

A. INTRODUCTION AND SUMMARY OF FINDINGS

This Chapter describes the Project Sites' existing geology, soils, and topography, and addresses potential impacts to on-Site surface and subsurface geologic resources. Bedrock geology, surface soils, and steep slopes are described based on published data from the Natural Resources Conservation Service (NRCS); site-specific geotechnical engineering reports or letters (prepared by Geotechnical Engineering Services, P.C. for the Teutonia and North Broadway Sites and McLaren Engineering Group for the Chicken Island Site); an architectural survey prepared by Empire State Layout, Inc for the Teutonia Site; and site boundary, topographic and utility surveys by Ward Carpenter Engineers, Inc (for the Chicken Island and North Broadway Sites).

The Teutonia Project would disturb approximately 1.2 acres of soil to construct the proposed building. The building podium would include three floors of parking below the elevation of Buena Vista Avenue. Approximately 5.8 acres of soil would be disturbed by the Chicken Island Project to construct the five buildings proposed for the Site. The buildings would include below grade parking to a maximum of three floors. The North Broadway Project would disturb approximately 2.4 acres to construct two buildings, including three floors below grade with parking. As detailed in the analyses below, the cut/fill activities associated with these improvements would not result in a significant adverse impact to on-site surface and subsurface geologic resources.

B. EXISTING CONDITIONS

The Project Sites are located within the Hudson Highlands geologic region. Underlying bedrock is composed of metamorphic and igneous rock identified as belonging to the Grenvillian formation. This formation is predominantly composed of gneisses. Specifically, bedrock underlying the three Project Sites is Fordham Gneiss, which is made up of garnet-biotite-quartz-plagioclase gneiss, as shown on the Geologic Map of New York, Lower Hudson Sheet, Fisher, 1970. This rock is a hard, metamorphic rock commonly found in lower Westchester County and New York City.

B.1. TEUTONIA SITE

The Teutonia Site is currently vacant and is the location of the former Teutonia Hall. As recently as 2014, the Teutonia Site was developed with multiple buildings, pavement, and some undeveloped vegetated space. Behind the buildings, along the Metro-North Railroad ("MNR") right-of-way, was formerly a wooded area that sloped down toward the railroad tracks. In 2014, the buildings and vegetation on the Site were demolished and cleared by a previous owner to facilitate environmental remediation, as described in Chapter 14, "Hazardous Materials." Currently, the Teutonia Site slopes down toward the Metro North Railroad from the sidewalk of Buena Vista Avenue, with a depression in the center. Adjacent properties are currently developed with residential and commercial uses.

B.1.a. Geology

A “Geotechnical Investigation and Foundations Recommendations” report was prepared for the Teutonia Site in April of 2019 by Geotechnical Engineering Services, P.C. (see **Appendix G-1**). According to the report, geologic maps indicate that the Teutonia Site is north of a terminal moraine¹ and was likely subject to periods of glaciation. The geotechnical investigation included three borings from the depression in the center of the Site. The ground elevation at the boring locations was between 25 and 28 feet. As described in **Appendix G-1**, fill consisting of loose to medium dense brown silty coarse to fine sand with varying amounts of gravel, clay, and vegetation was encountered to between 3.5 and 6.5 feet below grade (Stratum 1). Below the fill was medium dense sand, extending to about 18 to 19 feet below grade (Stratum 2). Beneath Stratum 2 was very dense gravelly sand extending to between 51.5 and 55 feet below grade. This layer contained boulders and cobbles and is likely glacial till² (Stratum 3). Decomposed rock was present in an approximately 2.5-foot-thick layer below Stratum 3, just above more competent rock encountered between 54 and 57.5 feet below grade (Stratum 4). Competent rock, including white and gray marble, was found below the decomposed rock, at depths ranging from 51.5 to 57.5 feet below grade.

B.1.b. Soils

A soil survey of the Teutonia Site was obtained through the NRCS website. The map classifies the soils on and around the Teutonia Site as urban land (Uf) (see **Figure 5-1**). According to the soil survey, urban land consists of areas where at least 60 percent of the land surface is covered with buildings or other structures; no hydrologic soils group is given for urban land. As described above, the geotechnical investigation of the Site also contains descriptions of the soils encountered (see **Appendix G-1**).

B.1.c. Groundwater

A groundwater observation well was installed during performance of the geotechnical testing. Based on readings obtained from the observation well, the groundwater level is approximately 18.2 feet below grade at boring B-3 (about elevation +7) (see **Appendix G-1**). It should be noted that changes in groundwater levels will occur due to variations in seasonal influences, tidal fluctuations, precipitation, and many other factors. Groundwater underneath the Teutonia Site generally flows from east to west, towards the Hudson River, which is less than 500 feet from the Teutonia Site.

B.1.d. Topography

The highest point of the Teutonia Site is in the southeast corner adjacent to Buena Vista Avenue at approximately 50 feet (see **Appendix B-1** and **Figure 5-2**). The elevation of the south property line is just lower at 49.5 feet and to the southwest drops with excessively steep slopes to elevation 22 feet at the MNR. To the east of the high point, the sidewalk of Buena Vista Avenue is at elevation 49 feet. As

¹ Moraine: Material, usually soil and rock, left behind by a moving glacier.

² Till: Unsorted material deposited directly by glacial ice and showing no stratification.

the sidewalk and Buena Vista Avenue continues north it gently slopes up to approximately elevation 50 feet then down at a slope of approximately 8 percent.

To the north of the southern property line, and to the west of the eastern property line, the Teutonia Site slopes down toward the MNR, at greater than a three-to-one rate, creating a depression in the Site at approximately elevation 25 (see **Appendix B-1**).

The eastern half of the Teutonia Site is comprised of areas with slopes less than 15 percent, whereas the western half is mostly comprised of areas with slopes between 15 percent and 25 percent, with some areas of slopes greater than 25 percent in the southwestern portion of the Site (see **Figure 5-3**). Existing retaining walls are located along the southwestern and southern edges of the Teutonia Site.

B.2. CHICKEN ISLAND SITE

The Chicken Island Site consists of two parcels separated by New School Street. The larger, western-most parcel is mostly developed with parking lots and privately owned streets (the “Palisade Avenue Parcel”). Under the southern parking lot on the Palisade Avenue Parcel, adjacent to the privately owned extension of Henry Herz Street, is a culvert that contains the Saw Mill River. To the north of the parking lots is an undeveloped area with lawn. The parcel on the east side of New School Street (the “New School Street Parcel”) was previously developed; however, it is now a grass field with a macadam driveway. The Saw Mill River enters a culvert on the south side of this parcel, travels under New School Street and the southern portion of the Chicken Island Site, before daylighting to the west of the Chicken Island Site. The daylighted portion of the Saw Mill River was recently constructed by the City as part of Yonkers’ Saw Mill River Daylighting Phase 3 project.

B.2.a. Geology

A “Preliminary Geotechnical Report” for the Chicken Island Site was prepared in January of 2007 by McLaren Engineering Group (**Appendix G-2**). A subsequent “Geotechnical Review Letter” was prepared by SESI Consulting Engineers in October 2020 (see **Appendix G-3**).

The 2020 geotechnical letter includes a review of the 2007 report as well as results of additional investigations performed by SESI Consulting Engineers in 2007 and 2017. The 2020 report documented that the first 1 to 15 feet below existing grade consisted of uncontrolled fill (granular soil intermixed with construction debris, containing concrete, brick, wood, metal, and other miscellaneous debris). Below the uncontrolled fill was glacial till, which extended to depths of 25 to 75 feet below existing grades. The glacial till was generally dense or very dense and contained frequent cobbles and boulders. Below the glacial till, bedrock was encountered at elevations varying from -16 to +35 above sea level (see **Appendix G-3**).

B.2.b. Soils

A soil survey of the Chicken Island Site was obtained through the NRCS website. The map classifies the soils on and around the Chicken Island Site as urban land (Uf) (see **Figure 5-4**). The 2007 Preliminary Geotechnical Report identified

group “D” hydraulic soils and also contained additional descriptions of the soils encountered (see **Appendix G-2**).

As discussed in Chapter 14, “Hazardous Materials,” portions of the Chicken Island Site were the subject of environmental remediation pursuant to an approved State Brownfield Cleanup Program plan.

B.2.c. Groundwater

Groundwater at the Chicken Island Site generally flows from east to west and ranges in elevation between +40.5 and +60 feet (with ground surface elevations ranging from +51 to +63 feet), becoming deeper in elevation proceeding west (see **Appendix G-3**). Groundwater was encountered in most of the borings performed by McLaren Engineering Group, ranging from 5 to 20 feet below the existing grade (see **Appendix G-2**).

B.2.d. Topography

The highest points of the Chicken Island Site are in the undeveloped northeastern portion of the Site near the existing Fire House and the intersection of New School Street and Palisade Avenue elevations of 65 to 72 feet³ (see **Appendix B-2** and **Figure 5-5**). The parking lots to the south of the undeveloped lot range in elevation from 50 to 62 feet and have a relatively consistent slope of 3 percent. The Palisade Avenue Parcel slopes down from New School Street toward New Main Street, as do the surrounding streets of Palisade and Nepperhan Avenues. The elevation of New School Street ranges from 72 feet at Nepperhan Avenue to 66 at the intersection with John Street. John Street slopes down from New School Street to the grade of the parking lots. An approximately 10-foot-high retaining wall separates the parking lots (elevation 62 feet) from New School Street, Nepperhan Avenue, and John Street. The New School Street parcel slopes down to the Saw Mill River at slopes exceeding 15 percent (see **Figure 5-6**).

B.3. NORTH BROADWAY SITE

All but two of the lots within the North Broadway Site are improved with buildings and other site improvements (i.e., driveways and parking lots).

B.3.a. Geology

A “Supplemental Geotechnical Letter Report – Rock Investigation” was prepared by Geotechnical Engineering Services, P.C. for the North Broadway Site in November 2019 (**Appendix G-4**). A subsequent “Additional Borings Geotechnical Letter Report” was provided by Geotechnical Engineering Services, P.C. in December 2020 (**Appendix G-5**). Based on these reports, fill was encountered to depths of 2.5 to 6 feet and consisted of medium to fine sand with varying amounts of boulders, silt, gravel, concrete and wood, glass and metal fragments. Glacial till was encountered below the fill at a thickness between 2 and 15.5 feet and consisted of silty medium to fine sand, cobbles, and boulders with varying amounts of gravel, rock fragments, mica, and roots. Below the

³ The most recent survey on file for the property indicates soil mounds within the undeveloped portion of the lot with elevations up to 72 feet. Those soil mounds no longer exist and were removed from the site in 2019 following the completion of the Brownfield Cleanup Program efforts.

glacial till was weathered/decomposed bedrock between 1 and 16 feet thick; the top of this stratum ranged from elevation +111 to +73 feet, depending on boring location. Decomposed rock was generally found between 4 and 14.5 feet below grade. The slope of the Site appears to follow the slope of the subsurface bedrock. Below the weathered/decomposed bedrock, competent bedrock was encountered at elevations ranging from +109.5 to +70 feet, which is between 5 to 25.5 feet below grade.

B.3.b. Soils

A soil survey of the Site was obtained through the NRCS website. The map classifies the soils on and around the North Broadway Site as urban land (Uf) (see **Figure 5-7**). The “Geotechnical Investigation and Foundations Recommendations” report prepared for the North Broadway Site by Geotechnical Engineering Services, P.C. also contains descriptions of the soils encountered (see **Appendix C-6**).

B.3.c. Groundwater

Based on moisture content of soil samples from borings on the upland North Broadway Site, it is highly unlikely that groundwater is present within 30 feet of the ground surface at the boring locations (see **Appendix C-6**); however, shallow groundwater is more likely to be found on the lowland section of the Site along North Broadway as it is at a lower elevation and closer to the Saw Mill River, though no groundwater investigation has been performed on the North Broadway Site. Groundwater level monitoring would be performed during the final geotechnical investigation of the Site, prior to building construction. This investigation would occur after the Site had been cleared of existing buildings.

B.3.d. Topography

The North Broadway Site generally slopes westward from Locust Hill Avenue on the east side of the Site to North Broadway on the west side of the Site. In general, existing elevations on the North Broadway Site are at approximately 115 feet in the northeastern portion of the Site (around Baldwin Place) to 42 feet in the southwestern portion of the property (along North Broadway). Steep slopes are present throughout the Site, as shown in **Figure 5-8**.

The North Broadway Site has a high point at elevation 120 feet along the southern side of Baldwin Place (see **Appendix B-3** and **Figure 5-9**). Baldwin Place is at approximately elevation 117 feet and the surrounding areas slope downward from this point in all directions. The North Broadway Site has another localized high point at elevation 104 feet in Overlook Terrace. Overlook Terrace then slopes downward to the east of the high point with a slope greater than 5 percent until its intersection with Locust Hill Avenue, where the slope turns to the south. The lots south of the high point in Overlook Terrace are lower, at elevation 100 feet and slope down towards the back of the buildings developed along North Broadway. The slopes behind the buildings are steeper than 10 percent and are on top of a 10-foot-high retaining wall. The elevation of North Broadway is approximately 40 feet.

C. FUTURE WITHOUT THE PROPOSED PROJECT

Without the Proposed Project, the Project Sites may be developed under the current zoning. The potential for the Project Sites to be developed under the existing zoning is described in Chapter 17, “Alternatives.” Prior to any potential development, they are expected to remain in their current condition with no disturbance to geology, soils, or topography.

The Teutonia Site is currently undeveloped and has slopes susceptible to soil erosion. The existing vacant land would need to be stabilized and maintained if not redeveloped.

The Chicken Island Site is mostly developed as an impervious parking area. In the future without the Proposed Project, the Site can be developed under the current zoning or left in its current state .

In the Future without the Proposed Project, the North Broadway Site lots would remain in its current condition. Vacant lots would need to be maintained and existing buildings would remain in their current state unless the sites were developed utilizing the current regulations.

D. FUTURE WITH THE PROPOSED PROJECT

The Proposed Project would include excavation and regrading of soils for the new buildings and associated foundations and utility infrastructure. A Soil Erosion and Sediment Control Plan (SESC Plan) has been developed as part of the Stormwater Pollution Prevention Plan for the Proposed Project, which is described in detail in Chapter 15, “Construction.” The potential for soil erosion and runoff would be minimized during project construction by implementing the SESC Plan.

It is anticipated that bedrock would be encountered during the excavation process at some of the Project Sites, which would require rock chipping and/or blasting. Blasting would be conducted in accordance with a license obtained from the Yonkers Fire Department, as discussed in Chapter 15, “Construction.” The excavation and foundation bracing system for each Project Site, including the possible use of sheet piles, tiebacks, or shoring, would be designed by a structural engineer for approval by the City’s Department of Housing and Buildings and the City Engineer. Excavation side walls would be adequately braced in accordance with a design from the structural engineer to mitigate potential steep slope issues. Dewatering operations may be periodic during excavation and regrading on the Teutonia and Chicken Island Sites but are not anticipated to be significant as most excavation would be above groundwater levels observed. Dewatering anticipated at the Chicken Island Site is discussed in more detail below.

New permanent steep slopes, retaining walls, and/or rock cuts that are created as part of the development program would be required to comply with the Building Code of New York State (BCNYS). As required by the BCNYS, an eight-foot-tall barrier would be constructed around the perimeter of the Site during construction. Finally, areas of steep slope created by construction activities would be secured with structural methods, such as retaining walls, or would be properly stabilized with vegetation.

D.1. TEUTONIA SITE

The Teutonia Site is proposed to be redeveloped with a podium structure with two high rise towers above. The podium structure would have three floors below the existing grade of Buena Vista Avenue but are exposed on the west side of the Site near the MNR tracks. Project construction would require a significant amount of excavation and earth removal from the Site. Upon completion of the Teutonia Project, nearly the entire Site would be

covered by the structure. As discussed in Chapter 14, “Hazardous Materials,” the Teutonia Site has been the subject of multiple remediation projects under the NYS Brownfield Cleanup Program, beginning with a Brownfield Cleanup Agreement in 2005, which was amended in 2007, and culminating in a Certificate of Completion issued in 2017. Therefore, construction and operation of the Teutonia Project would comply with the NYSDEC-approved Site Management Plan.

The northwest corner of the podium would be approximately seven feet from the MNR property line and the northwest corner of Tower Two would have approximately eight feet of separation from the building edge to the outer edge of the MNR property line. The existing retaining walls on the Teutonia Site located along the southwestern and southern edges of the Site are proposed to remain.

The existing and proposed lot and building coverage for the Teutonia Site is shown in **Table 5-1**.

**Table 5-1
Teutonia Site Existing and Proposed Lot and Building Coverage**

	2012 Coverage	Existing Coverage	Proposed Coverage
Total Site Area (acres)	1.15	1.15	1.15
Total Impervious Area (acres)	0.64	0.00	1.10
Total Pervious Area (acres)	0.51	1.15	0.05
Percent Impervious	55%	0%	96%
Total Building Area (acres)	0.55	0.00	1.06
Percent Building Coverage	48%	0%	92%

Construction of the Teutonia Project would require excavation that ranges from 5 to 30 feet below the existing grade. The deepest cuts would occur along the eastern and southern property lines where the existing grade is approximately 50 feet. Bedrock is not anticipated to be encountered during excavation. The estimated earthwork for the Teutonia Project would be approximately 22,150 cubic yards of material to be removed with no fill material needed. The number of truck trips associated with this amount of earth removal would be approximately 1,477 trucks, based on 15 cubic yards per truck. Removal of the excavated material would be spread out over two construction phases. As currently anticipated, excavation for Building 1 would occur over a period of approximately four months during Phase 1 in construction year one whereas excavation for Building 2 would occur over a period of approximately seven months during Phase 3 in construction year four. Removal of excavated material would typically result in up to 25 truck trips per day. The soils that would be disturbed and removed would be disposed of in accordance with NYSDEC requirements. See Chapter 14, “Hazardous Materials,” for more detail about the potential for encountering hazardous materials while excavating at the Teutonia Site.

Technical guidelines for foundation and construction activities at the Site are provided in the “Geotechnical Investigation and Foundation Recommendations” report prepared by Geotechnical Engineering Services, P.C. (see **Appendix G-1**).

Groundwater, if encountered, would be handled in accordance with applicable requirements and regulations and the Brownfield Cleanup Program Site Management Plan and be approved by the City Engineer. As discussed in Chapter 14, “Hazardous Materials,” water would not be recharged to the surface or subsurface, but would be

managed off-site, as per the Site Management Plan. Sampling of the groundwater would be required to confirm any presence of contaminants, at which time the groundwater would be stored on-site to be transported and treated at an approved facility. It is likely that a vapor barrier would be included below any subsurface foundation element to prevent intrusion of moisture into the concrete.

The Teutonia Project would disturb areas on the Site where the slope exceeds 25 percent (see **Figure 5-3**). Pursuant to Section 43-105 of the Zoning Ordinance, in these areas, special attention would be given “to the adequacy and impact of structures, roadways and landscaping in areas with susceptibility to ponding, flooding and/or erosion.” In addition, when a site under review for site plan approval contains an area greater than 5,000 square feet with a slope greater than 15 percent, additional steep slope requirements as outlined in Section 43-105.B of the Zoning Ordinance must be met to the extent possible. As applicable to the Teutonia Project, the building would be designed to fit into the hillside, measures for erosion control would comply with NYSDEC guidelines, and parking areas would be screened from view.

D.2. CHICKEN ISLAND SITE

The Chicken Island Project includes a total of five buildings, all of which at least have floors partially below the existing grade. Below-grade parking structures for each building are summarized as follows:

- Building 1: Two floors fully below grade (below the lower James Street elevation) and one floor partially below grade (above the lower James Street elevation but below the higher elevation at the existing Fire House).
- Building 2: Two floors fully below grade (below the lower Centre Street elevation) and one floor partially below grade (above the lower Centre Street elevation but below the higher New School Street elevation).
- Building 3: Two floors fully below grade (below the lower Centre Street elevation) and one floor partially below grade (above the lower Centre Street elevation but below the higher New School Street elevation).
- Building 4: One floor partially below grade (above the lower Henry Herz elevation but below the higher New School St elevation).
- Building 5: Two floors fully below grade (below the New School Street elevation).

The construction of the proposed buildings would require a significant amount of excavation. As discussed in Chapter 14, “Hazardous Materials,” the Chicken Island Site was the subject of remedial work under the State Brownfield Cleanup Program and the Chicken Island Project would comply with the NYSDEC-approved Site Management Plan.

The existing and proposed lot and building coverage for the Chicken Island Site is shown in **Table 5-2**.

**Table 5-2
Chicken Island Site Existing and Proposed Lot and Building Coverage**

	Existing Coverage	Proposed Coverage
Total Site Area (acres)	5.25	5.25
Total Impervious Area (acres)	4.07	4.92
Total Pervious Area (acres)	1.18	0.33
Percent Impervious	78%	94%
Total Building Area (acres)	0	3.64
Percent Building Coverage	0%	63%
Note: Total site area evaluated for the Chicken Island Project includes all disturbance areas within the property limits, and does not account for areas being disturbed within the right-of-way for infrastructure improvements and replacements, as the coverage will not change due to those improvements.		

Construction of the Chicken Island Project would involve excavation of up to 40 feet below existing grade. The deepest cuts would occur in the locations of below-grade levels of “Building 1,” “Building 2,” “Building 3,” and “Building 5.” Approximately 99,300 cubic yards of material would be removed from the Site; no fill material would be needed. The number of truck trips associated with this amount of earth removal would be approximately 6,620, based on 15 cubic yards per truck. It is noted that the excavation, and resultant truck trips, would be spread over several phases of building construction. As currently anticipated, excavation for the Chicken Island Site components would be as follows:

- Building 1: approximately five months during Phase 1 in construction year one.
- Buildings 1A/1B: approximately three months during Phase 1 in construction year three.
- Buildings 2 and 3: approximately seven months during Phase 4 in construction years five and six.
- Buildings 4 and 5: approximately seven months during Phase 5 in construction years seven and eight.

Removal of excavated material would typically result in up to 25 truck trips per day.

The soils that would be disturbed and removed would be disposed of in accordance with NYSDEC requirements. See Chapter 14, “Hazardous Materials,” for more detail about the potential for encountering hazardous materials while excavating at the Chicken Island Site.

Although unlikely, there is a chance that bedrock could be encountered during construction at the Chicken Island Site (see **Table 5-3**). Should this occur, chipping and/or blasting would be considered to remove rock. As discussed further in Chapter 15, “Construction,” blasting would require approval of the Yonkers Fire Department.

Groundwater encountered during excavation would be handled in accordance with applicable requirements and regulations and the Brownfield Cleanup Program Site Management Plan and be approved by the City Engineer. As discussed in Chapter 14, “Hazardous Materials,” water would not be recharged to the surface or subsurface, but would be managed off-site, as per the Site Management Plan.

Table 5-3
Chicken Island Elevation Summary

Development Area (Lowest Floor El.)	Ground Surface Elevations (Increasing West to East)	Groundwater Elevations	Top of Rock Elevations
Building 1 (B.F.E. +26)	+51 to +66	+40.5 to +53	-16 to +23
Building 1A (F.F.E. unknown)	+54 to +56	+45	-15
Buildings 2 & 3 (B.F.E. +40)	+57 to +61	+41.5 to +51	+15 to +17
Building 4 (B.F.E. +57)	+58 to +63	+50.5 to +53	+34 to +35
Building 5 (F.F.E. +65)	+61 to +63	+52 to +60	+3 to +22
Notes: B.F.E. = base floor elevation, F.F.E. = finished floor elevation			
Source: Appendix G-3			

The “Geotechnical Review Letter” prepared by SESI Consulting Engineers (see **Appendix G-3**) provides technical guidance on foundation and construction activities on the Chicken Island Site.

The Chicken Island Project would disturb areas on the Site where the slope exceeds 10 percent (i.e., the area just south of Palisade Avenue). Pursuant to Section 43-105 of the Zoning Ordinance, erosion control measures for protection of the slopes would be evaluated during site plan review.

The existing retaining wall on the Chicken Island Site bordering the existing parking lot along the eastern end at New School Street and the southern end at Nepperhan Avenue would not be disturbed.

D.3. NORTH BROADWAY SITE

The North Broadway Project includes two high-rise buildings that step down the slope to the east of North Broadway and a parking garage between Overlook Terrace and Baldwin Place. The proposed parking garage has three floors fully below existing grade and another floor of parking that is above the existing grade at Overlook Terrace but below the existing grade at Baldwin Place. Upon completion of the project, nearly the entire North Broadway Site would be covered by the buildings and related improvements.

The existing and proposed lot and building coverage for the North Broadway Site is shown in **Table 5-4**.

Table 5-4
North Broadway Site Existing and Proposed Lot and Building Coverage

	Existing Coverage	Proposed Coverage
Total Site Area (acres)	2.13	2.13
Total Impervious Area (acres)	0.87	2.01
Total Pervious Area (acres)	1.26	0.12
Percent Impervious	41%	94%
Total Building Area (acres)	0.54	1.56
Percent Building Coverage	25%	73%
Note: Total site area evaluated for the North Broadway Project includes all disturbance areas within the property limits, and does not account for areas being disturbed within the right-of-way for infrastructure improvements and replacements, as the coverage will not change due to those improvements.		

Construction of the North Broadway Project would involve excavation as deep as 35 feet. The deepest cuts would occur in the location of “Building 2” just south of Baldwin Place. Approximately 36,000 cubic yards of material would be removed; no fill material would be needed. The number of truck trips associated with this amount of earth removal would be approximately 2,400, based on 15 cubic yards per truck. “Building 1” excavation would occur prior to excavation for the remaining North Broadway Project components. Therefore, these truck trips would be spread out over multiple construction phases. As currently anticipated, excavation for “Building 1” would occur over a period of approximately five months during Phase 2 in construction years two and three whereas excavation for the remainder of the North Broadway work would occur over a period of approximately five months during Phases 2 and 3 in construction year four. Removal of excavated material would typically result in up to 25 truck trips per day. The soils that would be disturbed and removed would be disposed of in accordance with NYSDEC requirements.

Bedrock was found as shallow as 4 to 25 feet below ground surface elevations at the North Broadway Site and, therefore, would likely be encountered during construction. Blasting would be considered to remove rock. As discussed further in Chapter 15, “Construction,” blasting would require approval of the Yonkers Fire Department.

The “Preliminary Geotechnical Letter Report” prepared by Geotechnical Engineering Services, P.C. (see **Appendix G-6**) provides technical guidance for foundations and construction activities on the North Broadway Site.

The North Broadway Project would disturb areas on the Site where the slope exceeds 15 percent (see **Figure 5-8**). Pursuant to Section 43-105 of the Zoning Ordinance, special attention would be given “to the adequacy and impact of structures, roadways, and landscaping in areas with susceptibility to ponding, flooding and/or erosion. In addition, when a site under review for site plan approval contains an area greater than 5,000 square feet with a slope greater than 15 percent, additional steep slope requirements as outlined in Section 43-105.B of the Zoning Ordinance must be met to the extent possible. Relevant to the North Broadway Project, the buildings would be designed to fit into the hillside as appropriate, measures for erosion control would comply with NYSDEC guidelines, parking areas would be internal and screened from view, vegetative buffers would be employed, and topsoil would not be stored on steep slopes without mitigation.

E. MITIGATION MEASURES PROPOSED

The SESC Plan would be implemented to mitigate potential soil erosion impacts during construction. Chapter 15, “Construction,” summarizes the measures that would be implemented, and further detail is provided in **Appendices J-1, J-2, and J-3**. As discussed in Chapter 14, “Hazardous Materials,” additional mitigation measures would be implemented in connection with disturbances to soils in areas that are subject to State Brownfield Cleanup Program requirements. With the implementation of these measures, no significant adverse impacts to geology, soils, or topography are anticipated as a result of the Proposed Project. *