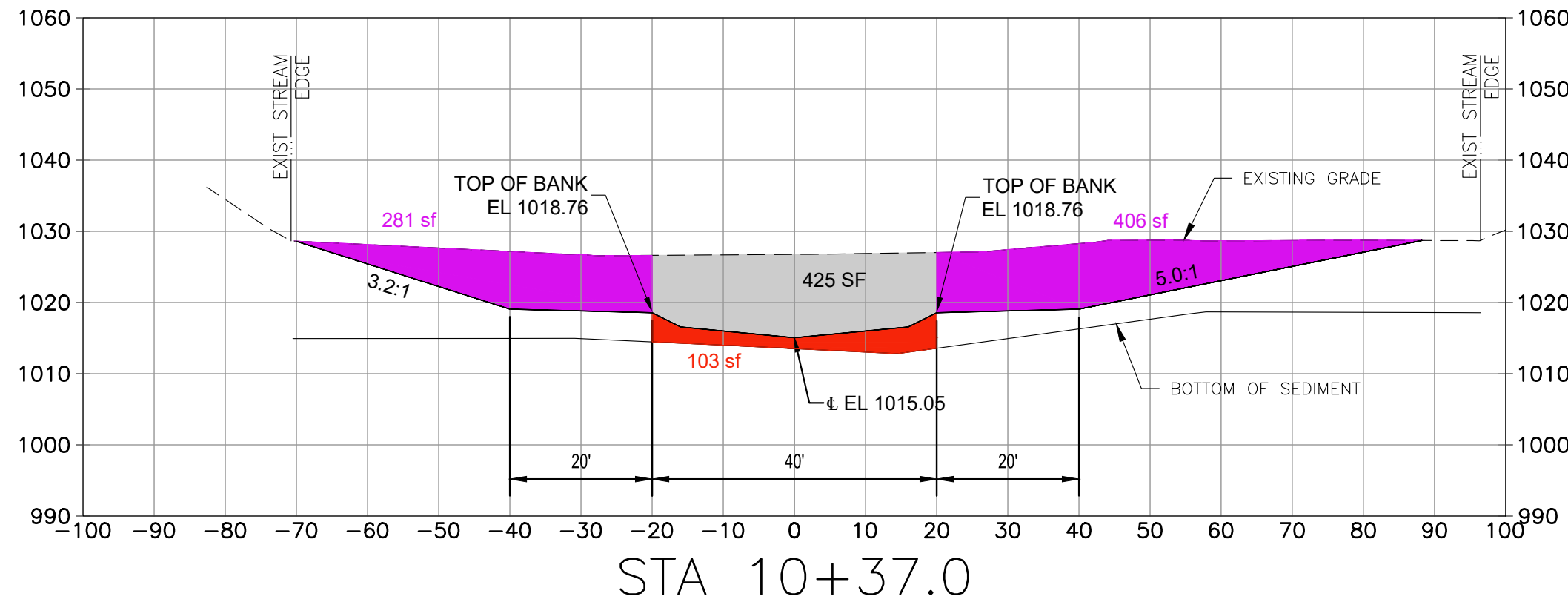
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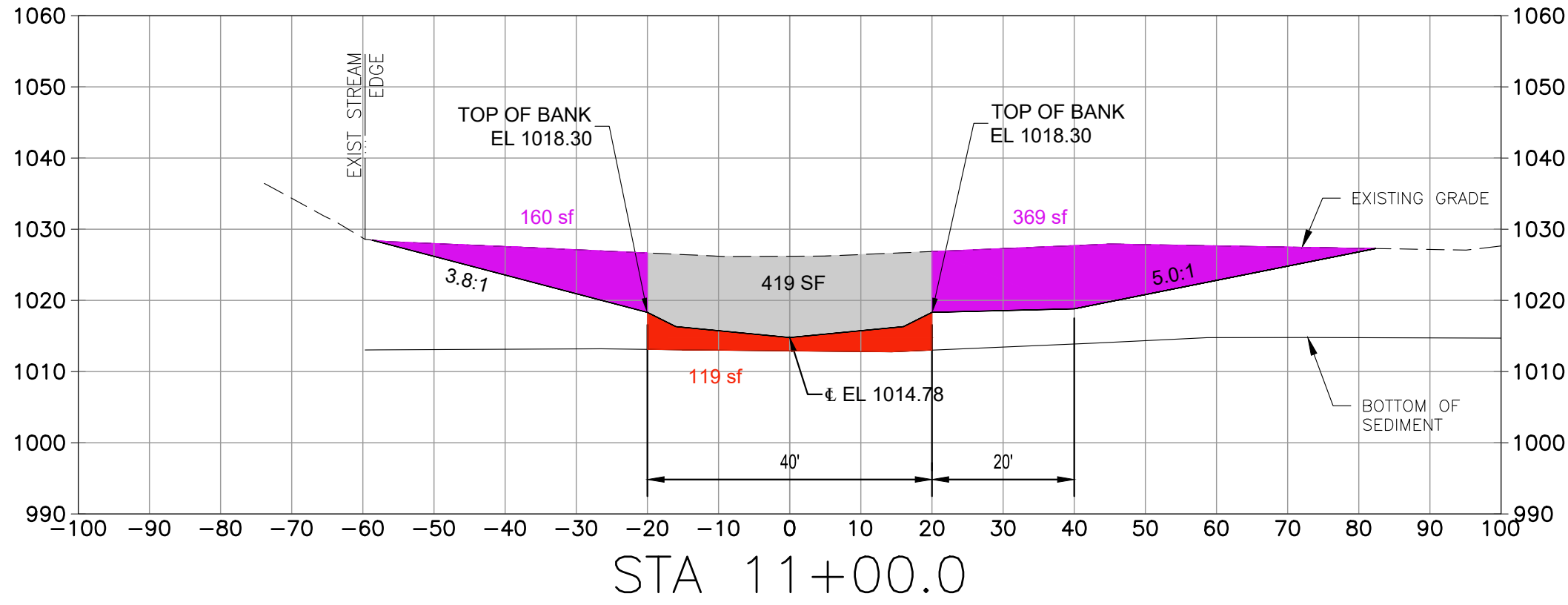
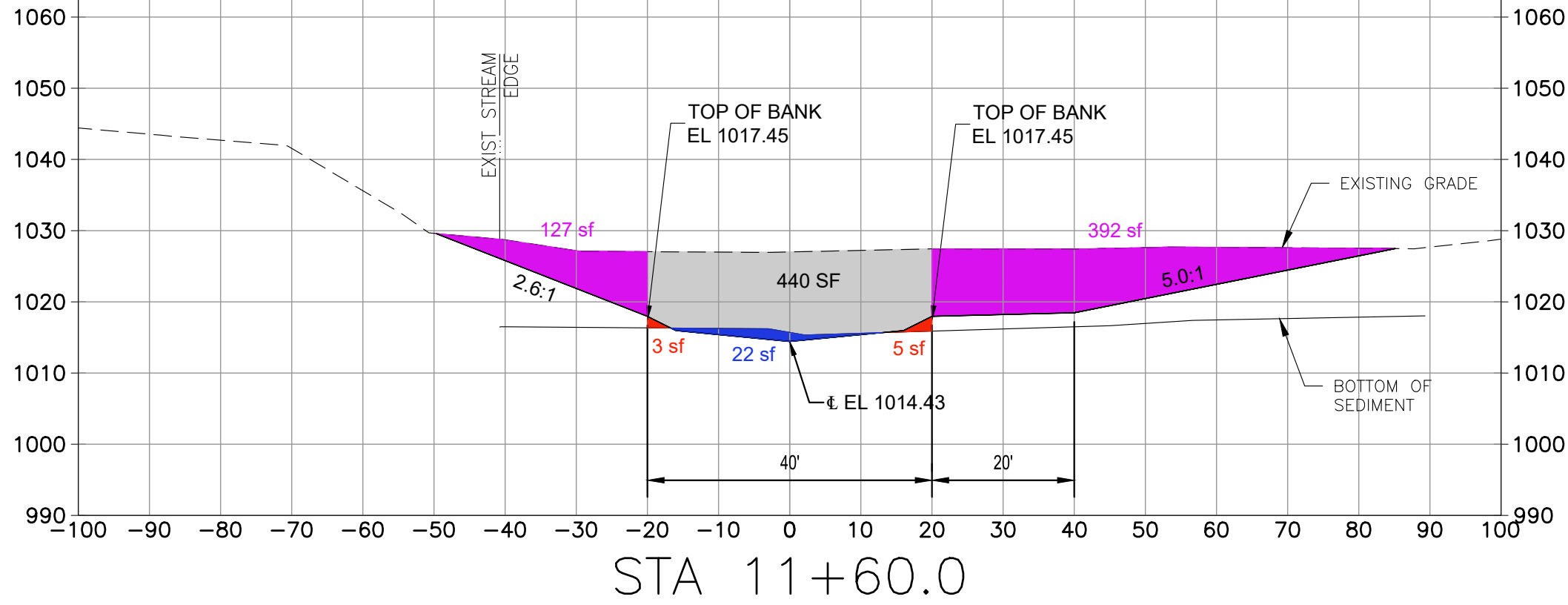
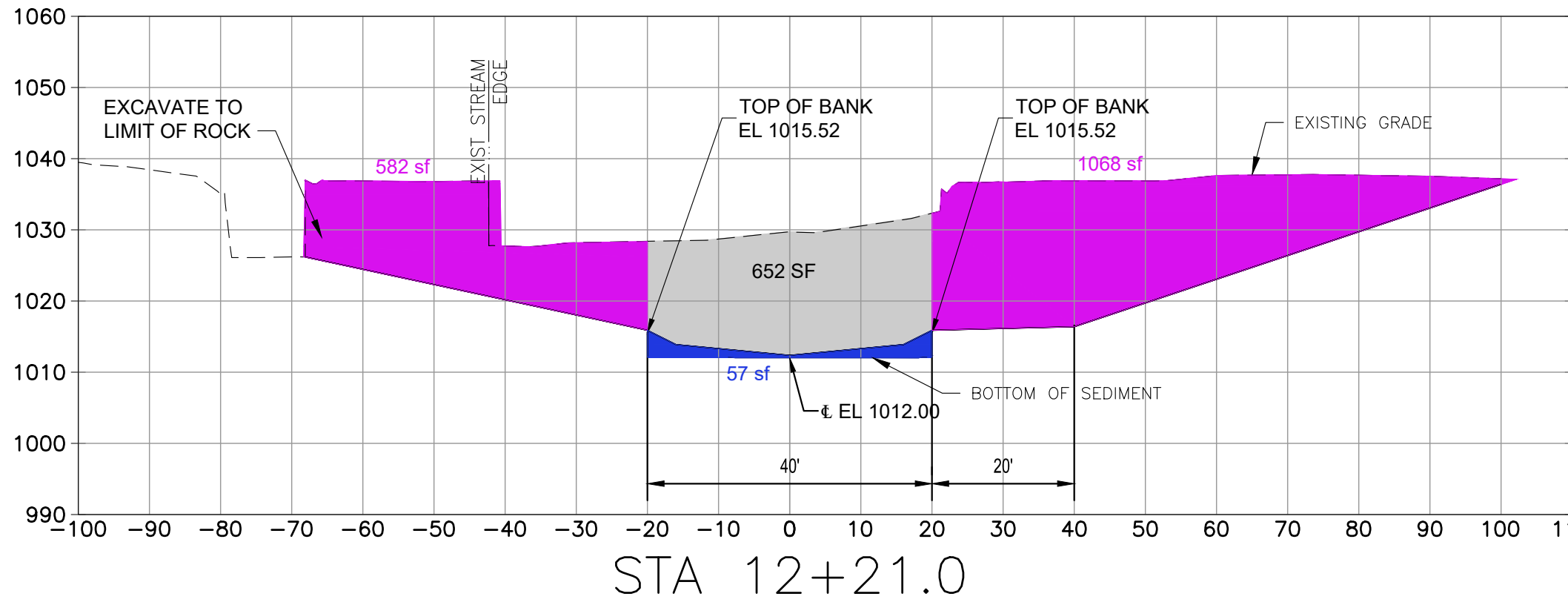
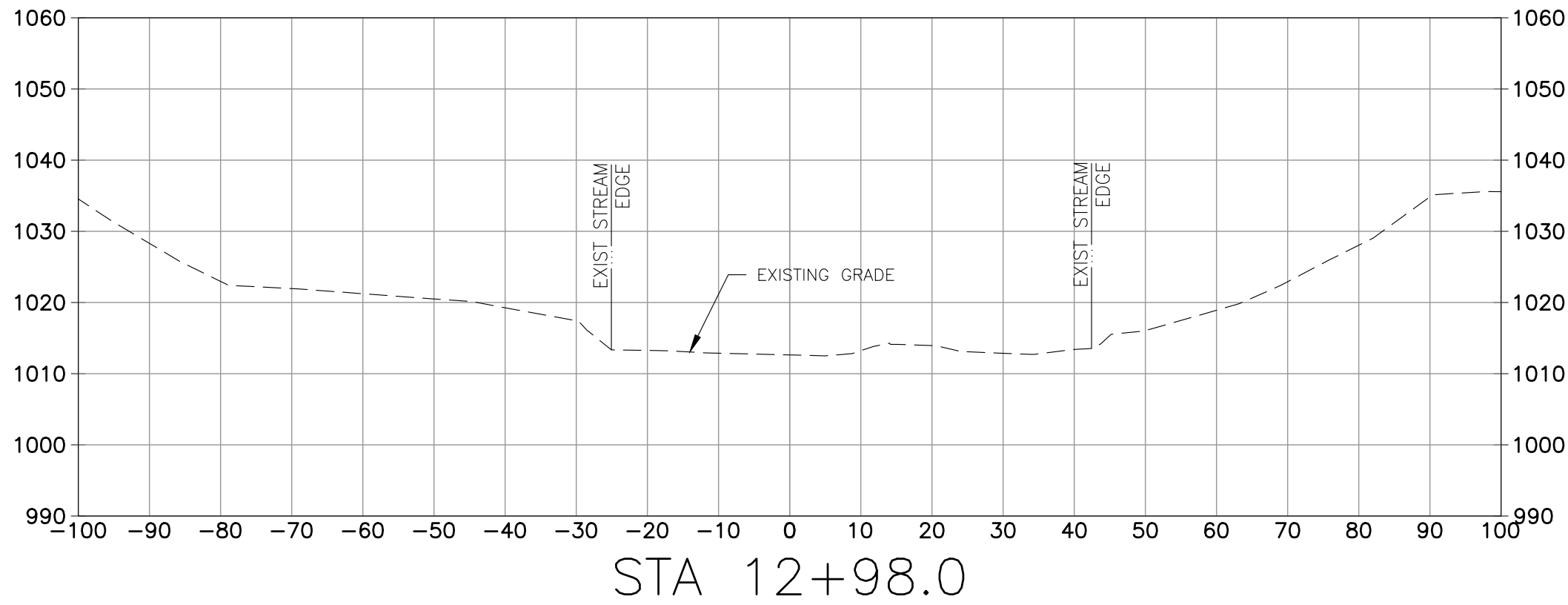
LEGEND

- 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' HORIZ
1"=20' VERT

20' 10' 0 20' 40'
1"=20'



AECOM

PROJECT

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

CLIENT

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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

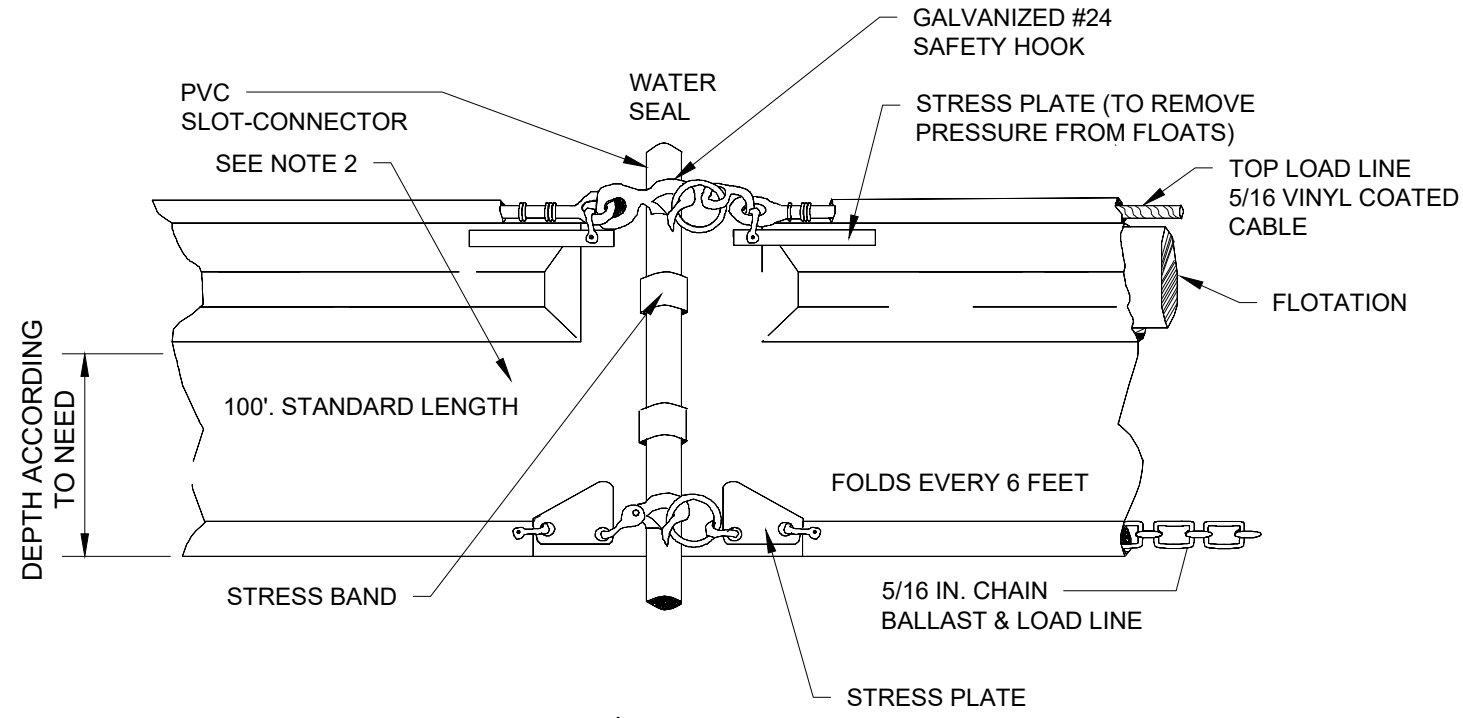
BEL AIR DAM REMOVAL

SECTIONS 3 OF 3

SHEET NUMBER

00 C-303

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PLOT DATE: Monday, June 24, 2024 10:31:39 AM



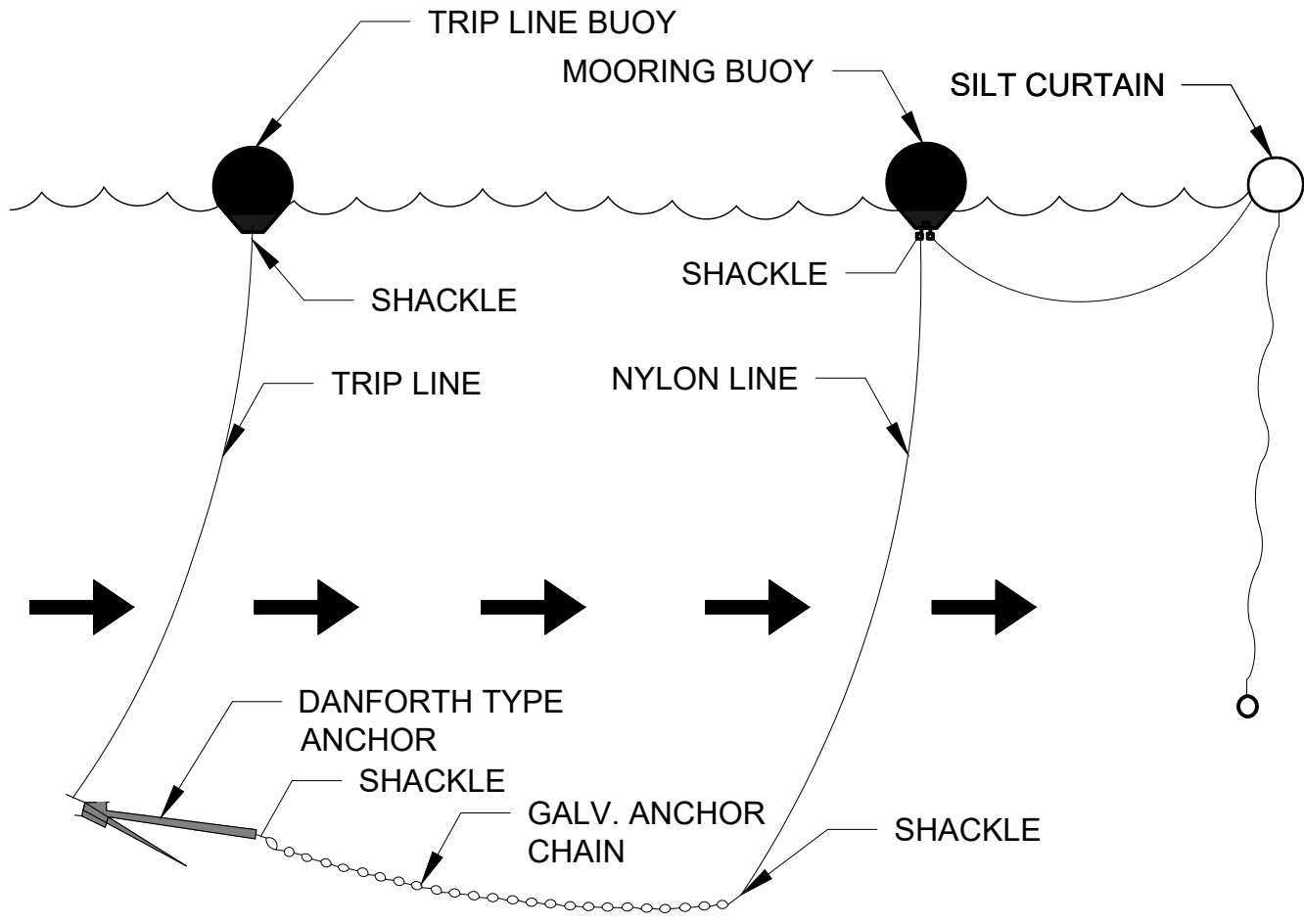
NOTES:

- 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

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'

STREAM SUBSTRATE MIXTURE TABLE AND SPECS



NOTES:

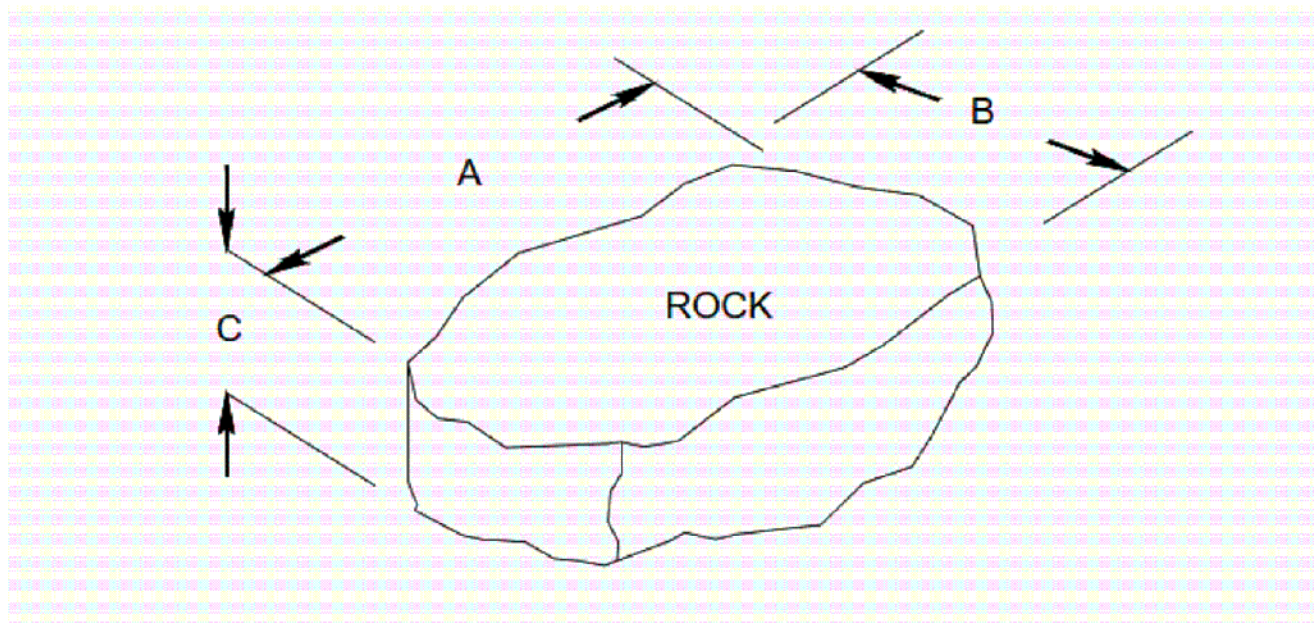
- THE GALVANIZED ANCHOR CHAIN MAY BE REMOVED IN AREAS OF LOWER FLOW (I.E. TRIBUTARIES) AND IF APPROVED BY THE OWNER'S REPRESENTATIVE.

ANCHOR DETAIL
SCALE: NTS

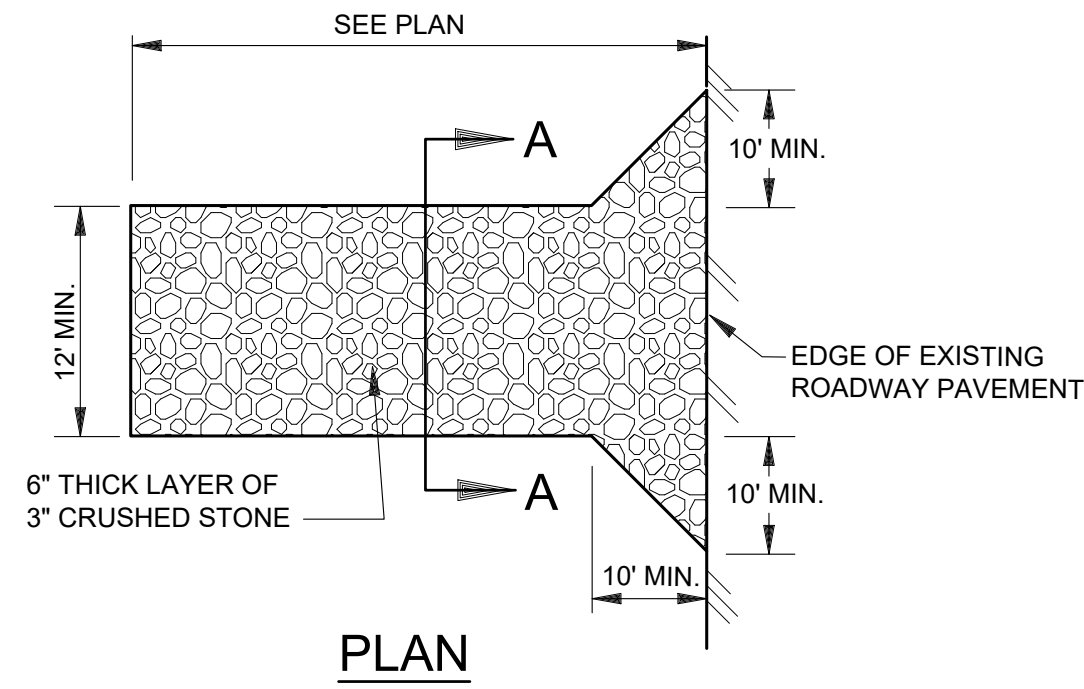
STREAM SUBSTRATE MIXTURE SPECIFICATIONS

STREAM SUBSTATE 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.

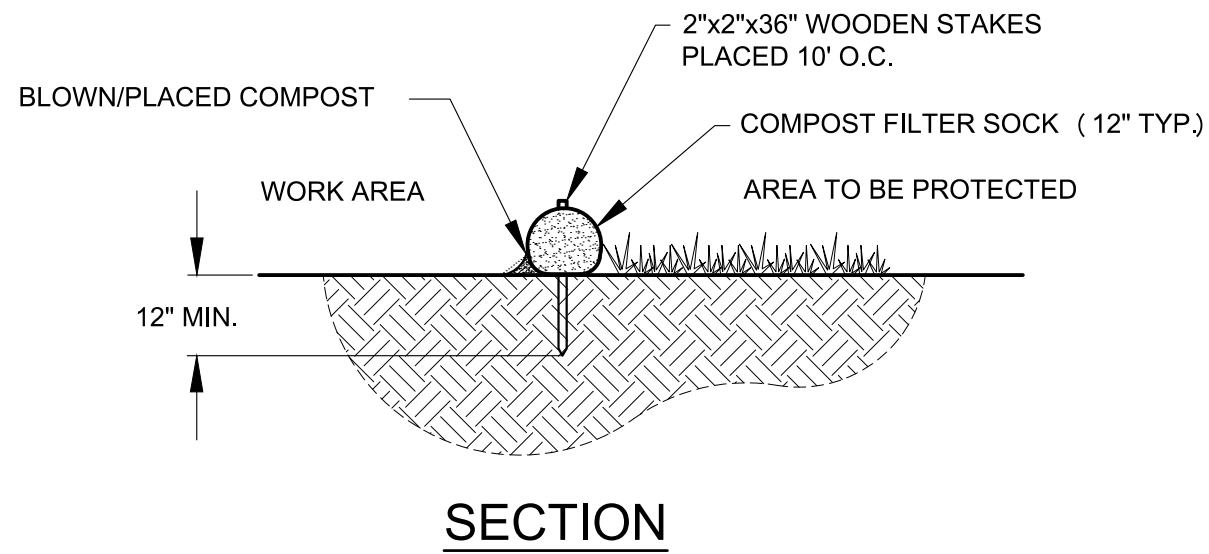
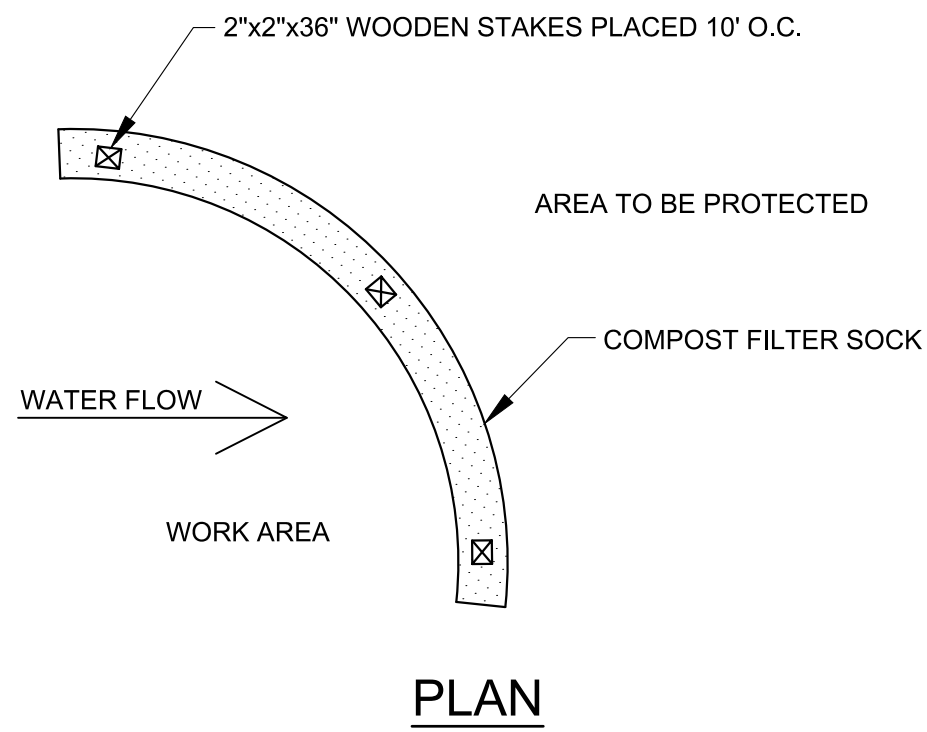


- EACH STREAM SUBSTRATE MIXTURE SHALL CONTAIN THE PERCENTAGE BY VOLUME OF THE MATERIALS SPECIFIED IN THE STREAM SUBSTRATE MIXTURE TABLE.
- SUBSTRATE WILL BE NATURAL IN COLOR (BROWN, YELLOW, TAN OR GRAY). NO WHITE ROCK SHALL BE ALLOWED.
- SUBSTRATE SHALL BE FREE OF IMPURITIES AND CONTAMINANTS
- SUBSTRATE 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.



SECTION A-A

TEMPORARY CONSTRUCTION ENTRANCE
NOT TO SCALE



NOTES:

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

COMPOST SILT SOCK
NOT TO SCALE

AECOM

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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617.626.1250 tel 617.626.1351 fax
www.mass.gov/orgs/departement-of-conservation-recreation

CONSULTANT

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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
CIVIL DETAILS

SHEET NUMBER

99 C-501

PROJECT

MASS DCR
ABANDONED DAMS
BEL AIR DAM REMOVAL
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SHEET TITLE

BEL AIR DAM REMOVAL
CIVIL DETAILS II

SHEET NUMBER

99 C-502

D

C

B

A

A

A

A

A

PLANT AT SAME DEPTH
(AFTER SETTLEMENT) AS
GROWN IN NURSERY

PLANTING MEDIUM

PREPARED SUB-GRADE
DE-COMPACT TO 8" MINIMUM
AND RE-COMPRESS

2" DEPTH SHREDDED MULCH, TAPER
TO 0" DEPTH AT BASE OF PLANTS

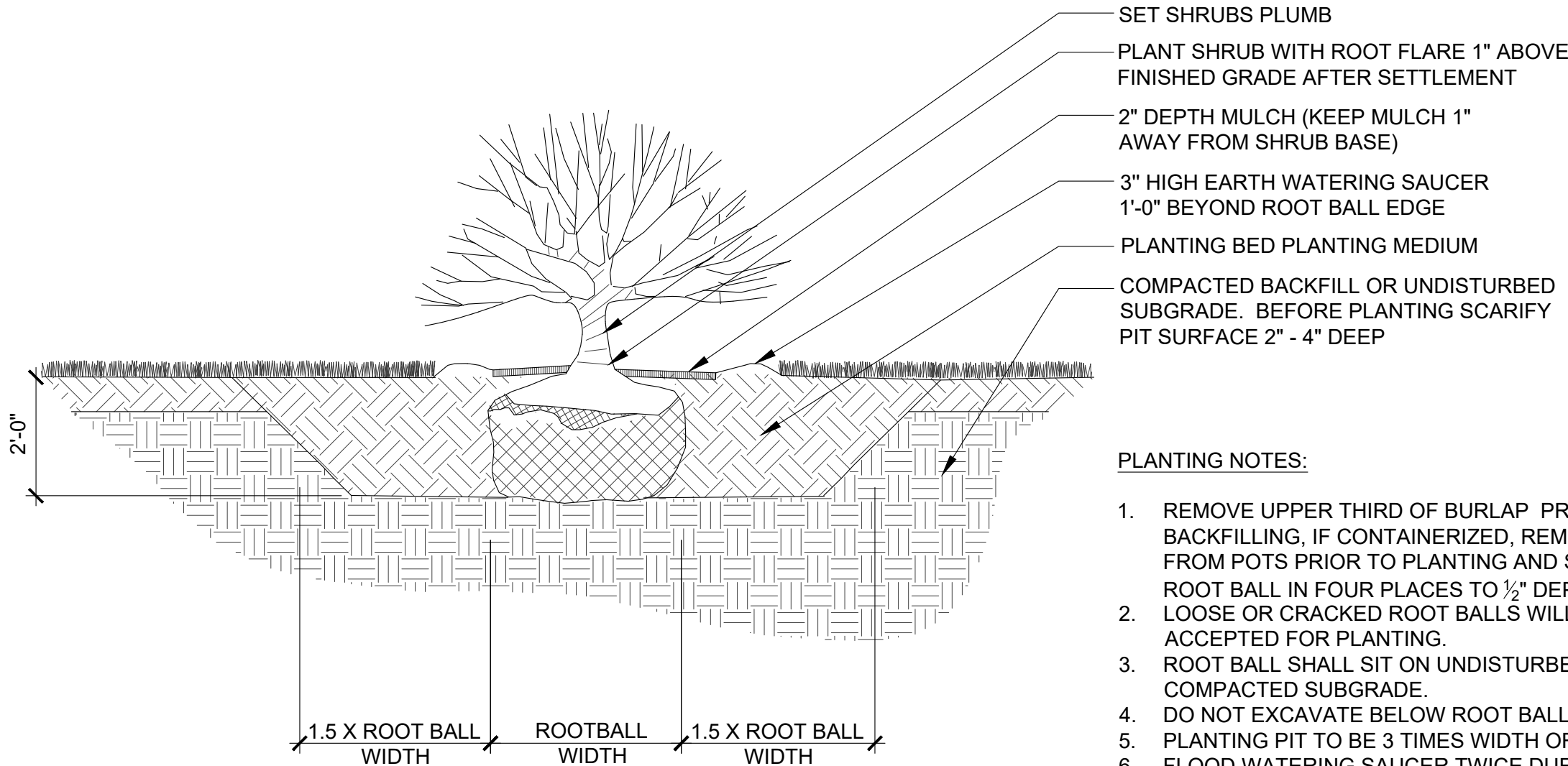
REMOVE FROM CONTAINER AND
LOOSEN ROOTS BY HAND

TRANSITION ZONE: PLACE 1" LAYER
OF LAWN ZONE AND RAKE TO 2"

SPACING AS INDICATED
IN PLANT SCHEDULE

PERENNIAL PLANTING

NOT TO SCALE



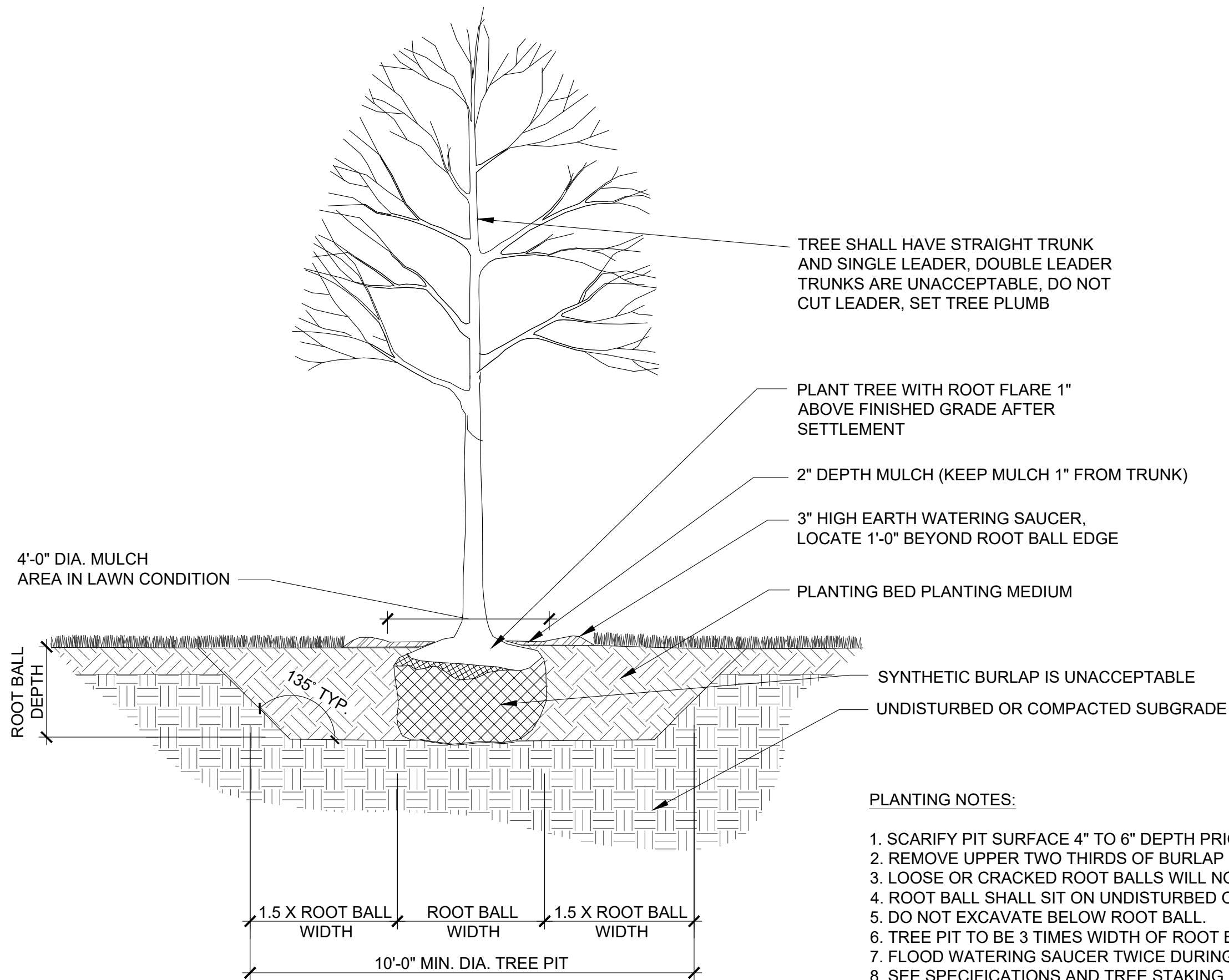
SET SHRUBS PLUMB
PLANT SHRUB WITH ROOT FLARE 1" ABOVE
FINISHED GRADE AFTER SETTLEMENT
2" DEPTH MULCH (KEEP MULCH 1"
AWAY FROM SHRUB BASE)
3" HIGH EARTH WATERING SAUCER
1'-0" BEYOND ROOT BALL EDGE
PLANTING BED PLANTING MEDIUM
COMPACTED BACKFILL OR UNDISTURBED
SUBGRADE. BEFORE PLANTING SCARIFY
PIT SURFACE 2" - 4" DEEP

PLANTING NOTES:

1. REMOVE UPPER THIRD OF BURLAP PRIOR TO BACKFILLING, IF CONTAINERIZED, REMOVE PLANTS FROM POTS PRIOR TO PLANTING AND SCARIFY ROOT BALL IN FOUR PLACES TO ½" DEPTH.
2. LOOSE OR CRACKED ROOT BALLS WILL NOT BE ACCEPTED FOR PLANTING.
3. ROOT BALL SHALL SIT ON UNDISTURBED OR COMPACTED SUBGRADE.
4. DO NOT EXCAVATE BELOW ROOT BALL.
5. PLANTING PIT TO BE 3 TIMES WIDTH OF ROOT BALL.
6. FLOOD WATERING SAUCER TWICE DURING FIRST 24 HOURS AFTER PLANTING.
7. RAISE AND REPLANT SHRUBS THAT SETTLE AFTER PLANTING AND WATERING.

SHRUB PLANTING

NOT TO SCALE



TREE SHALL HAVE STRAIGHT TRUNK
AND SINGLE LEADER, DOUBLE LEADER
TRUNKS ARE UNACCEPTABLE, DO NOT
CUT LEADER, SET TREE PLUMB

PLANT TREE WITH ROOT FLARE 1"
ABOVE FINISHED GRADE AFTER
SETTLEMENT

2" DEPTH MULCH (KEEP MULCH 1" FROM TRUNK)

3" HIGH EARTH WATERING SAUCER,
LOCATE 1'-0" BEYOND ROOT BALL EDGE

PLANTING BED PLANTING MEDIUM

SYNTHETIC BURLAP IS UNACCEPTABLE

UNDISTURBED OR COMPACTED SUBGRADE

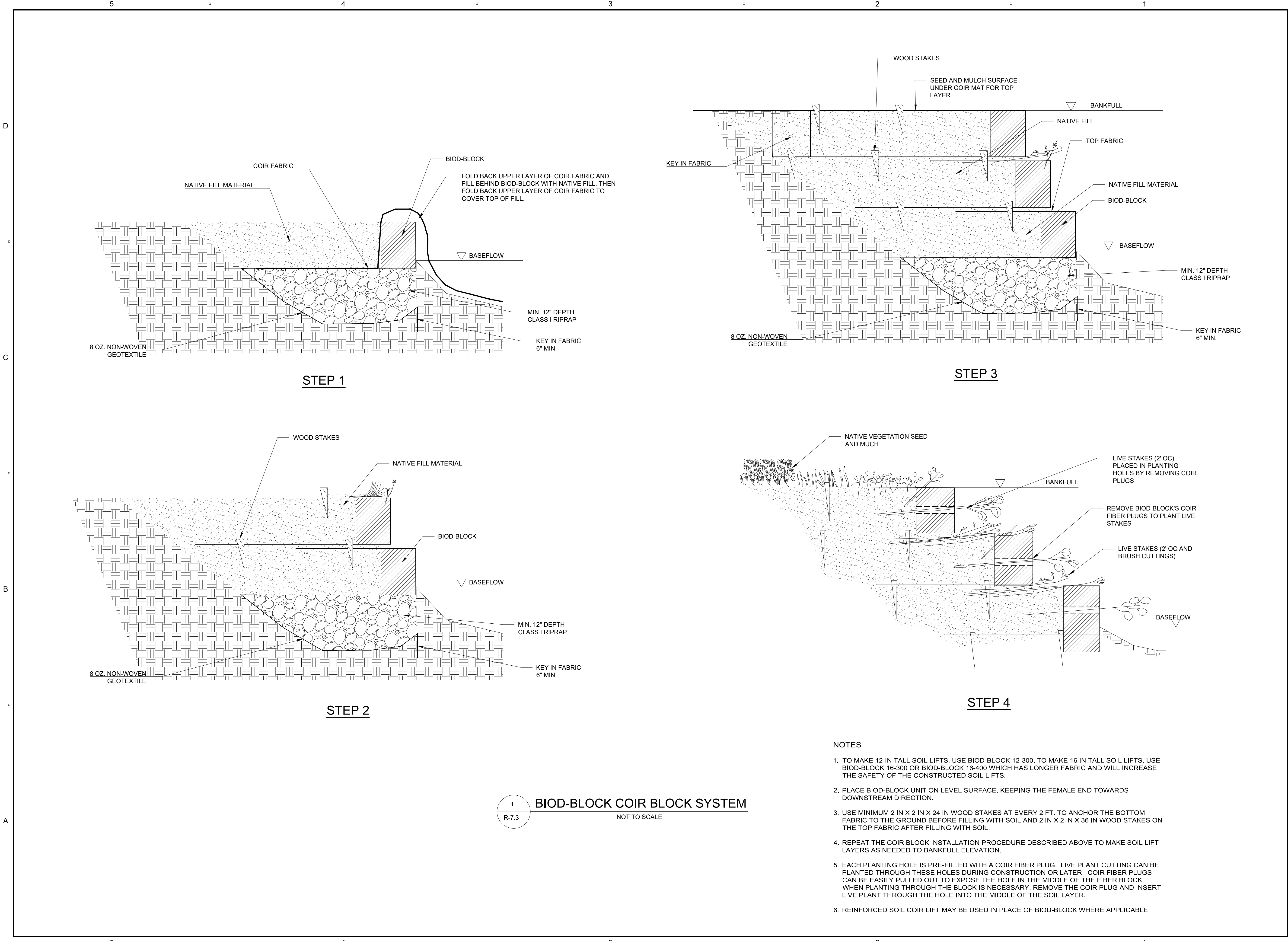
PLANTING NOTES:

1. SCARIFY PIT SURFACE 4" TO 6" DEPTH PRIOR TO PLANTING.
2. REMOVE UPPER TWO THIRDS OF BURLAP PRIOR TO BACKFILLING.
3. LOOSE OR CRACKED ROOT BALLS WILL NOT BE ACCEPTED FOR PLANTING.
4. ROOT BALL SHALL SIT ON UNDISTURBED OR COMPACTED SUBGRADE.
5. DO NOT EXCAVATE BELOW ROOT BALL.
6. TREE PIT TO BE 3 TIMES WIDTH OF ROOT BALL OR 10'-0" DIA. MINIMUM.
7. FLOOD WATERING SAUCER TWICE DURING FIRST 24 HOURS AFTER PLANTING.
8. SEE SPECIFICATIONS AND TREE STAKING DETAIL FOR TREE STAKING.
9. NO WIRE BASKETS WILL BE ACCEPTED.

DECIDUOUS TREE PLANTING IN BED OR LAWN

NOT TO SCALE

PATH: F:\ENR\MASS\PROJECTS\MASSDCR\MASSDCR SIX ABANDONED DAMS\PROJECTS\BEL AIR\BEL AIR 98 C-503 BEL.DWG
LAST UPDATE: Friday, May 31, 2024 6:06:54 AM
PLOT DATE: Monday, June 24, 2024 10:32:16 AM



PROJECT

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BEL AIR DAM REMOVAL
CONTRACT NO.
P19-3264-D4A

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DISCIPLINE

CIVIL

SHEET TITLE

BEL AIR DAM REMOVAL
CIVIL DETAILS III

SHEET NUMBER

99 C-503

PROJECT

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

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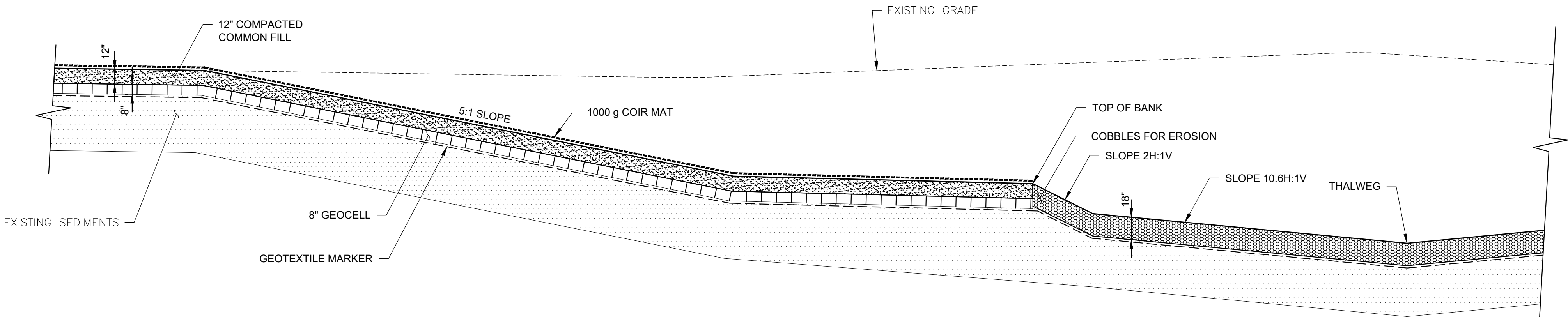
DISCIPLINE

CIVIL
SHEET TITLE

BEL AIR DAM REMOVAL
CIVIL DETAILS IV

SHEET NUMBER

99 C-504

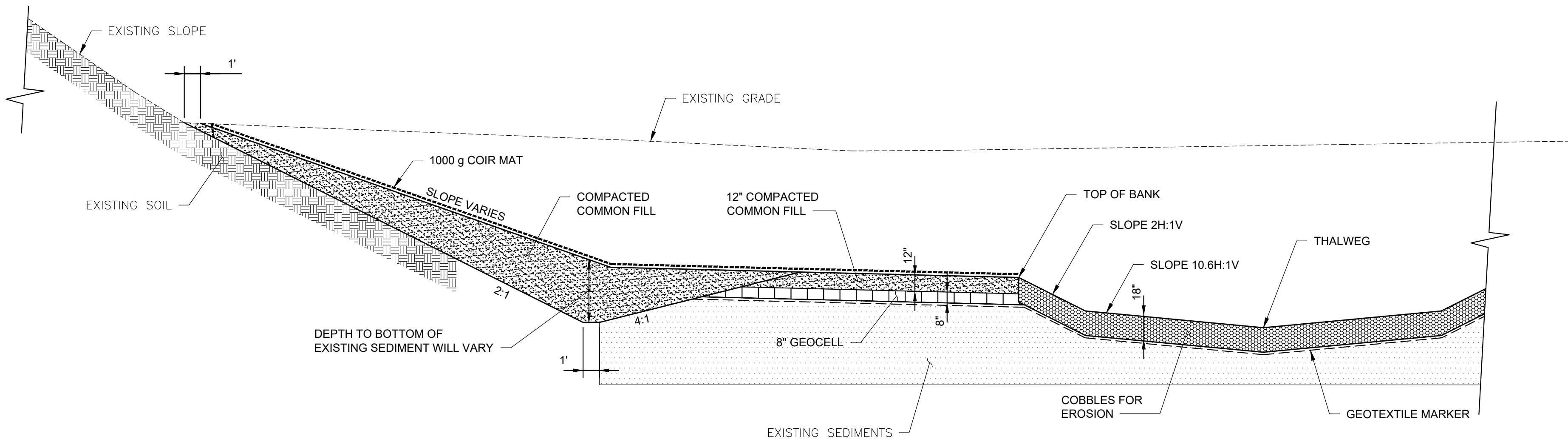


NOTE:

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'

