

Boston Conservation Commission
Boston City Hall
1 City Hall Square, Room 709
Boston, MA 02201

Subject Property:

Walk Hill Residences
283 & 289 Walk Hill Street
574 & 578 Canterbury Street
Boston, MA

December 15, 2021

Applicant/Owner:

Torrington Properties, Inc.
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Prepared By:



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PROJECT NARRATIVE WALK HILL RESIDENCES, BOSTON, MA

1.0 Introduction

On behalf of Torrington Properties Inc. (the Applicant), Design Consultants, Inc. (DCI) is pleased to submit this Notice of Intent (NOI) to the Boston Conservation Commission. This NOI has been prepared in accordance with the Massachusetts Wetland Protection Act (M.G.L. c. 131 Section 40) and implementing Regulations (310 CMR 10.00), and the City of Boston Wetlands Ordinance.

The applicant is requesting that the Boston Conservation Commission issue an Order of Conditions (OOC) approving activities associated with the development and construction of new residences at the Walk Hill location. This project was issued a previous OOC for the associated demolition at the site in May of 2019 (MassDEP File No. 006-1640). An Abbreviated Notice of Resource Area Delineation (ANRAD) was also issued at the site in June of 2017 approving the resource areas at the site as a river. This delineated river is Canterbury Brook and the proposed project activities will be located within its associated riverfront area and the 100 -foot buffer of its associated bank. Additionally, the project is with the 25-foot waterfront buffer area as defined in the Boston Wetlands Ordinance. This project was designed with consideration of the MassDEP Stormwater Management Standards and Local Ordinance as well as erosion and sedimentation control measures in the interest of protecting the resource areas.

2.0 Existing Conditions

The subject site is located in neighborhood of Roslindale, in the City of Boston, Massachusetts, along Walk Hill Street, between American Legion Highway and Canterbury Brook. The site is composed of four parcels, identified by the City of Boston Assessor's Department as Parcels 180656200, 180656300, 180657600 and 180657500. The site is located within a CC-1, Community Commercial Zoning Overlay. The total site area is 87,631 square feet (2.01 acres). The site previously consisted of 7 buildings, including wood, concrete and greenhouses. Approximately 48% of the site was covered with buildings and pavements.

According to the FEMA Flood Insurance Rate Map Number 25025C0006G, with an effective date of September 25, 2009, the site is located within a Zone X, which is "areas determined to be outside the 0.2% annual change floodplain". However, the area below the top of the Canterbury Brook bank is mapped as ZONE A with no elevation assigned on the FEMA preliminary flood map. This zone is shown accurately on the site plans with the location result of the direct download of the mapped location from the FEMA website.

According to the Natural Resources Conservation Service (NRCS) Soil Service Geographic Database (SSURGO), the soils at the site consist mostly of Udorthents, wet substratum with Merrimac natural soils. The Udorthents series consists of excavated and filled sandy and gravelly human transported material over highly decomposed herbaceous organic material. Being unnatural, the Udorthents series surface soils are difficult to uniformly categorize. The Merrimac

series surface soils are typically marked by a 10-inch-thick layer of topsoil over 16-inches of subsoil. The natural substratum is about 29-inches thick and is a light yellowish brown very gravelly coarse sand.

On behalf of DCI, Soil Borings were completed on site in August of 2019. These borings found that in most areas of the site the immediate subsurface consists largely of urban fill, mostly sand with some silt. Borings closer to the wetland boundary encountered a thick, loose layer of organics. These borings encountered a layer of sandy silt below the organics.

At the time of this application the buildings and much of the associated development have been removed and the site hydro-seeded until the proposed work in this application begins. The site demolition is covered under an existing Order of Conditions, MassDEP File# 006-1640. Although the current condition of the site has the building and most pavement removed, the intent of the current Order of Conditions was to expedite the demolition and clearing phase of the work while the site development program was defined and resented to the Conservation Commission. As noted in the Notice of Intent for the Demolition Phase of the project that application was to be followed with a filing for the proposed work. As directed by the Boston Conservation office this Notice of Intent references the current condition of the permeable loam and hydro-seed surface form a regulatory standpoint. That current condition does include some areas where demolition work is incomplete, including an area of pavement within the Riverfront.

In the current condition, there is approximately 300 square feet of pavement, 75 square feet of retaining wall, and 1,175 square feet of gravel that remains in the Riverfront.

3.0 Resource Areas

The Canterbury Brook runs through the south side of the site, parallel to American Legion Highway. Canterbury Brook was delineated as a river as part of the June 2017 ANRAD that was filed at the site and incorporated into a subsequent Order of Conditions for demolition of structures on the site. The associated riverfront area in the City of Boston is 25 feet. This riverfront area, as well as the river's bank, are resource areas protected under the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131 Section 40). Additionally work within the 100-foot buffer associated with the bank are subject to review for any adverse impacts to that resource area under the Wetland Protection Act. This buffer zone is considered a resource area under the Boston Ordinance. The total onsite Riverfront Area is 12,641 square feet. The project is additionally subject to the 25-foot Boston Waterfront Buffer Zone. These resource areas and their ecological value were taken into consideration by DCI during the design and planning of this project. While the area is not within the current FEMA floodplain, it is shown as an A zone on preliminary FEMA maps dated June 19, 2020. We have included this resource area on the proposed plans.

We note that portions of the Riverfront constitute previously developed and degraded as defined in 310 CMR 10.58(5). ***A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or***

abandoned dumping grounds. These areas consist of 1,770 square feet of gravel, 75 square feet of wall, dumped debris, trash and approximately 300 square feet of pavement.

4.0 Proposed Conditions

The project proposes redeveloping the subject property by constructing a roughly 30,000sf, 4-story, 106-unit 30,800+/- SF residential building with basement level parking. Surface parking is also proposed, providing approximately 40 spaces. The project layout puts the building further away from the brook than the prior condition and the remaining existing pavement. All parking is located even further away and outside the buffer zone. The project proposes multiple stormwater mitigation measures have been included in the design. A large infiltration system has been proposed under the surface parking lot for the collection, detention, and infiltration of stormwater runoff from the pavement and roof areas. Overflow discharge will be tributary to Canterbury Brook.

The project provides environmental improvements to the site by increasing permeable vegetated area and a new fully compliant stormwater system providing 80% Total Suspended Solids removal and groundwater recharge. When compared to the original conditions, the building and parking coverage within the 100' buffet area will be reduced from 10,790 square feet down to 7,200 square feet of building area, about a 34% reduction of impervious surfaces. The offset from bank from nearest building is increased from 25 feet to 55 feet. Paved parking has been moved back from 13 feet to the Canterbury Brook bank to 130 feet. When compared with the current conditions, the project still represents an improvement. Notably, remaining pavement is removed and the area closest to the resource is cleared of invasive plants and vegetated. Additionally remaining gravel will be removed. When compared to the existing, post demolition but pre-vegetated condition, the project improves the site through establishment of significant vegetation within the buffer zone. Overall, there are about 11,000 square feet of new quality native vegetation proposed within the 100-foot buffer area. The project proposes a new 720 square foot permeable paver patio with fixed tables and seating for public access. The patio access is from the Walk Hill Steet sidewalk providing for a quiet spot along the edge of the Canterbury Brook green space for passive public enjoyment. The increased vegetation within the buffer zone provides enhance protection and benefits the adjacent resource areas.

The site development area consists of gentle grades with permeable sand and gravel sub-soil material. As such much of the rainfall within the construction zone will tend to infiltrate into the ground reducing the potential for runoff and erosion. Prior to the start of earth moving activities, an erosion control barrier will be located as shown on the site plan and will serve as the limit of work. As part of the demolition phase of the site redevelopment a stone infiltration swale and erosion control barrier has been installed at the eastern end of the property at the top of slope above the Canterbury Brook. This swale will remain in place during the majority of the 18-month construction phase while the building is constructed. As the building nears completion and the landscaped area between the bank and building is constructed the swale

will be removed. There is an erosion control barrier at the limit of this work as indicated on the plans. Upon complete stabilization of the site all of the erosion controls will be removed.

5.0 General Performance Standards

Riverfront Area – The project proposes only to improve degraded riverfront area with no new building or paving proposed. Approximately 1,700 square feet of pavement, gravel, debris, and trash is removed and restored with a robust native planting plan when compared with the original conditions. Under this Notice of Intent, that includes the remaining altered Riverfront noted in the existing conditions discussion above. The entire area within the 25-Foot Riverfront Area is to be vegetated with native shrubs and trees and 1,565 square feet of mowed lawn area. The project proposes 2,180 square feet of dense natural plantings along the top of the bank including Red Maple, Wood Aster, Sweet Pepperbush, Ostrich Fern, Spicebush and Arrowwood Viburnum. The proposed planting is a substantive improvement within this degraded riverfront area. No building or paved areas are proposed within the riverfront area. Where-as the work within the Riverfront area only included restoration of previously degraded area no alternative analysis is required under the provisions of 310 CMR 10.58(5). The project proposes to remove a concrete wall and fence with the sloped bank being restored at this location. A new drainage outfall is proposed at this location where fully treated stormwater will be discharged into the Canterbury Brook.

RIVERFRONT PERFORMANCE COMPLIANCE:

310 CMR10.58(5) Redevelopment Within Previously Developed Riverfront Areas; Restoration and Mitigation.

Notwithstanding the provisions of 310 CMR 10.58(4)€ and (d), the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions. Redevelopment means replacement, rehabilitation or expansion of existing structures, improvement of existing roads, or reuse of degraded or previously developed areas. A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds...

We are proposing to permit the project under this section. As noted on the plans, our impacts to riverfront are either within degraded riverfront, mitigated by restoration of degraded riverfront or mitigative in nature.

Work to redevelop previously developed riverfront areas shall conform to the following criteria:

- (a) At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.***

The work proposed will result in the establishment of stormwater controls on the site and serve to abate ongoing stormwater discharges that occur without controls. The project will also result in restoration of all portions of the degraded and impaired

riverfront within the entire 25' Riverfront Area. As noted, the project proposes only to improve degraded riverfront area with no new building or paving proposed. Approximately 1,700 square feet of pavement, gravel, debris, and trash is removed and restored with a robust native planting plan. The entire area within the 25-Riverfront Area is to be vegetated with native shrubs and trees and 1,565 square feet of mowed lawn area. The project proposes 2,180 square feet of dense natural plantings along the top of the bank. The end result will improve existing conditions and the overall function of the riverfront area.

(b) Stormwater management is provided according to standards established by the Department.

The stormwater has been designed to meet the stormwater management regulations for stormwater generated by the development and additionally serves to mitigate off site runoff. The project proposed a temporary disturbance installing a new drainage outfall at the location of the removal of an existing concrete retaining wall. The stormwater discharge at this location is treated and fully complies with the DEP Stormwater Standards.

(c) Within 200 foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25 foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

The project and allowable temporary impacts will be located no closer than existing degraded conditions, except for mitigation and stormwater outfall. While, as a redevelopment project, the stricter standards of 310 CMR 10.58 (4) do not apply, it is clear that a discharge pipe is allowable within the riverfront when site conditions dictate. We note that under 310 CMR 10.58(4)(d)2a. the regulations state that "...structural stormwater management measures shall be allowed only when there is no practicable alternative" In this case site grades dictate that the outfall be located in the slope within riverfront and just above the top of bank

(d) Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).

The work except for restoration of degraded riverfront area located outside the 25-Foot riverfront area.

(e) The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).

The total area of degraded riverfront is greater than 10%. There are no new impacts within the riverfront area other than restoration and landscaping. The project mitigates for impacts above degraded area through mitigation under subsections (f) and (g).

(f) When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not

conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include:

- 1. removal of all debris, but retaining any trees or other mature vegetation;**
- 2. grading to a topography which reduces runoff and increases infiltration;**
- 3. coverage by topsoil at a depth consistent with natural conditions at the site; and**
- 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;**

Mitigation is being proposed to restore degraded riverfront with no new alteration proposed.

- (g) When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 to 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40 for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Environmental Affairs.**

The project meets the standards for mitigation above in subsection f. Additional mitigation is also being offered that would qualify for this section, including the invasive removal.

- (h) The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.**

Such a condition, referring to the 25-foot riverfront area would be expected and appropriate to monitor the mitigation area for a few growing seasons to demonstrate the success of the restoration effort.

Bordering Land Subject to Flooding- The only proposed work within this area includes native planting and the removal of a concrete retaining wall. By removing the wall and restoring the bank, additional volume is provided. Although a small area, it increases the capacity for storage of floodwaters. The project does not propose any filling or impermeable surfaces within this regulated area. The proposed work complies with all performance standards of Bordering Land Subject to Flooding.

BLSF PERFORMANCE COMPLIANCE

310 CMR10.58(5) (4) General Performance Standards. (a) Bordering Land Subject to Flooding. 1. Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within Bordering Land Subject to Flooding, when in the judgment of the issuing authority said loss will cause an increase or will contribute incrementally to an increase in the horizontal extent and level of flood waters during peak flows.

The only work within the BLSF is removal of a retaining wall and restoring a naturally vegetated slope. This will create a small increase in storage within the BLSF and complies with this standard.

100-foot Bank Buffer - The 100-foot Buffer Zone is not a resource area under the Act, although it is considered a resource area under the City of Boston's Wetland Ordinance. This buffer zone is protected in order to prevent alteration of the Bank itself. As the 100-foot Buffer Zone is not a resource area (under the Act), the Regulations only provide general performance standards for work in this area. However, under section 10.53(1) of the Regulations provides a narrative standard which addresses erosion controls, limit of work, slopes, existing conditions, and vegetation. In this case, we have proposed erosion controls and management practices that are designed to avoid any alteration to the Bank. Upon completion the vegetated buffer provided between the building and the Bank will serve to provide long term protection of the bank.

Boston Wetlands Ordinance

The City of Boston enacted an "Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston" on December 11, 2019. The current ordinance is incomplete with no specific performance standards. The Ordinance and Ordinance Regulations as currently constituted do not provide a link between the protected resource areas and the specific values that are presumed to be protected by the individual resource areas. The ordinance does provide for a specific 25-foot waterfront buffer area that is indicated on the plans. This 25-foot buffer extends beyond the edge of the 25-foot riverfront zone. Additionally, the 100-foot buffer zone to Bank is considered a resource area. The ordinance also refers to climate change resilience. The resource area values The Ordinance makes reference to are discussed in Section 8 of this narrative.

25-foot Waterfront Buffer - ***The Commission therefore may require that any person filing an application (hereinafter, the Applicant) restore or maintain a strip of continuous, undisturbed or restored vegetative cover or waterfront public access throughout the Waterfront Area, unless the Commission determines, based on adequate evidence, that the area or part of it may be altered without harm to the values of the resource areas protected by the Ordinance. Such disturbed areas must be minimized to the greatest extent possible.***

All buildings, most of the pavements and degraded gravel has been removed from this buffer area as part of the current Order of Conditions for site demolition. There is a small area of pavement, granite curb and stone swale remaining during the interim condition. As required in the Boston Ordinance, vegetative cover has been fully restored except for the small 720 square foot permeable patio provided for public access. The patio is intended for a quiet spot on the

edge of heavily vegetated portion of the Canterbury Brook bank for passive public enjoyment. Mitigation in this area is proposed in the form of removal of remaining pavement, granite curb, stone swale and conversion of current unvegetated condition to a largely vegetated area, except for a pervious patio and a small section of the path that accesses it. Along with the improved lawn area, 1,650 square feet of native grass, bush and tree planting is proposed. We note that the permeable patio area provides public access to the area and is also somewhat mitigative in that no such access exists in the area of the Brook nearby. Some of the invasive work may also just touch on the inner section of this area as well.

100-foot Resource area associated with Bank

Overall, the alteration of the 24,870 square foot buffer zone to bank (the largest of the jurisdictional areas within which all others are located) on site will result in 63% of vegetation, 29% of building with a light-colored roof, and 8% of patio/walks). When compared to the previous condition, this represents a significant improvement in the resource area. When compared to the existing condition, which includes some pavement, gravel and a freshly disturbed area as described above, the project improves the function of this resource area by providing significant vegetation, invasive plant removal, and the management of stormwater through infiltration.

Invasive Vegetation Management

The management strategy for each invasive species will vary to utilize the practices best suited for that species. In all cases, the vegetation will not require ground disturbance. The above-ground portions of the vegetation will be cut and removed, retaining the root system and surrounding soils. The specification for each species is summarized below:

- a. Japanese Knotweed: cut stems down between the second and third node (from the ground) and inject or drip 5 ml of herbicide into the stem. Paint the stem with a contrasting color of paint to identify what stems have been treated. Remove cut stems and brush from the site. Note herbicide will be either aquatic safe glyphosate (such as Rodeo) or aquatic safe Imazapyr (such as Habitat). No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.
- b. Multiflora Rose: cut shrubs 2 to 4 inches above finished grade and apply herbicide immediately on the cut stems. Herbicide shall include a colored dye to identify which stems have been treated. Remove cut branches and brush from the site. Note herbicide will be aquatic safe Triclopyr (such as Renovate 3). No surfactant is to be used unless approved in advance by Boston Conservation Commission staff.
- c. Tree of Heaven: cut trunk 3" above grade and apply herbicide immediately on cut trunk. Remove all brush and wood from tree removal. Note herbicide will be aquatic safe Triclopyr (such as Renovate 3). No surfactant

is to be used unless approved in advance by Boston Conservation Commission staff.

All invasive shrub management shall be performed between July 15 and September 15. Note for smaller growth invasive plants (stem size below ½" where the applicator does not believe sufficient herbicide will be absorbed to kill the plant, the plant should be pulled.

Trash and Debris Removal- Concrete blocks, wood, and miscellaneous debris will be removed from the areas shown on the plans and disposed of. Erosion control devices will be installed prior to any debris removal. Refer to the planting plan for native planting proposed for these areas.

6.0 Construction Phasing, Soil Management, Erosion and Sediment Control

It is anticipated that the construction schedule will take approximately 18 months from the time the project commences until completion. During construction, the project will be built in compliance with all applicable project specific requirements, including, but not limited to: Construction Documents, Conservation Commission Order of Conditions, Massachusetts Stormwater Standards Pollution Prevention Plan (SWPPP), National Pollution Discharge Elimination System Construction General Permit (NPDES) and performance standards required for the Riverfront Area Wetlands Protection Act. Erosion Control Measures will be installed accordingly to the Construction Documents and will be maintained by the contractor per Best Management Practices (BMP). All notices, ordinances, regulations, and standards record keeping will be accurately kept at the contractor's on-site field office.

To facilitate construction, the soils that are currently on-site will need to be exported and legally disposed. As such, ownership hired McPhail Associates, a Licensed Site Professional (LSP), to perform soil pre-characterization testing and prepare a Soil Management Plan. In Massachusetts, disposal of excess soil is governed by various DEP policies and guidance as well as the Massachusetts Contingency Plan (MCP). Any export of existing soils will follow the requirements as set forth by Massachusetts Contingency Plan (MCP), MassDEP as well as the Environmental Protection Agency. Oversight of soil export operations will be performed by the LSP.

The Erosion and Sediment controls will be maintained around the Site prior to the beginning of construction.

Erosion controls are as follows:

1. Silt socks will be maintained along the edge of the site, downgrade from the limit of work, between the construction area and Canterbury Brook.
2. A stabilized construction entrance will be maintained at the entrance to the site.
3. The crushed stone swale installed as part of the demolition work will be maintained during the building construction and will only be removed when the landscaping work

begins in the buffer area between the building and top of bank. A portion will be relocated as shown on the Erosion Control Plan providing area for the building construction.

4. Silt bags from the demolition phase will be maintained in catch basins around the site to protect from sedimentation in existing storm drains.
5. The portions of the site that were seeded with winter rye following demolition to stabilize the site will be maintained in areas where no construction is on-going.

Dellbrook|JKS & the Site Contractor will coordinate the required inspection and onsite meetings with City Officials and Natural Resource Commission to review and accept the installed erosion controls prior to any site activities starting. The use of straw bales, silt fences, Flocculant Logs & Tabs will be available if required to further protect against break out. Stockpiles of material will be protected with erosion control devices and seeded as soon as practical. There is currently a SWPPP CGP files with the EPA and will be maintained until the site is fully stabilized. Erosion control inspections will be performed by Dellbrook|JKS onsite Senior Construction Superintendent following a rain event, or every 14 days as required. Any areas found deficient will be repaired.

Project Schedule.

- Install Erosion Controls – inspect and repair stone swale as required, install catch basin silt sacks, install erosion control barriers, maintenance of erosion controls, modify construction fencing and provide point of entry for construction vehicles, provided stabilized construction pad, install site trailer, provide sumps with barriers for waste concrete.
- Site preparation including rough grading and contaminated soil removal under the direction of Licensed Site Professional.
- Foundation excavation and foundation construction – in order to facilitate installation of the deep foundation system and due to the proximity of the adjacent streets, a Support of Earth (SOE) system will be required to be installed. The SOE system is to be designed by a certified engineer and based on the existing soil conditions, soldier piles and lagging is anticipated to be utilized.
- Building Structure Construction – Steel erection and concrete decking for the 1st floor podium, and wood framed construction above. Fiber Cement Siding and masonry and TPO roofing system. All building utility connections and stormwater system installation
- Windows, exterior finishes, interior mechanical, electrical and plumbing
- Interior finishes for building, public realm improvements on Walk Hill and Canterbury Streets. Install interior surface parking.
- Install landscaping, trees shrubs, planting beds, loam and seed.

Contaminated Soils Onsite:

To facilitate construction, the current soils that are on-site, will need to be exported and legally disposed of. As such, ownership hired McPhail Associates, a Licensed Site Professional (LSP) to perform soil pre-characterization testing and prepare a Soil Management Plan. In Massachusetts, disposal of excess soil is governed by various DEP policies and guidance and also the Massachusetts Contingency Plan (MCP). Any export of existing soils will follow the requirements as set forth by Massachusetts Contingency Plan (MCP), MassDEP as well as the Environmental Protection Agency. Oversight of soil export operations will be performed by the LSP.

7.0 Stormwater Management

The “Performance Standards” and “Guidelines for Stormwater Management” issued by MassDEP were taken into consideration during the design of the project. The “Stormwater Management Plan” includes numerous water quality and quality control designs to protect surface and groundwater resources, wetlands, and adjacent properties from potential impacts resulting from the proposed redevelopment. The Stormwater Management Plan addresses full-build conditions and construction activities with the report provided as a separate document included in this application. Stormwater management design utilizes the site current conditions as the basepoint for the design.

8.0 Climate Change Resilience

Ordinance Protecting Local Wetlands and Promoting Climate Change Adaptation in the City of Boston Climate Change Resilience. - The Applicant shall, to the extent applicable as determined by the Commission, integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future. These considerations include but are not limited to: sea level rise, increased heat waves, extreme precipitation events, stormwater runoff, changing precipitation patterns and changes in coastal and stormwater flooding.

The project is located inland and has a basement/garage elevation at 44.50 Boston City Base Datum (BCB) or 38 feet above Mean Sea Level. With this, the project is not impacted by anticipated future sea level rise. The proposed building is well above the mapped future flood elevation that graphically looks to be at elevation 43.5 BCB. The grade surrounding the building is between 46.5 and 56 BCB. In addition, the project area is not within any mapped future flood areas on the Boston Water and Sewer Commission Inundation Model Viewer for the 500-year Tropical Storm Event, 100-year Nor’easter event and the 10-year 6-hour intense storm event. The stormwater system is designed to accommodate the updated rainfall intensities using 8.83” of rain for the 100yr storm event versus 7” of rainfall typically used for current stormwater system design. This accounts for a 26% increase in the peak rain event for a 100-year event and is included in the design for the stormwater control system. The provided stormwater system reduces the peak flow off the property into the Canterbury Brook by 21% and total runoff volume by 29%. With the provided design the reduced runoff from the property will help offset future extreme precipitation events and the downstream impacts. The abutting resource area is protected from these potential impacts with the enhanced vegetated buffer and new stormwater system. Given all of this the project is resilient to future increased extreme precipitation events and reduces stormwater runoff from the property.

9.0 Climate Equity and Environmental Justice

The project is carefully designed and to be LEED Gold certifiable with the included elements and provisions. The project is to be constructed on previously developed land. The project provides for visitor and resident bike storage along with a new Blue Bike station on Walk Hill Street. The building uses only electric power with no fossil fuels used for any building systems. The building is designed with thermal and lighting controls reducing power demands with a highly efficient building envelope, providing optimal thermal performance and reducing heating and cooling demands. The project provides for restoration of degraded riverfront and buffer with new vegetation including a robust native planting plan. A new permeable patio is provided with seating at the edge of the Canterbury Brook bank accessible to the public for a quiet spot to sit and enjoy a natural setting. The project is carefully designed to be sustainable and providing an improved natural environment along the Canterbury Brook.

Overall, the alteration of the 24,870 square foot buffer zone to bank (the largest of the jurisdictional areas within which all others are located) on site will result in 63% of vegetation, 29% of building with a light colored roof, and 8% of patio/walks). The overall effect will be an increase in shading from planting that combined with the high albedo of the roof will reduce the potential for a heat island. Additionally, all stormwater management involves extensive underground storage and infiltration that further serves to cool runoff and meter its flow into the Brook. This also offsets any potential for a heat island effect. This is certainly an improvement when compared to both the current conditions and the conditions of the site before demolition was begun.

Appendix A

**WPA Form 3 – Notice of Intent
Stormwater Checklist
City of Boston NOI Application Form
City of Boston Checklist**



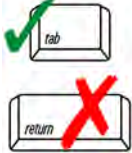
Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

MassDEP File Number
Document Transaction Number
Boston (Roslindale)
City/Town

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



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

283 & 289 Walk Hill Street and 576 & 578 Canterbury Street	Boston (Roslindale)	02131
Latitude and Longitude:	42.28815	71.10774
f. Assessors Map/Plat Number	180656200, 180656300, 180656500, 180656600	

2. Applicant:

Jay	Bisognano	
a. First Name	b. Last Name	
Torrington Properties, Inc.		
c. Organization		
11 Elkins Street, Suite 420		
d. Street Address		
Boston	MA	02127
e. City/Town	f. State	g. Zip Code
857-264-1210	jb@torprops.com	
h. Phone Number	i. Fax Number	j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

a. First Name	b. Last Name	
c. Organization		
d. Street Address		
e. City/Town	f. State	g. Zip Code
h. Phone Number	i. Fax Number	j. Email address

4. Representative (if any):

Stephen	Sawyer	
a. First Name	b. Last Name	
Design Consultants, Inc		
c. Company		
120 Middlesex Ave, Suite 20		
d. Street Address		
Somerville	MA	02145
e. City/Town	f. State	g. Zip Code
617-776-3350	617-776-7710	ssawyer@gm2inc.com
h. Phone Number	i. Fax Number	j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

a. Total Fee Paid	b. State Fee Paid	c. City/Town Fee Paid
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Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston (Roslindale)
City/Town

A. General Information (continued)

6. General Project Description:

See Narrative

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

- 1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Suffolk

a. County

24400

c. Book

b. Certificate # (if registered land)

225

d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

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Boston (Roslindale)
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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input checked="" type="checkbox"/> Bank	No Alteration 1. linear feet	2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	1. square feet	2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	1. square feet 3. cubic yards dredged	2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input checked="" type="checkbox"/> Bordering Land Subject to Flooding	No Alteration 1. square feet 3. cubic feet of flood storage lost	2. square feet 4. cubic feet replaced
e. <input type="checkbox"/> Isolated Land Subject to Flooding	1. square feet 2. cubic feet of flood storage lost	3. cubic feet replaced
f. <input checked="" type="checkbox"/> Riverfront Area	Canterbury Brook (inland) 1. Name of Waterway (if available) - specify coastal or inland	

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 12,641 square feet

4. Proposed alteration of the Riverfront Area:

<u>*3,880</u>	<u>0</u>	<u>0</u>
a. total square feet	b. square feet within 100 ft.	c. square feet between 100 ft. and 200 ft.

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No
*Restoration of degraded riverfront area only.

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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Provided by MassDEP:

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City/Town

B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	_____	
	1. square feet	

	2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	_____	_____
	1. square feet	2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	_____	_____
	1. square feet	2. cubic yards dune nourishment

	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	_____	
	1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	_____	
	1. square feet	
h. <input type="checkbox"/> Salt Marshes	_____	_____
	1. square feet	2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	_____	
	1. square feet	

	2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	_____	
	1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	

	1. cubic yards dredged	
l. <input type="checkbox"/> Land Subject to Coastal Storm Flowage	_____	
	1. square feet	

4. Restoration/Enhancement
If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.

a. square feet of BVW

b. square feet of Salt Marsh

5. Project Involves Stream Crossings

a. number of new stream crossings

b. number of replacement stream crossings



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C. Other Applicable Standards and Requirements

- This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

- Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

- a. Yes No **If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581**

- 8/16/2021
b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); *OR* complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

- c. Submit Supplemental Information for Endangered Species Review*

- Percentage/acreage of property to be altered:
 - (a) within wetland Resource Area _____ percentage/acreage
 - (b) outside Resource Area _____ percentage/acreage
- Assessor's Map or right-of-way plan of site

- Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed tree/vegetation clearing line, and clearly demarcated limits of work **
 - (a) Project description (including description of impacts outside of wetland resource area & buffer zone)
 - (b) Photographs representative of the site

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <https://www.mass.gov/endangered-species-act-mesa-regulatory-review>).

Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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C. Other Applicable Standards and Requirements (cont'd)

- (c) MESA filing fee (fee information available at <https://www.mass.gov/how-to/how-to-file-for-a-mesa-project-review>).

Make check payable to “Commonwealth of Massachusetts - NHESP” and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) Vegetation cover type map of site

- (e) Project plans showing Priority & Estimated Habitat boundaries

- (f) OR Check One of the Following

1. Project is exempt from MESA review.
Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, <https://www.mass.gov/service-details/exemptions-from-review-for-projectsactivities-in-priority-habitat>; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)

2. Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____

3. Separate MESA review completed.
Include copy of NHESP “no Take” determination or valid Conservation & Management Permit with approved plan.

3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?

- a. Not applicable – project is in inland resource area only b. Yes No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and
the Cape & Islands:

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: dmf.envreview-south@mass.gov

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: dmf.envreview-north@mass.gov

Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP’s Boston Office. For coastal towns in the Southeast Region, please contact MassDEP’s Southeast Regional Office.

- c. Is this an aquaculture project? d. Yes No

If yes, include a copy of the Division of Marine Fisheries Certification Letter (M.G.L. c. 130, § 57).



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City/Town

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

C. Other Applicable Standards and Requirements (cont'd)

4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.
 b. ACEC
5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 a. Yes No
6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 a. Yes No
7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 2. A portion of the site constitutes redevelopment
 3. Proprietary BMPs are included in the Stormwater Management System.
 b. No. Check why the project is exempt:
 1. Single-family house
 2. Emergency road repair
 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.

1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.



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City/Town

D. Additional Information (cont'd)

3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

4. List the titles and dates for all plans and other materials submitted with this NOI.

C101,C102, C103, C501, C502, C503 , L0.0, L1.0, L2.0, LD3.0, LD3.1

a. Plan Title

DCI & kzla

Stephen Sawyer & Kyle Zick

b. Prepared By

c. Signed and Stamped by

12/1/2021(Civil) 11/16/2021(Landscape)

1"-20'

d. Final Revision Date

e. Scale

Project Narrative

Rev. 11/30/2021

f. Additional Plan or Document Title

g. Date

5. If there is more than one property owner, please attach a list of these property owners not listed on this form.

6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.

7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.

8. Attach NOI Wetland Fee Transmittal Form

9. Attach Stormwater Report, if needed.

E. Fees

1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

154

10/5/2021

2. Municipal Check Number

3. Check date

155

10/5/2021

4. State Check Number

5. Check date

JMB Development

c/o Torrington Properties

6. Payor name on check: First Name

7. Payor name on check: Last Name



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Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston (Roslindale)

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

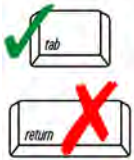
If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



Massachusetts Department of Environmental Protection
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NOI Wetland Fee Transmittal Form
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

293 & 289 Walk Hill Street and 576 & 573
 Canterbury Street
 Boston (Roslindale)
 b. City/Town
 c. Check number
 d. Fee amount

2. Applicant Mailing Address:

Jay
 a. First Name
 Bisognano
 b. Last Name
 Torrington Properties, Inc
 c. Organization
 11 Elkins Street, Suite 420
 d. Mailing Address
 Boston MA 02127
 e. City/Town f. State g. Zip Code
 857-264-1210
 h. Phone Number i. Fax Number
 jb@torprops.com
 j. Email Address

3. Property Owner (if different):

same
 a. First Name
 b. Last Name
 c. Organization
 d. Mailing Address
 e. City/Town f. State g. Zip Code
 h. Phone Number i. Fax Number j. Email Address

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.



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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3.b.)Site w/ Building	1	\$1050	\$1,050 (1.5)=\$1,575
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Step 5/Total Project Fee:			<u>\$1,757.00</u>
Step 6/Fee Payments:			
Total Project Fee:			<u>\$1,575.00*</u> a. Total Fee from Step 5
State share of filing Fee:			<u>\$775.00</u> b. 1/2 Total Fee less \$12.50
City/Town share of filing Fee:			<u>\$2,050.00**</u> c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)



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Provided by MassDEP:

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Boston (Roslindale)

City/Town

F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.

1. Signature of Applicant

2. Date

3. Signature of Property Owner (if different)

4. Date

5. Signature of Representative (if any)

6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



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 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

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



A. Applicant Information

1. Location of Project:

293 & 289 Walk Hill Street and 576 & 573
 Canterbury Street

Boston (Roslindale)

b. City/Town

c. Check number

d. Fee amount

2. Applicant Mailing Address:

Jay

a. First Name

Bisognano

b. Last Name

Torrington Properties, Inc

c. Organization

11 Elkins Street, Suite 420

d. Mailing Address

Boston

e. City/Town

MA

f. State

02127

g. Zip Code

857-264-1210

h. Phone Number

i. Fax Number

jb@torprops.com

j. Email Address

3. Property Owner (if different):

same

a. First Name

b. Last Name

c. Organization

d. Mailing Address

e. City/Town

f. State

g. Zip Code

h. Phone Number

i. Fax Number

j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 3.b.) Site w/ Building	1	\$1050	\$1,050 (1.5)=\$1,575

Step 5/Total Project Fee: \$1,757.00

Step 6/Fee Payments:

Total Project Fee:	<u>\$1,575.00*</u>
State share of filing Fee:	<u>\$775.00</u>
City/Town share of filling Fee:	<u>\$2,050.00**</u>
	<u>c. 1/2 Total Fee plus \$12.50</u>

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

* For state filing fee only

** Boston portion of fee calculated per the City of Boston Ordinance fee rate



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.

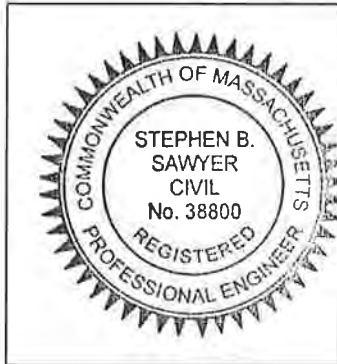
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Stephen B. Sawyer
Signature and Date

OCT. 6, 2021

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): _____

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)

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.

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.

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)

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.

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.

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.



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.

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.

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.



INSTRUCTIONS FOR COMPLETING APPLICATION NOTICE OF INTENT – BOSTON NOI FORM

The Boston Notice of Intent Form is intended to be a supplement to the WPA Form 3 detailing impacts to locally designated wetland resource areas and buffer zones. Please read these instructions for assistance in completing the Notice of Intent application form. These instructions cover certain items on the Notice of Intent form that are not self-explanatory.

INSTRUCTIONS TO SECTION B: BUFFER ZONE AND RESOURCE AREA IMPACTS

Item 1. Buffer Zone Only. If you check the Buffer Zone Only box in this section you are indicating that the project is entirely in the Buffer Zone to a resource area **under both** the Wetlands Protection Act and Boston Wetlands Ordinance. If so, skip the remainder of Section B and go directly to Section C. Do not check this box if the project is within the Waterfront Area.

Item 2. The **boundaries of coastal resource areas** specific to the Ordinance can be found in Section II of the Boston Wetlands Regulations. You must also include the size of the proposed alterations (and proposed replacement areas) in each resource area.

Item 3. The **boundaries of inland resource areas** specific to the Ordinance can be found in Section II of the Boston Wetlands Regulations. You must also include the size of the proposed alterations (and proposed replacement areas) in each resource area.

INSTRUCTIONS TO SECTION C: OTHER APPLICABLE STANDARDS AND REQUIREMENTS

Item 1. Rare Wetland Wildlife Habitat. Except for Designated Port Areas, no work (including work in the Buffer Zone) may be permitted in any resource area that would have adverse effects on the habitat of rare, “state-listed” vertebrate or invertebrate animal species.

The most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife is published by the Natural Heritage and Endangered Species Program (NHESP). See: http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm or the *Massachusetts Natural Heritage Atlas*.

If any portion of the proposed project is located within Estimated Habitat, the applicant must send the Natural Heritage Program, at the following address, a copy of the Notice of Intent by certified mail or priority mail (or otherwise sent in a manner that guarantees delivery within two days), no later than the date of the filing of the Notice of Intent with the Conservation Commission.

Evidence of mailing to the Natural Heritage Program (such as Certified Mail Receipt or Certificate of Mailing for Priority Mail) must be submitted to the Conservation Commission along with the Notice of Intent.

Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581-3336
508.792.7270



A. GENERAL INFORMATION

1. Project Location

283 & 289 Wall Hill Street, 576 & 578 Canterbury Street Boston (Roslindale) 02131
a. Street Address b. City/Town c. Zip Code

180656200, 180656300, 180656500, 180656600
f. Assessors Map/Plat Number g. Parcel /Lot Number

2. Applicant

Jay Bissognano Torrington Properties, Inc.
a. First Name b. Last Name c. Company

11 Elkins Street, Suite 240
d. Mailing Address

Boston MA 02127
e. City/Town f. State g. Zip Code

857-264-1210 jb@torprops.com
h. Phone Number i. Fax Number j. Email address

3. Property Owner

same
a. First Name b. Last Name c. Company

d. Mailing Address

e. City/Town f. State g. Zip Code

h. Phone Number i. Fax Number j. Email address

Check if more than one owner

(If there is more than one property owner, please attach a list of these property owners to this form.)

4. Representative (if any)

Stephen Sawyer DCI/GM2
a. First Name b. Last Name c. Company

120 Middlesex Avenue, Suite 20
d. Mailing Address

Somerville MA 02145
e. City/Town f. State g. Zip Code

617-776-3350 617-776-7710 ssawyer@gm2inc.com
h. Phone Number i. Fax Number j. Email address



5. Is any portion of the proposed project jurisdictional under the Massachusetts Wetlands Protection Act M.G.L. c. 131 §40?

- Yes No

If yes, please file the WPA Form 3 - Notice of Intent with this form

6. General Information

Redevelopment proposing new multi unit residential building with supporting parking and landscaping. See Narrative.

7. Project Type Checklist

- a. Single Family Home
- b. Residential Subdivision
- c. Limited Project Driveway Crossing
- d. Commercial/Industrial
- e. Dock/Pier
- f. Utilities
- g. Coastal Engineering Structure
- h. Agriculture – cranberries, forestry
- i. Transportation
- j. Other

8. Property recorded at the Registry of Deeds

Suffolk

a. County

225

b. Page Number

24400

c. Book

d. Certificate # (if registered land)

9. Total Fee Paid

a. Total Fee Paid

b. State Fee Paid

c. City Fee Paid

B. BUFFER ZONE & RESOURCE AREA IMPACTS

Buffer Zone Only - Is the project located only in the Buffer Zone of a resource area protected by the Boston Wetlands Ordinance?

- Yes No

1. Coastal Resource Areas



<u>Resource Area</u>	<u>Resource Area Size</u>	<u>Proposed Alteration*</u>	<u>Proposed Mitigation</u>
<input type="checkbox"/> Coastal Flood Resilience Zone	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> 25-foot Waterfront Area	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> 100-foot Salt Marsh Area	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Riverfront Area	_____ Square feet	_____ Square feet	_____ Square feet

2. Inland Resource Areas

<u>Resource Area</u>	<u>Resource Area Size</u>	<u>Proposed Alteration*</u>	<u>Proposed Mitigation</u>
<input type="checkbox"/> Inland Flood Resilience Zone	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Isolated Wetlands	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Vernal Pool	_____ Square feet	_____ Square feet	_____ Square feet
<input type="checkbox"/> Vernal Pool Habitat (vernal pool + 100 ft. upland area)	_____ Square feet	_____ Square feet	_____ Square feet
<input checked="" type="checkbox"/> 25-foot Waterfront Area	6,261 Square feet	6,261 Square feet	***1,650 Square feet
<input checked="" type="checkbox"/> Riverfront Area	12,641 Square feet	*3,880 Square feet	**630 Square feet

*Restoration of altered riverfront area only
**Invasive vegetation removal
***Native shrub and tree planting area

C. OTHER APPLICABLE STANDARDS & REQUIREMENTS

1. What other permits, variances, or approvals are required for the proposed activity described herein and what is the status of such permits, variances, or approvals?

PIC _____
BWSC _____
BPDA _____



2. Is any portion of the proposed project located in Estimated Habitat of Rare Wildlife as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the Massachusetts Natural Heritage Atlas or go to <http://www.mass.gov/dfwele/dfw/nhosp/nhregmap.htm>.

- Yes No

If yes, the project is subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18).

A. Submit Supplemental Information for Endangered Species Review

Percentage/acreage of property to be altered:

(1) within wetland Resource Area _____
percentage/acreage

(2) outside Resource Area _____
percentage/acreage

Assessor's Map or right-of-way plan of site

3. Is any portion of the proposed project within an Area of Critical Environmental Concern?

- Yes No

If yes, provide the name of the ACEC: _____

4. Is the proposed project subject to provisions of the Massachusetts Stormwater Management Standards?

Yes. Attach a copy of the Stormwater Checklist & Stormwater Report as required.

- Applying for a Low Impact Development (LID) site design credits
- A portion of the site constitutes redevelopment
- Proprietary BMPs are included in the Stormwater Management System

No. Check below & include a narrative as to why the project is exempt

- Single-family house
- Emergency road repair
- Small Residential Subdivision (less than or equal to 4 single family houses or less than or equal to 4 units in a multifamily housing projects) with no discharge to Critical Areas

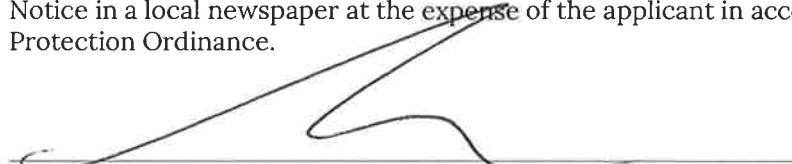
5. Is the proposed project subject to Boston Water and Sewer Commission Review?

- Yes No



D. SIGNATURES AND SUBMITTAL REQUIREMENTS

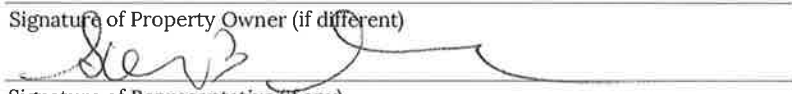
I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the Wetlands Protection Ordinance.



Signature of Applicant

10/05/21

Date

Signature of Property Owner (if different)


Signature of Representative (if any)

Date
10/6/21

Date

Checklist for Filing a Notice of Intent with Boston Conservation Commission

In order for the Boston Conservation Commission to effectively process your Notice of Intent, BCC requests that you complete the checklist below and include it with your submission. If you should need assistance please contact Commission Staff: 617-635-3850 (cc@boston.gov).

Please Submit the Following to the Conservation Commission:

- Two copies (a signed original and 1 copy) of a completed Notice of Intent (WPA Form 3)
- Two copies (a signed original and 1 copy) of a completed Boston Notice of Intent (Local Form)
- Two copies of plans (reduced to 11" X 17") in their final form with engineer's stamp affixed supporting calculations and other documentation necessary to completely describe the proposed work and mitigating measures. Plans must include existing conditions, the proposed project, erosion controls and mitigation measures, grading and spot elevations and all wetland resource areas and associated buffer zones. Some projects may require both an aerial view of the plans along with a profile view of plans depending on the scope of work.
- Two copies of an 8 ½" x 11" section of the [USGS quadrangle map](#) of the area, containing sufficient information for the Conservation Commission and the Department to locate the site of the work.
- (If applicable) Two copies the Federal Emergency Management Agency Flood Insurance Rate Map for the project site. FEMA Flood Maps: <https://msc.fema.gov/portal>.
- Two copies of the determination regarding the Natural Heritage and Endangered Species Program: Review Section C. Other Applicable Standards and Requirements of the Notice of Intent, page 4 of 8, pertaining to wildlife habitat. The Conservation Commission and the [Natural Heritage & Endangered Species Program](#) have the maps necessary to make this determination.
- (If applicable) Two hard copies of a Stormwater Report to document compliance with the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q), including associated drainage calculations for rooftops, parking lots, driveways, etc., for the required design storm events.
- (If applicable) A narrative detailing best management practices for stormwater management as set forth in the Stormwater Management Standards of the Massachusetts Department of Environmental Protection and any separate standards and guidelines prepared by the City and the Boston Water and Sewer Commission.
- (If applicable) Two hard copies of the Checklist for Stormwater Report
- Details of the stormwater management system, including: catch basins, oil separating tanks, detention basins, outfalls, sewer connections, etc.
- Any photographs related to the project representing the wetland resource areas.
- Two copies of a detailed project narrative describing the following: an overview of the entire project, the work proposed within wetland resource areas and/or buffer zones; how the performance standards specific to the wetland resource areas will be met (listing out each performance standard); a consideration of the effect that project sea level rise, changes in storm intensity and frequency, and other consequences of climate change may have on the resource areas and proposed activities; construction equipment and material involved; and measures to protect wetland resource areas and mitigate impacts. The applicant shall also include narrative on how they plan to integrate climate change and adaptation planning considerations into their project to promote climate resilience to protect and promote Resource Area Values and functions into the future.
- Two copies of an Abutters List, Affidavit of Service and Abutter Notification, filed concurrently with the Notice of Intent. All abutters within 300' of the project property line must be notified including those in a neighboring municipality. In such an instance, a copy of the filing must also be sent to the local Conservation Commission of the neighboring municipality.

Checklist for Filing a Notice of Intent with Boston Conservation Commission

- ☒ Two copies of the BPDA Climate Resiliency Checklist (for new buildings). This can be completed online at <http://www.bostonplans.org/planning/planning-initiatives/article-37-green-building-guidelines>. Please print the pdf that you will receive via email after completion and include it in your submission.
- ☒ **Electronic copies. Documents may be submitted via email, or via an email link to downloadable documents.**



To minimize the use of non-recyclable materials ***please do not include vinyl or plastic binders, bindings, folders or covers with the filing.*** Staples and binder clips are good choices.

Appendix B

FIGURES

Figure 1. Site Location Plan

Figure 2. Environmental Constraints Plan

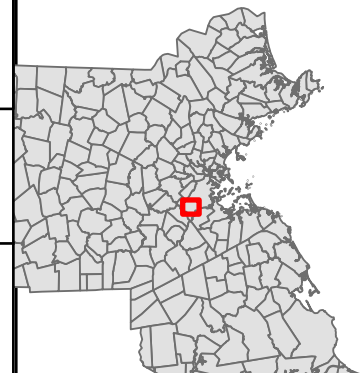
Figure 3. FEMA FIRMette



0 0.07 0.15 0.3 Miles

Reference: USGS
USA Topo Map

Lat/Long:
42.28815°N
71.10774°W



DCi

Project No. 2019-118

Figure 1
Site Location Plan

Walk Hill Residences
Rosindale, MA



Legend

- DCR Rec/Open Space
- MassDEP Integrated List of Waters
- NHESP Rare Wildlife and Priority Habitat
- Site Location

0 0.04 0.08 0.16 Miles

REF: MassGIS Digital Globe 2011/2012

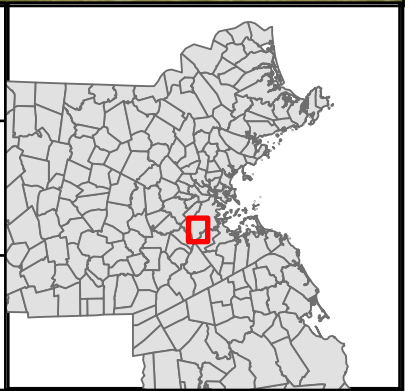
Lat/Long: 42.28815°N 71.10774°W



Project No. 2019-118

Figure 2
Environmental Constraints Map

Walk Hill Residences
Roslindale, MA



Walk Hill NHESP Endangered Species



MassDOT Roads Street Names

- Major MassDOT Routes
- Interstate Highways
- US Roads
- State

Massachusetts Towns

NHESP Estimated Habitats of Rare Wildlife

NHESP Priority Habitats of Rare Species

Orthos 2013-2014
2013-2014 Color Orthos (USGS)



FLOOD HAZARD INFORMATION

SEE REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL ACROSS THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT [HTTPS://MSC.FEMA.GOV](https://MSC.FEMA.GOV)

	Without Base Flood Elevation (BFE) Zone A.V, A99
	With BFE or Depth Zone A.E, AO, AH, VE, AR
	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
	Area with Reduced Flood Risk due to Levee See Notes. Zone X
	Area with Flood Risk due to Levee Zone D
	NOSCREEN Area of Minimal Flood Hazard Zone X
	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	Cross Sections with 1% Annual Chance Water Surface Elevation
	Coastal Transect
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information exchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at <https://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

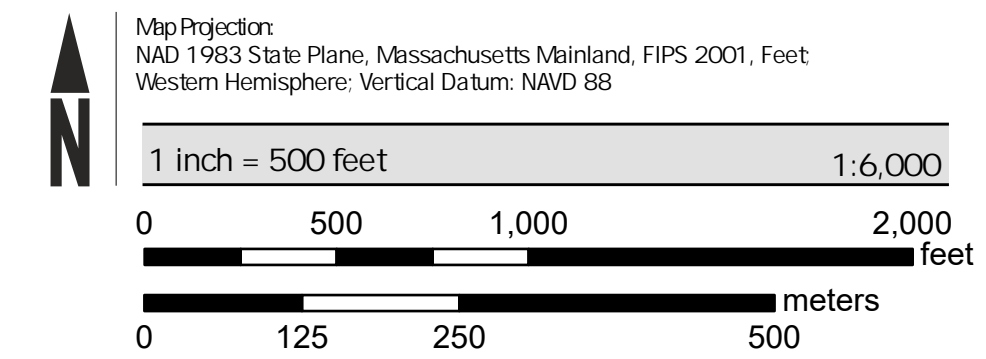
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Flood Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study Report for this jurisdiction.

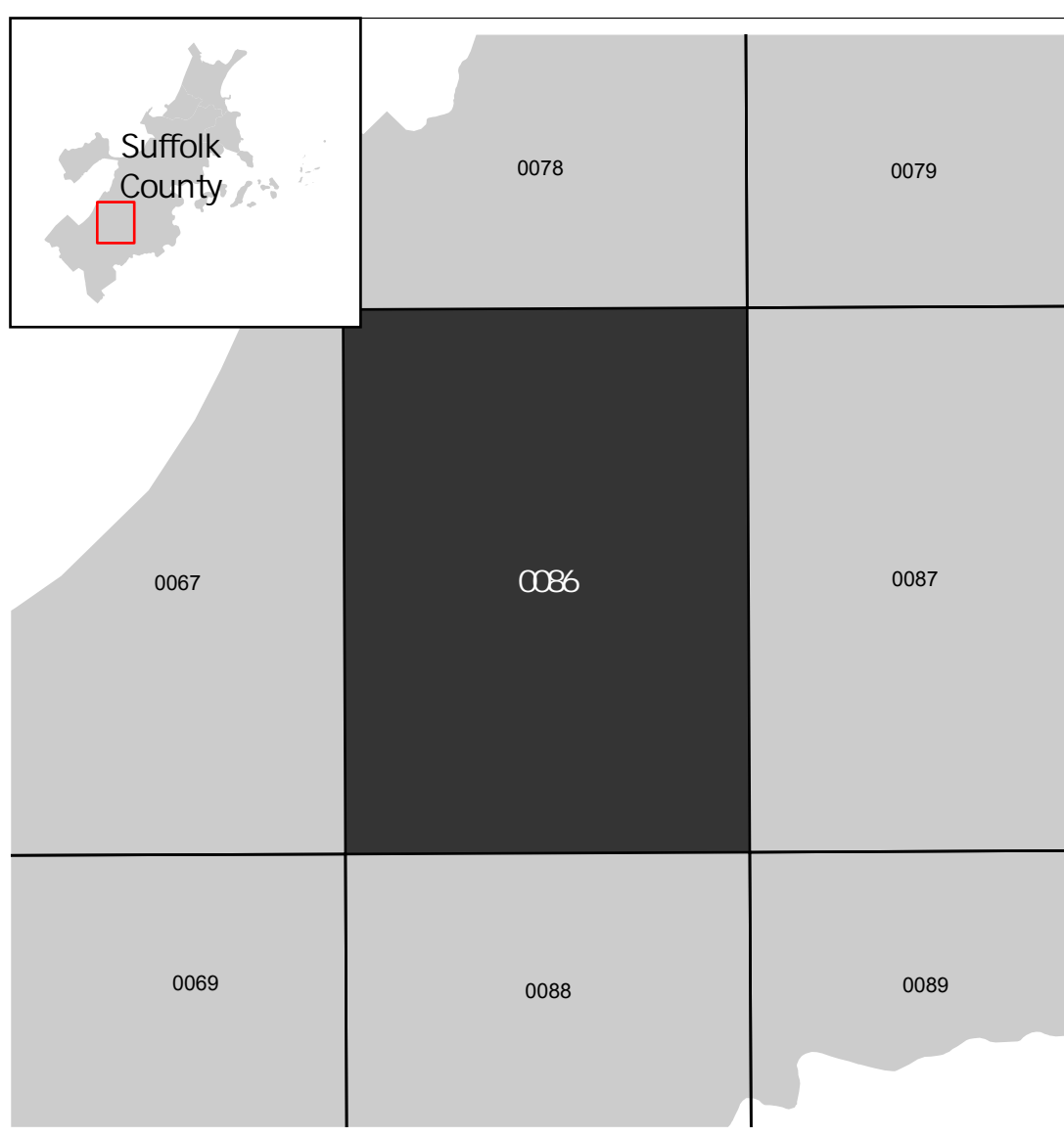
To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on the FIRM uses imagery from 2013 provided by the U.S. Geological Survey at a resolution of 0.3 meter, transportation data from 2016 provided by the U.S. Census Bureau with undefined scale, and political boundaries from 2017 provided by MassGIS at a scale of 1:5,000.

SCALE



PANEL LOCATOR



National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

SUFFOLK COUNTY, MASSACHUSETTS
(All Jurisdictions)

PANEL 86 of 176

Panel Contains:
COMMUNITY NUMBER PANEL SUFFIX
BOSTON, CITY OF 250286 0086 H

FEMA

PRELIMINARY
06/19/2020

VERSION NUMBER
2.6.3.6

MAP NUMBER
25025C0086H

MAP REVISED

Appendix C

PHOTOGRAPHS OF THE SITE

Walk Hill Residences - Site Photos



Remaining pavement within Riverfront Area



View of Riverfront Area. Note gravel under leaves along right



View from area near wall looking towards Canterbury



Buffer Zone to Bank



View from remaining pavement to towards Canterbury



View of Brook from top of slope





Appendix D

NOTIFICATION TO ABUTTERS



**AFFIDAVIT OF SERVICE
FOR ABUTTER NOTIFICATION**

**Under the Massachusetts Wetlands Protection Act
and Boston Wetlands Ordinance**

I, Stephen Sawyer, hereby certify under pains and penalties of perjury that that at least one week prior to the public hearing, I gave notice to abutters in compliance with the second paragraph of Massachusetts General Laws Chapter 131, section 40, and the DEP Guide to Abutter Notification dated April 8, 1994, in connection with the following matter:

A Notice of Intent _____ was filed under the Massachusetts Wetlands Protection Act and/or the Boston Wetlands Ordinance by Torrington Properties, Inc , Jay Bisognaro _____ for Redevelopment the property with a 106 unit residential building with supporting landscaping and parking _____ located at 283 & 289 walk Hill Street and 576 & 578 Canterbuury Street _____.

The Abutter Notification For, the list of abutters to whom it was given, and their addresses are attached to this Affidavit of Service.

Stephen Sawyer Digitally signed by Stephen Sawyer
Date: 2021.10.06 09:06:30 -0400

Name

Oct. 6, 2021

Date



**NOTIFICATION TO ABUTTERS
BOSTON CONSERVATION COMMISSION**

In accordance with the Massachusetts Wetlands Protection Act, Massachusetts General Laws Chapter 131, Section 40, and the Boston Wetlands Ordinance, you are hereby notified as an abutter to a project filed with the Boston Conservation Commission.

A. Torrington Properties, Inc has filed a Notice of Intent with the Boston Conservation Commission seeking permission to alter an Area Subject to Protection under the Wetlands Protection Act (General Laws Chapter 131, section 40) and Boston Wetlands Ordinance.

B. The address of the lot where the activity is proposed is 283 & 289 Walk Hill St, 576 & 578 Canterbury St, Rosindale.

C. The project involves Construction of multi-unit residential building and supporting site work and parking.

D. Copies of the Notice of Intent may be obtained by contacting the Boston Conservation Commission at CC@boston.gov.

E. Copies of the Notice of Intent may be obtained from DCI/GM2 by contacting them at 617-776-3350 between the hours of 9am, 4pm.

F. In accordance with the Commonwealth of Massachusetts Executive Order Suspending Certain Provisions of the Open Meeting Law, the public hearing will take place **virtually** at <https://zoom.us/j/6864582044>. If you are unable to access the internet, you can call 1-929-205-6099, enter Meeting ID 686 458 2044 # and use # as your participant ID.

G. Information regarding the date and time of the public hearing may be obtained from the **Boston Conservation Commission** by emailing CC@boston.gov or calling **(617) 635-3850** between the hours of **9 AM to 5 PM, Monday through Friday**.

NOTE: Notice of the public hearing, including its date, time, and place, will be published at least five (5) days in advance in the **Boston Herald**.

NOTE: Notice of the public hearing, including its date, time, and place, will be posted on www.boston.gov/public-notices and in Boston City Hall not less than forty-eight (48) hours in advance. If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTE: If you would like to provide comments, you may attend the public hearing or send written comments to CC@boston.gov or Boston City Hall, Environment Department, Room 709, 1 City Hall Square, Boston, MA 02201

NOTE: You also may contact the Boston Conservation Commission or the Department of Environmental Protection Northeast Regional Office for more information about this application or the Wetlands Protection Act. To contact DEP, call: the Northeast Region: (978) 694-3200.

NOTE: If you plan to attend the public hearing and are in need of interpretation, please notify staff at CC@boston.gov by 12 PM the day before the hearing.



NOTIFICACIÓN PARA PROPIETARIOS Y/O VECINOS COLINDANTES COMISIÓN DE CONSERVACIÓN DE BOSTON

De conformidad con la Ley de protección de los humedales de Massachusetts, el Capítulo 131, Sección 40 de las Leyes Generales de Massachusetts y la Ordenanza sobre los humedales de Boston, por la presente queda usted notificado como propietario o vecino colindante de un proyecto presentado ante la Comisión de Conservación de Boston.

A. **Propiedades de Torrington** ha presentado una solicitud a la Comisión de Conservación de Boston pidiendo permiso para modificar una zona sujeta a protección en virtud de la Ley de protección de los humedales (Leyes generales, capítulo 131, sección 40) y la Ordenanza sobre los humedales de Boston.

B. La dirección del lote donde se propone la actividad es 283 & 289 Calle Walk Hill y 576 & 578 Calle Canterbury.

C. El proyecto consiste en la construcción de un edificio residencial de unidades múltiples y el trabajo del sitio y el aparcamiento de apoyo.

D. Se pueden obtener copias del Aviso de Intención comunicándose con la Comisión de Conservación de Boston en CC@boston.gov.

E. Las copias de la notificación de intención pueden obtenerse en **DCI/GM2** entre las **8 AM y las 5 PM, de lunes a viernes**.

F. De acuerdo con el Decreto Ejecutivo de la Mancomunidad de Massachusetts que suspende ciertas disposiciones de la Ley de reuniones abiertas, la audiencia pública se llevará a cabo virtualmente en <https://zoom.us/j/6864582044>. Si no puede acceder a Internet, puede llamar al 1-929-205-6099, ingresar ID de reunión 686 458 2044 # y usar # como su ID de participante.

G. La información relativa a la fecha y hora de la audiencia pública puede solicitarse a la **Comisión de Conservación de Boston** por correo electrónico a CC@boston.gov o llamando al **(617) 635-4416** entre las **9 AM y las 5 PM, de lunes a viernes**.

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en el **Boston Herald** con al menos cinco (5) días de antelación.

NOTA: La notificación de la audiencia pública, incluida su fecha, hora y lugar, se publicará en www.boston.gov/public-notices y en el Ayuntamiento de Boston con no menos de cuarenta y ocho (48) horas de antelación. Si desea formular comentarios, puede asistir a la audiencia pública o enviarlos por escrito a CC@boston.gov o al Ayuntamiento de Boston, Departamento de Medio Ambiente, Sala 709, 1 City Hall Square, Boston, MA 02201.

NOTA: También puede comunicarse con la Comisión de Conservación de Boston o con la Oficina Regional del Noreste del Departamento de Protección Ambiental para obtener más información sobre esta solicitud o la Ley de Protección de Humedales. Para comunicarse con el DEP, llame a la Región Noreste: (978) 694-3200.



City of Boston
Environment



City of Boston
Mayor Martin J. Walsh

NOTA: si tiene previsto asistir a la audiencia pública y necesita servicios de interpretación, sírvase informar al personal en CC@boston.gov antes de las 12 PM del día anterior a la audiencia.

Spanish Translation Certification

I hereby certify the Notification to Abutters for the Boston Conservation Commission was correctly translated to Spanish based upon my training and experience. My credentials include a Bachelor of Arts Degree in Spanish Language and Literature from the University of Rhode Island. Additionally, as part of the schools International Engineering Program I participated in a yearlong immersion program in Santander Spain, attending the Universidad de Cantabria along with an internship at the University as part of a research team working on coastal resiliency and offshore renewable energy.



Arianna Sawyer

OBJECTID	PID	PID_LONG	GIS_ID	FULL_ADDRESS	CITY	ZIPCODE	OWNER	ADDRESS MAIL_ADDRESS	MAIL_CS	STATE	MAIL_ZIPCODE	Shape_Area	Shape_Length
5850	1405199000	1405199000	1405199000	AMERICAN LEGION HW	ROSLINDALE	2131	ITALIAN CATH CEM ASSN	AMER LEGION HGWY	ROSLINDALE	MA	2131	518276.8062	3506.846146
13509	1806562000	1806562000	1806562000	283 WALK HILL ST	ROSLINDALE	2131	JBBM REALTY TRUST	101 FEDERAL ST, UNIT 1405	BOSTON	MA	2110	21591.33203	644.6102043
13575	1806576000	1806576000	1806576000	574 576 CANTERBURY ST	ROSLINDALE	2131	JBBM REALTY TRUST	101 FEDERAL ST, UNIT 1405	BOSTON	MA	2110	25298.72754	941.0256357
13576	1806576000	1806576000	1806576000	574 576 CANTERBURY ST	ROSLINDALE	2131	JBBM REALTY TRUST	101 FEDERAL ST, UNIT 1405	BOSTON	MA	2110	25298.72754	941.0256357
20369	1806575000	1806575000	1806575000	578 CANTERBURY ST	ROSLINDALE	2131	JBBM REALTY TRUST	101 FEDERAL ST, UNIT 1405	BOSTON	MA	2110	22628.38599	933.8905657
30127	1806597000	1806597000	1806597000	570 AMERICAN LEGION HW	ROSLINDALE	2131	CITY OF BOSTON	570 AMER LEGION HWY	ROSLINDALE	MA	2131	117833.6462	1456.87899
39808	1806572000	1806572000	1806572000	598 CANTERBURY ST	ROSLINDALE	2131	ST MICHAELS CEMETARY ITALIAN	227 WALK HILL ST	ROSLINDALE	MA	2131	8616.270264	406.0703251
44034	1806574000	1806574000	1806574000	582 CANTERBURY ST	ROSLINDALE	2131	582 CANTERBURY LLC	321 WEST GROVE ST	MIDDLEBORO	MA	2346	20475.55225	931.0345554
44035	1806574000	1806574002	1806574000	582 CANTERBURY ST 1	ROSLINDALE	2131	CHAPURAN MATTHEW P	582 CANTERBURY ST, UNIT 1	ROSLINDALE	MA	2131	20475.55225	931.0345554
44035	1806574000	1806574002	1806574000	582 CANTERBURY ST 1	ROSLINDALE	2131	CHAPURAN MATTHEW P	582 CANTERBURY ST, UNIT 1	ROSLINDALE	MA	2131	20475.55225	931.0345554
44036	1806574000	1806574004	1806574000	582 CANTERBURY ST 2	ROSLINDALE	2131	STORY NATHANIEL A	582 CANTERBURY ST, UNIT 2	ROSLINDALE	MA	2131	20475.55225	931.0345554
44037	1806574000	1806574006	1806574000	582 CANTERBURY ST 3	ROSLINDALE	2131	HOURICAN AMANDA	582 CANTERBURY ST, UNIT 3	ROSLINDALE	MA	2131	20475.55225	931.0345554
44038	1806574000	1806574008	1806574000	582 CANTERBURY ST 4	ROSLINDALE	2131	INCOME SOURCE LLC	839 ALBANY ST	BOSTON	MA	2119	20475.55225	931.0345554
44039	1806574000	1806574010	1806574000	582 CANTERBURY ST 5	ROSLINDALE	2131	SHIH MEREDITH P	582 CANTERBURY ST, UNIT 5	ROSLINDALE	MA	2131	20475.55225	931.0345554
44040	1806574000	1806574012	1806574000	582 CANTERBURY ST 6	ROSLINDALE	2131	JUNG GRACE HA EUN	35 SCHOOL ST, UNIT 6	DRACUT	MA	1826	20475.55225	931.0345554
44041	1806574000	1806574014	1806574000	582 CANTERBURY ST 7	ROSLINDALE	2131	NIX ROGER	582 CANTERBURY ST, UNIT 7	ROSLINDALE	MA	2131	20475.55225	931.0345554
53725	1904556000	1904556000	1904556000	223 WALK HILL ST	JAMAICA PLAIN	2130	ITALIAN CATH CEM ASSN	223 WALK HILL	ROSLINDALE	MA	2131	772424.498	4925.866203
71722	1806577000	1806577000	1806577000	530 AMERICAN LEGION HW	ROSLINDALE	2131	MAZZELLA JENNIE I TS	335 WALK HILL ST	ROSLINDALE	MA	2131	46206.43115	941.5676587
86139	1904602000	1904602000	1904602000	165 A BLOCK ST	ROSLINDALE	2131	FOREST HILLS CEMETERY	165A BLOCK	ROSLINDALE	MA	2131	10337268.69	14632.31228
101966	1806581010	1806581010	1806581010	335 WALK HILL ST	ROSLINDALE	2131	MAZZELLA JENNIE I	335 WALK HILL ST	ROSLINDALE	MA	2131	58113.07837	1433.894974
105617	1806563002	1806563002	1806563002	569 AMERICAN LEGION HW	ROSLINDALE	2131	R&D ROSLINDALE LLC	172 WORCESTER RD	NATICK	MA	1760	17524.58423	700.6021057
132607	1806572001	1806572001	1806572001	594 CANTERBURY ST	ROSLINDALE	2131	ITALIAN CATHOLIC CEMETERY	594 CANTERBURY	ROSLINDALE	MA	2131	11780.28711	448.3965682
136656	1806563001	1806563001	1806563001	565 AMERICAN LEGION HW	ROSLINDALE	2131	565 REALTY INC	172 WORCESTER ST	NATICK	MA		23897.9751	739.8391289
140149	1806580000	1806580000	1806580000	327 WALK HILL ST	ROSLINDALE	2131	MAZZELLA JENNIE GP	335 WALK HILL ST	ROSLINDALE	MA	2131	23095.20044	672.3664539
167112	1806563000	1806563000	1806563000	289 WALK HILL ST	ROSLINDALE	2131	JBBM REALTY TRUST	101 FEDERAL ST, UNIT 1405	BOSTON	MA	2110	23631.56738	622.1562699
168363	1405198010	1405198010	1405198010	AMERICAN LEGION HW	DORCHESTER	2124	MASS AUDUBON SOCIETY	450 WALK HILL ST	DORCHESTER	MA	2124	2511492.48	9126.499516
170738	1806573000	1806573000	1806573000	586 CANTERBURY ST	ROSLINDALE	2131	ST MICHAEL CEMETERY CORP	500 CANTERBURY ST	ROSLINDALE	MA	2131	25110.85547	960.8301842

Appendix E

BPDA Climate Resiliency Checklist

NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).

A.1 - Project Information

Project Name:	Walk Hill		
Project Address:	289 Walk Hill Street		
Project Address Additional:	Boston, MA		
Filing Type (select)	<i>Initial (PNF, EPNF, NPC or other substantial filing) Design / Building Permit (prior to final design approval), or Construction / Certificate of Occupancy (post construction completion)</i>		
Filing Contact	Colleen Soden	Soden Sustainability Consulting	colleen@sodensustainability.com 617-372-7857
Is MEPA approval required	Yes/no		Date

A.3 - Project Team

Owner / Developer:	JBBM Realty Trust
Architect:	Embarc Studio, Inc.
Engineer:	Wozny Barbar & Associates
Sustainability / LEED:	Soden Sustainability
Permitting:	McDermott, Quilty & Miller LLP – Nicolas Zozula
Construction Management:	Dellbrook Construction

A.3 - Project Description and Design Conditions

List the principal Building Uses:	Multi Family Residential
List the First Floor Uses:	Residential Lobby, Common Areas, Dwelling Unis
List any Critical Site Infrastructure and or Building Uses:	

Site and Building:

Site Area:	87,631 SF	Building Area:	118,815 GFA
Building Height:	55'-6" Ft	Building Height:	4 Stories
Existing Site Elevation – Low:	39.4 Ft BCB	Existing Site Elevation – High:	56.0 Ft BCB
Proposed Site Elevation – Low:	39.2 Ft BCB	Proposed Site Elevation – High:	56.0 Ft BCB
Proposed First Floor Elevation:	55.5 Ft BCB	Below grade levels:	1 Stories

Article 37 Green Building:

LEED Version - Rating System :	LEED v4 BDC	LEED Certification:	Yes / No
--------------------------------	-------------	---------------------	----------

Proposed LEED rating:

Certified/Silver/ Gold/Platinum

Proposed LEED point score:

Pts.

Building Envelope

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Roof:	R30	Exposed Floor:	(R) 30
Foundation Wall:	R10	Slab Edge (at or below grade):	R10

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	0%	Wall & Spandrel Assembly Value:	N/A(U)
Area of Framed & Insulated / Standard Wall:	70%	Wall Value	R20 + R5 CI
Area of Vision Window:	30%	Window Glazing Assembly Value:	Windows - 0.27
		Window Glazing SHGC:	0.27 (SHGC)
Area of Doors:	144 SF	Door Assembly Value:	0.51 (U)

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined			
Annual Electric:	(kWh)	Peak Electric:	(kW)
Annual Heating:	(MMbtu/hr)	Peak Heating:	(MMbtu)
Annual Cooling:	(Tons/hr)	Peak Cooling:	(Tons)
Energy Use - Below ASHRAE 90.1 - 2013:	%	Have the local utilities reviewed the building energy performance?:	Yes / no
Energy Use - Below Mass. Code:	%	Energy Use Intensity:	(kBtu/SF)

Back-up / Emergency Power System N/A

Electrical Generation Output:	(kW)	Number of Power Units:	
System Type:	(kW)	Fuel Source:	

Emergency and Critical System Loads (in the event of a service interruption)

Electric:	(kW)	Heating:	(MMbtu/hr)
		Cooling:	(Tons/hr)

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City’s goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: (Tons)

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

Describe any energy efficiency assistance or support provided or to be provided to the project:

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2° F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:

Temperature Range - High:

Annual Heating Degree Days:

Annual Cooling Degree Days:

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:

Days - Above 100°:

Number of Heatwaves / Year:

Average Duration of Heatwave (Days):

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:

Describe all building and site measures for reducing storm water run-off:

Stormwater system designed to handle 8.83" rainfall providing 20% reduction in runoff from the property

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

A large sub-surface concrete chamber system design to reduce flows for extreme events of 9" of rainfall

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA? Yes / No What Zone:
 Current FEMA SFHA Zone Base Flood Elevation:

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online [BPDA SLR-FHA Mapping Tool](#) to assess the susceptibility of the project site. Yes / No

If you answered YES to either of the above questions, please complete the following questions. Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online [BPDA SLR-FHA Mapping Tool](#) to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24” of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12” of freeboard for other buildings and uses.

Project not susceptible to sea level rise, basement level at 43.5 BCB

Sea Level Rise - Base Flood Elevation:	<input type="text" value="Ft BCB"/>	
Sea Level Rise - Design Flood Elevation:	<input type="text" value="Ft BCB"/>	First Floor Elevation: <input type="text" value="Ft BCB"/>
Site Elevations at Building:	<input type="text" value="Ft BCB"/>	Accessible Route Elevation: <input type="text" value="Ft BCB"/>

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

Describe any strategies that would support rapid recovery after a weather event:

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. **NOTE: Project filings should be prepared and submitted using the online [Climate Resiliency Checklist](#).**

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

Appendix F

Illicit Discharge Statement

ILLICIT DISCHARGE COMPLIANCE STATEMENT

RESPONSIBILITY:

The Owner is responsible for the ultimate compliance with all provisions of the Massachusetts Stormwater Management Policy and responsible for identifying and eliminating illicit discharges (as defined by the USEPA). By signing this statement, I confirm that no illicit discharges (as defined in Section 40 CFR 122.34(b)(3) of the Phase II Stormwater Regulations under the Clean Water Act) are proposed to enter the stormwater system at Walk Hill Residences 283 & 289 Walk Hill Street, 574 & 578 Canterbury Street Boston, MA. Illicit discharge detection and elimination procedures will be implemented routinely by visual inspections to prevent illicit discharges into the stormwater system. All personnel working at Walk Hill Residences will be informed of the illicit discharge detection and elimination procedures and that no illicit discharges are allowed to enter the stormwater system.

OWNER NAME: Torrington Properties, Inc. - JBBM Realty Trust

11 Elkins Street, Suite 420

Boston, MA 02127

Signature:



ENGINEER'S COMPLIANCE STATEMENT:

To the best of my knowledge, the attached plans, computations and specification meet the requirements of Standard 10 of the Massachusetts Stormwater Handbook regarding illicit discharges to the Stormwater Management System and that no detectable illicit discharges exist on the site. All documents and attachments were prepared under my direction and qualified personnel property gathered and evaluated this information submitted, to the best of my knowledge.


Included with this statement are site plans, drawn to scale, that identify the location of systems for conveying stormwater on the site and show that these systems do not allow entry of any illicit discharges into the stormwater management system. The plans also show any systems for conveying wastewater and/or groundwater on the site and show that there are no connections between the stormwater and wastewater systems.

For a redevelopment project (if applicable), all actions taken to identify and remove illicit discharges, including without limitation, visual screening, dye or smoke testing, and the removal of any sources of illicit discharges to the stormwater management system are documented and included with this statement.

ENGINEER NAME: Design Consultants Inc. – Stephen Sawyer P.E.

120 Middlesex Avenue

Somerville, MA 02145

Signature: 

Appendix G

Abbreviated Notice of Resource Area Deliniation



CITY OF BOSTON

THE ENVIRONMENT DEPARTMENT

Boston City Hall, Room 709 • Boston, MA 02201 • 617/635-3850 • FAX: 617/635-3435

June 29, 2017

Michael Clark
Design Consultants, Inc.
1495 Hancock Street, Suite 206
Quincy, MA 02169

CERTIFIED MAIL No: 7015 0640 0001 0462 3757

RE: Abbreviated Notice of Resource Area Delineation from the Design Consultants, Inc. on behalf of the Residence of Walk Hill, LLC for the delineation of wetlands located at 283 & 289 Walk Hill Street and 576 & 578 Canterbury Street in Roslindale, MA

Dear Mr. Clark,

Pursuant to the Massachusetts Wetlands Protection Act, G.L. c. 131, § 40 (the "Act"), I have enclosed the Order of Resource Area Delineation for the above referenced project, as voted by the Conservation Commission at the June 21, 2017 public hearing. The delineated area was approved by the Commission as a river, using the bank delineations shown on the plans, as its boundary.

This Order of Resource Area Delineation determines that the boundaries of those resource areas noted above, have been delineated and approved by the Conservation Commission and are binding as to all decisions rendered pursuant to the Massachusetts Wetlands Protection Act (M.G.L. c.131, § 40) and its regulations (310 CMR 10.00).

If you should have any questions regarding the Order I may be contacted at 617-635-4416.

For the Commission,

Amelia Croteau
Boston Conservation Commission

Enclosure: WPA Form 2

CC: Nabil Boghos, Residence of Walk Hill, LLC



WPA Form 4B – Order of Resource Area Delineation

MassDEP File Number

eDEP Transaction Number

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

City/Town

A. General Information

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



Note: Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

From: Boston
1. Conservation Commission

2. This Issuance is for (check one):

- a. Order of Resource Area Delineation
- b. Amended Order of Resource Area Delineation

3. Applicant:

Nabil Boghos
a. First Name b. Last Name
Residence of Walk Hill, LLC
c. Organization
1630 Osgood Street, #1210
d. Mailing Address
North Andover MA 01845
e. City/Town f. State g. Zip Code

4. Property Owner (if different from applicant):

a. First Name b. Last Name
c. Organization
d. Mailing Address
e. City/Town f. State g. Zip Code

5. Project Location:

283 & 289 Walk Hill St. Roslindale 02131
576 & 578 Canterbury St. b. City/Town c. Zip Code
1806562000/1806563000
d. Assessors Map/Plat Number 1806576000/1806575000
Latitude and Longitude -71d6m28.44s 42d17m17.88s
(in degrees, minutes, seconds): f. Latitude g. Longitude

6. Dates: June 5, 2017 June 21, 2017 June 21, 2017
a. Date ANRAD filed b. Date Public Hearing Closed c. Date of Issuance

7. Title and Date (or Revised Date if applicable) of Final Plans and Other Documents:

a. Title b. Date
c. Title d. Date



WPA Form 4B – Order of Resource Area Delineation

MassDEP File Number

eDEP Transaction Number

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

City/Town

B. Order of Delineation

1. The Conservation Commission has determined the following (check whichever is applicable):

a. **Accurate:** The boundaries described on the referenced plan(s) above and in the Abbreviated Notice of Resource Area Delineation are accurately drawn for the following resource area(s):

1. Bordering Vegetated Wetlands

2. Other resource area(s), specifically:

a. The area was delineated and approved by the Commission as a river, using the bank delineations shown on the plans as the boundary.

b. **Modified:** The boundaries described on the plan(s) referenced above, as modified by the Conservation Commission from the plans contained in the Abbreviated Notice of Resource Area Delineation, are accurately drawn from the following resource area(s):

1. Bordering Vegetated Wetlands

2. Other resource area(s), specifically:

c. **Inaccurate:** The boundaries described on the referenced plan(s) and in the Abbreviated Notice of Resource Area Delineation were found to be inaccurate and cannot be confirmed for the following resource area(s):

1. Bordering Vegetated Wetlands

2. Other resource area(s), specifically:

3. The boundaries were determined to be inaccurate because:



WPA Form 4B – Order of Resource Area Delineation

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

eDEP Transaction Number

City/Town

C. Findings

This Order of Resource Area Delineation determines that the boundaries of those resource areas noted above, have been delineated and approved by the Commission and are binding as to all decisions rendered pursuant to the Massachusetts Wetlands Protection Act (M.G.L. c.131, § 40) and its regulations (310 CMR 10.00). This Order does not, however, determine the boundaries of any resource area or Buffer Zone to any resource area not specifically noted above, regardless of whether such boundaries are contained on the plans attached to this Order or to the Abbreviated Notice of Resource Area Delineation.

This Order must be signed by a majority of the Conservation Commission. The Order must be sent by certified mail (return receipt requested) or hand delivered to the applicant. A copy also must be mailed or hand delivered at the same time to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html>).

D. Appeals

The applicant, the owner, any person aggrieved by this Order, any owner of land abutting the land subject to this Order, or any ten residents of the city or town in which such land is located, are hereby notified of their right to request the appropriate DEP Regional Office to issue a Superseding Order of Resource Area Delineation. When requested to issue a Superseding Order of Resource Area Delineation, the Department's review is limited to the objections to the resource area delineation(s) stated in the appeal request. The request must be made by certified mail or hand delivery to the Department, with the appropriate filing fee and a completed Request for Departmental Action Fee Transmittal Form, as provided in 310 CMR 10.03(7) within ten business days from the date of issuance of this Order. A copy of the request shall at the same time be sent by certified mail or hand delivery to the Conservation Commission and to the applicant, if he/she is not the appellant.

Any appellants seeking to appeal the Department's Superseding Order of Resource Area Delineation will be required to demonstrate prior participation in the review of this project. Previous participation in the permit proceeding means the submission of written information to the Conservation Commission prior to the close of the public hearing, requesting a Superseding Order or Determination, or providing written information to the Department prior to issuance of a Superseding Order or Determination.

The request shall state clearly and concisely the objections to the Order which is being appealed and how the Order does not contribute to the protection of the interests identified in the Massachusetts Wetlands Protection Act, (M.G.L. c. 131, § 40) and is inconsistent with the wetlands regulations (310 CMR 10.00). To the extent that the Order is based on a municipal bylaw or ordinance, and not on the Massachusetts Wetlands Protection Act or regulations, the Department of Environmental Protection has no appellate jurisdiction.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

Provided by MassDEP:

**WPA Form 4B – Order of Resource Area
Delineation**

MassDEP File Number

eDEP Transaction Number

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

City/Town

E. Signatures

6/21/2017
Date of Issuance

Please indicate the number of members who will sign this form.

6
1. Number of Signers

Aldo P. [Signature]
Signature of Conservation Commission Member

[Signature]
Signature of Conservation Commission Member

[Signature]
Signature of Conservation Commission Member

[Signature]
Signature of Conservation Commission Member

[Signature]
Signature of Conservation Commission Member

[Signature]
Signature of Conservation Commission Member

Signature of Conservation Commission Member

This Order is valid for three years from the date of issuance.

If this Order constitutes an Amended Order of Resource Area Delineation, this Order does not extend the issuance date of the original Final Order, which expires on _____ unless extended in writing by the issuing authority.

This Order is issued to the applicant and the property owner (if different) as follows:

2. By hand delivery on

3. By certified mail, return receipt requested on

a. Date

a. Date

6/29/2017

Appendix H

SITE PLANS

OWNER
TORRINGTON PROPERTIES, INC.
11 ELKINS STREET, SUITE 420
BOSTON, MA 02127

PROJECT TEAM

283 & 289 WALK HILL ST
AND 576 & 578
CANTERBURY ST,
ROSLINDALE, MA

PROJECT INFO

REV	DESCRIPTION	DATE
2	BCC COMMENTS	12/1/2021
1	DD SET	11/5/2021

2 BCC COMMENTS 12/1/2021

1 DD SET 11/5/2021

REV DESCRIPTION DATE

STAMP:

LAYOUT & MATERIALS PLAN

SHEET NAME:

C102

SHT NO.:

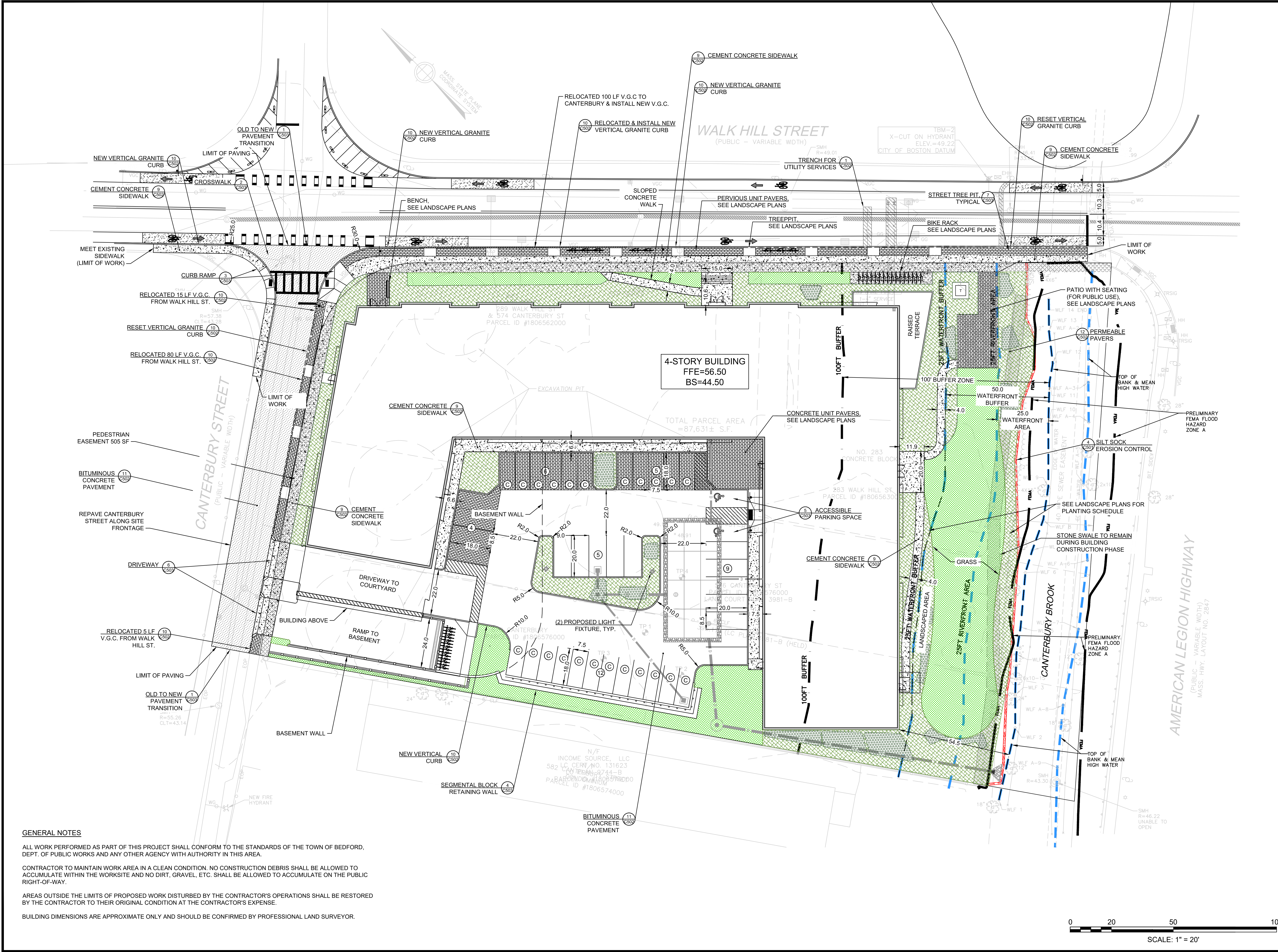
DR BY: RB

CHK BY: SS

PROJ NO.: 19-118

DATE: OCTOBER 6, 2021

SCALE: 1"=20'



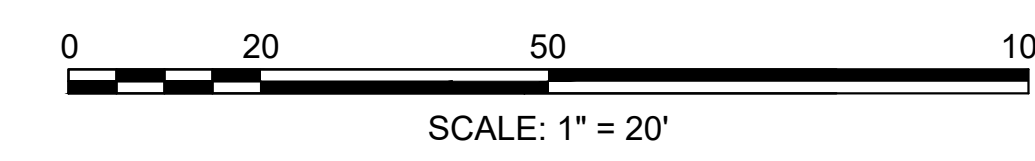
GENERAL NOTES

ALL WORK PERFORMED AS PART OF THIS PROJECT SHALL CONFORM TO THE STANDARDS OF THE TOWN OF BEDFORD, DEPT. OF PUBLIC WORKS AND ANY OTHER AGENCY WITH AUTHORITY IN THIS AREA.

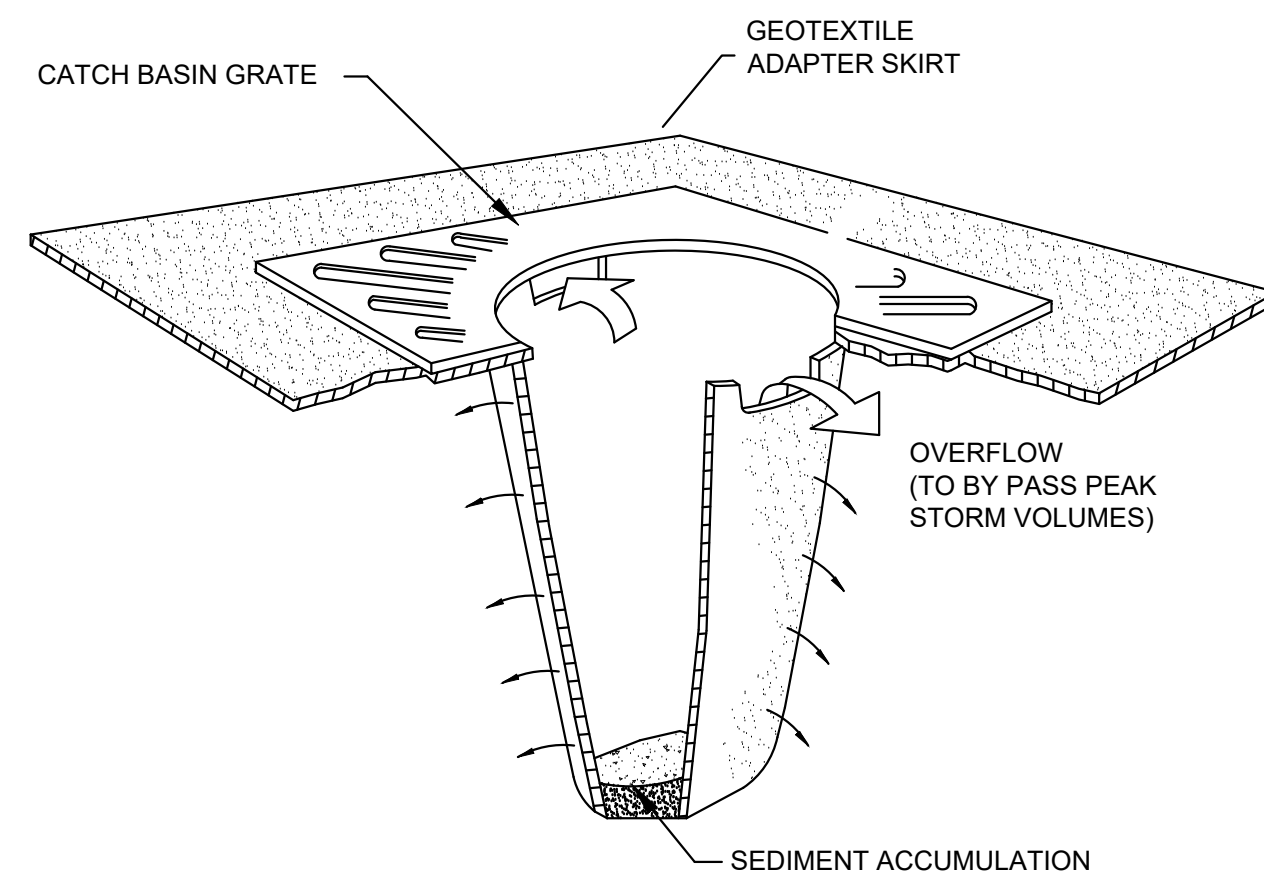
CONTRACTOR TO MAINTAIN WORK AREA IN A CLEAN CONDITION. NO CONSTRUCTION DEBRIS SHALL BE ALLOWED TO ACCUMULATE WITHIN THE WORKSITE AND NO DIRT, GRAVEL, ETC. SHALL BE ALLOWED TO ACCUMULATE ON THE PUBLIC RIGHT-OF-WAY.

AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.

BUILDING DIMENSIONS ARE APPROXIMATE ONLY AND SHOULD BE CONFIRMED BY PROFESSIONAL LAND SURVEYOR.



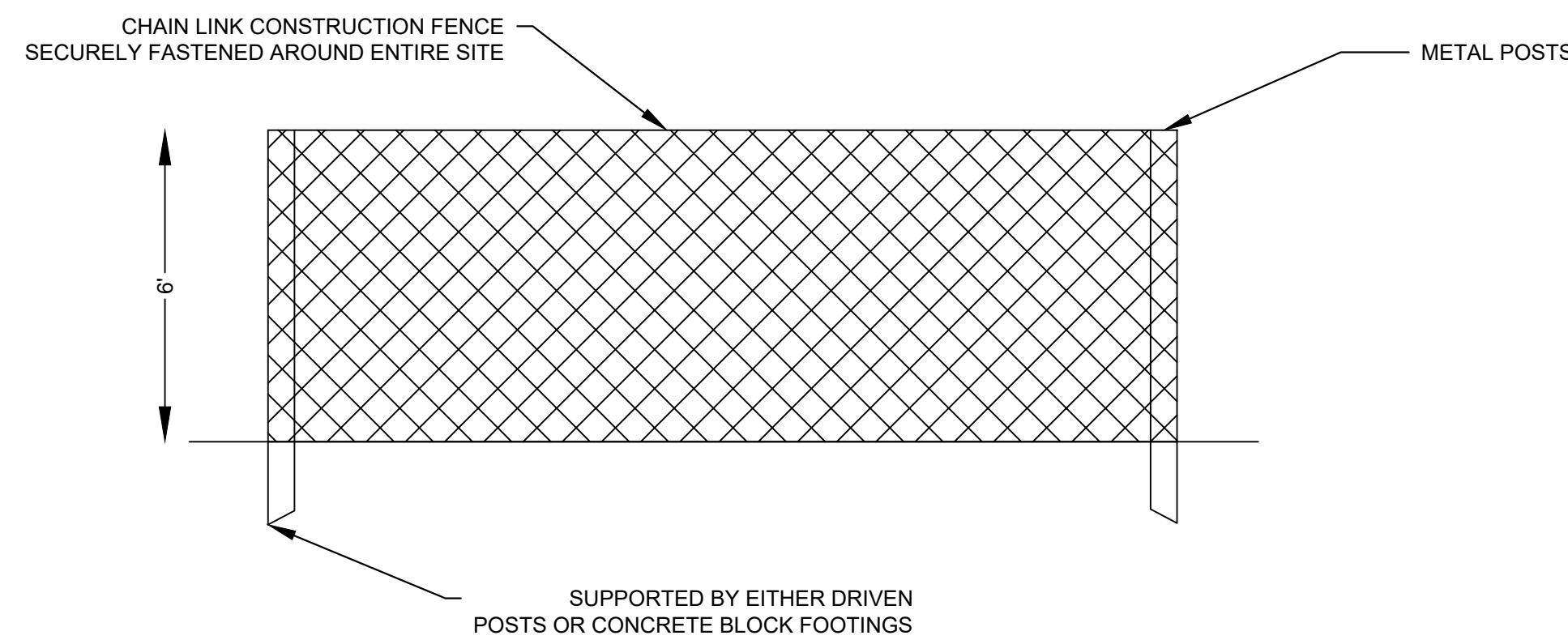
P:\2019 Projects\2019-118 Walk Hill Boston\Eng\ENGINEERING\19-118_LAYT_MATL.dwg



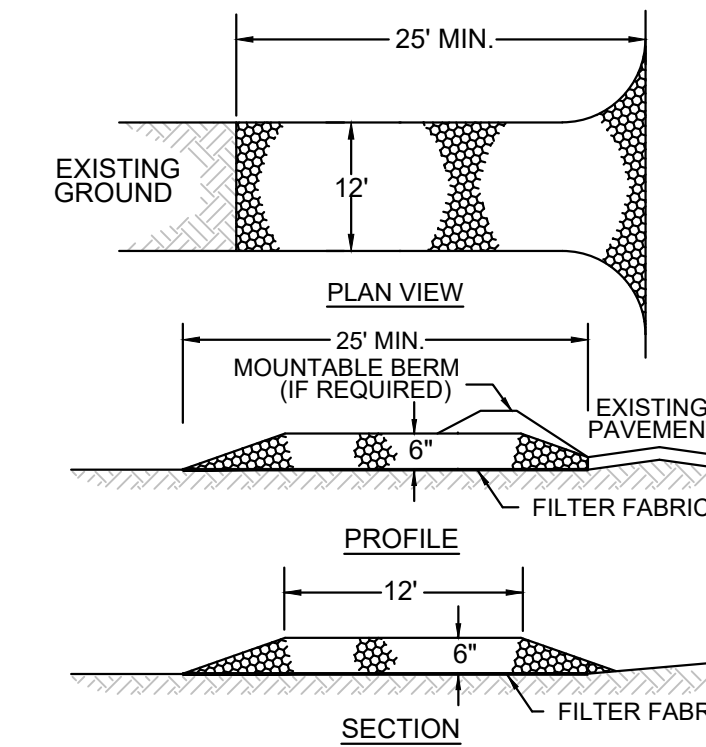
NOTES

1. CATCH BASIN PROTECTION TO BE "SILTSACK" (BY ACF ENVIRONMENTAL) OR "STREAM GUARD" (BY FOSS ENVIRONMENTAL SERVICES) OR EQUAL.
2. INSERT TO BE EMPTIED AND PROPERLY DISPOSED OF WHEN IT IS 1/2 FULL OF SEDIMENT.
3. INSPECT INSERT AFTER ALL RAINFALL EVENTS. REPAIR AND MAINTAIN AS REQUIRED.

1 SILT SACK
NOT TO SCALE



2 CONSTRUCTION FENCE
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

STONE SIZE - SEE GRADATION TABLE

LENGTH - 25 FOOT MINIMUM.

THICKNESS - SIX (6) INCHES (MINIMUM).

WIDTH - 12' MINIMUM

FILTER FABRIC - MIRAFI 600X OR APPROVED EQUAL.

INSTALLATION - THE AREA OF THE ENTRANCE SHOULD BE CLEARED OF ALL

VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL. A ROAD

STABILIZATION FILTER CLOTH CAN BE PLACED ON THE SUBGRADE PRIOR TO THE

GRAVEL PLACEMENT TO PREVENT PUMPING. THE GRAVEL SHALL BE PLACED TO

THE SPECIFIED DIMENSIONS.

MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL

PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS

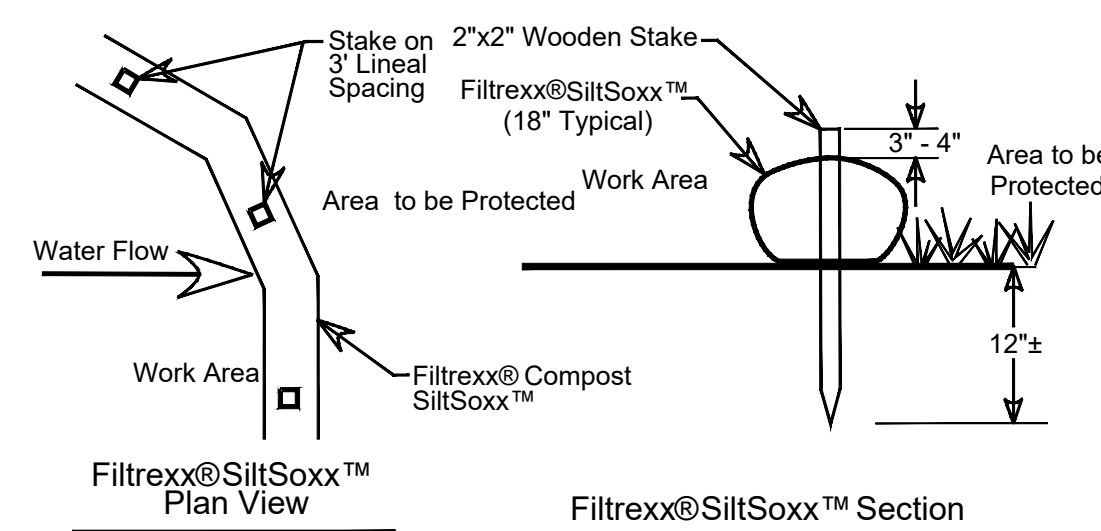
WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL

LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES

USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED

ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.

SIEVE SIZE	% PASSING BY WEIGHT
2 inches	100
1 1/2 inches	90-100
1 inch	20-55
3/4 inch	0-15
3/8 inch	0-5

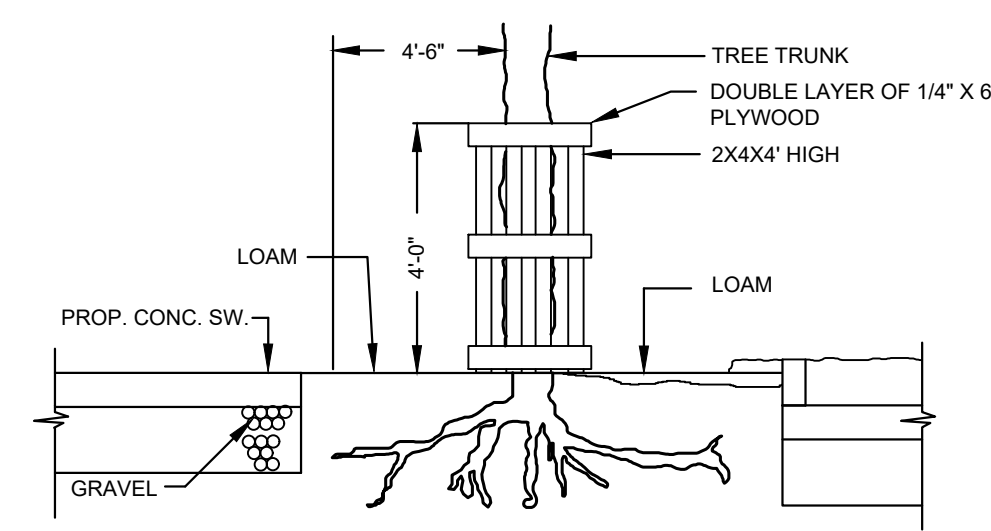


Notes:

1. All material to meet Filtrexx® specifications
2. SiltSoxx™ compost/soil/rock/seed fill to meet application requirements.
3. Compost material to be dispersed on site, as determined by Engineer.

Filtrexx® SiltSoxx™

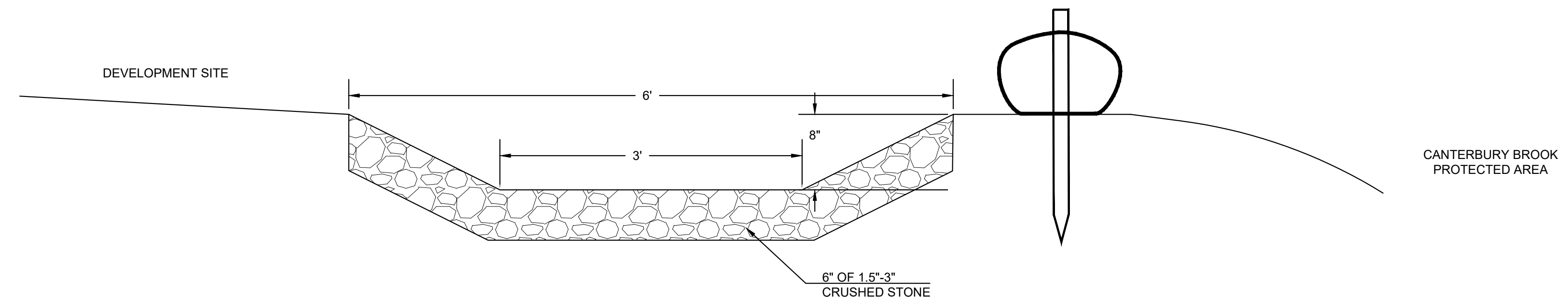
4 SILT SOCK
NOT TO SCALE



NOTES:

1. RESTRICT PASSAGE OF CONSTRUCTION EQUIPMENT THAT WILL INJURE EXPOSED OR UNDISTURBED TREE ROOTS OR OTHER PARTS OF THE TREE.
2. TREE ROOTS LOCATED LOWER THAN 10" BELOW FINISH GRADE WITHIN TREE PROTECTION WORKING AREA SHALL BE CUT ONLY IF NECESSARY.
3. PROVIDE 2X4X4' HIGH WOOD FRAME CAGE WITH HORIZONTAL PLYWOOD PLANKING AS PROTECTION FOR THE TREE DURING CONSTRUCTION OR AS DIRECTED BY THE ENGINEER.

5 TREE PROTECTION
NOT TO SCALE



NOTE

1. PROVIDE 160 LF OF LEVEL SWALE LENGTH WITH OVERFLOW BERM SET AT ELEVATION 46.8

6 SEDIMENTATION SWALE
NOT TO SCALE

NORTH



OWNER
TORRINGTON PROPERTIES, INC.
11 ELKINS STREET, SUITE 420
BOSTON, MA 02127

PROJECT TEAM

283 & 289 WALK HILL ST
AND 576 & 578
CANTERBURY ST,
ROSLINDALE, MA

PROJECT INFO

REV	DESCRIPTION	DATE
2	BCC COMMENTS	12/1/2021
1	DD SET	11/5/2021

STAMP:

CIVIL
DETAILS

SHEET NAME:

C501

SHT NO:

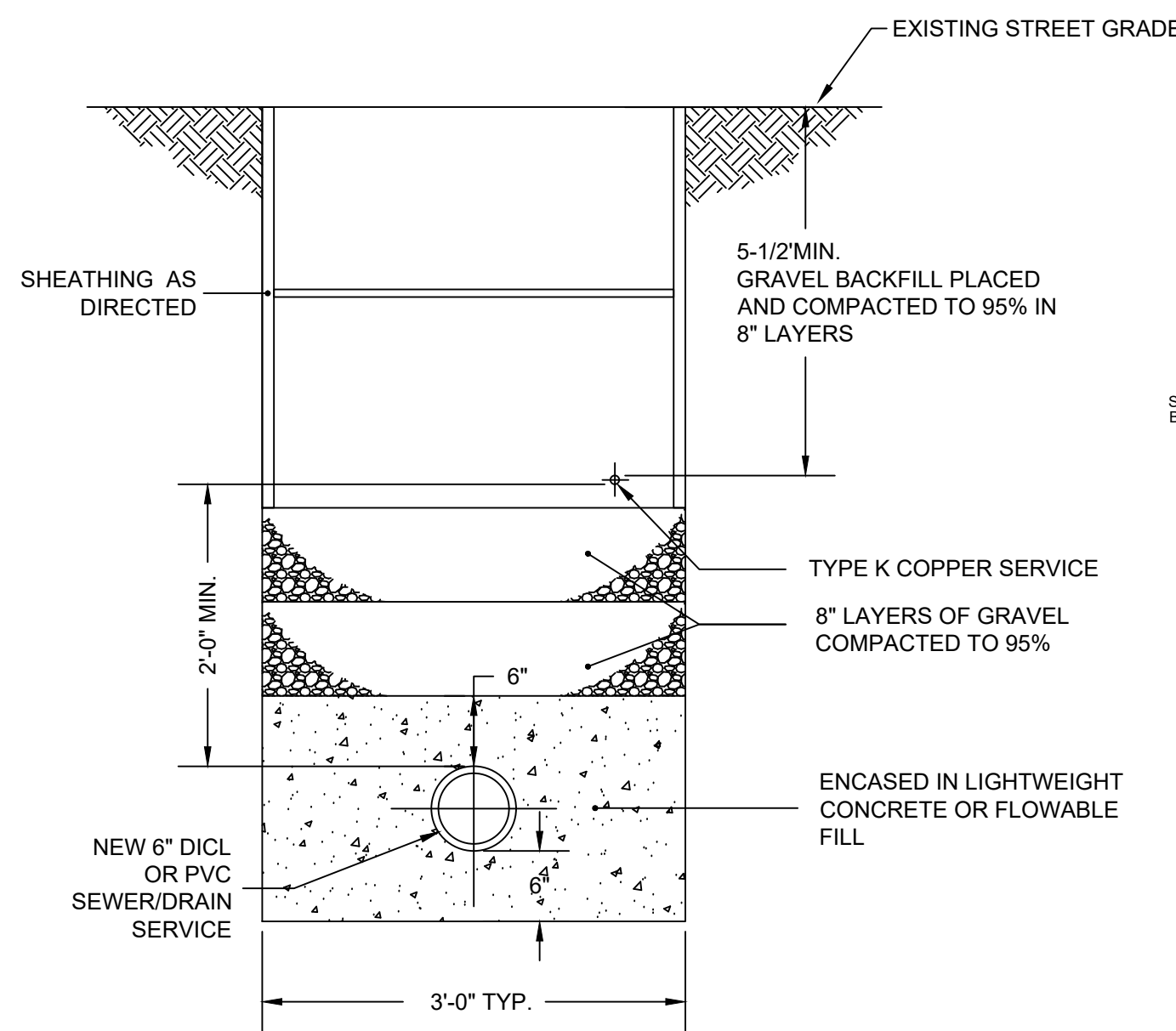
DR BY: RLB

CHK BY: SBS

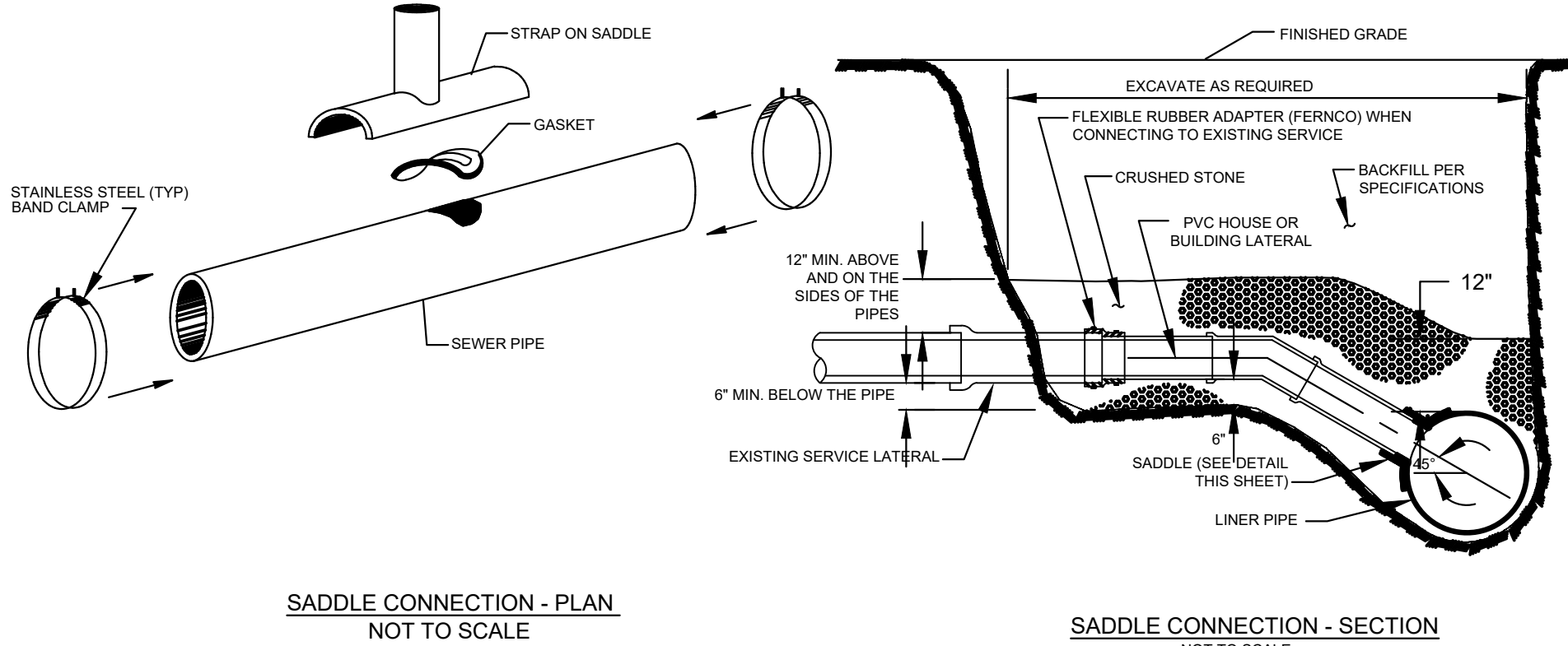
PROJ NO: 19-118

DATE: OCTOBER 6, 2021

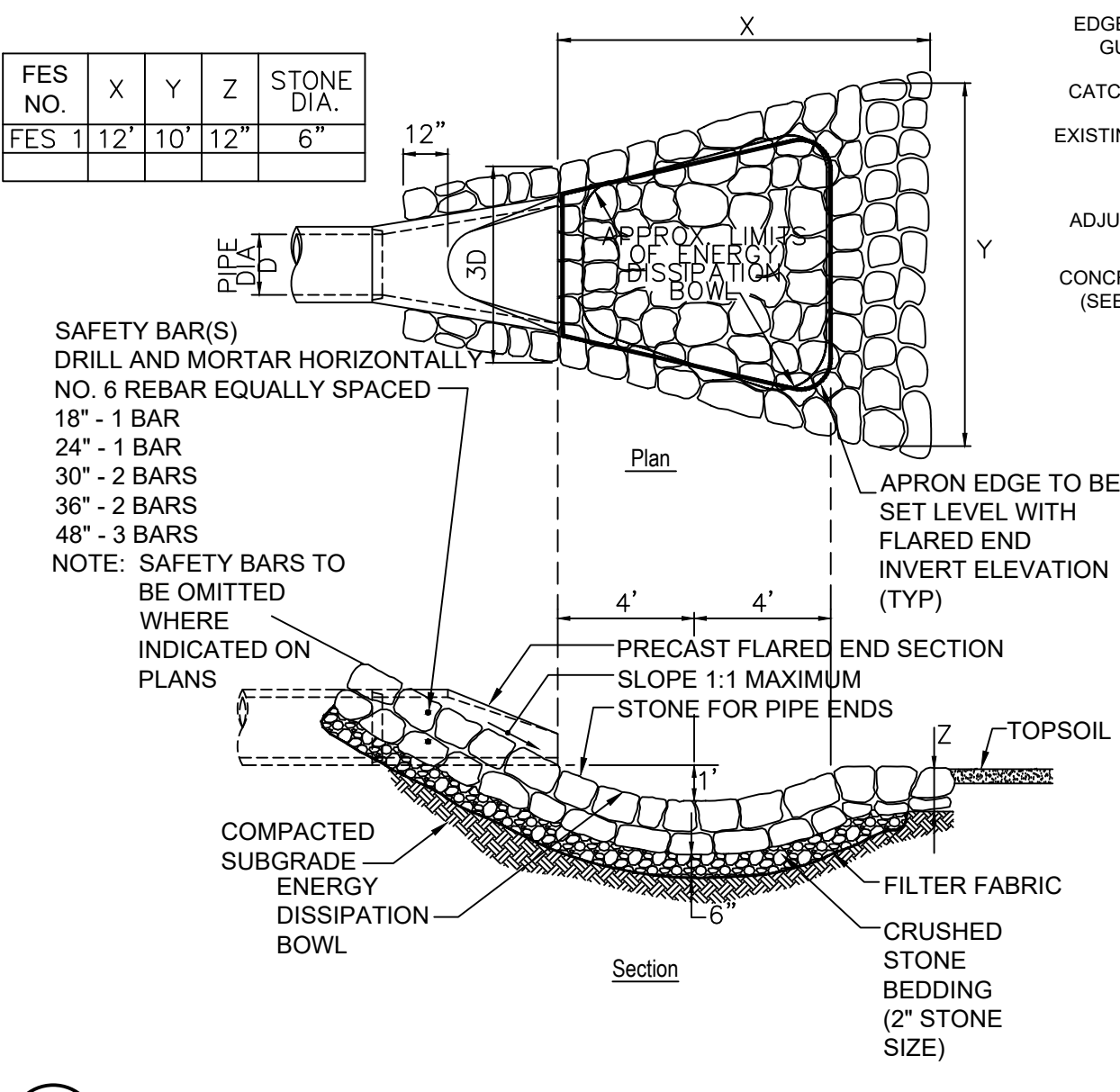
SCALE: NOT TO SCALE



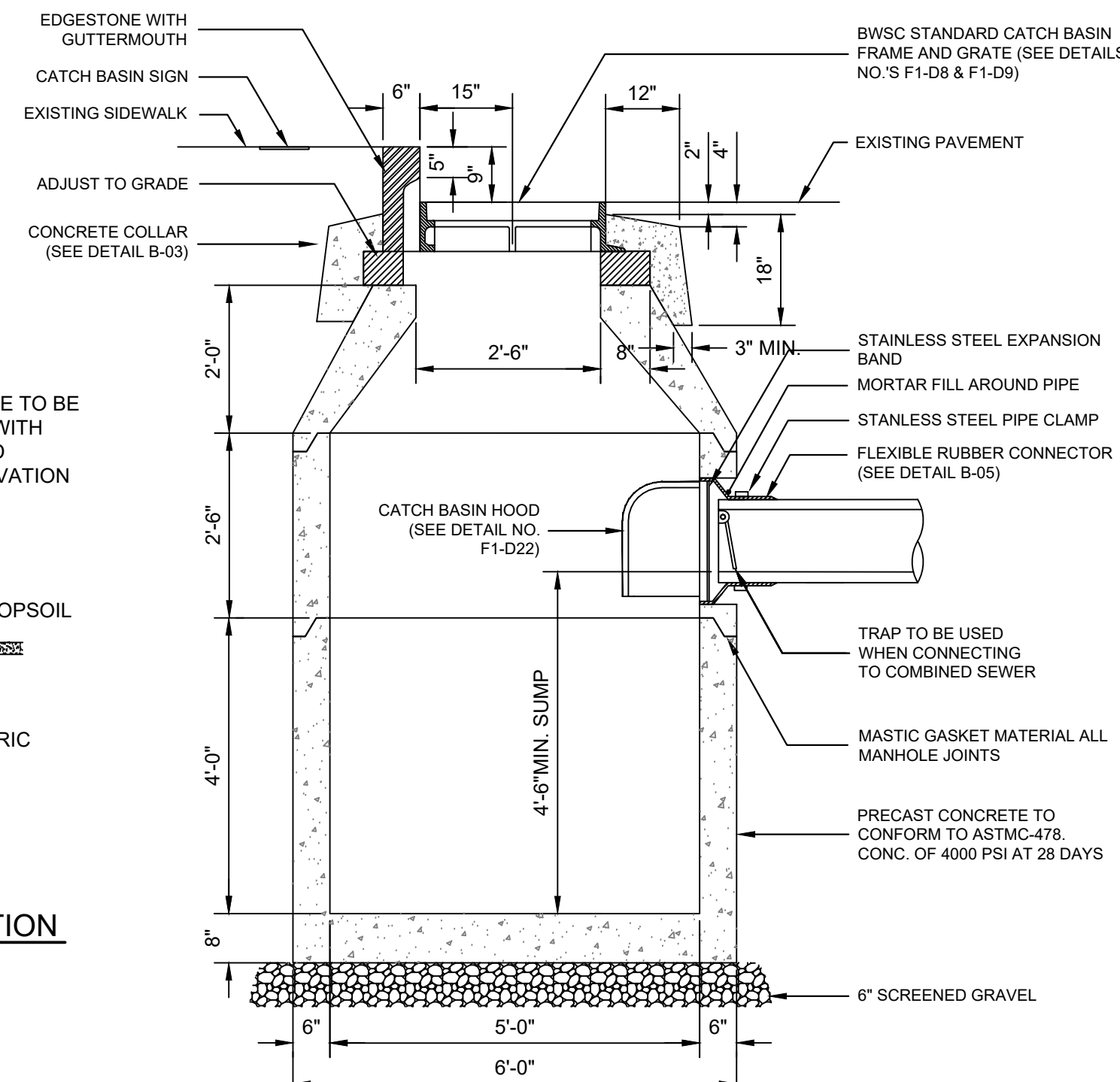
1 TRENCH FOR WATER AND SEWER SERVICES
NOT TO SCALE



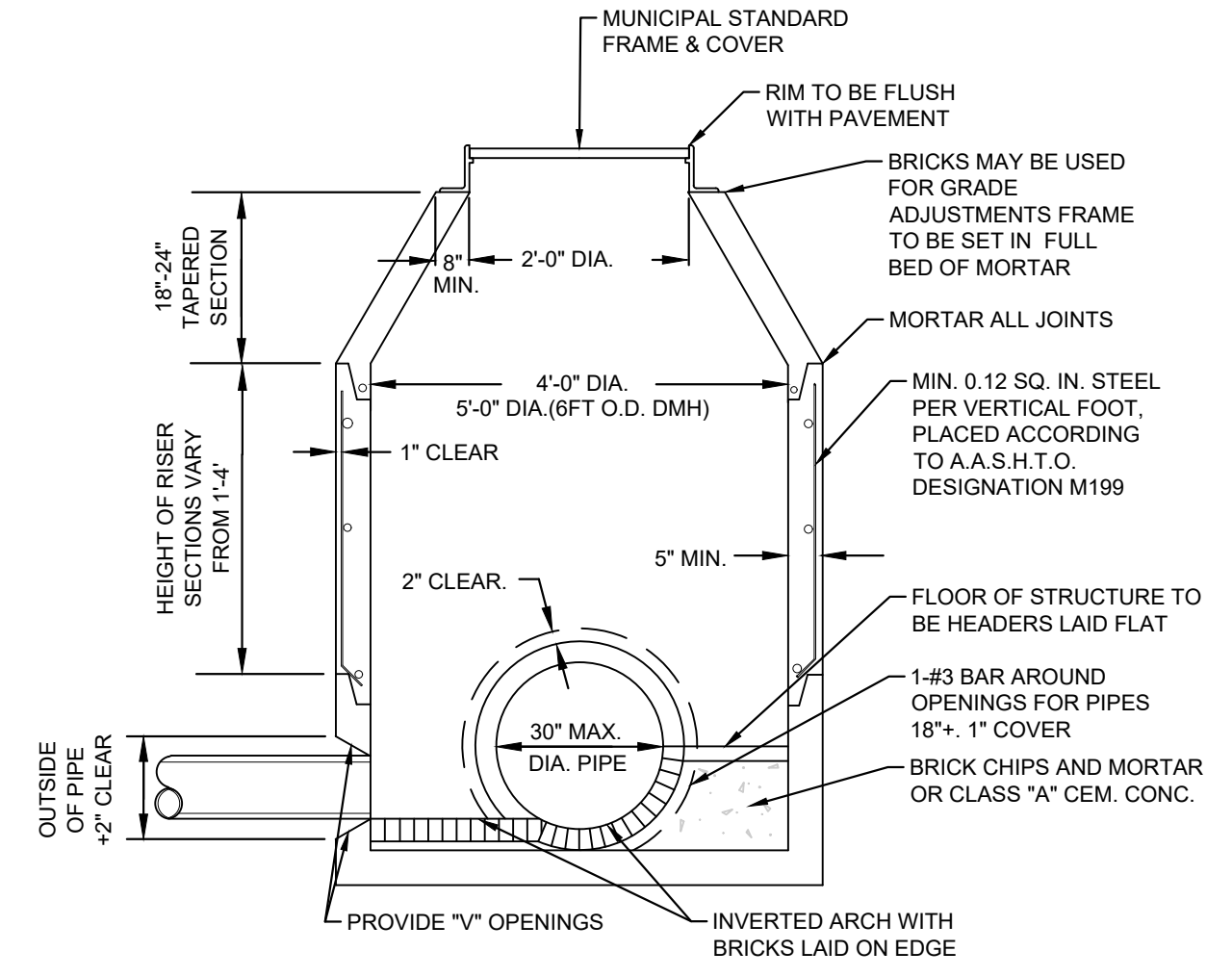
2 SANITARY SEWER SERVICE
NOT TO SCALE



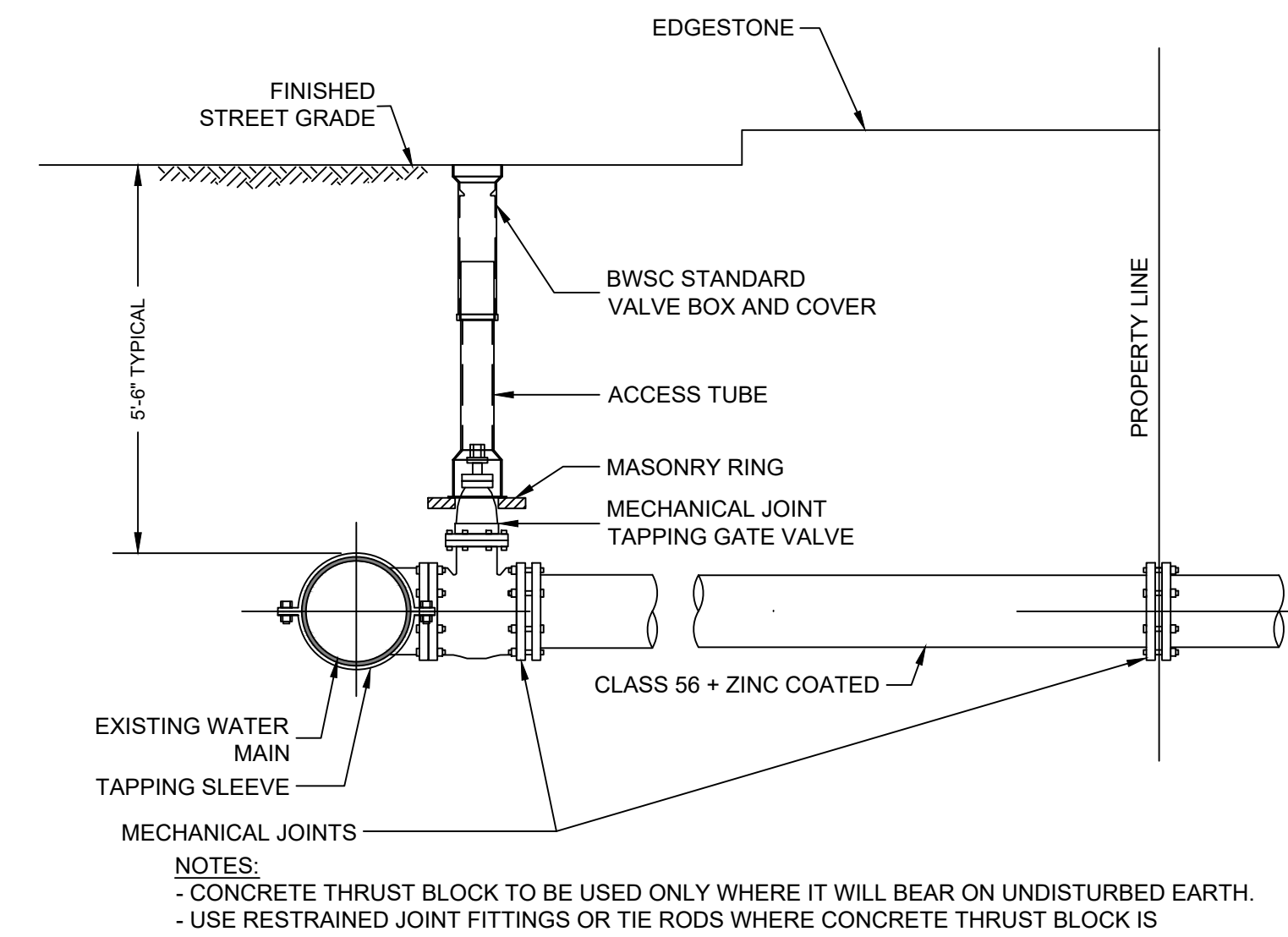
3 FLARED END SECTION (FES) WITH STONE PROTECTION
NOT TO SCALE



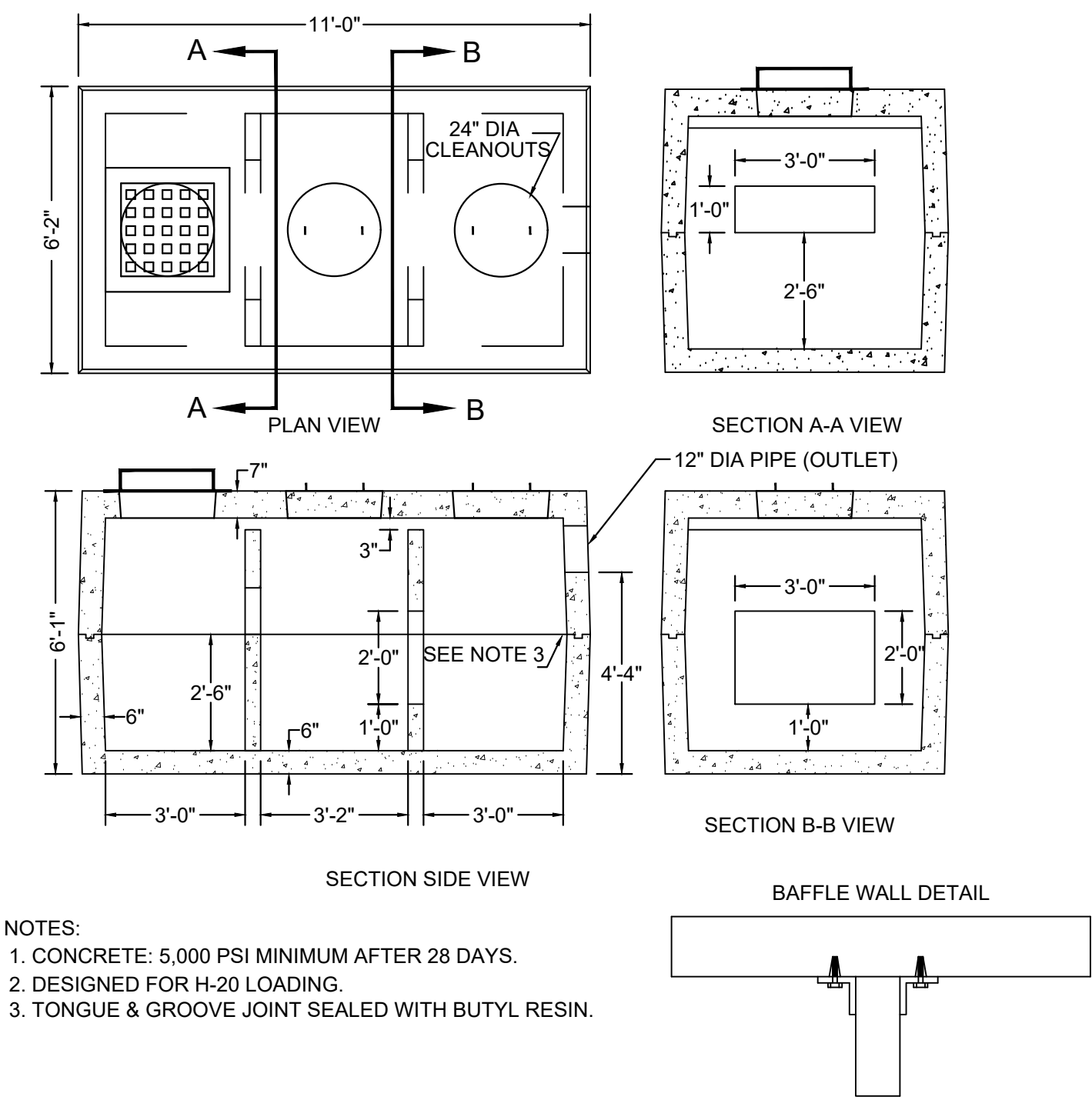
4 CATCH BASIN
NOT TO SCALE



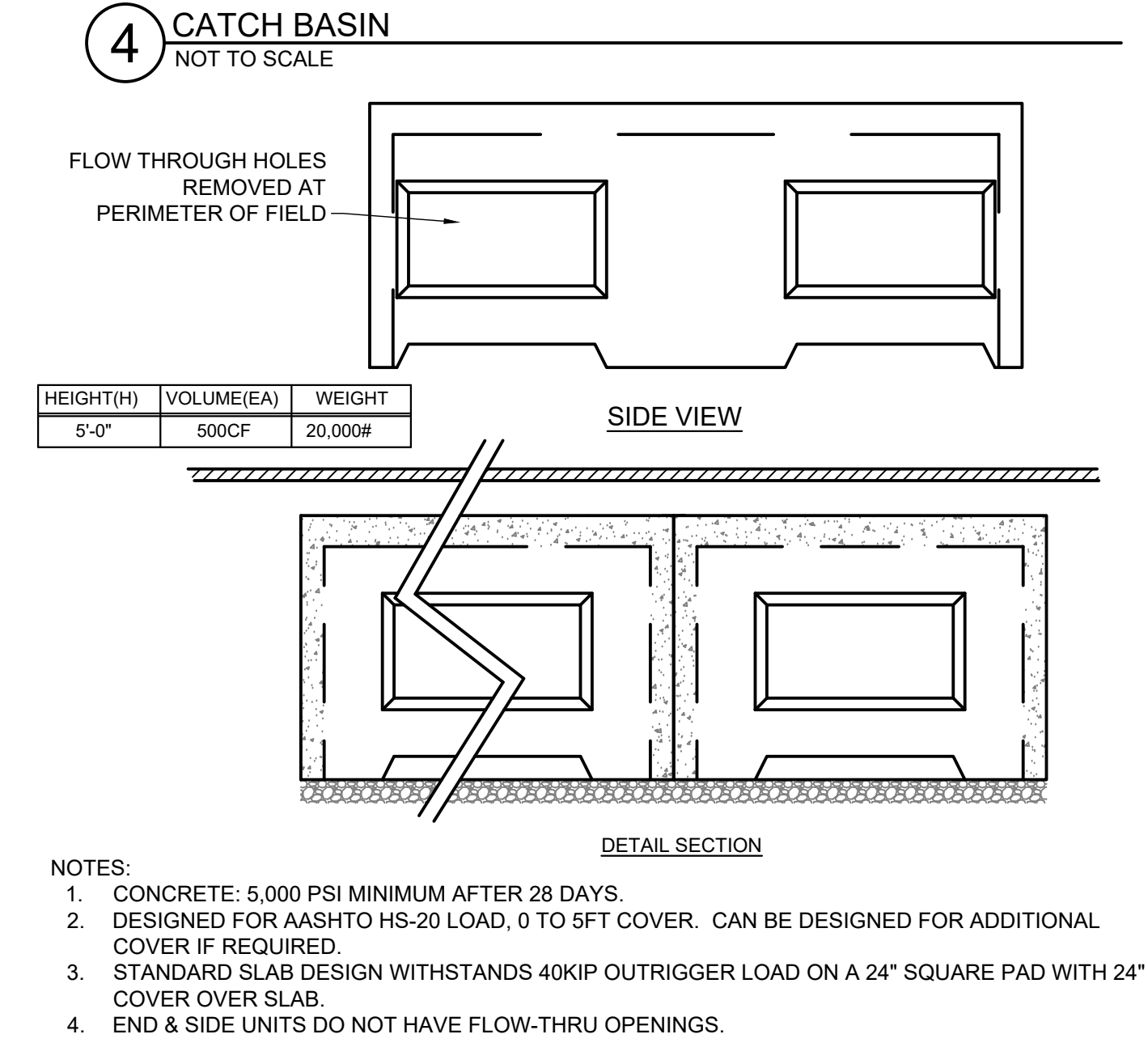
5 DMH (DRAIN MANHOLE)
NOT TO SCALE



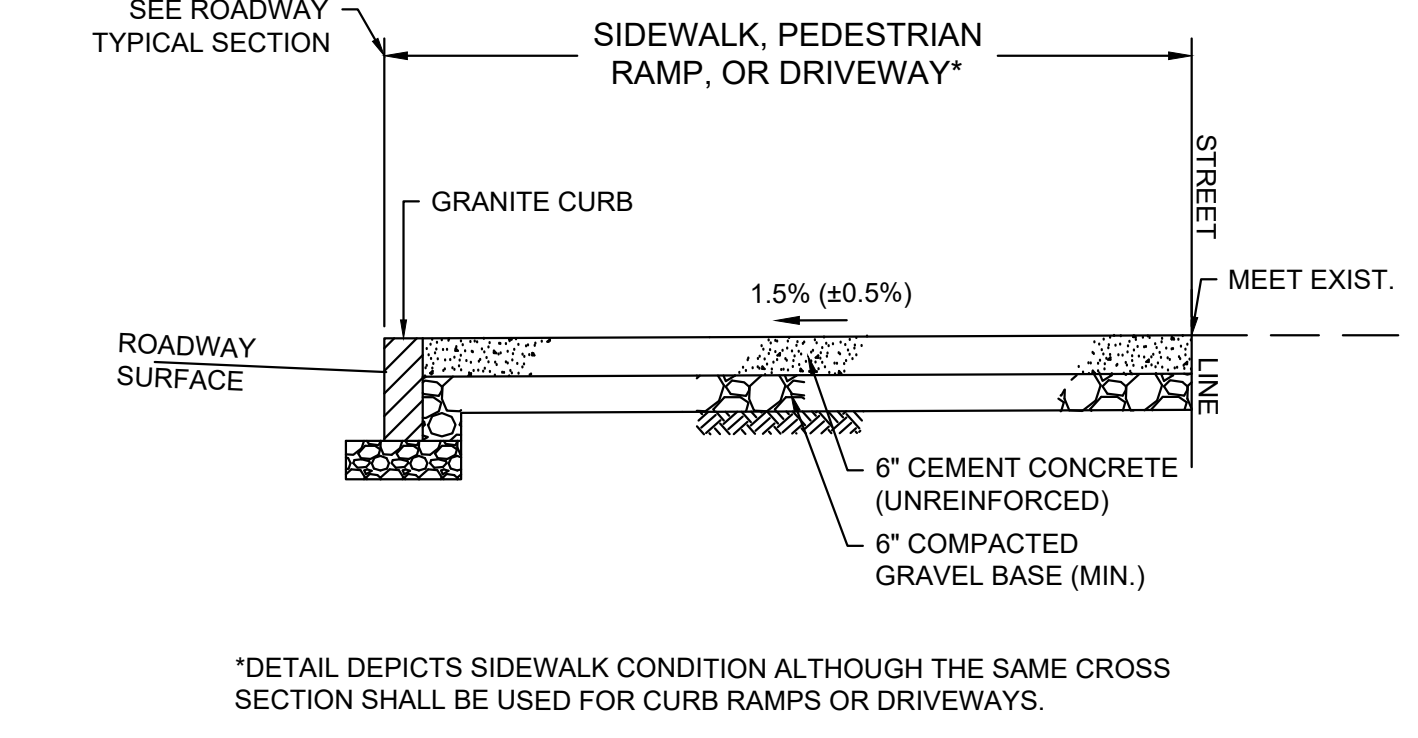
6 WATER SERVICE CONNECTION
NOT TO SCALE



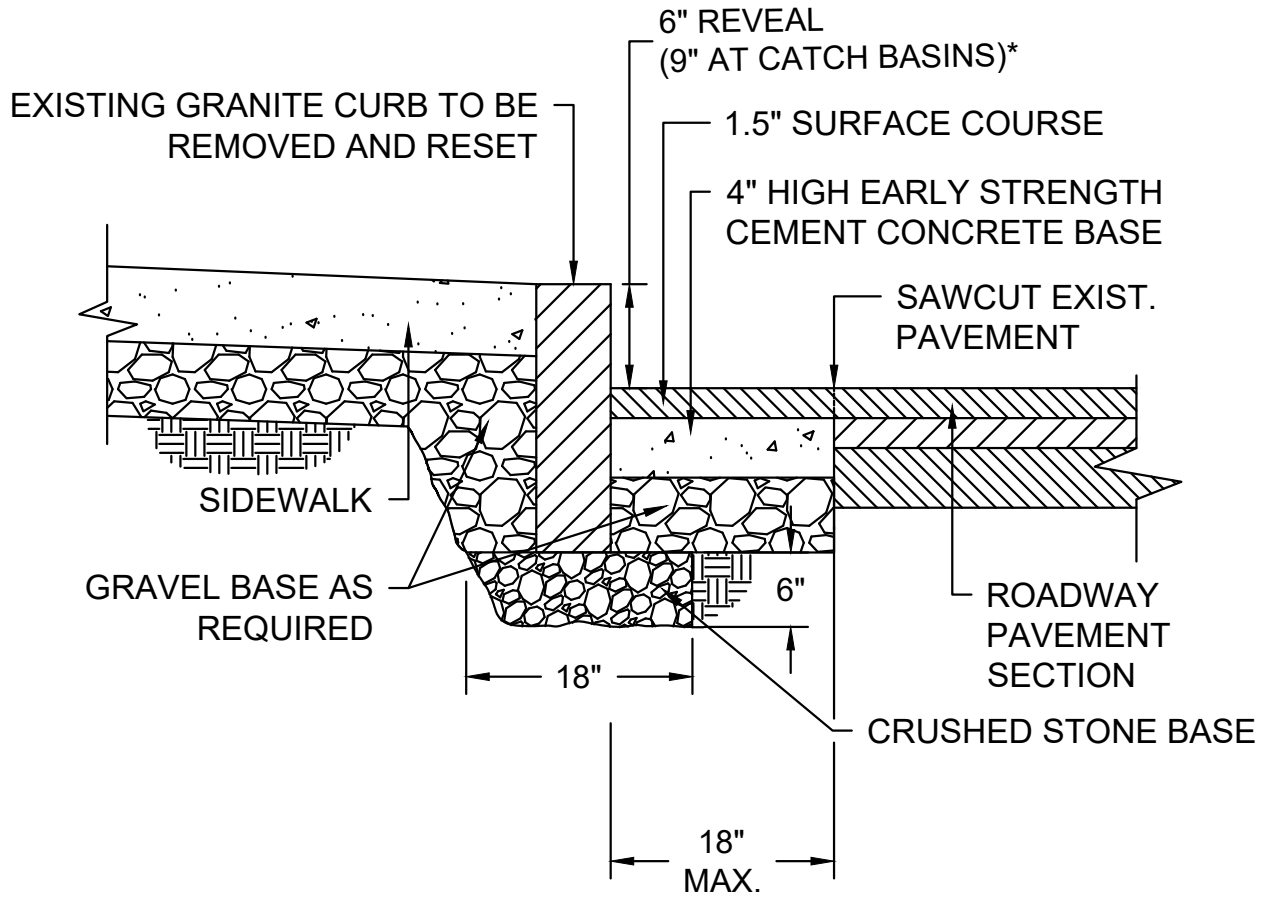
7 PARTICLE SEPARATOR
NOT TO SCALE



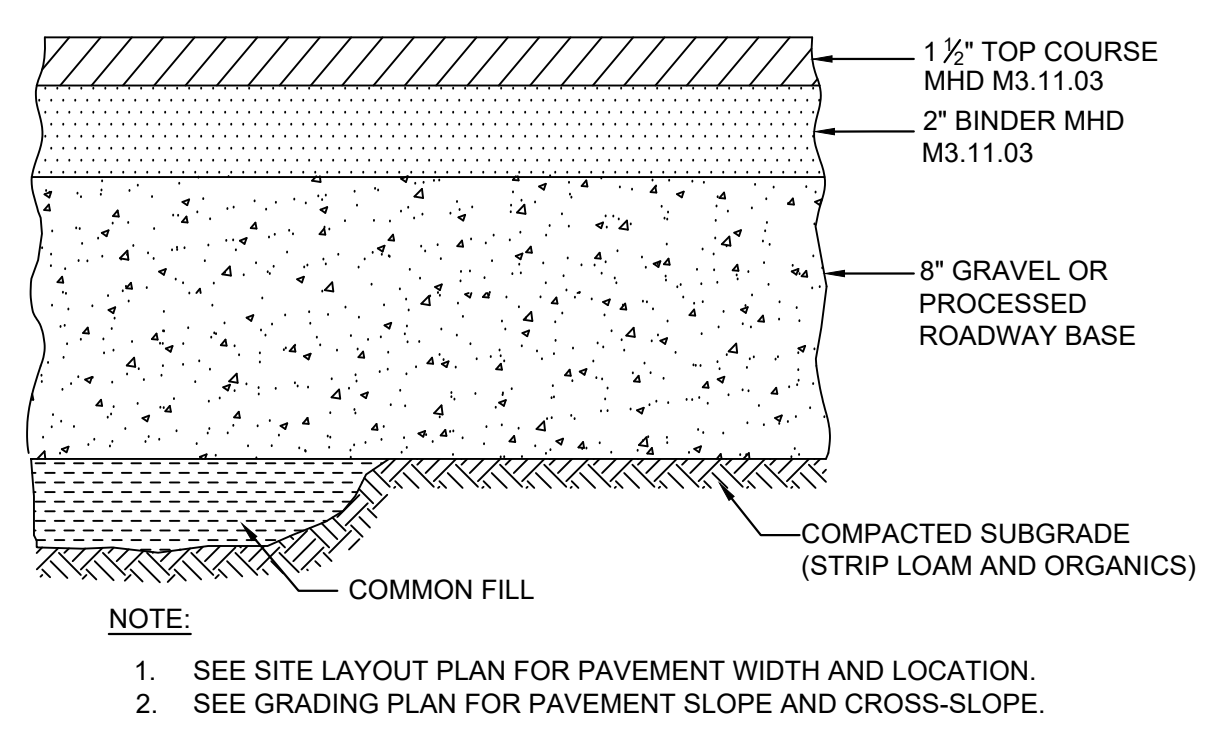
8 INFILTRATION GALLEY
NOT TO SCALE



9 CEMENT CONCRETE SIDEWALK
NOT TO SCALE



10 VERTICAL GRANITE CURB (NEW OR RESET)
NOT TO SCALE



11 BITUMINOUS CONCRETE PAVEMENT
NOT TO SCALE



OWNER
TORRINGTON PROPERTIES, INC.
11 ELKINS STREET, SUITE 420
BOSTON, MA 02127

PROJECT TEAM

283 & 289 WALK HILL ST
AND 576 & 578
CANTERBURY ST,
ROSLINDALE, MA

PROJECT INFO

REV	DESCRIPTION	DATE
2	BCC COMMENTS	12/1/2021
1	DD SET	11/5/2021

STAMP:

CIVIL
DETAILS

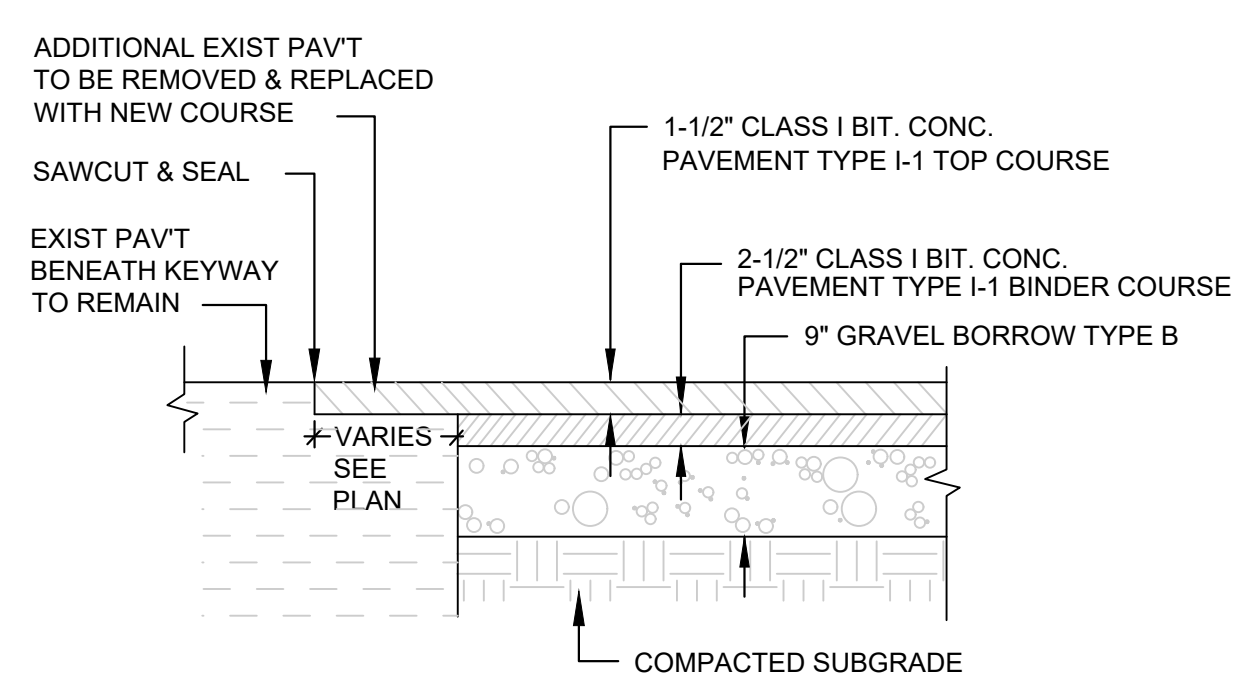
SHEET NAME:

C502

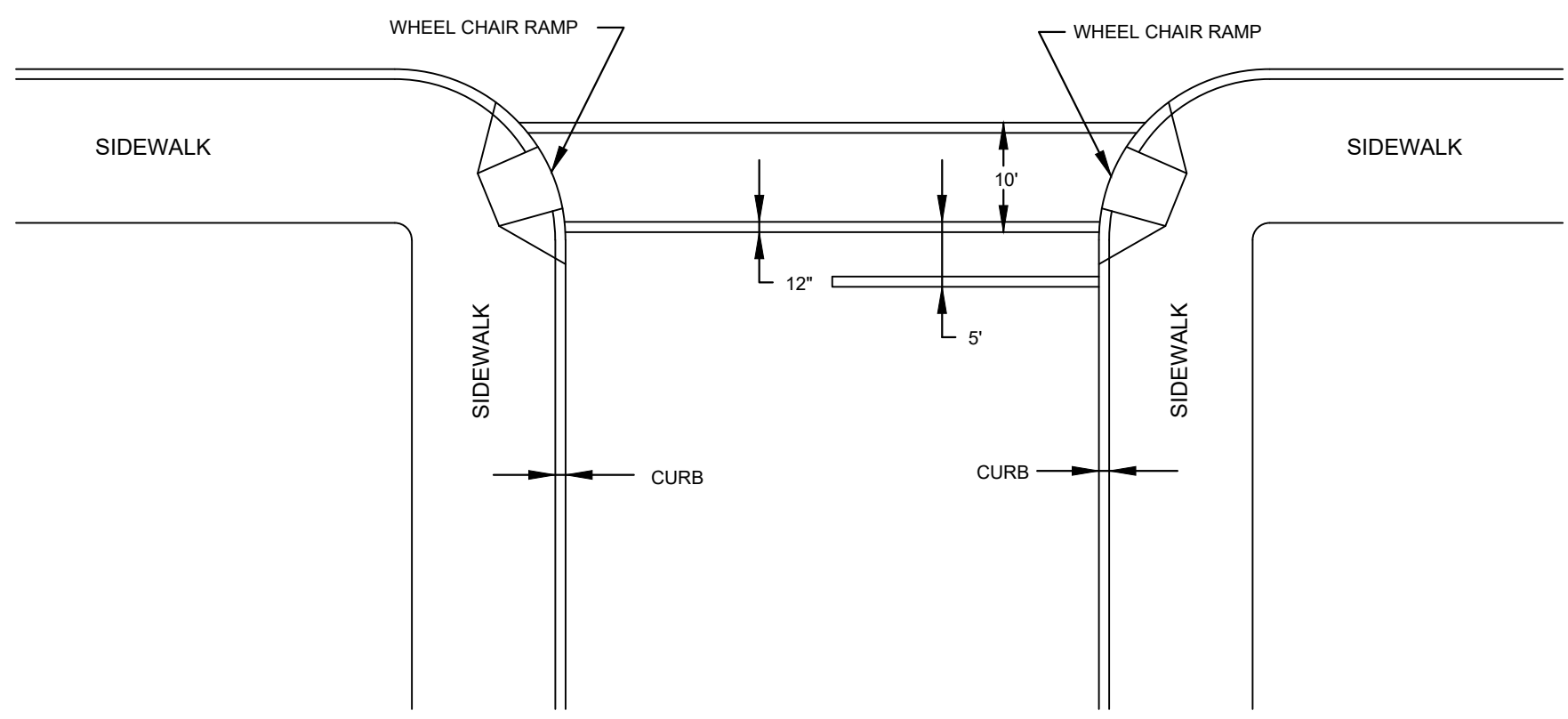
SHT NO:
DR BY: GS
CHK BY: SBS
PROJ NO: 19-118
DATE: OCTOBER 10, 2021
SCALE: NOT TO SCALE

P:\2019 Projects\2019-118 Walk Hill Boston\Draw\Engineering\19-118_CIVL_DET.DWG

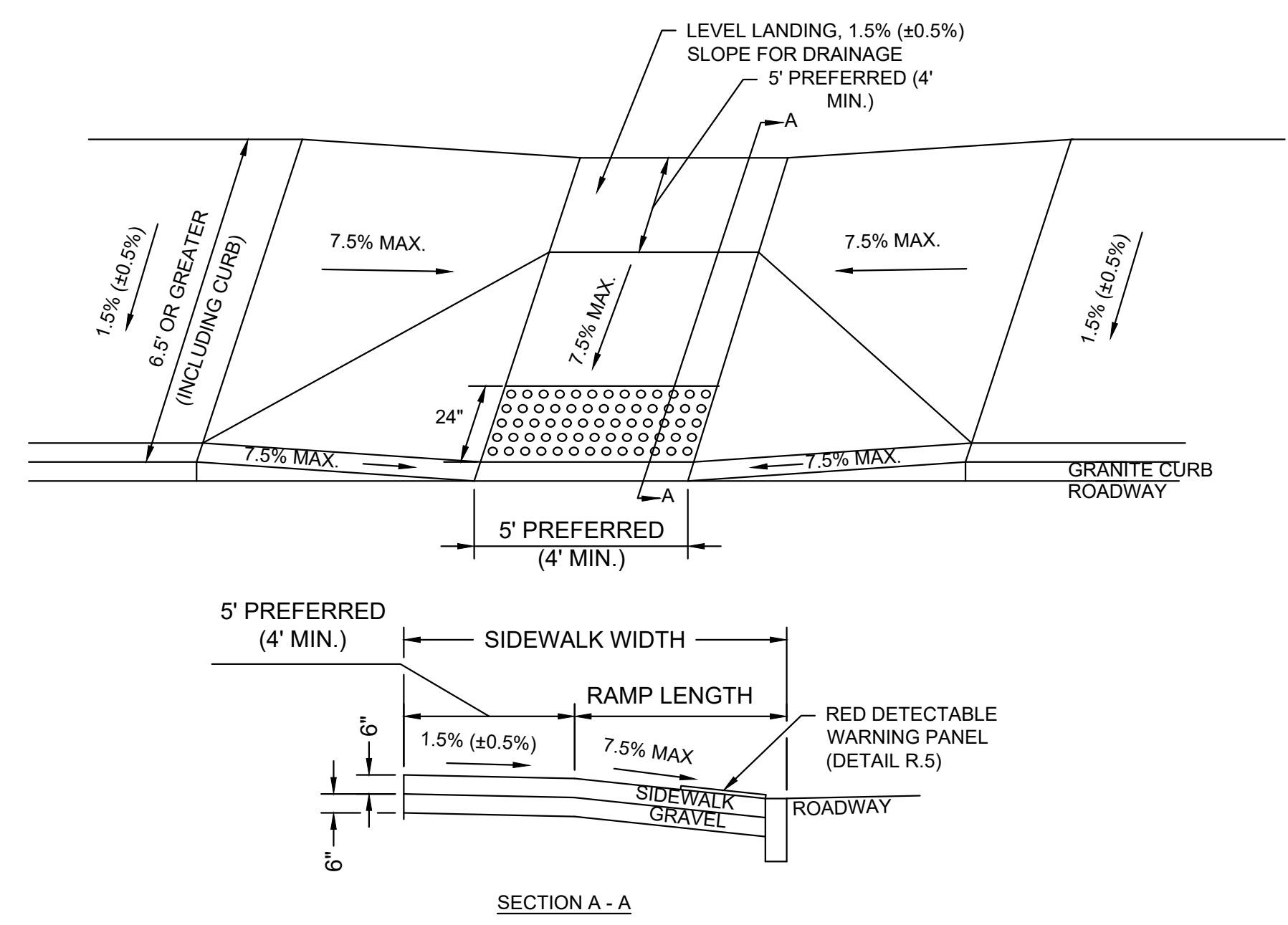
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2	BCC COMMENTS	12/1/2021
1	DD SET	11/5/2021



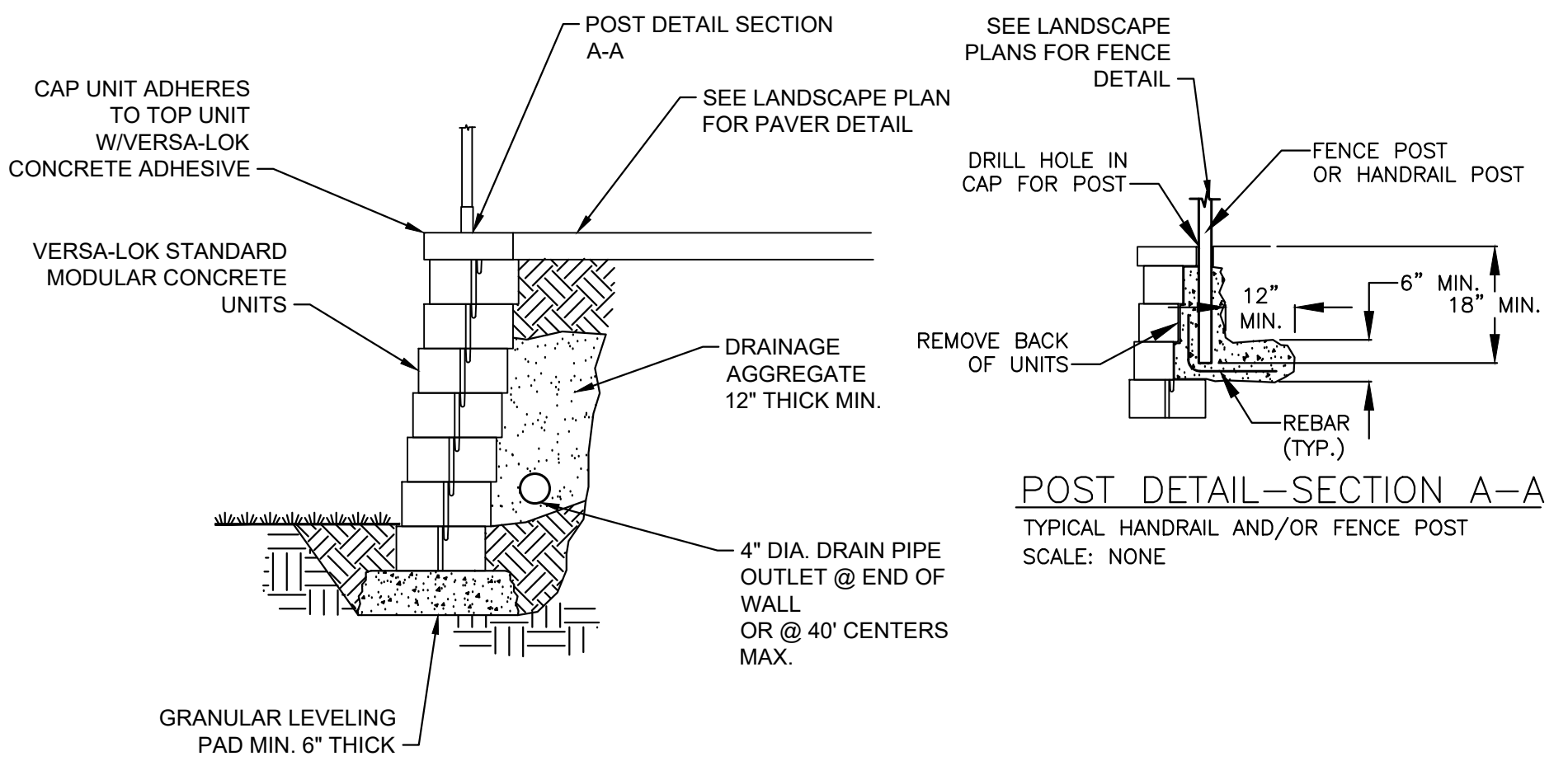
1 OLD TO NEW PAVEMENT TRANSITION
NOT TO SCALE



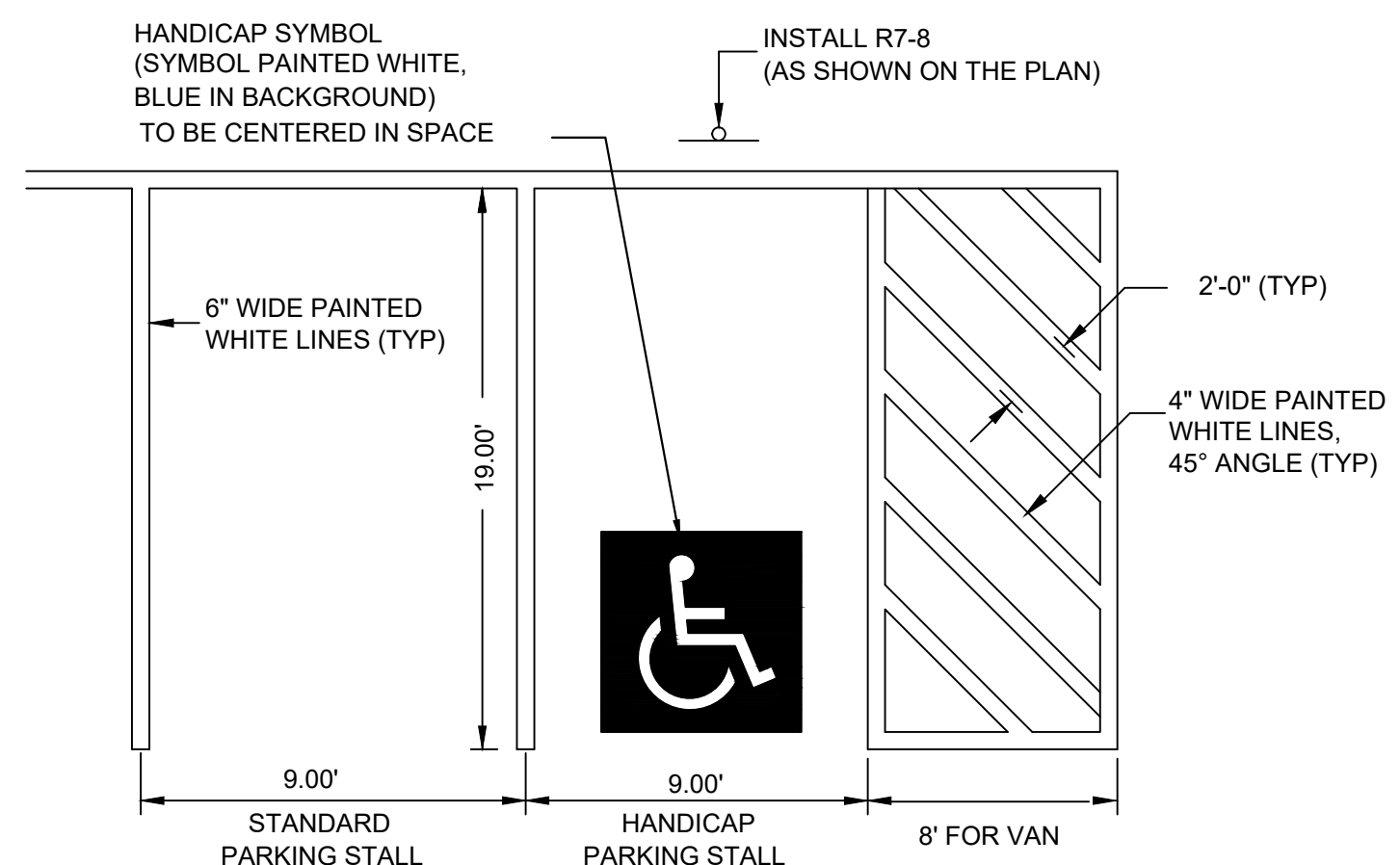
2 CROSSWALK
NOT TO SCALE



3 CURB RAMP - SIDEWALK 6.5'
NOT TO SCALE

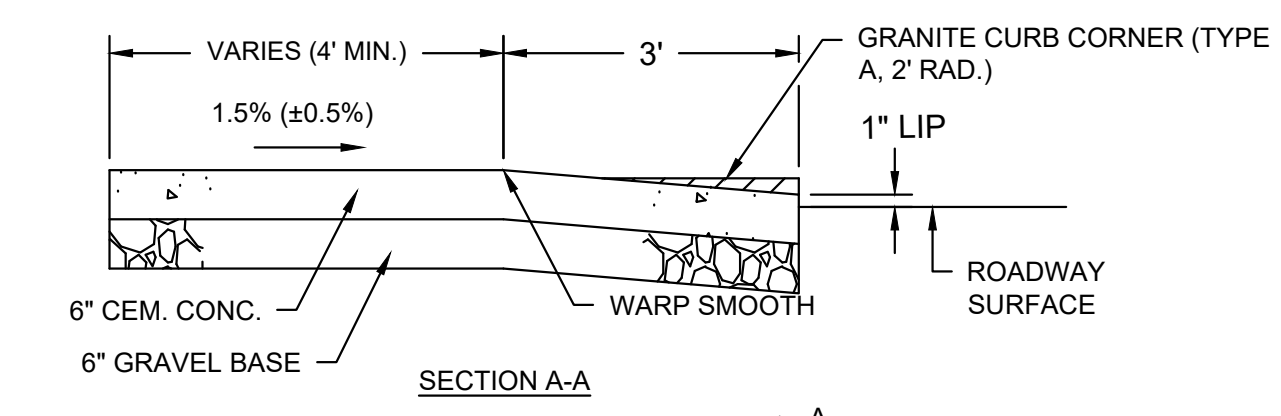
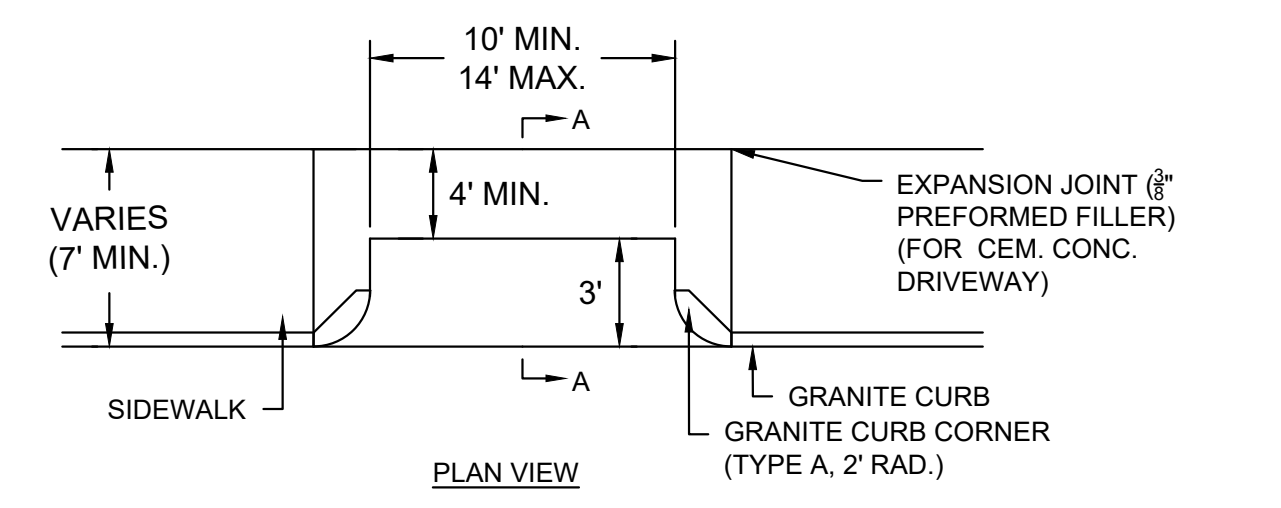


4 SEGMENTAL BLOCK RETAINING WALL
NOT TO SCALE

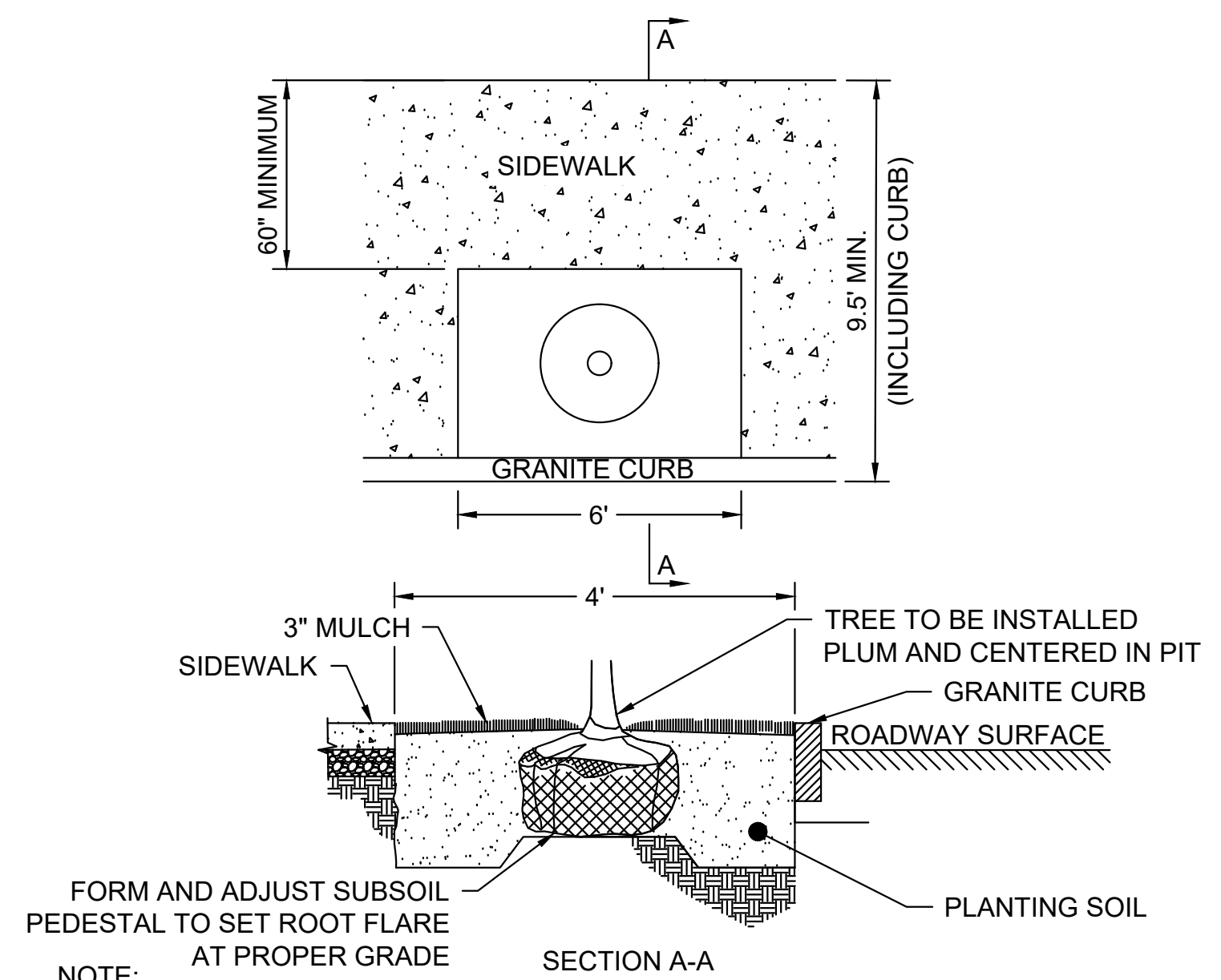


NOTE:
1. ALL PAINT SHALL BE FAST DRYING WHITE TRAFFIC PAINT, MEET THE REQUIREMENTS OF AASHTO M248-TYPE N. PAINT SHALL BE APPLIED AS SPECIFIED BY MANUFACTURER.
2. SYMBOLS & PARKING STALLS SHALL CONFORM TO THE REQUIREMENTS OF THE AMERICAN WITH DISABILITIES ACT.

5 ACCESSIBLE PARKING SPACE & STANDARD
NOT TO SCALE

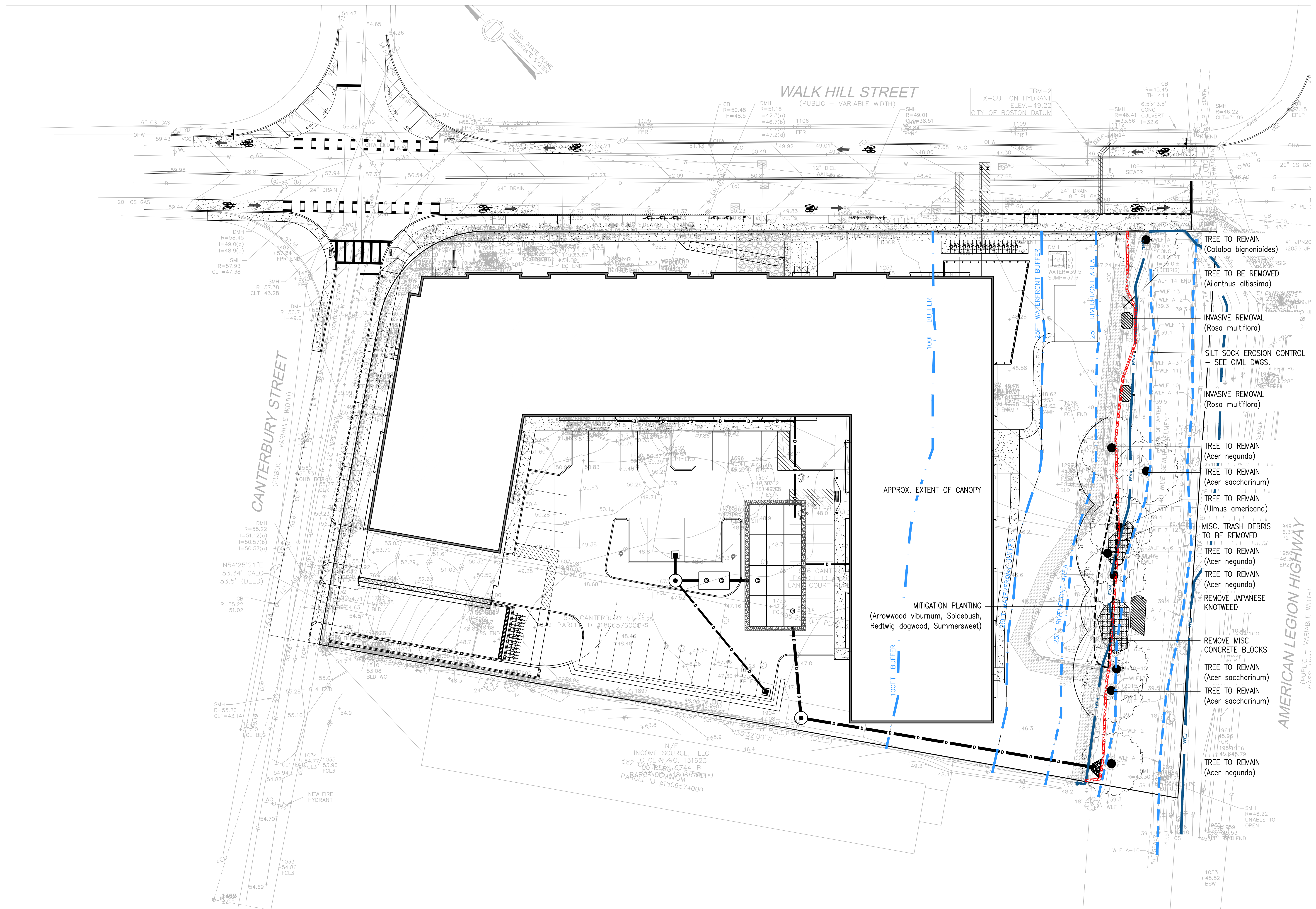


6 DRIVEWAY
NOT TO SCALE



NOTE:
1. TREE PIT TO BE A MINIMUM OF 24 SQUARE FEET.
2. PROVIDE 10' LONG X 3" SQ WOODEN STAKES EQUALLY SPACED, 3 PER TREE, 7' EXPOSED. DRIVE STAKES AT AN ANGLE AND DRAW VERTICAL WITH NYLON TREE TIE.
3. CONTRACTOR SHALL PERFORM PERCOLATION TEST ON SUB-GRADE PRIOR TO PLANTING. IF TEST IS NOT PASSING, CONTRACTOR SHALL ADJUST SUB-GRADE ACCORDINGLY.

7 STREET TREE PIT
NOT TO SCALE



TORRINGTON PROPERTIES, INC.
 11 ELKINS STREET,
 SUITE 420
 BOSTON, MASSACHUSETTS

OWNER

283 & 289 WALK HILL STREET AND 576 & 578 CANTERBURY ST.
 ROSLINDALE, MASSACHUSETTS

PROJECT INFO

NO.	REVISION	DATE

kzla
 Kyle Zick Landscape Architecture, Inc.
 38 Bromfield Street Suite 202 617 451-1018 Tel
 Boston, MA 02108



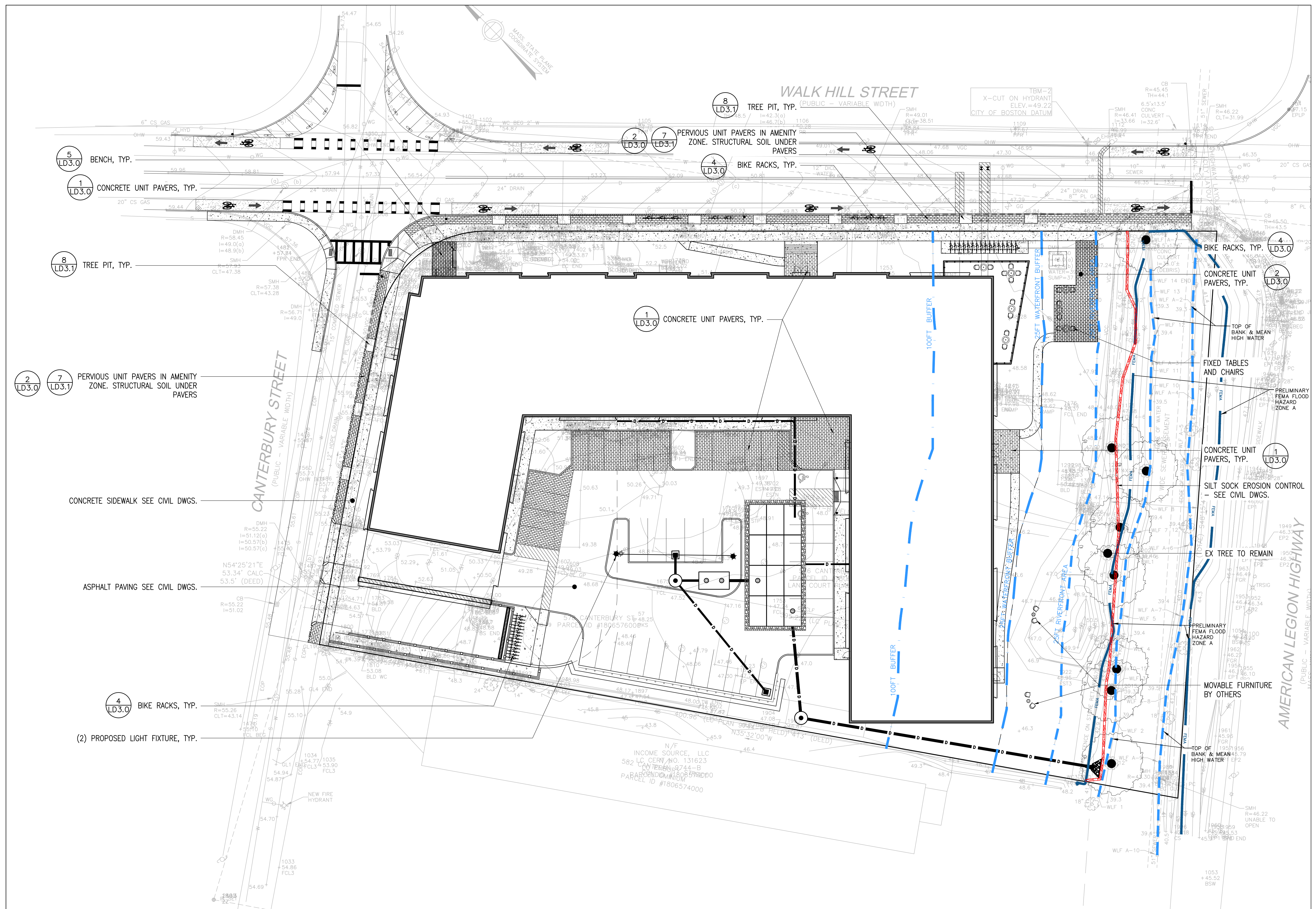
LANDSCAPE ARCHITECT

Job Number:
 Project: WALK HILL
 Drawn By: RB Checked By: KZ
 Date: DECEMBER 15, 2021
 Scale: 1"=20'-0"
 Drawing Title:

LANDSCAPE SITE PREP PLAN

L0.0





TORRINGTON PROPERTIES, INC.
 11 ELKINS STREET,
 SUITE 420
 BOSTON, MASSACHUSETTS

OWNER

283 & 289 WALK HILL STREET AND 576 & 578 CANTERBURY ST.
 ROSLINDALE, MASSACHUSETTS

PROJECT INFO

NO.	REVISION	DATE

kzla
 Kyle Zick Landscape Architecture, Inc.
 38 Bromfield Street Suite 202 617 451-1018 Tel
 Boston, MA 02108



LANDSCAPE ARCHITECT

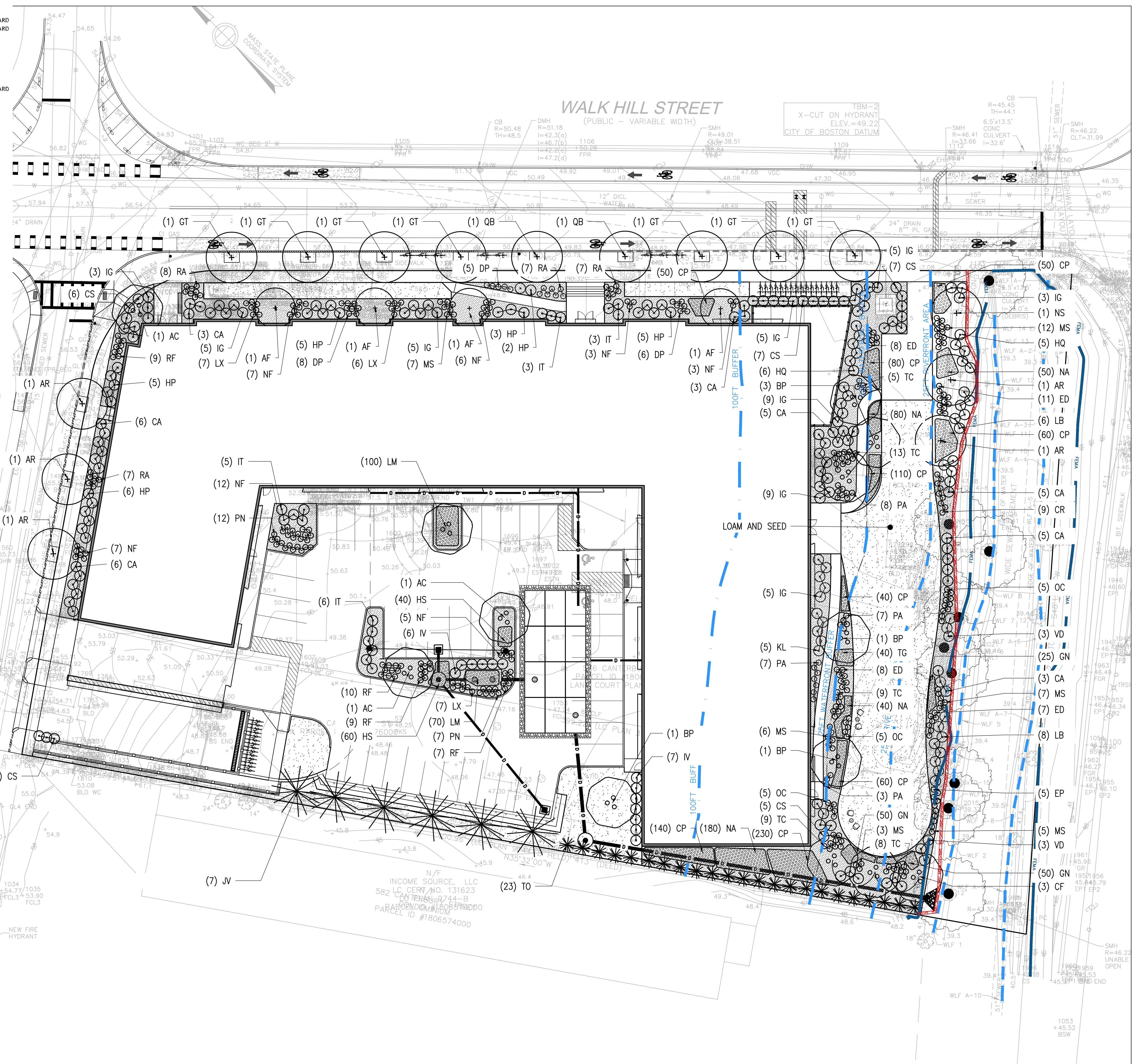
Job Number:
 Project: WALK HILL
 Drawn By: RB Checked By: KZ
 Date: DECEMBER 15, 2021
 Scale: 1"=20'-0"
 Drawing Title:

LANDSCAPE PLAN

L1.0



KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	NOTES
TREES						
AC	3	AMELANCHIER CANADENSIS	SERVICEBERRY	8-10' CLUMP	-	
AF	4	ACER X FREEMANII 'ARMSTRONG'	ARMS/STRONG MAPLE	2.5-3" CAL.	-	FALL DIG HAZARD
AR	4	ACER RUBRUM 'OCTOBER GLORY'	RED MAPLE	3-3.5" CAL.	-	FALL DIG HAZARD
BP	6	BETULA POPULIFOLIA 'WHITESPIRE'	GRAY BIRCH 'WHITESPIRE'	10-12' HT	-	
CF	3	CORNUS FLORIDA	FLOWERING DOGWOOD	10-12' HT	-	
GT	7	GLEDITSIA TRICANTHOS 'INERMIS'	HONEY LOCUST	2.5-3" CAL.	-	
NS	1	NYSSA SYLVATICA 'WILDFIRE'	BLACK GUM 'WILDFIRE'	2.5-3" CAL.	-	
JV	6	JUNIPERUS VIRGINIANA	EASTERN RED CEDAR	10-12' HT	-	
TD	23	THUJA OCCIDENTALIS 'SMARAGO'	EMERALD GREEN ARBORVITAE	8-10' HT	-	
QB	2	QUERCUS BICOLOR	SWAMP WHITE OAK	2.5-3" CAL.	-	FALL DIG HAZARD
SHRUBS						
CA	36	CLETHRA ALNIFOLIA	SWEET PEPPERBUSH	24-36" HT	48" O.C.	
CR	9	CORNUS RACEMOSA	GRAY DOGWOOD	24-36" HT	48" O.C.	
CS	28	CORNUS SERICEA 'CARDINAL'	RED-TWIG DOGWOOD 'CARDINAL'	24-36" HT	48" O.C.	
HP	26	HYDRANGEA PANICULATA 'LIMELIGHT'	LIMELIGHT HYDRANGEA	24-36" HT	36" O.C.	
HQ	11	HYDRANGEA QUERCIFOLIA	OAKLEAF HYDRANGEA	24-36" HT	36" O.C.	
IV	49	ILEX GLABRA 'SHAMROCK'	INKBERRY 'SHAMROCK'	24-36" HT	36" O.C.	
IG	13	ILEX VERTICILLATA 'BERRY POPPINS'	WINTERBERRY 'BERRY POPPINS'	24-36" HT	36" O.C.	
IT	17	ITEA VIRGINICA 'HENRY'S GARNET'	VIRGINIA SWEETSPICE 'HENRY'S GARNET'	24-36" HT	36" O.C.	
KL	5	KALMIA LATIFOLIA	MOUNTAIN LAUREL	24-36" HT	36" O.C.	
LB	14	LINDERA BENZONIA	SPICEBUSH	18-24" HT	36" O.C.	
RA	38	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC 'GRO-LOW'	1 GAL	18" O.C.	
VD	6	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	24-36" HT	48" O.C.	
PERENNIALS						
CP	820	CAREX PENNSYLVANICA	SEDGE	1 GAL	12" O.C.	
DP	19	DENNSTAEDTIA PUNCTILOBULA	HAYSCENTED FERN	1 GAL	18" O.C.	
ED	34	EUTROCHIA DIVARICATA	WOOD ASTER	1 GAL	18" O.C.	
EP	5	EUTROCHUM PURPUREUM	JOE PYE WEED	2 GAL	24" O.C.	
HS	100	HEMEROCALLIS X STELLA D'ORO	DAYLILY 'STELLA D'ORO'	1 GAL	12" O.C.	
LM	170	LIRIOPE MUSCARI 'BIG BLUE'	BIG BLUE LILYTURF	1 GAL	18" O.C.	
LX	20	LEUCANTHEMUM X SUPERBUM 'BECKY'	BECKY SHASTA DAISY	2 GAL	24" O.C.	
MS	40	MATTEUCIA STRUTHIOPTERIS	OSTRICH FERN	1 GAL	18" O.C.	
NF	43	NEPETA FAASSINII 'SIX HILL GIANT'	SIX HILL GIANT CATMINT	2 GAL	24" O.C.	
OC	15	OSMUNDASTRAUM CINNAMOMUM	CINNAMON FERN	1 GAL	18" O.C.	
PN	19	PENNISETUM ALOPECUROIDES 'LITTLE BUNNY'	LITTLE BUNNY FOUNTAIN GRASS	1 GAL	18" O.C.	
PA	23	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	1 GAL	18" O.C.	
RF	26	RUDBECKIA FULGIDA 'GOLDSTRUM'	GOLDSTRUM BLACK-EYED SUSAN	2 GAL	24" O.C.	
TC	44	TIARELLA CORDIFOLIA	FOAM FLOWER	1 GAL	18" O.C.	
TG	40	TRILLIUM GRANDIFLORUM	WOOD LILY	1 GAL	12" O.C.	
BULBS						
GN	125	GALANTHUS NIVALIS	SNOWDROP	BULB	9" O.C.	
NA	350	NARCISSUS 'KING ALFRED'	KING ALFRED DAFFODIL	BULB	9" O.C.	



LEGEND	
	LOAM AND SEED (1) LD3.1
	BULBS/PLUGS/GROUNDCOVER (4) LD3.1
	DECIDUOUS TREE (5) LD3.1
	EVERGREEN TREE (6) LD3.1
	SHRUBS (2) LD3.1
	PERENNIALS (3) LD3.1

TORRINGTON PROPERTIES, INC.
11 ELKINS STREET,
SUITE 420
BOSTON, MASSACHUSETTS

OWNER

283 & 289 WALK HILL STREET AND 576 & 578 CANTERBURY ST.
ROSLINDALE, MASSACHUSETTS

PROJECT INFO

NO.	REVISION	DATE

kzla
Kyle Zick Landscape Architecture, Inc.
38 Bromfield Street Suite 202 617 451-1018 Tel
Boston, MA 02108



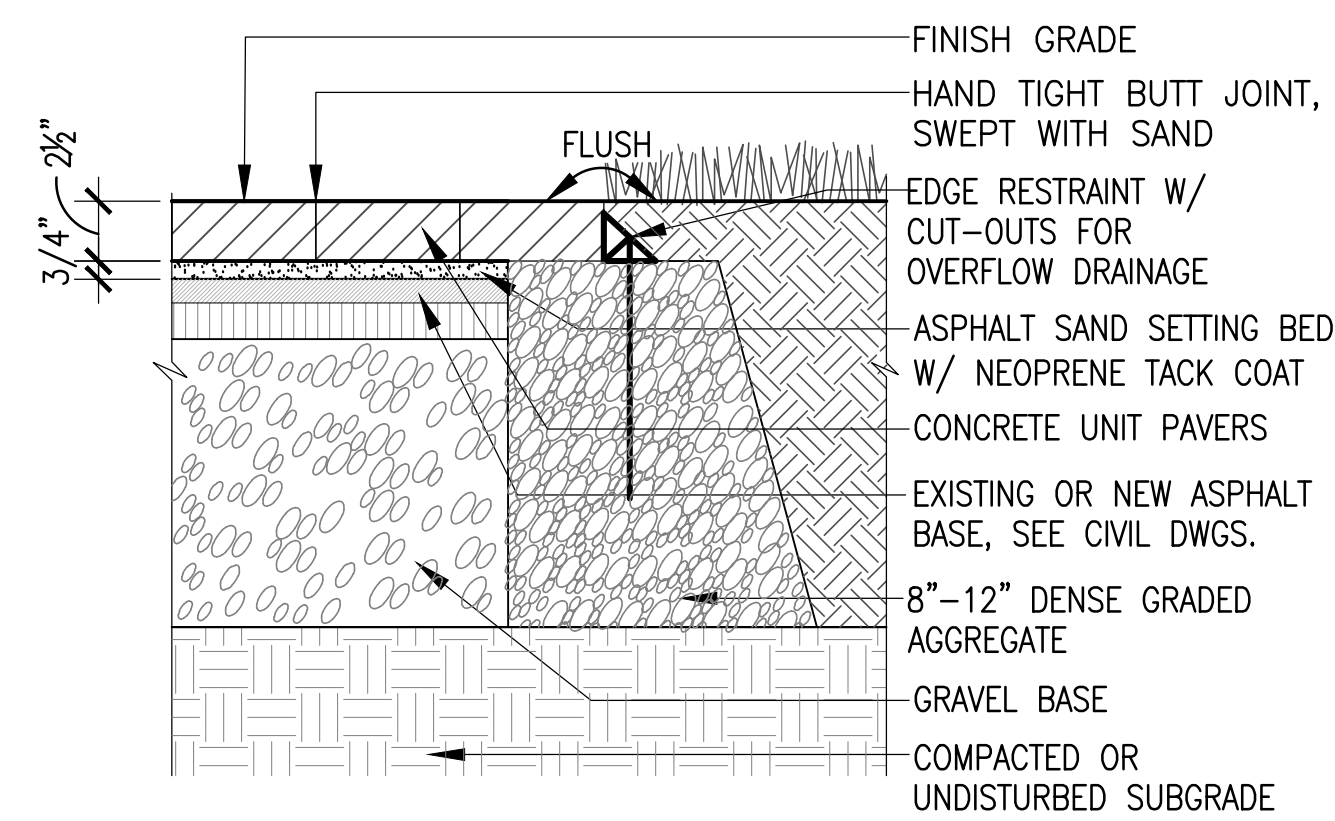
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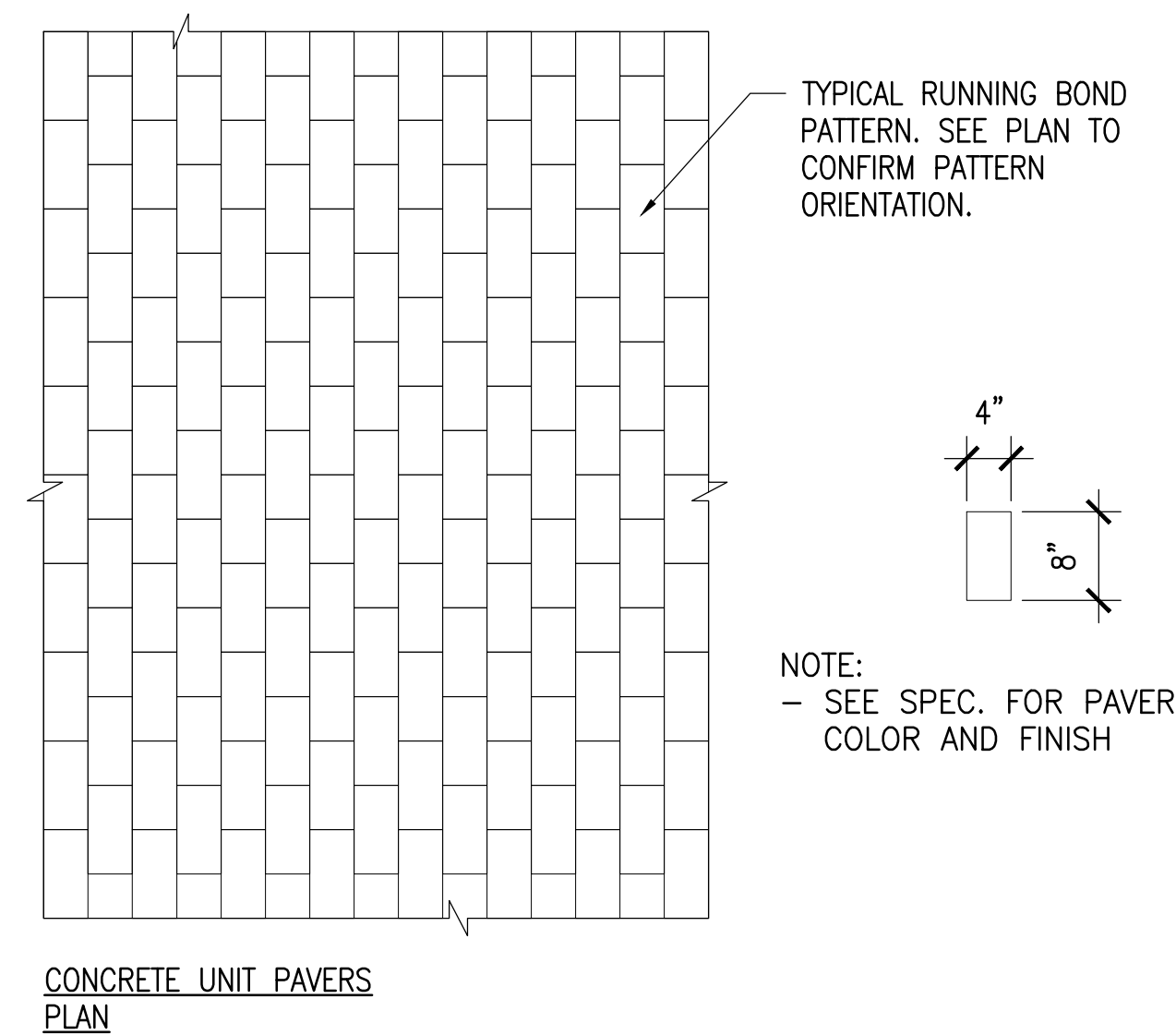
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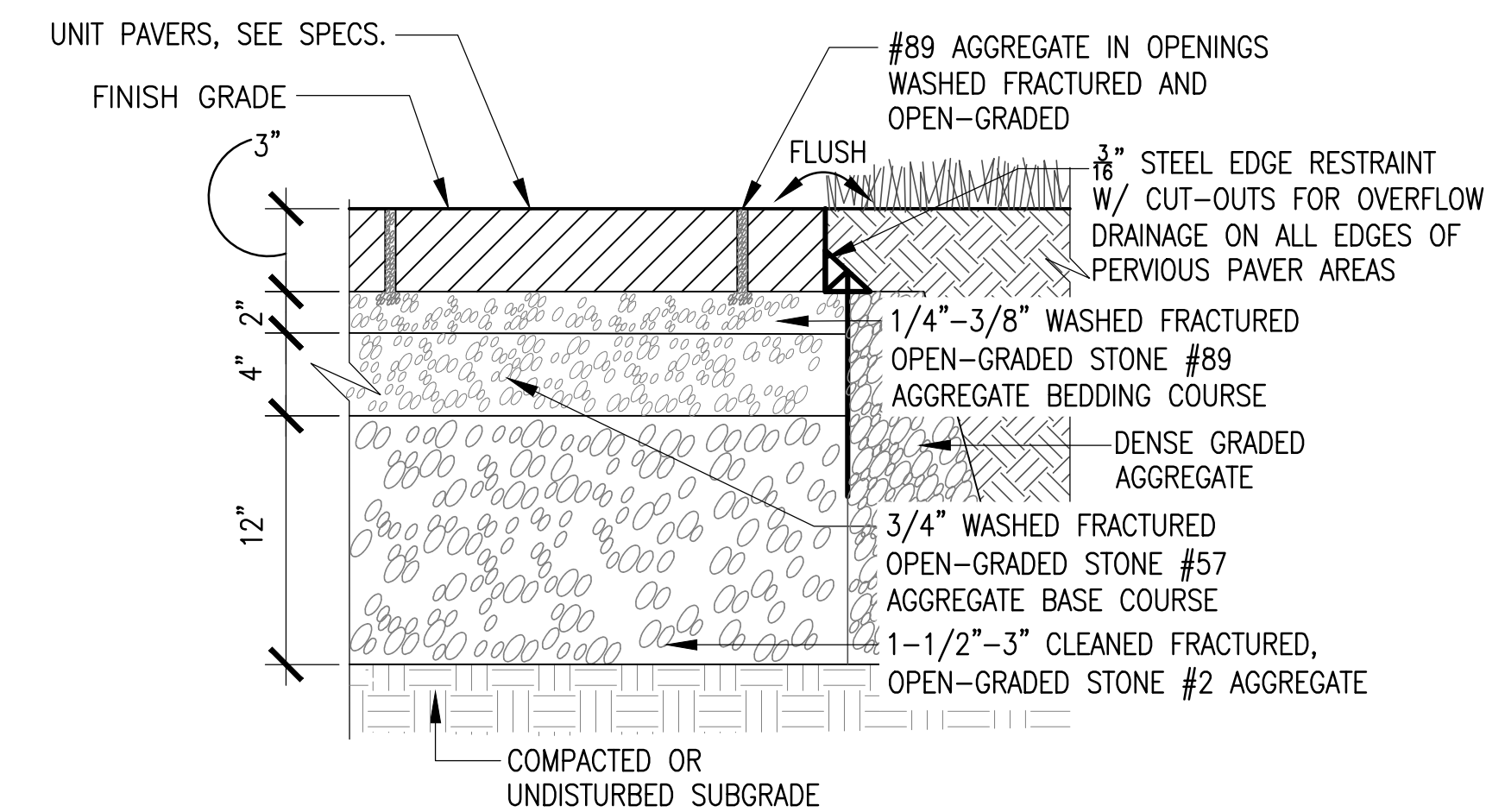
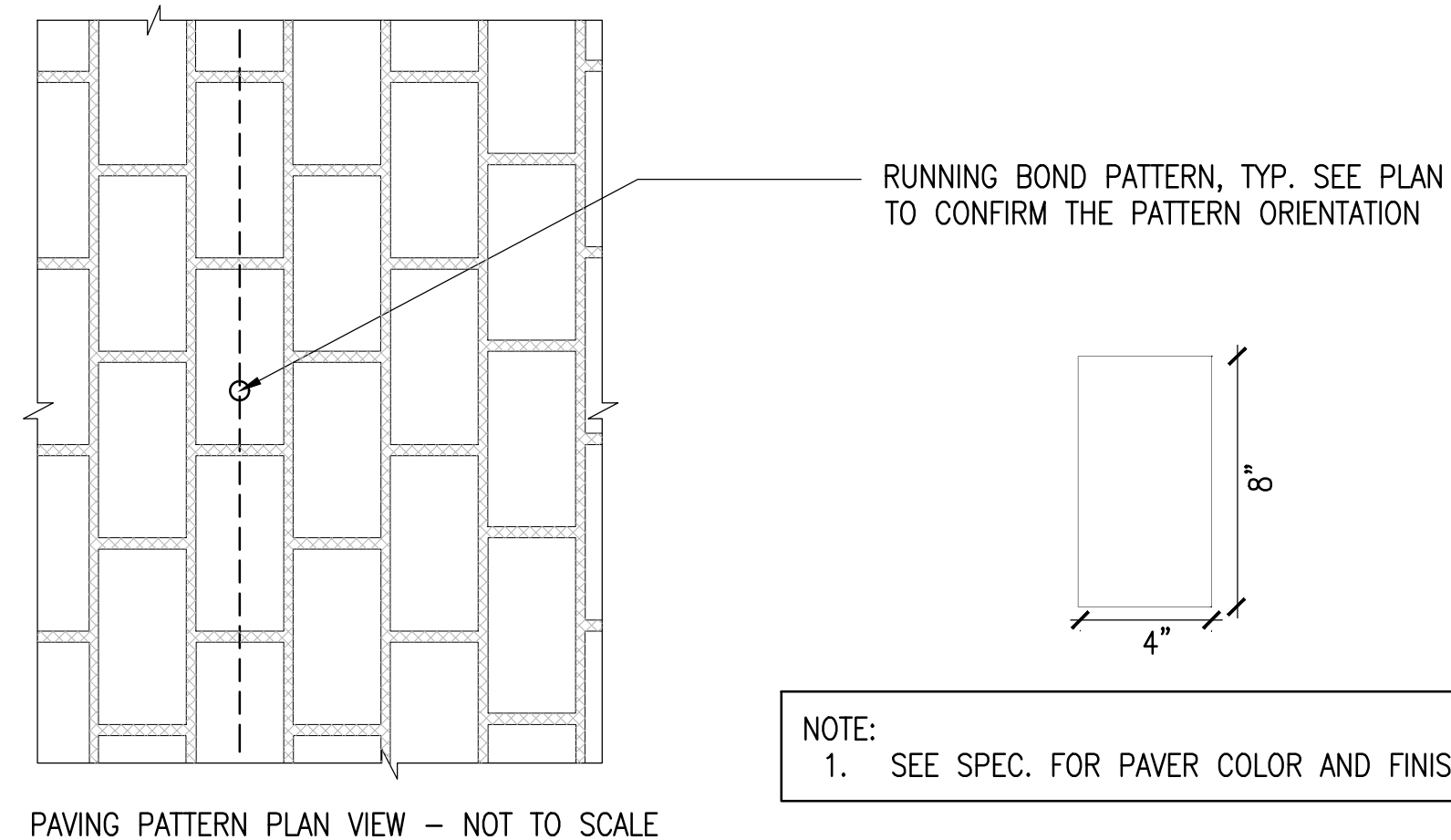




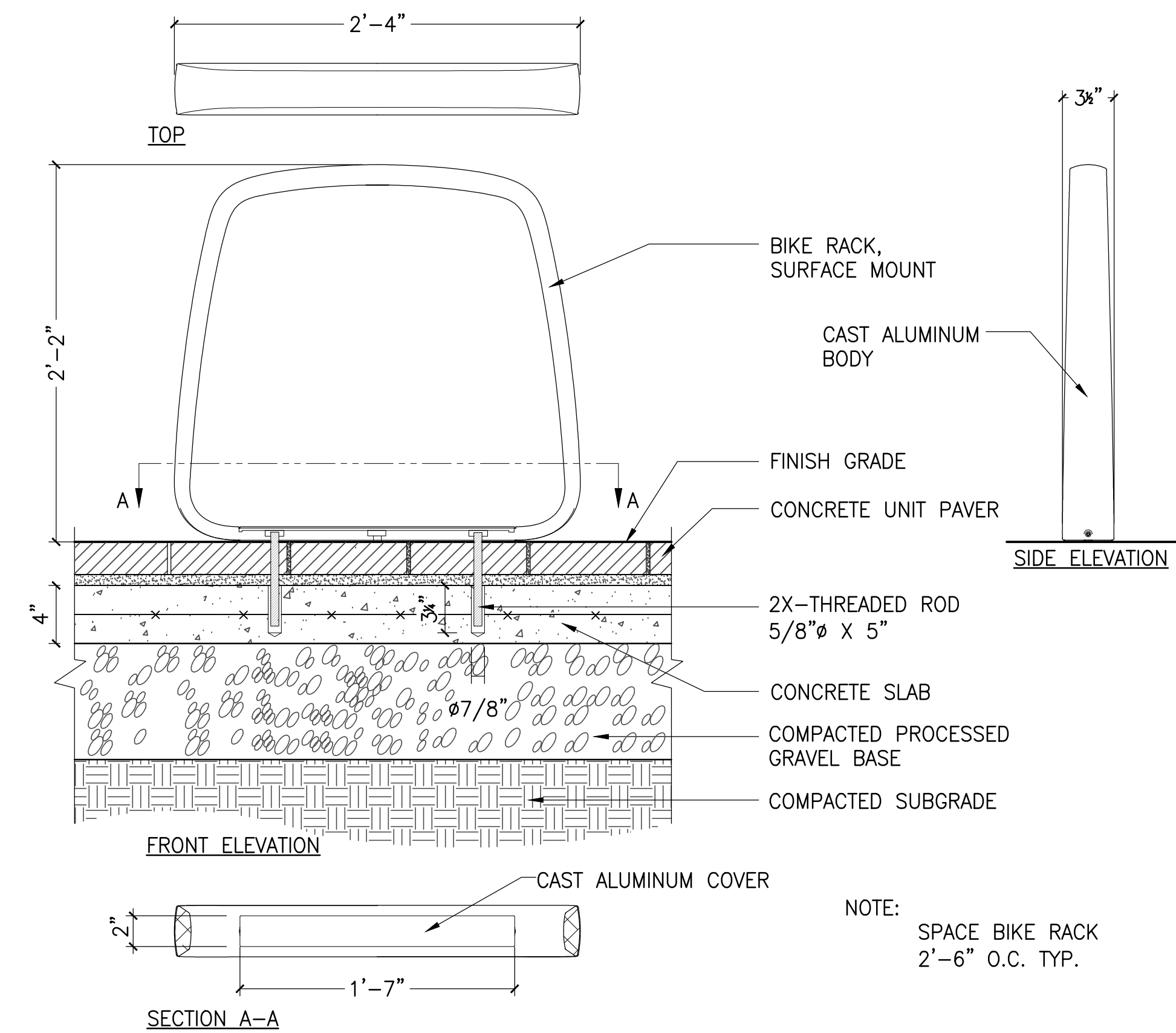
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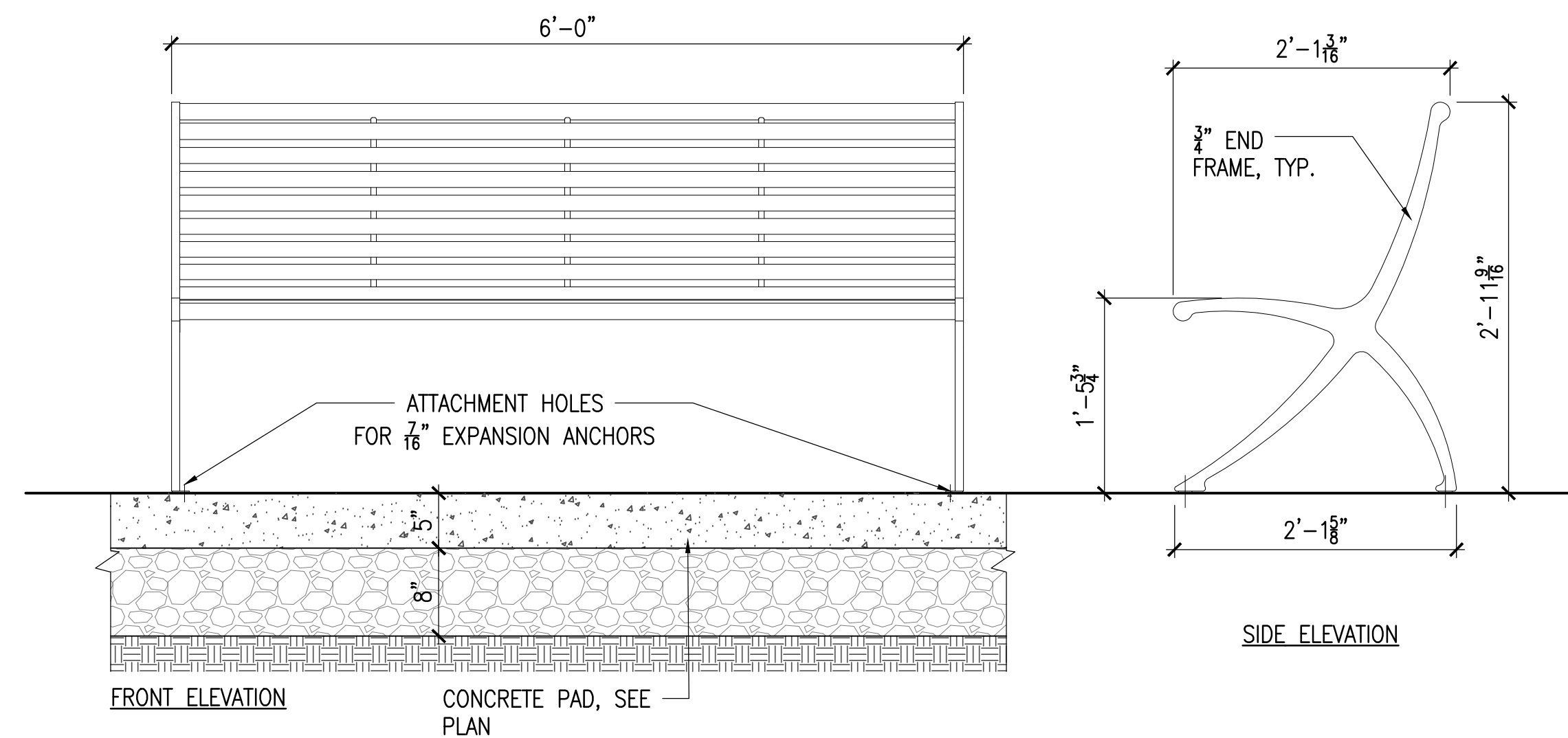
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2 PERVIOUS PAVERS
SCALE: 1 1/2" = 1'-0"



4 BIKE RACK
SCALE: 1 1/2" = 1'-0"



5 BENCH
SCALE: 1" = 1'-0"

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Boston, MA 02108

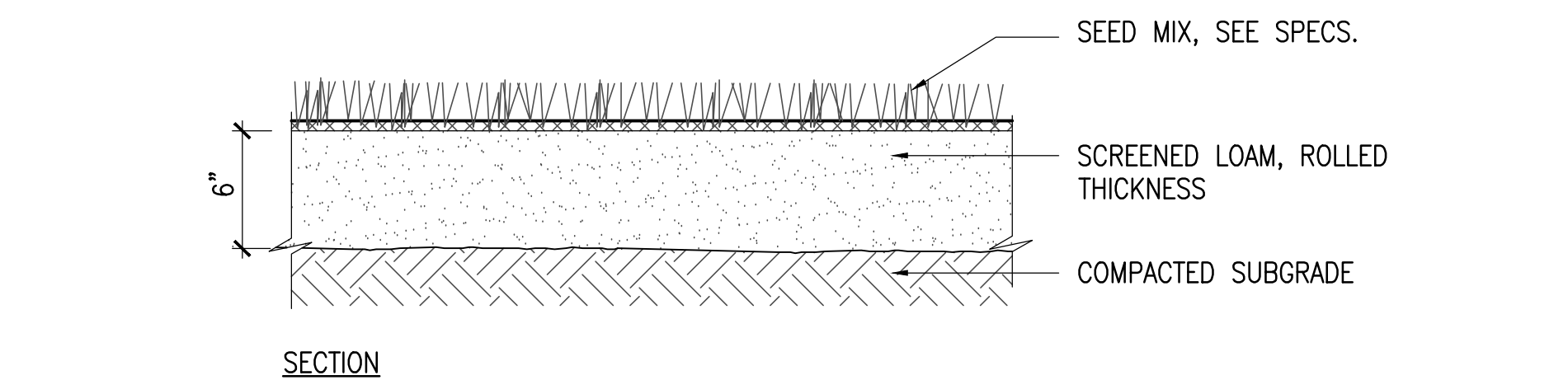


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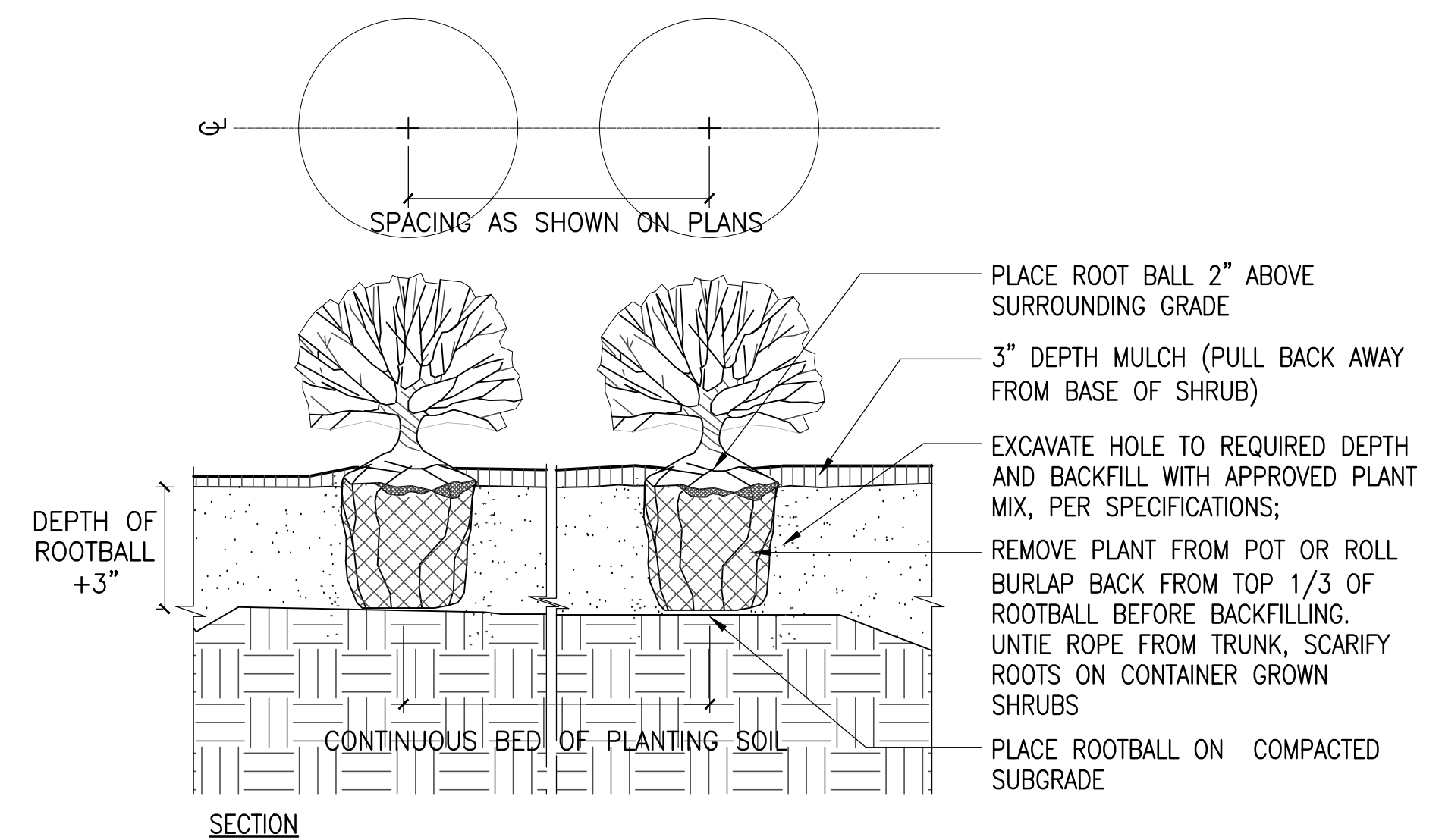
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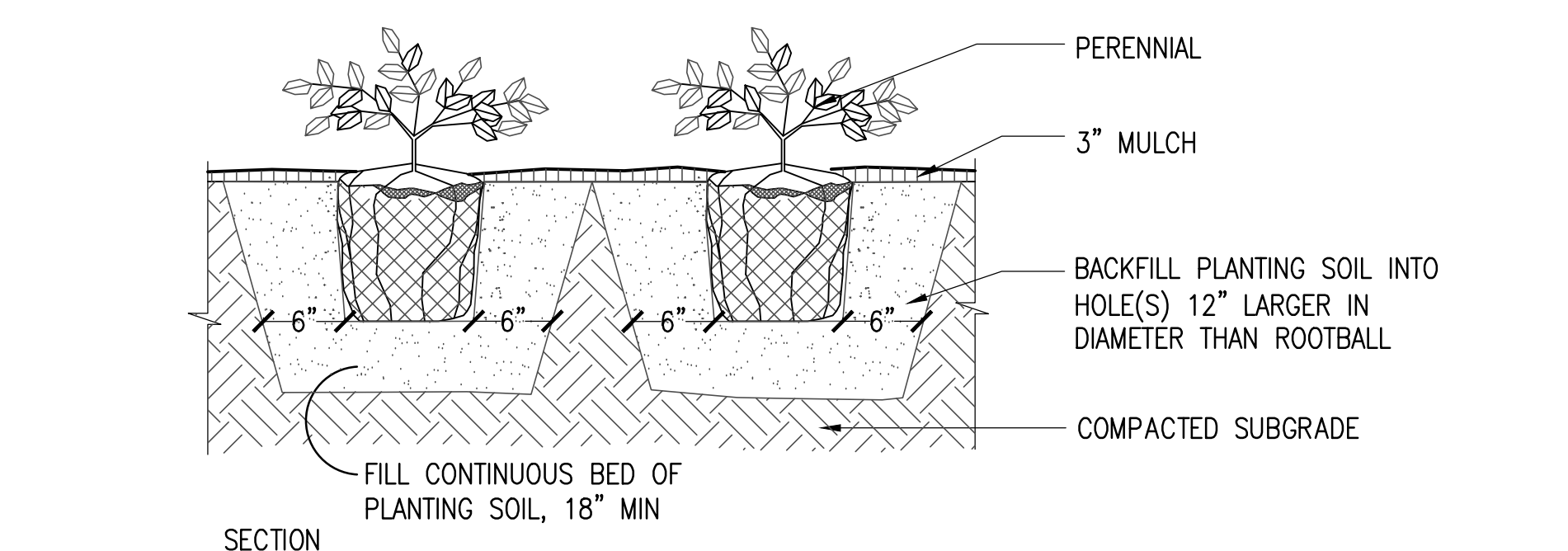
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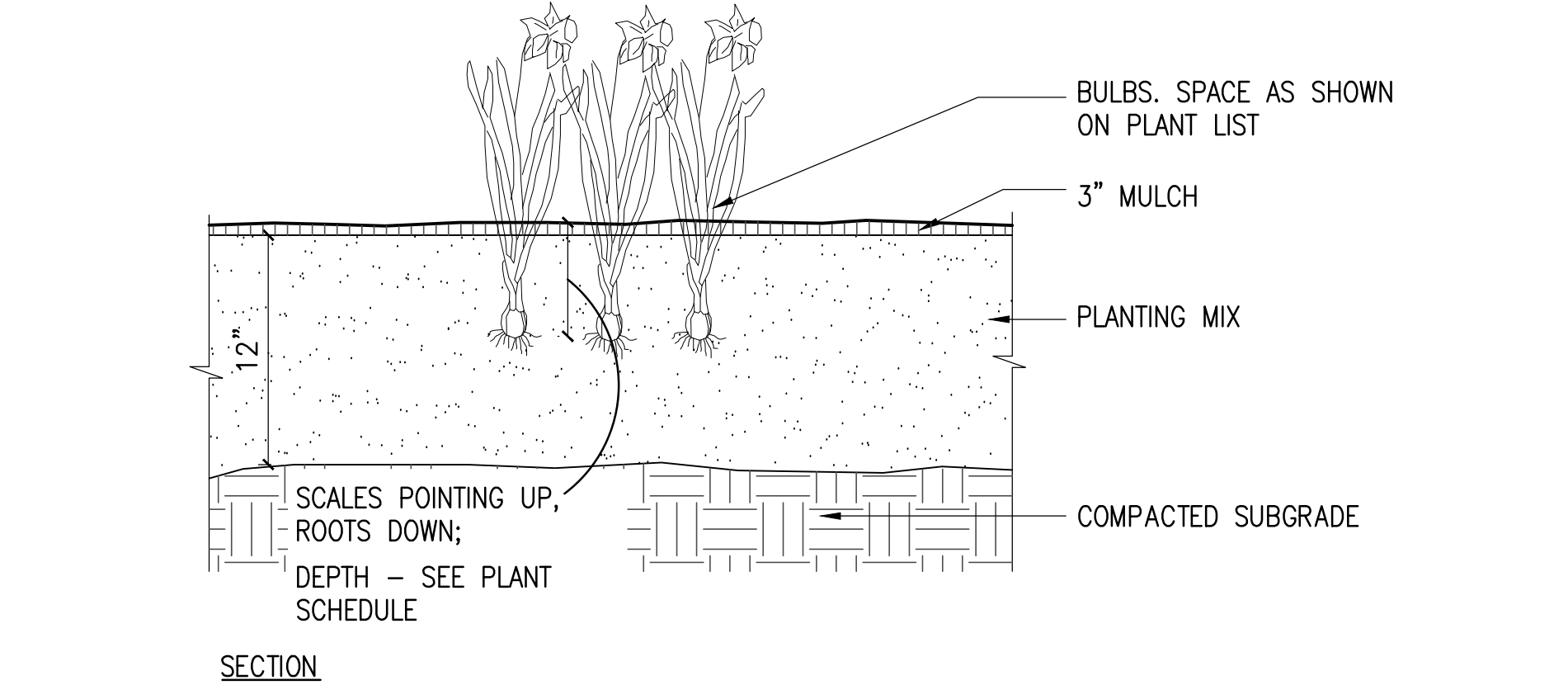
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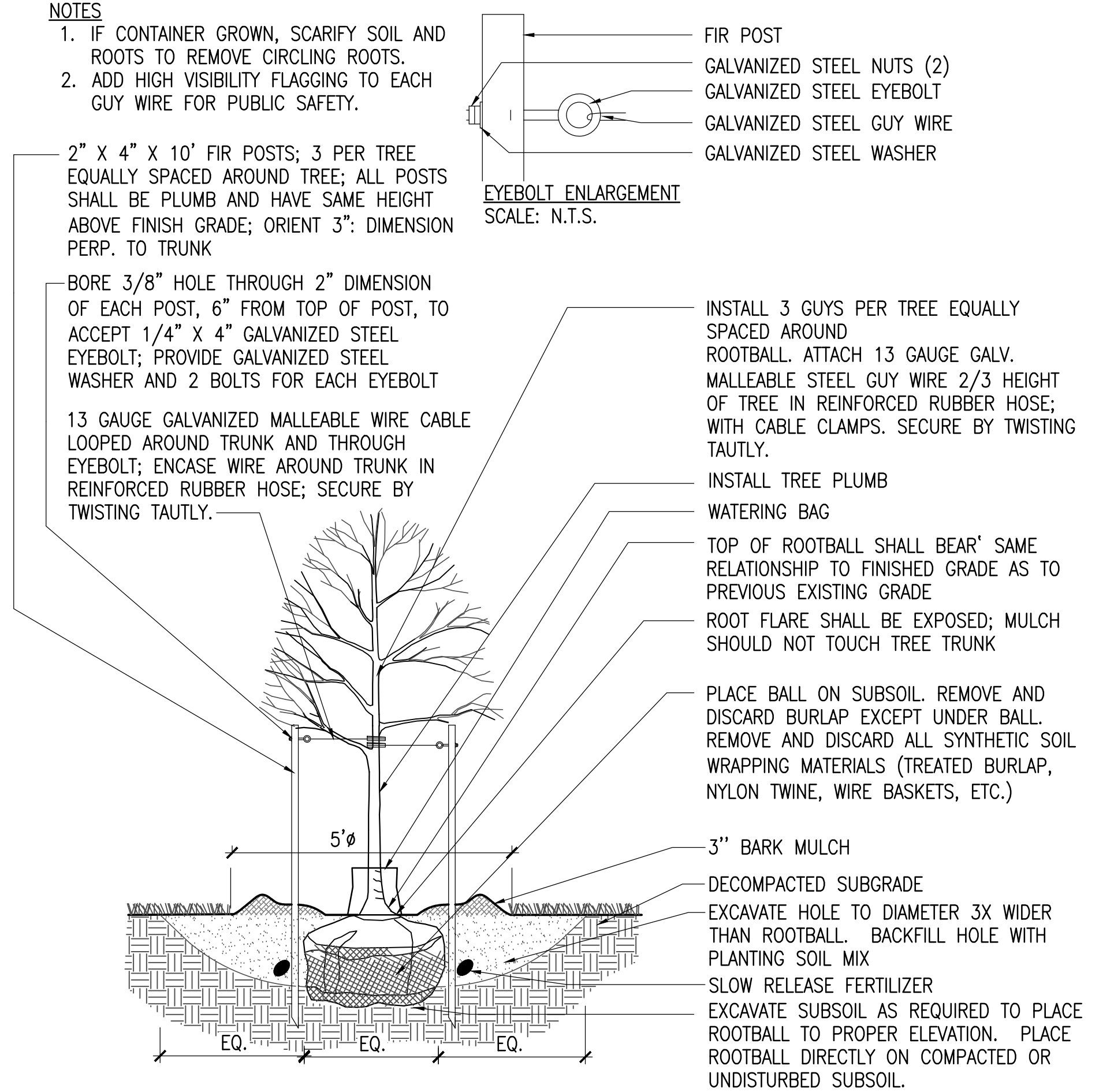
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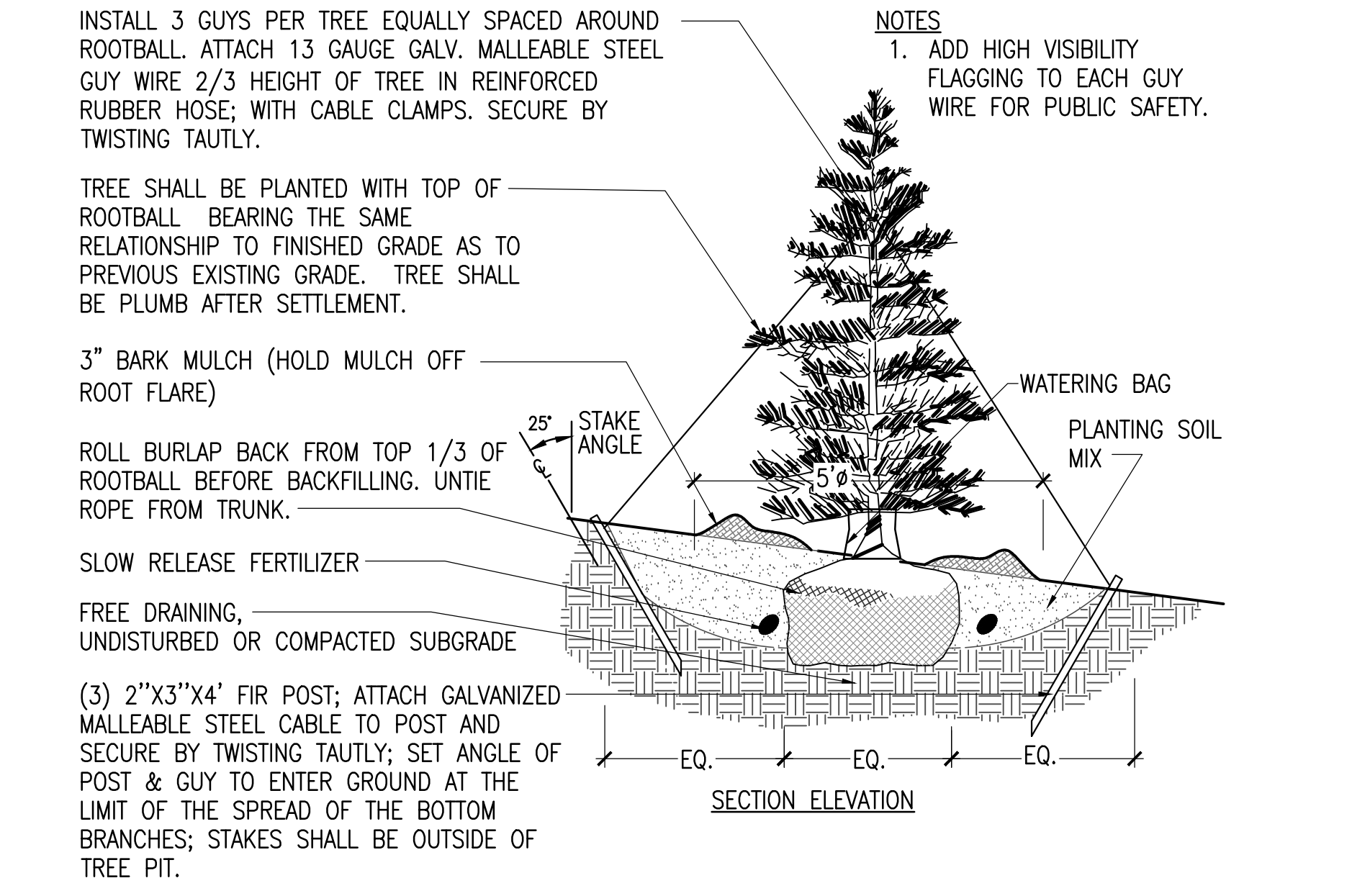
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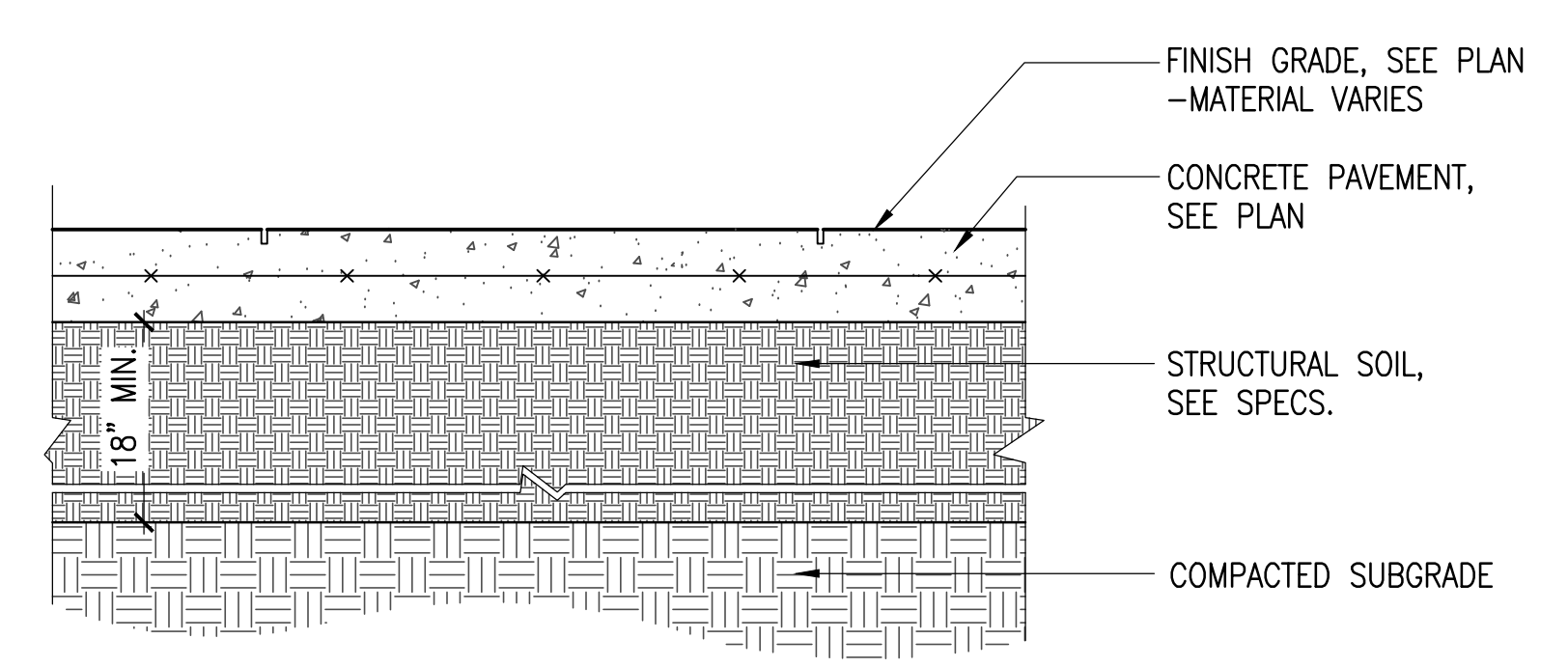
4 BULB PLANTING
SCALE: 1 1/2" = 1'-0"



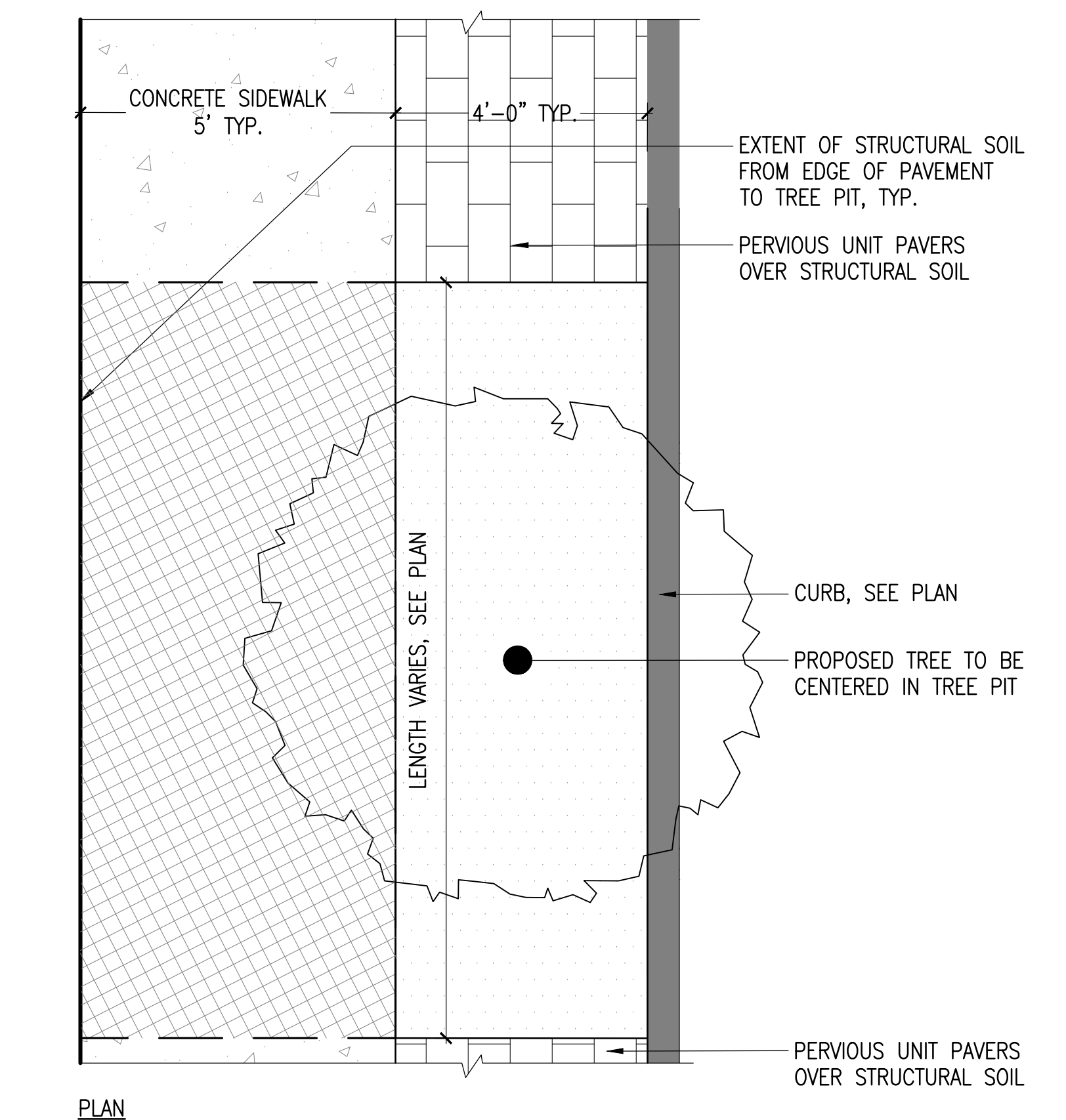
5 DECIDUOUS TREE
SCALE: 3/4" = 1'-0"



6 EVERGREEN TREE
SCALE: 3/4" = 1'-0"



7 STRUCTURAL SOIL
SCALE: 1 1/2" = 1'-0"



8 TREE PIT
SCALE: 1/2" = 1'-0"

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LANDSCAPE ARCHITECT

Job Number:
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Scale: AS NOTED
Drawing Title:

LANDSCAPE DETAILS

LD3.1

STORMWATER MANAGEMENT REPORT

FOR

**283 & 289 WALK HILL STREET
574 & 578 CANTERBURY STREET
BOSTON, MA 02131**

Prepared for:

Torrington Properties, Inc.
11 Elkins Street, Suite 420
Boston, MA 02127

Prepared by:

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120 Middlesex Avenue, Suite 20
Somerville, Massachusetts 02145

**Project No. 2019-118
October 2021
Revised December 15, 2021**



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- Appendix F** **Drain Pipe Capacity Analysis**
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1.0 INTRODUCTION

Torrington Properties Inc. proposes to raze several existing buildings and remove pavements and construct a 30,800+/- SF multi-family residential building with garage and at-grade parking. The purpose of this report is to illustrate how the proposed on-site stormwater management system meets the design standards of MassDEP and the City of Boston, the two entities having jurisdiction over the proposed development.

2.0 STORMWATER MANAGEMENT POLICY

This project is a mixture of new development and redevelopment of an existing site that falls under the jurisdiction of the Massachusetts Wetlands Protection Act (M.G.L. Ch. 131 Section 40). The reference document used for the proposed stormwater management system for the project is MassDEP's Stormwater Management Handbook. Additionally, the Boston Water & Sewer Commission requires 1" of runoff from all impervious areas be held and infiltrated onsite. The following report explains how these policies are met.

3.0 EXISTING CONDITION

The subject site is located in the Boston neighborhood of Roslindale, Massachusetts on Walk Hill Street between Canterbury Street and American Legion Highway. The site is composed of four parcels, identified by the City of Boston Assessor's Department as Parcels 180656200, 180656300, 180657600 and 180657500. The site is located within a CC-1, Community Commercial Zoning Overlay. The total site area is 87,631 square feet (2.01 acres). The site previously consisted of 7 buildings, including wood, concrete and greenhouses with approximately 48% of the site cover being impervious surfaces. At the direction of the Conservation Commission, the existing site has been modeled in its post-demolition condition, which is completely covered with loam and hydroseed but no vegetation at this time. *(See Appendix A: Existing Conditions Plan)*

As noted above, this analysis has been updated to model the existing conditions as they are today (post-demolition). Stormwater runoff sheetflows northwest to southeast across the site where it eventually reaches the Canterbury Brook. The existing site is 0% impervious.

According to the FEMA Flood Insurance Rate Map Number 25025C0006G, with an effective date of September 25, 2009, the site is located within a Zone X, which is "areas determined to be outside the 0.2% annual change floodplain."

(See Appendix D: FEMA Flood Insurance Rate Map)

4.0 SOILS

According to the Natural Resources Conservation Service (NRCS) Soil Service Geographic Database (SSURGO), the soils at the site consist mostly of Udorthents, wet substratum with Merrimac natural soils. The Udorthents series consists of excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material. Being unnatural, the Udorthents series surface soils are difficult to uniformly

categorize. The Merrimac series surface soils are typically marked by a 10-inch thick layer of top soil over 16-inches of subsoil. The natural substratum is about 29-inches thick and is a light yellowish brown very gravelly coarse sand.

On behalf of DCI, Soil Borings were completed on site in August of 2017. These borings found that in most areas of the site the immediate subsurface consists largely of urban fill, mostly sand with some silt. Borings closer to the wetland boundary encountered a thick, loose layer of organics. These borings are encountered a layer of sandy silt below the organics. Additionally, these borings found that in the center of the site, where the large portion of the infiltration system is to be located, the water table is located at 13 FT BGS or 36.5 Boston City Datum. The High Groundwater Elevation recommended following the completed soil borings was Elev. 40.0.

5.0 PROPOSED CONDITION

The project proposes redeveloping the subject property by constructing a roughly 30,000sf, 4-story, 106-unit residential building with basement level parking. Surface parking is also proposed, providing approximately 40 spaces.

To develop the 30,800+/- SF building with additional proposed pavement at the project site, multiple stormwater mitigation measures have been included in the design. A large infiltration system has been proposed under the surface parking lot for the collection, detention and infiltration of stormwater runoff from the pavement and roof areas. Overflow discharge will be tributary to Canterbury Brook. *Appendix C: Utility Site Plan* shows the proposed system. *Appendix A: MassDEP Checklist* includes a MassDEP checklist showing compliance with the ten (10) required stormwater standards.

The proposed site improvements will increase imperviousness from 0% to 59%. The stormwater system is designed to mitigate this increase.

Proposed Stormwater Infrastructure:

The project proposes to use infiltration and collection devices around the site to mitigate and treat the stormwater runoff prior to it reaching the Canterbury Brook. Per the requirements of the standards listed in later sections of this report, a significant amount of stormwater will be recharged to the water table. The proposed stormwater design is discussed below:

In the proposed design all runoff from the roof area will be collected via a central roof drain and discharged directly to the infiltration system below the parking area. Roof runoff is considered to be “clean” and pre-treatment is not required prior to infiltrating. Runoff from the parking area will be collected via deep-sump hooded catch basins, pretreated by a water quality unit, and routed to an infiltration system, comprised of twelve (12) 8' x 14' x 5.7' concrete galleys. The deep-sump hooded catch basins and the water quality unit will provide the 44% pretreatment of the pavement area runoff prior to the being collected at the infiltration system. The infiltration system will overflow through a 15" pipe that discharges to a level spreader before entering the Canterbury Brook. (*See Appendix B: Site Plan*)

6.0 HYDROLOGIC MODEL

The hydrologic model was developed in HydroCAD, a computer program based on USDA's Technical Release TR-55, Urban Hydrology for Small Watersheds. Both existing and proposed conditions are modeled for the 2-year, 10-year, and 100-year 24-hour storm events. HydroCAD allows for variable rainfall intensity throughout the storm duration, peaking near the middle of the Type III, 24-hour storm. The drainage area's time of concentration (t_c) is assumed to be six minutes for this site, which is the minimum recommended by TR-55. Complete calculations, performed using the HydroCAD software, are included in the appendix.

Calculations show that the designated on-site stormwater management system reduces overall off-site flows for up to, and including, the 100-year storm event. See Table 1 below for the hydrologic calculation summary.

7.0 CONSISTENCY WITH THE DEP STORMWATER MANAGEMENT POLICY

This project was designed with the consideration of the MassDEP Stormwater Management Policy and associated standards. The ways in which these standards are met is detailed below.

Standard 1-No New Untreated Stormwater Discharges:

"No new untreated stormwater conveyances (e.g. outfalls) will discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth."

The project proposes no new untreated stormwater discharges.

Standard 2- Post Development Peak Discharge Rates:

"Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates."

A hydrologic analysis with HydroCAD of the pre-development and post-development condition was conducted on the proposed site and the surrounding area. This analysis was performed using the inputs previously identified in earlier sections of this report. Per the Stormwater Management Handbook, the 2-year, 10-year, and 100-year rainfall storms were analyzed following the Hydrology Handbook for Conservation Commissioners for this standard. The full result of this Hydrologic Analysis is included in [Appendix G: Existing and Proposed Hydrology](#). The following table is a summary of the result.

Table 1 - Project Hydrological Impact on Canterbury Brook

Description	Existing Conditions (1R)		Proposed Conditions (10R)	
Drainage Area	87,631 +/- Square Feet		87,631 +/- Square Feet	
Storm Event (Year)	Peak Runoff (CFS)	Runoff Volume (CF)	Offsite Peak Runoff (CFS)	Offsite Runoff Volume (CF)
2	1.54	5,590	0.01	149
10	4.07	13,209	2.03	4,525
100	11.43	36,084	11.18	21,453

The results in the table above show the project's compliance with Standard 2.

Standard 3-Stormwater Recharge:

"Loss of annual recharge to groundwater shall be eliminated or minimized through the use of infiltration measures including environmentally sensitive design, low impact development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This condition is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook."

The project has been designed to fully comply with Standard 3. Groundwater recharge has been provided by a large infiltration system proposed on the southeast corner of the project site. The standard states the "the annual recharge from post-development site shall approximate the annual recharge from pre-development conditions based on soil type." The net increase in impervious area within the project site between the existing and proposed conditions is as follows:

$$\begin{array}{r}
 52,074 \text{ SF (Proposed impervious area)} \\
 - \quad \underline{\quad 0 \text{ SF (Existing impervious area)}} \\
 \mathbf{52,074 \text{ SF (Net increase in impervious area)}}
 \end{array}$$

As mentioned above, groundwater recharge is provided through a large infiltration system in the southeast corner of the site. Therefore, using the net increase in impervious area calculated above, and using a value of 0.6" for HSG A soils as required, the calculations are as followed for required groundwater recharge:

52,074 SF of impervious area x 0.6" = **2,604 CF of GW recharge required (MassDEP)**

Local requirements are more stringent than DEP's. The Boston Water & Sewer Commission (BWSC) requires 1" of runoff from all impervious areas be stored onsite and infiltrated, regardless of soil type. The BWSC requirement is calculated below:

52,074 SF x 1" = **4,340 CF of GW recharge required (BWSC)**

The infiltration system proposed at the site provides a static storage volume, below the outlet, of **5,000 CF**. As stormwater infiltrates, additional storage capacity is created allowing for even more infiltration. The design largely exceeds the groundwater recharge required by MassDEP, therefore meeting Standard 3.

Standard 4-Water Quality:

"Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS). This Standard is met when: (a) Suitable practices for source control and pollution prevention are identified in long-term pollution prevention plan, and thereafter implemented and maintained; (b) Structural stormwater best management practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and (c) Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook."

To meet this requirement for Water Quality, the project will employ Deep Sump Hooded Catch Basins and a water quality unit to provide the 44% TSS removal pre-treatment required prior to infiltration. Additionally, to meet the full 80% TSS requirement, the infiltration facilities is included in the TSS calculation. A full calculation of the TSS removal for the project for each facility is included in *Appendix H: TSS Removal Calculations*.

The project has also been designed to meet the Water Quality Volume (WQV) required by the MassDEP Stormwater Handbook. As discussed above, the project is subject to hold 1.0" of runoff over all the pavement area within the project site. The project proposes 20,101 SF of pavement area in the proposed condition (the roof area is not included as the roof runoff is clean). Therefore, the calculations of required WQV for the pavement area in the proposed conditions are as follows:

20,101 SF (Proposed pavement) x 0.5" = **838 CF of WQV required**

The required WQV is provided by the infiltration system in the southeast corner of the site which will collect all the runoff from the pavement area. The infiltration system will hold 5,000 CF of storage volume below the lowest outlet (*See Appendix H: Hydrologic Calculations for details*). This volume exceeds the required volume of **4,340 CF**. Therefore, the infiltration system provides more than the required WQV and this project exceeds

Standard 4 requirements. Pretreatment is provided by passing runoff from all paved areas through a water quality unit prior to discharging into the chamber system.

Standard 5 – Land Uses with Higher Potential Pollutant Loads

“For land uses with higher potential pollutant loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable. If through source control and/or pollution prevention all land uses with higher potential pollutant loads cannot be completely protected from exposure to rain, snow, snow melt, and stormwater runoff, the proponent shall use the specific structural stormwater BMP’s determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook..”

The land use of the subject site is residential and therefore not anticipated to create higher pollutant loads.

Standard 6 – Critical Areas

“Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas as provided in the Massachusetts Stormwater Handbook.”

The project does not discharge to a critical area, nor located within a Zone II or Interim Wellhead Protection Area of public water supply.

Standard 7 – Redevelopment

“A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural best management practice requirements of Standards 4, 5 and 6. Existing stormwater discharges shall comply with Standard 1 only to the maximum extent practicable. A redevelopment project shall also comply with all other requirements of the Stormwater Management Standards and improve existing conditions.”

A “redevelopment” project is defined in Massachusetts Stormwater Handbook as “Development, rehabilitation, expansion, and phased projects on previously developed sites, provided the redevelopment results in no increase in impervious area.”

The proposed project does not meet this definition because there is a net increase in impervious area; therefore, it is not a redevelopment project and the proposed stormwater management will fully comply with the stormwater regulations.

Standard 8 – Erosion Sedimentation Controls

“A plan to control construction related impacts including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.”

Erosion and sediment controls will be in place throughout the site during all phases of construction. All existing catch basins in the project area will have a silt sack installed under the grate. A silt sock will be installed at the downgradient perimeter of the construction area. A construction entrance/exit will be installed to wash construction vehicles, when necessary, to prevent site soils and materials from being unintentionally transported offsite. The contractor will be responsible for checking all erosion and sediment control measures periodically and after every storm. The contractor will repair, replace, and maintain all erosion/sediment control measures, through construction, until all disturbed areas have been stabilized. Efforts have been made to establish vegetative cover over all disturbed areas as soon as possible after the work in that area is complete.

The occurrence of an extended shutdown during the construction phase of this project is not anticipated or likely. Should unexpected events dictate, measures will be taken to stabilize the disturbed areas of the site as a last construction activity before the start of an extended shutdown. These measures will include careful planning of the immediate construction schedule so that further land disturbance is kept to a minimum and the re-stabilization of existing disturbed areas is maximized prior to the extended shutdown. A Stormwater Pollution Prevention Plan (SWPPP) has already been filed with the EPA for the project. The SWPPP details the erosion and sedimentation controls implemented on-site and how they are being maintained throughout the construction process.

Standard 9 – Operation and Maintenance Plan

“A long-term operation and maintenance plan shall be delivered and implemented to ensure that stormwater management systems function as designed.”

A long-term Operation and Maintenance Plan is included in Appendix I. The plan includes provisions for Construction-Phase measures, as well as long term maintenance and inspections.

Standard 10 – Illicit Discharges to Drainage System

“All illicit discharges to the stormwater management system are prohibited.”

There are no known or suspected illicit discharges to the stormwater management system at the project site. Therefore, this project complies with Standard 10. An Illicit Discharge Compliance Statement will be submitted prior to the discharge to post-construction BMPs.

8.0 CONCLUSION

Based on DCI's analysis of the existing and proposed conditions, the proposed site condition meets the stormwater management criteria set out by MassDEP for new developments. The results of these analyses indicate that the proposed project will mitigate the stormwater impact of the increases in the impervious area due to the development of a 30,800+/- SF building, reducing the peak flows to Canterbury Brook, adding groundwater recharge, and removing the required TSS from the proposed development. This leads DCI to determine that the proposed project will improve upon the hydrologic characteristics of Canterbury Brook, and the mitigation measures included with the development will provide an adequate level of flood and stormwater quality protection to the public.

Appendix A

MASSDEP 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.

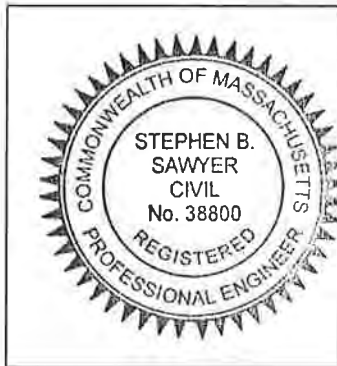
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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



Stephen B. Sawyer
Signature and Date

OCT. 6, 2021

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): _____

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)

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.

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.

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)

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.

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.

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.



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.

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.

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.

Appendix B

SOILS INFORMATION



Design Consultants, Inc.

Civil Engineering
Transportation/Traffic
Water/Wastewater
Geotechnical
Land Surveying
Environmental
Planning

February 1, 2017

Nabil Boghos
Residences of Walkhill LLC
1630 Osgood Street #1210
North Andover, MA 01845

RE: Geotechnical Investigations Letter Report
283 & 289 Walk Hill Street, 576 & 578 Canterbury St. Geotechnical Letter Report
Roslindale, MA
DCI Project No. 2015-131

Dear Mr. Boghos:

Design Consultants Inc. (DCI) is pleased to provide the Residences of Walkhill LLC (Client) and the design team with this summary letter report for the geotechnical investigations associated with the proposed development at 283 & 289 Walk Hill Street; 574, 576, & 578 Canterbury Street in the Roslindale neighborhood of Boston, Massachusetts.

Project Background

The Client is in the process of redeveloping the subject property into 130± unit, multi-story residential building(s) with basement level parking. To this end, Mr. Boghos has retained DCI's services to conduct geotechnical activities and to complete civil engineering design services.

The Site's location can be seen on **Figure 1**. The existing conditions are shown on **Figure 2**. The Site totals approximately 87,631 square feet (2.01 acres) and generally slopes at about 3.0% from the northwest (El. 56.5, City of Boston Datum(CBD)) to the southeast (EL. 46.3, CBD) before sloping sharply at about 38% to a small river bed (EL. 39.3, CBD) and returning to EL. 46.3, CBD at a slope of 27%. Four parcels are to be consolidated into a single parcel. The Site parcels include:

- Existing Buildings - One story wooden/concrete block commercial building/greenhouse at 283 Walk Hill Street (5,962 square feet), one story wooden shed at 283 Walk Hill Street (1,261 square feet), one story concrete block/brick commercial building/greenhouse at 289 Walk Hill Street (5,647 square feet), one story wooden greenhouse at 289 Walk Hill Street (1,478 square feet), one story wooden residential building at 576 Canterbury Street (1,178 square feet), two story wooden residential building at 574 Canterbury Street (943 square feet), two and one-half story wooden residential building at 578 Canterbury Street (1,179 square feet), one story wooden frame shed at 578 Canterbury Street (834 square feet);

- Parking – Asphalt area located off Walk Hill Street and north east of the existing building at 289 Walk Hill Street (8,002 square feet);
- Driveways – Asphalt and concrete area servicing 578 Canterbury Street (8452 square feet), asphalt paving servicing 283 Walk Hill Street, 574 Canterbury Street, and 576 Canterbury Street (4,852 square feet);
- River and Riverbank – heavily wooded river bank (11,416 square feet); and
- Open space – remainder of site consists of grass, dirt, and gravel areas surrounding the existing buildings and pavement (36, 427 square feet).

It is our understanding that the Client is proposing the construction of a 130± multi-story residential building(s) with basement and ground level parking accessible from Canterbury Street. The existing buildings will be demolished in their entirety. Based on a review of the architectural progress drawings, the garage floor slab will be at approximately at elev

In support of the impending development, the Client requested that the geotechnical investigations described herein be undertaken to better understand subsurface conditions. To this end, DCI reviewed available subsurface information and contracted with Soil Exploration Corporation (SEC) of Leominster, Massachusetts to drill six (6) borings at the Site (B-1 through B-6) where shown on **Figure 2**. The drilling activities were conducted with full-time oversight by a professional geotechnical engineer from DCI. DCI was responsible for locating the explorations and SEC was responsible for coordinating the clearing of utilities by DigSafe.

Existing Subsurface Information

As part of our investigation, DCI reviewed the following available information:

1. Soil Survey Mapping from the U.S. Soil Conservation Service; *U.S. Soil Conservation Service Soil Survey*

The U.S. Department of Agriculture Soil Conservation Service Soil Survey of Suffolk County (2010 Update) indicates that conditions in the vicinity of the Site are Udorthents, wet substratum with Merrimac natural soils. The Udorthents series consists of excavated and filled sandy and gravelly human transported material over highly-decomposed herbaceous organic material. Depths to restrictive layers and the water table are commonly over 80 inches from the ground surface. The Merrimac series consists of loamy glaciofluvial deposits derived from granite, schist, and gneiss over sandy and gravelly glaciofluvial deposits derived granite, schist, and gneiss. Merrimac soils are somewhat excessively drained with slopes ranging from 0 to 15 percent. They are typically found on glacial outwash plains and glacial stream terraces.

Being unnatural, the Udorthents series surface soils are difficult to uniformly categorize. The Merrimac series surface soils are typically marked by a 10-inch thick layer of top soil over 16-inches of subsoil. The natural substratum is about 29-inches thick and is a light yellowish brown very gravelly coarse sand.

Bedrock at the Site is described as Cambridge Argillite. This bedrock generally includes gray argillite with minor quartzite with rare occurrences of sandstone and conglomerate.

DCI Subsurface Investigations

On behalf of DCI, Soil Exploration Corporation (SEC) of Leominster, Massachusetts advanced six geotechnical boreholes (B-1 through B-6) at the Site from August 17 to August 19, 2016. The six borings were drilled for estimating soil density through Standard Penetration Tests (SPTs). The borings were advanced using a combination of hollow stem augers and drive and wash through casing. Soil samples were obtained using a 2-inch split spoon sampler and samples were collected at 5-foot intervals typically. Boring logs prepared by DCI's geotechnical engineer are provided in **Attachment One**.

The borings are also located on Figure 1 and are summarized in Table 1.

Table 1
Summary of August 2016 Boring Data

Boring	Approx. Ground Elevation (City of Boston Datum)	Est. Bottom of Fill in Feet (and Elev.)	Boring Depth (and Elev.)
B-1	54.0	6.0 (El. 49.0)	32.0 (El. 22.0)
B-2	49.5	11.0 (El. 38.5)	32.0 (El. 17.5)
B-3	55.0	10.0 (El. 45.0)	40.0 (El. 15.0)
B-4	48.0	12.0 (El. 36.0)	32.0 (El. 16.0)
B-5	47.5	10.5 (El. 37.0)	32.0 (El. 15.5)
B-6	48.0	11.5 (El. 36.0)	20.0 (El. 16.0)

Groundwater Monitoring

Two monitoring wells were installed on-site during the subsurface investigations (MW-1, MW-6). Groundwater observations were made at the time of drilling and on August 24, 2016. DCI and SEC gauged the groundwater depths from the newly drilled borehole casing. The results are provided in **Table 2**.

Table 2
Summary of August 2016 Groundwater Observations

Boring No.	Ground Elevation (City of Boston Datum)	Estimated Groundwater Depth (Feet)	Estimated Groundwater Elevation (C.O.B. Datum)
B-1/MW-1	54.0	15.3	38.7
B-1/MW-1 Dec 7, 2016	54.0	17.1	36.9
B-2	49.5	13.0	36.5
B-3	55.0	>15.0	<40.0
B-4	48.0	>11.0	<37.0
B-5	47.5	15.5	32.0
B-6/MW-6	48.0	10.7	37.3

In August 2016, the observed groundwater across the Site ranged from about 11-feet-deep (EL. 37.3 in boring B-6/MW-6) to greater than 15.5-feet-deep (EL. 32.0 in B-5). In December 2017, EBI Consulting completed as Phase II Environmental Site Assessment. During the Phase II, groundwater encountered at elevations between 36-38 feet (BCD).

Findings

The subsurface investigations for the 283 & 289 Walk Hill Street; 574, 576, & 578 Canterbury Street Site borings generally encountered the following subsurface conditions from the ground surface to depth:

- Asphalt – Four borings (B-1, B-3, B-4, & B-6) encountered an approximate 3 to 4-inch thick layer of asphalt.
- Urban Fill – All borings encountered a layer of fill consisting of sand, with trace to some silt, trace to little gravel, traces of brick, and traces of concrete chunks. The fill is generally 10- to 12-feet deep. The fill material is loose to medium dense and considered unsuitable for foundation bearing.

- Organics – Borings B-2 and B-4 encountered a 1- to 1.5-foot thick loose layer of decaying organics, directly below the fill, ranging from 11- to 13.5-feet below grade.
- Concrete – Boring B-5 encountered a chunk of concrete from that 2.5- to 5-feet below the ground surface that was able to be augered through.
- Sandy Silt – Borings B-4, B-5, and B-6 encountered a sandy silt beneath the fill and organics to a depth as great as 28.5-feet below grade. In each instance, the sandy silt was layered with silty sands and sat atop a silty sand. SPT results indicate the sandy silts are stiff to very stiff.
- Silty Sand – Borings B-1 through B-5 encountered a silty sand, with none to trace amounts of gravel, directly beneath either the urban fill or the sandy silt layer mention previously. This silty sand layer extended as much as 40-feet below grade. SPT results indicate the silty sand material is medium dense to dense.
- Coarse Sand – Boring B-2 encountered a layer of medium to coarse sand with gravel and no to trace amounts of silt from approximately 18- to 23.5-feet below grade.
- Clay – Boring B-3 encountered a 1-foot thick layer of stiff clay from 26- to 27-feet below the ground surface.
- Glacial Till – In Borings B-1 and Boring B-5, below the natural sand, at a depth of 26- to 32-feet deep, both borings encountered a layer of silt, sand, and gravel with little to some cobbles and boulders. SPT results indicate the material is very stiff.

As noted above, the groundwater across the Site on September 26, 2016 ranged from about 11-foot-deep (EL. 37.3 in boring B-6/MW-6) to greater than 15.5-foot-deep (EL. 32.0 in B-5). Groundwater may be flowing in a southerly direction towards American Legion Highway. Groundwater observations are expected to fluctuate and seasonal higher levels should be factored into the foundation design. We recommend a design high groundwater level of El. 39.0.

Conclusions and Recommendations

The geotechnical investigations presented herein provide a general idea of the existing conditions and foundation needs for the Site development. The attached information can be used to develop the final geotechnical design requirements.

A review of the borings indicates that unsuitable fill and organics are located up to 12-feet below grade. It is anticipated that the footings will bear on compacted structural fill and/or the natural soils. Foundations and retaining walls must be designed and constructed in accordance with the Massachusetts State Building Code (780 CMR 18). We recommend the following:

- All excavation activities and soil management planning should be coordinated with any environmental findings and conclusions. The combined geotechnical and environmental findings, conclusions and recommendations will dictate the final bottom of footing elevations.

- Work shall be conducted in-the-dry and existing subgrades should be proof rolled.
 - Dimensions shall be designed in accordance with the Massachusetts State Building Code (780 CMR 18). The minimum footing vertical depth shall be 1 foot and the minimum horizontal width of continuous footings shall be 2 feet. The bottom of exterior footings shall be placed a minimum of 4-feet below the final grade for frost protection and 18-inches below the finish floor grade for the interior columns.

 - To construct the foundation, the existing fill and organic soils will required to be excavated across the building footprint and the zone of influence of proposed. The zone-of-influence is defined as the footing area plus 1 foot beyond the edge of the footing and then downward and outward at a 1V (vertical) to 1H (horizontal) slope. The Foundation Zone of Influence is shown on Figure 3.

 - DCI recommends the proposed building be designed to be supported on a strip and spread footing foundation bearing on the natural silty sand. The footings may also bear on compacted Structural Fill as over excavation and replacement is likely to be required to remove unsuitable foundation bearing materials. The structural fill should be placed in layers not exceeding 9-inch loose measure and compacted to at least 95 percent of the maximum dry density, as determined by ASTM D-1557. A minimum of three field density tests performed in accordance with the applicable ASTM Standard should be performed for each lift of material. This should be accomplished while working in-the-dry

 - Clean structural fill shall also be placed against foundations and walls. Structural fill shall meet the following grain size requirements:

Sieve Size	Percent Finer by Weight
8-inch	100 (1)
3-inch	70-100
1-inch	45-90
No. 4	20-70
No. 10	15-60
No. 40	10-40
No. 200	0-10

Sieve Size	Percent Finer by Weight
<i>Notes:</i> <i>(1) Three-inch maximum particle size within 12 inches of slab, footing or pavement grade.</i>	

- In general, the foundations are anticipated to be founded on up to 6-feet of compacted structural fill and the natural soils. In accordance with Massachusetts Building Code (780 CMR 18), Table 1804.3, we recommend an allowable net bearing pressure of 3 tons per square foot (TSF) for the deeper medium dense sand and gravel with cobbles.
- Based on the net allowable bearing capacity placed on a properly prepared subgrade, the total footing settlement is expected to be less than one-inch with differential settlements between adjacent columns being less than ½-inch. It is expected that the majority of the settlement will occur during construction.
- For design purposes, the structural fill shall be assumed to have a dry unit weight of 120 pounds per cubic foot (pcf); a friction angle of 32°; a coefficient of passive earth pressure (K_p) of 3.25; and a coefficient of active earth pressure (K_A) of 0.30.
- Groundwater across the Site on March 1, 2017 ranged from 18-feet-deep (EL. 34.5) in boring B-4 to farther than 27-feet-deep (<EL. 32.5) in B-2. Groundwater appears to slope in a northerly direction from the rear of the site towards Marion Street. Groundwater levels across the site are expected to vary from those reported herein due to factors such as normal seasonal fluctuations, periods of heavy precipitation, and alterations of existing drainage patterns. We recommend a design high groundwater level of El. 40.0.
- In order to promote positive drainage away from foundations, we recommend that structural details incorporate best management groundwater practices in accordance with the Massachusetts Building Code (780 CMR 1806.5 and 1807.4.2). Section 1807.4.2 allows for the use of a properly filtered gravel or crushed stone as a foundation drain. The drain shall extend a minimum of 12-inches outside the edge of the footing and shall not extend to 6-inches from the top of the footing. If a drain tile or perforated pipe is used the pipe invert shall not be higher than the floor elevation.
- Given the nature of the Site, there is low potential for liquefaction. In accordance with 780 CMR 9.4.1.2.1 the Site is a Class D, and under 780 CMR 16 Table 1604.11, the seismic loads for Brookline are $S_S=0.28$ and $S_1=0.068$.
- All excavations shall be carefully designed and managed so as not to undermine adjacent structures or violate local, state and federal safety requirements, such as Jackies Law and

OSHA standards. The minimum ratio to prevent undermining of adjacent footings and structures is 1 horizontal to 1 vertical (1H:1V).

- A professional structural engineer shall be engaged to design all structures in accordance with the Massachusetts State Building Code. The structural engineer shall determine the appropriate factors of safety and the varying surcharge loads against each structure. We also recommend that a licensed geotechnical engineer be engaged during the design and construction process to ensure that our recommendations have been met.
- Deep excavations (up to 14 feet) are expected for the foundation construction and possibly for utility installation around the property. Excavations should be sloped and/or laterally supported in accordance with the Occupational and Health Administration (OSHA) regulations (29 CFR Part 1926) and the Commonwealth of Massachusetts Department of Labor and Industries Division of Industrial Safety (DLIDIS) - Rules and Regulations for the Prevention of Accidents in Construction Operations (454 CMR 10.00), Part 14. Should excavations be sloped, the expected slope based on soil type (loose sand) is 1.5H:1V provided the groundwater is properly lowered below the bottom of the excavation. The foregoing slope requirement does not consider surcharge loads (stockpiled soils, equipment, roadways, and materials) which may be situated at the crest of the slope and vibration loads (soil compaction, sheet piling). It should be noted that these slope requirements are minimums required by OSHA/DLIDIS regulations. The contractor should be ultimately responsible for design, maintenance and stability of the temporary slopes and/or shoring associated with construction activities. It is expected that a soldier pile and lagging or sheet pile support system will be necessary for the project. Laterally supported earth systems should be designed by a qualified Professional Engineer retained by the contractor per OSHA Regulations. The excavation support system should be considered in the design phase as it may impact the foundation design and construction. It is important to note that the excavation maybe in the zone of influence of the existing buildings foundations. In addition, driving of piles and/or sheeting may result in the densification of the loose sands, which may cause settlement of nearby structures

Construction Monitoring

It is recommended that DCI be retained to provide the recommended monitoring services. This will enable DCI to observe compliance with the geotechnical design concepts and recommendations, and to facilitate design changes in the event that subsurface conditions differ from those anticipated prior to the start of construction. Since variations in these conditions are possible, a Geotechnical Engineer should be present during construction to:

1. Observe the removal of any existing unsuitable materials from within the building limits.

2. Observe preparation of the foundation and slab bearing surfaces prior to forming and concreting.
3. Confirm the type and suitability of the natural soil deposits encountered in the foundation excavation.
4. Observe and test placement and compaction of structural fill, common fill, and crushed stone.
5. Review Contractor submittals for filling to conduct laboratory testing on samples of compacted granular fill and crushed stone materials.

Full-time monitoring for the placement and compaction of fill for support of structures is required by the Massachusetts Building Code. As a guide, a Recommended Program for Special Inspections for Soils is attached.

Specification and Plan Review

It is recommended that DCI be given an opportunity to review the final plans and specifications for the building, including earthwork, and related items, in order to confirm that the recommendations made in this report were interpreted and implemented as intended.

Closing

The analyses and recommendations submitted in this letter report are based in part upon the data obtained from the subsurface explorations. The nature and extent of variations across the Site may not become evident until further explorations are conducted or until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this letter.

The estimated groundwater levels in the borings are based on observations made during the borehole advancement and under the conditions stated on the logs. It is noted that fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors occurring since the time the borings were advanced.

In the event that any changes in the nature, design or location of the proposed 283 & 289 Walk Hill Street; 574, 576, 578 Canterbury Street development are planned, the conclusions and recommendations contained in this letter report shall not be considered valid unless the changes are reviewed and conclusions of this report is modified or verified in writing by DCI.

This preliminary geotechnical investigation report has been prepared for Nabil Boghos and the 283 & 289 Walk Hill Street; 574, 576, 578 Canterbury Street project. Our report is sufficient for final design and should be supplemented with detailed earthwork specifications for construction purposes. The specifications should be prepared by a licensed geotechnical engineer.

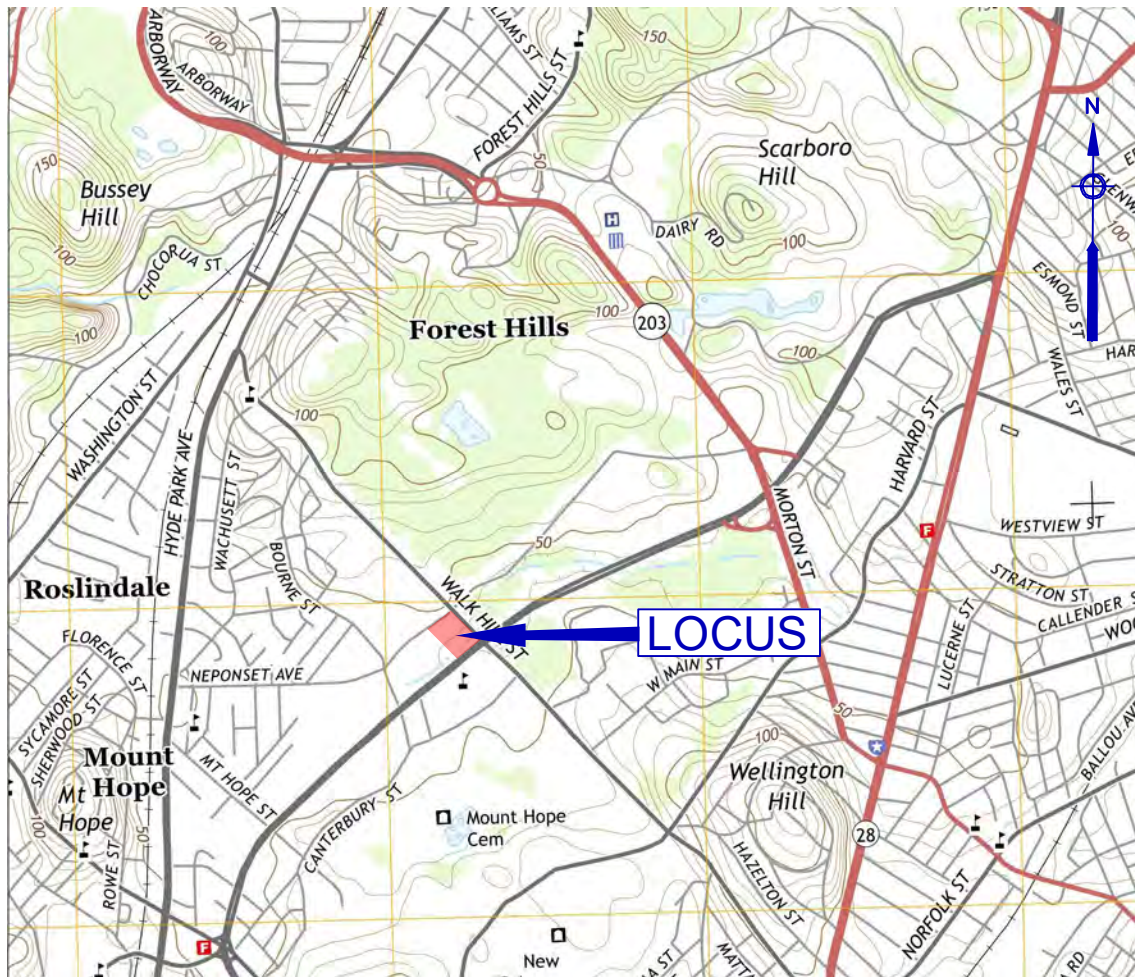
Should you have any questions or require additional information, please do not hesitate to call us.
We can be reached at 617-689-1010.

Very Truly Yours,

Michael F. Clark, P.E.
Principal-In-Charge

Attachments

FIGURES



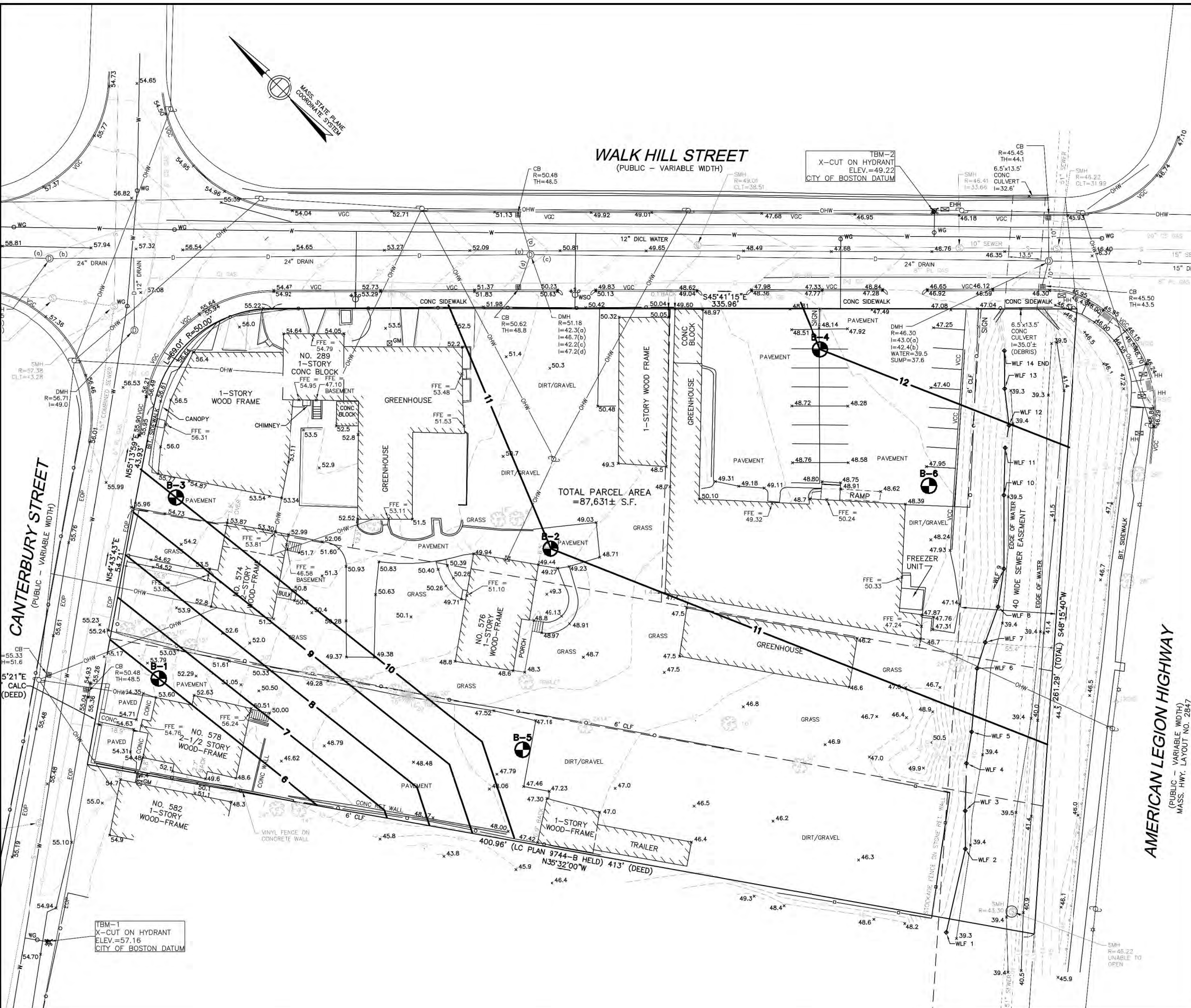
SCALE: 1" = 2,000'

LATITUDE: 42.288° N
 LONGITUDE: 71.107° W

REF: USGS TOPO QUAD
 BOSTON SOUTH, MA
 2015

FIGURE 1

SITE LOCATION MAP
 283, 289 WALKHILL STREET
 ROSLINDALE, MA
Design Consultants, Inc.
 CIVIL ENGINEERS and LAND SURVEYORS
 SOMERVILLE - NEWBURYPORT - QUINCY



WALK HILL STREET
(PUBLIC - VARIABLE WIDTH)

CANTERBURY STREET
(PUBLIC - VARIABLE WIDTH)

AMERICAN LEGION HIGHWAY
(PUBLIC - VARIABLE WIDTH)
MASS. HWY. LAYOUT NO. 2847

TOTAL PARCEL AREA
= 87,631 ± S.F.

TBM-1
X-CUT ON HYDRANT
ELEV.=57.16
CITY OF BOSTON DATUM

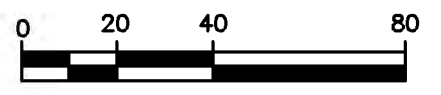
TBM-2
X-CUT ON HYDRANT
ELEV.=49.22
CITY OF BOSTON DATUM

NOTES:

- 1) BASE PLAN AND SURVEY INFORMATION BASED ON "PLAN OF LAND IN BOSTON (ROSLINDALE), MASSACHUSETTS SURVEYED FOR JESSICA'S BAKERY (283 & 289 WALK HILL STREET & 574, 576, & 578 CANTERBURY STREET) DATED FEBRUARY 24, 2016 AND COMPLETED BY DESIGN CONSULTANTS, INC.

LEGEND:

- B-1 BORING LOCATION
- 5 FILL DEPTH CONTOUR



SCALE in FEET
1"=40'

Figure 2

BORING LOCATIONS
920 AMERICAN LEGION HIGHWAY
HYDE PARK, MA
Design Consultants, Inc.
CIVIL ENGINEERS and LAND SURVEYORS
SOMERVILLE - NEWBURYPORT - QUINCY
PHONE: 617-776-3350 WEBSITE: WWW.DCI-MA.COM

ATTACHMENT ONE

DCI BORING LOGS

BORING LOG

Project: 283 & 289 WALK HILL STREET Location: ROSLINDALE, MA Client: NABIL BOGHOS Driller: SOIL EXPLORATIONS CORP. Drilling Methods: DRIVE & WASH Weather: OVERCAST, 70's Performed By: MFC Date: 8/18/16 Checked By: PJS Date: 1/30/17	 <p style="font-weight: bold; margin-top: 5px;">DESIGN CONSULTANTS, INC.</p>	Boring No: B-1 Location: SEE PLAN Approx. Ground Elevation: 54± Approx. Groundwater Elevation: 38.7± Date/Time of Groundwater Elevation: 8/24/2016 Datum: BOSTON CITY BASE Project No. 2015-131
--	---	---

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
					.25'	ASPHALT	(1)
1	S-1	4	24"/18"	S-1: Fine to Coarse SAND, Trace Silt, Trace Gravel, Brown, Dry, Medium Dense			
2		5					
3		6					
4		5				FILL	
5							
6	S-2	6	24"/16"	S-2: Top 8" Similar to S-1. Bottom 8" Fine SAND, Trace Silt, Tan, Dry, Medium Dense	6'		
7		10					
8		12					
9		11					
10							
11	S-3	6	24"/16"	S-3: Fine SAND, Trace Silt, Tan, Dry, Medium Dense			
12		7					
13		11					
14		12				SILTY SAND	
15							
16	S-4	7	24"/24"	S-4: Top 12" Similar to S-3, Bottom 12" Brown, Fine SAND, Little Silt, Wet, Medium Dense			
17		9					
18		9					
19		9					
20							

<p><u>NOTES:</u></p> <p>(1) 3" of Asphalt.</p>	<p><u>LEGEND</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">S - Split Spoon Sample</td> <td style="width: 50%;">O/A - Sample Collected Off the Augers</td> </tr> <tr> <td>UT - Undisturbed Tube Sample</td> <td></td> </tr> <tr> <td>Trace - Approximately 0 to 10%</td> <td>Some - Approximately 20 to 35%</td> </tr> <tr> <td>Little - Approximately 10 to 20%</td> <td>And - Approximately 35 to 50%</td> </tr> <tr> <td>0-10 Coarse Soil N Value - Loose</td> <td>30-50 Coarse Soil N Value - Dense</td> </tr> <tr> <td>10-30 Coarse Soil N Value - Medium Dense</td> <td>>50 Coarse Soil N Value - Very Dense</td> </tr> <tr> <td>0-4 Fine Soil N Value - Soft</td> <td>8-15 Fine Soil N Value - Stiff</td> </tr> <tr> <td></td> <td>>30 Fine Soil N Value - Hard</td> </tr> <tr> <td>4-8 Fine Soil N Value - Medium Stiff</td> <td>15-30 Fine Soil N Value - Very Stiff</td> </tr> </table>	S - Split Spoon Sample	O/A - Sample Collected Off the Augers	UT - Undisturbed Tube Sample		Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%	Little - Approximately 10 to 20%	And - Approximately 35 to 50%	0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense	10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense	0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff		>30 Fine Soil N Value - Hard	4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff
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BORING LOG

Project: 283 & 289 WALK HILL STREET Location: ROSLINDALE, MA Client: NABIL BOGHOS Driller: SOIL EXPLORATIONS CORP. Drilling Methods: DRIVE & WASH Weather: OVERCAST, 70's Performed By: MFC Date: 8/18/16 Checked By: PJS Date: 1/30/17	 <p style="font-weight: bold; margin-top: 5px;">DESIGN CONSULTANTS, INC.</p>	Boring No: B-1 Location: SEE PLAN Approx. Ground Elevation: 54± Approx. Groundwater Elevation: 38.7± Date/Time of Groundwater Elevation: 8/24/2016 Datum: BOSTON CITY BASE Project No. 2015-131
--	---	---

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
21	S-5	4 5 6 5	24"/24"	S-5: Fine SAND, Little Silt, Brown, Wet, Medium Dense	26'	SILTY SAND	
22							
23					32'	BOULDERS & TILL	(2)
24							
25	S-6	32 100/0"	6"/0"	S-6: Similar to S-5. 1/2" Till then rock in tip			
26						BOULDERS & TILL	(3)
27							
28	C-1	10 MINS	66% REC 32% RQD				
29		9 MINS					
30		3 MINS					
31		3 MINS					
32		1 MIN					
33				BOTTOM OF BORING @ 32' BELOW GRADE			
34							
35							
36							
37							
38							
39							

<p><u>NOTES:</u></p> (2) Bouncing Rod (3) Auger Refusal at 27' below grade. (4) Monitoring well installed to a depth of 25'	<p><u>LEGEND</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">S - Split Spoon Sample</td> <td style="width: 50%;">O/A - Sample Collected Off the Augers</td> </tr> <tr> <td>UT - Undisturbed Tube Sample</td> <td></td> </tr> <tr> <td>Trace - Approximately 0 to 10%</td> <td>Some - Approximately 20 to 35%</td> </tr> <tr> <td>Little - Approximately 10 to 20%</td> <td>And - Approximately 35 to 50%</td> </tr> <tr> <td>0-10 Coarse Soil N Value - Loose</td> <td>30-50 Coarse Soil N Value - Dense</td> </tr> <tr> <td>10-30 Coarse Soil N Value - Medium Dense</td> <td>>50 Coarse Soil N Value - Very Dense</td> </tr> <tr> <td>0-4 Fine Soil N Value - Soft</td> <td>8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard</td> </tr> <tr> <td>4-8 Fine Soil N Value - Medium Stiff</td> <td>15-30 Fine Soil N Value - Very Stiff</td> </tr> </table>	S - Split Spoon Sample	O/A - Sample Collected Off the Augers	UT - Undisturbed Tube Sample		Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%	Little - Approximately 10 to 20%	And - Approximately 35 to 50%	0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense	10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense	0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard	4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff
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0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard																
4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff																

BORING LOG

Project: 283 & 289 WALK HILL STREET
Location: ROSLINDALE, MA
Client: NABIL BOGHOS
Driller: SOIL EXPLORATIONS CORP.
Drilling Methods: HOLLOW STEM AUGER
Weather: SUNNY, 70'S
Performed By: AFS **Date:** 8/19/16
Checked By: PJS **Date:** 1/30/17



Boring No: B-2
Location: SEE PLAN
Approx. Ground Elevation: 49.5±
Approx. Groundwater Elevation: 36.5±
Date/Time of Groundwater Elevation: COMPLETION
Datum: BOSTON CITY BASE
Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
1	S-1	11	24"/8"	S-1: Top 2" GRAVEL, Grey, Dry Bottom 6" , SAND, Trace Silt, Brown, Dry, Medium Dense		FILL	(1)
2		7					
3		4					
4		4					
5							
6	S-2	6	24"/11"	S-2: SAND, Little Gravel, Dark Brown, Dry, Loose-Medium Dense			
7		5					
8		5					
9		4					
10							
11	S-3	1	24"/11"	S-3: Top 4" SAND, Grey, Moist, Loose Bottom 7" ORGANICS, Black, Moist, Loose	11'		
12		1			12"	ORGANICS	
13		3					
14		11					
15						SILTY SAND	
16	S-4	5	24"/23"	S-4: Fine SAND, Little Silt, Trace Gravel in top 2", Light Brown, Wet, Medium Dense			
17		7					
18		7					
19		10					
20					18'	MEDIUM TO COARSE SAND WITH GRAVEL	

<p><u>NOTES:</u></p> <p>#1- Water Table at 13'</p>	<p><u>LEGEND</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">S - Split Spoon Sample</td> <td>O/A - Sample Collected Off the Augers</td> </tr> <tr> <td>UT - Undisturbed Tube Sample</td> <td></td> </tr> <tr> <td>Trace - Approximately 0 to 10%</td> <td>Some - Approximately 20 to 35%</td> </tr> <tr> <td>Little - Approximately 10 to 20%</td> <td>And - Approximately 35 to 50%</td> </tr> <tr> <td>0-10 Coarse Soil N Value - Loose</td> <td>30-50 Coarse Soil N Value - Dense</td> </tr> <tr> <td>10-30 Coarse Soil N Value - Medium Dense</td> <td>>50 Coarse Soil N Value - Very Dense</td> </tr> <tr> <td>0-4 Fine Soil N Value - Soft</td> <td>8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard</td> </tr> <tr> <td>4-8 Fine Soil N Value - Medium Stiff</td> <td>15-30 Fine Soil N Value - Very Stiff</td> </tr> </table>	S - Split Spoon Sample	O/A - Sample Collected Off the Augers	UT - Undisturbed Tube Sample		Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%	Little - Approximately 10 to 20%	And - Approximately 35 to 50%	0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense	10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense	0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard	4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff
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BORING LOG

Project: 283 & 289 WALK HILL STREET
 Location: ROSLINDALE, MA
 Client: NABIL BOGHOS
 Driller: SOIL EXPLORATIONS CORP.
 Drilling Methods: HOLLOW STEM AUGER
 Weather: SUNNY, 70'S
 Performed By: AFS Date: 8/19/16
 Checked By: PJS Date: 1/30/17



Boring No: B-2
 Location: SEE PLAN
 Approx. Ground Elevation: 49.5±
 Approx. Groundwater Elevation: 36.5±
 Date/Time of Groundwater Elevation: COMPLETION
 Datum: BOSTON CITY BASE
 Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.	
21	S-5	6 14 6 8	24"/24"	S-5: Coarse SAND, Little Gravel, Brown, Wet, Medium Dense	23.5'	MEDIUM TO COARSE SAND WITH GRAVEL		
22								
23								
24								
25								
26	S-6	6 7 6 6	24"/22"	S-6: Coarse SAND, Little Silt, Trace Gravel, Grey, Wet, Medium Dense	32'	SILTY SAND WITH GRAVEL		
27								
28								
29								
30								
31	S-7	14 11 9 12	24"/11"	S-7: Similar to S-6, Trace Silt				
32	BOTTOM OF BORING @ 32' BELOW GRADE							
33								
34								
35								
36								
37								
38								
39								

<p><u>NOTES:</u></p>	<p><u>LEGEND</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">S - Split Spoon Sample</td> <td>O/A - Sample Collected Off the Augers</td> </tr> <tr> <td>UT - Undisturbed Tube Sample</td> <td></td> </tr> <tr> <td>Trace - Approximately 0 to 10%</td> <td>Some - Approximately 20 to 35%</td> </tr> <tr> <td>Little - Approximately 10 to 20%</td> <td>And - Approximately 35 to 50%</td> </tr> <tr> <td>0-10 Coarse Soil N Value - Loose</td> <td>30-50 Coarse Soil N Value - Dense</td> </tr> <tr> <td>10-30 Coarse Soil N Value - Medium Dense</td> <td>>50 Coarse Soil N Value - Very Dense</td> </tr> <tr> <td>0-4 Fine Soil N Value - Soft</td> <td>8-15 Fine Soil N Value - Stiff</td> <td>>30 Fine Soil N Value - Hard</td> </tr> <tr> <td>4-8 Fine Soil N Value - Medium Stiff</td> <td>15-30 Fine Soil N Value - Very Stiff</td> <td></td> </tr> </table>	S - Split Spoon Sample	O/A - Sample Collected Off the Augers	UT - Undisturbed Tube Sample		Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%	Little - Approximately 10 to 20%	And - Approximately 35 to 50%	0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense	10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense	0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff	>30 Fine Soil N Value - Hard	4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff	
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4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff																		

BORING LOG

Project: 283 & 289 WALK HILL STREET
Location: ROSLINDALE, MA
Client: NABIL BOGHOS
Driller: SOIL EXPLORATIONS CORP.
Drilling Methods: HOLLOW STEM AUGER
Weather: SUNNY, 70's
Performed By: AFS **Date:** 8/19/16
Checked By: PJS **Date:** 1/30/17



Boring No: B-3
Location: SEE PLAN
Approx. Ground Elevation: 55±
Approx. Groundwater Elevation: < 40'±
Date/Time of Groundwater Elevation: COMPLETION
Datum: BOSTON CITY BASE
Project No. 2015-131 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.			
					.25'	ASPHALT	(1)			
1	S-1	4	24"/7"	S-1: Fine SAND, Trace Gravel, Trace Silt, Brown, Moist, Medium Dense	10'	FILL				
2		6								
3		7								
4	6									
5	S-2	1	24"/0"	S-2: Similar to S-1, Loose						
6		1								
7		1								
8		2								
9										
10	S-3	4	24"/21"	S-3: Fine to Medium SAND, Little Silt, Light Brown, Moist, Medium Dense						
11		7								
12		8								
13		10								
14										
15	S-4	2	24"/23"	S-4: Fine Sand, Little Silt, Light Brown, Reddish Mottling, Wet, Medium Dense						
16		4								
17		6								
18										
19										
20						SILTY SAND				

NOTES:
 (1) 3" of Asphalt

LEGEND	
S - Split Spoon Sample	O/A - Sample Collected Off the Augers
UT - Undisturbed Tube Sample	
Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%
Little - Approximately 10 to 20%	And - Approximately 35 to 50%
0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense
10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense
0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard
4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff

BORING LOG

Project: 283 & 289 WALK HILL STREET
 Location: ROSLINDALE, MA
 Client: NABIL BOGHOS
 Driller: SOIL EXPLORATIONS CORP.
 Drilling Methods: HOLLOW STEM AUGER
 Weather: SUNNY, 70's
 Performed By: AFS Date: 8/19/16
 Checked By: PJS Date: 1/30/17



Boring No: B-3
 Location: SEE PLAN
 Approx. Ground Elevation: 55±
 Approx. Groundwater Elevation: < 40'±
 Date/Time of Groundwater Elevation: COMPLETION
 Datum: BOSTON CITY BASE
 Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
21	S-5	5 7 11 17	24"/13"	S-5: Top 12" Fine SAND, Little Silt, Brown, Wet, Medium Dense Bottom 1" Dark Brown to Black		SILTY SAND WITH GRAVEL	
22							
23							
24							
25							
26	S-6	5 7 7 9	24"/19"	S-6: Top 12" Coarse SAND, Trace Gravel, Rust Brown, Wet, Medium Dense Bottom 7"- CLAY, Grey, Wet, Stiff	26'		
27					27'	CLAY	
28							
29							
30							
31	S-7	3 3 4 6	24"/18"	S-7: Fine SAND, Little Silt, Trace Gravel, Grey, Wet, Loose		SILTY SAND WITH GRAVEL	
32							
33							
34							
35							
36	S-8	43 28 28 45	24"/22"	S-8: Similar to S-7, Wet, Very Dense			
37							
38							
39	S-9	44 47 43 43	24"/23"	Similar to S-8			
				BOTTOM OF BORING @ 40' BELOW GRADE	40'		

<p><u>NOTES:</u></p>	<p><u>LEGEND</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">S - Split Spoon Sample</td> <td style="width: 50%;">O/A - Sample Collected Off the Augers</td> </tr> <tr> <td>UT - Undisturbed Tube Sample</td> <td></td> </tr> <tr> <td>Trace - Approximately 0 to 10%</td> <td>Some - Approximately 20 to 35%</td> </tr> <tr> <td>Little - Approximately 10 to 20%</td> <td>And - Approximately 35 to 50%</td> </tr> <tr> <td>0-10 Coarse Soil N Value - Loose</td> <td>30-50 Coarse Soil N Value - Dense</td> </tr> <tr> <td>10-30 Coarse Soil N Value - Medium Dense</td> <td>>50 Coarse Soil N Value - Very Dense</td> </tr> <tr> <td>0-4 Fine Soil N Value - Soft</td> <td>8-15 Fine Soil N Value - Stiff</td> <td style="text-align: right;">>30 Fine Soil N Value - Hard</td> </tr> <tr> <td>4-8 Fine Soil N Value - Medium Stiff</td> <td>15-30 Fine Soil N Value - Very Stiff</td> <td></td> </tr> </table>	S - Split Spoon Sample	O/A - Sample Collected Off the Augers	UT - Undisturbed Tube Sample		Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%	Little - Approximately 10 to 20%	And - Approximately 35 to 50%	0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense	10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense	0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff	>30 Fine Soil N Value - Hard	4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff	
S - Split Spoon Sample	O/A - Sample Collected Off the Augers																		
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0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff	>30 Fine Soil N Value - Hard																	
4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff																		

BORING LOG

Project: 283 & 289 WALK HILL STREET
Location: ROSLINDALE, MA
Client: NABIL BOGHOS
Driller: SOIL EXPLORATIONS CORP.
Drilling Methods: HOLLOW STEM AUGER
Weather: CLOUDY, 80's
Performed By: MFC **Date:** 8/17/16
Checked By: PJS **Date:** 1/30/17



Boring No: B-4
Location: SEE PLAN
Approx. Ground Elevation: 48±
Approx. Groundwater Elevation: < 37±
Date/Time of Groundwater Elevation: COMPLETION
Datum: BOSTON CITY BASE
Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
					0.33'	ASPHALT	(1)
1	S-1	2	24"/12"	S-1: Fine to Coarse SAND, Some Silt, Little Gravel, Brick, Black, Moist, Loose (SP-SM) Fill		FILL	
2		2					
3		4					
4		4					
5	S-2	3	24"/18"	S-2: Top 9" Similar to S-1, Brown, Fill. Bottom 9" Fine to Coarse SAND, Little Fine Gravel, Little Organic Silt, Black, Moist, Loose (SP) Fill		FILL	
6		2					
7		1					
8	S-3	3	24"/4"	S-3: Fine to Coarse SAND, Trace Silt, Tan Moist., Loose (SW) Fill		FILL	
9		5					
10	S-4	2	24"/24"	S-4: Top 23" SILT, and Fine Sand, Grey, Moist, Medium Stiff Bottom 1" Fine GRAVEL, Grey 0.1" Topsoil, with Fine Roots.		FILL	
11		9					
12		1					
13		4					
14	S-5	3	24"/24'	S-5: SILT, Some Fine Sand, Olive, Mottled, Moist, Very Dense	13.5±'	ORGANICS	(2)
15		16				SANDY SILT	
16		12					
17		13					
18	16						
19							

NOTES:

(1) 4" of Asphalt

(2) Drilling effort increased at 13.5'.

LEGEND	
S - Split Spoon Sample	O/A - Sample Collected Off the Augers
UT - Undisturbed Tube Sample	
Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%
Little - Approximately 10 to 20%	And - Approximately 35 to 50%
0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense
10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense
0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard
4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff

BORING LOG

Project: 283 & 289 WALK HILL STREET
 Location: ROSLINDALE, MA
 Client: NABIL BOGHOS
 Driller: SOIL EXPLORATIONS CORP.
 Drilling Methods: HOLLOW STEM AUGER
 Weather: CLOUDY, 80's
 Performed By: MFC Date: 8/17/16
 Checked By: PJS Date: 1/30/17



Boring No: B-4
 Location: SEE PLAN
 Approx. Ground Elevation: 48±
 Approx. Groundwater Elevation: < 37±
 Date/Time of Groundwater Elevation: COMPLETION
 Datum: BOSTON CITY BASE
 Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.	
21	S-6	7	24"/24"	S-6: Top 12" Similar to S-5. Next 3", Medium SAND, Tan, Wet, Medium Dense Next 6" Similar to S-5. Bottom 3" Medium to Coarse SAND, Tan Wet, Medium Dense (SP) Very Distinct Boundaries between strata.	20.5'	SANDY SILT	(3)	
		8			21'	SAND		
22		9			21.5'	SANDY SILT		
		17			22'	SAND		
23	S-7	11	24"/16"	S-7: SILT, Some Fine to Coarse Sand, Grey, Occasional Lense Slightly Plastic Silt, Wet, Very Stiff	28.5'	SANDY SILT		
24								10
25								16
26								21
27	S-8	14	24"/24"	S-8: Fine to Coarse SAND, Little Silt Little Fine Gravel, Broken Gravel and stone in tip, Olive, Wet, Medium Dense	32'	SILTY SAND		
28							14	
29							15	
30							19	
31	BOTTOM OF BORING @ 32' BELOW GRADE							
32								
33								
34								
35								
36								
37								
38								
39								

NOTES:
 3 - Drilling effort increased. Indicative of increased gravel content.

LEGEND	
S - Split Spoon Sample	O/A - Sample Collected Off the Augers
UT - Undisturbed Tube Sample	
Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%
Little - Approximately 10 to 20%	And - Approximately 35 to 50%
0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense
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0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff
	>30 Fine Soil N Value - Hard
4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff

BORING LOG

Project: 283 & 289 WALK HILL STREET
Location: ROSLINDALE, MA
Client: NABIL BOGHOS
Driller: SOIL EXPLORATIONS CORP.
Drilling Methods: HOLLOW STEM AUGER
Weather: OVERCAST, 70's
Performed By: AFS **Date:** 8/18/16
Checked By: PJS **Date:** 1/30/17



Boring No: B-5
Location: SEE PLAN
Approx. Ground Elevation: 47.5±
Approx. Groundwater Elevation: 32±
Date/Time of Groundwater Elevation: COMPLETION
Datum: BOSTON CITY BASE
Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
1	S-1	10	24"/16"	S-1: Fine to Coarse SAND, Little Silt, Trace Gravel, Brown, Dry, Medium Dense	2.5'	FILL	(1)
2		10					
3		11					
4		20				CONCRETE	
5					5'		
6	S-2	10	24"/3"	S-2: Powdered Concrete with Angular Stone		FILL	(2)
7		15					
8		19					
9		12					
10					10.5'		
11	S-3	5	24"/18"	S-3: SILT, Some Fine Sand, Stratified, Olive, Mottled, Moist, Very Stiff, 3" Fine Sand		SANDY SILT (WITH FINE SAND BANDS)	(3)
12		12					
13		11					
14		11					
15							
16	S-4	5	24"/18"	S-4: Similar to S-3,2 (2) 2-inch bands of Fine to Medium Sand, Wet, Medium Stiff			
17		6					
18		5					
19		6					
20					20'		

NOTES:

(1) Difficult Drilling 2'-5'

(2) Possible Voids 7' to 10'

(3) Tip is Wet

LEGEND

S - Split Spoon Sample	O/A - Sample Collected Off the Augers
UT - Undisturbed Tube Sample	
Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%
Little - Approximately 10 to 20%	And - Approximately 35 to 50%
0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense
10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense
0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff >30 Fine Soil N Value - Hard
4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff

BORING LOG

Project: 283 & 289 WALK HILL STREET
 Location: ROSLINDALE, MA
 Client: NABIL BOGHOS
 Driller: SOIL EXPLORATIONS CORP.
 Drilling Methods: HOLLOW STEM AUGER
 Weather: OVERCAST, 70's
 Performed By: AFS Date: 8/18/16
 Checked By: PJS Date: 1/30/17



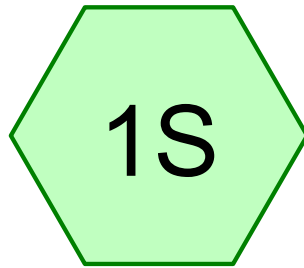
Boring No: B-5
 Location: SEE PLAN
 Approx. Ground Elevation: 47.5±
 Approx. Groundwater Elevation: 32±
 Date/Time of Groundwater Elevation: COMPLETION
 Datum: BOSTON CITY BASE
 Project No. 2015-131

Depth (feet)	Sample No.	Blows per 6-inch	Pen./ Rec.	Soil Description	Stratum Change Depth (feet)	Soil Stratum	Note No.
21	S-5	1 3 6 7	24"/18"	S-5: Top 16" Fine to Coarse SAND, Trace Silt, Brown, Wet, Loose Bottom 2" Fine SAND, Brown, Wet	26.5'	SAND	(4)
22							
23					32'	SILTY GLACIAL TILL	
24							
25							
26	S-6	7 12 22 31	24"/24"	S-6: Top 18" Fine to Coarse SAND, Little Silt, Trace Gravel, Brown, Wet, Dense Bottom 6"- SILT, Some Fine to Coarse Sand with Gravel, Grey, Wet, Very Stiff			
27					32'	SILTY GLACIAL TILL	
28							
29					32'	SILTY GLACIAL TILL	
30							
31	S-7	10 16 16 14	24"/18"	S-7: Similar to Bottom of S-6, Very Stiff			
32				BOTTOM OF BORING @ 32' BELOW GRADE			
33							
34							
35							
36							
37							
38							
39							

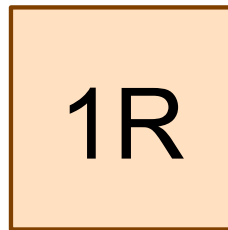
<p><u>NOTES:</u></p> <p>(4) Gravel at 24'</p>	<p><u>LEGEND</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">S - Split Spoon Sample</td> <td style="width: 50%;">O/A - Sample Collected Off the Augers</td> </tr> <tr> <td>UT - Undisturbed Tube Sample</td> <td></td> </tr> <tr> <td>Trace - Approximately 0 to 10%</td> <td>Some - Approximately 20 to 35%</td> </tr> <tr> <td>Little - Approximately 10 to 20%</td> <td>And - Approximately 35 to 50%</td> </tr> <tr> <td>0-10 Coarse Soil N Value - Loose</td> <td>30-50 Coarse Soil N Value - Dense</td> </tr> <tr> <td>10-30 Coarse Soil N Value - Medium Dense</td> <td>>50 Coarse Soil N Value - Very Dense</td> </tr> <tr> <td>0-4 Fine Soil N Value - Soft</td> <td>8-15 Fine Soil N Value - Stiff</td> <td style="text-align: right;">>30 Fine Soil N Value - Hard</td> </tr> <tr> <td>4-8 Fine Soil N Value - Medium Stiff</td> <td>15-30 Fine Soil N Value - Very Stiff</td> <td></td> </tr> </table>	S - Split Spoon Sample	O/A - Sample Collected Off the Augers	UT - Undisturbed Tube Sample		Trace - Approximately 0 to 10%	Some - Approximately 20 to 35%	Little - Approximately 10 to 20%	And - Approximately 35 to 50%	0-10 Coarse Soil N Value - Loose	30-50 Coarse Soil N Value - Dense	10-30 Coarse Soil N Value - Medium Dense	>50 Coarse Soil N Value - Very Dense	0-4 Fine Soil N Value - Soft	8-15 Fine Soil N Value - Stiff	>30 Fine Soil N Value - Hard	4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff	
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4-8 Fine Soil N Value - Medium Stiff	15-30 Fine Soil N Value - Very Stiff																		

Appendix C

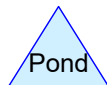
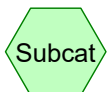
EXISTING AND PROPOSED HYDROLOGY



EXISTING SITE



CANTERBURY BROOK



Routing Diagram for 2019-118 DR

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2019-118 DR

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Page 2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
87,631	68	<50% Grass cover, Poor, HSG A (1S)
87,631	68	TOTAL AREA

2019-118 DR

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Page 3

Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
87,631	HSG A	1S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
87,631		TOTAL AREA

2019-118 DR

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Page 4

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subc Num
87,631	0	0	0	0	87,631	<50% Grass cover, Poor	
87,631	0	0	0	0	87,631	TOTAL AREA	

2019-118 DR

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Existing
Type III 24-hr 100-Year Rainfall=8.83"

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Page 5

Time span=0.00-72.00 hrs, dt=0.05 hrs, 1441 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: EXISTING SITE

Runoff Area=87,631 sf 0.00% Impervious Runoff Depth=4.94"
Tc=6.0 min CN=68 Runoff=11.43 cfs 36,084 cf

Reach 1R: CANTERBURYBROOK

Inflow=11.43 cfs 36,084 cf
Outflow=11.43 cfs 36,084 cf

Total Runoff Area = 87,631 sf Runoff Volume = 36,084 cf Average Runoff Depth = 4.94"
100.00% Pervious = 87,631 sf 0.00% Impervious = 0 sf

Summary for Subcatchment 1S: EXISTING SITE

Runoff = 11.43 cfs @ 12.09 hrs, Volume= 36,084 cf, Depth= 4.94"

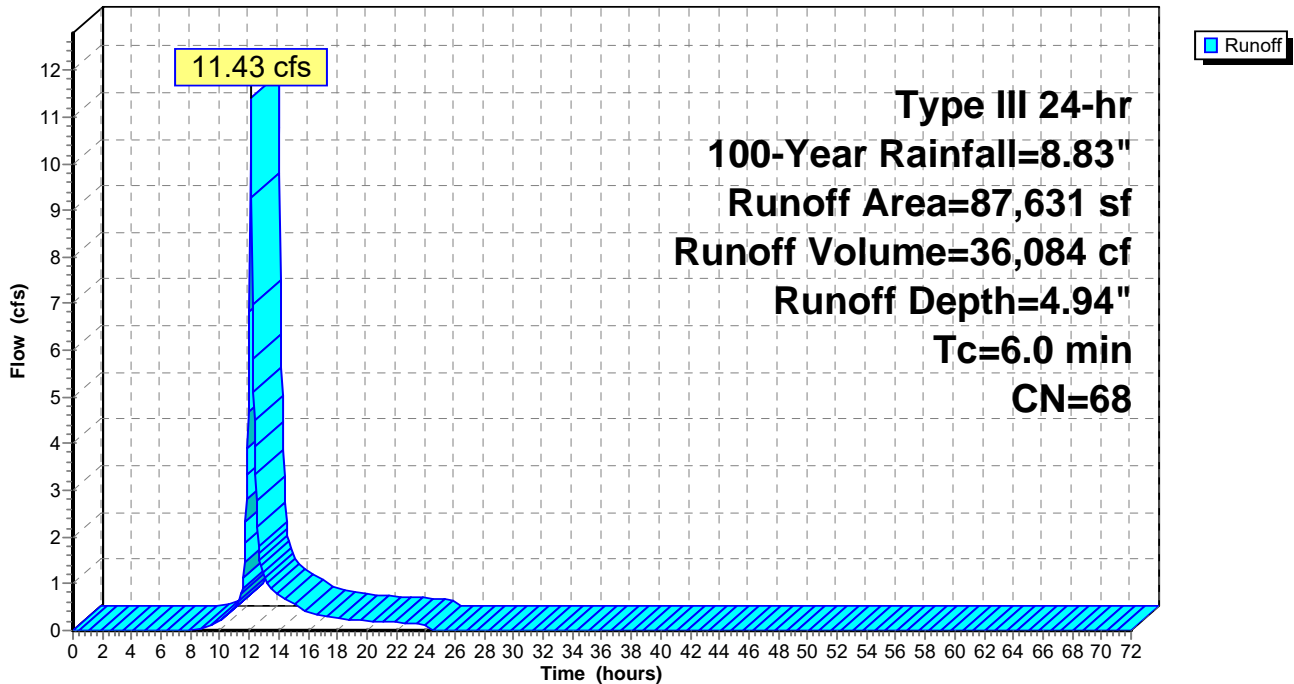
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.83"

Area (sf)	CN	Description
87,631	68	<50% Grass cover, Poor, HSG A
87,631		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: EXISTING SITE

Hydrograph



Summary for Reach 1R: CANTERBURY BROOK

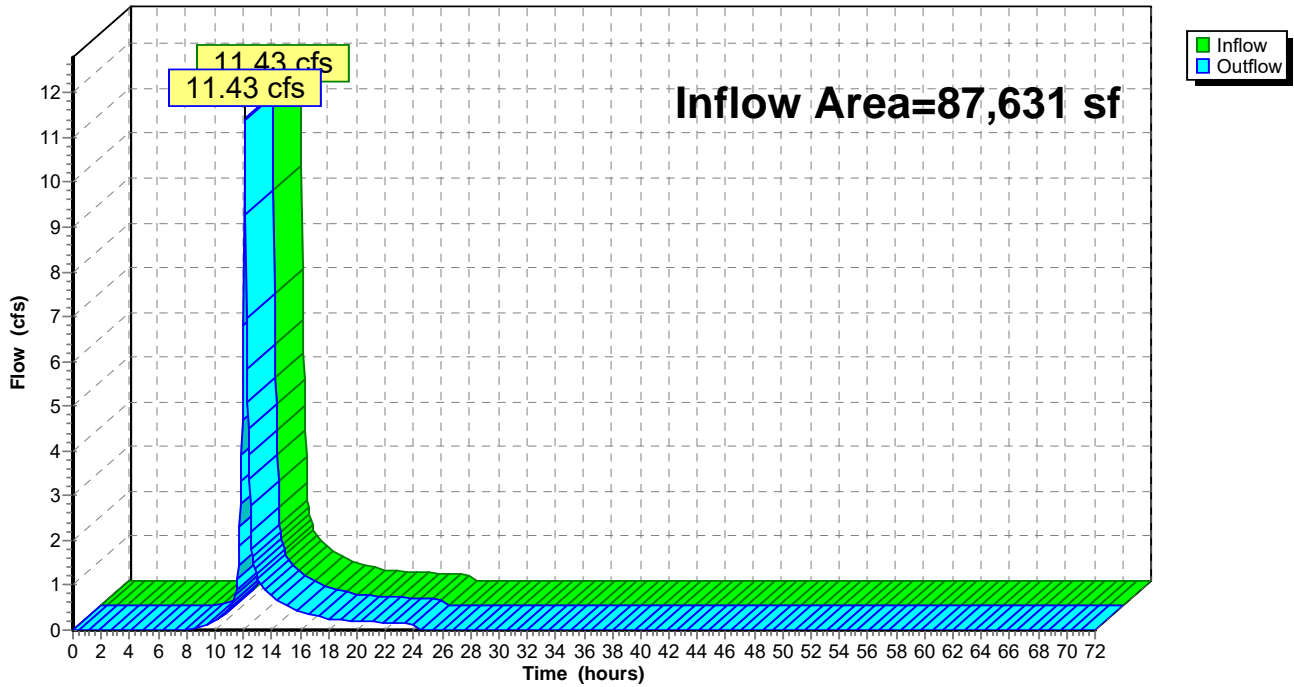
[40] Hint: Not Described (Outflow=Inflow)

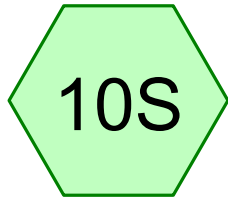
Inflow Area =	87,631 sf,	0.00% Impervious,	Inflow Depth = 4.94"	for 100-Year event
Inflow =	11.43 cfs @	12.09 hrs,	Volume=	36,084 cf
Outflow =	11.43 cfs @	12.09 hrs,	Volume=	36,084 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

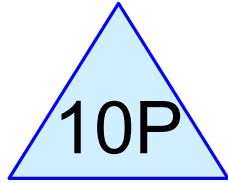
Reach 1R: CANTERBURY BROOK

Hydrograph

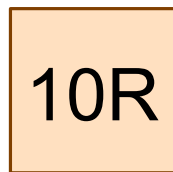




ROOF & SURFACE
PARKING

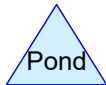
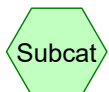


INFIL. GALLEY



CANTERBURY BROOK

LANDSCAPE



Routing Diagram for 2019-118 DR

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Page 2

Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
33,792	39	>75% Grass cover, Good, HSG A (10S, 20S)
19,364	98	Paved parking, HSG A (10S, 20S)
34,475	98	Roofs, HSG A (10S)
87,631	75	TOTAL AREA

2019-118 DR

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Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
87,631	HSG A	10S, 20S
0	HSG B	
0	HSG C	
0	HSG D	
0	Other	
87,631		TOTAL AREA

2019-118 DR

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Page 4

Ground Covers (selected nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
33,792	0	0	0	0	33,792	>75% Grass cover, Good	
19,364	0	0	0	0	19,364	Paved parking	
34,475	0	0	0	0	34,475	Roofs	
87,631	0	0	0	0	87,631	TOTAL AREA	

2019-118 DR

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Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	10P	46.40	46.00	40.0	0.0100	0.012	15.0	0.0	0.0

Summary for Subcatchment 10S: ROOF & SURFACE PARKING

Runoff = 10.19 cfs @ 12.09 hrs, Volume= 36,666 cf, Depth= 8.35"

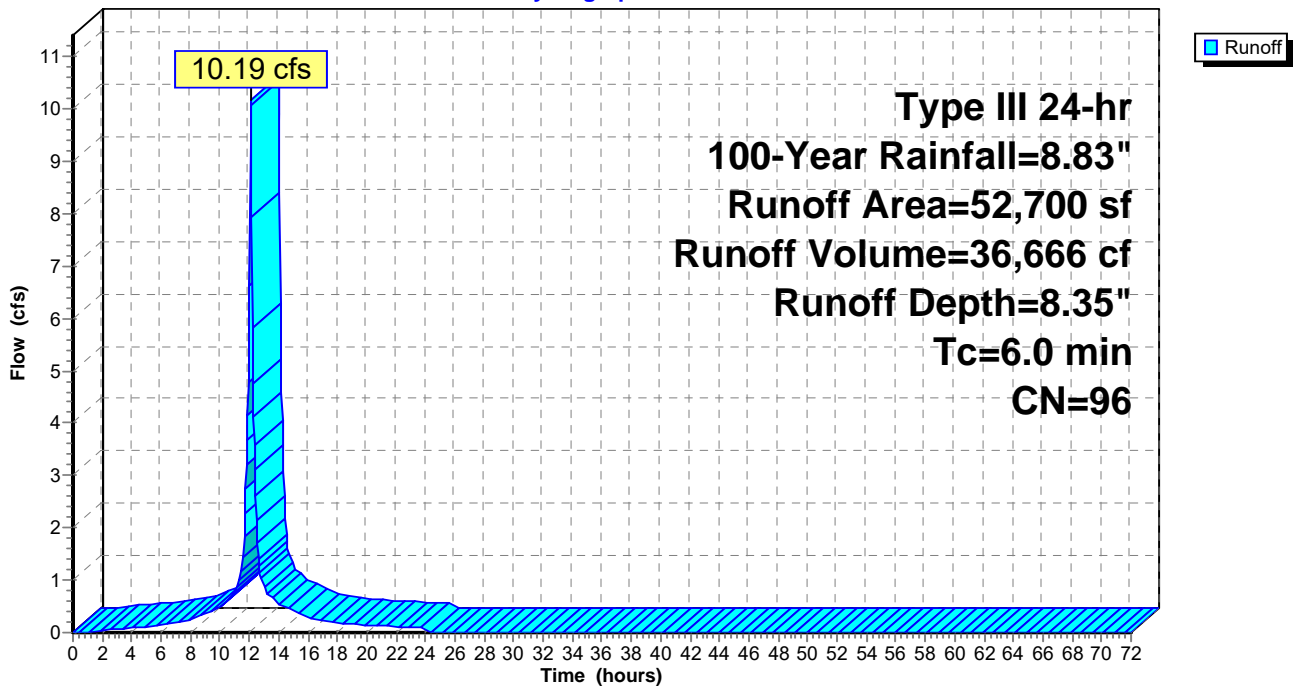
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.83"

Area (sf)	CN	Description
34,475	98	Roofs, HSG A
16,057	98	Paved parking, HSG A
2,168	39	>75% Grass cover, Good, HSG A
52,700	96	Weighted Average
2,168		4.11% Pervious Area
50,532		95.89% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 10S: ROOF & SURFACE PARKING

Hydrograph



Summary for Subcatchment 20S: LANDSCAPE

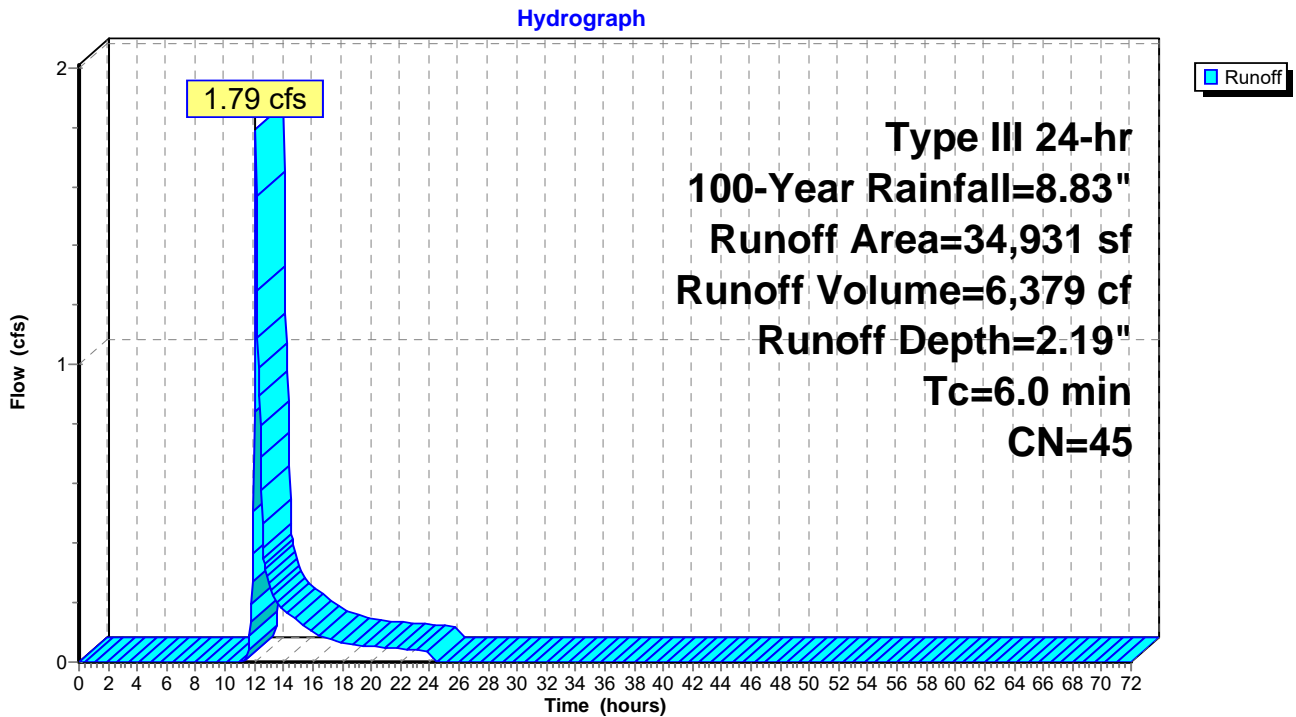
Runoff = 1.79 cfs @ 12.11 hrs, Volume= 6,379 cf, Depth= 2.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.83"

Area (sf)	CN	Description
31,624	39	>75% Grass cover, Good, HSG A
3,307	98	Paved parking, HSG A
34,931	45	Weighted Average
31,624		90.53% Pervious Area
3,307		9.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 20S: LANDSCAPE



Summary for Reach 10R: CANTERBURY BROOK

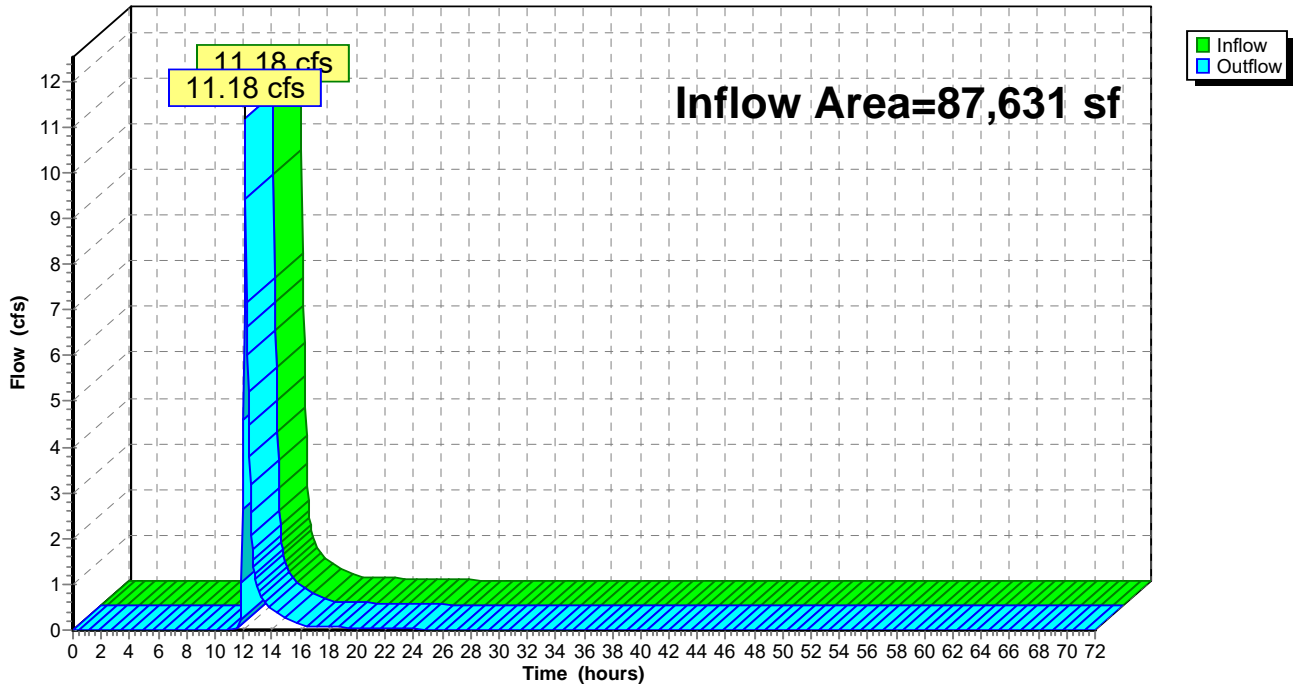
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	87,631 sf, 61.44% Impervious,	Inflow Depth = 2.94"	for 100-Year event
Inflow =	11.18 cfs @ 12.11 hrs,	Volume=	21,453 cf
Outflow =	11.18 cfs @ 12.11 hrs,	Volume=	21,453 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Reach 10R: CANTERBURY BROOK

Hydrograph



2019-118 DR

Prepared by {enter your company name here}

HydroCAD® 10.00-25 s/n 08381 © 2019 HydroCAD Software Solutions LLC

Proposed
Type III 24-hr 100-Year Rainfall=8.83"

Printed 12/14/2021

Page 10

Summary for Pond 10P: INFIL. GALLEY

Inflow Area = 52,700 sf, 95.89% Impervious, Inflow Depth = 8.35" for 100-Year event
 Inflow = 10.19 cfs @ 12.09 hrs, Volume= 36,666 cf
 Outflow = 9.71 cfs @ 12.11 hrs, Volume= 36,513 cf, Atten= 5%, Lag= 1.5 min
 Discarded = 0.32 cfs @ 11.80 hrs, Volume= 21,438 cf
 Primary = 9.39 cfs @ 12.11 hrs, Volume= 15,075 cf

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs / 3
 Peak Elev= 49.52' @ 12.11 hrs Surf.Area= 1,693 sf Storage= 7,238 cf

Plug-Flow detention time= 86.8 min calculated for 36,513 cf (100% of inflow)
 Center-of-Mass det. time= 83.9 min (834.4 - 750.5)

Volume	Invert	Avail.Storage	Storage Description
#1	45.75'	94 cf	4.00'D x 7.50'H CB#2
#2A	42.00'	1,076 cf	28.00'W x 60.00'L x 6.67'H Field A 11,206 cf Overall - 7,620 cf Embedded = 3,585 cf x 30.0% Voids
#3A	43.00'	6,115 cf	Concrete Galley 8x14x5.7 x 12 Inside #2 Inside= 84.0"W x 60.0"H => 39.20 sf x 13.00'L = 509.6 cf Outside= 96.0"W x 68.0"H => 45.36 sf x 14.00'L = 635.0 cf 12 Chambers in 3 Rows
		7,285 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	51.70'	1.5" x 1.5" Horiz. CB#2 Grate X 7.00 columns X 7 rows C= 0.600 in 24.0" x 24.0" Grate (19% open area) Limited to weir flow at low heads
#2	Primary	46.40'	15.0" Round 12" Overflow L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.40' / 46.00' S= 0.0100 ' /' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.23 sf
#3	Discarded	42.00'	8.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.32 cfs @ 11.80 hrs HW=45.91' (Free Discharge)

↳ **3=Exfiltration** (Exfiltration Controls 0.32 cfs)

Primary OutFlow Max=8.96 cfs @ 12.11 hrs HW=49.32' (Free Discharge)

↳ **1=CB#2 Grate** (Controls 0.00 cfs)

↳ **2=12" Overflow** (Inlet Controls 8.96 cfs @ 7.30 fps)

Pond 10P: INFIL. GALLEY - Chamber Wizard Field A

Chamber Model = Concrete Galley 8x14x5.7 (Concrete Galley, NEPCA 8x14 or equivalent)

Inside= 84.0"W x 60.0"H => 39.20 sf x 13.00'L = 509.6 cf

Outside= 96.0"W x 68.0"H => 45.36 sf x 14.00'L = 635.0 cf

4 Chambers/Row x 14.00' Long = 56.00' Row Length +24.0" End Stone x 2 = 60.00' Base Length

3 Rows x 96.0" Wide + 24.0" Side Stone x 2 = 28.00' Base Width

12.0" Base + 68.0" Chamber Height = 6.67' Field Height

12 Chambers x 509.6 cf = 6,115.2 cf Chamber Storage

12 Chambers x 635.0 cf = 7,620.5 cf Displacement

11,205.6 cf Field - 7,620.5 cf Chambers = 3,585.1 cf Stone x 30.0% Voids = 1,075.5 cf Stone Storage

Chamber Storage + Stone Storage = 7,190.7 cf = 0.165 af

Overall Storage Efficiency = 64.2%

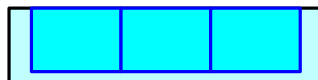
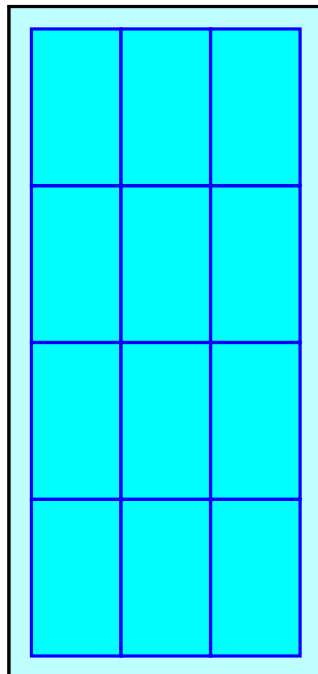
Overall System Size = 60.00' x 28.00' x 6.67'

12 Chambers @ \$ 4,000.00 /ea = \$ 48,000.00

415.0 cy Field Excavation @ \$ 30.00 /cy = \$ 12,450.67

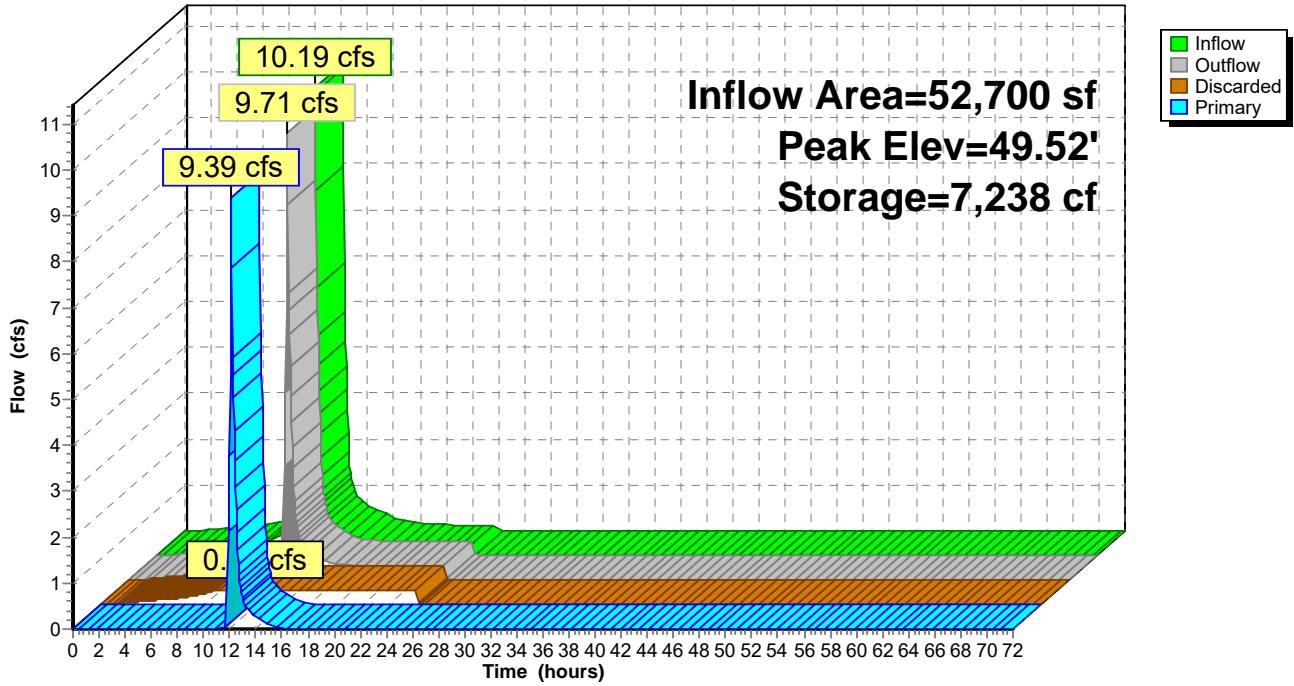
132.8 cy Stone @ \$ 30.00 /cy = \$ 3,983.47

Total Cost = \$ 64,434.13



Pond 10P: INFIL. GALLEY

Hydrograph



Appendix D

TSS CALCULATIONS

INSTRUCTIONS:

1. In BMP Column, click on Blue Cell to Activate Drop Down Menu
2. Select BMP from Drop Down Menu
3. After BMP is selected, TSS Removal and other Columns are automatically completed.

Version 1, Automated: Mar. 4, 2008

Location:

TSS Removal Calculation Worksheet

	B BMP ¹	C TSS Removal Rate ¹	D Starting TSS Load*	E Amount Removed (C*D)	F Remaining Load (D-E)
	Deep Sump and Hooded Catch Basin	0.25	1.00	0.25	0.75
	Oil Grit Separator	0.25	0.75	0.19	0.56
	Infiltration Trench	0.80	0.56	0.45	0.11
		0.00	0.11	0.00	0.11
		0.00	0.11	0.00	0.11

Total TSS Removal =

Separate Form Needs to be Completed for Each Outlet or BMP Train

Project:

Prepared By:

Date:

*Equals remaining load from previous BMP (E) which enters the BMP

Non-automated TSS Calculation Sheet must be used if Proprietary BMP Proposed
 1. From MassDEP Stormwater Handbook Vol. 1

Appendix E

OPERATION & MAINTENANCE PLAN

Operation & Maintenance Plan (Permanent BMPs)

FOR

**Walk Hill Residences,
Boston (Roslindale), MA**

Date: September 2021

Owner/Operator: Jay Bisognano
Torrington Properties, Inc.
11 Elkins Street, Suite 420
Boston, MA 02127

Inspection and Maintenance Schedule

Facility personnel will inspect the stormwater management system on a routine basis not less than once per month for the first six (6) months of operation and annually thereafter. The estimated cost for this inspection and maintenance schedule is \$1,200/yr. Refer to project design and as-built plans for stormwater systems and landscaped area locations. Inspection and maintenance shall be performed as follows:

1. Landscaped Areas:

Landscaped areas shall be inspected and maintained on a regular basis. Areas that may be subject to erosion will be stabilized and reseeded immediately. Inspect soil and repair eroded areas monthly. Re-plant void areas as needed. Remove litter and debris monthly. Remove and replace dead vegetation twice per year in spring and fall. Replace soil media if ponding is witnessed more than 48 hours after rainfall event.

2. Infiltration Chambers:

Inspections: During first year visually inspect after each major storm (>1.5") and again 72 hours later to verify exfiltration is occurring as designed. Note if water remains in basin after 72 hours. After first year visually inspect twice per year. Infiltration Systems shall be inspected for accumulation of silt, sediment, standing water, or debris on an annual basis. Debris and sediment shall be removed.

Inspection & Maintenance procedure is as follows:

The inspection port is a circular cast box placed in a rectangular concrete collar. When the lid is removed, a 6-inch (150 mm) pipe with a screw-in plug will be exposed. Remove the plug. This will provide access to the Chamber row below. From the surface, through this access, the sediment may be measured at this location. A stadia rod may be used to measure the depth of sediment, if any, in this row. If the depth of sediment is in excess of 3 inches (76 mm), then this row should be cleaned with high pressure water through a culvert cleaning nozzle. This would be carried out through an upstream structure. CCTV inspection of this row can be deployed through this access port to determine if any sediment has accumulated in the inlet row.

3. Roof Drain:

Inspections: Inspections of roof drains shall occur quarterly for debris including leaves, trash, etc. and sediments. During the first year following project completion, roof drains shall be inspected after each major storm event (greater than 1.5"), and again 72 hours after storm to verify that they function as designed. After the first year of operation roof drain shall be inspected quarterly for debris including sediments, leaves, trash, etc. The inspector shall note the date of the inspection along with the condition of the structure and amount of trash, debris and/or sediment.

Maintenance: Debris, such as leaves and trash, shall be removed by hand. Sediments shall be swept and collected or vacuumed.

Stormwater System Inspection Report

General Information			
Location: Walk Hill Residences			
Date of Inspection		Start/End Time	
Inspector's Name(s)			
Inspector's Title(s)			
Inspector's Contact Information			
Purpose of Inspection			
Weather Information			
Has it rained since the last inspection? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Weather at time of this inspection?			

Site-Specific Stormwater Devices: (See above for inspection frequency)

	Description	Installed and Operating Properly?	Corrective Action Needed	Date for Corrective Action/Responsible Person
1	Landscaped areas. Monthly from May thru October	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2	Roof drains 2 insp/yr, spring & fall	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3	Permeable Pavers 1 insp/yr, spring.	<input type="checkbox"/> Yes <input type="checkbox"/> No		
5	Infiltration Chambers 2 insp/yr, spring & fall	<input type="checkbox"/> Yes <input type="checkbox"/> No		
6	Outlet Control Struc. 2 insp/yr, spring & fall	<input type="checkbox"/> Yes <input type="checkbox"/> No		
7	Overflow Outfall 2 insp/yr, spring & fall	<input type="checkbox"/> Yes <input type="checkbox"/> No		
8	Level Spreader 2 insp/yr, spring & fall	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Overall Site Issues

	Description		Corrective Action	Date for Corrective Action/Responsible Person
1	Are all slopes properly stabilized?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2	Are natural resource areas (e.g., streams, wetlands, etc.) being subjected to erosion?	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3	Are discharge points free of sediment deposits?	<input type="checkbox"/> Yes <input type="checkbox"/> No		

Certification Statement:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name:

Signature:

Date:

Appendix F

DRAIN PIPE CAPACITY ANALYSIS

WALK HILL, BOSTON (ROSLINDALE), MA RE 25-YEAR FREQUENCY

Project: Walk Hill
 Proj. #: 2019-118
 Date: 9/24/2021
 By: RLB

Notes: n= 0.013
 n= 0.010
 c=0.95 (impervious areas)
 c=0.20 (for lawn/planting areas)

Line		Length (ft)	Area Imp. (acres)	Area Perv. (acres)	CA	SUM CA	Time of Concen.	Rainfall I (in./hr.)	Req. Cap. Qd (cfs)	Pipe (in)	Slope (ft/ft)	Flow Full		Design Vel. Vd (fps)	Comments	Q/Qf	Time in Pipe
From	To											Qf (cfs)	Vf (fps)				
CB1	DMH1	12	0.15	0.00	0.14	0.14	6.00	5.40	0.74	10	0.010	2.19	4.01	3.1	HDPE	0.34	0.07
CB2	DMH1	66	0.26	0.00	0.25	0.25	6.00	5.40	1.33	12	0.009	3.34	4.25	3.4	HDPE	0.40	0.32
WQU	SED BASIN	11				0.38	6.00	5.40	2.08	12	0.007	2.98	3.79	3.6	HDPE	0.70	0.05
SED BASIN	INFIL	8				0.77	6.00	5.40	4.16	15	0.005	4.57	3.72	3.8	HDPE	0.91	0.04
ROOF	INFIL	50	0.70		0.67	0.67	6.00	5.40	3.59	15	0.005	4.57	3.72	3.6	HDPE	0.79	0.23
INFIL	DMH2	41				1.43	6.00	5.40	7.75	15	0.050	14.45	11.78	10.3	HDPE	0.54	0.07
DMH2	FES	133				1.43	6.00	5.40	7.75	15	0.022	9.59	7.81	7.7	HDPE	0.81	0.29

Notes:



Appendix G

EXISTING AND PROPOSED CATCHMENT AREAS

