Fobes Island Development

Stormwater Pollution Prevention Plan Update

Village of Baldwinsville, New York

Prepared for:

Fobes Island, LLC
8233 Park Ridge Path
Liverpool, New York 13090

Prepared by:

One Park Place
300 South State Street
Syracuse, New York 13202

CHA Project Number: 17076.1511.30000

October, 2024

Project Information:

Project Name and Location
Fobes Island Development
Lock Street
Village of Baldwinsville
Onondaga County, New York

Owner Name and Address
Fobes Island LLC
8233 Park Ridge Path
Liverpool, New York 13090

Project Description:

Purpose and Extent of Proposed Development

The proposed project is located on Lock Street in the Village of Baldwinsville, Onondaga County, New York (see Figure 1 – Location Plan). The total property is approximately 10.41 acres in size, of which 6.18 acres is proposed to be apartments/townhomes and 3.99 acres is proposed to be single family lots (10 lots total). The area is generally residential with the rear of the property facing the Seneca River.

This initial SWPPP covered all site development initially designed to include the construction of 8 apartment buildings along with access drives, parking, sidewalks, utilities and stormwater facilities. Since the initial application the developer built the two large apartment buildings (25 & 26 unit) and a single-family home. Due to conflicts with the floodway and floodplain two of the proposed apartment buildings can not be built from the original site design. In order to maintain the original unit count of the development a 24-unit apartment building and a 6-unit apartment home are now proposed to avoid impacts to the floodway and floodplain.

Project Disturbance Area

Total Disturbed Area:	± 8.78 acres
Initial Design Proposed Impervious Area (Apartments):	*± 3.10 acres (2.23 acres previously impervious)*
Revised Design Proposed Impervious Area (Apartments):	± 3.00 acres (2.23 acres previously impervious)
Proposed Impervious Area (Residential Lots*):	± 0.57 acres (0.09 acres previously impervious)
Initial Design Total Proposed Impervious Area:	*± 3.67 acres (2.32 acres previously impervious)*
Revised Design Total Proposed Impervious Area:	± 3.57 acres (2.32 acres previously impervious)

**Assuming 2,500 SF of impervious surface per lot*

Post-Construction Stormwater Management

Design Criteria

The proposed project has been designed in accordance with the New York State Stormwater Management Design Manual (January 2015) and the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activities (GP-0-15-002).

Because the site discharges directly to the Seneca River (which is classified as a fifth order stream or larger per the New York State Stormwater Management Design Manual), no existing and proposed peak runoff rates were calculated since mitigation is not required.

Existing Conditions

The existing project area consists of developed land (existing impervious surfaces) as well as vacant residential property. Runoff is either piped or sheets directly to the Seneca River.

Proposed Conditions

The proposed project site consists of two larger apartment buildings (25 and 26 units), a 24 unit apartment building, and one 6-unit apartment building. The remaining development area will consist of ten single family homes. Runoff from the development will discharge to the Seneca River as in existing conditions.

Water Quality

Water quality treatment will be designed to capture and treat 90% of the annual stormwater runoff volume, or the full water quality volume (WQ_v). Treatment practices need to be capable of 80% Total Suspended Solids (TSS) removal and 40% Total Phosphorous (TP) removal, have an accepted longevity in the field and have a pretreatment mechanism. Per the New York State Stormwater Management Design Manual (NYSSMDM), the Water Quality Volume (WQv) for new impervious surfaces is calculated as follows:

WQv = (P * Rv * A)/12, where

P = 90% rainfall event number, from NYSSMDM Figure 4.1, P=1.0
Rv = Impervious coefficient, based on % impervious cover (I)
Rv = 0.05 + 0.009*(I)
A = Drainage area in acres (new impervious area used for calculation purposes)

Therefore,

WQv = 1.0 x (0.05+(0.009 x 100)) x 1.25 / 12 = 0.099 acft

For redevelopment projects, only a percentage of the total WQv is required for existing impervious surfaces depending on the treatment practice used. A hydrodynamic separator is proposed which is considered a proprietary device, therefore, 75% of the total WQv is required and is calculated as follows:

WQv = [1.0 x (0.05+(0.009 x 100)) x 2.32 / 12] x 75% = 0.138 acft

Initial Total WQv required = 0.099 + 0.138 acft = 0.237 acft

The rear portions of the buildings along the river and the single family homes (0.96 acres total) can be considered as an area reduction since rooftops will be disconnected from the storm sewer system. Therefore, the credited water quality volume for rooftop disconnection is as follows:

WQv = 1.0 x (0.05+(0.009 x 100)) x 0.96 / 12 = 0.076 acft

Total WQv required = 0.237 – 0.076 = 0.161 acft

A CDS-8 unit will be installed to treat the required water quality volume. This unit is approved to treat a maximum treatment flow of 3.70 cfs which is equivalent to 0.197 acft.

Runoff Reduction

The goal of runoff reduction is to provide infiltration, groundwater recharge, reuse, recycle evaporation/evapotranspiration of 100 percent of the post-development water quality volumes to replicate pre-development hydrology by maintaining pre-construction infiltration, peak runoff flow, discharge volume, as well as minimizing concentrated flow by using runoff control techniques to provide treatment in a distributed manner before runoff reaches the collection system. This requirement can be accomplished by application of on-site green infrastructure techniques, standard stormwater management practices with runoff reduction capacity, and good operation and maintenance. Runoff reduction can be achieved by three methods: reduction of contributing drainage area, reduction of runoff volume through practice storage, and using standard stormwater practices with runoff reduction capacity.

Runoff reduction is not required for existing impervious surfaces. However, it is required for new impervious surfaces which amount to 1.25 acres or 0.099 acft. Due to poor soils, it is not possible to comply with the full runoff reduction requirement. In this case, regulations require projects to reduce a percentage of the runoff from impervious surfaces based on the soil type which is defined as Specific Reduction Factor (S). Onsite soils are assumed HSG D soils due to their infiltration capacity, therefore, the minimum runoff reduction required is calculated as follows:

RRv = (P x Rv x *Ai*) / 12, where

Ai = (*S*)(*Aic*)
Ai = impervious cover targeted for runoff reduction
(*Aic*) = Total area of new impervious cover
S = Hydrologic Soil Group Reduction Factor (*S*)

RRv = (1.0 x (0.05+ (0.009 x 100)) x (0.20 x 1.25)) / 12 = 0.0198 acft

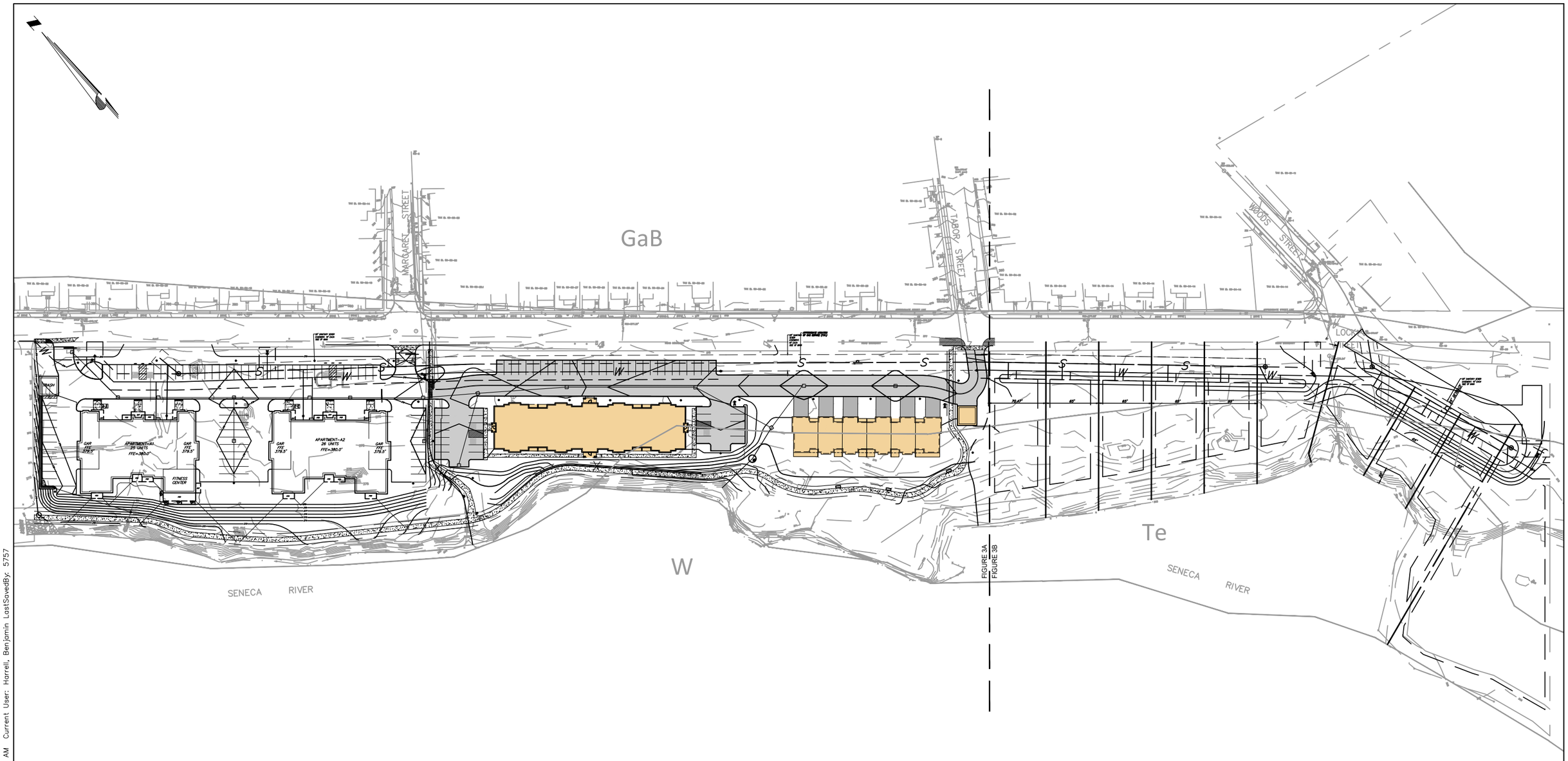
As previously discussed, rooftop disconnection accounts for 0.076 acft and qualifies as a runoff reduction practice, therefore, the minimum is met.

Conclusion:

As seen in the Water Quality Volume Information figure below the total impervious for the project has been reduced by 0.10 Acres, therefore reducing the water quality volume required for the new impervious area from 0.107 acft to 0.099 acft. The total WQv required has been reduced and the total WQv provided is still the same as the original design as 2.2 acres of impervious are still contributary to the CDS unit for treatment.

Water Quality Volume Information

Existing				
Impervious	2.32	ac		
Proposed	**Previous**		**Current**	
Pavement	1.55	ac	1.53	ac
Buildings	1.28	ac	1.20	ac
Sidewalks	0.27	ac	0.27	ac
Lots (est)	0.57	ac	0.57	ac
Total Impervious:	3.67	ac	3.57	ac
Existing Impervious:	2.32	ac	2.32	ac
WQv =	0.138	acft (75% for redevelopment - proprietary device)	0.138	acft (75% for redevelopment - proprietary device)
New Impervious:	1.35	ac	1.25	ac
WQv =	0.107	acft (100% for new impervious surfaces)	0.099	acft (100% for new impervious surfaces)
Total WQv =	0.245	acft	0.236958	
Rooftop Disconnection				
Buildings	0.50	ac	0.50	ac
Homes (est)	0.46	ac	0.46	ac
Total:	0.96	ac	0.96	ac
WQv =	0.076	acft	0.076	acft
Required WQv =	0.169	acft	0.161	acft
CDS Unit Treatment =	0.197	acft	0.197	acft
Total Impervious to CDS:	2.22	ac	2.23	ac



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One Park Place, 300 South State Street, Suite 600
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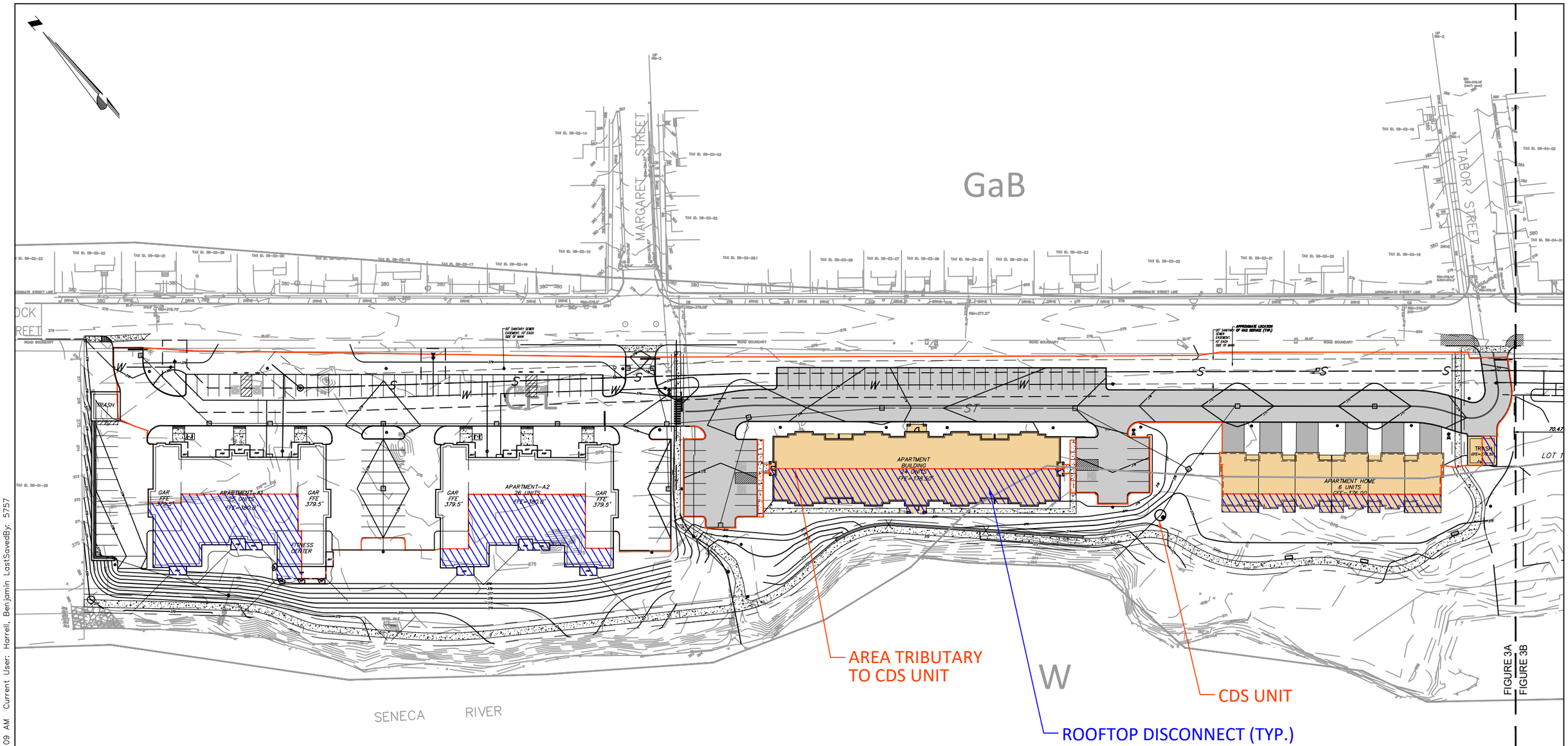
OVERALL PROPOSED CONDITIONS PLAN

FOBES ISLAND DEVELOPMENT
LOCK STREET
VILLAGE OF BALDWINSVILLE, NY
SCALE: 1"=120'

PROJECT NO. 17076.1511

DATE: 10/7/24

FIGURE 3



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PROPOSED CONDITIONS – WEST

FOBES ISLAND DEVELOPMENT
LOCK STREET
VILLAGE OF BALDWINSVILLE, NY
SCALE: 1"=80'

PROJECT NO. 17076.1511

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FIGURE 3A

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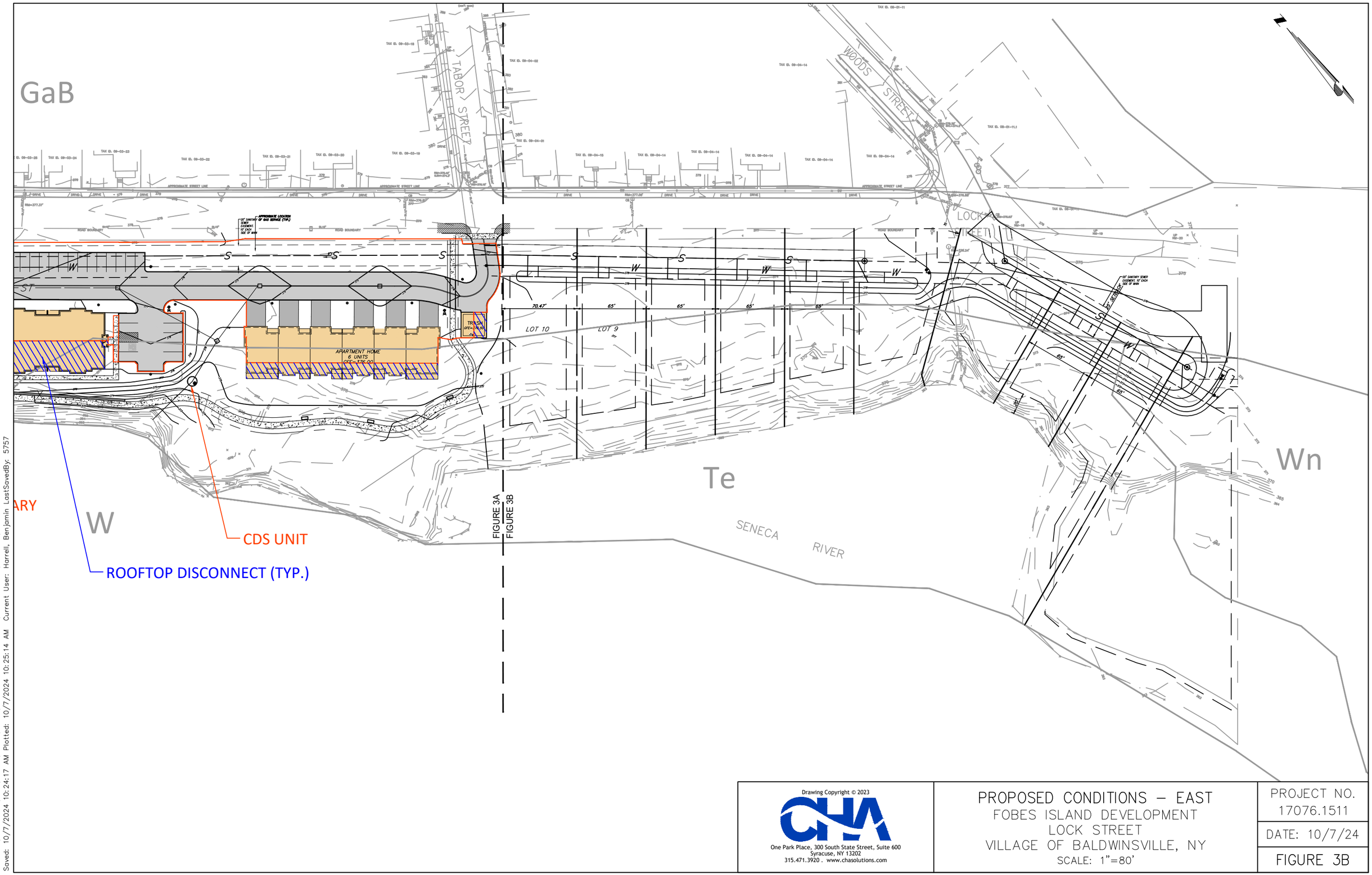

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PROPOSED CONDITIONS – EAST

FOBES ISLAND DEVELOPMENT
LOCK STREET
VILLAGE OF BALDWINSVILLE, NY
SCALE: 1"=80'

PROJECT NO. 17076.1511

DATE: 10/7/24

FIGURE 3B