

IV. D. – FLOODING AND FLOOD ZONE IMPACTS

INTRODUCTION

As a coastal community, Mamaroneck has been, and will continue to be impacted by flood events. This section of the DEIS addresses the Project Site’s vulnerability to flooding, and what mitigation measures may be imposed to lessen those impacts.

1.) EXISTING CONDITIONS

(a.) Location of 100-Year and 500-Year Floodplains:

The elevation of the Project Site varies from 22’ to just over 27’ above sea level. As depicted on Figures IV.D-1 and IV.D-2, the majority of the Site is located in Special Flood Hazard Zone (AE), or an area with a 1% chance of flooding in any year (the 100-year floodplain). The modeled base flood elevation in this zone varies from 26’ to 27’. The southwest corner of the Site, which sits just above elevation 27’, extends into the 500-year floodplain, or the area with a 2% chance of flooding in any given year.

Because the Site is located within the AE zone, flood insurance is mandatory as is compliance with floodplain management standards. The Village participates in the Community Rating System, which provides incentives for exceeding minimum National Flood Insurance Program standards. Currently, Mamaroneck is a Class 8 community, which results in a 10% discount on flood insurance premiums.

All development in the floodplain must comply with Chapter 186 of the Village Code; Flood Damage Protection. A Floodplain Development Permit is required for all development in the floodplain, and all non-residential development must either:

- Have the lowest floor, including basement or cellar, elevated to or above two feet above the base flood elevation; or
- Be floodproofed so that the structure is watertight below two feet above the base flood elevation with walls substantially impermeable to the passage of water. All structural components be located below the base flood level must be capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.

(b.) Flood Volume Storage:

A flood volume storage analysis was conducted by Hudson Engineering & Consulting, P.C. (Appendix C). As documented in Table IV.D-1 and Figure IV.D-3, the Site currently provides a cumulative total of 54,649 cubic feet of flood storage.

Table IV.D-1 Volumetric Analysis – Existing Conditions			
Elevation	Surface Area	Incremental Storage (Cubic Feet)	Cumulative Storage (Cubic Feet)
21	0	0	0
22	388	194	194
23	2,961	1,675	1,869
24	16,517	9,739	11,608
25	21,073	18,795	30,403
26	27,420	24,247	54,649

Source: Hudson Engineering & Consulting, P.C.

(c.) Local Drainage Patterns:

The topography in the vicinity of the Site trends southeast to northwest, toward the Sheldrake River. A documented more fully in the Stormwater Management Plan prepared for this Proposed Action, and the associated SWPPP, five on-site watersheds

drain toward two design points. DP1 is located at the corner of Waverly Avenue and Fenimore Road. DP2 is located in the center of the Site’s Fenimore Road frontage. Figure IV.D-4 illustrates the existing on-site watersheds.

2.) FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION:

If the Proposed Action is not developed, the Project Site would continue to operate as it operates today. The existing older warehouse buildings would remain in place, which include occupied space located below the base flood elevation, and as such are prone to periodic flooding. Murphy Brothers would continue to operate their businesses from the Site and the self-storage building would continue to function as it does today.

3.) ANTICIPATED IMPACTS:

The Proposed Action will take place entirely within the 100-year floodplain, Zone AE. As the Site is currently developed, and fully covered by impervious surfaces and older buildings that do not comply with current flood control standards and requirements, the Proposed Action will serve to improve flooding conditions. The Proposed Action will remove the older flood prone buildings on the Site, and replace them with a new self-storage building addition that fully complies with Chapter 186 of the Village Code; Flood Damage Protection. The first floor of the addition will be constructed 2 feet above the base-flood elevation, or elevation 29’.

While excavation for the new building foundation is required, the amount of excavation is expected to be minimal, as a basement is not proposed. Table IV.D-2 and Figure IV.D-5 document that the Proposed Action will result in a slight net increase in flood volume storage from 56,6549 cubic feet to 57,071 cubic feet.

Table IV.D-2 Volumetric Analysis – Proposed Conditions			
Elevation	Surface Area	Incremental Storage (Cubic Feet)	Cumulative Storage (Cubic Feet)
21	0	0	0
22	704	352	352
23	5,344	3,024	3,376
24	15,142	10,243	13,619
25	22,826	18,984	32,603
26	26,110	24,468	57,071

Source: Hudson Engineering & Consulting, P.C.

Figure IV.D-6 illustrates the proposed site watersheds. Table IV.D-3 illustrates the comparison between pre and post development stormwater flow rates at the Site’s two design points. As can be seen, runoff flow rates will be equal to or in most cases, less than current conditions.

Table IV.D-3 Pre and Post Development Runoff Flow Rate (CFS)						
Design Point	1-Year		10-Year		25-Year	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
DP-1	0.89	0.89	3.02	2.98	3.81	3.75
DP-2	1.58	1.48	2.89	2.85	3.64	3.62

Source: Hudson Engineering & Consulting, P.C.

The Proposed Action will not result in any adverse flooding or flood zone impacts.

4.) MITIGATION MEASURES

As noted above, the first floor of the self-storage building addition will be constructed two feet above the base flood elevation, or elevation 29'. It will also be constructed in accordance with a Floodplain Development Permit, issued by the Village. The building will comply with the “Standards for All Structures” (§186-5 B.) including:

- The building will be anchored to prevent flotation, collapse or lateral movement during the base flood;
- The building shall be constructed with materials and utility equipment resistant to flood damage;
- The building shall be constructed using methods and practices that minimize flood damage;
- No enclosed spaces are proposed below the base flood ~~e~~ elevation, including stairs. A basement is not present in the existing self-storage building, and one is not proposed in the new building addition;
- New and replacement electrical equipment, heating, ventilating, air conditioning, plumbing connections, and other service equipment shall be located at or above the base flood elevation. Electrical wiring and outlets, switches, junction boxes and panels shall be elevated to or above the base flood elevation unless they conform to the appropriate provisions of the electrical part of the Building Code of New York State or the Residential Code of New York State for location of such items in wet locations;
- New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;
- New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters. Sanitary sewer and storm drainage systems for buildings that have openings below the base flood elevation shall be provided with automatic backflow valves or other automatic backflow devices that are installed in each discharge line passing through a building's exterior wall; and
- On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.

The Proposed Action involves the construction of a new parking area consisting entirely of impervious pavement. Implementing the stormwater management plan prepared in support of the Proposed Action will ensure that the rate of flow of runoff from all existing and new impervious surfaces will be equal to or below the current rate, and that flood volume storage actually is slightly increased.

Importantly, the Proposed Action is designed as a “net zero” building, meaning the building will effectively have no carbon footprint. This is perhaps the most definitive measure the Applicant can take to minimize the overall impact on climate change, including sea level rise and flooding.