

SMMA

Design and Site Plan Review Application

National Association for Armenian Studies and Research

Belmont, Massachusetts

March 20, 2017



March 20, 2017

Mr. Jeffrey Wheeler
Senior Planner
Town of Belmont – Planning Board
Homer Municipal Building
19 Moore Street, 2nd Floor
Belmont, Massachusetts 02478

Re: NAASR – Proposed Headquarters Renovation/Addition Application

Design and Site Plan Review Submission

SMMA No. 15091.00.02

Dear Jeffrey:

On behalf of the National Association for Armenian studies and Research (NAASR), we are pleased to submit this application package for the April 6, 2017, Design and Site Plan hearing. The enclosed application is for a proposed renovation and addition to their existing headquarters at 395 Concord Avenue in Belmont, MA.

We appreciate this opportunity to present this wonderful project, and we welcome your questions and comments on the enclosed submission package. Please contact me at 617-520-9286, if you have questions prior to the hearing.

Very truly yours,

SMMA | Symmes Maini & McKee Associates



Ara Krafian, PE
Chairman | CEO

cc: NAASR

enclosures: Design and site Plan Review Application

Table of Contents

Cover Letter

1 Application

Application Form

2 Project Statement

3 Building Information

4 Stormwater

Appendices

A Parking Agreement

B Hydrocad Calculations

C Stormwater Pollution Prevention Plan

D Operations & Maintenance Plan

E Site Plans

Existing Conditions Plan (Certified Plot Plans)

Site Plans

Zoning Compliance Checklist (on plans)

F NAASR Events

Design and Site Plan Review Application

National Association for Armenian Studies and Research
Belmont, Massachusetts 02478

Prepared by

SMMA | Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, Massachusetts 02138

Project Statement

Introduction

On behalf of the National Association for Armenian Studies (NAASR), SMMA proposes an upgrade to the existing two-story brick NAASR headquarters building at 395 Concord with an addition and renovation project described in this application. The proposed design respects its Belmont environment by maintaining elements of the existing building while designing a building that connects to traditional Armenian civic architecture and culture.

Enhancements by the building and site extend beyond beautiful design through:

- Improved safety elements, like eliminating parking spaces that back directly on Concord Avenue or the addition of fire protection sprinkler system
- Additional community appeal at the sidewalk through vegetation, proposed new parking on Concord Avenue, and a seat wall.
- Improved accessibility by adding an elevator and handicap ramp
- Sustainability improvements by proposed PV panels on the roof, added bike racks, improved access to daylight and modern building systems
- Code enhancements at egress stairs, front entrance and engineering systems.
- Storm water management enhancement to capture previous rainwater runoff

Architectural Character

- Transparent materials on the three-story addition along Concord Ave. will reveal the activity of public spaces like the bookstore, garden lobby, conference room, and reading room.
- The use of culturally significant materials, colors, patterns, and symbols enriches the architecture, creating a language unique to NAASR.
- The fenestration along the side and rear facades is controlled and quiet, tying into the qualities of neighboring buildings.

SMMA will present the design to Town officials and hold an open neighborhood meeting prior to the DSPR hearing.



Existing Conditions

The project site is located at 395 Concord Avenue and is owned by the National Association for Armenian Studies and Research (NAASR). The parcel is Lot 33 on Map 35 in the town on Belmont. The lot is 13,862 SF and has 90 feet of frontage on Concord Avenue. The property is bound by Concord Avenue to the south, the US Post Office to the west, the MBTA commuter rail to the north, and 385 Concord Avenue to the east.

The property contains a 2-story brick building with a full basement. The footprint is approximately 4000 SF. The main building entrance faces Concord Avenue with a secondary egress in the rear of the building. The remainder of the lot is paved primarily with bituminous pavement for parking and vehicle circulation. There is one-way vehicular circulation in a counter clockwise direction around the building. There are 2 curb cuts in Concord Avenue. The east curb cut enters the parking lot and the west curb cut exits.

There is a 10 foot wide right-of-way easement on the west side of the site abutting the Post Office property. This easement extends 7.5 feet onto the NAASR property. This 10 foot easement serves as the vehicular exit aisle for the site.

There are 23 parking spaces on the property 4 of which are directly in front of the building and are accessed directly from Concord Avenue. The other 19 spaces are on the east and north edges of the property.

The utilities for the building are all accessed from Concord Avenue and enter the building underground on the south side including the water, sewer, electric and telecommunications. The gas is also accessed from Concord Avenue but enters on the west side of the building.



Proposed Project

The proposed project is for an addition and renovation to the existing building that includes the addition of a third floor and a redesigned front façade. The building footprint will be enlarged by approximately 700 SF with the majority of that as a 3-story extension to the front (south side) of the building. The rear stair will be reconstructed and enlarged to comply with the current Building Code.

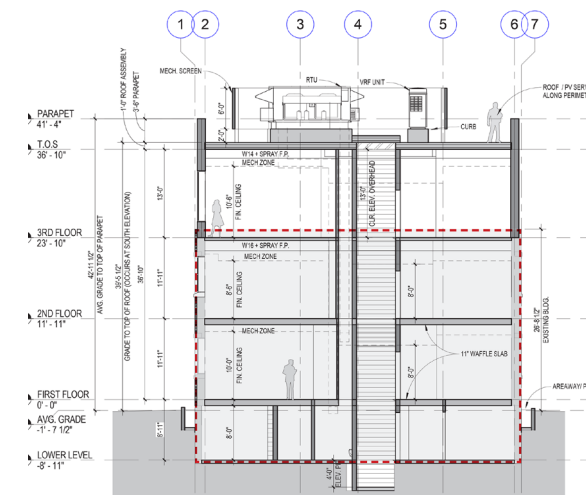
The total size of the addition will be approximately 6,300 SF of gross floor area, increasing the total above grade building gross floor area to 14,300 SF. The front building addition will include a new entry on the west side of the façade, an accessible entrance ramp, a seat wall and a planter. Reconstruction of the town sidewalk along the entire frontage of the site is also included in the project.

The site areas on the east, west and north side of the existing building will remain as bituminous paved areas for parking and circulation.

Operations and Neighborhood Impacts

The building is the headquarters for the National Association for Armenian Studies and Research. In addition to office space function, the building contains an extensive library of Armenian texts and historical artifacts as well as educational facilities to provide resources for the general public to research and learn about Armenian history and culture. NAASR conducts events at the facility, usually in lecture format. These events are often guest speakers and presentations. There is a bookstore on the first floor where NAASR sells materials related to the events and current exhibits.

NAASR puts on approximately 40 lectures a year. Of these several are outside of the Greater Boston area or at universities (locally university venues are MIT, Northeastern, Harvard and Tufts) and these will continue to remain at the same sites.



Last year there were 18 lectures that NAASR hosted in Belmont at NAASR or across the street at the First Armenian Church. These events average around 70 attendees. NAASR also hosts events locally in Watertown at the Armenian Library and Museum of America (ALMA), Armenian Cultural Foundation (ACF), Arlington, MA and Holy Trinity Church in Cambridge, MA. Some, but not all of these lectures may move to the proposed new headquarters building and they average closer to 100 attendees. Together we can estimate that two evening events per month is the likely number of functions residents should anticipate, up approximately 25% from the current condition. Please see Appendix F (NAASR Events) for a listing of all events held from 2015 to current.

NAASR currently has three full-time employees and four part-time employees. The published hours are 9-5, Monday-Friday. In addition, the building is open for evening events. On average, these occur twice a month.

The project is making provisions for trash collection within the building. Trash will be placed outside for collection on trash days only.

The concrete sidewalk will be reconstructed along the frontage of the site to match the adjacent existing Concord Avenue sidewalk. Its use and access will be maintained for public use through the majority of the project construction. Its construction will occur towards the end of the project and will be built per town and ADA/MAAB standards. The project will coordinate the construction details with the town.

Zoning Compliance

The site is located within the Local Business 1 (LB1) District. The Zoning Compliance tables are included on the Existing Conditions Survey Plan for the existing zoning dimensional requirements and on the Layout and Materials Plan (C-121) for the proposed zoning dimensional requirements. Both of these plans are stamped and signed by the appropriate professionals.

The existing site and development is in compliance with the zoning dimensional requirements.

The proposed project maintains compliance with all dimensional requirements except for building height and number of stories. The additional height is required for the third floor, and the third floor is required to maintain the current educational uses and functions of the organization at this location.

Per the Dover Amendment, the National Association of Armenian Studies and Research is claiming an exemption from the zoning height restrictions due to their continued educational uses and needs. Town Counsel reviewed our Dover Amendment appeal in December and its implication on building height. Town Counsel stated that there was no need to apply for a variance because the project is exempt under the Dover Amendment. Notwithstanding, the project must go through the Design and Site Plan Review (DSPR) process. The project has made efforts to comply with all other zoning requirements.

The proposed design will maintain compliance with the other zoning dimensional requirements including all yard setbacks and Floor Area Ratio (FAR). The additional building size will increase the FAR to 1.03, which is under the requirement of 1.25.

$$\frac{14,300 \text{ GSF}}{13,862 \text{ SF}} = 1.03$$

Parking

There are 23 existing parking spaces at the site. The development will eliminate 4 spaces at the front of the site that are accessed directly from Concord Avenue. The elimination of these spaces will increase safety by eliminating the vehicles that reverse through the sidewalk and onto Concord Avenue. The proposed installation of approximately 40 feet of vertical granite curb along the edge of Concord Avenue will create the availability for two on-street parking spaces.

The remaining 19 spaces on-site will be maintained and re-striped. One accessible space will be striped at the southeast corner of the site, as shown on drawing C-121. This space is adjacent to the new accessible ramp being constructed at the main entrance.

As indicated in the table on drawing C-121, the 19 spaces are not adequate for the proposed building size at the parking rates indicated in the zoning by-law. The new building requires 30 total parking spaces. To meet the requirement, NAASR has an agreement with the First Armenian Church located directly across Concord Avenue for additional parking. The church parcel is located approximately 80 feet from the NAASR property and provides a total of 31 additional spaces, which exceeds the parking needs and requirements for the proposed development. The additional spaces at the First Armenian Church are allowed by the Town of Belmont zoning by-law, under Section 5.1.3.a:

5.1.3 Parking and Loading Area Location and Design

a) Non-residential.

- Required parking for nonresidential uses shall be either on the same premises as the activity it serves or on a separate parcel if the parcel is located within 400 feet of the building entrance to be served and is in a zoning district permitting or allowing by Special Permit the use it serves.

Refer to Appendix A for the parking agreement with the First Armenian Church.

Site Design Elements

As previously stated, the project will be reconstructing the sidewalk and curbing along the entire 90 foot frontage of the site. The project will also be providing a planter along the front property line adjacent to the sidewalk. The planter will be approximately 25 feet long and be planted with shrubs and other plants. This is designed to meet the streetscape requirements for the 90 feet of frontage.

Two bicycle racks for 4 bicycles will be installed within the southeast corner of the site adjacent to the sidewalk.

Exterior lighting will be provided by wall mounted fixtures on the building. Lighting will be designed to meet the requirements of Section 5.4.3 of the zoning by-law.

Vehicular signage is provided for circulation and parking on drawing C-121.

A pedestrian-scaled NAASR sign is incorporated into the planter wall at the front of the building, see South Elevation.

Utilities

The existing utilities for the building will all be maintained with their current connections to the municipal systems.

The existing connections for water, sewer, gas, electric and telecommunications appear to be all adequate for the proposed uses at the site. The design and construction of the building addition will accommodate, protect or potentially relocate the existing utilities that are under the proposed addition.

Stormwater

See separate Stormwater narrative and referenced Appendices in the stormwater section.



Context

Armenian Center 395 Concord Ave, Belmont MA



SMMA



Concord Ave. Existing Southwest Corner

Armenian Center 395 Concord Ave, Belmont MA





Concord Ave. Proposed Southwest Corner

Armenian Center 395 Concord Ave, Belmont MA





Concord Ave. Existing Southeast Corner

Armenian Center 395 Concord Ave, Belmont MA





Concord Ave. Proposed Southeast Corner

Armenian Center 395 Concord Ave, Belmont MA



SMMA

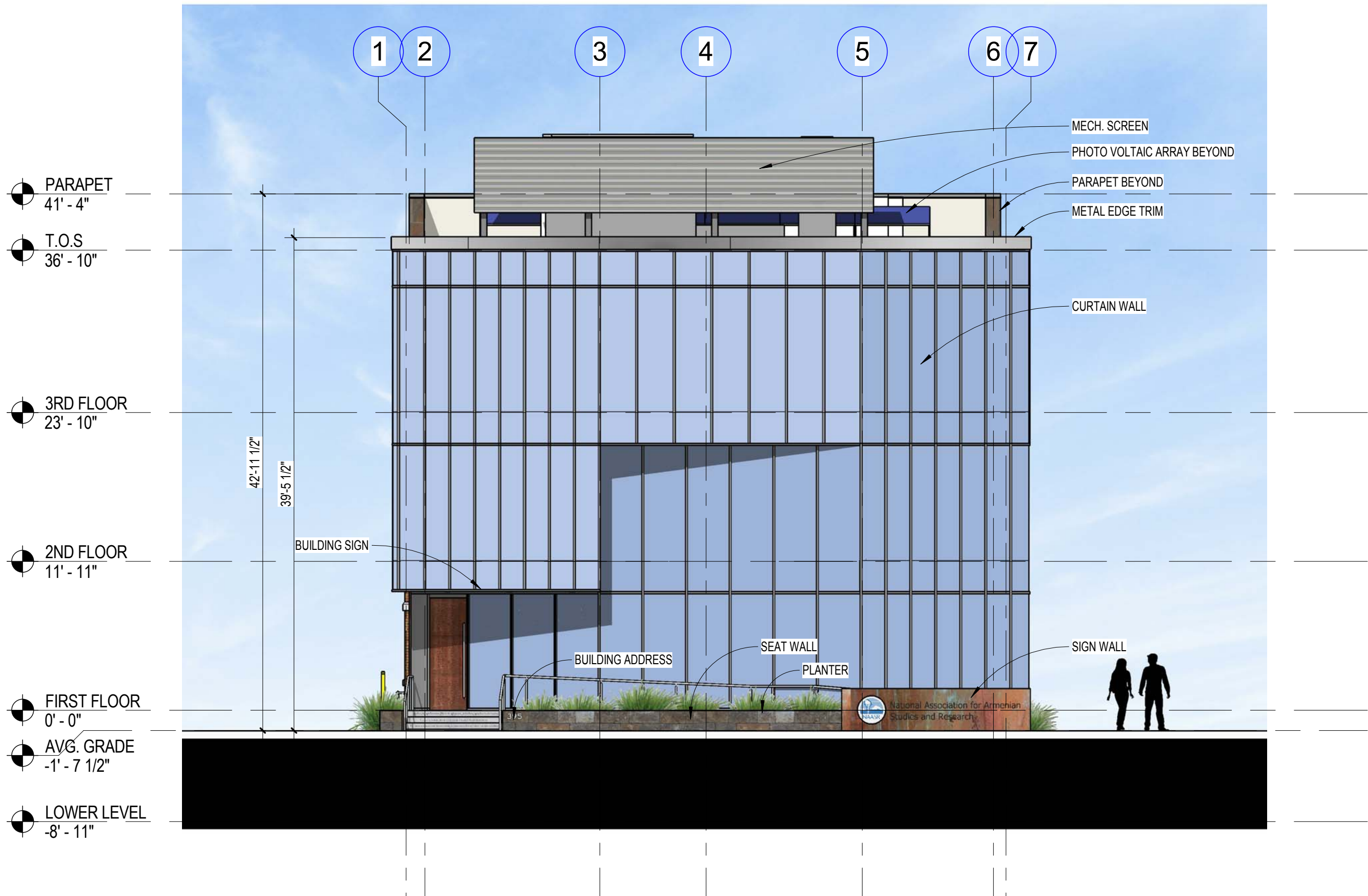


Axon

Armenian Center 395 Concord Ave, Belmont MA



SMMA



South Elevation (Concord Ave.)

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"





East Elevation

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"





West Elevation

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"



SMMA

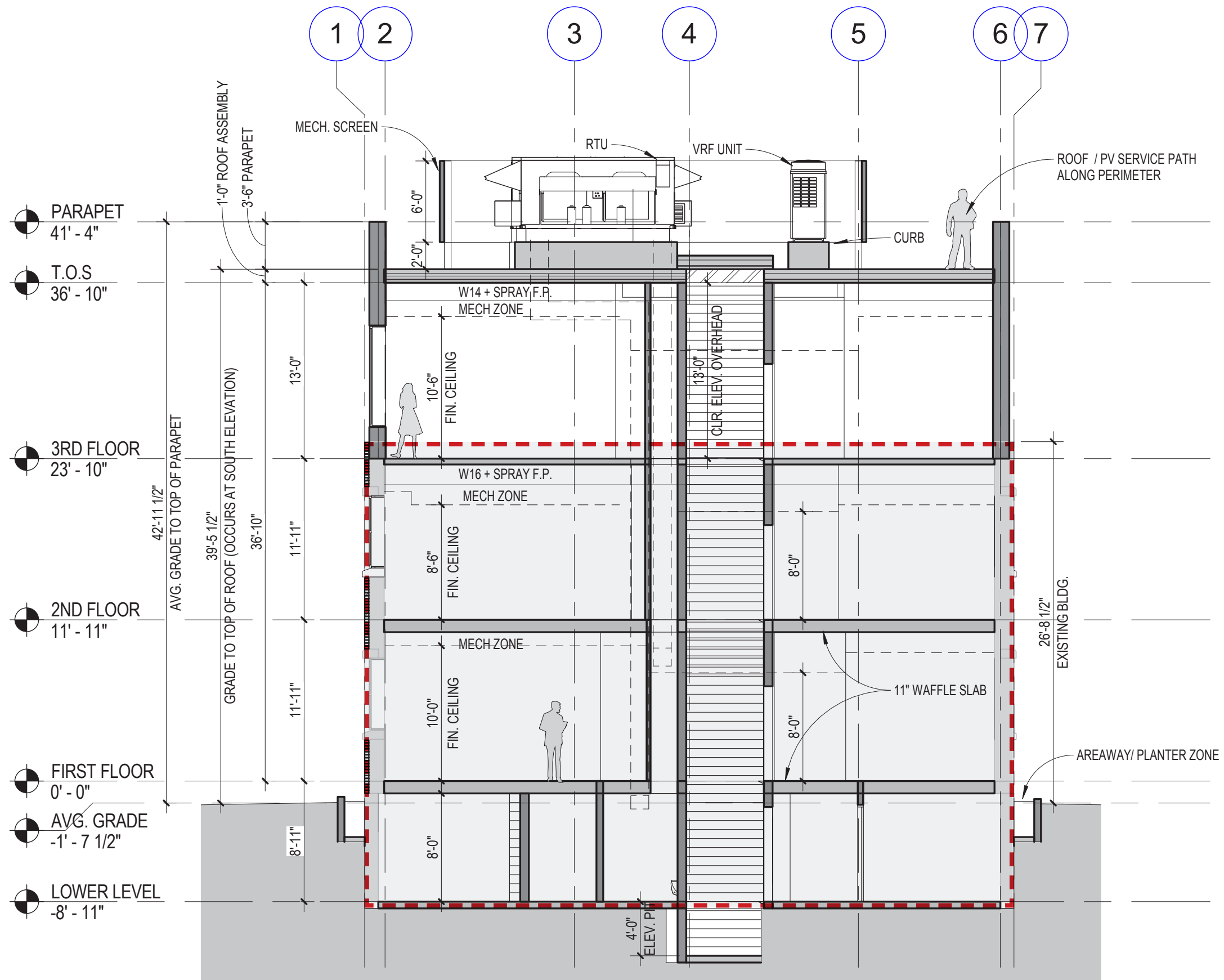


North Elevation

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"





Building Section

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"





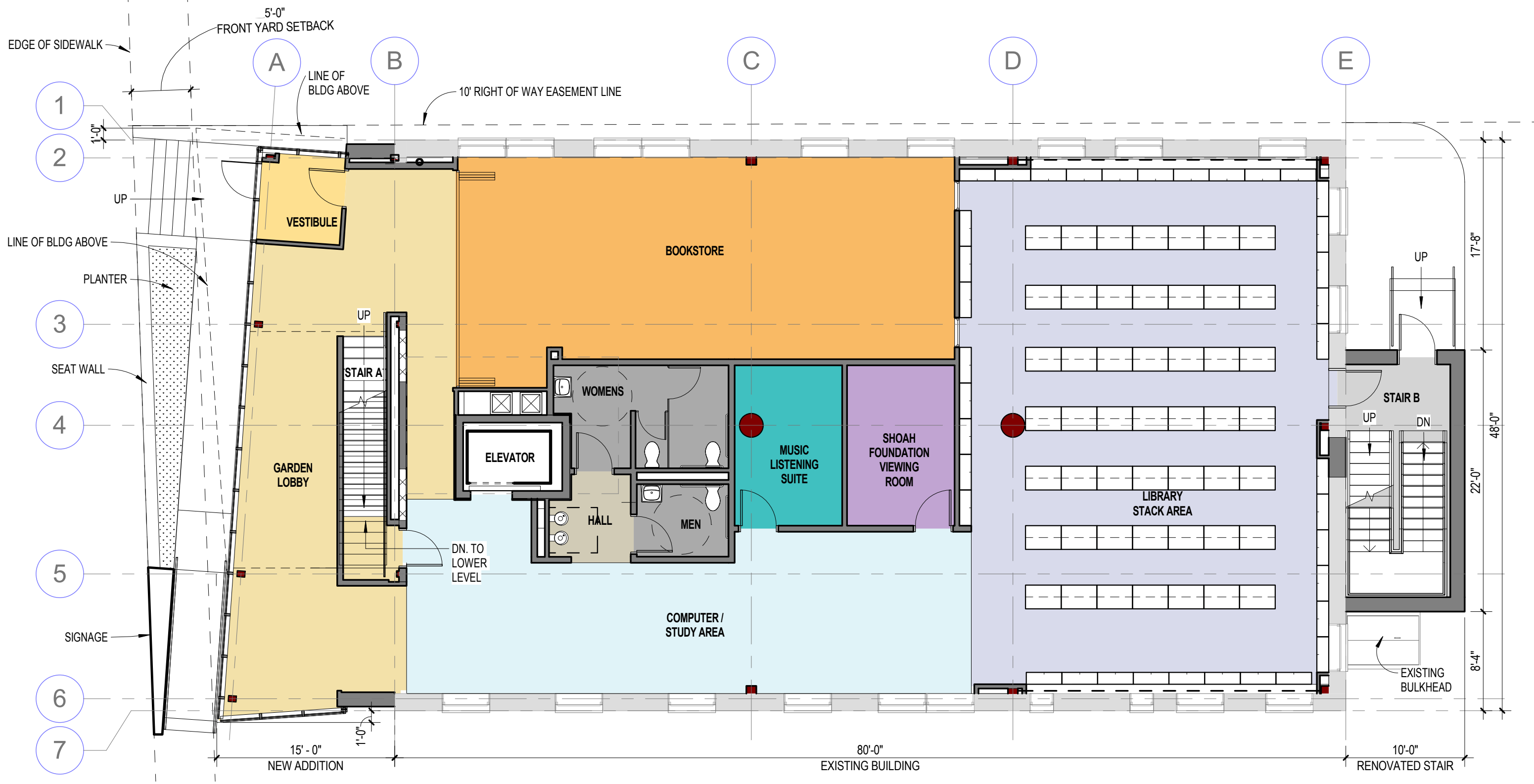
Lower Level Plan

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"



SMMA



First Floor Plan

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"



SMMA

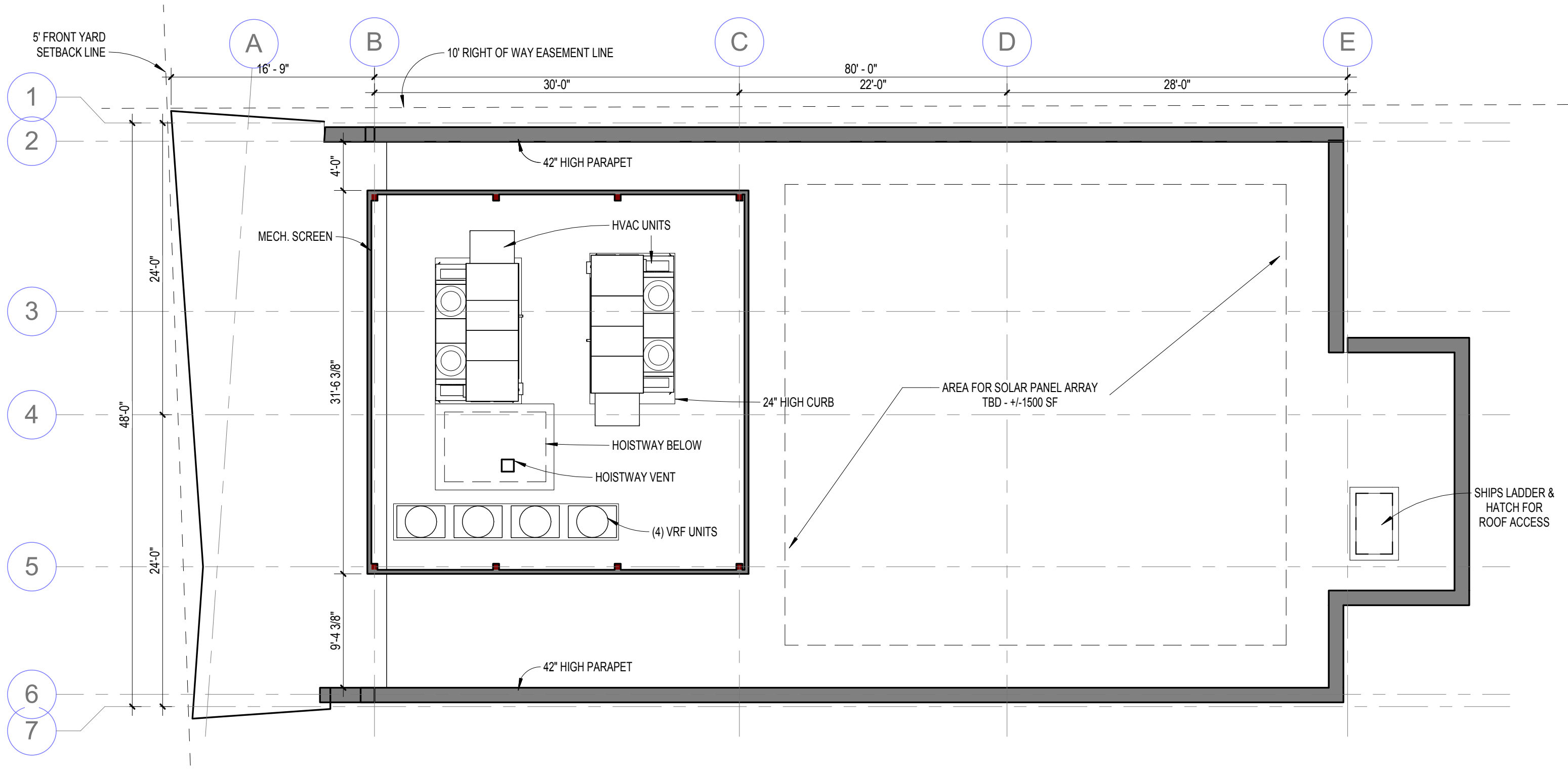


Second Floor Plan

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"





Roof Plan

Armenian Center 395 Concord Ave, Belmont MA

1/8" = 1'-0"





The fenestration along the side and rear facades is controlled and quiet, tying into the qualities of neighboring buildings.

East Perspective Elevation

Armenian Center 395 Concord Ave, Belmont MA





West Perspective Elevation

Armenian Center 395 Concord Ave, Belmont MA





North Perspective Elevation

Armenian Center 395 Concord Ave, Belmont MA





CUSTOM FILM ON GLASS
PATTERN INSPIRED BY ARMENIAN LACE & CARVINGS



INTERIOR VIEW OF GLASS FILM

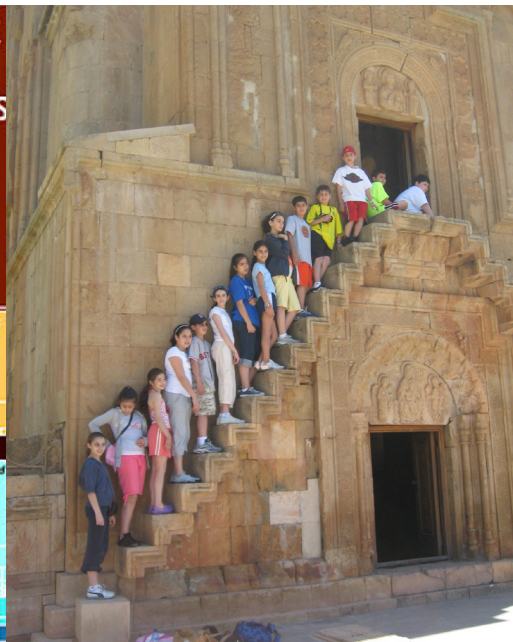
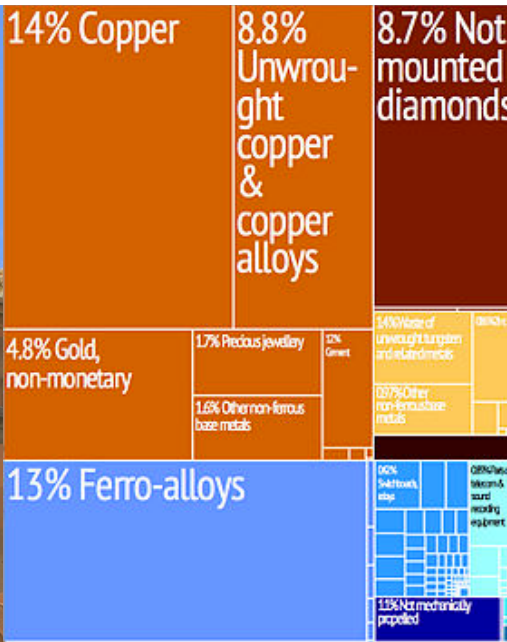
Transparent materials on the three story addition along Concord Ave. will reveal the activity of public spaces like the bookstore, garden lobby, conference room, and reading room.

South Perspective Elevation

Armenian Center 395 Concord Ave, Belmont MA



SMMA



Stone

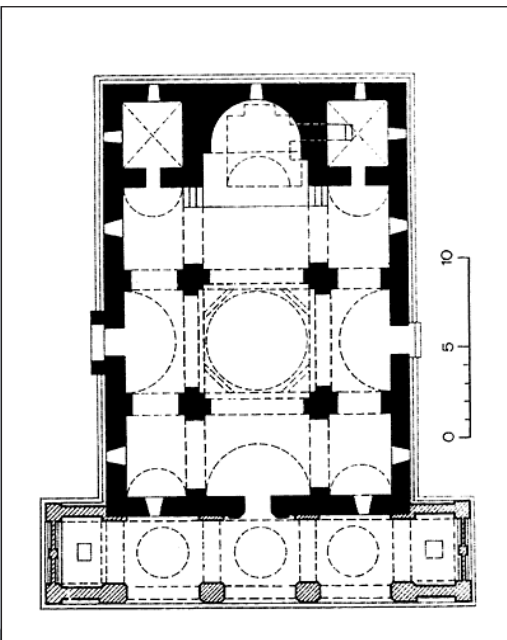
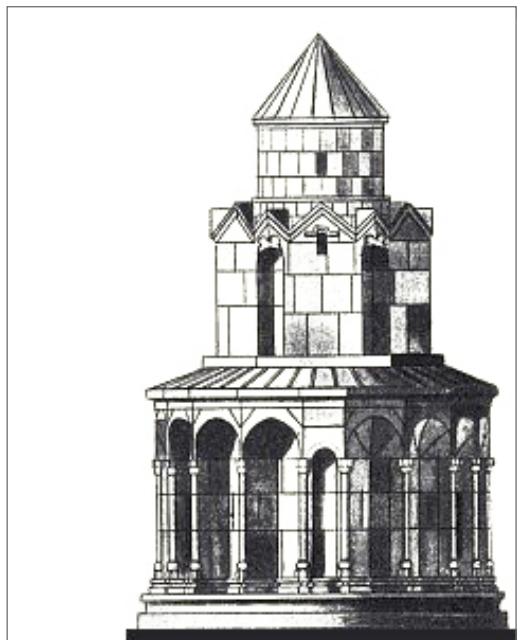
Metals

Stairs

Khatchkars
The Stone Crosses

Pigments

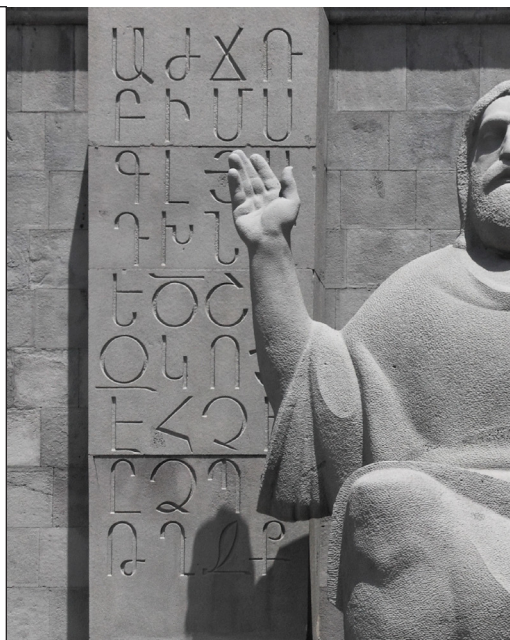
Needle Lace
& Textiles



Čanač'el zimastut' iun yev zxrat, imanal zbans hančaroy.

To know wisdom and instruction; to perceive the words of understanding.

-Book of Proverbs, 1:2.



Verticality

Monasteries
& Learning Spaces

First Written Words

Alphabet 405 CE
by Mesrop Mashtots

Symbols

Carvings

The use of culturally significant materials, colors, patterns, and symbols enriches the architecture, creating a language unique to NAASR.

Inspiration

Stormwater

The existing site does not include any stormwater conveyance system. The roof currently drains through downspouts and discharges onto the pavement. All surface runoff on the remainder of the site drains by sheet flow off the site and to the drainage system within Concord Avenue.

The construction for the addition will require the disturbance of approximately 2460 SF of land on the site. Since the disturbance is less than 2,500 SF, a Stormwater Management and Erosion Control Permit is not required from the town.

The project is proposing on-site improvements to stormwater management by providing increased pervious surfaces and a groundwater recharge system. The goal is to improve the stormwater management over the existing conditions for this redevelopment project.

Nearly the entire site is covered in impervious surface. The existing site has 302 SF of pervious area. The proposed design will increase the pervious area by approximately 69 SF to a total of 371 SF.

The project is also proposing to install a recharge structure to infiltrate rooftop runoff. On drawing C-141 and C-501 a leaching chamber is proposed in the southeast portion of the site. This chamber will accept runoff from approximately half of the roof and will retain and infiltrate the first 1 inch of every storm, which cumulatively over a year is approximately 90% of the average annual rainfall. In a storm of over 1 inch, excess runoff would be discharged to the paved surface as it currently does.

The project has not performed soil investigations at this time. Haley and Aldrich will be retained to perform soil investigations and evaluations.

This proposed recharge system will reduce peak runoff rates and provide groundwater recharge.

In regards to the Massachusetts Stormwater Standards the proposed improvements will meet the requirements for a redevelopment project.

Standard 1: No New Untreated Stormwater Conveyances

There are no new discharge points in the proposed condition.

Standard 2: Post-development peak discharge rates do not exceed pre-development peak discharge rates

Post-Development rates will be less than pre-development rates due to increased pervious area and the proposed groundwater recharge. HydroCAD Calculations are provided in Appendix B. The pre- and post- peak rates and volumes are summarized in the table below.

Storm	Existing Peak Rate (cfs)	Proposed Peak Rate (cfs)	Existing Volume Discharge (af)	Proposed Volume Discharge (af)
2-year	0.99	0.99	0.077	0.072
10-year	1.52	1.51	0.121	0.116
25-year	1.93	1.92	0.155	0.150
100-year	2.79	2.77	0.226	0.221

Standard 3: Recharge to Groundwater

Although the project will be decreasing impervious area, groundwater recharge will further provide improvement over existing conditions.

Standard 4: Removal of Total Suspended Solids

The roof runoff to the recharge system does not require pre-treatment. No other stormwater. No additional stormwater structures are proposed.

Standard 5: Land Uses with Higher Potential Pollutant Loads

The site is not a Land Use with Higher Potential Pollutant Loads.

Standard 6: Critical Areas

The project site is not located within a critical area; therefore this standard does not apply.

Standard 7: Redevelopment Projects

The project is a redevelopment project. Standards 2 & 3 are met, pretreatment is met for Standard 4 and Standards 5 & 6 are not applicable.

Standard 8: Erosion and Sedimentation Controls

A Stormwater Pollution Prevention Plan has been developed for construction and is in Appendix C.

Standard 9: Operation and Maintenance Plan

An Operations and Maintenance Plan to be followed after construction is attached to this submission in Appendix D.

Standard 10: Illicit Discharges to Drainage System

There are no Illicit Discharges to the drainage system.

Erosion Control

Erosion Control will be provided for the project and is shown on drawing C-141 with additional information within the attached Stormwater Pollution Prevention Plan.



First Armenian Church

380 Concord Avenue, Belmont MA 02478-3032
phone 617-484-4779 fax 617-484-2210
www.facbelmont.org office@facbelmont.org

January 16, 2017

To Whom It May Concern:

This letter is to explain the parking arrangement that our church, the First Armenian Church of Belmont, located at 380 Concord Avenue in Belmont, has with the National Association for Armenian Studies and Research, located across the street at 395 Concord Avenue in Belmont.

For years, NAASR and First Armenian Church have shared use of each other's parking areas since our two organizations have primary needs for parking at different times. First Armenian Church's primary need for parking occurs during day-time hours for special events, and funerals, and Sunday mornings worship hour. NAASR's primary need for parking occurs during the evenings for NAASR programs and lectures. In this way, NAASR provides overflow parking to First Armenian Church in the NAASR parking lot, and First Armenian Church provides overflow parking to NAASR in the First Armenian Church parking lot.

If you have any questions, please let me know.

Sincerely,

Berge Ayvazian
Treasurer
First Armenian Church of Belmont
380 Concord Avenue
Belmont, MA 02478



Իմ տունս բոլոր ազգերուն համար աղօթքի տուն պիտի կոչուի:
My house shall be called a house of prayer for all nations.

Isaiah 56.7



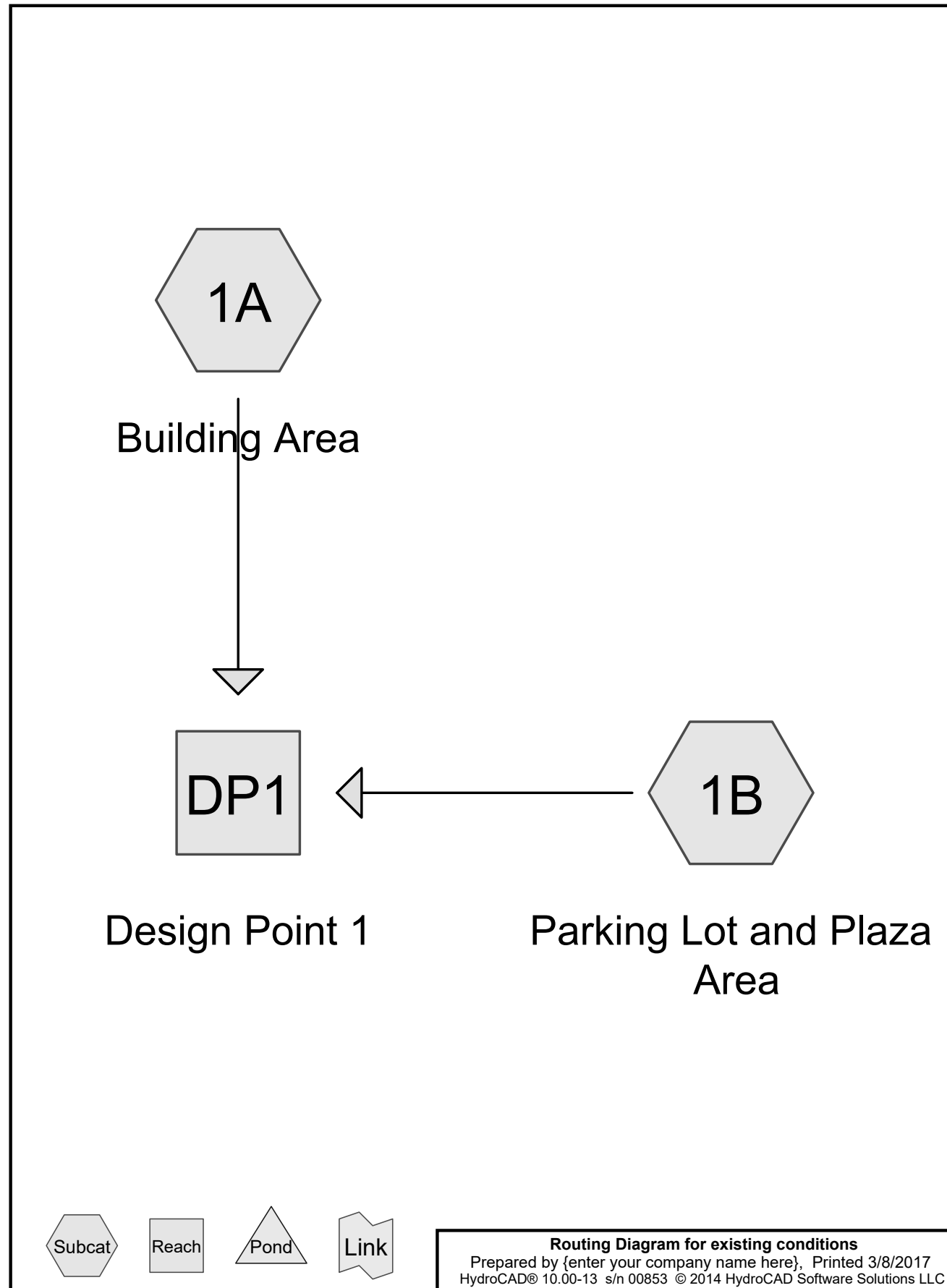
existing conditions

Prepared by {enter your company name here}
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Printed 3/8/2017
 Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.007	80	>75% Grass cover, Good, HSG D (1B)
0.092	98	Existing Building Area (1A)
0.219	98	Impervious Area (1B)
0.318	98	TOTAL AREA



existing conditions

Type III 24-hr 2-Year Rainfall=3.22"

Prepared by {enter your company name here}
HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Printed 3/8/2017
Page 3

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Building Area Runoff Area=4,000 sf 100.00% Impervious Runoff Depth>2.99"
Tc=5.0 min CN=98 Runoff=0.29 cfs 0.023 af

Subcatchment1B: Parking Lot and Plaza Runoff Area=9,862 sf 96.94% Impervious Runoff Depth>2.88"
Tc=5.0 min CN=97 Runoff=0.70 cfs 0.054 af

Reach DP1: Design Point 1 Inflow=0.99 cfs 0.077 af
Outflow=0.99 cfs 0.077 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.077 af Average Runoff Depth = 2.91"
2.18% Pervious = 0.007 ac 97.82% Impervious = 0.311 ac

existing conditions

Type III 24-hr 2-Year Rainfall=3.22"

Prepared by {enter your company name here}
HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Printed 3/8/2017
Page 4

Summary for Subcatchment 1A: Building Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.29 cfs @ 12.07 hrs, Volume= 0.023 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

Area (sf)	CN	Description
* 4,000	98	Existing Building Area
4,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.70 cfs @ 12.07 hrs, Volume= 0.054 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=3.22"

Area (sf)	CN	Description
* 9,560	98	Impervious Area
302	80	>75% Grass cover, Good, HSG D
9,862	97	Weighted Average
302		3.06% Pervious Area
9,560		96.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.82% Impervious, Inflow Depth > 2.91" for 2-Year event
Inflow = 0.99 cfs @ 12.07 hrs, Volume= 0.077 af
Outflow = 0.99 cfs @ 12.07 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

existing conditions

Type III 24-hr 10-Year Rainfall=4.88"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 5

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Building Area Runoff Area=4,000 sf 100.00% Impervious Runoff Depth>4.64"
 Tc=5.0 min CN=98 Runoff=0.44 cfs 0.036 af

Subcatchment1B: Parking Lot and Plaza Runoff Area=9,862 sf 96.94% Impervious Runoff Depth>4.53"
 Tc=5.0 min CN=97 Runoff=1.08 cfs 0.085 af

Reach DP1: Design Point 1 Inflow=1.52 cfs 0.121 af
 Outflow=1.52 cfs 0.121 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.121 af Average Runoff Depth = 4.56"
2.18% Pervious = 0.007 ac 97.82% Impervious = 0.311 ac

existing conditions

Type III 24-hr 10-Year Rainfall=4.88"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 6

Summary for Subcatchment 1A: Building Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.44 cfs @ 12.07 hrs, Volume= 0.036 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
* 4,000	98	Existing Building Area
4,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.08 cfs @ 12.07 hrs, Volume= 0.085 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
* 9,560	98	Impervious Area
302	80	>75% Grass cover, Good, HSG D
9,862	97	Weighted Average
302		3.06% Pervious Area
9,560		96.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.82% Impervious, Inflow Depth > 4.56" for 10-Year event
 Inflow = 1.52 cfs @ 12.07 hrs, Volume= 0.121 af
 Outflow = 1.52 cfs @ 12.07 hrs, Volume= 0.121 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

existing conditions

Type III 24-hr 25-Year Rainfall=6.18"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 7

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 1A: Building Area

Runoff Area=4,000 sf 100.00% Impervious Runoff Depth>5.94"
Tc=5.0 min CN=98 Runoff=0.56 cfs 0.045 af

Subcatchment 1B: Parking Lot and Plaza

Runoff Area=9,862 sf 96.94% Impervious Runoff Depth>5.82"
Tc=5.0 min CN=97 Runoff=1.37 cfs 0.110 af

Reach DP1: Design Point 1

Inflow=1.93 cfs 0.155 af
Outflow=1.93 cfs 0.155 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.155 af Average Runoff Depth = 5.86"
2.18% Pervious = 0.007 ac 97.82% Impervious = 0.311 ac

existing conditions

Type III 24-hr 25-Year Rainfall=6.18"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 8

Summary for Subcatchment 1A: Building Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.56 cfs @ 12.07 hrs, Volume= 0.045 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.18"

Area (sf)	CN	Description
* 4,000	98	Existing Building Area
4,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.37 cfs @ 12.07 hrs, Volume= 0.110 af, Depth> 5.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.18"

Area (sf)	CN	Description
* 9,560	98	Impervious Area
302	80	>75% Grass cover, Good, HSG D
9,862	97	Weighted Average
302		3.06% Pervious Area
9,560		96.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.82% Impervious, Inflow Depth > 5.86" for 25-Year event
Inflow = 1.93 cfs @ 12.07 hrs, Volume= 0.155 af
Outflow = 1.93 cfs @ 12.07 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

existing conditions

Type III 24-hr 100-Year Rainfall=8.87"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 9

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Building Area Runoff Area=4,000 sf 100.00% Impervious Runoff Depth>8.63"
 Tc=5.0 min CN=98 Runoff=0.81 cfs 0.066 af

Subcatchment1B: Parking Lot and Plaza Runoff Area=9,862 sf 96.94% Impervious Runoff Depth>8.51"
 Tc=5.0 min CN=97 Runoff=1.98 cfs 0.160 af

Reach DP1: Design Point 1 Inflow=2.79 cfs 0.226 af
 Outflow=2.79 cfs 0.226 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.226 af Average Runoff Depth = 8.54"
2.18% Pervious = 0.007 ac 97.82% Impervious = 0.311 ac

existing conditions

Type III 24-hr 100-Year Rainfall=8.87"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 10

Summary for Subcatchment 1A: Building Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.066 af, Depth> 8.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.87"

Area (sf)	CN	Description
* 4,000	98	Existing Building Area
4,000		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.98 cfs @ 12.07 hrs, Volume= 0.160 af, Depth> 8.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-Year Rainfall=8.87"

Area (sf)	CN	Description
* 9,560	98	Impervious Area
302	80	>75% Grass cover, Good, HSG D
9,862	97	Weighted Average
302		3.06% Pervious Area
9,560		96.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.82% Impervious, Inflow Depth > 8.54" for 100-Year event
 Inflow = 2.79 cfs @ 12.07 hrs, Volume= 0.226 af
 Outflow = 2.79 cfs @ 12.07 hrs, Volume= 0.226 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

proposed conditions

Prepared by {enter your company name here}

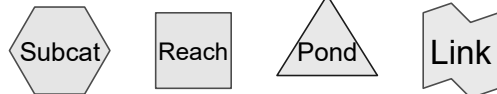
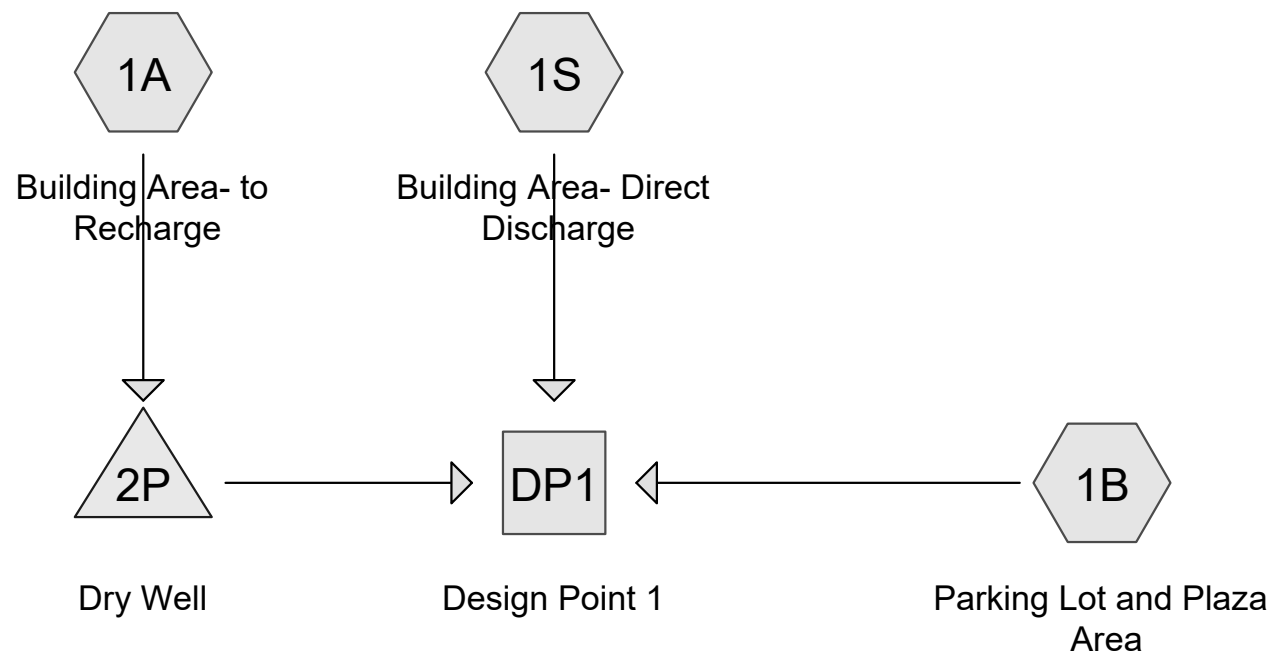
HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Printed 3/8/2017

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.009	80	>75% Grass cover, Good, HSG D (1B)
0.109	98	Existing Building Area (1A, 1S)
0.200	98	Impervious Area (1B)
0.318	97	TOTAL AREA



Routing Diagram for proposed conditions
 Prepared by {enter your company name here}, Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

proposed conditions

Type III 24-hr 2-Year Rainfall=3.22"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 3

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 1A: Building Area-to Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>2.99"
 Tc=5.0 min CN=98 Runoff=0.17 cfs 0.014 af

Subcatchment 1B: Parking Lot and Plaza Runoff Area=9,102 sf 95.59% Impervious Runoff Depth>2.88"
 Tc=5.0 min CN=97 Runoff=0.65 cfs 0.050 af

Subcatchment 1S: Building Area-Direct Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>2.99"
 Tc=5.0 min CN=98 Runoff=0.17 cfs 0.014 af

Reach DP1: Design Point 1 Inflow=0.99 cfs 0.072 af
 Outflow=0.99 cfs 0.072 af

Pond 2P: Dry Well Peak Elev=5.46' Storage=191 cf Inflow=0.17 cfs 0.014 af
 Discarded=0.00 cfs 0.001 af Primary=0.17 cfs 0.008 af Outflow=0.17 cfs 0.009 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.077 af Average Runoff Depth = 2.91"
2.89% Pervious = 0.009 ac 97.11% Impervious = 0.309 ac

proposed conditions

Type III 24-hr 2-Year Rainfall=3.22"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 4

Summary for Subcatchment 1A: Building Area- to Recharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.014 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.65 cfs @ 12.07 hrs, Volume= 0.050 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

Area (sf)	CN	Description
* 8,701	98	Impervious Area
401	80	>75% Grass cover, Good, HSG D
9,102	97	Weighted Average
401		4.41% Pervious Area
8,701		95.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min min

Summary for Subcatchment 1S: Building Area- Direct Discharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 0.014 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-Year Rainfall=3.22"

proposed conditions

Type III 24-hr 2-Year Rainfall=3.22"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 5

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.11% Impervious, Inflow Depth > 2.72" for 2-Year event
 Inflow = 0.99 cfs @ 12.07 hrs, Volume= 0.072 af
 Outflow = 0.99 cfs @ 12.07 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Dry Well

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth > 2.99" for 2-Year event
 Inflow = 0.17 cfs @ 12.07 hrs, Volume= 0.014 af
 Outflow = 0.17 cfs @ 12.08 hrs, Volume= 0.009 af, Atten= 3%, Lag= 0.5 min
 Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.001 af
 Primary = 0.17 cfs @ 12.08 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 5.46' @ 12.08 hrs Surf.Area= 100 sf Storage= 191 cf

Plug-Flow detention time= 169.5 min calculated for 0.009 af (69% of inflow)
 Center-of-Mass det. time= 75.1 min (830.1 - 755.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	200 cf	10.00'W x 10.00'L x 5.71'H Prismatic 571 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	5.21'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	0.00'	0.100 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=5.45' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.16 cfs @ 12.08 hrs HW=5.45' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 0.16 cfs @ 1.68 fps)

proposed conditions

Type III 24-hr 10-Year Rainfall=4.88"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 6

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 1A: Building Area-to Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>4.64"
 Tc=5.0 min CN=98 Runoff=0.26 cfs 0.021 af

Subcatchment 1B: Parking Lot and Plaza Runoff Area=9,102 sf 95.59% Impervious Runoff Depth>4.53"
 Tc=5.0 min CN=97 Runoff=1.00 cfs 0.079 af

Subcatchment 1S: Building Area-Direct Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>4.64"
 Tc=5.0 min CN=98 Runoff=0.26 cfs 0.021 af

Reach DP1: Design Point 1 Inflow=1.51 cfs 0.116 af
 Outflow=1.51 cfs 0.116 af

Pond 2P: Dry Well Peak Elev=5.53' Storage=194 cf Inflow=0.26 cfs 0.021 af
 Discarded=0.00 cfs 0.001 af Primary=0.25 cfs 0.016 af Outflow=0.25 cfs 0.017 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.121 af Average Runoff Depth = 4.57"
2.89% Pervious = 0.009 ac 97.11% Impervious = 0.309 ac

proposed conditions

Type III 24-hr 10-Year Rainfall=4.88"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 7

Summary for Subcatchment 1A: Building Area- to Recharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.021 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.00 cfs @ 12.07 hrs, Volume= 0.079 af, Depth> 4.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.88"

Area (sf)	CN	Description
* 8,701	98	Impervious Area
401	80	>75% Grass cover, Good, HSG D
9,102	97	Weighted Average
401		4.41% Pervious Area
8,701		95.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min min

Summary for Subcatchment 1S: Building Area- Direct Discharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.26 cfs @ 12.07 hrs, Volume= 0.021 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.88"

proposed conditions

Type III 24-hr 10-Year Rainfall=4.88"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 8

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.11% Impervious, Inflow Depth > 4.37" for 10-Year event
Inflow = 1.51 cfs @ 12.07 hrs, Volume= 0.116 af
Outflow = 1.51 cfs @ 12.07 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Dry Well

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth > 4.64" for 10-Year event
Inflow = 0.26 cfs @ 12.07 hrs, Volume= 0.021 af
Outflow = 0.25 cfs @ 12.08 hrs, Volume= 0.017 af, Atten= 3%, Lag= 0.4 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.001 af
Primary = 0.25 cfs @ 12.08 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 5.53' @ 12.08 hrs Surf.Area= 100 sf Storage= 194 cf

Plug-Flow detention time= 138.3 min calculated for 0.017 af (80% of inflow)
Center-of-Mass det. time= 62.7 min (809.9 - 747.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	200 cf	10.00'W x 10.00'L x 5.71'H Prismatic 571 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	5.21'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	0.00'	0.100 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=5.52' (Free Discharge)
↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.25 cfs @ 12.08 hrs HW=5.52' (Free Discharge)
↳ **1=Orifice/Grate** (Orifice Controls 0.25 cfs @ 1.90 fps)

proposed conditions

Type III 24-hr 25-Year Rainfall=6.18"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 9

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 1A: Building Area-to Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>5.94"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.027 af

Subcatchment 1B: Parking Lot and Plaza Runoff Area=9,102 sf 95.59% Impervious Runoff Depth>5.82"
Tc=5.0 min CN=97 Runoff=1.27 cfs 0.101 af

Subcatchment 1S: Building Area-Direct Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>5.94"
Tc=5.0 min CN=98 Runoff=0.33 cfs 0.027 af

Reach DP1: Design Point 1 Inflow=1.92 cfs 0.150 af
Outflow=1.92 cfs 0.150 af

Pond 2P: Dry Well Peak Elev=5.58' Storage=195 cf Inflow=0.33 cfs 0.027 af
Discarded=0.00 cfs 0.001 af Primary=0.32 cfs 0.022 af Outflow=0.32 cfs 0.023 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.155 af Average Runoff Depth = 5.86"
2.89% Pervious = 0.009 ac 97.11% Impervious = 0.309 ac

proposed conditions

Type III 24-hr 25-Year Rainfall=6.18"

Prepared by {enter your company name here}

Printed 3/8/2017

HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Page 10

Summary for Subcatchment 1A: Building Area- to Recharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.18"

	Area (sf)	CN	Description
*	2,380	98	Existing Building Area
	2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.27 cfs @ 12.07 hrs, Volume= 0.101 af, Depth> 5.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.18"

	Area (sf)	CN	Description
*	8,701	98	Impervious Area
	401	80	>75% Grass cover, Good, HSG D
	9,102	97	Weighted Average
	401		4.41% Pervious Area
	8,701		95.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min min

Summary for Subcatchment 1S: Building Area- Direct Discharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.027 af, Depth> 5.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-Year Rainfall=6.18"

proposed conditions

Type III 24-hr 25-Year Rainfall=6.18"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 11

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.11% Impervious, Inflow Depth > 5.66" for 25-Year event
 Inflow = 1.92 cfs @ 12.07 hrs, Volume= 0.150 af
 Outflow = 1.92 cfs @ 12.07 hrs, Volume= 0.150 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Dry Well

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth > 5.94" for 25-Year event
 Inflow = 0.33 cfs @ 12.07 hrs, Volume= 0.027 af
 Outflow = 0.32 cfs @ 12.08 hrs, Volume= 0.023 af, Atten= 3%, Lag= 0.4 min
 Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.001 af
 Primary = 0.32 cfs @ 12.08 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 5.58' @ 12.08 hrs Surf.Area= 100 sf Storage= 195 cf

Plug-Flow detention time= 123.0 min calculated for 0.023 af (84% of inflow)
 Center-of-Mass det. time= 56.3 min (799.8 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	200 cf	10.00'W x 10.00'L x 5.71'H Prismatic 571 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	5.21'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	0.00'	0.100 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=5.57' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.31 cfs @ 12.08 hrs HW=5.57' (Free Discharge)
 ↳ **1=Orifice/Grate** (Orifice Controls 0.31 cfs @ 2.05 fps)

proposed conditions

Type III 24-hr 100-Year Rainfall=8.87"

Prepared by {enter your company name here} Printed 3/8/2017
 HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC Page 12

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 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 1A: Building Area-to Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>8.63"
 Tc=5.0 min CN=98 Runoff=0.48 cfs 0.039 af

Subcatchment 1B: Parking Lot and Plaza Runoff Area=9,102 sf 95.59% Impervious Runoff Depth>8.51"
 Tc=5.0 min CN=97 Runoff=1.83 cfs 0.148 af

Subcatchment 1S: Building Area-Direct Runoff Area=2,380 sf 100.00% Impervious Runoff Depth>8.63"
 Tc=5.0 min CN=98 Runoff=0.48 cfs 0.039 af

Reach DP1: Design Point 1 Inflow=2.77 cfs 0.221 af
 Outflow=2.77 cfs 0.221 af

Pond 2P: Dry Well Peak Elev=5.70' Storage=200 cf Inflow=0.48 cfs 0.039 af
 Discarded=0.00 cfs 0.001 af Primary=0.46 cfs 0.034 af Outflow=0.47 cfs 0.035 af

Total Runoff Area = 0.318 ac Runoff Volume = 0.227 af Average Runoff Depth = 8.55"
2.89% Pervious = 0.009 ac 97.11% Impervious = 0.309 ac

proposed conditions

Type III 24-hr 100-Year Rainfall=8.87"

Prepared by {enter your company name here}
HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Printed 3/8/2017
Page 13

Summary for Subcatchment 1A: Building Area- to Recharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 0.039 af, Depth> 8.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.87"

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Subcatchment 1B: Parking Lot and Plaza Area

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.83 cfs @ 12.07 hrs, Volume= 0.148 af, Depth> 8.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.87"

Area (sf)	CN	Description
* 8,701	98	Impervious Area
401	80	>75% Grass cover, Good, HSG D
9,102	97	Weighted Average
401		4.41% Pervious Area
8,701		95.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, 5 Min min

Summary for Subcatchment 1S: Building Area- Direct Discharge

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 0.039 af, Depth> 8.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=8.87"

proposed conditions

Type III 24-hr 100-Year Rainfall=8.87"

Prepared by {enter your company name here}
HydroCAD® 10.00-13 s/n 00853 © 2014 HydroCAD Software Solutions LLC

Printed 3/8/2017
Page 14

Area (sf)	CN	Description
* 2,380	98	Existing Building Area
2,380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry, Tc Min 5 Min

Summary for Reach DP1: Design Point 1

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

Inflow Area = 0.318 ac, 97.11% Impervious, Inflow Depth > 8.34" for 100-Year event
Inflow = 2.77 cfs @ 12.07 hrs, Volume= 0.221 af
Outflow = 2.77 cfs @ 12.07 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Dry Well

Inflow Area = 0.055 ac, 100.00% Impervious, Inflow Depth > 8.63" for 100-Year event
Inflow = 0.48 cfs @ 12.07 hrs, Volume= 0.039 af
Outflow = 0.47 cfs @ 12.08 hrs, Volume= 0.035 af, Atten= 3%, Lag= 0.6 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.001 af
Primary = 0.46 cfs @ 12.08 hrs, Volume= 0.034 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 5.70' @ 12.08 hrs Surf.Area= 100 sf Storage= 200 cf

Plug-Flow detention time= 98.7 min calculated for 0.035 af (89% of inflow)
Center-of-Mass det. time= 46.7 min (785.4 - 738.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	200 cf	10.00'W x 10.00'L x 5.71'H Prismatic 571 cf Overall x 35.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	5.21'	6.0" Vert. Orifice/Grate C= 0.600
#2	Discarded	0.00'	0.100 in/hr Exfiltration over Wetted area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=5.69' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=0.45 cfs @ 12.08 hrs HW=5.69' (Free Discharge)
1=Orifice/Grate (Orifice Controls 0.45 cfs @ 2.35 fps)

Storm Water Pollution Prevention Plan for Construction Activities

National Association of Armenian Studies and Research

395 Concord Avenue
Belmont, Massachusetts 02478

March 14, 2017

SMMA # 15091.03

SITE DESCRIPTION

Existing Conditions

This Stormwater Pollution Prevention Plan is a comprehensive plan for mitigating and controlling construction impacts associated with the construction of the building addition for the National Association for Armenian Studies and Research building.

The project site is located at 695 Concord Avenue and is owned by the National Association of Armenian Studies. The lot is 13,862 SF and has 90 feet of frontage on Concord Avenue. The property is bound by Concord Avenue to the south, the US Post Office to the west, the MBTA commuter rail to the north, and a 385 Concord Avenue to the east.

The property contains a 2-story brick building with a full basement with a footprint of approximately 4000 SF. The main building entrance faces Concord Avenue with a secondary egress in the rear of the building. The remainder of the lot is paved primarily with bituminous pavement for parking and vehicle circulation. There are 2 curb cuts in Concord Avenue, the east curb cut is the entrance and the west curb cut is an exit.

Planned Construction Activities

The proposed project is for an addition to the existing building that includes the addition of a 3rd floor and a redesigned front façade addition. The building footprint will be enlarged by approximately 700 SF, mostly as an extension to the front of the building. The front addition will extend up 3 stories and the 3rd floor addition will be a full floor addition. The rear stair will be reconstructed to meet the building code and will be slightly enlarged to accomplish this.

The site areas on the east, west and north side of the existing building will remain as bituminous paved areas for parking and circulation.

The project is proposing to install a recharge structure to infiltrate rooftop runoff. On drawing C-141 and C-501 a leaching chamber is proposed in the southeast portion of the site. This chamber will accept runoff from approximately half of the roof and will retain and infiltrate the first 1 inch of every storm.

The addition of the recharge structure will improve the stormwater conditions on the site. The stormwater management system will conform to the Massachusetts Department of Environmental Protection Stormwater Management Policy.

CONTROL MEASURES

Erosion and Sedimentation Controls: Stabilization Measures

The following stabilization measures will be taken to minimize on-site erosion and sedimentation of adjacent resource areas during construction.

- The smallest area of land practicable shall be exposed at any one time by phasing the development.
- Wherever feasible, existing vegetative shall be retained and protected.
- Disturbed or exposed soil surfaces shall be temporarily stabilized after each work day with hay, straw, mulch or any other protective covering.

Erosion and Sedimentation Controls: Structural Measures

The following structural measures will be taken to minimize on-site erosion and sedimentation of adjacent resource areas during construction.

- Disturbed areas shall be protected from stormwater runoff. Runoff shall be diverted from flowing over disturbed areas by means of temporary diversion.
- No construction activities shall occur down gradient of the downslope siltation barrier.

Other Control Measures

In addition to the previously described controls, construction shall conform to all specifications as designated on the site plan, and in any other document or permits issued in association with this project. Additional measures will include the following:

- Paved areas should be swept periodically to remove sediments from construction activities.
- Sanitary wastes generated on-site will be treated and/or disposed of in accordance with applicable state and local requirements.
- Construction site waste materials will be properly contained on-site and disposed of at an off-site location in accordance with local and state regulations
- All on-site drainage and adjacent roadway drainage shall be maintained in proper working condition during and after construction.
- The Contractor will provide a list of proposed materials, including manufacturers' product data and test reports that verify conformance with practices established herein.
- The Contractor will attend a pre-construction meeting to discuss the erosion and sedimentation control plan and how it relates to his intended construction schedule.

- Erosion control devices shall be inspected after all storm events, prior to weekends and prior to forecasted storm events. Damage to erosion control devices shall be repaired within four hours of observation.
- Sediment will be removed from structures when they accumulate to a depth of 1/3 of the structure's height. Structures will be repaired or replaced as needed.

Spill Prevention

A spill contingency plan will be implemented during construction, including the following provisions:

- Equipment necessary to quickly attend to inadvertent spills or leaks will be stored on-site in a secure but accessible location. Such equipment shall include safety goggles, chemically resistant gloves and overshoe boots, water and chemical fire extinguishers, sand and shovels, suitable absorbent materials, storage containers and first aid equipment.
- Spills or leaks will be treated properly according to material type, volume of spillage, and location of the spill. Mitigation will include preventing further spillage, containing the spilled material in a safe and environmentally sound manner, and remediating any damage done to the environment.
- For spills of < 5 gallons of material, proceed with source control and containment, and clean up with absorbent materials or other applicable means, unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
- For spills of > 5 gallons of material, immediately contact the MA DEP. Hazardous Waste Incident Response Group, at 617-792-7653, and an approved emergency response contractor. Provide information on the type of material spilled, the location of the spill, the quantity of the spill and the time of the spill to the emergency response contractor or coordinator, and proceed with prevention, containment and/or clean-up if so directed.
- If there is a Reportable Quantity (RQ) release during the construction period, then the National Response Center will be notified immediately at (800)424-8802; within 14 days a report will be submitted to the EPA regional office describing the release, the date and circumstances of the release, and the steps taken to prevent another release. This Storm Water Prevention Plan must be updated to reflect any such steps or actions taken.
- After perimeter site erosion control measures are installed, but before any further site work occurs, provide a 55-gallon spill containment kit and maintain on site throughout the construction period.

POST CONSTRUCTION STORMWATER MANAGEMENT

Stormwater Management System Owner: **National Association for Armenian Studies and Research**
 395 Concord Avenue
 Belmont, MA 02478

The System Owners or their Assignee will implement the Operations and Maintenance Plan in perpetuity.

COMPLIANCE WITH FEDERAL, STATE AND LOCAL

The project will comply with all applicable Federal, State and Local regulations and Sections 404 and 401 of the Federal Clean Water Act.

MAINTENANCE / INSPECTION PROCEDURES

In order to meet the above provisions during construction, the following maintenance measures shall be taken:

- The contractor or designated site monitor shall have on premises at all times 20 new/unused haybales with stakes and 50 ft of silt fence, or 50 LF of wattles for the purpose of making immediate repairs in erosion/sedimentation barriers as needed.
- Siltation barriers and other erosion and sedimentation control devices shall not be removed and shall be maintained until construction is complete.

The following inspection activities will be completed by the qualified, designated site monitor:

- Erosion control, sedimentation prevention and stormwater management measures shall be inspected at least once per week throughout the construction period.
- All potential problem areas shall also be inspected within 24 hours of any storm exceeding 0.5 inches of precipitation.
- A log of all inspection results shall be maintained on-site.
- All needed repairs or modifications shall be reported to the contractors to permit the timely implementation of required actions. Necessary repairs or modifications shall be implemented within 7 days of the inspection.
- This Storm Water Pollution Prevention Plan will be modified within 7 calendar days to reflect any modifications to the pollution prevention measures required as a result of inspection.

- Weekly reports of all maintenance and inspection activities will be maintained on-site in conformance with the NPDES permit conditions.
- Inspection and weekly reporting will continue until construction is complete.

NON-STORMWATER DISCHARGES

There will be no non-permitted non-stormwater discharges associated with this project. Specifically prohibited are the discharges of process waters, non-contact cooling water, vehicle wash water and sanitary wastewater via the stormwater drainage system. Naturally occurring waters on the site may be routed off-site via the stormwater drainage system, and that system may also carry waters from fire fighting activities, irrigation, water flushings, uncontaminated groundwater, air conditioning condensate and routine building and paving washdown waters containing no detergent or hazardous materials, provided these uses are incorporated into this plan.

<u>Water Source</u> <u>Volume Per Day*</u>	<u>Planned Discharge*</u>	<u>Estimated</u>
Streams/springs	NO	
Fire Fighting	EMERGENCY ONLY	
Irrigation	NO	
Waterlines	NO	
Groundwater	NO	
Air conditioning condensate	NO	
Building/pavement washdown	NO	

De-watering Plan

If groundwater discharge is necessary, water will be pumped into a temporary recharge basin constructed with crushed stone or other approved treatment methods prior to being discharged.

CONTRACTORS

Responsibility

Name:
Address:
Telephone:

Contractor

The contractor is responsible for the completion of all planned construction activities, including the installation and maintenance of control measures as outlined in this plan

CONTRACTORS CERTIFICATION

Contractor

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the stormwater discharges associated with industrial activity from the construction site identified as part of this certification.

Signature _____ Date _____

Printed Name _____

Representing _____

(Note: Additional copies of this form may be attached in cases where more than one contractor has responsibility for compliance)

OWNER

Responsibility

Name: NAASR
Address: 296 Concord Avenue
Belmont, MA 02478

Contractor

The owner is responsible for the conduct of all construction activities, and ultimate compliance with all provisions of the Storm Water Pollution Prevention Plan.

OWNER CERTIFICATION

Owner

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 upon my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information 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 or imprisonment for knowing violations.

Signature _____ Date _____

Printed Name _____

Representing _____

(Note: Additional copies of this form may be attached in cases where more than one owner has responsibility for compliance)

Operation and Maintenance Plan

National Association of Armenian Studies and Research

395 Concord Avenue
Belmont, Massachusetts 02478

March 3, 2017

OPERATION AND MAINTENANCE PLAN

This Operation and Maintenance (O&M) Plan has been developed in accordance with the Massachusetts DEP Stormwater Management Standard No. 9 to ensure that the stormwater management system functions as designed.

Owner and Responsible Party

The National Association for Armenian Studies and Research (hereby referred to as the owner) shall be the party responsible for adherence to the DEP Stormwater Management Policy after completion of construction. The owner shall designate a Site Supervisor who shall assume responsibility for this maintenance plan, post construction. The owner shall be responsible for financing maintenance and emergency repairs of the system.

If the property owner changes, it shall be the responsibility of the owner to notify the future owner of the stormwater management system and its components, as well as the requirements for operation and maintenance.

The Town of Belmont shall be allowed to enter property at reasonable times and in a reasonable manner for the purpose of inspection of the systems.

Maintenance Activities

The following site maintenance activities are required to maintain optimal pollutant attenuation by the drainage system. A maintenance schedule follows in the next section.

Pavement Areas

The pavement areas should be swept to remove solids and reduce the amount of suspended solids in the runoff. All accumulated trash and litter throughout the site should be collected and discarded.

Dry Well

The system should be checked to ensure functionality after every major storm for the first few months after installation. After system is observed to be working properly, inspect yearly. The area above and immediately adjacent to the dry well should be checked for depressions quarterly in the first year after installation, yearly afterwards. The area above and adjacent to the dry well should also be inspected to ensure that no unauthorized modifications have been made.

Winter Salt & Sand Use

For concrete walkways and plaza areas, no binary chloride compounds shall be applied, i.e. sodium chloride, calcium chloride or magnesium chloride, for a minimum of 6 months after concrete installation is complete. This allows the concrete to cure to its optimal strength. For the first year, an aggressive snow removal process through mechanical means or hand shoveling followed by the use of sand or fine gravel mixtures optimal for the life of the sidewalks and plaza systems.

Maintenance Schedule

Site Component	Required Action	Frequency
Dry Well	Inspect dry well for functionality	After major rainfall event after installation for several months; yearly after
	Check for depressions in areas above and surrounding the dry well	Quarterly in first year; yearly after
	Confirm that no unauthorized modifications have been performed to site over and surrounding the dry well	Yearly
	Inspect interior of dry well and clean if needed	Yearly
Pavement Areas	Sweep pavement areas	Minimum twice per year, first after final snow melt then after final leaf fall. As necessary in Summer months.
	Remove accumulated trash, litter, and discarded materials throughout the site	Weekly

REPORTING AND DOCUMENTATION

The Site Supervisor for the owner shall be responsible for maintaining an accurate Site Maintenance Log. The Site Maintenance Log shall be located on-site and made available to the Belmont Conservation Commission upon request.

The Site Maintenance Log shall:

- Document the completion of planned maintenance tasks.
- Identify the person responsible for the completion of tasks.
- Identify any outstanding problems, malfunctions or inconsistencies identified during the course of routine maintenance.

The Site Supervisor shall be responsible for ensuring that the scheduled tasks are appropriately completed as described in this plan and the Site Maintenance Log accurately represents activities carried out as described in this plan.

Site Maintenance Log

A Site Maintenance Log shall be completed as described above, and shall, at a minimum include the following items:

- Completed Inspection Checklist.
- Date of activity performed.
- Specific maintenance task.
- Structural components maintained, as identified on the O & M Plan.
- Staff person or contractor performing activity on behalf of owner.
- Supervisor verification of maintenance activity.
- Recommended additional maintenance task.
- Means to document identified areas of concern, erosion or systems discrepancies requiring attention.

Public Safety Features

On-site public safety features include the following:

- Heavy-duty covers and grates on all manholes and catch-basins designed to withstand H2O loading.
- Maintain or reduce peak runoff rates from pre-development to post-development.
- Creation and implementation of Operations & Maintenance Plan to ensure the ability of the stormwater management system to continue to operate as designed.

Inspection Checklist

Date of Inspection _____ Checklist Completed By _____

Reviewed by Supervisor _____

Site Component	Required Action	Frequency	Comments
Dry Well	Inspect for Functionality	After major rainfall events after installation, yearly after	
	Check for depressions in areas above and surrounding the dry well	Quarterly First Year, Yearly After	
	Inspect Interior for sediment and clean as needed	Annually	
Pavement Areas	Sweep Pavement	Minimum twice yearly. First after snow melt and after final leaf fall. As necessary in summer months.	
	Remove trash, litter, and discarded materials	Weekly	

Appendix Site Plans

E

*Existing Conditions Plan (Certified Plot Plans)
Site Plans
Zoning Compliance
Checklist (on plans)*



NAASR ARMENIAN CENTER

395 CONCORD AVE.
BELMONT, MA 02478

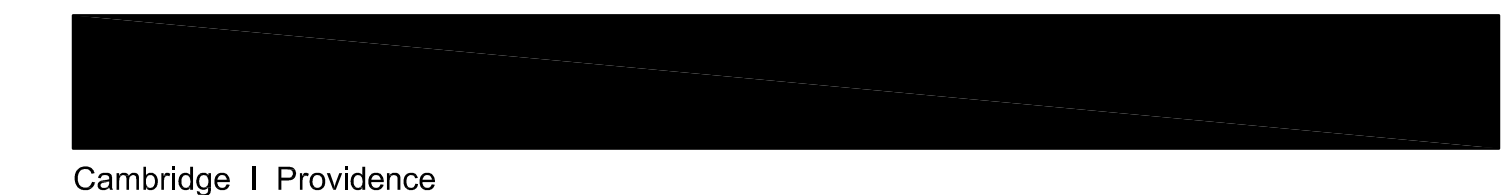
DESIGN AND SITE PLAN REVIEW 03/20/17 PROJECT # 15091.03

SITE PLANS

- EXISTING CONDITIONS SURVEY
- C-121 LAYOUT & MATERIALS PLAN
- C-122 PARKING PLAN
- C-141 EROSION CONTROL, GRADING & UTILITY PLAN
- C-501 DETAILS I

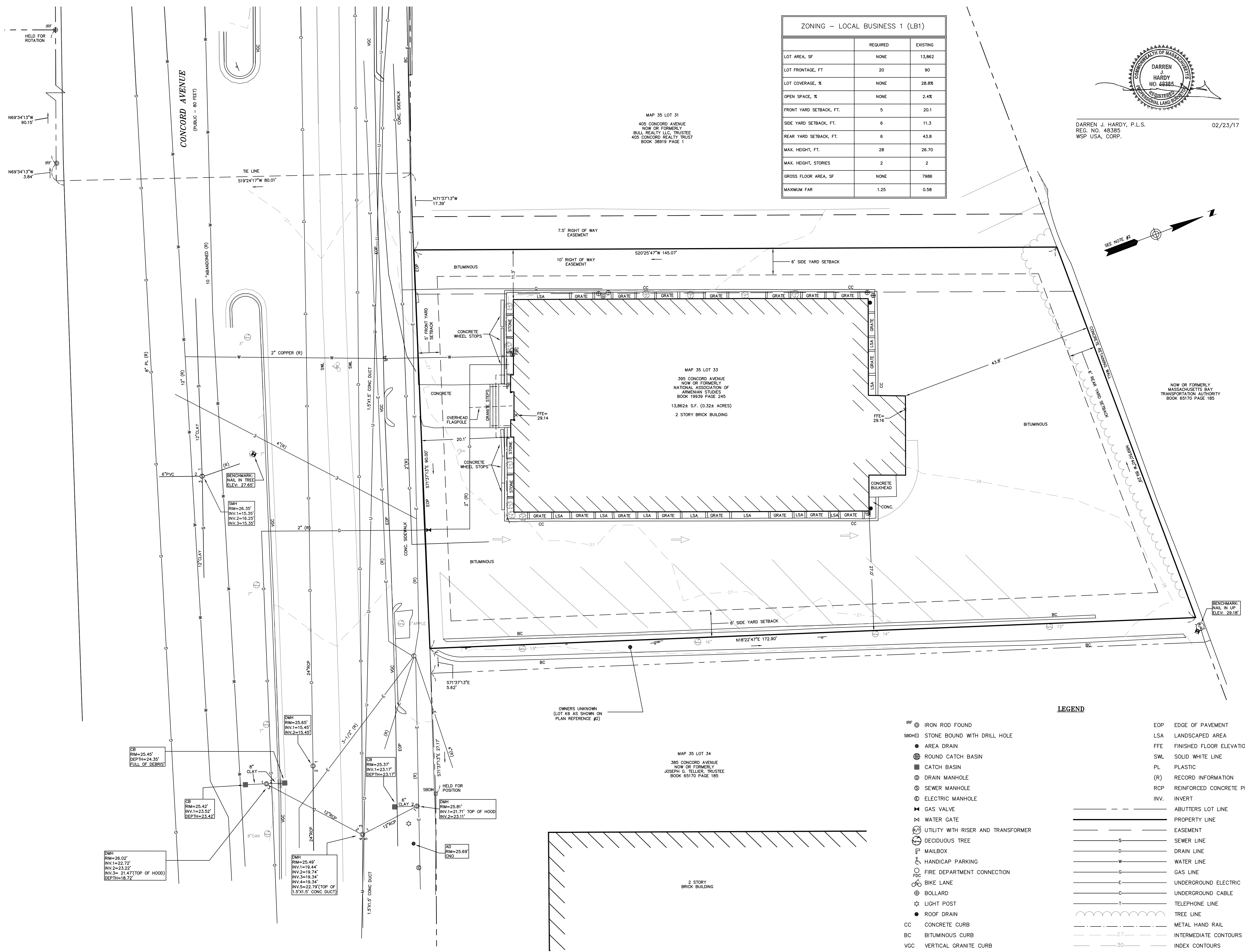


LOCUS MAP
SCALE: 1" = 500'



SMMA

ARCHITECTURE
ENGINEERING
PLANNING
INTERIORS

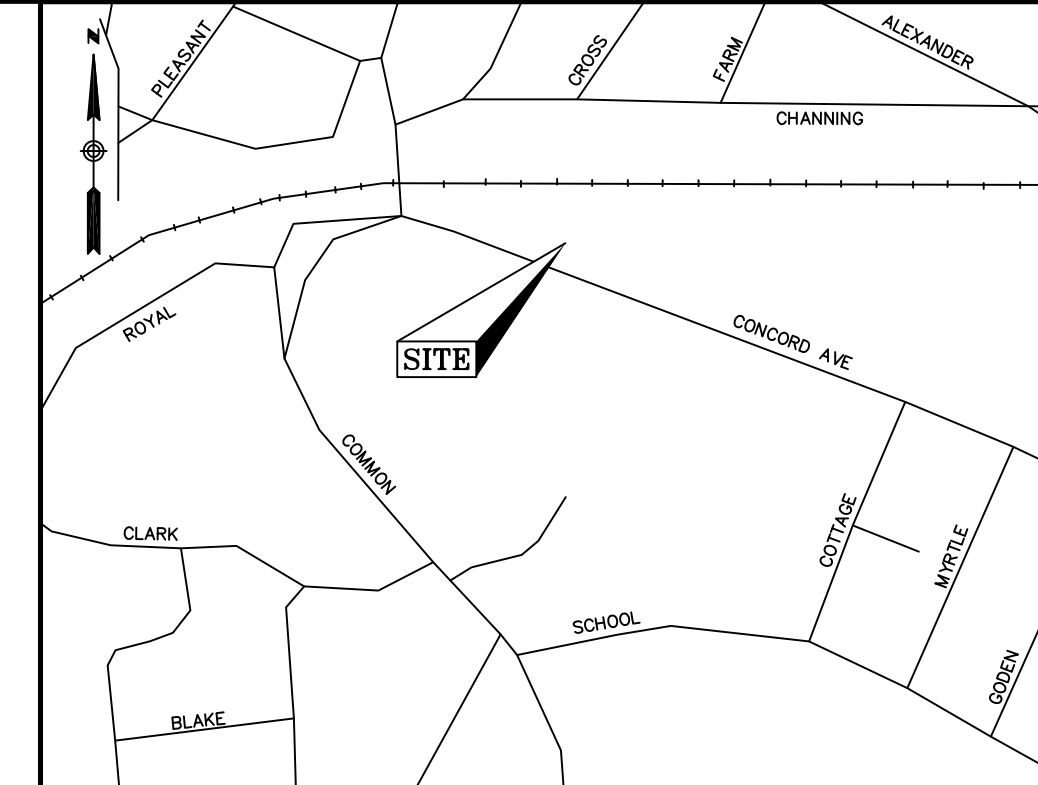


ZONING - LOCAL BUSINESS 1 (LB1)

	REQUIRED	EXISTING
LOT AREA, SF	NONE	13,862
LOT FRONTAGE, FT	20	90
LOT COVERAGE, %	NONE	28.8%
OPEN SPACE, %	NONE	2.4%
FRONT YARD SETBACK, FT.	5	20.1
SIDE YARD SETBACK, FT.	6	11.3
REAR YARD SETBACK, FT.	6	43.8
MAX. HEIGHT, FT.	28	26.70
MAX. HEIGHT, STORES	2	2
GROSS FLOOR AREA, SF	NONE	7986
MAXIMUM FAR	1.25	0.58



DARREN J. HARDY, P.L.S.
REG. NO. 48385
WSP USA, CORP.
02/23/17



LOCUS MAP (N.T.S.)

NOTES

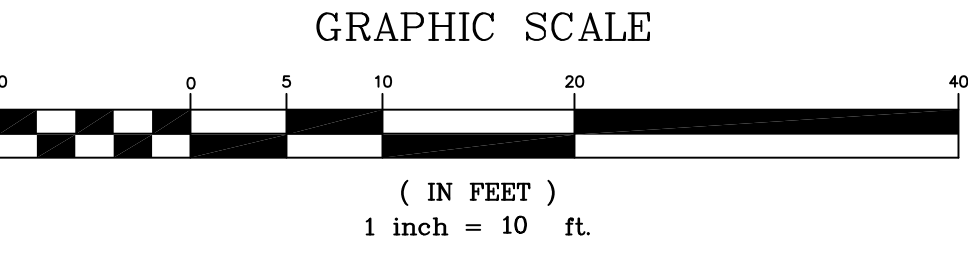
- THIS PLAN WAS PREPARED FROM AN ACTUAL ON THE GROUND SURVEY CONDUCTED BY WSP ON SEPTEMBER 1-2, 2016.
- THE HORIZONTAL DATUM SHOWN HEREON REFERENCES THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (MASSACHUSETTS MAINLAND ZONE NAD83).
- THE VERTICAL DATUM SHOWN HEREON REFERENCES NAVD88.
- THE UNDERGROUND UTILITY INFORMATION SHOWN HEREON LABELED WITH AN (R) ARE FROM RECORD DOCUMENTS. ADDITIONAL FIELD INVESTIGATION WILL BE REQUIRED BY OTHERS TO DETERMINE THE ACTUAL PIPE SIZE(S) AND TYPE(S).

PLAN REFERENCES

- PLAN ENTITLED "SUBDIVISION PLAN OF LAND IN BELMONT," DATED DECEMBER 29, 1960, PREPARED BY FRED A. JOYCE, SURVEYOR. PLAN ON RECORD AT THE MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS AS LAND COURT PLAN 2367-30.
- PLAN ENTITLED "SUBDIVISION PLAN OF LAND, BELMONT, MASS.," DATED JUNE 26, 1968, PREPARED BY FRED R. JOYCE, SURVEYOR. PLAN ON RECORD AT THE MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS AS PLAN No. 773 OF 1968.
- PLAN ENTITLED "PLAN OF LAND IN BELMONT, MASS.," DATED OCTOBER 31, 1966, PREPARED BY FRED R. JOYCE, SURVEYOR. PLAN ON RECORD AT THE MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS AS PLAN No. 1426 OF 1966.
- PLAN ENTITLED "PLAN OF LAND IN BELMONT, MASS.," DATED JULY 14, 1959, PREPARED BY RICHARD B. BETTS, SURVEYOR. PLAN ON RECORD AT THE MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS AS PLAN No. 1524 OF 1959.
- PLAN ENTITLED "PLAN OF LAND IN BELMONT, MASS.," DATED AUGUST 2, 1956, PREPARED BY FRED A. JOYCE, SURVEYOR. PLAN ON RECORD AT THE MIDDLESEX SOUTH COUNTY REGISTRY OF DEEDS AS PLAN No. 1331 OF 1956.

UTILITY STATEMENTS

THE LOCATION OF THE UTILITIES AS SHOWN HEREON HAVE BEEN COMPILED FROM VISIBLE STRUCTURES AND INFORMATION OBTAINED FROM VARIOUS SOURCES. THE ACTUAL LOCATION OF ALL UTILITIES AND UNDERGROUND STRUCTURES SHALL BE CONSIDERED APPROXIMATE AND SHALL BE VERIFIED BY THE OWNER PRIOR TO ANY CONSTRUCTION. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICES OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED.



LEGEND

- IRF IRON ROD FOUND
- SBDH STONE BOUND WITH DRILL HOLE
- AREA DRAIN
- ROUND CATCH BASIN
- ⊕ CATCH BASIN
- ⊙ DRAIN MANHOLE
- ⊙ SEWER MANHOLE
- ⊙ ELECTRIC MANHOLE
- ⊙ GAS VALVE
- ⊙ WATER GATE
- ⊙ UTILITY WITH RISER AND TRANSFORMER
- DECIDUOUS TREE
- ⊙ MAILBOX
- ⊙ FIRE DEPARTMENT CONNECTION
- ⊙ BIKE LANE
- ⊙ BOLLARD
- ⊙ LIGHT POST
- ROOF DRAIN
- CC CONCRETE CURB
- BC BITUMINOUS CURB
- VGC VERTICAL GRANITE CURB
- EOP EDGE OF PAVEMENT
- LSA LANDSCAPED AREA
- FFE FINISHED FLOOR ELEVATION
- SWL SOLID WHITE LINE
- PL PLASTIC
- (R) RECORD INFORMATION
- RCP REINFORCED CONCRETE PIPE
- INV. INVERT
- ABUTTERS LOT LINE
- PROPERTY LINE
- EASEMENT
- SEWER LINE
- DRAIN LINE
- WATER LINE
- GAS LINE
- UNDERGROUND ELECTRIC
- UNDERGROUND CABLE
- TELEPHONE LINE
- TREE LINE
- METAL HAND RAIL
- INTERMEDIATE CONTOURS
- INDEX CONTOURS

REVISION	DATE	DESCRIPTION
---	---	---

EXISTING CONDITIONS SURVEY
395 CONCORD AVENUE
BELMONT, MASSACHUSETTS
PREPARED FOR
SMMA



155 Main Dunstable Rd. Suites 120 & 125 • Nashua, NH 03060 • 603.595.7900
www.wspgroup.com

Drawn By	CG	Date	SEPTEMBER 12, 2016	Job No.	188736B
Surveyed By	BC TO	Scale	1" = 10'	Sheet No.	1 OF 1
Checked By	DJH	Book No.	N281		

ZONING - LOCAL BUSINESS 1 (LB1)			
	REQUIRED	EXISTING	PROPOSED
LOT AREA, SF	NONE	13,862	13,862
LOT FRONTAGE, FT	20	90	90
LOT COVERAGE, %	NONE	28.8%	33.8%
OPEN SPACE, %	NONE	3.6%	4.8%
FRONT YARD SETBACK, FT.	5	20.1	5.17
SIDE YARD SETBACK, FT.	6	11.3	10.22
REAR YARD SETBACK, FT.	6	43.8	41.05
MAX. HEIGHT, FT.	28**	26.70	43.0****
MAX. HEIGHT, STORIES	2***	2	3****
GROSS FLOOR AREA, SF	NONE	7986	14,299
MAXIMUM FAR	1.25*	0.58	1.03
IMPERVIOUS AREA, SF	NONE	13,560	13,491

- * UP TO 1.5 BY SPECIAL PERMIT
- ** UP TO 32 FEET BY SPECIAL PERMIT
- *** UP TO 3 BY SPECIAL PERMIT
- **** EXEMPT

- NOTES:**
- DIMENSIONS SHOWN OFF THE BUILDING ARE FROM THE EXTERIOR FACE OF THE FOUNDATION WALL.
 - DIMENSIONS SHOWN IN THE PARKING LOTS AND ROADWAYS ARE FROM THE FACE OF CURB, CENTERLINE OF STRIPING, AND EDGE OF PAVEMENT.
 - DIMENSIONS SHOWN IN THE CONCRETE WALKWAYS AND PLAZAS ARE FROM SCORE JOINTS, EXPANSION JOINTS, AND EDGE OF CONCRETE.
 - SEE ARCHITECTURAL PLANS FOR EXACT BUILDING DIMENSIONS AND LOCATIONS OF DOORS.
 - COORDINATE WORK IN THE TOWN RIGHT-OF-WAY WITH THE BELMONT DEPARTMENT OF PUBLIC WORKS.
 - INSTALL SITE FEATURES AND FURNISHINGS TO MEET ADA AND MAAB REQUIREMENTS FOR ACCESSIBILITY.

SEE PARKING PLAN C-122

LEGEND	
	SIGN
	VERTICAL GRANITE CURB
	WHEELCHAIR ACCESSIBLE CURB RAMP
	HANDICAP PARKING
	CONCRETE WALK
	BITUMINOUS CONCRETE PAVEMENT
	BUILDING ADDITION
	3RD FLOOR ADDITION
	PARKING COUNTS
	TRAFFIC DIRECTION FLOW (PAVEMENT MARKING)

PARKING AND TRAFFIC SIGNS

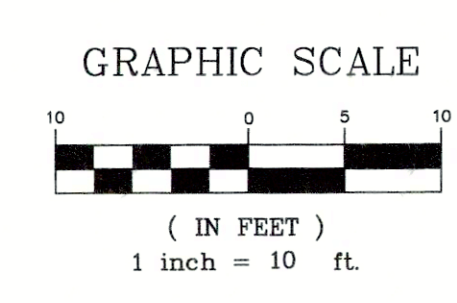
SIGN	SIGN NUMBER	SIGN OF SIGN		DESCRIPTION	MOUNT HEIGHT (TO BOTTOM)	MOUNT TYPE	QUANTITY
		WIDTH	HEIGHT				
	R5-1	30"	30"	WHITE ON RED	7'-0"	CHANNEL	2
	R7-8	12"	18"	BLUE & GREEN ON WHITE	5'-6"	CHANNEL	1
	R7-8P	18"	6"	GREEN ON WHITE	5'-0"	CHANNEL	1
	R6-2	18"	24"	BLACK ON WHITE	±6'-0"	CHANNEL	1

MARK	DATE	DESCRIPTION
	03/20/2017	SITE PLAN REVIEW
		ISSUE LOG
		△ = CLOUDED CHANGE

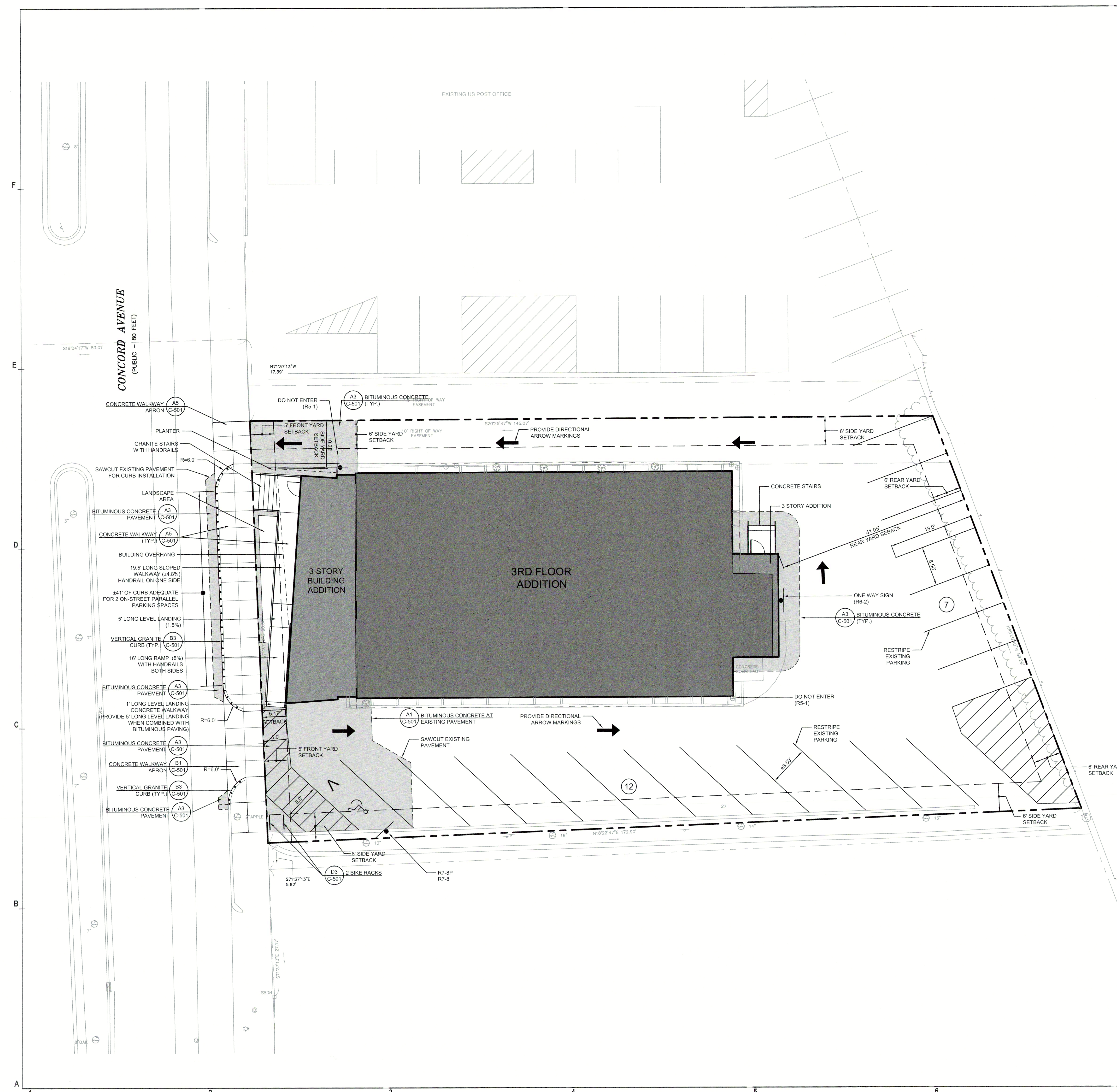


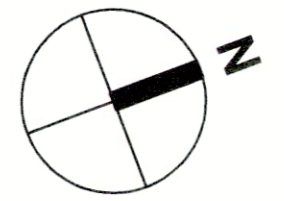
SCALE 1"=10'
DRAWN BY ACO
CHECK BY JCH
PROJ. ARCH./ENGR. JCH
PROJ. MGR. AK
JOB NO. 15091.00
© SYMMES, MAINI & MCKEE ASSOCIATES, INC. 2016

LAYOUT & MATERIALS PLAN



C-121

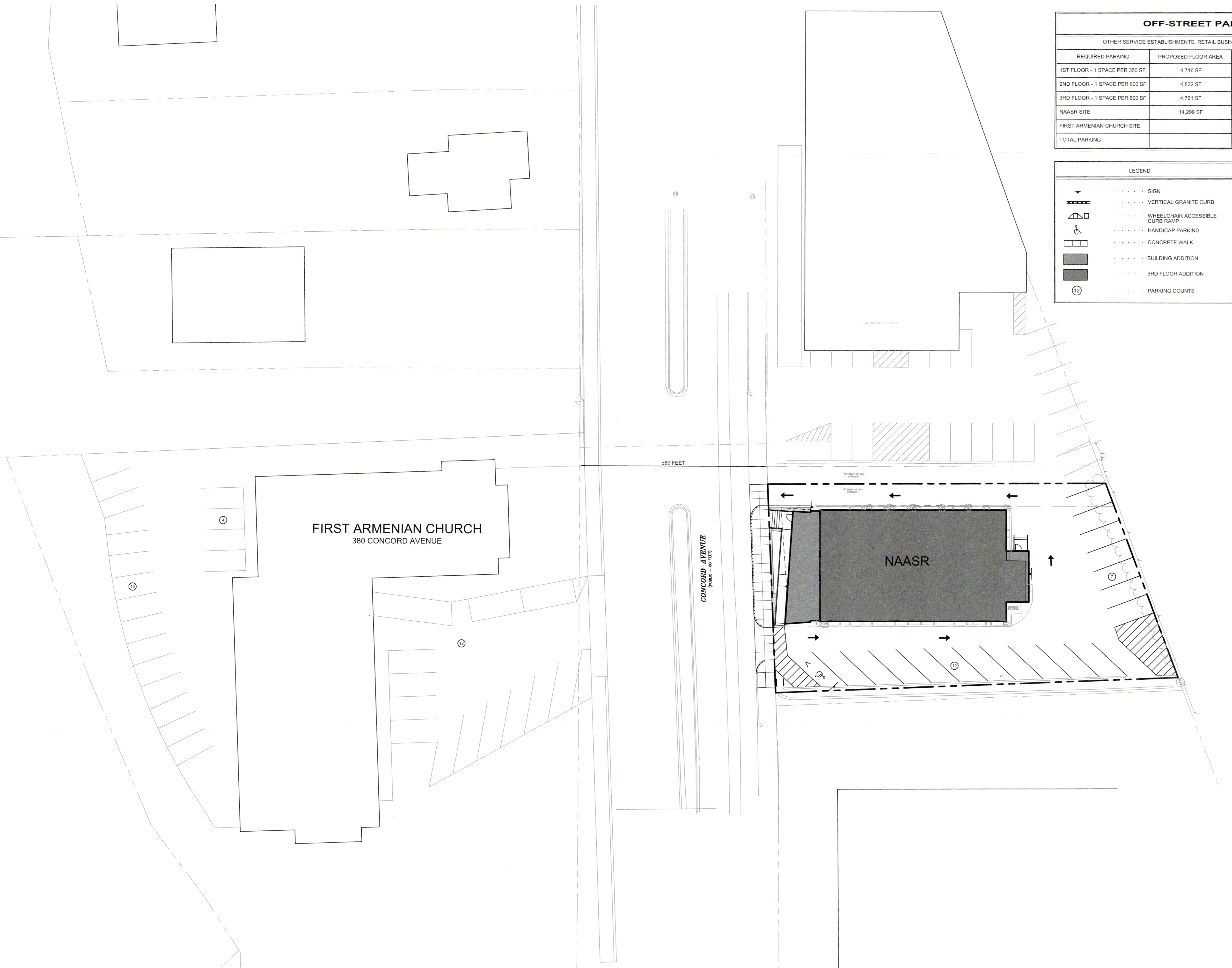




OFF-STREET PARKING				
OTHER SERVICE ESTABLISHMENTS, RETAIL BUSINESSES AND OFFICES				
REQUIRED PARKING	PROPOSED FLOOR AREA	REQUIRED	EXISTING	PROPOSED
1ST FLOOR - 1 SPACE PER 350 SF	4,716 SF	14	-	-
2ND FLOOR - 1 SPACE PER 600 SF	4,822 SF	8	-	-
3RD FLOOR - 1 SPACE PER 600 SF	4,761 SF	8	-	-
NAASR SITE	14,289 SF	-	±23	19
FIRST ARMENIAN CHURCH SITE		-	±31	±31 EXISTING
TOTAL PARKING		30	54	50

LEGEND	
	SIGN
	VERTICAL GRANITE CURB
	WHEELCHAIR ACCESSIBLE CURB RAMP
	HANDICAP PARKING
	CONCRETE WALK
	BUILDING ADDITION
	3RD FLOOR ADDITION
	PARKING COUNTS

F
E
D
C
B
A



NAASR ARMENIAN CENTER
 395 CONCORD AVE.
 BELMONT, MA 02478

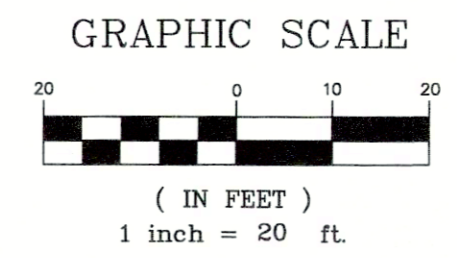
MARK	DATE	DESCRIPTION
03/20/2017		SITE PLAN REVIEW
		ISSUE LOG
△		= CLOUDED CHANGE



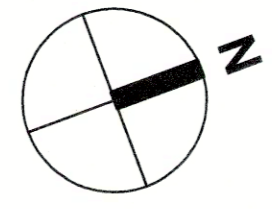
SCALE	1"=20'
DRAWN BY	SMF
CHECK BY	JCH
PROJ.ARCH./ENGR	JCH
PROJ. MGR.	AK
JOB NO.	15091.00

© SYMMES, MAINI & MCKEE ASSOCIATES, INC. 2016

PARKING PLAN



C-122



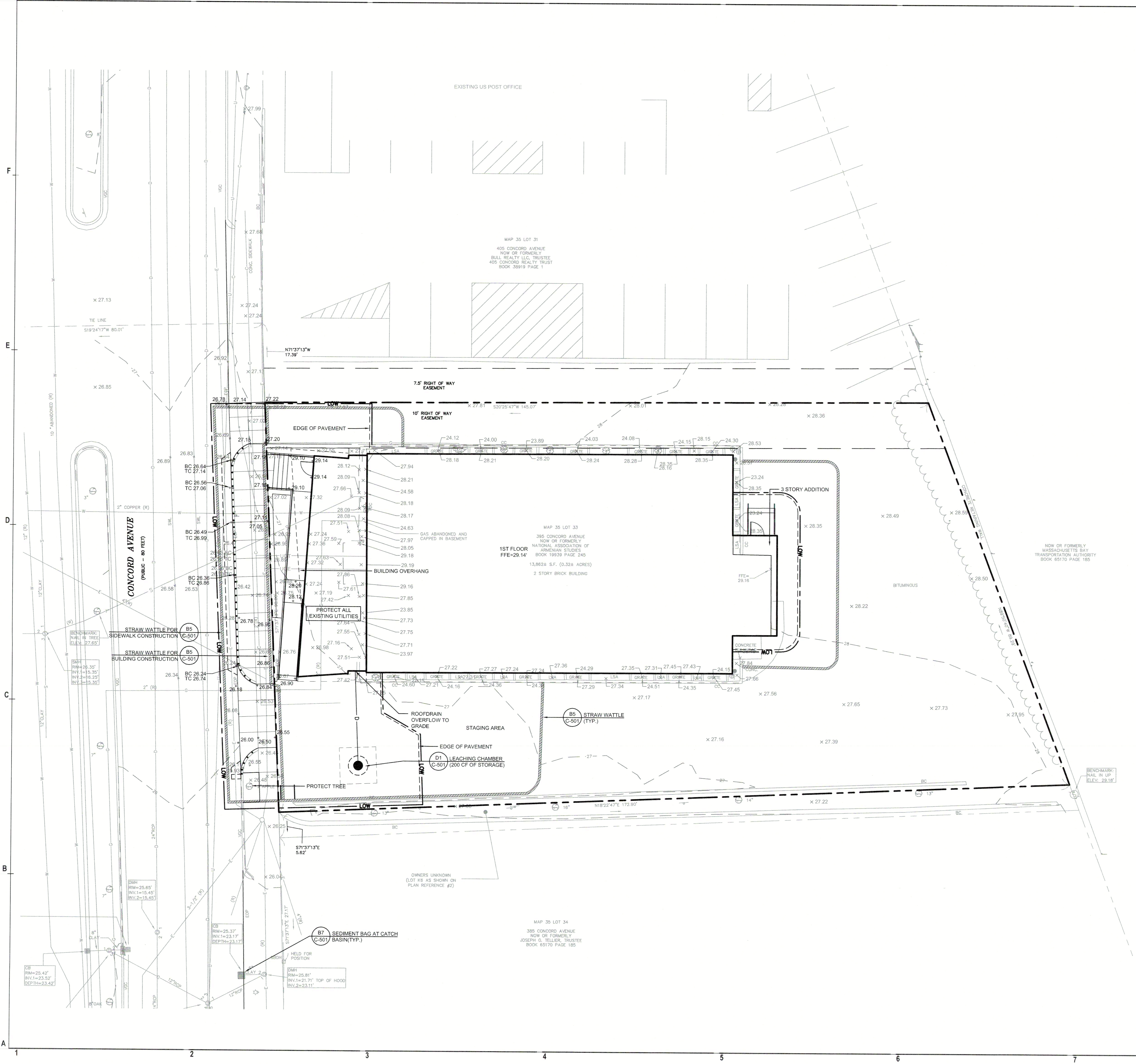
LEGEND	
	LEACHING CHAMBER
	DRAIN LINE
	TOP OF CURB
	BOTTOM OF CURB
	LIMIT OF WORK
	STRAW WATTLE
	EDGE OF PAVEMENT

EROSION CONTROL & CONSTRUCTION SEQUENCING NOTES:

- BUILDING CONSTRUCTION TO BE PERFORMED PRIOR TO SIDEWALK CONSTRUCTION. EXISTING SIDEWALK TO BE MAINTAINED DURING BUILDING CONSTRUCTION.
- SIDEWALK CONSTRUCTION TO BE PERFORMED WHEN BUILDING WORK IS NEAR COMPLETION.
- PROVIDE TEMPORARY CONSTRUCTION FENCE AT LIMIT OF WORK AND STAGING AREA.

GRADING & UTILITY NOTES:

- PRIOR TO CONSTRUCTION, VERIFY EXISTING UTILITY LOCATIONS AS SHOWN ON THE DRAWINGS. REPORT DISCREPANCIES TO THE ARCHITECT.
- PIPE MATERIALS (UNLESS OTHERWISE SPECIFIED):
STORM DRAIN: CORRUGATED POLYETHYLENE PIPE (CPE)
- PROVIDE ADEQUATE BRACING AND SHORING OF ALL EXCAVATIONS IN ACCORDANCE WITH ALL GOVERNING CODES AND REGULATIONS.
- PROTECT NEW AND EXISTING UTILITIES TO REMAIN. DURING CONSTRUCTION.
- COORDINATE WORK WITH APPROPRIATE UTILITY COMPANIES.
- CONTACT THE APPROPRIATE UTILITY COMPANY AND 'DIG SAFE' AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATIONS OF EXISTING UTILITIES. NOTIFY THE ARCHITECT OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION.
- INSTALL BITUMINOUS PAVEMENT AND CEMENT CONCRETE TO HAVE 1% MINIMUM SLOPE FOR DRAINAGE, AND IN ACCORDANCE WITH THE PROPOSED GRADES SHOWN. REPORT ANY AREAS OF DISCREPANCY WITH THE GRADING INDICATED TO THE ARCHITECT PRIOR TO GRADING BASE MATERIAL.
- PROVIDE CONCRETE THRUST BLOCKS AT ALL BENDS 22.5' AND GREATER IN NEW WATER LINES.



NAASR ARMENIAN CENTER
395 CONCORD AVE.
BELMONT, MA 02478

MARK	DATE	DESCRIPTION
03/20/2017		SITE PLAN REVIEW
		ISSUE LOG
△		= CLOUDED CHANGE

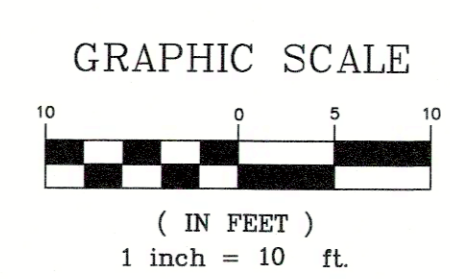


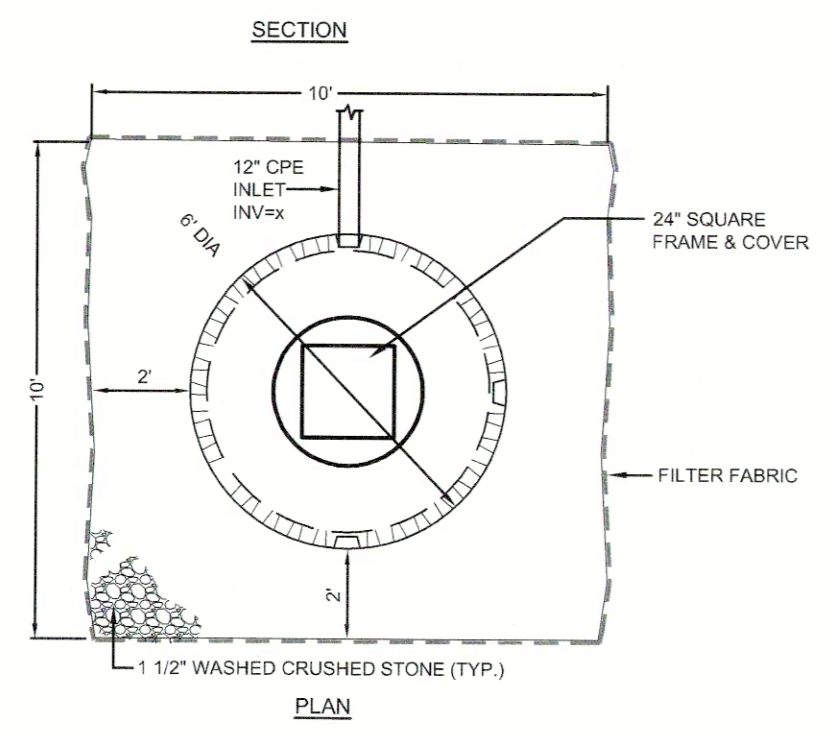
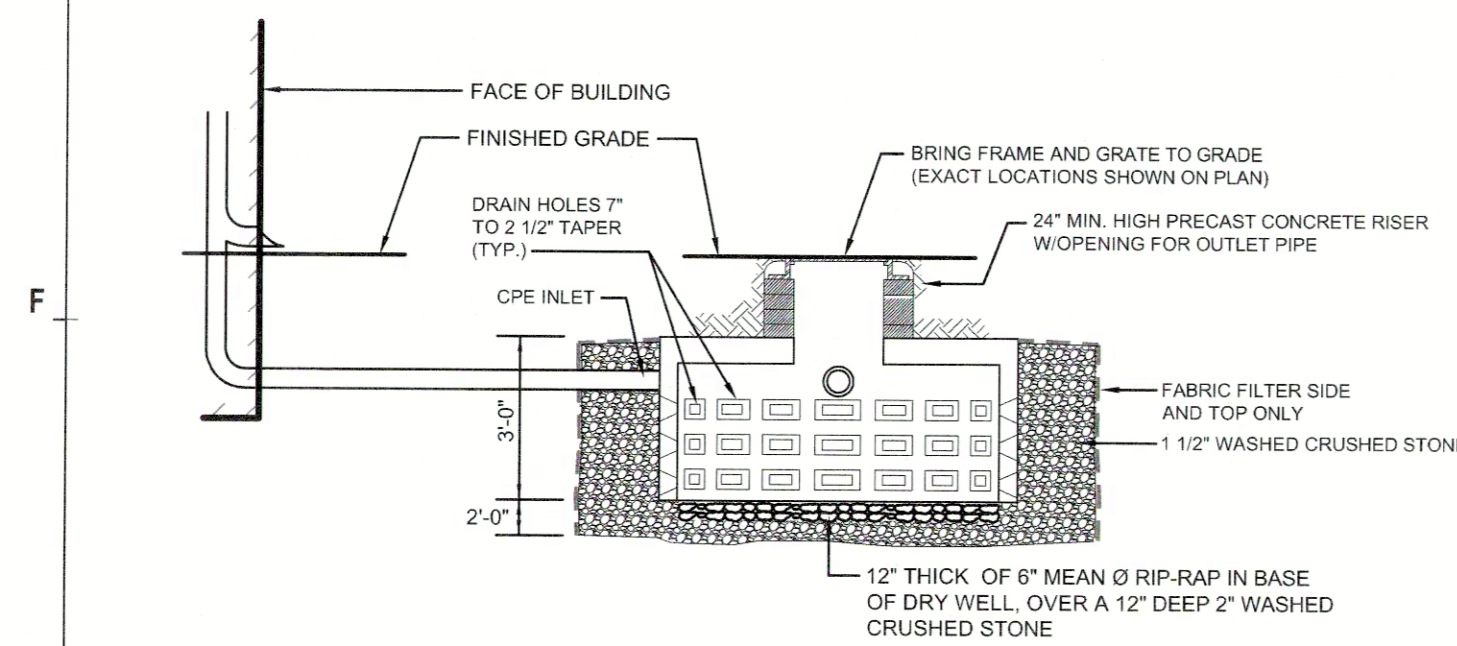
SCALE	1"=10'
DRAWN BY	ACO
CHECK BY	JCH
PROJ. ARCH/ENGR.	JCH
PROJ. MGR.	AK
JOB NO.	15091.00

© SYMMES, MAINI & MCKEE ASSOCIATES, INC. 2016

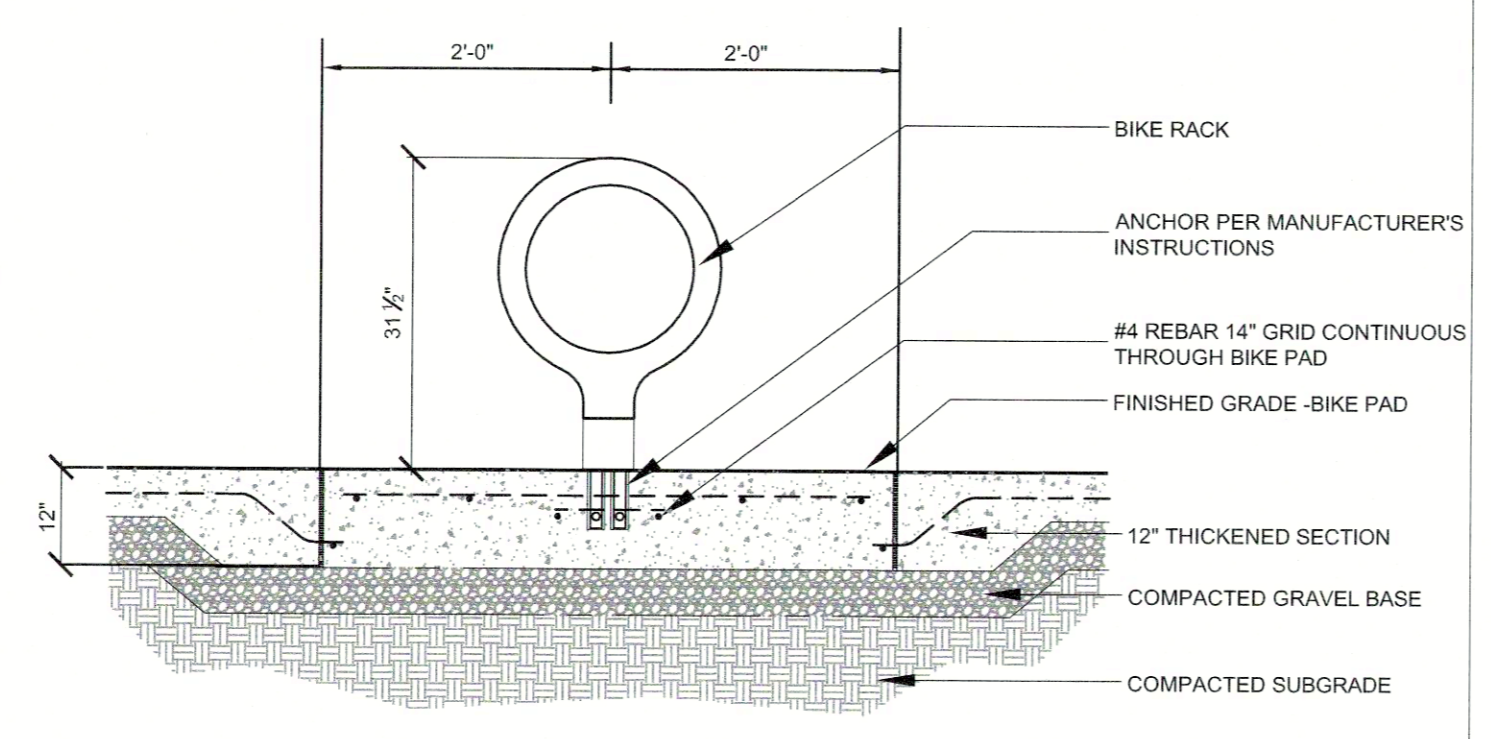
**EROSION CONTROL,
GRADING &
UTILITIES
PLAN**

C-141

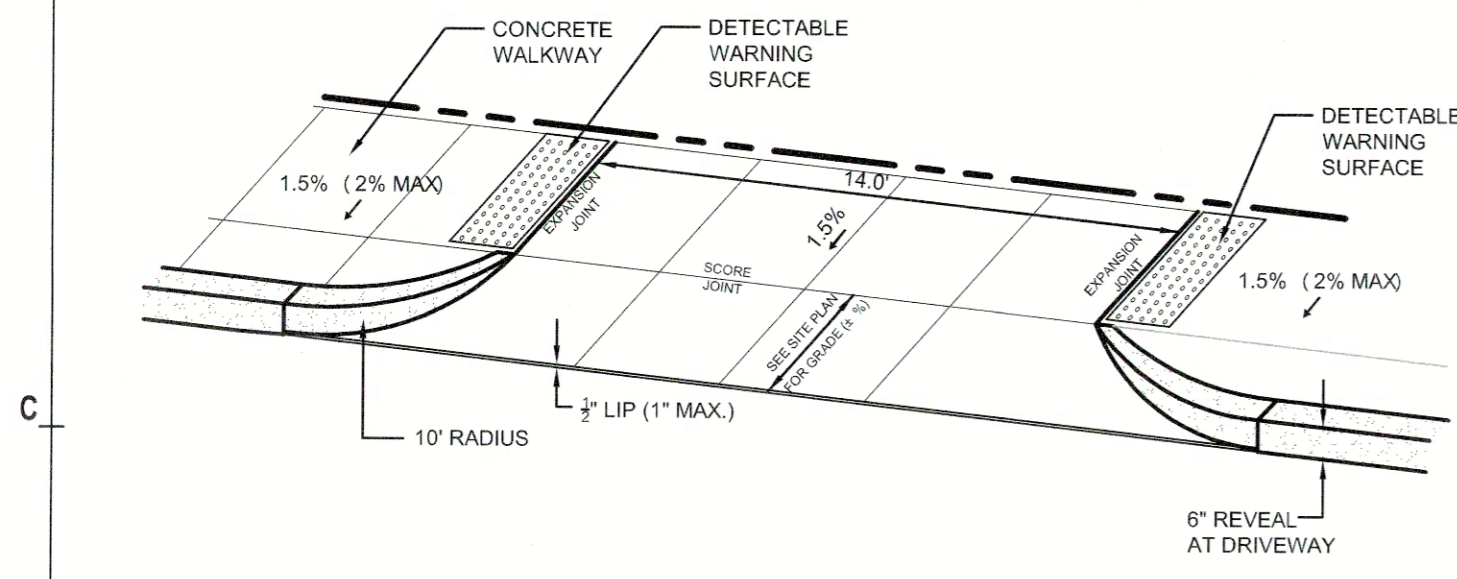




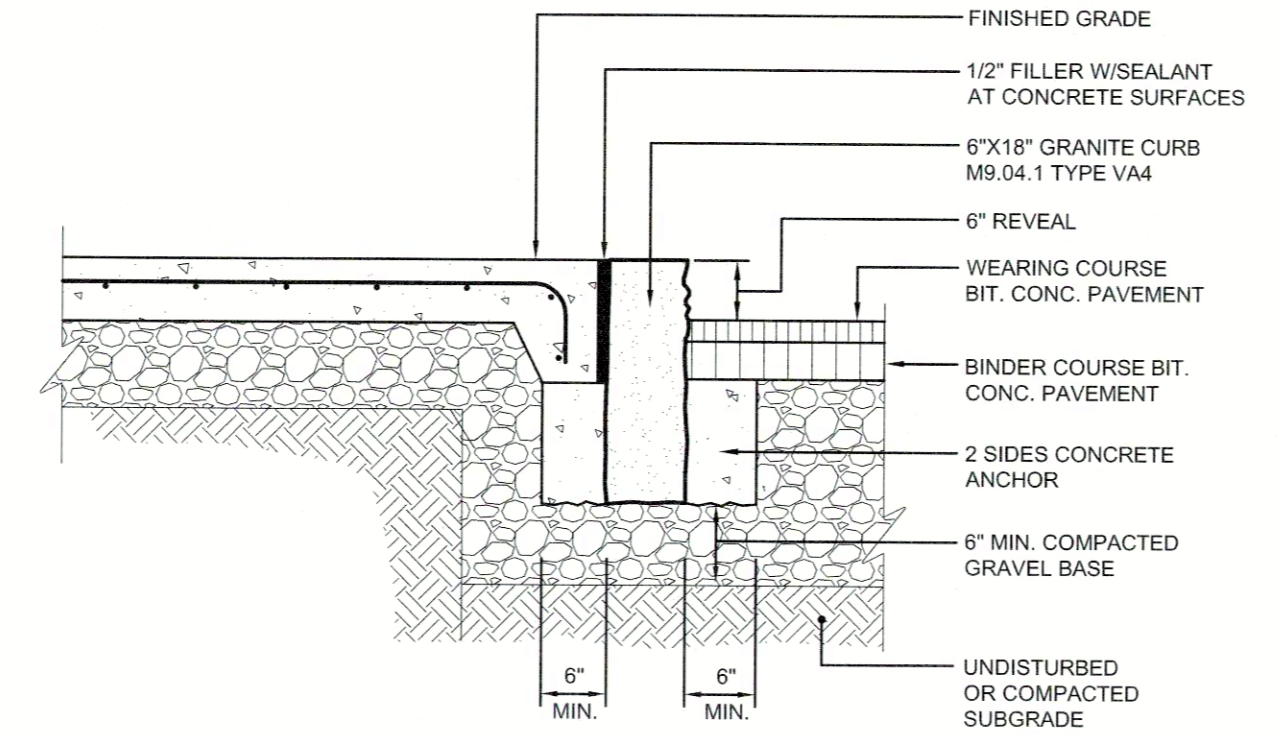
D1 LEACHING CHAMBER
N.T.S.



D3 BIKE RACK AND PAD
N.T.S.

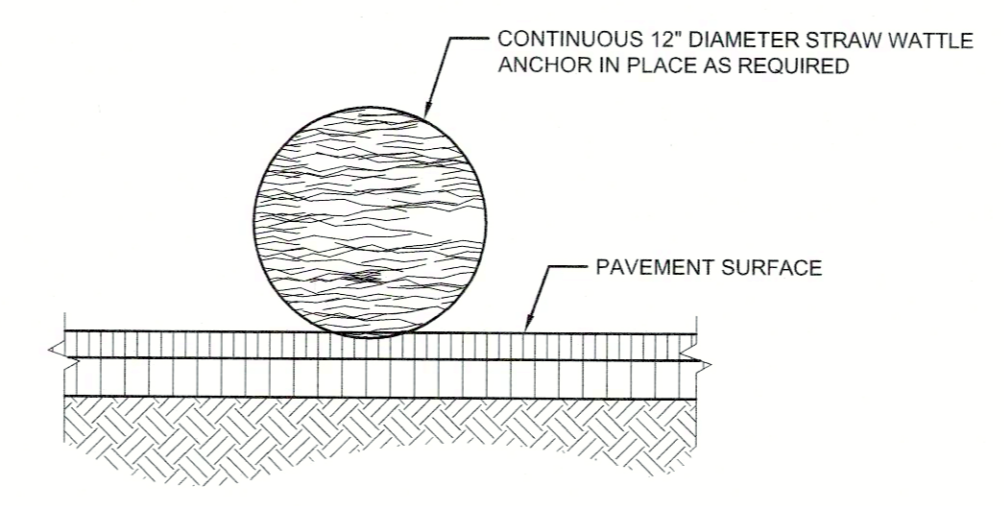


B1 DRIVEWAY APRON DETAIL
N.T.S.



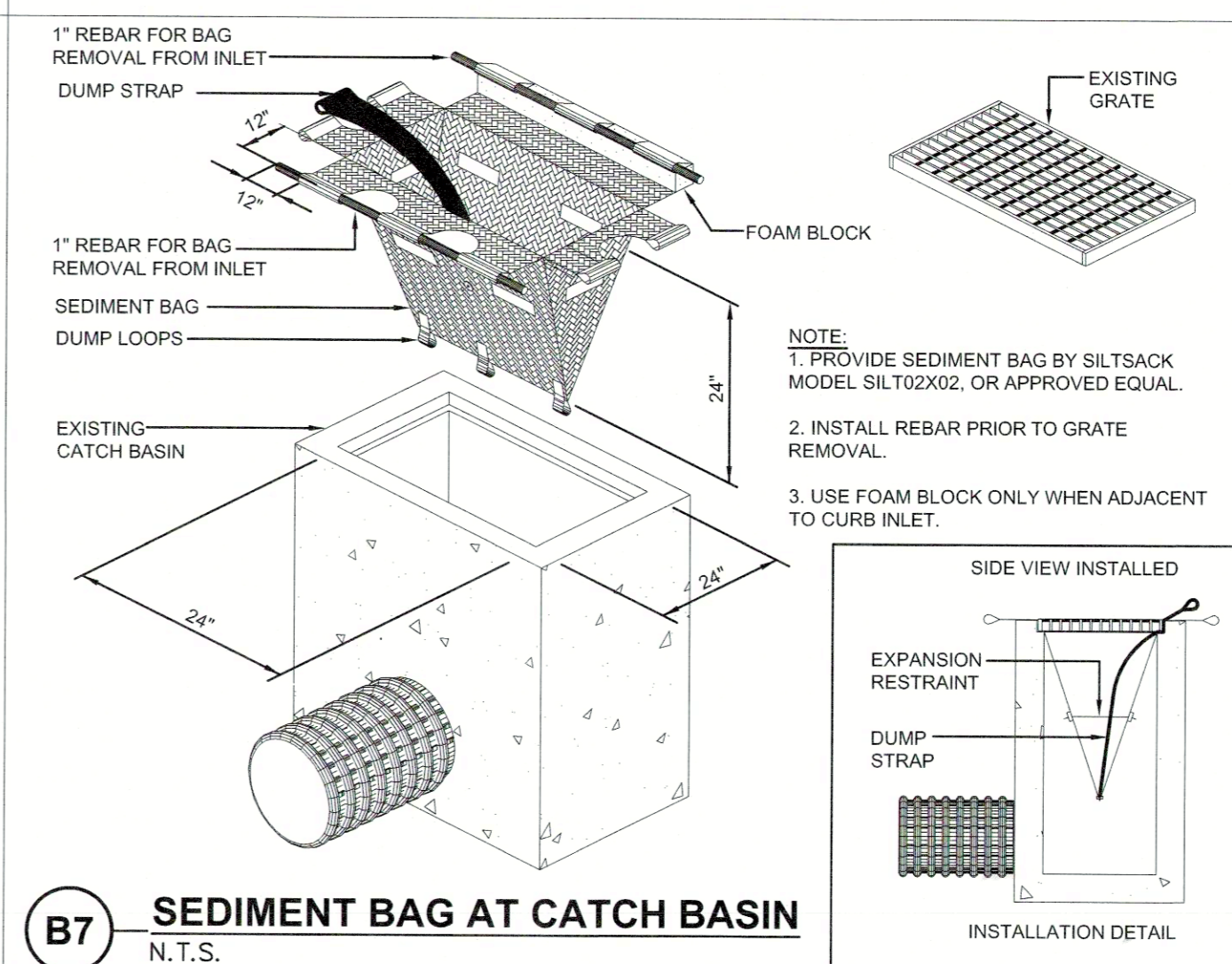
NOTE:
WHEN VERTICAL GRANITE CURB IS TO BE
INSTALLED ADJACENT TO EXISTING PAVEMENT,
CONTRACTOR SHALL SAWCUT THE EXISTING
PAVEMENT.

B3 VERTICAL GRANITE CURB
N.T.S.



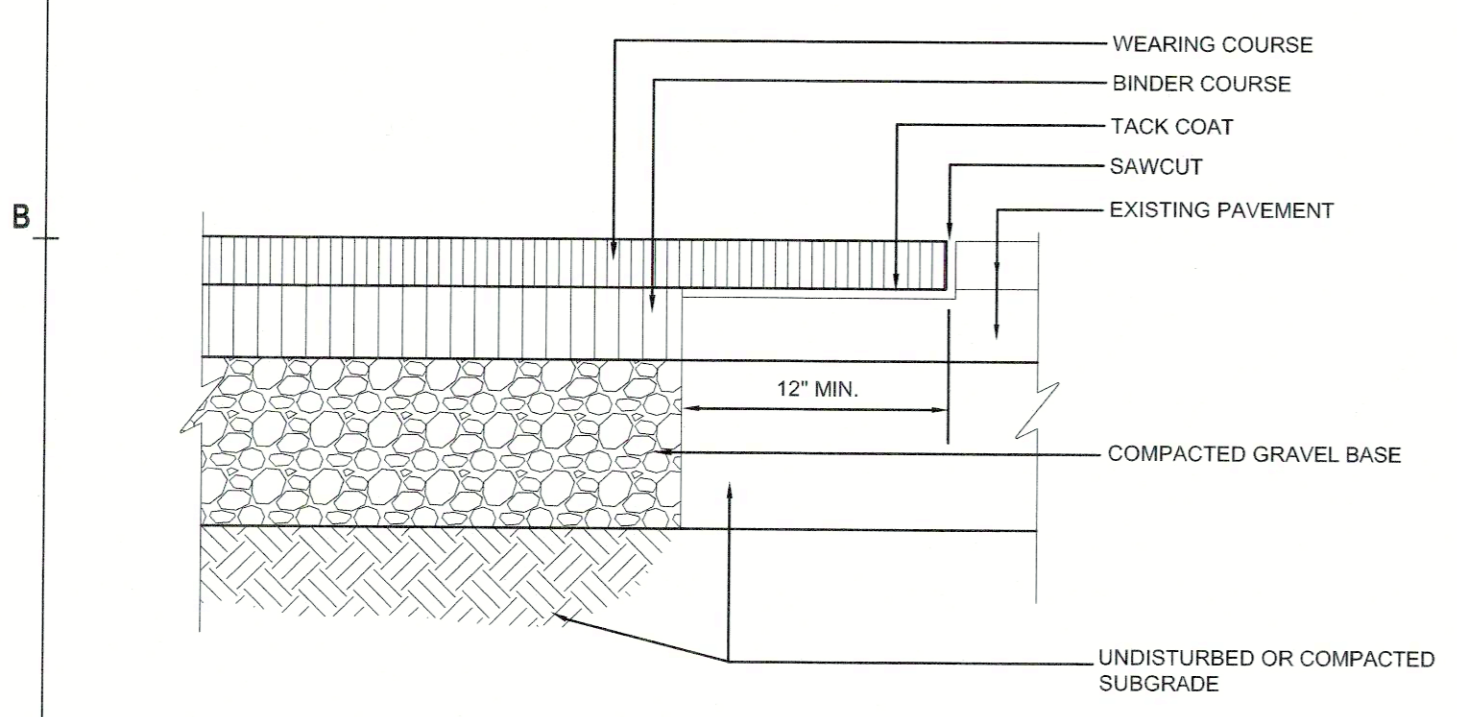
NOTE:
INSTALL ACCORDING TO
MANUFACTURER'S RECOMMENDATIONS

B5 STRAW WATTLE
N.T.S.

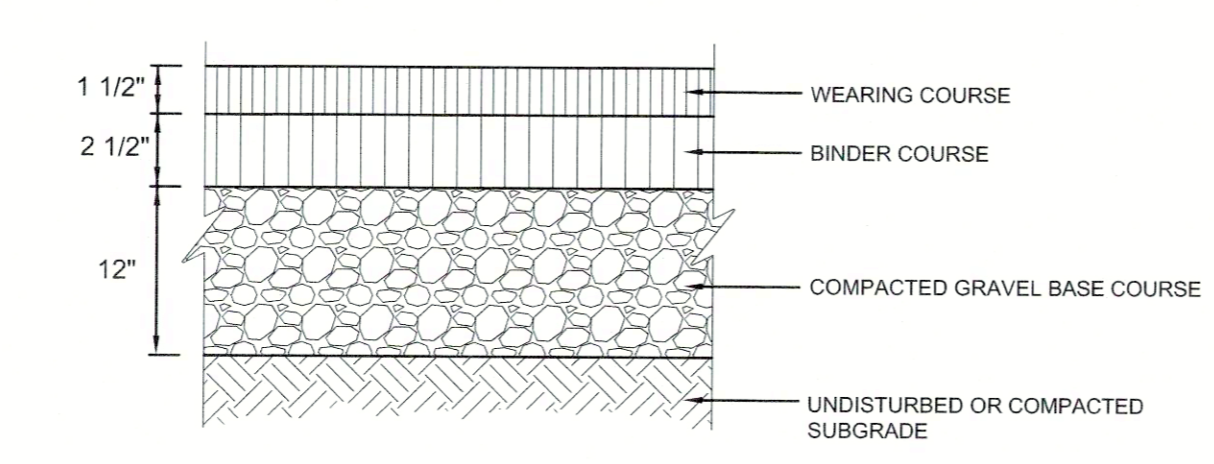


NOTE:
1. PROVIDE SEDIMENT BAG BY SILTSACK
MODEL SILT02X02, OR APPROVED EQUAL.
2. INSTALL REBAR PRIOR TO GRATE
REMOVAL.
3. USE FOAM BLOCK ONLY WHEN ADJACENT
TO CURB INLET.

B7 SEDIMENT BAG AT CATCH BASIN
N.T.S.

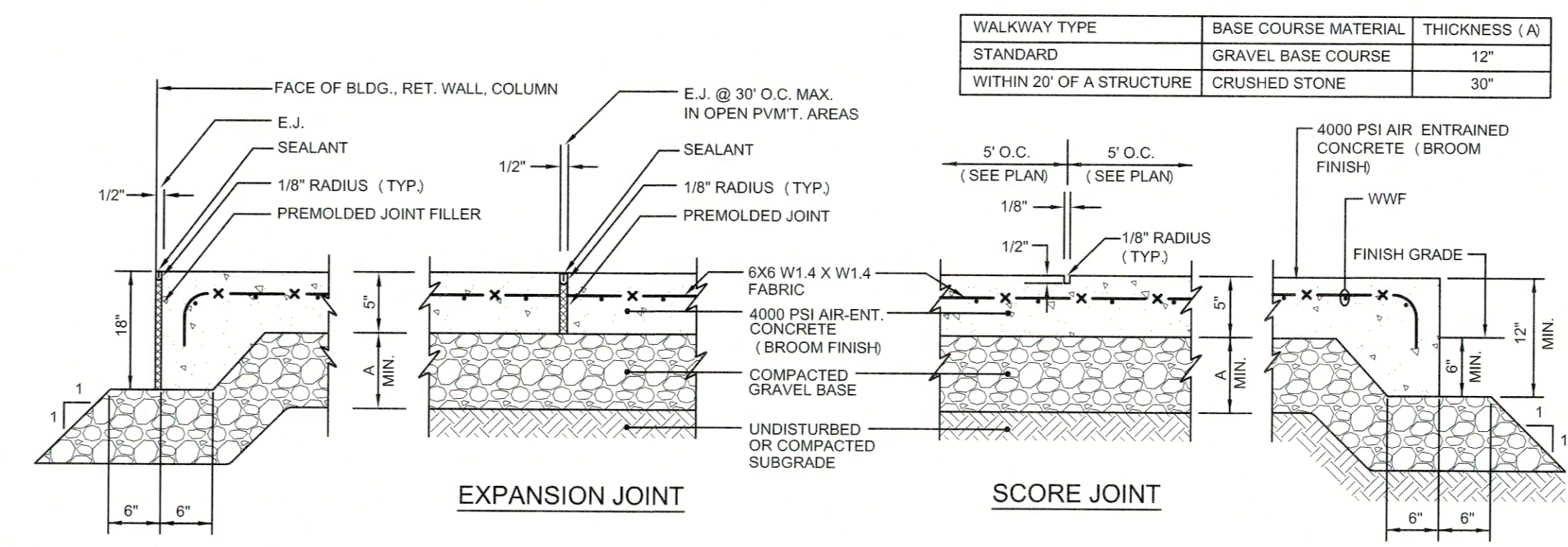


A1 BITUMINOUS CONCRETE AT EXISTING PAVEMENT
N.T.S.



NOTE:
FOR BITUMINOUS CONCRETE SIDEWALK
USE 8" OF COMPACTED GRAVEL BASE.

A3 BITUMINOUS CONCRETE PAVEMENT
N.T.S.



A5 CONCRETE WALKWAY
N.T.S.

WALKWAY TYPE	BASE COURSE MATERIAL	THICKNESS (A)
STANDARD	GRAVEL BASE COURSE	12"
WITHIN 20' OF A STRUCTURE	CRUSHED STONE	30"

NOTES:
1. MAXIMUM CROSS SLOPE = 2%
2. MAXIMUM GRADIENT = 6%
3. PROVIDE EXPANSION JOINT AT FACE OF ABUTTING SLABS
AND STRUCTURES.
4. PROVIDE VERTICAL GRANITE OR PRECAST CONCRETE
CURBING PER SHEET C3.

Date	Title	Location
2015		
13-Jan	Taner Akcam, "Giving Voice to the Voiceless: Armenian Genocide Survivors and the Aleppo Rescue House of the League of Nations," co-sponsored by the Knights and Daughters of Vartan, the Kaloosdian/Mugar Chair at Clark University, and NAASR	Holy Trinity Armenian Church, Cambridge
5-Mar	Umit Kurt, "'Legal' and 'Official' Plundering of Armenian and Jewish Properties during the Armenian Genocide and the Holocaust within a Comparative Perspective"	NAASR Center
19-Mar	Laure Marchand and Guillaume Perrier, "Turkey and the Armenian Ghost"	NAASR Center
25-Mar	Symposium: "Armenia 1915-Auschwitz 1945: Small Nations and Great Powers," with Marc A. Mamigonian, Simon Payaslian, and James R. Russell, moderated by Hovhannes Ghazaryan, co-sponsored by the Harvard Kennedy School European Club, the Harvard College Armenian Students Association, the Mashtots Chair in Armenian Studies at Harvard, and NAASR	Harvard University's Kennedy School of Government, Cambridge
12-Apr	"Near East Relief and Its Legacy: A Century of Service to Armenians and to Humanity," with the participation of Shant Mardirossian, Charlie Benjamin, Molly Sullivan, Suzanne Moranian, Amb. Zohrab Mnatsakanyan, and Abp. Oshagan Choloyan, presented by NAASR and the Near East Foundation	National Heritage Museum, Lexington
15-Apr	Commemoration of the Armenian Genocide, with lecture by Claire Mouradian, "A Century of Oblivion: The Time Has Come to Listen to the Voices of the Survivors," co-sponsored by Tufts University, the Darakjian-Jafarian Chair in Armenian History, the Dean of Arts and Sciences, the Department of History, the Armenian Club at Tufts University, and NAASR	Tufts University, Medford
18-Apr	Marsha Skrypuch, "Writing About the Armenian Genocide: Connecting with Young Readers," co-sponsored by St. Stephen's Armenian Elementary School, the Watertown Public Library, and NAASR	Watertown Public Library, Watertown
1-May	"Transforming Cynicism Into Success: Diasporan Involvement in Armenia's Economic Development," a panel discussion moderated by Ani L. Kharajian of the Harvard Business School, organized by NAASR and co-sponsored by the MIT Armenian Society	MIT, Cambridge
16-May	NAASR 61st Annual Assembly of Members, with featured speaker Robert Aram Kaloosdian on "TADEM – My Father's Village, Extinguished during the 1915 Armenian Genocide"	NAASR Center
15-May	Book reception with Steve Kurkjian, Master Thieves, co-sponsored by St. James and NAASR	St. James Armenian Church, Watertown
27-May	An Evening with Eric Bogosian: "Operation Nemesis: The Assassination Plot That Avenged the Armenian Genocide," presented by NAASR with the co-sponsorship of the AGBU New England District, AGBU-YP Boston, Armenian Cultural Foundation, Armenian Museum of America, Armenian Women's Welfare Association, Hamazkayin Armenian Educational and Cultural Society, Project SAVE Armenian Photographic Archive, and Tekeyan Cultural Association"	National Heritage Museum (Scottish Rite Masonic Museum), Lexington
11-Jun	Marian Mesrobian MacCurdy: "Sacred Justice: The Voices and Legacy of the Armenian Operation Nemesis"	NAASR Center
23-Sep	Armen Marsoobian, "Fragments of a Lost Homeland"	NAASR Center
1-Oct	Presentation of "Goodbye, Antoura: A Memoir of the Armenian Genocide by Karnig Panian," with Houry Boyamian (daughter of the author), Lerna Ekmekcioglu, and others, co-sponsored by NAASR, ALMA, ACF, Hamazkayin, Tekeyan	Armenian Museum of America, Watertown

Date	Title	Location
8-Oct	Dana Walrath, "Like Water on Stone"	NAASR Center
8-Nov	"Hearing the Lost Voices: Armenian Writers and the Legacy of the Genocide," co-sponsored by the Armenian Museum of America, NAASR, and PEN New England"	Armenian Museum of America, Watertown
12-Nov	Sayat Tekir, "A New Awakening: Armenian Advocacy and Activism in Istanbul," co-sponsored by the Armenian National Committee of Eastern Massachusetts, Armenian Missionary Association of America, Armenian Youth Federation, Greater Boston Nejdeh Chapter, Bostonbul, Friends of Hrant Dink, and NAASR	First Armenian Church, Belmont
1-Dec	Peter Balakian, "Elia Kazan, Hollywood, and the Armenian Genocide," co-sponsored by Tekeyan Cultural Association, Facing History and Ourselves, Armenian Museum of American, and NAASR	Armenian Museum of America, Watertown
3-Dec	Richard Hovannisian, "The First Republic of Armenia and Its Importance Today"	First Armenian Church, Belmont
10-Dec	Christmas Open House with talk by Christina Maranci, "Vigilant Powers: Three Churches of Early Medieval Armenia"	NAASR Center
2016		
28-Jan	Keith David Watenpaugh: "Bread From Stones: The Middle East and the Making of Modern Humanitarianism," co-sponsored by NAASR and the Clark University Strassler Center for Holocaust and Genocide Studies	NAASR Center
12-Feb	"Nagorno-Karabagh (Artsakh): Past, Present, and Future," moderated by Dr. Anna Ohanyan and historical introduction by Dr. Simon Payaslian, sponsored by NAASR and the Northeastern Armenian Students Association"	Northeastern University, Boston
24-Feb	Ani Babaian, "Armenian Women in Iran," co-sponsored by Armenian International Women's Association and NAASR"	Armenian Cultural Foundation, Arlington
10-Mar	Khatchig Mouradian, " 'Don't Fall Off the Earth': The Armenian Communities of China from the 1880s to the 1950s,"	NAASR Center
31-Mar	"From Musa Dagh to the Warsaw Ghetto: Armenian and Jewish Armed Resistance to Genocide," with Eric Bogosian, Dr. Deborah Dwork, Dr. Dikran Kaligian, and Dr. James R. Russell, co-sponsored by the Center for Jewish Studies at Harvard University, the Mashtots Chair in Armenian Studies at Harvard University, and NAASR	Harvard University, Cambridge
6-Apr	The Commemoration of the Armenian Genocide, with lecture by Marc A. Mamigonian, "Scholarship and the Armenian Genocide: The State of the Art and the State of Denial," co-sponsored by Tufts University, the Darakjian-Jafarian Chair in Armenian History, the Department of History, the Armenian Club at Tufts University, and NAASR"	Goddard Chapel, Tufts University, Medford
7-Apr	"Becoming Bostonian: An evening in honor of Moses Gulesian," with Brian LeMay, Joyce Van Dyke, Donald Tellalian, co-sponsored by the Bostonian Society and NAASR	Old State House, Boston
9-Apr	Armenian Genealogy Conference, co-sponsored by NAASR, Project Save Armenian Photograph Archives, Inc., Houshamadyan, the Armenian Museum of America, and Hamazkayin Boston	Armenian Cultural and Educational Center, Watertown
8-Oct	Dana Walrath, "Like Water on Stone"	NAASR Center
8-Nov	"Hearing the Lost Voices: Armenian Writers and the Legacy of the Genocide," co-sponsored by the Armenian Museum of America, NAASR, and PEN New England"	Armenian Museum of America, Watertown

Date	Title	Location
12-Nov	Sayat Tekir, “A New Awakening: Armenian Advocacy and Activism in Istanbul,”co-sponsored by the Armenian National Committee of Eastern Massachusetts, Armenian Missionary Association of America , Armenian Youth Federation, Greater Boston Nejdeh Chapter, Bostonbul, Friends of Hrant Dink, and NAASR	First Armenian Church, Belmont
1-Dec	Peter Balakian, “Elia Kazan, Hollywood, and the Armenian Genocide,” co-sponsored by Tekeyan Cultural Association, Facing History and Ourselves, Armenian Museum of American, and NAASR	Armenian Museum of America, Watertown
3-Dec	Richard Hovannisian, “The First Republic of Armenia and Its Importance Today”	First Armenian Church, Belmont
10-Dec	Christmas Open House with talk by Christina Maranci, “Vigilant Powers: Three Churches of Early Medieval Armenia”	NAASR Center

2016

28-Jan	Keith David Watenpaugh: “Bread From Stones: The Middle East and the Making of Modern Humanitarianism,” co-sponsored by NAASR and the Clark University Strassler Center for Holocaust and Genocide Studies	NAASR Center
12-Feb	“Nagorno-Karabagh (Artsakh): Past, Present, and Future,” moderated by Dr. Anna Ohanyan and historical introduction by Dr. Simon Payaslian, sponsored by NAASR and the Northeastern Armenian Students Association”	Northeastern University, Boston
24-Feb	Ani Babaian, “Armenian Women in Iran,” co-sponsored by Armenian International Women’s Association and NAASR”	Armenian Cultural Foundation, Arlington
10-Mar	Khatchig Mouradian, “ ‘Don’t Fall Off the Earth’: The Armenian Communities of China from the 1880s to the 1950s,”	NAASR Center
31-Mar	“From Musa Dagh to the Warsaw Ghetto: Armenian and Jewish Armed Resistance to Genocide,” with Eric Bogosian, Dr. Deborah Dwork, Dr. Dikran Kaligian, and Dr. James R. Russell, co-sponsored by the Center for Jewish Studies at Harvard University, the Mashtots Chair in Armenian Studies at Harvard University, and NAASR	Harvard University, Cambridge
6-Apr	The Commemoration of the Armenian Genocide, with lecture by Marc A. Mamigonian, "Scholarship and the Armenian Genocide: The State of the Art and the State of Denial, “ co-sponsored by Tufts University, the Darakjian-Jafarian Chair in Armenian History, the Department of History, the Armenian Club at Tufts University, and NAASR"	Goddard Chapel, Tufts University, Medford
7-Apr	“Becoming Bostonian: An evening in honor of Moses Gulesian,” with Brian LeMay, Joyce Van Dyke, Donald Tellalian, co-sponsored by the Bostonian Society and NAASR	Old State House, Boston
9-Apr	Armenian Genealogy Conference, co-sponsored by NAASR, Project Save Armenian Photograph Archives, Inc., Houshamadyan, the Armenian Museum of America, and Hamazkayin Boston	Armenian Cultural and Educational Center, Watertown
16-Apr	Panel Discussion on Nagorno-Karabagh (Artsakh) and Fundraiser for Victims of Aggression and Families of Fallen Soldiers, with Robert Avetisyan, Permanent Representative of the Nagorno-Karabagh to the U.S. (via Skype); Amb. Rouben Shougarian; Amb. Armen Baibourtian; Prof. Simon Payaslian; Moderated by Marc Mamigonian; Organized by NAASR and the MIT Armenian Society, and cosponsored by the ARF Boston "Sardarabad" Gomideh, the ARS Cambridge "Shushi" chapter, the ARS Watertown "Leola Sassouni" chapter, AGBU New England, and the Armenian Assembly of America	Armenian Cultural and Educational Center, Watertown
20-Apr	Talin Suciyan: "The Armenians in Modern Turkey: Post-Genocide Society, Politics, and History"	NAASR Center
5-May	Lerna Ekmekcioglu, “Can Feminists Revive a Nation? Afterlife of Armenians in Post-Genocide Turkey,” co-sponsored by AIWA, ALMA, and NAASR	Armenian Museum of America, Watertown

Date	Title	Location
14-May	61st Annual Assembly of Members, with lecture by Amb. Rouben Shougarian, “Building a New Generation of Armenian Leaders: The Tavitian Scholarship Program at the Fletcher School”	NAASR Center
14-May	Dr. H. Martin Deranian, “Hagop Bogigian: Armenian American Pioneer and Philanthropist,” co-sponsored by ACF, AIWA, Amaras Art Alliance, Knights of Vartan, and NAASR	Armenian Cultural Foundation, Arlington
26-May	“Expanding Inclusion of Disabled Persons in Armenia: Challenges and Opportunities,” co-sponsored by Cambridge-Yerevan Sister City Association and NAASR,	NAASR Center
8-Sep	Lou Ureneck, “Smyrna, 1922: The Forgotten True Story of an American Rescue”	NAASR Center
4-Oct	Garo Paylan, “A Discussion of Recent Developments in Turkey and the Armenian Community,” sponsored by the NAASR-Calouste Gulbenkian Foundation Lecture Series on Contemporary Armenian Issues, with the co-sponsorship of the Kaloosdian-Mugar Chair in Armenian Genocide Studies at Clark University, Hamazkayin Armenian Cultural and Educational Society, Society of Istanbul Armenians of Boston, and Tekeyan Cultural Association	First Armenian Church, Belmont
6-Oct	Taner Akçam, “The Memoir of Naim Bey and Talat Pasha Telegrams: Are They 'Armenian Forgeries'”? co-sponsored by NAASR and the Friends of the Kaloosdian-Mugar Chair, Clark University	First Armenian Church, Belmont
13-Oct	Dr. Hayk Demoyan, “The End of the Third Republic? Or, What to Expect for Armenia’s Future,” sponsored by the NAASR-Calouste Gulbenkian Foundation Lecture Series on Contemporary Armenian Issues	NAASR Center
16-Oct	Dawn McKeen, “The Hundred-Year Walk,” presented by the Tekeyan Cultural association, the Armenian Mirror-Spectator, and Holy Trinity Armenian Church, co-sponsored by NAASR	Holy Trinity Armenian Church, Cambridge
3-Dec	“The Armenian Parliamentary Elections in April 2017: How Can the Diaspora Engage in Armenia’s Democratic Evolution,” panel discussion moderated by Dr. Anna Ohanyan and featuring panelists Prof. Miguel E. Basáñez (Tufts Univ. Fletcher School of Law & Diplomacy), John M. Evans (Former U.S. Ambassador to Armenia), and via Skype from Armenia Sona Ayvazyan (Transparency International Armenia), Isabella Sargsyan (Eurasia Partnership Foundation), and Tevan Poghosyan (Member of Parliament, Republic of Armenia). Organized by NAASR/ Calouste Gulbenkian Foundation Lecture Series on Contemporary Armenian Issues and co-sponsored by the Harvard Armenian Society and the MIT Armenian Society	Harvard University, Cambridge

2017

23-Feb	Umit Kurt: “The Curious Case of Ali Cenani Bey: The Story of a Genocide Perpetrator During and After the 1915 Armenian Genocide”	NAASR Center
4-Mar	Armen Marsoobian, “The Presence of Absence: The Role of Photography in the Lives of Ottoman Armenians”	Armenian Museum of America, Watertown
16-Mar	Owen Miller, “The Massacre in the Sasun Mountains (1894): Interpretations of Violence at the End of Empire”	NAASR Center

Sample Fliers

This special program will be live streamed at abcnews.com/live

Parking Suggestions
 Parking is free on Memorial Drive (both sides), on Ames St., and on Mass. Ave (after 6pm).
 The West Garage on Vassar St. is the nearest parking garage and is about a 10 minute walk to MIT 2-190.


THE NATIONAL ASSOCIATION FOR ARMENIAN STUDIES AND RESEARCH (NAASR) / CALOUSTE GULBENKIAN FOUNDATION LECTURE SERIES ON CONTEMPORARY ARMENIAN ISSUES AND

THE MIT ARMENIAN SOCIETY (MITAS)
 Present a Panel Discussion
SPOTLIGHT ON NAGORNO-KARABAKH: THE FOUR-DAY WAR AND ITS AFTERMATH
Perspectives on Security, Diplomacy, and the Prospects for a Lasting Peace

Moderated by
Dr. Antranig Kasbarian
 Trustee, Tufenkian Foundation

With Panelists
Mr. Ruben Melikyan
 Ombudsman of the Nagorno-Karabakh Republic
Amb. Rouben Shougarian
 Tufts University, Fletcher School of Law and Diplomacy, Armenia's first Ambassador to the United States (1993-99)
Ms. Ani Sargsyan
 Tavitian Scholar, Tufts University, Fletcher School of Law and Diplomacy
Thursday, March 9, 2017, at 7:00 p.m.
 MIT 2-190
 Massachusetts Institute of Technology
 Memorial Drive, Cambridge, MA

For more information contact hq@naasr.org or mitas_officers@mit.edu.



The National Association for Armenian Studies and Research
 Presents
THE KING AND THE FORTY ORPHANS: THE INVENTION OF AN ARMENIAN HOMELAND IN ETHIOPIA
 by Dr. Boris Adjemian
 Director, AGBU Nubarian Library, Paris
Thursday, February 16, 2017, 7:30 p.m.

At the NAASR Center, 395 Concord Ave., Belmont, MA 02478


In 1924, the Crown Prince and Regent of Ethiopia, Ras Tafari Makonnen (the future Emperor Haile Selassie), recruited forty young Armenian orphans to form the first Ethiopian royal brass band. Kevork Nalbandian, the director of this brass band, was asked by the Crown Prince to write the first Ethiopian national anthem. In this lecture, historian Boris Adjemian will discuss the meaning of this event in the history and the memory of Armenian immigration to Ethiopia.

Armenian immigration to Ethiopia started in the late 19th century, although Armenian travellers had already benefited in the past centuries from the close relationship existing between the Ethiopian and Armenian Churches. Throughout the 20th century, Armenian immigrants and their descendants in Ethiopia demonstrated their deep integration into the host society. Focused on the leitmotiv that Armenians were, among all the foreigners, the closest to Ethiopia and Ethiopian rulers, the idealized great narrative of Armenian immigration remapped Ethiopia as a genuine homeland of substitution for a people in exile.

Dr. Boris Adjemian is a historian and the director of the AGBU Nubarian Library (Paris). He is also the editor-in-chief of the bilingual academic journal *Études Arméniennes Contemporaines*.

He defended his PhD in 2011 at École des Hautes Études en Sciences Sociales and Università degli Studi di Napoli. His first book, entitled *La Fanfare du Négus: Les Arméniens en Éthiopie (19e-20e siècles)*, was published by Éditions de l'ÉHESS in 2013.

Dr. Adjemian will also be a featured speaker at the February 19 concert "From Armenia to Addis Ababa: The Emperor, the Nalbandians, and the Dawn of Western Music in Ethiopia," organized by the Friends of Armenian Culture Society, at Dorothy and Charles Mosesian Theatre for the Arts, Watertown, MA.



Admission free (donations appreciated). Doors open at 7:00 p.m.
 Contact NAASR at 617-489-1610 or hq@naasr.org for more information.

The National Association for Armenian Studies and Research
 Presents
THE MASSACRE IN THE SASUN MOUNTAINS (1894): INTERPRETATIONS OF VIOLENCE AT THE END OF EMPIRE
 by Dr. Owen Miller
 Institute for Liberal Arts & Interdisciplinary Studies, Emerson College
Thursday, March 16, 2017, 7:30 p.m.
 at the NAASR Center
 395 Concord Avenue, Belmont, MA

In the late summer of 1894, several battalions of Ottoman soldiers were ordered into the mountains of Sasun, south of the fertile plains of Moush, in current day southeastern Turkey. The commander of the troops, Colonel Ismail, gave orders for battalions to be assembled into a square. Just that morning, Colonel Ismail had been given direct orders from Abdulhamid II himself to destroy the Armenian bandits who were operating in these remote mountains.

After this order was given, the soldiers advanced on the villages of the Shadakh valley in the Sasun Mountains. The entire Armenian population of the region was regarded as rebellious and one to two thousand men, women and children were murdered.

The 1894 violence in Sasun has been viewed quite differently by scholars who work within the vein of Ottoman Studies and those in Armenian Studies. The former usually present it as the first major episode of Ottoman State mass violence against its Armenian populace. Both tend to view the violence as an outcome of competing nationalisms. In his research, Miller has shown that the Ottoman governor relayed intentionally false reports that thousands of Armenian villagers in Sasun had rebelled against the State. After establishing that the Sasun massacre took place, he shows that there was a concerted effort made both by local and central Ottoman authorities to cover it up. In this lecture, Dr. Miller will examine what has been unaddressed by prior accounts of these events along with a detailed account of why the violence took place, and how it is remembered.

Dr. Owen Miller is an affiliated faculty member at the Institute for Liberal Arts and Interdisciplinary Studies at Emerson College in Boston. He is a graduate of the University of California, Santa Cruz, and holds an MA and PhD in history from Columbia University. His 2015 dissertation was entitled "Sasun 1894: Mountains, Missionaries and Massacres at the End of the Ottoman Empire."

Admission free (donations appreciated). Doors open at 7:00 p.m.
 Contact NAASR at 617-489-1610 or hq@naasr.org for more information.

The Ararat Eskijian Museum
 and
 The National Association for Armenian Studies and Research (NAASR)
 Present an Illustrated Lecture
ANTELIAS PRIOR TO THE CATHOLICOSATE OF CILICIA
 BY
 Maurice Missak Kelechian
Sunday, March 19, 2017, 4:00 p.m.
 Ararat-Eskijian Museum-Sheen Chapel
 15105 Mission Hills Road, Mission Hills, CA

This illustrated presentation will present a complete journey through Antelias between the years 1922 and 1932. Topics covered will include the history and geographical location of Antelias, the Near East Relief orphanage from the original tents to the construction of barracks, and the first wooden church of Antelias.

Kelechian's most recent research has focused on two orphanages in Lebanon: in Antoura where, between 1915 and 1918, around 2,000 orphans were gathered and Turkified by Jemal Pasha and Halide Edib Adivar; and at Ghazir where, in 1925 the "In Golden Rule Gratitude" special rug was woven by the orphan girls and sent to the U.S. President, Calvin Coolidge, to be displayed at the White House.

Maurice Missak Kelechian is an electrical engineer by training, an independent researcher known for his research and discoveries of Armenian historical documents, photos, monuments, and heritage sites. Currently he resides in Los Angeles and works in the biomedical field.

Admission free (donations appreciated).
 For more information about this program, contact Ararat-Eskijian Museum at (747) 500-7585 or Ararat-eskijian-museum@netzero.net, or NAASR at (617) 489-1610 or hq@naasr.org.

SMMA

Symmes Maini & McKee Associates
1000 Massachusetts Avenue
Cambridge, MA 02138
617.547.5400
www.smma.com