Chapter 4: Geology, Soils, and Topography

A. PROPOSED ZONING ACTION (GENERIC ANALYSIS)

INTRODUCTION

This section of the GDEIS describes the geological conditions of the MOD Zoning Area including topography, soils and subsurface geology. Section B below describes the specific geological conditions of the Evergreen Manor and Gyrodyne sites including topography, soils and subsurface geology.

EXISTING CONDITIONS

TOPOGRAPHY

The proposed MOD Zoning Area is approximately 105 acres with varying topography ranging from relatively flat along Route 202/35/Crompond Road to slopes greater than 30 percent in areas along Lafayette Avenue on the proposed Gyrodyne Site and along the eastern boundary of the proposed Evergreen site near Tamarack Drive. The lowest elevation in the MOD Zoning area is approximately 320 feet and is found on the north side of Route 202/35/Crompond Road in the location of the McGregor Brook behind NYPH. The highest point in the MOD is at an elevation of approximately 440 feet on the eastern edge of the proposed Evergreen property along the ridgeline immediately west of Tamarack Drive.

A large majority of the MOD Zoning Area has been previously disturbed by residential and commercial development and parking areas. Based on historic aerials dating back to 1947, much of the ground surface within the MOD Zoning Area was previously used for farming activities.

The MOD Zoning Area's existing topography and steep slopes are illustrated on **Figure 4-1**. Per the Town of Cortlandt Town Code Chapter 259, Steep Slopes are classified as slopes greater than 15% with a minimum area of 500 square feet which possess one dimension of a minimum of 10 feet. The MOD Zoning Area contains proximately 13.5 acres of slopes that exceed 15% (**see Table 4-1**).

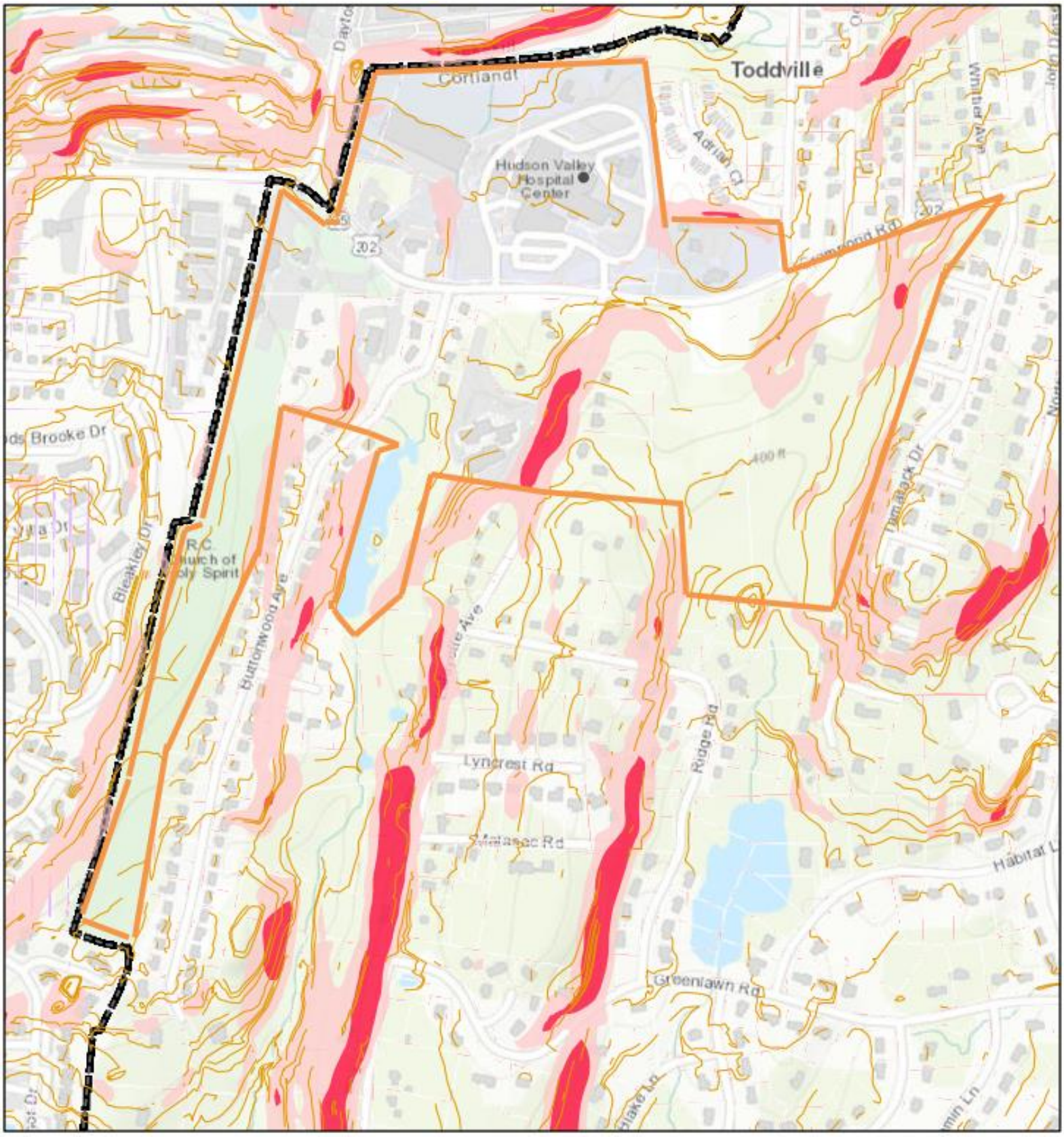

Figure 4-1
MOD Zoning Area Topography & Steep Slopes

Medical Oriented District Draft Generic Environmental Impact Statement

Legend

MOD Zoning Area
Municipal Boundary
2' Contours

Steep Slopes
15%-30%
>30%

*Not to scale

N

TOWN OF CORTLANDT SEAL NEW YORK

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Table 4-1
MOD Zoning Area Steep Slope Classifications

Slope Category	Approximate Area	Percentage of Site
15 – 30%	10.6 acres	10%
>30%	2.4 acres	2%
Total Steep Slopes	13.0 acres	12%
0 – 15%	92 acres	88%
Total Site	**105 acres**	**100%**

SOILS

Soil types in the MOD Zoning Area have been identified per the USDA Natural Resources Conservation Service (NRCS) National Cooperative Soil Survey (**see Figure 4-2**). **Table 4-2** identifies the 26 soil types within the MOD Zoning Area.

Table 4-2:
Soil Types within the MOD Zoning Area

% of MOD	Symbol	Soil Description	Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
6.1%	ChB	Charlton fine sandy loam, 3 to 8 percent slopes	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	2-8	Well drained	>6.0	>80
5.1%	ChC	Charlton fine sandy loam, 8 to 15 percent slopes	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	8-15	Well drained	>6.0	>80
7.6%	ChD	Charlton fine sandy loam, 15 to 25 percent slopes	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	15-25	Well drained	>80	>80
>1%	Crc	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	Coarse-loamy melt-out till derived from granite, gneiss, and/or schist	3 -15	Well drained	>80	>80

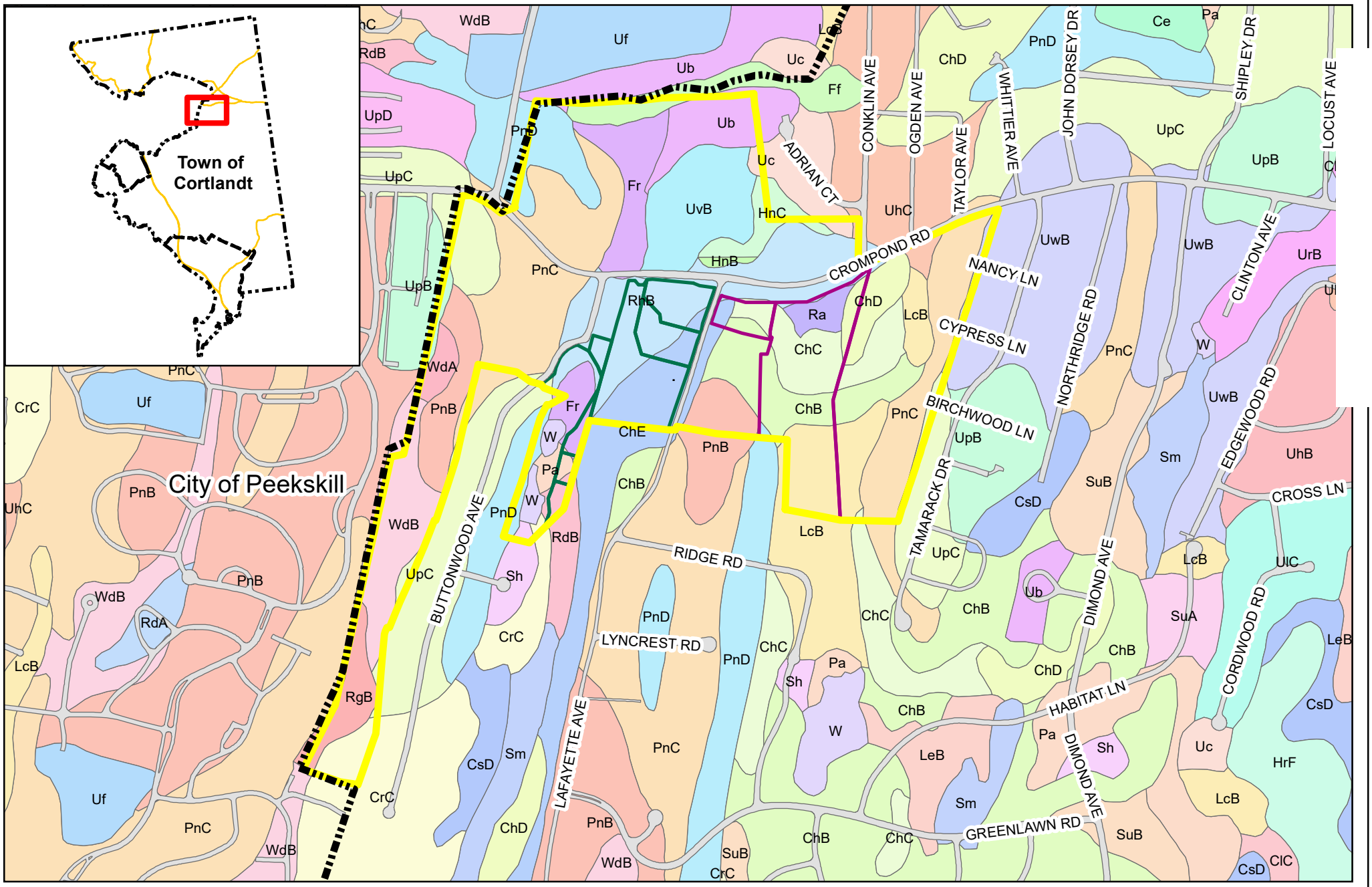

Figure 4-2
MOD Zoning Area Soils Map

Medical Oriented District
Draft Generic Environmental Impact Statement

Legend

Municipal Boundary
Proposed MOD Boundary

Sites Proposed for MOD Designation

Evergreen (VS Construction)
Gyrodyne LLC

0 0.05 0.1 0.2 Miles

N

Project #: 1234567
Map Created: January 2019

% of MOD	Symbol	Soil Description	Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
1.7%	Ff	Fluvaquents-Udifluvents complex, frequently flooded	Alluvium with highly variable texture	0-3	Poorly drained	24-72	>80
4.1%	Fr	Fredon silt loam	Loamy over sandy and gravelly glaciofluvial deposits	0-3	Poorly drained	0-12	>80
2.3%	HnC	Hinckley loamy sand, 8 to 15 percent slopes	Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist	8-15	Excessively drained	>80	>80
5.8%	LcB	Leicester loam, 3 to 8 percent slopes, stony	Loamy acid till derived mostly from schist and gneiss	2-8	Somewhat poorly drained	0.5-1.5	>80
0.1%	NcA	Natchaug muck, 0 to 2 percent slopes	Highly decomposed organic material over loamy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy till	0-2	Very poorly drained	0-6	>80
4.9%	PnB	Paxton fine sandy loam, 3 to 8 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	3-8	Well drained	18-39	18-37
19.9%	PnC	Paxton fine sandy loam, 8 to 15 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite and/or schist	18-15	Well drained	20-39	18-37
5.5%	PnD	Paxton fine sandy loam, 15 to 25 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	15-25	Well drained	20-39	18-37

% of MOD	Symbol	Soil Description	Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
1.1%	Ra	Raynham silt loam	Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand	0-3	Poorly drained	0-14	>80
>0.1%	RdB	Ridgebury complex, 3 to 8 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	3-8	Poorly drained	0-6	15-35
>0.1%	RgB	Ridgebury complex, 0 to 8 percent slopes, very stony	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	3-8	Poorly drained	0-6	15-35
13.6%	RhB	Riverhead loam, 3 to 8 percent slopes	Loamy glaciofluvial deposits overlying stratified sand and gravel	3-8	Well drained	>80	>80
0.4%	Sh	Sun loam	Loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas	0-3	Very poorly drained	~0	>80
3.6%	Ub	Udorthents, smoothed	NA	0-8	Moderately well drained	18-48	40-60
0.9%	Uc	Udorthents, wet substratum	NA	0-5	Somewhat poorly drained	6-24	40-60
0.5%	UhC	Urban land-Charlton complex, 8 to 15 percent slopes	Urban land	8-15	Cemented material generally impervious	NA	0
>0.1%	UpB	Urban land-Paxton complex, 3 to 8 percent slopes	Urban land	3-8	Cemented material generally impervious	NA	0

% of MOD	Symbol	Soil Description	Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
2.2%	UpC	Urban land-Paxton complex, 8 to 15 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	0-15	Cemented material generally impervious	NA	0
6.4%	UvB	Urban land-Riverhead complex, 2 to 8 percent slopes	Loamy glaciofluvial deposits overlying stratified sand and gravel	2-8	Well drained	>80	>80
0.5%	UwB	Urban land-Woodbridge complex, 3 to 8 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	3-8	Cemented material generally impervious	NA	0
1.6%	W	Water	Surface water	NA	NA	0	NA
1.0%	WdA	Woodbridge loam, 0 to 3 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	0-3	Moderately well drained	18-30	20-39
5.2%	WdB	Woodbridge loam, 3 to 8 percent slopes	18-30 20-39	3-8	Moderately well drained	18-30	20-39
Source: USDA Natural Resources Conservation Service (NRCS) Web Soil Survey							

SUBSURFACE INVESTIGATIONS

Based on the NYSDEC Environmental Mapper, there are currently no known areas of soil or groundwater contamination within the MOD Zoning Area.

FUTURE WITHOUT THE PROPOSED ZONING ACTION

In the Future Without the Proposed Zoning Action, there are no anticipated changes to existing topography, soils or geology within the MOD.

PROBABLE IMPACTS OF THE PROPOSED ZONING ACTION

The Proposed Zoning Action would result in the adoption of MOD Zoning which could potentially result in new development within the MOD Zoning Area at higher densities than allowed under existing zoning. Development actions could decrease forest cover on steep slopes, add impermeable surfaces that will increase peak water flows, and increase sedimentation into streams if shallow soils are eroded off steep slopes. There could also be increased contaminant concentrations in surface water by increasing peak flows from impermeable surfaces. Any project proposed under MOD Zoning would be required to conduct a site-specific SEQR analysis to determine if the project would result in any significant adverse impacts to geology, soils and topography. If any significant adverse impacts are identified, mitigation would be required to minimize or avoid impacts to geology, soils and topography.

B. MOD DEVELOPMENT PLAN

EXISTING CONDITIONS

EVERGREEN

Topography

The Evergreen Manor Project Site is divided by a ridgeline that generally runs east-west through the center portion of the property, including the area occupied by the existing structures. In the northern portion of the property, the topography slopes from a low point of approximately Elevation 350 within the existing wetland adjacent to Route 202/35/Crompond Road to Elevation 432 along the eastern property boundary and Elevation 400 on the western property boundary. Within the southern portion of the property, the topography slopes from approximately Elevation 392 within the existing southern wetland area to Elevation 438 along the eastern property boundary and to Elevation 408 along the western property boundary.

The Evergreen site's existing topography and steep slopes are illustrated on **Figure 4-3**. Per the Town of Cortlandt Town Code Chapter 259, Steep Slopes are classified as slopes greater than 15% with a minimum area of 500 square feet which possess one dimension of a minimum of 10 feet. The Evergreen Manor Project Site contains proximately 8 acres of slopes that exceed 15% (**see Table 4-3**).

Table 4-3
Evergreen Steep Slope Classifications

Slope Category	Approximate Area	Percentage of Site
15 – 30%	6.8 acres	24%
>30%	1.1 acres	4%
Total Steep Slopes	7.9 acres	28%
0 – 15%	20.7 acres	72%
Total Site	**28.6 acres**	**100%**

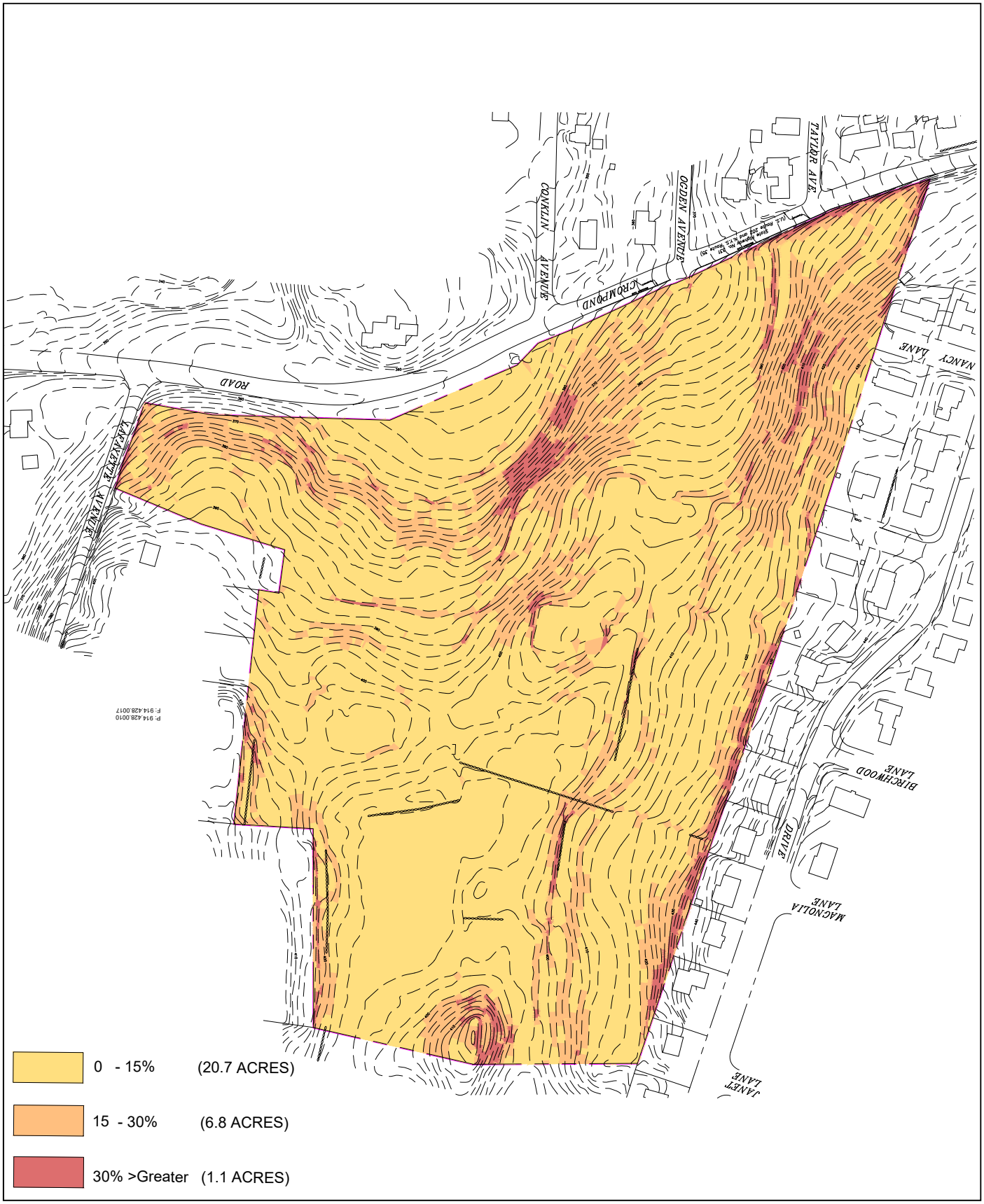

Figure 4-3
Evergreen
Existing Steep Slopes
Medical Oriented District
Draft Generic Environmental Impact Statement

0 250 500 FEET

DIVNEY • TUNG • SCHWALBE
Intelligent Land Use

N

TOWN OF CORTLANDT SEAL NEW YORK

Soils

Soil types on the Evergreen Manor Project Site have been identified per the USDA Natural Resources Conservation Service (NRCS) National Cooperative Soil Survey. Eleven soil types are identified on the property. Information on the mapped soil types, including their distribution on the property and characteristics is provided in **Table 4-4.** The location of the mapped soil types is illustrated on **Figure 4-4.**

Based on the NCRS, approximately 70% of the soils are well drained coarse loam. Approximately 30% of the soils, primarily located in the wetland areas on the property, are somewhat poorly drained or poorly drained loamy soils or silt and fine sand.

Table 4-4:
Evergreen Soil Types

% of Evergreen Site	Soil Type		Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
	Symbol	Description					
25%	PnC	Paxton fine sandy loam	Coarse-loamy lodgment till derived from gneiss, granite and/or schist	8-15	Well drained	1.5-3	20-39
25%	LcB	Leicester loam	Loamy acid till derived mostly from schist and gneiss	3-8	Somewhat poorly drained	0.5-1.5	>80
17%	ChC	Charlton fine sandy loam	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	8-15	Well drained	>6	>80
14%	ChB	Charlton fine sandy loam	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	3-8	Well drained	>6	>80
9%	ChD	Charlton fine sandy loam	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	15-25	Well drained	>6	>80
4%	Ra	Raynham silt loam	Glaciolacustrine, eolian, or old alluvial deposits, comprised mainly of silt and very fine sand	--	Poorly drained	0-2	>80
3%	RhB	Riverhead loam	Loamy glaciofluvial deposits overlying	3-8	Well drained	>6	>80

Figure 4-4
Evergreen
Topography & Soils

Medical Oriented District
Draft Generic Environmental
Impact Statement

0 250 500 FEET

DIVNEY • TUNG • SCHWALBE
Intelligent Land Use

N

% of Evergreen Site	Soil Type		Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
	Symbol	Description					
			stratified sand and gravel				
1%	UhC	Urban land-Charlton Complex	Acid loamy till derived mainly from schist, gneiss, or granite	8-15	Well drained	>6	>80
<1%	UpC	Urban land-Paxton Complex	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	8-15	Well drained	1.5-3	20-39
<1%	UwB	Urban land-Woodbridge Complex	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	3-8	Moderately well drained	1.5-2.5	20-39
<1%	PnD	Paxton fine sandy loam	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	15-25	Well drained	1.5-3	20-39

Source: USDA Natural Resources Conservation Service (NRCS) Web Soil Survey

Subsurface Investigations

A preliminary geotechnical investigation was conducted by Langan Engineering within the six-acre northeastern portion of the Evergreen Manor Project Site where the assisted living facility and independent living facility are proposed. Five (5) borings were drilled, and one (1) observation well was installed. Groundwater was encountered at approximately 4 to 8 feet below the surface in the borings and was measured at approximately 1.5 to 4 feet in the observation well.

The subsurface conditions generally consisted of topsoil of 4 to 6 inches thick, underlain by glacial till of 16 to 27 feet thick, and bedrock ranging from 16 to 27 feet deep, based on refusal of the drilling equipment. Additional geotechnical investigations within the other areas of proposed development will be conducted as the site plan review process continues for the Project.

GYRODYNE

Topography

The elevation of the Gyrodyne Project Site ranges between approximately 340 to 410 feet above mean sea level (amsl) (**see Figure 4-5**). The property is gently to moderately sloping with the general topographic gradient sloping downward to the southeast. Steeper slopes are present on the eastern side of the property, sloping downward from Lafayette Avenue to where the existing residential structures and medical office buildings and parking lots are located. The areas occupied by the structures and parking lots are generally level, since they were most likely artificially re-

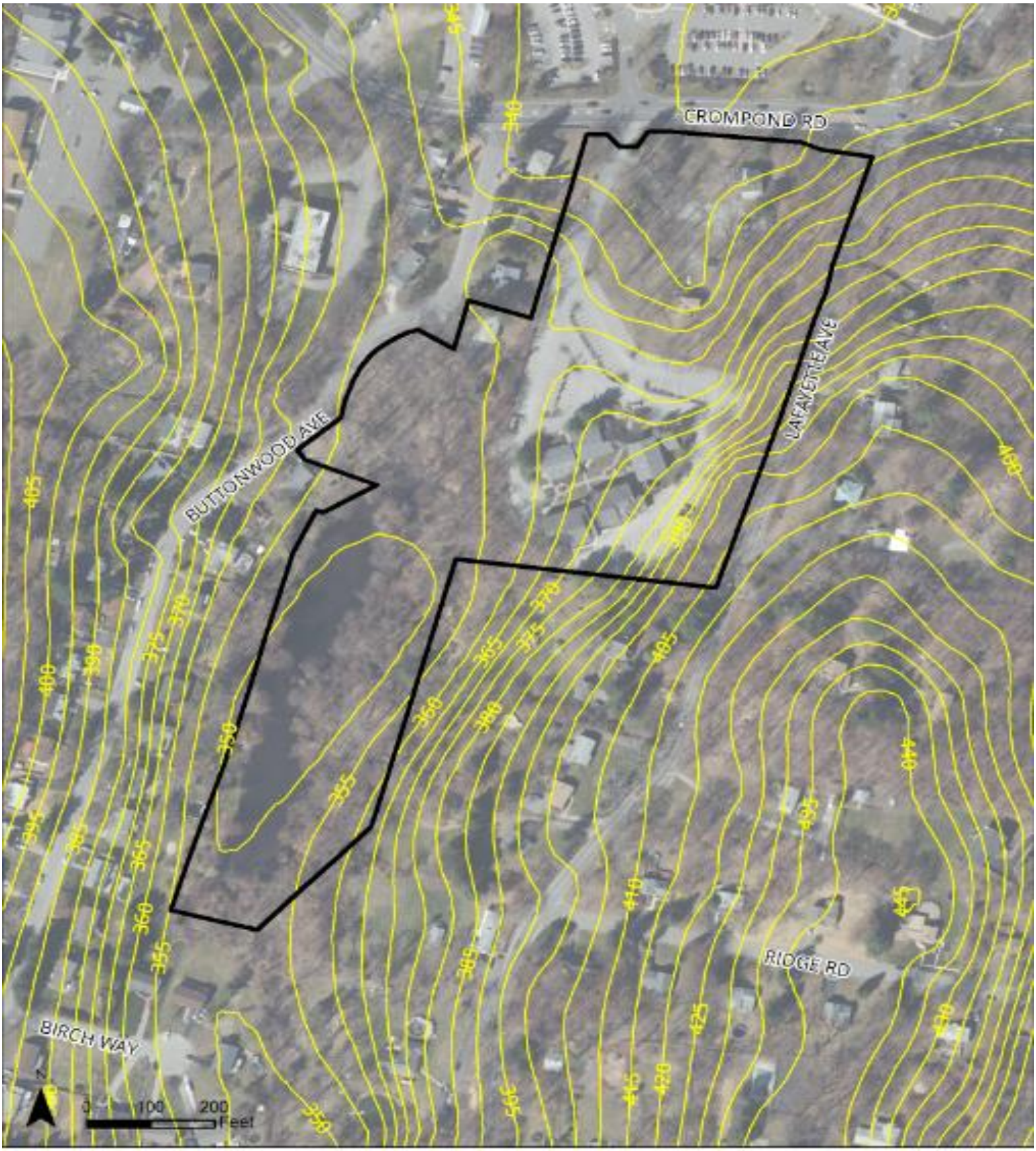

Figure 4-5
Gyrodyne Topography

Medical Oriented District Draft Generic Environmental Impact Statement

CAMERON ENGINEERING & ASSOCIATES, LLP

*Not to scale

N

TOWN OF CORTLANDT SEAL NEW YORK

graded. Evaluation of the surface topography and the existence of an intermittent stream west of the property, indicate that groundwater at the site is likely perched above bedrock and recharges through precipitation and stormwater runoff. Groundwater present in unconsolidated materials likely flows to the west/southwest.

The majority of the Gyrodyne Project Site has slopes of 0-10%, while approximately one-third of the site has slopes that are greater than 15% (**see Table 4-5**).

Table 4-5
Gyrodyne Steep Slope Classifications

Slope Category	Approximate Area	Percentage of Site
15 – 30%	3.4 acres	29%
>30%	1.1 acres	4%
Total Steep Slopes	4.5 acres	33%
0 – 15%	9.3 acres	67%
Total Site	**13.8 acres**	**100%**

Soils

The two predominant soil types found on the Gyrodyne site are Riverhead loam (RhB) and Charlton fine sandy loam (ChD) **(see Table 4-6 and Figure 4-6).** Riverhead loam is within the Group A hydrologic soil group. Soils in this group have a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission. Charlton fine sandy loam is within the Group B hydrologic soil group. Soils in this group have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

While the Gyrodyne Project Site is not located directly over a primary or principal aquifer, there are bedrock aquifers that underlie all parts of northern Westchester County. Aquifers are geologic formations containing and transmitting useful quantities of groundwater. Bedrock aquifer formations store and transmit groundwater in fractures and joints. In many valleys, saturated surficial deposits (known also as unconsolidated aquifers, sand and gravel aquifers, or overburden aquifers) store and transmit water through spaces between sediment grains. The bedrock found under the property is part of the Manhattan Prong physiographic province. The Manhattan Prong underlies a landscape of rolling hills and valleys whose configurations are closely controlled by the structure and lithology of the underlying bedrock.

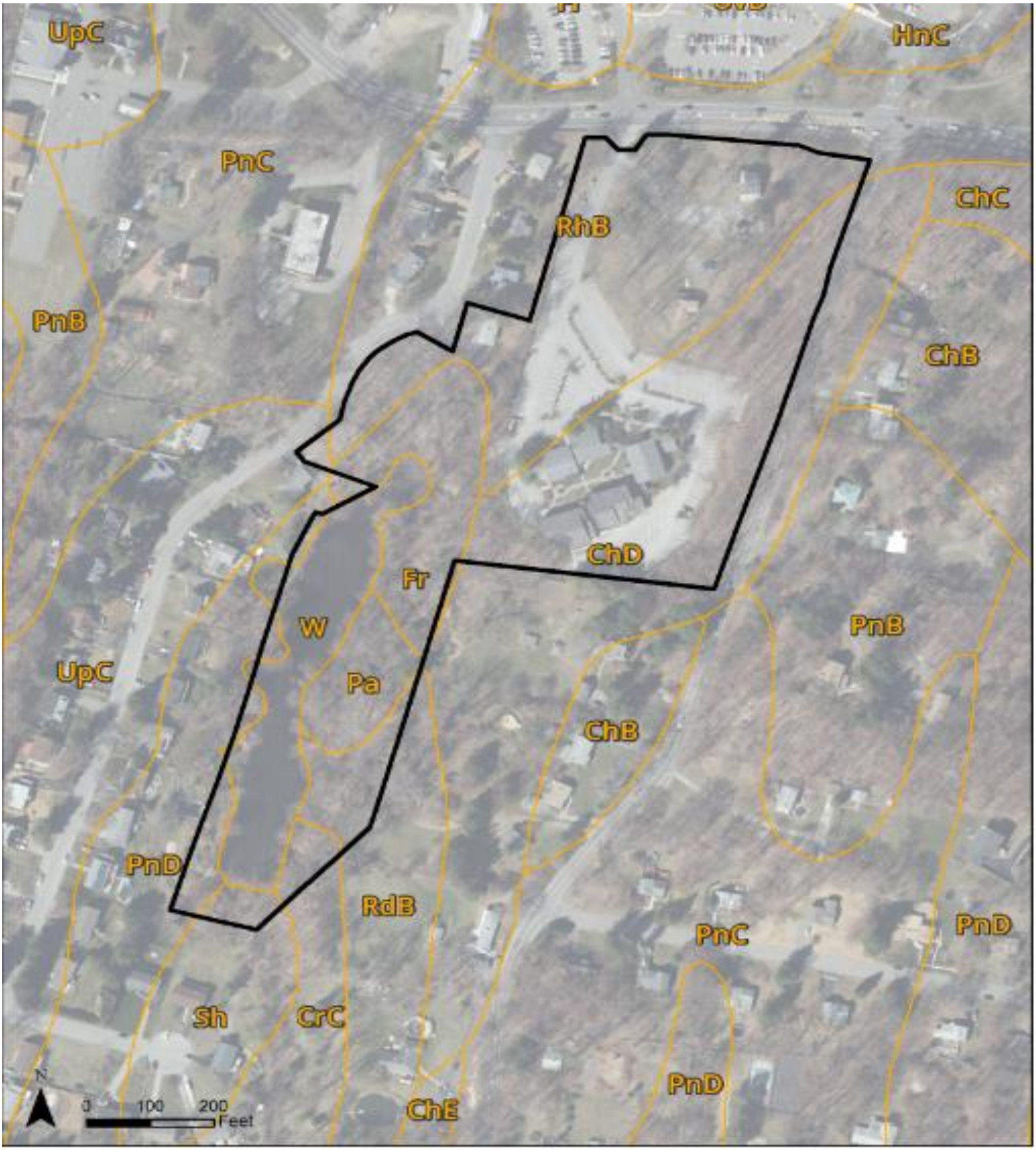

Figure 4-6
Gyrodyne Soils

Medical Oriented District Draft Generic Environmental Impact Statement

CAMERON ENGINEERING & ASSOCIATES, LLP

*Not to scale

N

TOWN OF CORTLANDT SEAL NEW YORK

Table 4-6:
Gyrodyne Soil Types

% of Evergreen Site	Soil Type		Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
	Symbol	Description					
34.8%	RhB	Riverhead loam	Loamy glaciofluvial deposits overlying stratified sand and gravel	3-8	Well drained	>6	>80
28.4%	ChD	Charlton fine sandy loam	Coarse-loamy melt-out till derived from gneiss, granite and/or schist	15-25	Well drained	>6	>80
12.6%	W	Water	Surface water	NA	NA	0	NA
10%	Fr	Fredon silt loam	Loamy over sandy and gravelly glaciofluvial deposits	0-3	Poorly drained	0-12	>80
5.1%	NcA	Natchaug muck, 0 to 2 percent slopes	Highly decomposed organic material over loamy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy till	0-2	Very poorly drained	0-6	>80
3.7	RdB	Ridgebury complex, 3 to 8 percent slopes	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	3-8	Poorly drained	0-6	15-35
2.3%	PnD	Paxton fine sandy loam	Coarse-loamy lodgment till derived from gneiss, granite, and/or schist	15-25	Well drained	1.5-3	20-39
1.6%	Crc	Charlton-Chatfield complex, 0 to 15 percent slopes, very rocky	Coarse-loamy melt-out till derived from granite, gneiss, and/or schist	3 -15	Well drained	>80	>80
<1%	UpC	Urban land-Paxton Complex	Coarse-loamy lodgment till derived from	8-15	Well drained	1.5-3	20-39

% of Evergreen Site	Soil Type		Parent Material	Slope (%)	Drainage Class	Depth to Water Table (ft)	Depth To Bedrock (in)
	Symbol	Description					
			gneiss, granite, and/or schist				
<1%	Sh	Sun loam	Loamy till derived primarily from limestone and sandstone, with a component of schist, shale, or granitic rocks in some areas	0-3	Very poorly drained	~0	>80
>1%	PnC	Paxton fine sandy loam	Coarse-loamy lodgment till derived from gneiss, granite and/or schist	8-15	Well drained	1.5-3	20-39
Source: USDA Natural Resources Conservation Service (NRCS) Web Soil Survey							

Subsurface Investigations

In July 2016, three test borings were performed on the Gyrodyne Site by Soil Mechanics Drilling Corp. (Soil Mechanics) of Seaford, New York. Their investigation revealed that the areas drilled were blanketed by from 8 to 18 feet of generally loose soil fill extending to loose coarse sand with traces of silt extending to the bottom of the first boring. At the second boring, the fill was underlain by a moderately dense to very dense silty sand with traces of silt and gravel extending to decomposed rock at 47 feet. At the third boring, the fill was underlain by a dense silty sand with traces of gravel and cobble extending to refusal. Ground water was encountered within the boreholes at depths ranging from 13'-8" to 20'-6" at the time the work was done. Perched water was encountered in one of the borings as a depth of 4'-1". The natural sand below the fill is capable of supporting foundation loads varying from generally 1 ton to 4 tons per square foot, depending on location and elevation **(see Appendix 4, Gyrodyne Borings Report)**.

Three additional borings were drilled and seven additional infiltration tests were performed by Soil Mechanics in April 2017. The three additional borings revealed similar profiles of the initial three borings drilled although the top of the boring elevations had a 21 foot grade differential. Their investigation at the three additional test borings revealed 1 to 10 feet of loam, asphalt and loose to moderately dense soil, rock fragments and fill, underlain, generally, by a loose to dense sand formation with varying percentages of silt extending to decomposed rock which was encountered between 15 and 20 feet. Natural ground water was encountered at depths ranging from 7'-6" to 11'-6" below existing grade at the time the borings were taken.

C. PROBABLE IMPACTS OF MOD DEVELOPMENT PLAN

EVERGREEN

SOIL DISTURBANCE AND CUT & FILL

The proposed limit of disturbance area has been designed to limit proposed construction activities to only that area which is necessary to construct the Evergreen Manor Project. In total, an estimated 17 acres, or 60%, of the site will be disturbed.

Based on study of alternative grading schemes the amount of excavation required could range from a balanced cut and fill site to a development plan which might require the off-site export of approximately 97,000 cubic yard (cy) of excess fill material.

The DGEIS Site Plan as presented herein is estimated to require the off-site export of some 97,000 CY of excess fill material and is based on the design of the main entry road with a grade of eight percent (8%). This plan has been chosen for the use in this impact statement as it studies the most conservative impacts relative to project cut and fills. The export of up to approximately 97,000 cy of material could potentially result in up to 24 truck trips per day.[1] It is estimated that the removal of excess material may take up to 120 working days to haul off-site. The anticipated construction routes and sequence are further described in Chapter 18, Construction.

A generally balanced cut and fill project could be achieved by designing the main entry roadway with a grade of nine percent (9%), which will be less than the maximum ten percent (10%) grade permitted under Chapter 265-18 of the Subdivision Code for minor streets. Under this alternative design approach, it is estimated that the pad elevation of the proposed residential building located on Parcel 4 will be elevated by approximately eight (8) to ten (10) feet.

STEEP SLOPE DISTURBANCE

Approximately 4.4 acres, or 56%, of the existing 8 acres of steep slopes on the Site, will be disturbed. The existing slopes within the limit of disturbance are identified in Figure 4-3, Limit of Disturbance Steep Slopes and are further categorized in **Table 4-6**:

Table 4-6
Evergreen Steep Slope Disturbance

Slope Category	Slopes within Limits of Disturbance	Percentage of Site
15 – 30%	3.9 acres	14%
>30%	0.5 acres	1.7%
Steep Slopes	4.4 acres	15.4%
0 – 15%	12.5 acres	44%
Total Site Disturbance	**16.9 acres**	**59%**

[1] Based on three 35 cy truck loads per hour over an 8-hour work day or 840 cy per day.

GYRODYNE

SOIL DISTURBANCE AND CUT & FILL

The proposed limit of disturbance area has been designed to limit proposed construction activities to only that area which is necessary to construct the Gyrodyne Project. In total, an estimated 9.44 acres, or 68%, of the site will be disturbed. It should be noted the 5 acres or 3% of the site will be preserved as open space. Limited grading and disturbance will occur in these areas to create walking trails and remove excess vegetation.

All developed portions of the site will first be subject to grading operations, in order to provide an acceptable surface on which development can take place. This would be followed by the installation of landscaping to provide a means of stabilizing the soil to prevent erosion as soon as practicable following grading. Portions of the property will be subjected to cut and fill earthwork, and the goal will be to minimize the need for the removal of material off property as practical. Construction operations are not anticipated to result in significant adverse impacts to soils and the presence of soils with limitations on development is not anticipated to impede the intended uses of the site.

The DGEIS Site Plan as presented herein is estimated to require the off-site export of some 40,000 CY of excess fill material. This plan has been chosen for the use in this impact statement as it studies the most conservative impacts relative to project cut and fills. The export of up to approximately 40,000 cy of material could potentially result in up to 10 truck trips per day.[2] It is estimated that the removal of excess material may take up to 120 working days to haul off-site. The anticipated construction routes and sequence are further described in Chapter 18, "*Construction*."

STEEP SLOPE DISTURBANCE

Approximately 1.6 acres, or 36%, of the existing 4.4 acres of steep slopes on the Site, will be disturbed.

Table 4-7
Gyrodyne Steep Slope Disturbance

Slope Category	Approximate Area	Percentage of Site
15 – 30%	1.6 acres	12%
>30%	0.0 acres	0%
Steep Slopes	1.6 acres	12%
0 – 15%	7.8 acres	56%
Total Site Disturbance	**9.4 acres**	**77%**

[2] Based on three 35 cy truck loads per hour over an 8-hour work day or 840 cy per day.

D. MITIGATION

EVERGREEN

The proposed limit of disturbance has been designed to limit proposed construction activities to only that which is necessary for the Project. The off-site removal of excess cut material or the importation of fill material will be minimized to the extent practicable through either site design measures or the on-site processing and reuse of available on-site fill materials.

Fill materials used to support structures will be prepared and stabilized in accordance with the recommendations of a qualified geotechnical engineer. Cut and fill slopes will be constructed in accordance with the recommendations of a geotechnical engineer and subject to the approval of the Town Engineer.

Should any blasting be required for required rock removal, it will be conducted in accordance with applicable Town and State regulations. A blasting contractor will be required to obtain all necessary local, state and federal permits prior to blasting, and will be licensed in the State of New York. Blasting operations will be undertaken by New York State Licensed Powder Men and Licensed Blasting Contractors, under the direct supervision of a geo-technical engineer and blasting consultant, in accordance with all applicable laws and in coordination with the Town building officials.

In compliance with requirements established for the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (Permit No. GP-0-15-002) a preliminary Stormwater Pollution Prevention Plan (SWPPP) has been prepared and will be implemented during construction activities. As a result, an Erosion Control Plan shall be prepared as part of the contract documents and will require that the erosion and sedimentation controls set forth thereon be implemented before the start of construction and further such controls will be monitored and maintained during construction. Stabilization of the site shall also comply with the conditions or requirements of the Town, County and State.

Several temporary structural practices to be utilized during construction to mitigate any potential impacts including, but not be limited to, surrounding material stockpiles with silt fencing and hay bale dams, excavated and embankment areas will be graded to permit drainage and the runoff will be intercepted in ditches with silt barriers or collected in settling basins to permit sedimentation. Sediment traps, inlet protection, swales, berms and energy dissipaters will be installed, as necessary, to minimize soil and sediment from leaving the project site. Temporary mulching and seeding will be conducted to limit and control the exposure of soil. Stabilized construction entrances including wheel wash down areas and anti-tracking pads will also be constructed and maintained throughout construction to minimize the off-site migration of sediment. Soil erosion and sedimentation control measures will meet the NYSDEC New York State Standards and Specifications for Erosion and Sediment Control requirements and the Town of Cortlandt requirements as outlined in the Town Code, Chapter 262 Stormwater Management and Erosion and Sediment Control. The erosion and sediment control plans for the Project are also further described in Chapter 7, "*Stormwater Management*."

GYRODYNE

Development associated with the proposed Gyrodyne Project will exceed one-acre in size, and would therefore require a Storm Water Pollution Prevention Plan (SWPPP) as part of the Town

approval process. The SWPPP will include Erosion and Sediment Control plans that will specify the types, locations, and maintenance of any erosion control measures. Additionally, the SWPPP will require ongoing SWPPP inspections for the duration of all construction activity. This will ensure that the erosion controls noted on the engineering documents will be carried out in accordance with state requirements.

Careful attention will be paid to soil conservation and erosion control techniques during grading activities. Final site design will also incorporate methods to control erosion and sedimentation and limit the transport of sediment to offsite areas. Guidance will be taken from the Best Management Practices (BMPs) recommended in the latest "New York Guidelines for Urban Erosion and Sediment Control" as well as the NYSDEC's "Urban Stormwater Management Practices Catalogue."

An extensive erosion control plan will reduce runoff during construction. A controlled sequence of measures will insure that runoff and sediment receiving areas are prepared in advance of major site disturbances. An erosion-control seed mixture will be used that contains 50% annual ryegrass and 50% perennial ryegrass for a quick and effective stabilization of the soils. A series of hay bales and silt fencing will be placed to capture coarse and fine sediment. Silt fencing will also be installed to prevent material from washing away.

Maintenance of the erosion control measures will include removal of accumulated sediment and trash from all control structures and the basin, repair or replacement of damaged swales, diversions, silt fencing, hay bales, and reseeding where necessary. The construction entrance will be stabilized with crushed stone to prevent soil and debris from being carried onto roads. Construction-related erosion control measures will be removed during final landscaping.