10 SUNNYSIDE AVENUE
Arlington, MA 02474

IMPACT ANALYSIS REPORT

Submitted to:
Town of Arlington

Applicant:
Housing Corporation of Arlington
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Arlington, MA 02474

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samiotes

March 9, 2023

10 SUNNYSIDE AVENUE
Arlington, MA 02474

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10 SUNNYSIDE AVE.
ARLINGTON, MA
IMPACT REPORT
AND STORMWATER MANAGEMENT NARRATIVE

February 2023

1. Introduction

10 Sunnyside Ave. is a proposed residential building to be located at 10 Sunnyside Avenue in Arlington, MA (Zoning District: B4 – Vehicular Oriented Business). The project is an affordable housing building consisting of a proposed 49,000 gross square foot (GSF) 5-story new building with 43 residential units. The project is an infill redevelopment of an existing 16,500 sf (.38 acre) lot. Additionally, the project will create a stormwater management system as part of the site improvements surrounding the building, including vehicular parking spaces and covered bicycle parking spaces.

1.a Project Overview

The proposed project will redevelop a parcel currently occupied by a vacant auto repair building and neglected site to allow for the construction of a 43-unit affordable housing building. As noted above, the site will be an infill redevelopment of an existing 16,500 sf (.38 acre) parcel. A new covered parking area will be located in the northeast and northwest portions of the site's ground floor. Stormwater management for the proposed project is designed to mitigate the peak stormwater rate of runoff resulting from the full build-out of the project. Though the site hosted an auto body shop, the soils were found to be not contaminated.

Aligning with the town's Master Plan and Housing Plan, the project includes the following:

- 43 apartments: (16) 1-bedroom; (20) 2-bedroom; (7) 3-bedroom
- 21 Car Parking (.49 per unit)
- Min. 43 bike parking spaces (at least 1 per unit)
- New sidewalk to support walkable public realm
- Roof deck garden of ~ 2,000 square feet
- Community room
- Highly energy efficient; Passive House certified
- Rooftop Photovoltaic Panels
- 100% affordable with maximum household income of 60% AMI and units in reserve for 30% AMI

2. Existing Site Conditions

2.a Physical Environment

The existing project site is 16,500 sf in size with a 150 foot existing street frontage. It is bounded by Sunnyside Avenue to the southeast, an industrial service building to the northeast, the Beth Israel Lahey Medical Center and retail developments to the northwest and retail building to the southwest. The existing site consists of an automotive repair shop with primarily impervious land coverage areas. The impervious areas consist of an existing building along the southwest side, parking to the northeast, an access drive, walkways, ramps, and retaining walls starting from the building at the west corner of the site, running along the perimeter to the east corner of the site at

Sunnyside Avenue. The pervious areas include grassed/ landscaped areas along the perimeter of the site. There is a debris/soil pile in the middle of the lot.

In the current conditions, the site has minimal stormwater management control and treatment. The on-site tributary stormwater from the building is managed/ conveyed by roof drains and piped underground. The stormwater from the surrounding site sheets overland into Sunnyside Avenue to the east.

The existing slopes range from 1% to 5% where the overall grade slopes at approximately 1% toward Sunnyside Ave.

The Alta Land Title Survey, prepared by CHA Consulting, Inc., illustrates the existing site, including surface features, topography, utilities, and landscaping.

There are no trees located in the site, and no tree removal during construction. Refer to the existing conditions survey. There are no significant environmental features in the site, such as ledge outcrops, scenic views, or large trees.

Regional Context

Land use surrounding the property is primarily populated by retail and commercial establishments. Other nearby land use includes a medical facility, fitness center, industrial service company, Alewife Greenway Bike Path, and a residential neighborhood. Figure SKCE-001 (Site Locus Plan included in the Appendix) depicts the context of the property in relation to the surrounding area.

2.b Habitats, Species of Concern

The site will not have an adverse impact on wildlife or species of concern. This site is not deemed a habitat (priority or estimated) of rare wildlife per the Natural Heritage & Endangered Species Program (see Figure SKCE-004 in the Appendix of this report).

The property is located along Sunnyside Ave, and is bounded by commercial development on its sides and a paved parking lot to the rear. As noted below (2.c), the site is predominately impervious and there are no plantings or trees on the site.

Given the existing site condition and urban landscape context of the site, wildlife habitat function is limited. To the extent wildlife habitat exists along the Alewife Brook corridor, the site is separated by Sunnyside Ave, commercial properties, and parking lots.

2.c Recreation & Open Space Amenities

Under existing conditions, the site hosts the following:

- Existing auto shop, 4,625 sf footprint
- Concrete ramp to sub-grade level at body shop
- Remainder paved area with a 2,800 sf debris pile, approximately 5-feet high

There are no existing trees on the site.There are no existing open space amenities on the site.

Given the nature of this project as an infill redevelopment for housing, the building will occupy 85% of the site. The project proposes to provide a planted second level deck that is connected to the community room as an outdoor amenity to residents and guests who are reserving said community room. This rooftop deck will be 2,000 sf in area. Plantings will be small native trees, native shrubs and native ornamentals.

The project proposes the creation of new sidewalks along the front of the building and will work with the town to tie into future sidewalks along the west of Sunnyside Ave. There will be new native trees along the sidewalk, and new native plantings adjacent to the building entrance. This is consistent with the goals of the Arlington Master Plan as it relates to providing a walkable urban realm.

The site enjoys proximity to great natural outdoor spaces. 10 Sunnyside is located very close to the Alewife Greenway Bikepath, the Alewife Brook, and St. Paul's Cemetery. Outdoor sports and activities amenities, including a playground, baseball fields, tennis courts, and Dilboy Pool & Stadium, located along the Greenway to the east of the site, are all within 5-10 minutes walking time. North Union and Crosby Parks are within 0.5 mile of the site (see Appendix 07)

2.d Wetlands, Bodies of Water
The site is located approximately 400 feet to the west of Alewife Brook, and approximately 0.5 mile south of Mystic River. The site is outside of the floodplain overlay district and wetland district per Sections 5.7 and 5.8 of the Arlington Zoning Bylaw. (see Figures SKCE-003 and SKCE-006 in the Appendix).

2.e Historic & Cultural Resources
There are no cultural or historic resources on the site. The project will not have any adverse impact on Arlington Historic or Cultural Resources. (See Appendix 08, MACRIS Map)

3. Water and Soils

3.a Existing Soils

Soil types have been identified based on the information contained in the Soil Report (see Soil Report within appendices of this report). Based on the available soil information provided in the appendices of this report, we have determined that the soils are consistent with Hydrologic soil type "B" which require runoff to be infiltrated (as listed in the table below) from new impervious areas. The soils report is located in the Appendix of this report. The infiltration on the site was determined by using the value of a "B" soil from the MA Stormwater Handbook Rawl's Rates.

3.b Erosion & Sediment Control

Disturbed areas during construction will be protected by temporary erosion control measures to control erosion at its source with temporary control structures, minimize the runoff from areas of disturbance, and de-concentrate and distribute stormwater runoff through natural vegetation before discharging offsite.

3.c Stormwater Management

Stormwater runoff from the building rooftop will be conveyed to the Infiltration System under the garage floor where it will recharge the groundwater through infiltration. An overflow will be

provided to a drywell under the garage floor prior to connecting to an existing stormwater pipe in the east corner of the lot.

The objective of the stormwater management for the site is to mitigate any increase in peak storm runoff rates, while meeting/exceeding established stormwater quality thresholds, due to the construction of the proposed project. Outlined below are several Best Management Practices (BMP's) that are proposed to be incorporated into the overall stormwater design.

Proposed Stormwater Control Systems:
The following are the proposed Best Management Practices (BMP's) stormwater control systems to be used on the site to mitigate an increase in peak stormwater runoff and improve water quality:

Subsurface Structures (Infiltration Chambers): Subsurface structures are underground systems that capture runoff, and gradually infiltrate it into the groundwater. There are a number of underground infiltration systems that can be installed to enhance groundwater recharge. Subsurface structures are constructed to temporarily store stormwater and promote infiltration into the underlying soils. They are feasible only where the soil is adequately permeable and the high groundwater table and/or elevation is sufficiently below the bottom of the system. They can be used to control the quantity as well as treat stormwater runoff, if properly designed and constructed. The structures serve as storage chambers for captured stormwater, while the soil matrix provides treatment.

Drywell: A drywell (also known as leaching catch basin) is a pre-cast concrete barrel and riser with an open bottom that permits runoff to infiltrate into the ground. An 80% TSS removal is awarded to the deep sump catch basin/leaching catch basin pretreatment combination provided the system is off-line.

Watershed Routing

Below is a summary of the various existing and proposed watersheds with a brief narrative describing the routing. The descriptions of the watersheds are depicted in sketches Ex-HYD and P-HYD located in the Appendix.

Existing Watersheds:

Ex-Watershed-1: This watershed includes the entire project site which generally slopes from west to east. The impervious areas include the building, concrete ramps, paved parking lot, driveway, walkways and walls. Pervious areas include planters and landscaped areas. Stormwater runoff from this watershed is conveyed/sheet flows towards the existing catch basin in Sunnyside Avenue west of the site depicted as POA-1.

Proposed Watersheds:

PR-Watershed-1:This watershed consists of the majority of the 10 Sunnyside Ave. site including all the building roof, and paved pedestrian walkways. The stormwater runoff within the roof of the building /parking garage is conveyed by the roof leaders and piped to the underground infiltration system made of HDPE chambers. The infiltration chambers outlet to a drywell in the east corner of the site before tying into the existing 10" PVC pipe at the property line.

PR-Watershed-2:This watershed consists of a small area to the east of the building with the impervious areas consisting of the driveway to the parking garage and concrete sidewalks. Pervious area within this watershed includes landscaped areas surrounding the perimeter of the site. The stormwater runoff within this watershed will sheet flow to the existing catch basin in Sunnyside Avenue.

Analysis:
The analysis was based on the pre- and post-development peak discharge rates at the Point of Analysis. The proposed construction of 10 Sunnyside Ave. will result in an increase in impervious area, therefore the proposed stormwater management system will be designed to mitigate any increase in the rate of runoff and improve stormwater quality. Rainfall amounts used for the design and analysis are based on the NOAA Atlas 14+ Point Precipitation Frequency Estimates for Arlington.

Results/ Summary

Results of Analysis:
Through the use of the HydroCAD Software, the curve numbers, times of concentrations, and peak discharge rates were determined for both the existing conditions and the proposed conditions. The results of the study shows that both the post-development peak rates of runoff are equal or less than the existing rates.

As shown in Table A, the post development peak rates of runoff from the site will be mitigated.

Table A – POA 1 Sunnyside Ave
Peak Rates of Runoff (cfs)

	2-year storm	10-year storm	25-year storm	100-year storm
Existing	1.16	1.86	2.29	2.96
Proposed	0.70	1.15	1.45	2.39

Untreated Stormwater

The project is designed so that stormwater conveyances (outfalls/discharges) do not discharge untreated stormwater.

Post-development peak discharge rates

The proposed project will result in an increase in impervious area. The proposed stormwater management system has been designed so that there is no increase in post construction discharge rates from the site. See Table A above.

Recharge to groundwater

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally-sensitive site design, Low Impact Development techniques, stormwater best management practices, and good operation and maintenance. At a minimum, the annual recharge from the post- development site shall approximate the annual recharge from

pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

Soil types have been identified based on the information contained in the Soil Report. We have determined that the soils are consistent with Hydrologic soil type “A” “B” “C” and “D” which requires runoff to be infiltrated (as listed in the table below) from new impervious areas.

The proposed development will result in an increase in impervious area in the “B” soil areas. Therefore, 0.35 inches of runoff will be required to be infiltrated for the new impervious areas.

Hydrologic Group Volume to Recharge (x Total Impervious Area)	
Hydrologic Group	Volume to Recharge x Total Impervious Area
A	0.60 inches of runoff
B	0.35 inches of runoff
C	0.25 inches of runoff
D	0.10 inches of runoff

Required Recharge Volumes:

“B” Soils

Infiltration Rate: 0.35 inches of runoff
Proposed Site New Impervious Area in “B” Soils: 3,310 sf
3,310 sf x 0.35 x (1/12) = 97 cf

Total required recharge volume (unadjusted): 97 cf

Proposed Recharge Volume:

Infiltration System #1 = 235 cf
Drywell #1 = 11 cf

Total provided recharge volume: 246 cf

Drawdown Time:
INF-1 (maximum time 72 hours)= 235 cf / (1.02 in/hr x 650 sf / 12 in/ft) = 4.25 hour
Drywell-1 (maximum time 72 hours)= 11 cf / (1.02 in/hr x 23.76 sf / 12 in/ft) = 5.45 hour

TSS removal

The site watersheds contain “clean” roof runoff areas that are excluded from this calculation.

Water Quality Volume:

The stormwater management system has been sized to treat for the 0.5” runoff rate applied to the total impervious area for the water quality volume, as shown in the calculations provided below. The calculations for the infiltration stormwater BMPs are shown below. Where site topography and groundwater elevation precluded the use of infiltration BMPs, proprietary water quality unit are proposed which are specifically designed to address water quality prior to discharge. The areas considered “clean” roof runoff have been excluded from this calculation.

Impervious area requiring water quality treatment= 32 sf
32sf x .04165 ft = 2 CF

Total Water Quality Volume Required = 2 CF

Proposed Water Quality Volume:
Infiltration System #1 = 235 cf
Drywell #1 = 11 cf

Higher potential pollutant loads

The proposed project site does not contain Land Uses with Higher Potential Pollutant Loads. The site improvements aim to reduce the potential pollutant loads from the existing automotive mechanic building to a residential building.

Protection of critical areas

Critical areas are Outstanding Resource Waters (ORW) as designated in 314 CMR 4.00, Special Resource Waters as designated in 314 CMR 4.00, recharge areas for public water supplies as defined in 310 CMR 22.02 (Zone Is, Zone IIs and Interim Wellhead Protection Areas for groundwater sources and Zone As for surface water sources), bathing beaches as defined in 105 CMR 445.000, cold-water fisheries as defined in 314 CMR 9.02 and 310 CMR 10.04, and shellfish growing areas as defined in 314 CMR 9.02 and 310 CMR 10.04.

The site is not located within critical areas.

Construction Period Pollution Prevention and Erosion and Sedimentation Control

Soil Erosion and Sediment Control Plan:
The objectives of the Soil Erosion and Sediment Control Plan are to control erosion at its source with temporary control structures, minimize the runoff from areas of disturbance, and de-concentrate and distribute stormwater runoff through natural vegetation before discharge to critical zones such as streams or wetlands. Soil erosion control does not begin with the perimeter sediment trap. It begins at the source of the sediment, the disturbed land areas, and extends down to the control structure.

The Soil Erosion and Sediment Control Plan will be enacted in order to protect the resource areas during construction. The erosion control devices will remain in place until all exposed areas have been stabilized with vegetation or impervious surfaces.

The objective of the Soil erosion & Sediment Control Plan that will be enacted on site is to control the vulnerability of the soil to the erosion process or the capability of moving water to detach soil particles during the construction phase(s).

Operation/Maintenance plan

An Operation and Maintenance plan for both construction and post-development stormwater controls has been developed. The plan includes owner(s); parties responsible for operation and maintenance; schedule for inspection and maintenance; routine and non-routine maintenance tasks. A copy of the O&M is included in the Appendix.

4. Demonstration of Compliance with Arlington's Master Plan Housing Production Plan, and Open Space and Recreation Plan

Arlington Master Plan
The project supports Arlington's Master Plan through the following:

- Enhancing the quality of the built environment by redeveloping a vacated light-industrial lot with a multi-family building, contributing to the residential community of Sunnyside Ave near Broadway.
- Providing mixed-use affordable development with housing options for different incomes, family sizes, and needs.
- Contributing to the small-business economic vibrancy of Sunnyside Ave and Broadway which contains several small businesses.
- Proposed sidewalk and planting enhance the quality of the built environment and pedestrian realm along Sunnyside.
- Increase traffic safety along Sunnyside through construction of curbed sidewalks building security features. The team will work with the town to promote public street safety features for pedestrians.
- Supporting the use of bicycles through ample and diverse bicycle storage units.
- Design to meet high-performing PHIUS certification
- Planting native species along sidewalks and second level deck.
- Creating affordable housing development that has easy access to Alewife Brook, the Alewife Brook Bike Path, and the many outdoor recreation features along the brook's corridor.
- No adverse impact to wildlife or open spaces.

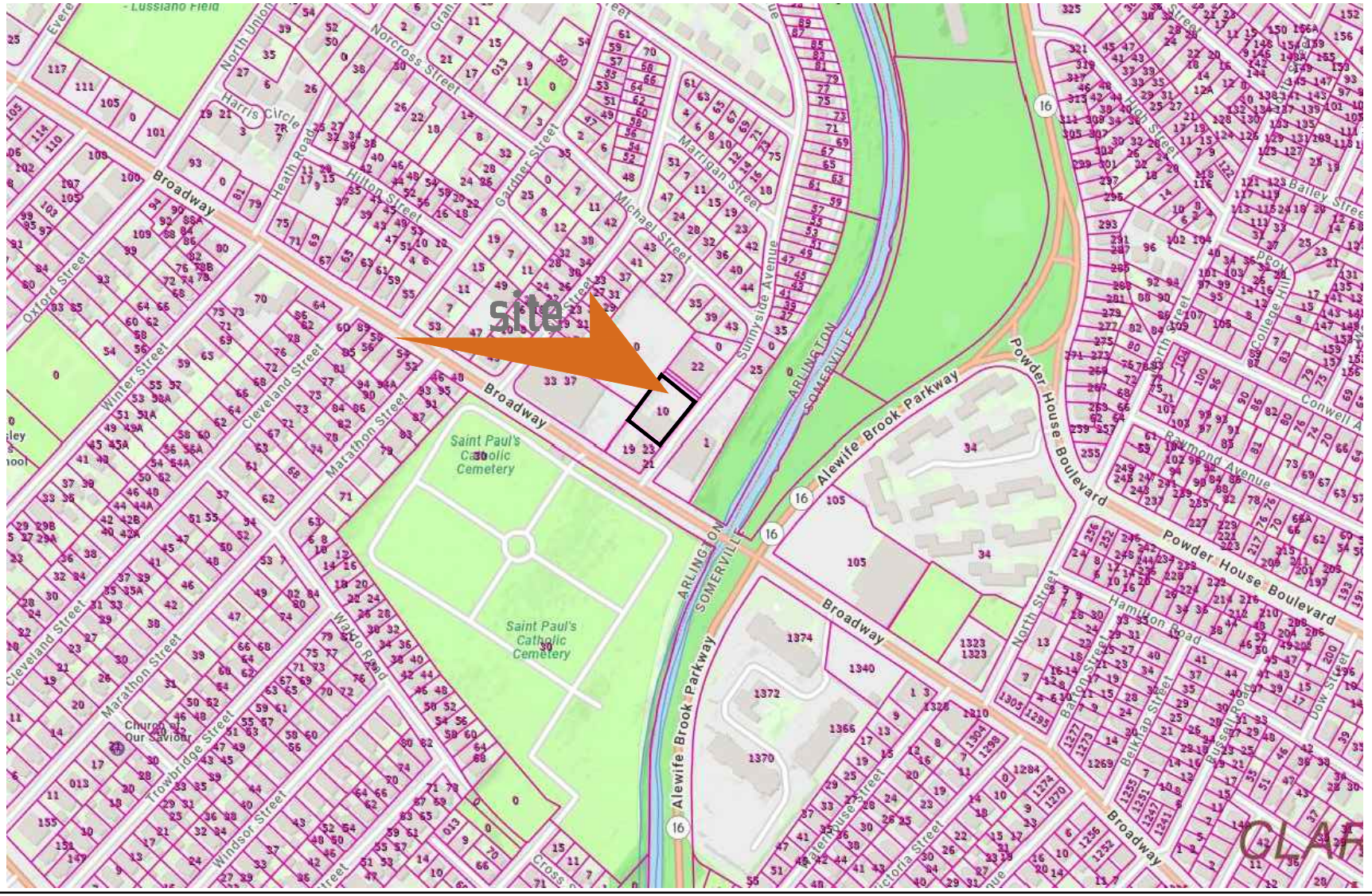
Arlington Housing Production Plan
The project supports Arlington's Housing Production Plan through the following:

- Contributes 43 units towards the town's Chapter 40B 10% affordable housing minimum
- Proposes multifamily residential along business-oriented zone of the Broadway corridor
- Responds to town's zoning revisions for multifamily residential in a business district, which came from the production plan
- Offers diversity of unit types and sizes to support demographic diversity
- Offers significant level of affordability:
    - Maximum household income: 60% AMI
        - $67,320 for household of 2
        - $84,120 for household of 4
    - Some units reserved for maximum incomes of 30% AMI
        - $33,650 for household of 2
        - $42,050 for household of 4

- Sustainable redevelopment of an existing lot along Broadway corridor near Mass Ave.

Arlington Open Space and Recreation Plan
The project supports Arlington's Housing Production Plan through the following:

- Adheres to town's regulatory policy centering on redevelopment.
- Adheres to town goals of environmental sensitivity to enhance the natural environment.
- Adding street trees to increase the town's tree canopy
- Working with the town to create safe pedestrian sidewalks along Sunnyside, which in turn increases safe walking routes to Alewife Brook and the Bike path
- Implementing Stormwater management on the site
- Affordable housing to be provided on a site that is very close to Open Space / Recreational Areas in EJ Area – Map #3 in Table 4-8 of the Housing Production Plan



Sketch No.	SKCE-001
Reference Drawing	-

Job #:	52094.00
Drawn by:	DJS
Scale:	NTS
Date:	02-13-23

Project: SUNNYSIDE HEIGHTS

Title: REGIONAL CONTEXT MAP

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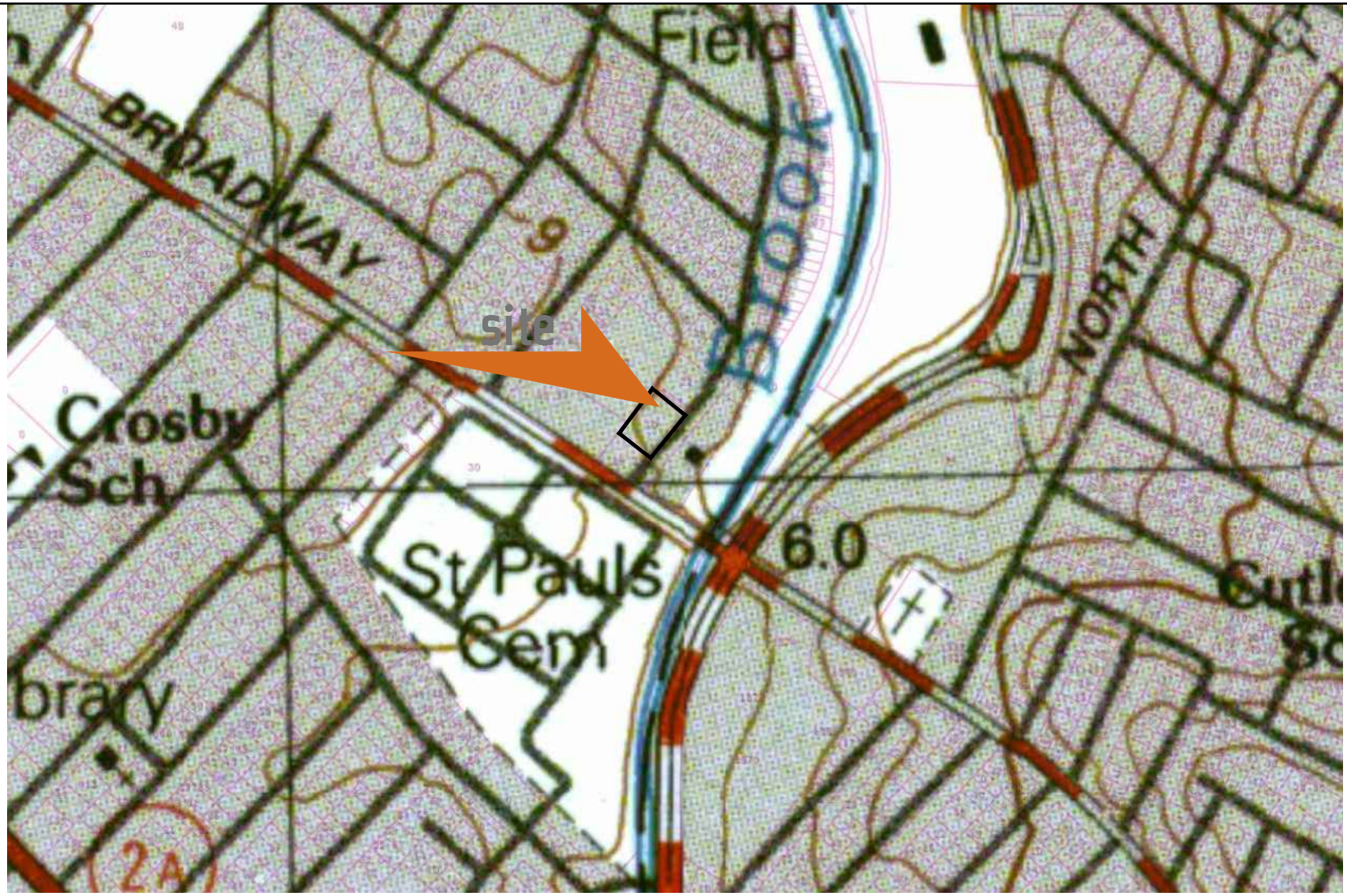

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Drawn by:	DJS
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Date:	02-13-23

Project: SUNNYSIDE HEIGHTS

Title: USGS TOPO MAP

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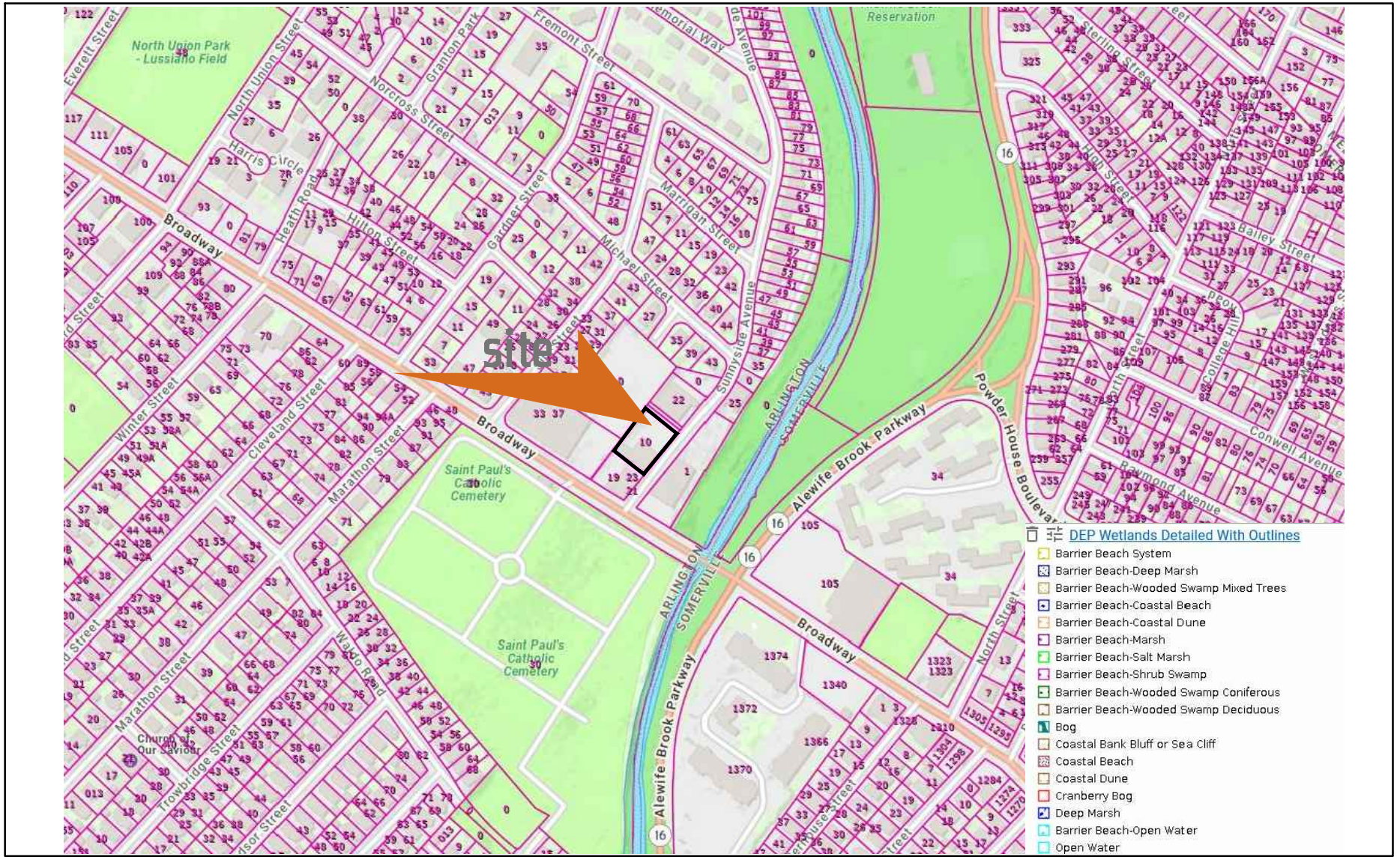

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Date:	02-13-23

Project: SUNNYSIDE HEIGHTS

Title: RESOURCE AREAS MAP

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Sketch No.	SKCE-004
Reference Drawing	-

Job #:	52094.00
Drawn by:	DJS
Scale:	NTS
Date:	02-13-23

Project: SUNNYSIDE HEIGHTS

Title: NHESP MAP

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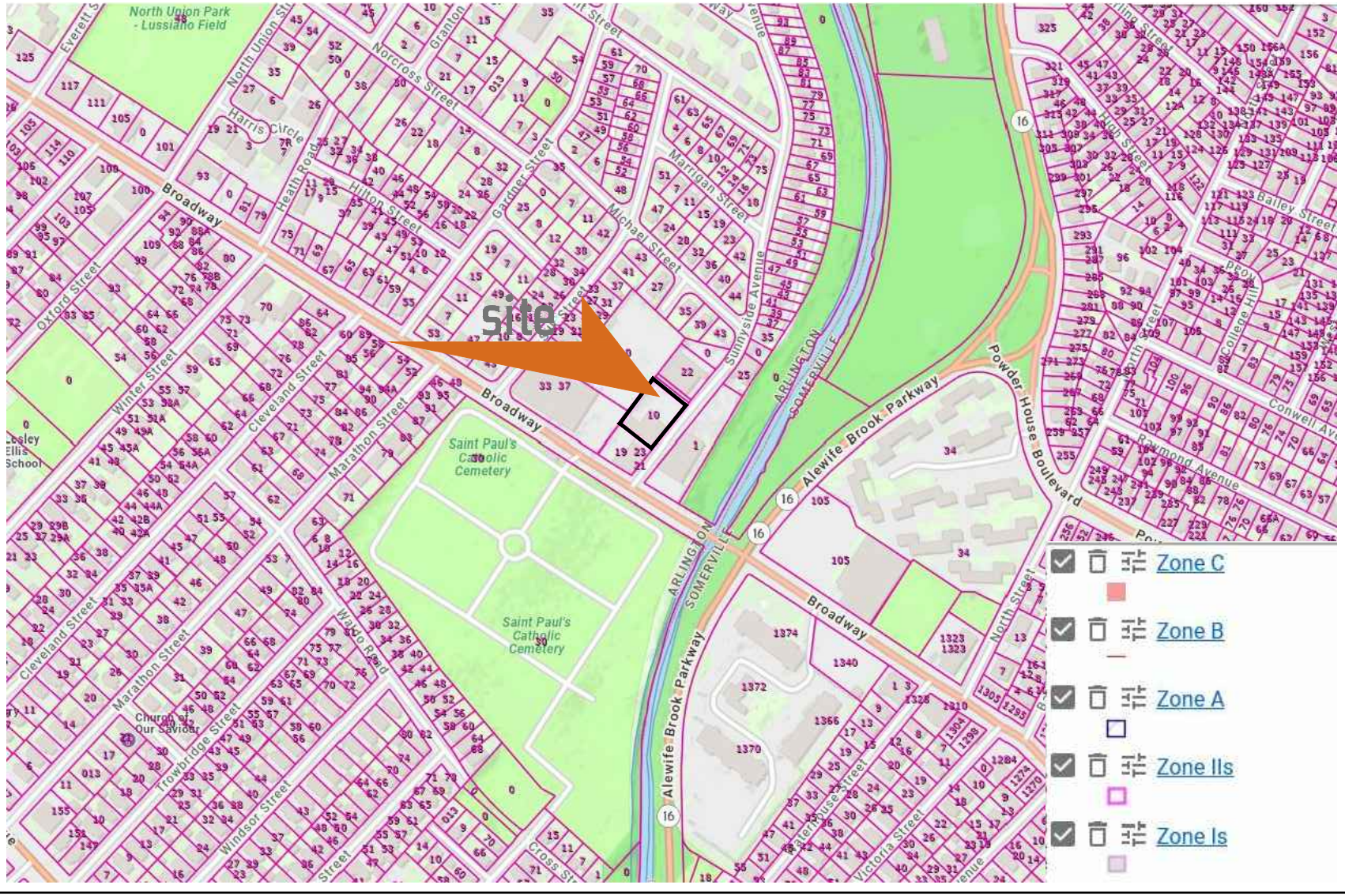

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Scale:	NTS
Date:	02-13-23

Project: SUNNYSIDE HEIGHTS

Title: ZONE I, ZONE II, ZONE A
ZONE B, ZONE C

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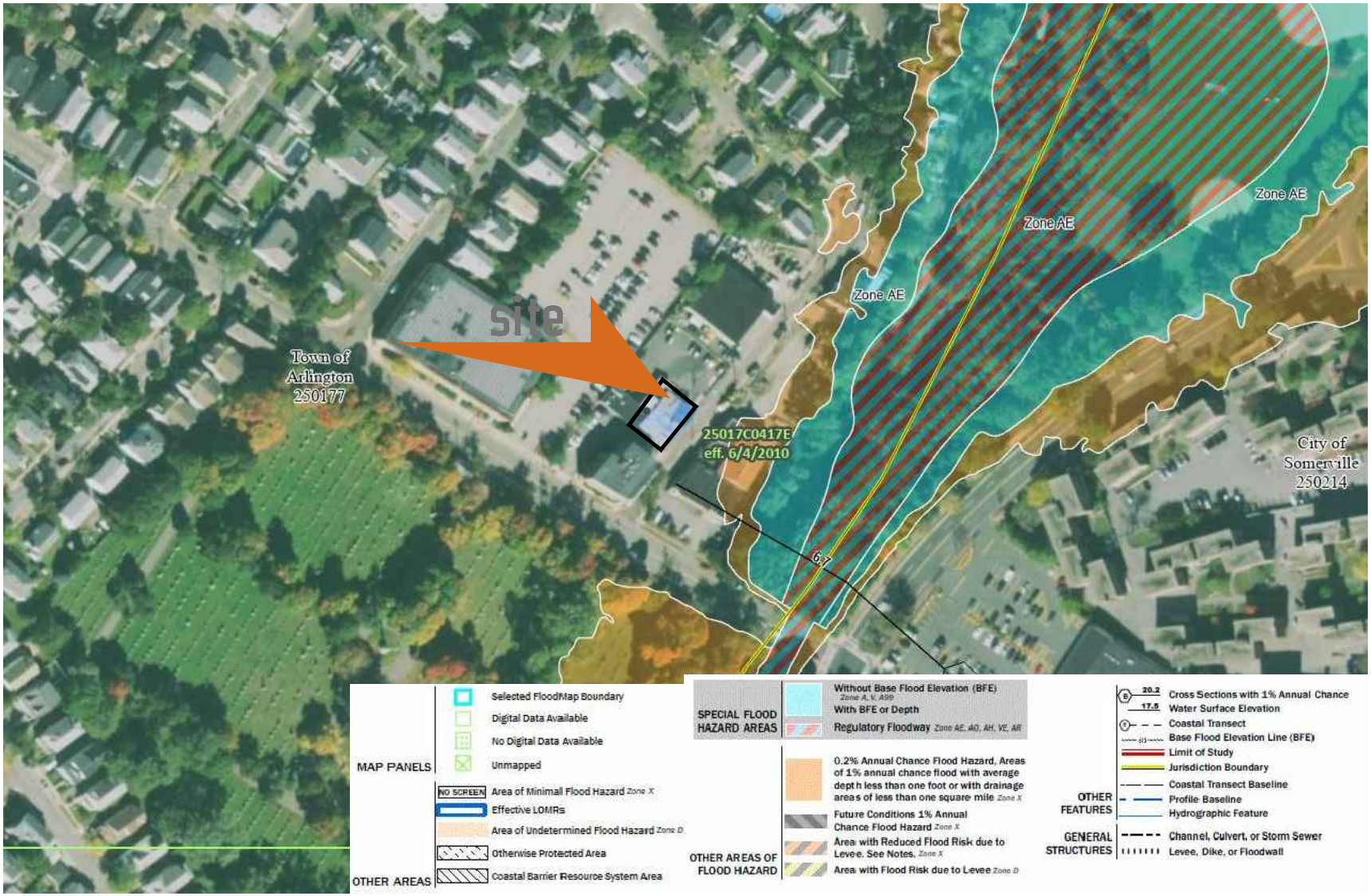

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Drawn by:	DJS
Scale:	NTS
Date:	02-13-23

Project: SUNNYSIDE HEIGHTS

Title: FEMA FLOOD MAP

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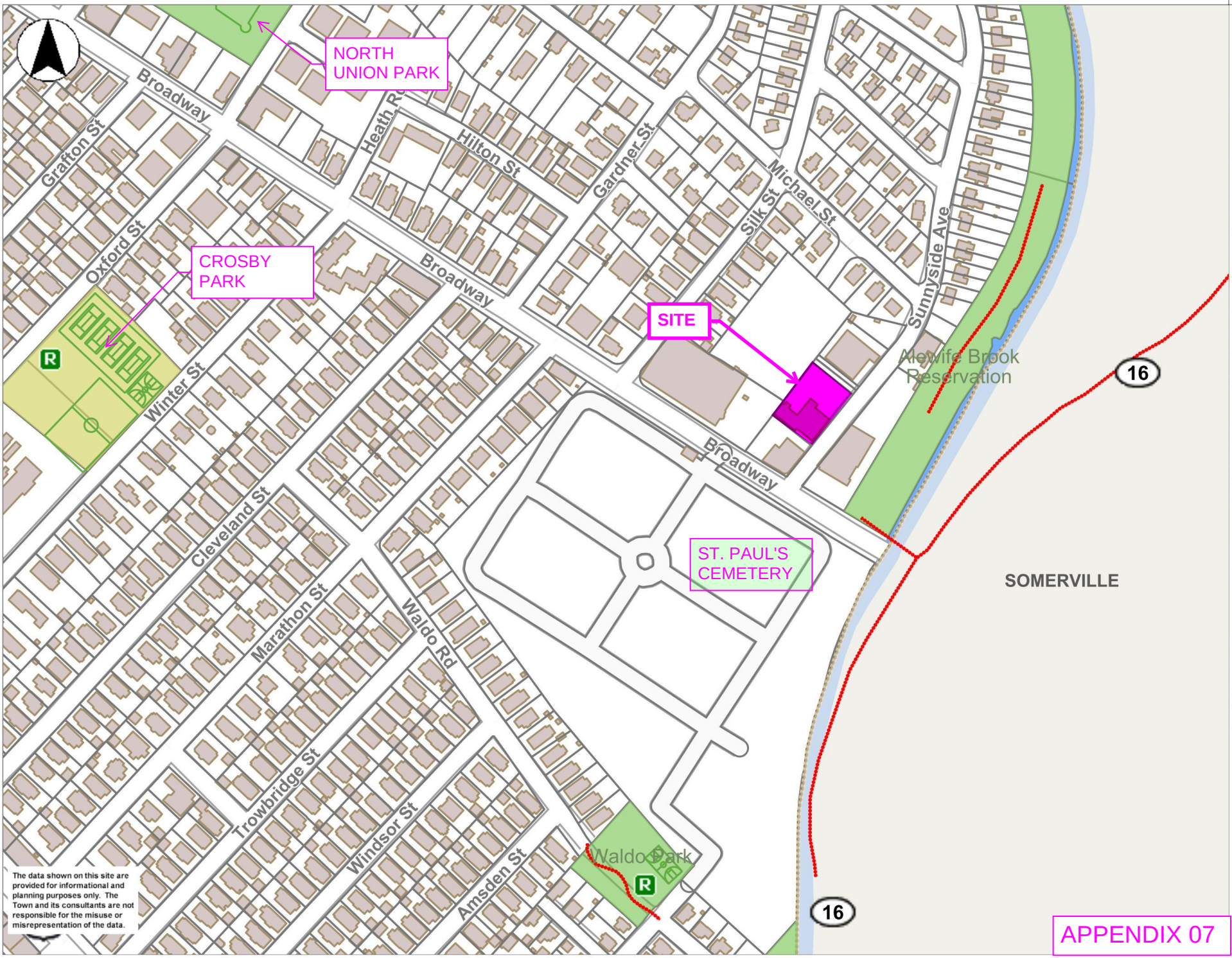

APPENDIX 07

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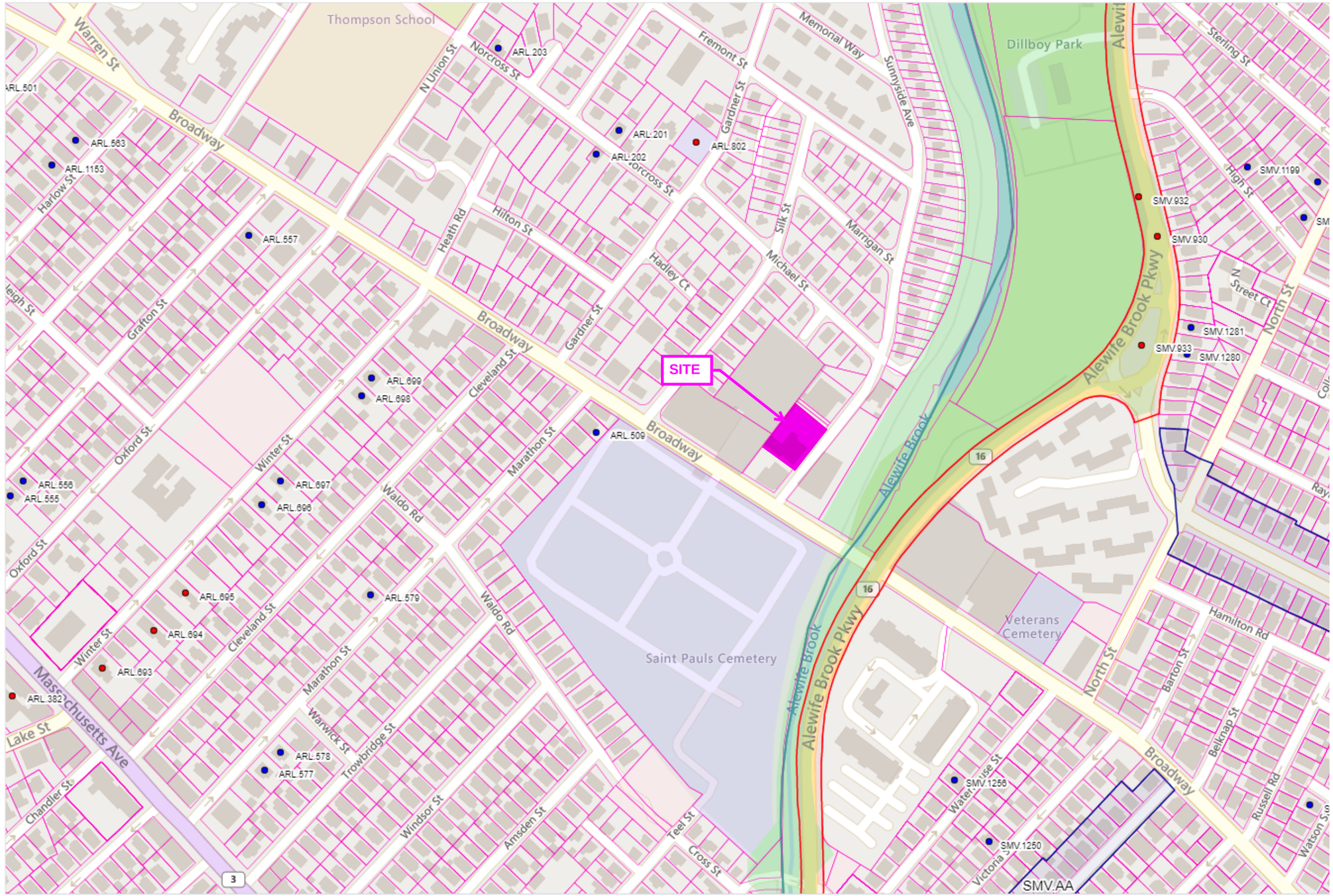
Town of Arlington, MA

APPENDIX 08

MACRIS Map



MHC Inventory Areas

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- Local Landmark
- National Register Historic Places & Local Historic District
- National Register Historic Places & Local Landmark
- Massachusetts Historic Landmark
- Inventoried Area

MHC Inventory Points

- National Register Historic Places
- Preservation Restriction
- Local Historic District
- Local Landmark
- National Register Historic Places & Local Historic District
- National Register Historic Places & Local Landmark
- Massachusetts Historic Landmark
- Inventoried Property

MHC Update Status

- Updates Pending
- Completed

Building Structures (2-D)

- Building Structures (2-D)

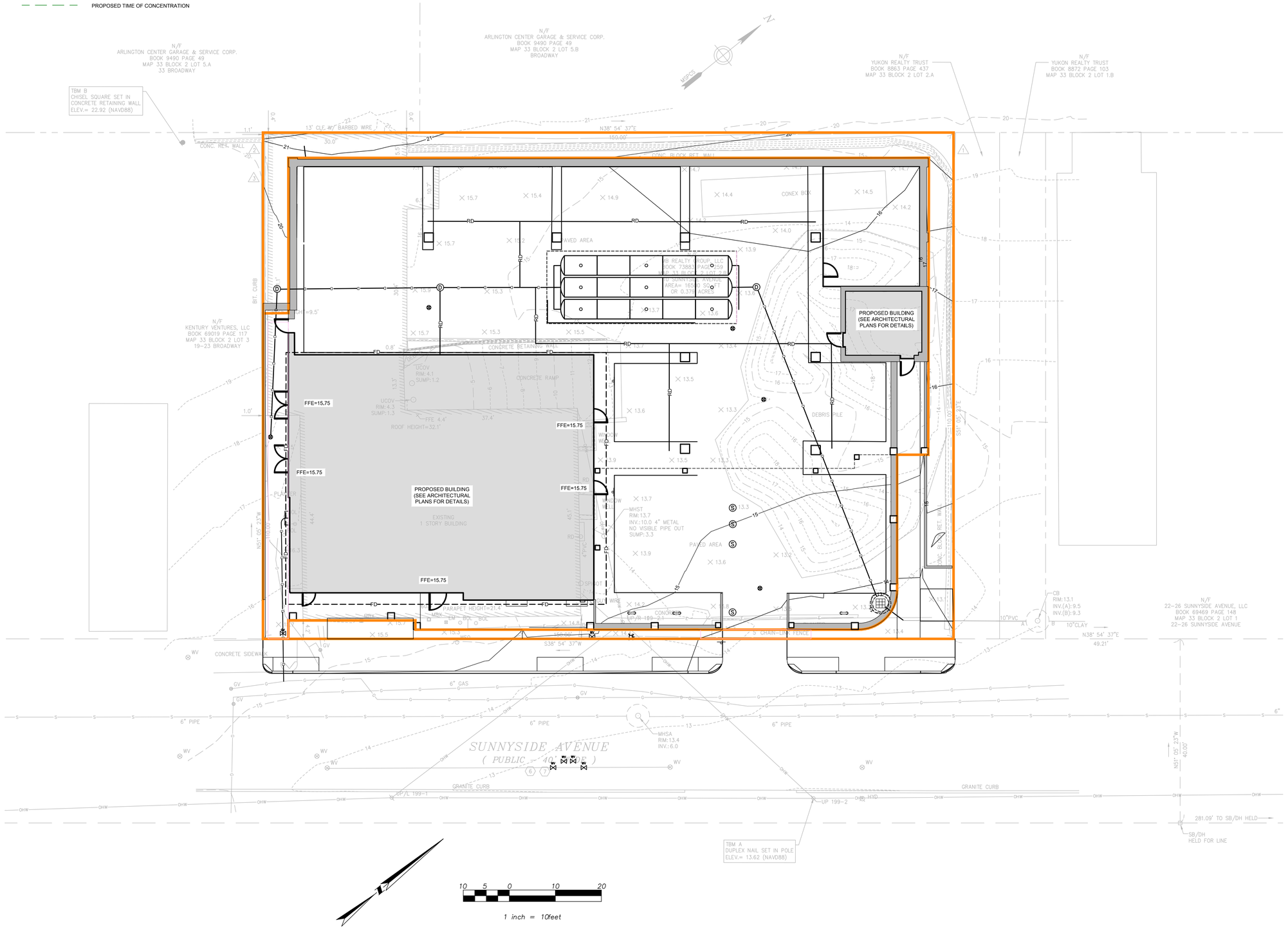
Open Space

- Conservation
- Recreation
- Recreation and Conservation
- Agriculture
- Habitat
- Historical/Cultural
- Scenic (Official Designation Only)
- Water Supply
- Flood Control
- Underwater
- Other
- Unknown

LEGEND:

PROPOSED WATERSHED

PROPOSED TIME OF CONCENTRATION



10 Sunnyside Avenue

PROJECT

Housing Corporation of Arlington

OWNER

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STAMP

DATE	REVISION

REVISIONS ON SHEET

SCALE
1" = 10' Arlington, MA

PR-HYD

PR-HYD

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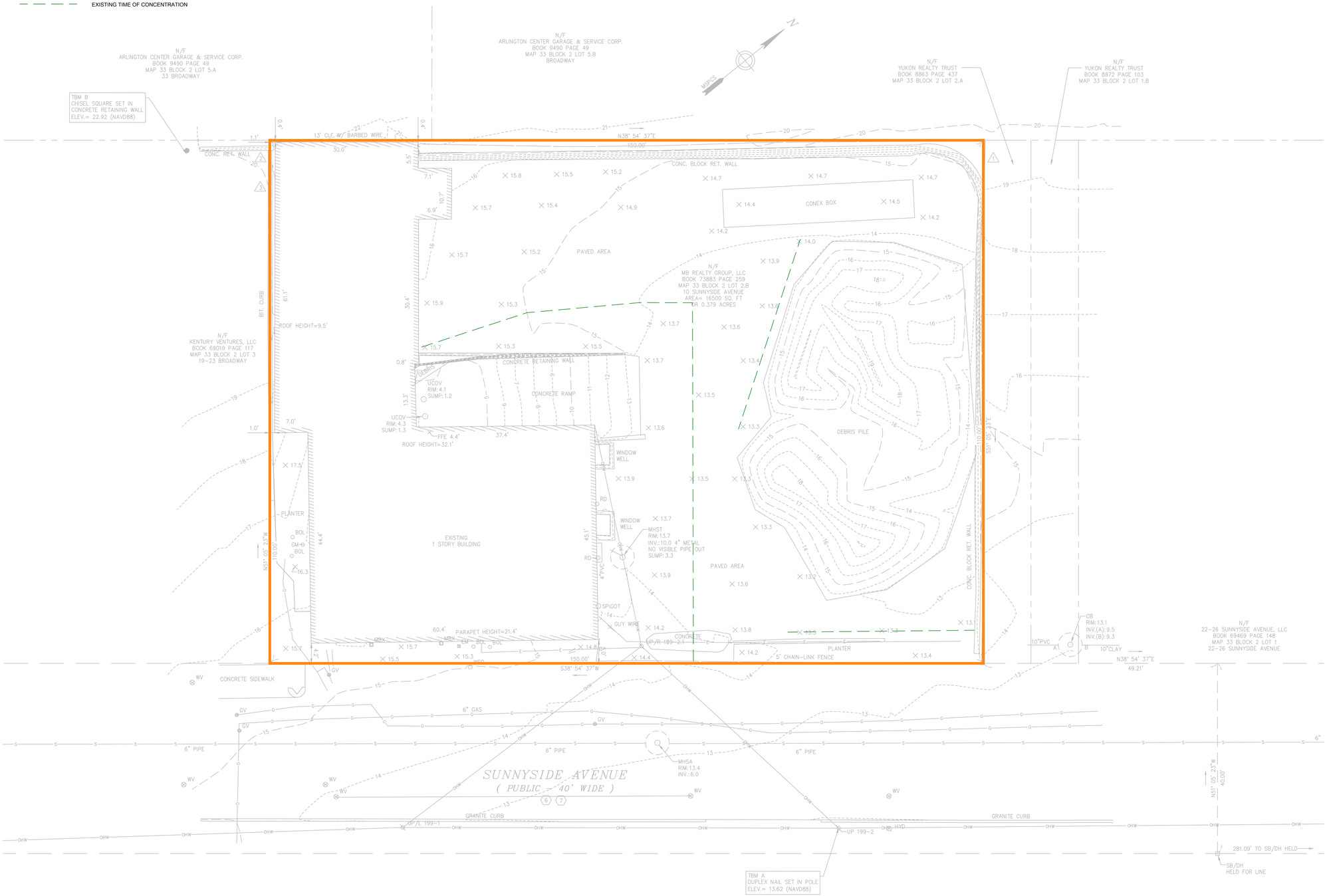
LEGEND:

EXISTING WATERSHED

EXISTING TIME OF CONCENTRATION



10 Sunnyside Avenue

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DATE	REVISION

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SCALE
1" = 10'

Arlington, MA

EXISTING WATERSHED MAP

EX-HYD

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