

IV. B. – NATURAL RESOURCES

INTRODUCTION

This section of the DEIS evaluates the potential impacts of the Proposed Action on natural resources, including surface and groundwater, geology, soils and topography.

1.) SURFACE WATER:

(a.) **EXISTING CONDITIONS:**

The Project Site is located within the Coastal Long Island Sound Watershed and the Sheldrake River Drainage Basin (Figures IV.B-1 and IV.B-2). No surface water features are located on, or in the immediate vicinity of the Site. The nearest surface water feature is the Sheldrake River, located approximately 800' to the north and west (Figure IV.B-3). Overland stormwater runoff from the Site travels north toward Fenimore Road, eventually intersecting the Sheldrake River, where it flows to the East Basin of Mamaroneck Harbor, and the Long Island Sound.

(b.) **FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION:**

The Project Site is currently developed and supports five buildings, including the existing Mamaroneck Self-Storage facility. 94% of the 1.01-acre Site is covered by impervious surfaces. Stormwater runoff from these surfaces flows overland to either an existing catch basin located in the center of the parking lot or a catch basin in Waverly, where it is collected and conveyed via pipe to an existing hydrodynamic separator before entering the Village's drainage system in Fenimore Road. This system operates adequately, and if the Proposed Action were not undertaken, it would remain in place, unchanged.

(c.) **ANTICIPATED IMPACTS:**

The Proposed Action will reduce the amount of impervious surfaces on the Site from 41,390 square feet to 40,675 square feet, or a reduction of 715 square feet of impervious surface.

The Proposed Action will not alter the grades or elevation of the Site, and runoff patterns and direction will remain unchanged. As no surface water features are located on or near the Site, drainage patterns will remain unchanged, and a full stormwater management plan is proposed to mitigate drainage flows, and the amount of impervious surfaces will be reduced, it can be concluded that no adverse surface water impacts will result from the Proposed Action.

(d.) **PROPOSED MITIGATION MEASURES:**

As documented in the draft Stormwater Pollution Prevention Plan (SWPPP), prepared by Hudson Engineering & Consulting, P.C., included in the Appendix, and as illustrated on the Stormwater Management Plan (Figure IV.B-4). The proposed stormwater management plan involves collecting stormwater runoff in two relocated catch basins in the parking lot, driveway trench drains or stormwater planters, where it is conveyed via 12" pipes to a hydrodynamic separator designed to accommodate and treat the entire water quality volume from the tributary area. The treated runoff is then conveyed to an existing catch basin located at the corner of Waverly Avenue and Fenimore Road, where it enters the Village's drainage system.

2.) AQUIFERS AND GROUNDWATER:

(a.) **EXISTING CONDITIONS:**

The Project Site is not located above an aquifer. The closest aquifer is located approximately 300' northwest of the Site, on the north side of Fenimore Road, which is classified as a stratified drift aquifer, with a yield of >100 gallons/minute (Figure IV.B-5).

A subsurface investigation by HydroEnvironmental Solutions Inc. in April of 2019 was undertaken, consisting of the installation of four soil borings in the vicinity of the proposed foundation (Figure IV.B-6) which included piezometers to measure the depth to groundwater. These piezometer readings revealed that groundwater is present beneath the Site at a depth of 3.1 feet to 4.8 feet below grade. A review of the United States Geologic Survey's National Water Information System¹, four groundwater monitoring wells were installed in the vicinity of the Site (Figure IV.B-7). Ground water depths are identified in Table IV.B-1.

Table IV.B-1 USGC National Water Information System – Depth to Ground Water		
Well Number	Well Depth	Ground Water Elevation ⁽¹⁾
WE 141	300'	12'
WE 144	600'	28'
WE 145	450'	40'
WE 27	331'	5'

(1) – Elevation below surface grade

There are currently no wells or septic systems on the Project Site that would impact ground water resources.

(b.) **FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION:**

If the Proposed Action is not developed, the Project Site would continue to operate as it operates today, and would continue to have no impact on groundwater resources or the nearby aquifer.

(c.) **ANTICIPATED IMPACTS:**

The proposed building extension will utilize the same construction as the existing self-storage building. Basements are not feasible due to the Site's location within the floodplain. The first-floor elevation will be set 2' above the base flood elevation. As a result, minimal excavation is required, ~~and it is unlikely that ground water will be encountered during construction. De-watering was not required as part of the recent construction of the existing self-storage building.~~ As the Proposed Action does not involve the use of wells, subsurface sanitary disposal systems, or require extensive excavation, no impacts to groundwater will occur.

(d.) **PROPOSED MITIGATION MEASURES:**

As no impacts to groundwater resources or the nearby stratified drift aquifer will result from the Proposed Action, no specific mitigation measures are required. As noted above, the building extension will be constructed on a slab foundation, and no wells or subsurface sanitary disposal systems are proposed. ~~If, in the unlikely circumstance that groundwater is encountered during construction, excavations will be de-watered utilizing techniques best suited to the conditions encountered.~~ As described more fully below, and erosion and sedimentation control plan is proposed to reduce or eliminate any potential impact to groundwater resources.

3. GEOLOGY, SOILS AND TOPOGRAPHY:

(a.) **EXISTING CONDITIONS:**

The Project Site, and all of lower Westchester County, is located within the New England Upland Physiographic Province, and its extension the Manhattan Prong. This province consists of a series of late pre-Cambrian to early Paleozoic metamorphic rocks. The rocks within this region are highly folded and faulted, the result of one or more past episodes of what geologists characterize as compressional deformation. These folds, faults, fractures and formations lie predominantly in a northeasterly direction. The eastern side of Westchester County rests on the upper edge of the unsubmerged portion of the Continental Shelf, which sored out to form Long Island Sound. The principal bedrock that underlies and influences the topography includes Fordham gneiss, Manhattan schist and Inwood marble.

¹ URL: <https://nwis.waterdata.usgs.gov/ny>

Unconsolidated surface materials are predominately of glacial origin. Stratified drift deposits occupy the lower areas, while till deposits cover the hillsides.²

As documented on Figure IV.B-8, the soils on the Project Site are composed entirely of Urban Land (Uf). Urban land soils consist of areas where at least 60% of the land surface is covered by buildings or impervious surfaces. These areas have been altered to accommodate development, and consist primarily of Udorthants and fill material. The Boring Logs (included in the Appendix) for the 4 soil sample locations revealed that the first 4 feet consists primarily of ash, slag and brick fill material and some sand. Generally, from 4 to 6 feet, subsurface soil conditions consist of medium rounded gravel and medium sand.

The topography of the Site is relatively level. The Site slopes from a high point of approximately 27 feet along the southern property line behind the existing self-storage building, to a low point of approximately 22 feet along Fenimore Road.

(b.) **FUTURE CONDITIONS WITHOUT THE PROPOSED ACTION:**

If the Proposed Action is not developed, the Project Site would continue to operate in its current manner. No impacts on geology, soils or topography would result.

(c.) **ANTICIPATED IMPACTS:**

No significant alteration of the existing site grades are necessary to accommodate the proposed building addition. As the building has no basement and will be constructed on a slab foundation, minimal excavation is anticipated, projected to be approximately 550 cubic yards of soil/fill or which approximately 330 cubic yards would be reused as fill. These figures represent very conservative estimates, and exceed the amounts projected in the Excavation Work Plan (EWP) which did not take into account temporary excavations related to utility relocations and installations. However, as the Site was previously impacted by spill incidents that were administratively closed in 2004, a foundation excavation plan has been prepared in accordance with NYSDEC regulations pertaining to environmentally impacted sites. Implementation of this plan will ensure that no significant adverse impacts to geology, soils or topography are anticipated as a result of the Proposed Action.

The Proposed Action will result in disturbances to the Site that will result in exposed soils and the potential for erosion. The maximum limit of open disturbance area during construction will remain well below the 5-acre threshold of the NYSDEC SPDES General Permit for Stormwater Discharges and Construction Activity (GP-0-15-002). Nevertheless, the potential for erosion exists. Erosion depletes the nutrient holding capacity and organic matter in soils, lowers infiltration rates and water holding capacity, eliminates beneficial microorganism and insects, degrades near-by waterbodies, causes eutrophication and turbidity, among other impacts.

(d.) **PROPOSED MITIGATION MEASURES:**

During the construction of the Proposed Action, an Excavation Work Plan will be implemented (Appendix B). The scope of the Excavation Work Plan will comply with NYSDEC Technical Guidance Document DER-10, part 375 Regulations for conducting clean-ups.

All work outlined in the Excavation Work Plan, is to be performed during the excavation of the foundation and will be conducted in accordance with a Village approved work scope unless otherwise stated. A Site-Specific Health and Safety Plan (HASP), the Earthwork contractor's HASP, OSHA HAZWOPER training certifications and documentation, a Quality Assurance Project Plan (QAPP) and a Community Air Monitoring Plan (CAMP) will be implemented during this work as required (i.e.: if contaminated soil is encountered). In accordance with DER-10, a CAMP will be implemented to monitor air quality during all on-Site intrusive work and soil moving, loading, truck cleaning, backfilling, and stockpiling activities associated with the proposed foundation excavation in contaminated areas only. The "Work Area", which is defined as a 20-30 foot area measured from the sidewalls of the excavations (where possible, depending on the property fence line location relative to the excavation area), will be monitored continuously during excavation activities by a non-Site

² USACOE, Mamaroneck & Sheldrake Rivers Flood Risk Management General Reevaluation Report for Village of Mamaroneck, Appendix C3: Geological and Soils Investigations, April, 2017.

geologist/environmental scientist using: (1) a calibrated four gas meter (%LEL, %O₂, H₂S and CO); (2) photoionization detector(PID), both of which will be immediately adjacent to the excavation edge while the work is ongoing; and (3) a total of three CAMP monitors, two of which will be placed downwind and one upwind of the Work Area. Water and polyethylene sheeting (6 millimeter) will be available on-Site should dust and/or VOC/odor control become necessary during this work. All field work will be conducted in accordance with the requirements of the HASPs and all soil samples will be collected in accordance with the requirements of the QAPP. Prior to or at the start of this work, soil erosion and sediment controls and Site fencing/signage will be installed along the Site perimeter in accordance with the approved Site-wide Storm Water Pollution Prevention Plan (SWPPP) and Erosion and Sedimentation Control Plan (Figure IV.B-9). In the event that soil stockpiling is necessary, stockpile staging areas will be constructed prior to the start of excavation activities. Areas of the Site disturbed during the excavation work will be covered as necessary to control odors or fugitive dusts. Covers will be maintained in accordance with the SWPPP.

The Excavation Work Plan will address:

- NYSDEC and Village reporting requirements;
- Field monitoring;
- Stockpiling;
- Soil excavation and direct loading;
- Tracking pad;
- Excavation protection measures;
- Identification and sampling of contaminated materials if encountered;
- Dust and odor suppression;
- Truck cleaning;
- Truck routes;
- Soil disposal off-site is required;
- Community Air Monitoring Plan (CAMP); and
- Clean fill imported for backfill if required.

Specific soil erosion and sediment control measures are proposed. The primary aim of the soil erosion and sediment control measures is to reduce soil erosion from disturbed soils during and after construction and to prevent silt from reaching off-site drainage structures and downstream properties. The sediment and erosion control measures are an integral component of the construction sequencing and will be implemented to control erosion and sedimentation as soon as practicable. Planned erosion and sedimentation control practices during construction include the installation, inspection and maintenance of the inlet protection, soil stockpile areas, diversion swales, sediment traps and silt fencing. General land grading practices, including land stabilization and construction sequencing are also integrated into the Sediment and Erosion Control Plan. Dust control is not expected to be a problem due to the relatively limited area of exposure. Should excessive dust be generated, it will be controlled by sprinkling.

All proposed soil erosion and sediment control practices have been designed in accordance with the following publications:

- New York State standards and Specifications for Urban Erosion and Sediment Control, latest edition.
- New York State General Permit for Stormwater Discharges, GP-0-15-002 (General permit).
- “Reducing the Impacts of Stormwater Runoff from New Development”, as published by the New York State Department of Environmental Conservation (NYSDEC), second edition, April, 1993.

The proposed soil erosion and sediment control devices include the planned erosion control practices outlined below. Maintenance procedures for each erosion control practice have also been outlined below.

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SILT FENCE :

Silt fence (geo-textile filter cloth) shall be placed in locations depicted on the approved plans. The purpose of the silt fence is to reduce the velocity of sediment laden stormwater from small drainage areas and to intercept the transported sediment load. In general, silt fence shall be used at the toe of slopes or intermediately within slopes where obvious channel concentration of stormwater is not present.

Maintenance - Silt fencing shall be inspected at a minimum of once per week and prior to and within 48 hours following a rain event ½" or greater. Inspections shall include ensuring that the fence material is tightly secured to the woven wire and the wire is secured to the wood posts. In addition, overlapping filter fabric shall be secure and the fabric shall be maintained a minimum of six (6) inches below grade. In the event that any "bulges" develop in the fence, that section of fence shall be replaced within 48 hours with new fence section. Any sediment build-up against the fence shall be removed within 48 hours and deposited on-site a minimum of 100 feet outside of any wetland or watercourse.

INLET PROTECTION:

After driveway catch basins and surface inlets have been installed, these drain inlets will receive stormwater from the driveway, temporary diversion swales and surrounding overland watersheds. In order to protect the receiving waters from sedimentation, the contractor shall install ¾ inch stone aggregate around the perimeter of all catch basins and surface inlets as illustrated on the approved plans. This barrier will allow stormwater to be filtered prior to reaching the basin inlet grate.

Maintenance -The stone aggregate shall be inspected weekly prior to and within 48 hours following a rain event ½" or greater. Care shall be taken to ensure that all stone aggregate is properly located and secure and does not become displaced. The stone aggregate shall be inspected for accumulated sediments and any accumulated sediment shall be removed from the device and deposited not less than 100 feet from wetland or watercourse.

SOIL STOCKPILING:

All soil stripped from the construction area during grading shall be stockpiled in locations approved by the Village's representative, but in no case shall they be placed within 100' of a wetland or watercourse. To the extent practicable, the stockpiled soils shall be re-used during finish-grading. Soil stockpiles shall be protected from erosion by vegetating the stockpile with rapidly germinating grass seed or covering the stockpile with tarpaulin and surrounding it with either silt fence.

Maintenance - Sediment controls (silt fence) surrounding the stockpiles shall be inspected according to the recommended maintenance outline above. All stockpiles shall be inspected for signs of erosion or problems with seed establishment weekly and prior to and within 48 hours following a rain event ½" or greater.

GENERAL LAND GRADING:

The intent of the Erosion & Sediment Control Plan is to control disturbed areas such that soils are protected from erosion by temporary methods and, ultimately, by permanent vegetation or other site improvements. Where practicable, all cut and fill slopes shall be kept to a maximum slope of 2:1. In the event that a slope must exceed a 2:1 slope, it will be stabilized with stone riprap. On fill slopes, all material will be placed in layers not to exceed 12 inches in depth and adequately compacted. Where practicable, diversion swales shall be constructed on the top of all fill embankments to divert any overland flows away from the fill slopes.

SURFACE STABILIZATION:

All disturbed areas will be protected from erosion with the use of vegetative measures (i.e., grass seed mix, sod) hydro-mulch netting or hay. When activities temporarily cease during construction, soil stockpiles and exposed soil should be stabilized by seed, mulch or other appropriate measures as soon as possible, but in no case more than 14 days after

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construction activity has ceased. All seeded areas will be re-seeded areas as necessary and mulch according to the site plan to maintain a vigorous, dense vegetative cover.

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Erosion control barriers consisting of silt fencing shall be placed around exposed areas during construction. Where exposed areas are immediately uphill from a wetland or watercourse, the erosion control barrier will consist of double rows of silt fencing. Any areas stripped of vegetation during construction will be vegetated and/or mulch as soon as possible, but in no case more than 14 days to prevent erosion of the exposed soils. And topsoil removed during construction will be temporarily stockpiled for future use in grading and landscaping.

As mentioned above, temporary vegetation will be established to protect exposed soil areas during construction. If growing conditions are not suitable for the temporary vegetation, mulch will be used to the satisfaction of the Building Inspector. Materials that may be used for mulching include straw, hay, salt hay, wood fiber, synthetic soil stabilizers, mulch netting, sod or hydro-mulch. In site areas where significant erosion potential exists (steep slopes) and where specifically directed by the Village's representative, Curlex Excelsior erosion control blankets (manufactured by American Excelsior, or approved equal) shall be installed. A permanent vegetative cover will be established upon completion of construction of those areas that have been brought to finish-grade and to remain undisturbed.

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DEWATERING:

To prevent surface water and subsurface or ground water from flowing into excavations and trenches, accumulated water will be pumped out. Water will be removed from all excavations immediately to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of subgrades and foundations. Pumps, sumps, suction and discharge piping systems, and other system components necessary to convey the water away from the Site shall be furnished and maintained. Water removed from excavations, and rain water, to collecting or run-off area shall be conveyed to, temporary drainage ditches and or other necessary diversions outside excavation limits for each structure. Trench excavations are not to be used as temporary drainage ditches. Temporary controls to restrict the velocity of discharged water shall be provided as necessary to prevent erosion and siltation of receiving areas.

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