Memorandum

To: John Daghlian
Associate City Engineer
City of Newton

Date: July 30, 2021

Project #: 73153.00

From: VHB

Re: Sunrise of Chestnut Hill
Water/Sewer/Stormwater Summary

The following memorandum has been prepared to summarize the Project's water/wastewater impacts and stormwater design approach and the Proponent's commitment to best practices.

1.1 Water and Wastewater

The City's sewer system is divided into three primary sewershed areas. Each of those primary sewershed areas are further subdivided into smaller subsets defined by logical flow boundaries for system analysis and location reference. The Project Site resides within the City's Sewer Area B077. The existing florist is presently serviced by gravity sewer in Florence Street.

The existing average daily domestic water use was calculated based on 3-years of water bill records and is on the order of 1,700 -1,800 gallons per day (GPD). Average daily wastewater generated is closely correlated to water usage therefore, wastewater generation for the current business use is also on the order of 1,700 GPD.

The proposed building program includes a single building of 93 senior residential units and will generate new wastewater flows on the order of 5,515 gal/day. Refer to Table 1.

Table 1 Estimated Net New Wastewater Generation

Proposed Use	Size	Title V Design Flow Basis	GPD
Housing for Elderly	23 units	150 GPD per two-bedroom units	3,450
Housing for Elderly	72 units	110 GPD per one-bedroom and greater than two-bedroom units	7,920
		∑ Design Flow	11,370
		Conversion factor design flow to average daily flow[1]	x 0.5
		AVERAGE DAILY FLOW	*5,685*
		Less existing average daily flow[2]	-1,700
		Net New Wastewater Average Daily Flow	**3,985**

1. Flow generation rates prescribed by Title V (310 CMR 15.416) are "design flows" to be used for the design of ground disposal systems and are defined as "…. [daily] estimated generated flow for the proposed use plus a factor representing flow variations". Title V utilizes a factor of 2.0 to convert average daily flow to design flow (refer to 310 CMR 15.203(6)). Therefore, calculating average daily flow based on Title V is determined by estimating design flow and multiplying by 0.5.
2. The existing avg daily domestic water use is based on 3-years of water bill records

1.2 Stormwater

Due to soil testing limitations, quantitative analyses and calculations demonstrating compliance with state and local stormwater regulations will be prepared during later design stages and provided to City of Newton Engineering Department for design review prior to any applications for building permits.

The proposed stormwater management systems will be designed to meet the required 65 percent reduction in annual phosphorus loading for the Upper/Middle Charles River and to comply with the Massachusetts Stormwater Management Standards.

The Charles River Watershed is impaired in part due to phosphorus carried by urban stormwater runoff to the river. The Final TMDL for Nutrients in the Upper/Middle Charles River establishes a pollution diet and stormwater management strategies to reduce phosphorus loading to the Charles River. Per Table ES-3 of the TMDL Technical Report (CN 272.0), Commercial/Industrial and High Density/Multi-Family Residential uses require a 65% reduction in annual average phosphorus loading.

Situated within the Charles River Watershed and South Meadow Brook subwatershed, the Project has an opportunity to mitigate the impacts that past development and urban stormwater runoff have had on these waterbodies.

1.2.1 Existing Conditions

According to the National Resources Conservation Service (NRCS), surface soils on the Project site are identified as Canton fine sandy loam and urban land. Canton soils have a Hydrologic Soil Group (HSG) rating of B, Urban soils do not have a rating. A copy of the NRCS map is included in the Attachments.

The Project is located in FEMA Zone X which is defined as Area of Minimal Flood Hazard on Community Panel 2501700558E, effective date 6/4/2010. A copy of the Firmette map is included in the Attachments.

Under existing conditions, illustrated in Figure 1, the Site is developed and is predominately impervious except for wooded areas along the eastern and southern property lines. Currently the Site operates as a florist shop with several detached green houses, a kiosk, hardscaped outdoor display areas, and gravel and paved parking areas. Generally, stormwater runoff from the developed portion of the site flows northwest to southeast. Slopes are between 2-5%.

Most of the runoff from the developed portion of the site is collected in two catch basins that discharge to an on-Site swale. The swale conveys the runoff to a set of twin culverts within a drain easement near the southeast corner of the Site. A small portion of parking and driveway areas along the northern property line discharges to the closed drainage system in Florence Street. Existing stormwater runoff is not treated before it discharges off site. Stormwater run-on from the property along the western property flows overland onto the site. Additionally, there is an existing drainpipe that traverses across the western portion of the site. The upstream invert is located offsite to the west and the downstream invert discharges to the twin culverts. Flow out of this pipe was observed in the field.

1.2.2 Proposed Conditions

The Project proposes to construct an assisted living facility with site amenities as generally illustrated in Figure 2. The site has been designed to minimize disturbance beyond existing disturbed areas to preserve existing mature trees around the perimeter so they can continue to provide shade and visual buffers to neighbors. Additionally, most of the provided parking will be structured below the building to minimize disturbance.

Generally, stormwater runoff from the developed portion of the site will be collected in a closed drainage system and conveyed to either a biofiltration basin or subsurface infiltration system for treatment and attenuation. An overflow from the subsurface infiltration system may be required and will discharge to the twin culverts. A small portion of runoff will continue to flow offsite to the closed drainage system in Florence Street. Exiting peak runoff rates to the municipal drainage system and the drainage easements will be maintained in proposed conditions.

1.2.3 Regulatory Compliance

Through the proposed stormwater management systems approach described above, the Project will meet stormwater management regulatory requirements while providing broad environmental and community benefits. Regulatory requirements applicable to the Project stormwater management plan include:

- Final TMDL for Nutrients in the Upper/Middle Charles River, CN 272.0 (May 2011);
- Massachusetts Stormwater Management Standards; and
- City of Newton Requirements for On-Site Drainage.

In addition, runoff from the site will be collected in or passed through one or more BMPs, as described above, designed specifically to recharge groundwater and/or remove TSS and phosphorus to levels prescribed by DEP, prior to discharge to the twin culverts or connecting into the municipal drainage system in Florence Street.

1.2.4 Annual Phosphorus Loading Reduction

The Project will comply with the nutrient TMDL for phosphorus. Per Table ES-3 of the Total Maximum Daily Load for Nutrients in the Upper/Middle Charles Technical Report (CN 272.0), Commercial and High Density/Multi-Family residential uses require a 65 percent reduction in annual phosphorus loading.

Stormwater Best Management Practices (BMP) Performance Analysis prepared for the U.S. Environmental Protection Agency (EPA) by Tetra Tech dated March 2010 contains BMP performance curves of how well different types of BMPS reduce certain pollutants for BMPs that are sized to treat 1-inch depth of runoff.

The curves indicate that

- infiltration systems are up to 97 percent effective for reducing total phosphorus for high-density residential land use (Assuming the HSG B soils on site have an infiltration rate of 1.02 inches/hour).
- bioretention basins are 76 percent effective for reducing total phosphorus for high-density residential land use.

Therefore, the Project's proposed stormwater management systems will meet the required 65 percent reduction in annual phosphorus loading.

1.2.5 Compliance with MassDEP Stormwater Management Policies and Standards

The Project's stormwater management system will be designed to comply with the MassDEP Stormwater Management Policies and Standards.

Standard #1: No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

- Compliance: Untreated stormwater will not be directly discharged to, nor will erosion be caused to, wetlands or waters of the Commonwealth as a result of the Project.

Standard #2: Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

- Compliance: The post-development peak discharge rates will decrease as a result of the stormwater BMPs associated with the Project. The Project is directing run-off to infiltration systems which will reduce the pre-development peak discharge rates.

Standard #3: Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to the maximum extent practicable. The annual recharge from the post development Project Site should approximate the annual recharge from the pre-development or existing Site conditions, based on soil types.

- Compliance: The Project will minimize the loss of annual recharge to groundwater by directing run-off to infiltration systems.

Standard #4: For new development, stormwater management systems must be designed to remove 80 percent of the average annual load (post-development conditions) of TSS. It is presumed that this standard is met when: Suitable nonstructural practices for source control and pollution prevention are implemented; stormwater BMPs are sized to capture the prescribed runoff volume; and stormwater management BMPs are maintained as designed.

- Compliance: The stormwater BMPs will be sized to treat the required water quality volume using a treatment train of BMPs that will be designed to provide 80 percent TSS removal.

Standard #5: 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 BMPs determined by the Department to be suitable for such uses as provided in the Massachusetts Stormwater Handbook. Stormwater discharges from land uses with higher potential pollutant loads shall also comply with the requirements of the Massachusetts Clean Waters Act, M.G.L. c. 21, §§ 26-53 and the regulations promulgated there under at 314 CMR 3.00, 314 CMR 4.00 and 314 CMR 5.00.

- Compliance: The Project is not considered a LUHPPL.

Standard #6: Stormwater discharge to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters ("ORWs"), shellfish beds, swimming beaches, cold-water fisheries and recharge areas for public water supplies.

- Compliance: The Project does not discharge to or near a critical area.

Standard #7: 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 stormwater 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.

- Compliance: This project is not a redevelopment.

Standard #8: Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.

- Compliance: The Project will disturb more than one acre of land and is therefore required to obtain coverage under the EPA National Pollutant Discharge Elimination System (NPDES) Construction General Permit (GCP). As required under this permit, a Stormwater Pollution Prevention Plan (SWPPP) will be developed and submitted before land disturbance begins.

Standard #9: A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

- Compliance: The Proponent is committed to providing a Post Construction Stormwater Operation and Maintenance (O&M) developed for the Project which will be included in the Long-Term Pollution Prevention Plan .

Standard #10: All illicit discharges to the stormwater management system are prohibited.

- The design plans submitted with this report have been designed so that the components included therein are in compliance with current standards. The Long-Term Pollution Prevention Plan will include measures to prevent illicit discharges.

1.2.6 Stormwater Management for Parking Garages

Stormwater management for the parking garage will be designed, approved, and maintained in accordance with 360 CMR: Massachusetts Water Resources Authority, Section 10.000: Sewer Use and 248 CMR: Board of State Examiners of Plumbers and Gas Fitter Section10.00: Uniform State Plumbing Code.

As required, gas/oil separators will be installed in the parking garages and connect to a separate building system before discharging to sanitary sewer. The separators will be included in the Project's Long-Term Pollution Prevention Plan. This Plan will indicate the required frequency of inspection, maintenance procedures and documentation.

1.2.7 Proposed Long-Term Operations Pollution Prevention Plan

A Long-Term Pollution Prevention Plan (LTPPP) will be prepared to address:

- Required maintenance of pavement systems, vegetated areas, and snow and ice during the winter.
- Spill Prevention and Response, including the names and numbers of entities to contact during an emergency spill
- A description and required maintenance of the stormwater management systems, including a schedule and checklist to regularly inspect and clean the proposed drainage infrastructure.

Overall, the Project will comply with the MassDEP Stormwater Management Regulations, the TMDL for Nutrients (phosphorus), and the City of Newton stormwater Standards through the design and implementation of a newly constructed stormwater management network.

Memorandum

Attachments

FEMA Firmette

USDA Soils Map

Existing Drainage Conditions Figure

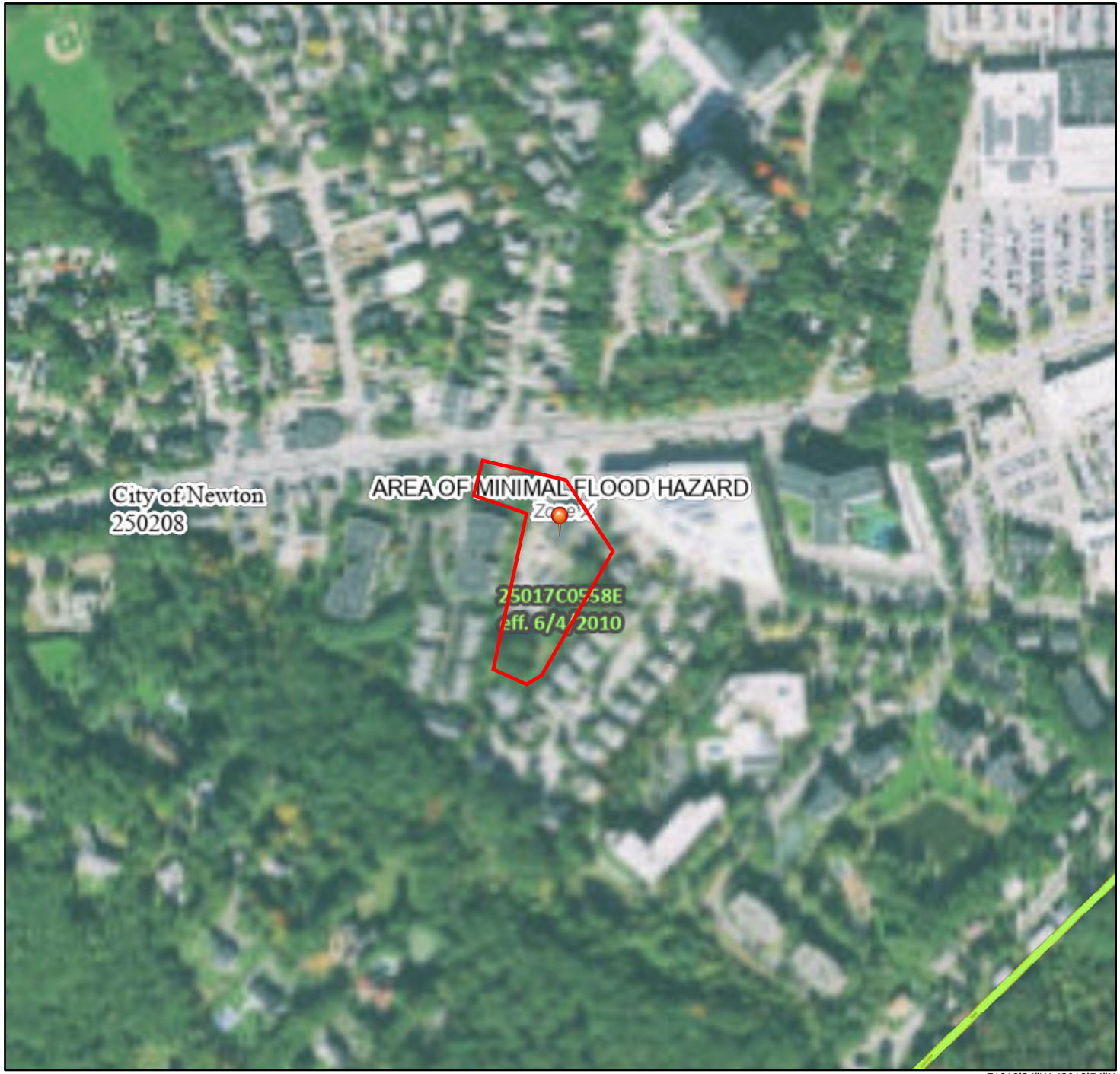
Proposed Drainage Conditions Figure

Hydraulic Pipe Calculations

National Flood Hazard Layer FIRMette

FEMA

71°11'12"W 42°19'20"N



71°10'34"W 42°18'54"N

Feet 1:6,000

0 250 500 1,000 1,500 2,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 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*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

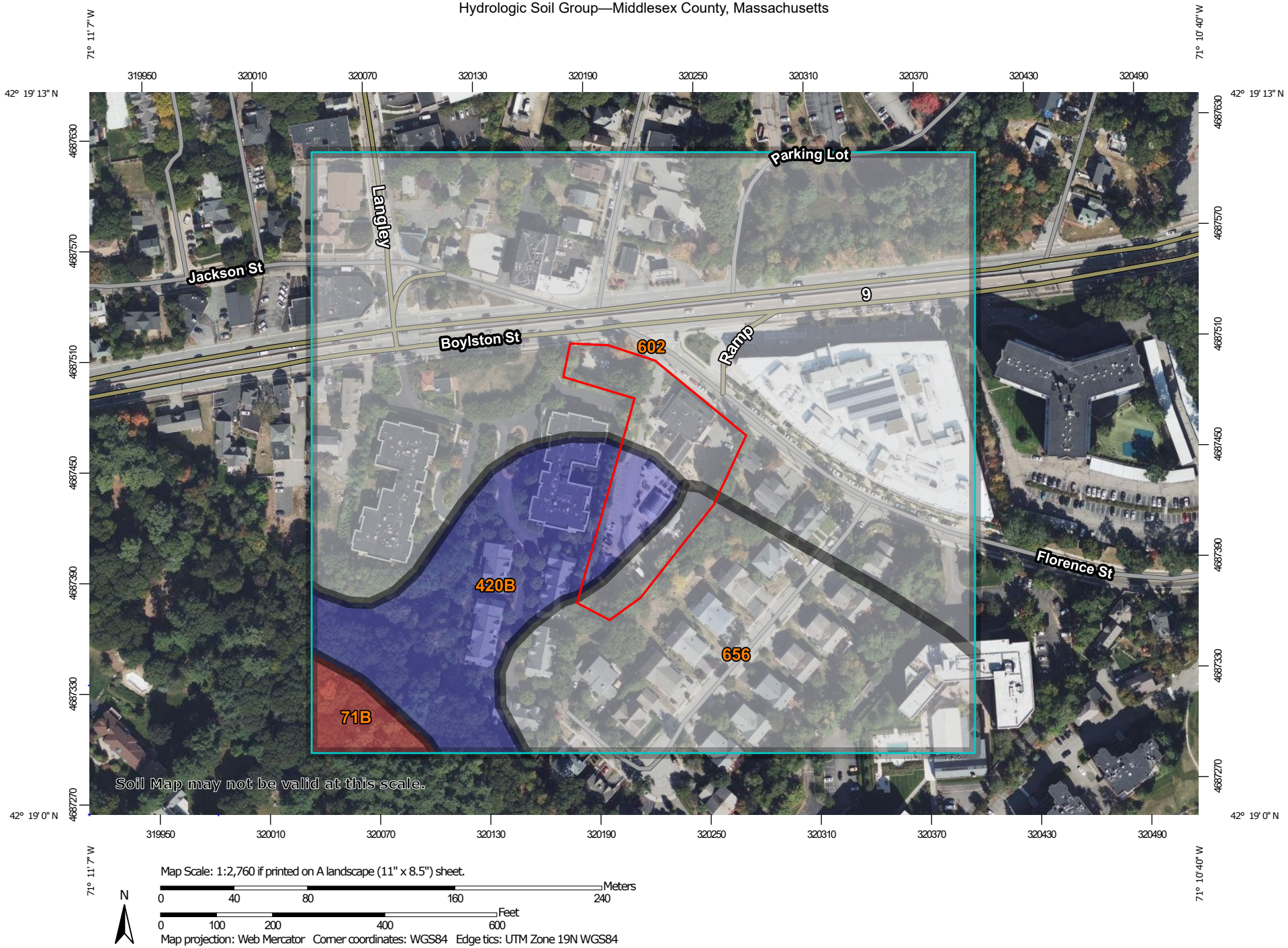
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 7/15/2021 at 3:34 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Map Scale: 1:2,760 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Middlesex County, Massachusetts
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 25, 2020—Oct 4, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
71B	Ridgebury fine sandy loam, 3 to 8 percent slopes, extremely stony	D	0.5	1.8%
420B	Canton fine sandy loam, 3 to 8 percent slopes	B	4.0	13.6%
602	Urban land		18.3	62.8%
656	Udorthents-Urban land complex		6.4	21.8%
Totals for Area of Interest			**29.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

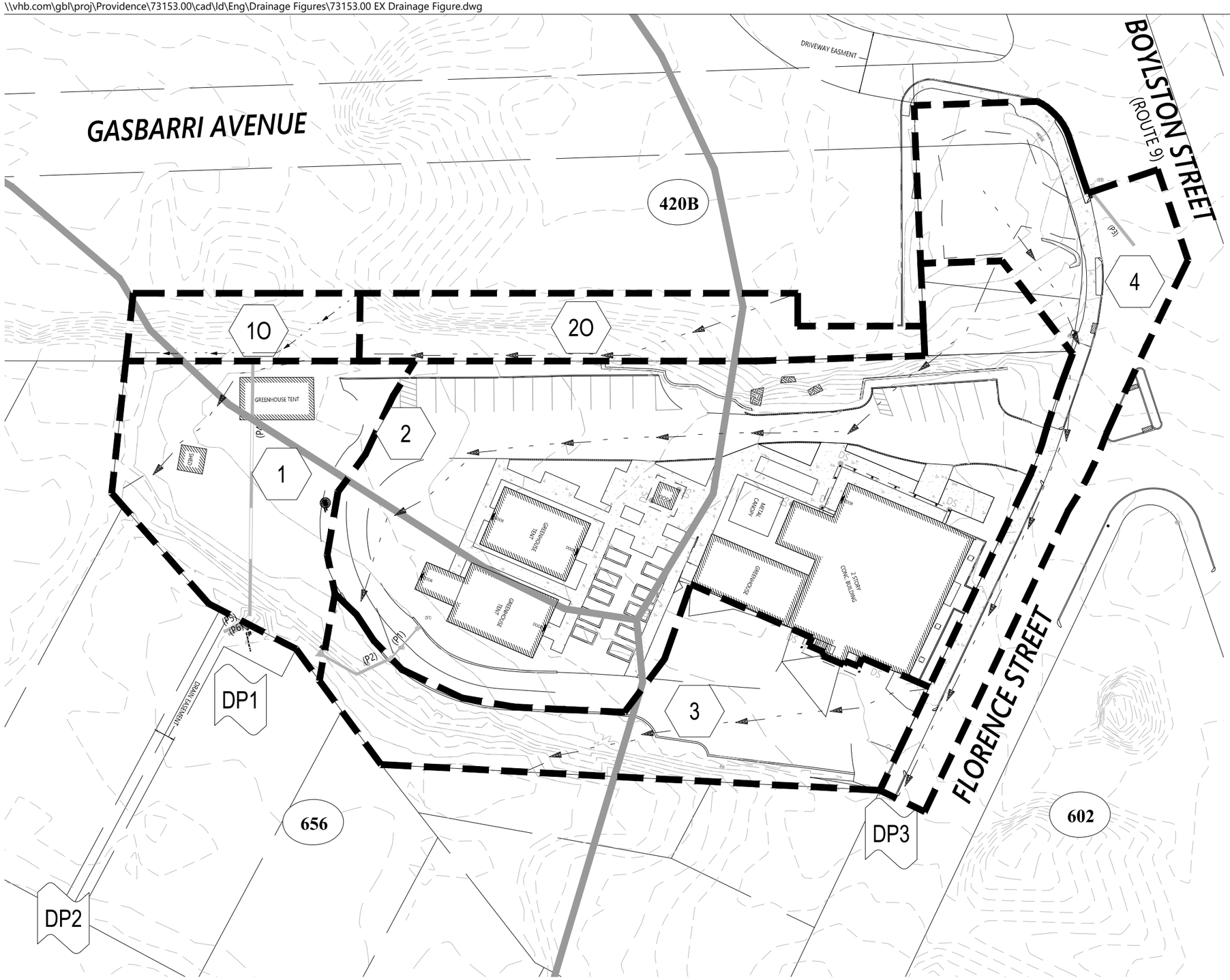
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

\\vhb.com\gbl\proj\Providence\73153.00\cad\ld\Eng\Drainage Figures\73153.00 EX Drainage Figure.dwg



Legend

SYMBOLS

- X — **DESIGN POINT**
- X — **DRAINAGE AREA DESIGNATION**
- X — **POND**

LINETYPES

- **DRAINAGE AREA BOUNDARY**
- **TIME OF CONCENTRATION FLOW LINE**
- **SOIL TYPE BOUNDARY**

SCS SOIL CLASSIFICATIONS

- 420B — **Canton fine sandy loam, 3 to 8 percent slopes, HSG B**
- 602 — **Urban Land, HSG not assigned**
- 656 — **Udorthents-Urban Land complex, HSG not assigned**

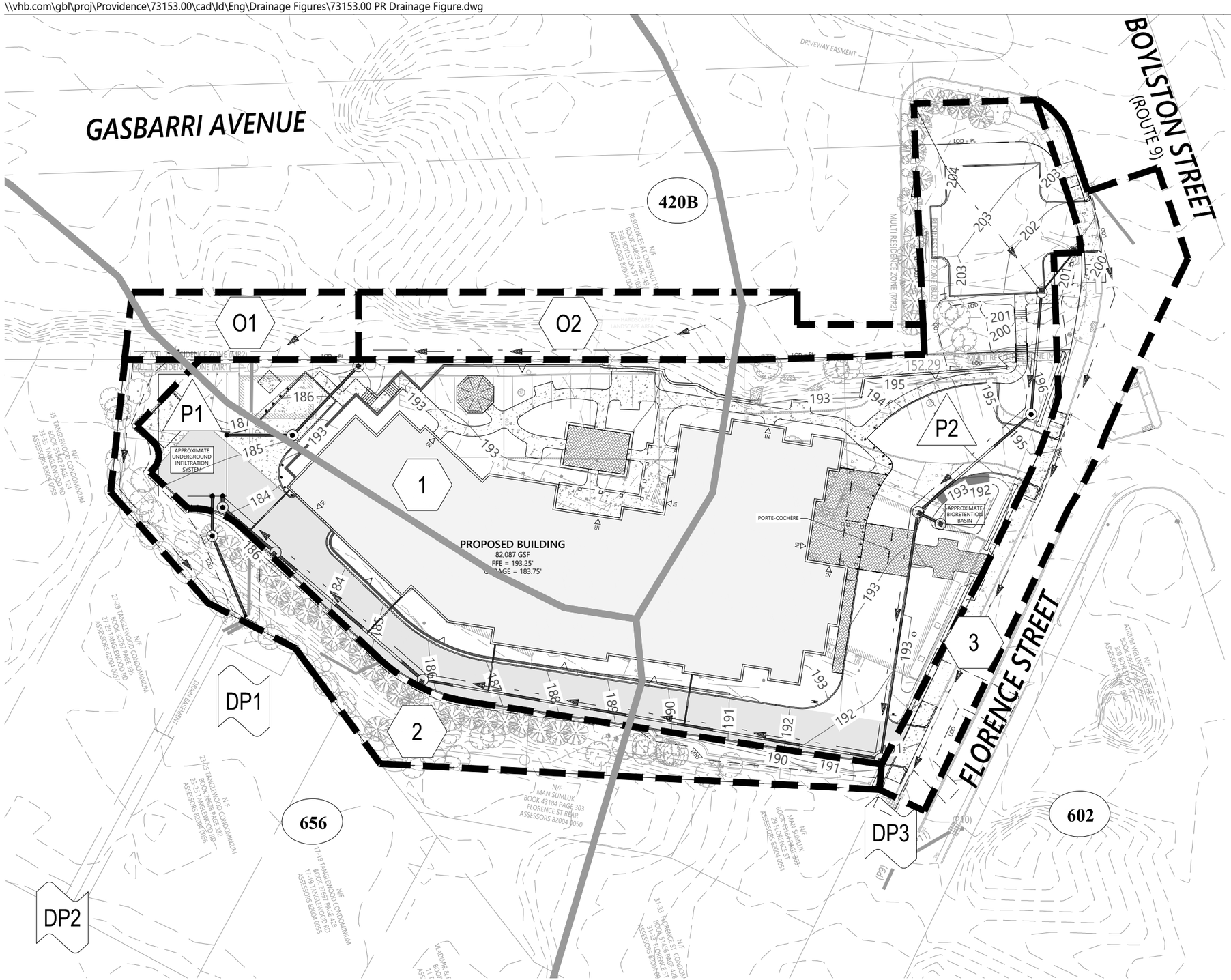
0 25 50 Feet

Existing Drainage Conditions
Sunrise of Chestnut Hill
11 Florence Street
Newton, MA

Figure 2

July 2021

\\vhb.com\gbl\proj\Providence\73153.00\cad\ld\Eng\Drainage Figures\73153.00 PR Drainage Figure.dwg



Legend

SYMBOLS

- DESIGN POINT
- DRAINAGE AREA DESIGNATION
- POND

LINETYPES

- DRAINAGE AREA BOUNDARY
- TIME OF CONCENTRATION FLOW LINE
- SOIL TYPE BOUNDARY
- 100' BUFFER ZONE
- WETLAND BOUNDARY

SCS SOIL CLASSIFICATIONS

- 420B — Canton fine sandy loam, 3 to 8 percent slopes, HSG B
- 602 — Urban Land, HSG not assigned
- 656 — Udorthents-Urban Land complex, HSG not assigned

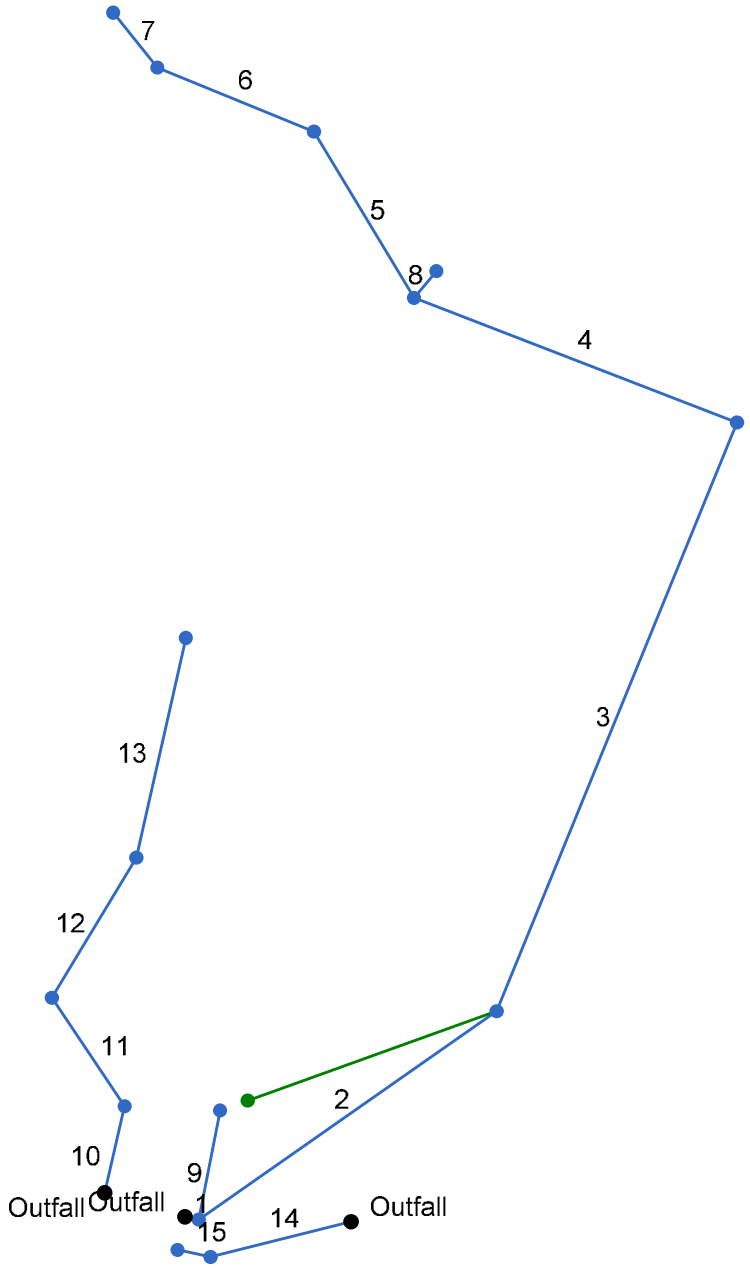
0 25 50 Feet

Proposed Drainage Conditions
Sunrise of Chestnut Hill
11 Florence Street
Newton, MA

Figure 3

July 2021

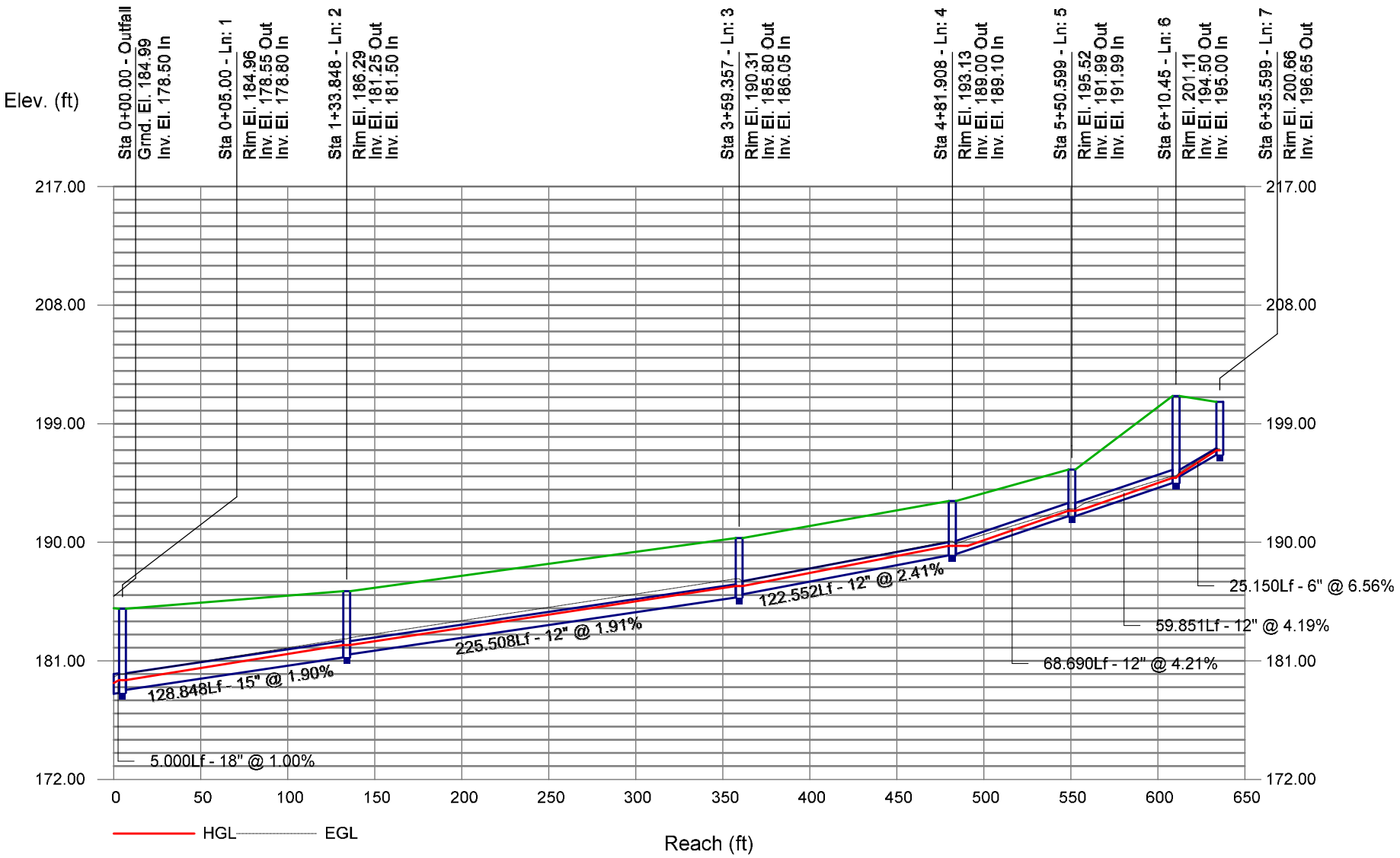
Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: 73153.00 - STRM.stm	Number of lines: 15	Date: 7/9/2021

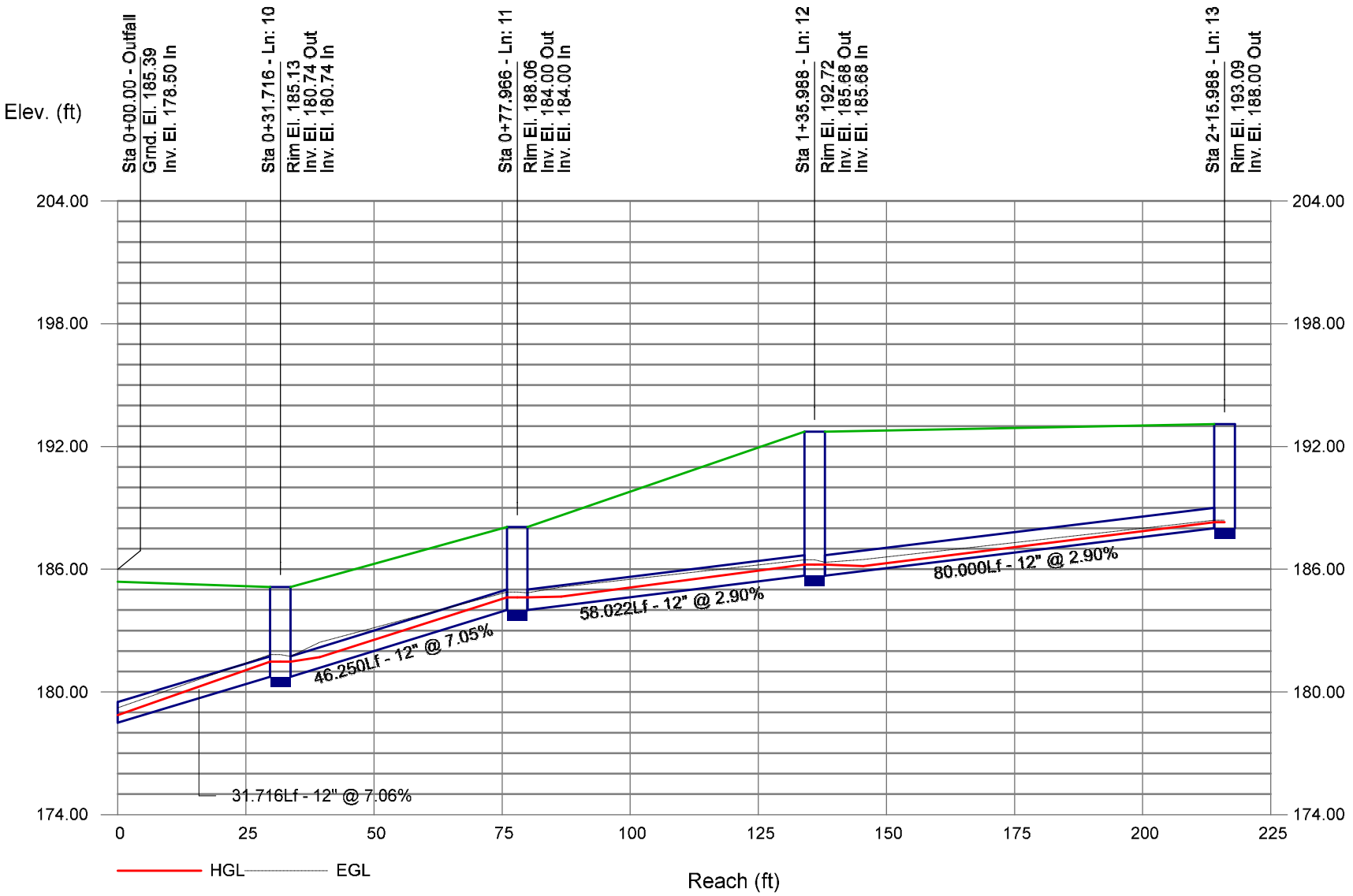
Storm Sewer Profile

Proj. file: 73153.00 - STRM.stm



Storm Sewer Profile

Proj. file: 73153.00 - STRM.stm



Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	5.000	0.01	1.16	0.95	0.01	0.91	5.0	8.8	7.2	6.59	11.38	5.99	18	1.00	178.50	178.55	179.32	179.54	184.99	184.96	02-01
2	1	128.848	0.20	0.94	0.82	0.16	0.75	5.0	8.3	7.3	5.47	9.65	6.34	15	1.90	178.80	181.25	179.54	182.20	184.96	186.29	05-02
3	2	225.508	0.22	0.74	0.93	0.20	0.58	5.0	7.6	7.5	4.36	5.33	6.72	12	1.91	181.50	185.80	182.20	186.68	186.29	190.31	06-05
4	3	122.552	0.26	0.52	0.82	0.21	0.38	5.0	7.1	7.6	2.88	5.99	5.13	12	2.41	186.05	189.00	186.68	189.73	190.31	193.13	08-06
5	4	68.690	0.01	0.16	0.95	0.01	0.11	5.0	6.1	7.9	0.90	7.91	2.41	12	4.21	189.10	191.99	189.73	192.39	193.13	195.52	10-08
6	5	59.851	0.07	0.15	0.80	0.06	0.10	5.0	5.2	8.2	0.85	7.90	2.99	12	4.19	191.99	194.50	192.39	194.89	195.52	201.11	11-10
7	6	25.150	0.08	0.08	0.60	0.05	0.05	5.0	5.0	8.2	0.40	1.56	4.80	6	6.56	195.00	196.65	195.17	196.97	201.11	200.66	12-11
8	4	12.281	0.10	0.10	0.50	0.05	0.05	5.0	5.0	8.2	0.41	1.25	1.10	9	0.49	189.10	189.16	189.73	189.73	193.13	193.50	09-08
9	1	39.470	0.21	0.21	0.75	0.16	0.16	5.0	5.0	8.2	1.30	5.14	3.43	12	1.77	179.05	179.75	179.54	180.23	184.96	183.75	04-02
10	End	31.716	0.12	0.65	0.95	0.11	0.39	5.0	7.8	7.5	2.92	10.25	7.91	12	7.06	178.50	180.74	178.87	181.47	185.39	185.13	14-13
11	10	46.250	0.16	0.53	0.36	0.06	0.28	5.0	7.5	7.5	2.09	10.24	3.75	12	7.05	180.74	184.00	181.47	184.62	185.13	188.06	15-14
12	11	58.022	0.22	0.37	0.73	0.16	0.22	5.0	7.1	7.6	1.68	6.56	3.55	12	2.90	184.00	185.68	184.62	186.23	188.06	192.72	16-15
13	12	80.000	0.15	0.15	0.40	0.06	0.06	5.0	5.0	8.2	0.49	6.57	1.86	12	2.90	185.68	188.00	186.23	188.29	192.72	193.09	17-16
14	End	51.246	0.01	0.02	0.95	0.01	0.02	5.0	7.0	7.7	0.15	2.75	1.81	12	0.51	177.00	177.26	177.16	177.42	178.09	186.22	19-20
15	14	12.000	0.01	0.01	0.95	0.01	0.01	5.0	5.0	8.2	0.08	2.73	1.04	12	0.50	177.26	177.32	177.44	177.45	186.22	185.09	18-19

Project File: 73153.00 - STRM.stm

Number of lines: 15

Run Date: 7/9/2021

NOTES:Intensity = 102.61 / (Inlet time + 16.50) ^ 0.82; Return period =Yrs. 25 ; c = cir e = ellip b = box