3.0 EXISTING ENVIRONMENTAL CONDITIONS, ANTICIPATED IMPACTS AND MITIGATION

3.1 Geology, Topography and Soils

3.1.1 Existing Conditions

Geology-Subsurface

The project site lies within the Hudson Highlands physiographic province, which is part of the central and south portion of the New England Upland province. In southern New York, this province is defined by folded and faulted metamorphic and igneous rocks. The area of northern Westchester County in which the project site is located is made up of metamorphic rocks of an uncertain origin from the middle proterozoic period. Specifically, the project site is underlain by Fordham gneiss, which includes garnet-biotite-quartz-gneiss.

The landforms of the area reveal a strong correlation to the relative hardness, structure and variation of the underlying bedrock. The higher elevations in the broader area range from 200 feet above mean sea level to more than 1,000 feet in the Hudson Highlands.

Bedrock on the Tripi subdivision site varies in depth. A series of 110 soil borings was completed on the site as part of the project and septic system design process. The depth to bedrock varied from 6 inches to 8.5 feet in depth, in those locations tested. Several bedrock outcrops are located on the site, which is common in sloping topography in Bedford and lower Westchester County. Bedrock outcrops are shown in Figure 3.1-2, Existing Steep Slopes.

Topography

The property is characterized by hilly topography with grades generally sloping towards the south and the east. Topography on the property reflects the local topography with rounded hilltops scattered throughout the area separated by lower elevations. No prominent hills or mountains are shown in the vicinity of the property on the U.S. Geological Survey topographic map for the site (see Figure 3.1-1 Local Topography Map).

On-site topography and slopes are shown in Figure 3.1-1, Local Topography Map and drawings 2 and 3 attached to this document. A broad sloping hillside occupies the majority of the site extending from the south and southeast and rising to the north and northwest. Steeper slopes are found along the southern and eastern portions of the site. More gentle slopes occupy the central and northern portions of the property. The highest elevations on-site are found in the centrally located hilltop, with an approximate elevation of 412 feet. The lowest elevations on the site are found along the southern boundary of the site paralleling Harris Road, with an elevation of approximately 320 feet. Elevations vary approximately 90 feet across the site.

Slopes on the site have been mapped by the project engineer and are shown in Figure 3.1-2, Existing Steep Slopes. Slopes ranging from 0 to 25 percent occupy 19.20 acres, or approximately 75 percent of the site. Steep slopes on the Property are defined by Chapter 102 of the Town Bedford as being “Ground areas with a minimum slope of twenty-five percent (25%) or greater, with a minimum area of one hundred (100) square feet and a minimum horizontal distance of ten (1) feet”. The steep slopes, 25 percent or greater, have been mapped to occupy 6.39 acres of the site, or approximately 25 percent of the site.

Table 3.1-1 Existing Slopes	
Slope Category	**Area of Existing Slopes**
0% to 15%	12.92 acres
15% to 20%	3.37 acres
20% to 25%	2.91 acres
>25%	6.39 acres
Total Site Acreage	25.59
Note: Total Site Acreage: 25.59 Source: Petruccelli Engineering, 02/2008	

Soils-Surface

The soils on the project site were identified using the soil classifications of the USDA Soil Conservation Service (SCS) Soil Survey of Putnam and Westchester Counties, New York. The project site is underlain primarily by four soil types: Charlton-Chatfield complex (CrC), Chatfield-Charlton complex (CsD), Riverhead loam (RhD), and Chatfield-Hollis-Rock outcrop complex (CtC). The distribution of the soil types on the project site is shown in Figure 3.1-3, Soils Map. The characteristics of each of the soil series identified on the property are described below, generally in the order of their prevalence.

Charlton-Chatfield complex, rolling, very rocky (CrC)

This soil complex is considered very deep and moderately deep, well drained and somewhat excessively drained Chatfield soil and well drained Charlton soil. It can be found on hilltops and hillsides that are underlain by highly folded bedrock. Slopes can range from two percent to 15 percent. The soil complex is composed of 50 percent Charlton soil, 30 percent, Chatfield soil, and 20 percent other soils and rock outcrop. The water table for both Charlton and Chatfield soils can be found at depths of more than six feet throughout the year. Permeability for both soil types is moderate or moderately rapid throughout the profile. Available water capacity for Charlton soils is moderate, while the available water capacity for Chatfield soils is low. The surface runoff for both soils types is medium. Neither soil types are considered to be hydric soils. The bedrock can be found more the 60 inches below the ground surface for Charlton soils and between 20 to 40 inches below ground surface for Chatfield soils.

Charlton-Chatfield soils are mapped stretching from the center of the property towards the northern boundary of the property (see Figure 3.1-3, Soils Map).

Chatfield-Charlton complex, hilly, very rocky (CsD)

This soil complex is considered very deep and moderately deep, well drained and somewhat excessively drained Chatfield soil and well drained Charlton soil. It can be found on hilltops and hillsides that are underlain by highly folded bedrock. Slopes can range from fifteen (15) to thirty-five (35) percent. The soil complex is composed of forty-five (45) percent Chatfield soil, thirty-five (35) percent Charlton soil, and twenty (20) percent other soils and rock outcrop. The water table for both Chatfield and Charlton soils can be found at depths of more than six feet throughout the year. Permeability for both soil types is moderate or moderately rapid throughout

the profile. Available water capacity for Charlton soils is moderate, while the available water capacity for Chatfield soils is low. The surface for both soils types is rapid. Neither soil types are considered to be hydric soils. The bedrock can be found more the 60 inches below the ground surface for Charlton soils and between 20 to 40 inches below ground surface for Chatfield soils.

Chatfield-Charlton complex soils are mapped throughout the central portion of the property and extend from the western property boundary line to the eastern (see Figure 3.1-3, Soils Map).

Riverhead loam, 15-25 percent slopes (RhD)

This soil unit is moderately steep, very steep, and well drained. Slopes can range from fifteen (15) to twenty-five (25) percent. The water table can be found at a depth of more than six (6) feet throughout the year. Permeability is moderately rapid in the surface layer and subsoil, and very rapid in the substratum. Available water capacity is moderate and runoff is rapid. The soil is not considered a hydric soil. Bedrock can be found more than 60 inches below the ground surface.

Riverhead loam soils are mapped along the southern boundary of the property (see Figure 3.1-3, Soils Map).

Chatfield-Hollis-Rock outcrop complex (CtC)

This soil complex consist of rolling, moderately deep, well drained and somewhat excessively drained Chatfield soil along with the shallow, well drained and somewhat excessively drained Hollis soil. The mapped soil contains areas of rock outcrop. The soil complex is usually found on hilltops and narrow ridges in bedrock-controlled landscapes. Slopes can range from three to 15 percent. The complex is typically composed of 30 percent Chatfield soil, 30 percent Hollis soil, 20 percent rock outcrop, and 20 percent other soils.

The water table can be found at a depth of more than six feet below the ground surface for both soil types. Permeability is moderate or moderately rapid through the profile for the Chatfield and Hollis portion of the soil. Available water capacity is moderate in Chatfield soil and very low in the Hollis and rock portion of the soil. Runoff is medium in both Chatfield and Hollis soil types. Depth to bedrock is 20 to 40 inches below the ground surface in Chatfield soils and 10 to 20 inches below ground surface in Hollis soils.

Chatfield-Hollis-Rock outcrop complex soils on this site can be found in a small area in the northwestern corner of the property (see Figure 3.1-3, Soils Map).

Soil characteristics for individual soils mapped on the site are provided in Table 3.1-1 below. Also tabulated are the degree and kind of soil limitations that may affect typical building site development. This information has been compiled from data in the SCS Soil Survey of Putnam and Westchester Counties. Development limitations are considered *slight* where soil properties are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties are less favorable for the indicated use and special planning, design or maintenance may be needed to overcome or minimize the limitations; and *severe* if soil properties require special design and will necessitate increased costs to construct and possibly increased maintenance.

Table 3.1-2
Soil Characteristics and Limitations

Soil Series	Hydrologic Group[1]	Erosion Factor (K[2])	Permeability (in/hr.)	Shallow Excavation	Roads and Streets	Lawn/ Landscaping
Charlton-Chatfield Complex (CrC)	Charlton: B Chatfield: B	Charlton: 0.24 (0-60") Chatfield: 0.24 (0-7") 0.20 (7-24")	Charlton: 0.6-6.0 (0-60") Chatfield: 0.6-6.0 (0-24")	----Charlton---- Moderate: slope. ----Chatfield---- Severe: depth to rock.	----Charlton--- Moderate: Slope. ----Chatfield--- Moderate: slope, depth to rock, frost.	----Charlton---- Moderate: Slope. ----Chatfield---- Moderate: drought, slope, thin layer.
Chatfield-Charlton Complex (CsD)	Chatfield: B Charlton: B	Chatfield: 0.24(0-7") 0.20 (7-24") Charlton: 0.24 (0-60")	Chatfield: 0.6-6.0 (0-24") Charlton: 0.6-6.0 (0-60")	----Chatfield---- Severe: depth to rock, slope. ----Charlton---- Severe: slope.	----Chatfield--- Severe: slope. ----Charlton--- Severe: slope.	----Chatfield---- Severe: slope. ----Charlton---- Severe: slope.
Riverhead loam (RhD)	B	0.28 (0-12") 0.37 (12-16") 0.24 (16-60")	0.6-2.0 (0-16") 0.06-0.6 (16-60")	Severe: slope, cut banks cave.	Severe: slope.	Severe: slope.
Chatfield- Hollis-Rock Complex (CtC)	Chatfield: B Hollis: C/D Rock Outcrop: D	Chatfield: 0.24 (0-7") 0.20 (7-24") Hollis: 0.24 (0-1") 0.32 (1-16")	Chatfield: 0.6-6.0 (0-24") Hollis: 0.6-6.0 (0-16")	----Chatfield---- Severe: depth to rock. ------Hollis------ Severe: depth to rock. ------Rock Outcrop-------- Severe: depth to rock.	----Chatfield--- Moderate: slope, depth to rock, frost action. -----Hollis------ Severe: depth to rock. ------Rock Outcrop------- Severe: depth to rock.	----Chatfield---- Moderate: Slope, thin layer. ------Hollis------ Severe: depth to rock. -------Rock Outcrop------- Severe: depth to rock.

[1] Hydrologic groups are used to estimate runoff from precipitation; they range from high infiltration (A) to low infiltration (D).
Source: Soil Survey of Putnam and Westchester Counties, New York, USDA SCS

As noted in Table 3.1-1, the SCS identifies these soils as possessing potential limitations for development of roads, landscaping and excavations for utilities due to their characteristics. Such limitations require planning consideration prior to development. The presence of these constraints does not mean the land cannot be developed, nor are they a rating of construction potential. The descriptions reflect the difficulty and relative costs of corrective measures that may be necessary (e.g. erosion controls, footing drains or other drainage improvements) for development. The limiting characteristics of these soils may be overcome by careful project planning, design and management.

Project design incorporated to overcome soil limitations includes designing the home sites on the more level portions of the site, and avoiding placing homes in areas with steep slopes. Septic areas were also located in portions of the site with more level topography and suitable

soils. The Soil Erosion Control Plan prepared for the site is intended to provide the planning and management to overcome soil limitations related to slopes, as further described below.

As shown in the table above, slope and depth to bedrock are listed as limitations for a majority of the soils. The erosion factor (K), which provides a general indication of erosion potential for a particular soil type, is directly related to slope. Table 3.1-1 provides the erosion factor (K) for each of the soil types mapped on-site. As shown in the table, the erosion factor is similar for all soil types ranging from 0.20 to 0.24 for the Charlton and Chatfield soil types and up to 0.37 for the Riverhead loam soil type. The soil survey lists comparative erosion factors ranging from 0.17 to 0.69 with the lower numbers having the lower erosion potential. The listed K factors of 0.20 to 0.37 are at the mid to lower range of possible K factors, indicating that, in general, the soils mapped on the site have a low to moderate potential for erosion.

Charlton-Chatfield Complex (CrC), Chatfield-Charlton Complex (CsD), Riverhead loam soils (RhD), and Chatfield-Hollis-Rock (CtC) outcrop complex soils are rated with slight to severe limitations for the construction of pavement, landscaping, and excavations for utilities. These limitations are caused by slope, depth to rock, wetness, and frost action. These limitations are discussed in Section 3.1.2 below.

3.1.2 Potential Impacts

Slopes Impacts

Impacts to steep slopes are directly related to the potential for soil erosion during construction. The majority of grading for the proposed Conventional project will occur in areas with slopes of less than 25 percent. Impacts to steep slopes of 25 percent or greater are related to the site entrance roadway, grading for the proposed homes and the associated Sub-Surface Treatment Areas (SSTA) on the project site. Grading in areas of steep slope is shown in Figure 3.1-6 Conventional Plan Steep Slopes Disturbance Map.

Disturbance of these steep slopes (>25%) will require a permit as per Chapter 102 of the Town of Bedford Town Code. The permit is granted during the subdivision approval process assuming all the required information is provided to the Town Engineer and the Town Board.

A comparison of slopes disturbance for the Conventional Plan is provided in Table 3.1-3, below.

Table 3.1-3
Conventional Plan Slopes Disturbance Summary

Slope Category	Slope Acreage's - Undisturbed during Development	Slope Acreage's - Disturbed during Development
0% to 15%	1.21 acres	11.71 acres
15% to 20%	1.10 acres	2.27 acres
20% to 25%	1.58 acres	1.33 acres
>25%	4.55 acres	1.84 acres
Total	8.44 acres	17.15 acres

Notes: Total Site Acreage: 25.59
Source: Petruccelli Engineering 2008

Exposing soils on slopes during construction increases the potential for erosion in the short term. Impacts to steep slope areas generally involve a minimal amount of cutting in areas for the construction of the road and the SSTA's associated with the proposed residences. The site disturbance is largely limited to areas of lesser slopes, i.e. slopes that range from 0 to 25 percent.

The project engineer has evaluated the potential impact to steep slopes for the Conservation Plan, based upon the proposed grading for that plan. As shown in Figure 3.1-5 Grading for Conservation Plan, the majority of grading would occur in the north central and western portions of the site, where natural grades are more level. Disturbance to steep slopes would be required for a stormwater management basin and for the emergency access road. It should be noted that the emergency access road mostly follows the alignment of an existing paved driveway. Estimated impacts to steep slopes are provided in Table 3.1-4 Conservation Plan Slopes Disturbance Summary.

Table 3.1-4
Conservation Plan Slopes Disturbance Summary

Slope Category	Slope Acreage's - Undisturbed during Development	Slope Acreage's - Disturbed during Development
0% to 15%	3.82 acres	9.11 acres
15% to 20%	2.00 acres	1.37acres
20% to 25%	1.91 acres	0.99 acres
>25%	4.80 acres	1.59 acres
Total	12.53 acres	13.06 acres

Notes: Total Site Acreage: 25.59
Source: Petruccelli Engineering 2010

As indicated in the tables above, the required grading for the Conservation Plan would result in approximately 1.52 acres less disturbance to steep slopes than the Conventional Plan. The potential impacts would be offset by adherence to soil erosion and sedimentation control practices described in the Erosion Control Plan attached in the drawing set (Sheet No. 7) and explained further in Section 3.1.3 below. Following construction, soil erosion and slope failure on the property is expected to be minimal since developed areas would be stabilized with lawn and landscaping, and storm water management features would be fully functional. Soil erosion and slope failure would also be minimized by adhering to the Soil Erosion Control Plan and the permanent devices constructed to manage stormwater.

Soils Impacts - Conventional Plan

The following is a description of potential impacts to soils for the Conventional Plan. Grading and recontouring of soils is required for the construction of roads, individual home sites and driveways, the SSTAs, and the four (4) proposed storm water detention basins. Areas of proposed grade changes for the project development are shown in the grading plans in the rear pocket of this document (Sheet No. 5), and in Figure 3.1-4, Grading for Conventional Plan. The total area of grading or site disturbance is estimated to be 17.15 acres.

Percolation test pits and deep test holes were completed in the summer of 2009 in the proposed locations of SSTAs to test the adequacy of the soils for the intended use. The testing was coordinated by Petruccelli Engineering and was witnessed by staff of Westchester County Department of Health. A plan showing the locations of the testing is attached (see Deep Pit and Percolation Test Hole Locations). The results of the soil testing are provided in Appendix H - Soil Testing Data Sheets.

The impacts to soils associated with this work are temporary in nature, relating to erosion hazards. The total area of permanent impervious surface is approximately 3.44 acres, including the new roads, houses and driveways as compared to the existing impervious surface area being approximately 1.29 acres, increasing the impervious surface on the property by approximately 2.15 acres. The disturbed areas not covered with impervious surface will be graded, seeded and landscaped, including the storm water management basins.

The majority of residential and road construction will occur within soils mapped as Charton-Chatfield complex (CrC) and Chatfield-Charlton complex (CsD). Only limited grading will occur in areas of mapped Riverhead loam, and no grading will occur in areas of mapped Chatfield-Hollis rock. A level spreader is proposed in an area of Riverhead loam soils, which have limitations related to slopes. The level spreader was required in this location to dissipate stormwater on a slope in the southeast portion of the site. The level spreader will receive stormwater flow at maintained flow rates from Pond A, Pond E and the subsurface exfiltration chamber system near the project entrance at Harris Street. As described above, permeability in the Riverhead loam soils is moderately rapid in the surface layer and subsoil, and very rapid in the substratum. Given the metered flow to the level spreader, and the suitable permeability of the soil, the Riverhead loam soils can accomodate the proposed flow.

Much of the limitations for the Charlton-Chatfield series soil are related to slope as shown in Table 3.1-1 and steep slopes (25 percent and greater) occupy approximately 25 percent of the site.

Depth to bedrock is another listed limitation for the Charlton-Chatfield and Chatfield-Charlton complex soils. It is not anticipated that bedrock will be encountered during the grading needed for the proposed development. The Cut and Fill Map (Figure 3.1-7) shows that areas of cut do not exceed 7.5 feet. This is also represented on the grading plan (Sheet No. 5) as well as Figure 3.1-4.

A site specific Erosion Control Plan has been developed for the Conventional Plan and is shown in the attached full sized plans. Erosion control and slope protection will be undertaken in accordance with the *New York Standards and Specifications for Erosion and Sediment Control, 2005*, as described under Mitigation Measures below. It is anticipated that the proper design and implementation of these measures, along with consistent and frequent inspections, will ensure success of the project with minimal soil erosion impacts.

Total disturbance necessary for construction of roads, houses, SSTAs, driveways and basins is estimated to involve approximately 17.15 acres. The project engineer has estimated that grading for the Conventional Plan will involve approximately 15,439 cubic yards of cut and 19,863 cubic yards of fill. The preliminary estimates indicate that there would be a required fill of 4,427 cubic yards over the entire site. Fill would include both soil and crushed stone for road beds. The project engineer will attempt to balance the cut and fill as the Site Plan is further finalized, during the Site Plan review process. Balancing the on-site material would reduce overall construction costs and the estimated construction truck traffic, as described below.

The estimated 4,427 cubic yards of material would equate to approximately 6,640 tons of material (using a multiplier of 1.5 tons per yard). While larger triaxle trucks can accomodate more material, it is anticipated that smaller trucks would deliver material to the site, given the residential streets. If 20 tons per truckload is used, the 6,640 tons would require 332 truckloads of material. Over a six month period of major grading and site-work the 332 truckloads would equate to approximately 2 to 3 truckloads per day (assuming 20 working days per month).

Soils Impacts - Conservation Plan

Grading and the disturbance of approximately 13.06 acres of the site would be required for the Conservation Plan. Grading would be required for the looped access road, the proposed home sites, the community septic system, stormwater management facilities and the emergency access road. A grading plan for the Conservation subdivision plan is provided in Figure 3.1-5 and in the attached full sized drawings. That plan shows the proposed limits of construction disturbance for the Conservation Plan.

The majority of grading will occur in the northwest and central portion of the site, largely avoiding the slopes on the eastern and southern portion of the site. Two stormrwater management basins would be graded and constructed in areas down-slope from the development to capture and treat stormwater. The level spreader proposed for the Conventional Plan would not be required for the Conservation Plan. The emergency access road would extend from Harris Road to the development and would involve grading in areas of steep slope. The Conservation Plan would result in 4.09 acres of less disturbance than the Conventional Plan. A cut-and-fill analysis has not yet been completed for the Conservation Plan, but based upon the smaller project footprint, less fill will be required for the Conservation Plan than the Conventional Plan.

A community septic system is proposed for the Conservation Plan, and that system would be centrally located, interior to the looped access road. Percolation test pits and deep test holes were completed in the summer of 2009 for the Conventional Plan. The soil tests completed for Conventional Lots 2, 3, 11 and 12 indicate that the soils in the proposed community septic area are adequate for the system. The Westchester County Department of Health may require supplementary testing for the community system.

The project engineer indicates that cut and fill volumes can be balanced on the site for the Conservation Plan. Given that the required overall grading is 4.09 acres less than the Conventional Plan grades can be adjusted to avoid the import of fill material onto the site.

Geology Impacts

Based upon test boring information and earthwork analysis approximately 6,640 cubic yards of rock would be excavated throughout the site for the Conventional Plan. Based upon a reduced project footprint (approximately 4.09 acres of less grading), less bedrock will need to be removed to construct the Conservation Plan compared to the Conventional Plan. Bedrock excavation would be done by mechanical means such as hammering or ripping. Any rock removed will be used on-site as road base. In the case that blasting is required, all precautions will be followed in accordance with Article IVA Blasting and Explosives of the Town of Bedford, Town Code (Chapter 125-48.1 to 125-48.20).

3.1.3 Proposed Mitigation Measures

Blasting Procedures

Should blasting be necessary, all blasting will meet all requirements of Title 12 of the New York State Code of Rules and Regulations as well and the Town of Bedford regulations (Chapter 125 of the Town Code). Blasting procedures would be the same for both the Conventional and the Conservation Plan.

Blasting operations will be conducted under the direct control and supervision of competent and licensed persons. The blasting contractor performing the work will be fully insured in accordance with the regulations. Once any required blasting sites have been identified, a general blasting schedule will be developed and a blasting permit will be obtained from the Building Inspector covering the specific blasting operation. As required, insurance and blasting bonds would be in place prior to drilling and blasting. The insurance requirements of the Town Blasting Code (Chapter 125) will be met by the blasting contractor. The contractor is required to provide liability insurance of $500,000/$1,000,000 and property damage insurance of $500,000/$1,000,000. A photo log of all structures within 500 feet of the blasting area would be created by the insurance company representative with permission of the building owner.

Blasting will be limited to the hours between 9 AM and 4 PM, Monday through Friday, excluding holidays. Blasting will be conducted so that the airborne noise does not exceed 130 DBA. Written blasting notification will occur to all residents and owners of dwellings or structures located within 500 feet of the blasting permit area. There will be two such notifications, which will occur at least 30 days prior and between 72 and 24 hours prior to the initiation of blasting. Warning flags or other means will be used at a reasonable distance to give proper warning to the public at least three minutes in advance of firing.

The quantity of explosives will be limited to the amount necessary to fracture the rock without endangering persons or property. Before firing, all blasts will be covered with a suitable protective device to prevent escape of broken rock.

Soil Erosion and Sediment Control Plan

A Stormwater Prevention Pollution Plan (SWPPP) has been developed for both the Conventional Plan and recently for the Conservation Plan. The SWPPP for the Conservation Plan is provided in Appendix C-1 and the SWPPP for the Conventional Plan is provided in Appendix C-2. As indicated above, the Conservation Plan involves 4.09 acres of less grading and development, and less development on steep slopes. Therefore, the overall required stormwater management and treatment for the Conservation Plan will be less than for the Conventional Plan.

Erosion and sedimentation will be controlled during the construction period by temporary erosion control devices in accordance with a Soil Erosion and Sediment Control Plan developed specifically for this site and this project (see attached full sized drawing). The plan has been developed by Petruccelli Engineering, the project Engineer. All sediment and erosion control measures are to be installed in accordance with the *New York Standards and Specifications for Erosion and Sediment Control, 2005* and the requirements of NYSDEC General Permit (GP-0-10-001).

The plan includes limitations on the area of disturbance, limitations on the duration of soil exposure, criteria and specifications for placement and installation of erosion control devices, and a maintenance schedule. A construction detail for each of the proposed soil erosion control devices (including temporary controls for use during the construction period) is provided on the attached full sized drawings. The following are "best management practices" that will be followed to insure proper soil erosion and sedimentation control.

- divert clean surface water before it reaches the construction area;
- control erosion at its source with temporary and permanent soil protection measures;
- capture sediment-laden runoff from areas of disturbance and filter the runoff prior to discharge; and,
- decelerate and distribute storm water runoff through natural vegetative buffers or structural means before discharge to off-site areas.

These objectives will be achieved by utilizing a collective approach to managing runoff (i.e.., Best Management Practices).

Divert clean runoff - Diversion of runoff from off-site or stabilized areas will be accomplished through surface swales and erosion control barriers in order to keep clean water clean.

Time grading and construction to minimize soil exposure - To the extent practical, the development will be phased to limit the area of disturbed soil at any particular time. One phase of construction, for example, will remain undisturbed or temporarily stabilized until the preceding phase is substantially complete. The total amount of land disturbance is anticipated to be 17.15 acres for the Conventional Plan and 13.06 acres for the Conservation Plan. The Applicant does not propose to disturb more than 5 acres at any one time. Should conditions arise that necessitate the disturbance and exposure of more that the 5 acre threshold a waiver would be sought from the New York State Department of Environmental Conservation (NYSDEC).

Retain existing vegetation wherever feasible - Silt fencing will be used to physically define the limits of work. Wooded areas not to be developed (regraded), will be physically separated from the construction and kept undisturbed until the developed areas are completed and stabilized.

Stabilize disturbed areas as soon as possible - In areas where work will not occur for periods longer than 14 days, soil stabilization by seeding will occur. Sloped areas, such as fill slopes, may be seeded or stabilized depending upon weather conditions at the time of carrying out the work. Slopes in excess of 3:1 would be stabilized with an approved rolled erosion control product, such as jute mesh. Following completion of grading operations, level areas will be immediately seeded.

Minimize the length and steepness of slopes - The steepness and length of slopes have been designed to minimize runoff velocities and to control concentrated flow. Where concentrated (swale) flow from exposed surfaces is expected to be greater than three feet per second, haybale or stone check dams will be installed in the swale. The check dams will be placed so that unchecked flow lengths will not be greater than 100 feet.

In order to minimize impacts to the areas with steep slopes, the proposed roads and residential lots have been located to avoid these more sensitive areas of the property to the greatest extent practicable.

Maintain low runoff velocities - To protect disturbed areas from storm water runoff, hay bale diversion berms and/or soil diversion berms and channels will be installed wherever runoff is likely to traverse newly exposed soil. Immediately following the clearing and stripping of topsoil, rough grading for the temporary and permanent swales and ponds will take place. The swales will direct runoff so that it can be checked or impounded.

Trap sediment on-site and prior to reaching critical areas such as wetlands - Silt fences, hay bale check dams, filter strips, ponds, sediment traps (in areas where no ponds are proposed), and catch basin filters will be used to either impound sediment-carrying runoff and/or to filter the runoff as it flows through an area. A stabilized construction entrance will be installed at the single construction entrance to prevent construction vehicles from tracking soil onto public roadways. All temporary erosion control devices will be installed prior to the commencement of construction. The permanent storm water management systems will be installed in conjunction with the residential construction.

Establish a thorough maintenance and repair program - Erosion control measures will be inspected frequently, particularly prior to and following storms, and repaired as needed to ensure that they function properly. In addition to inspections by Town of Bedford representatives, the applicant/contractor will be responsible for monitoring and maintaining the soil erosion and sedimentation controls.

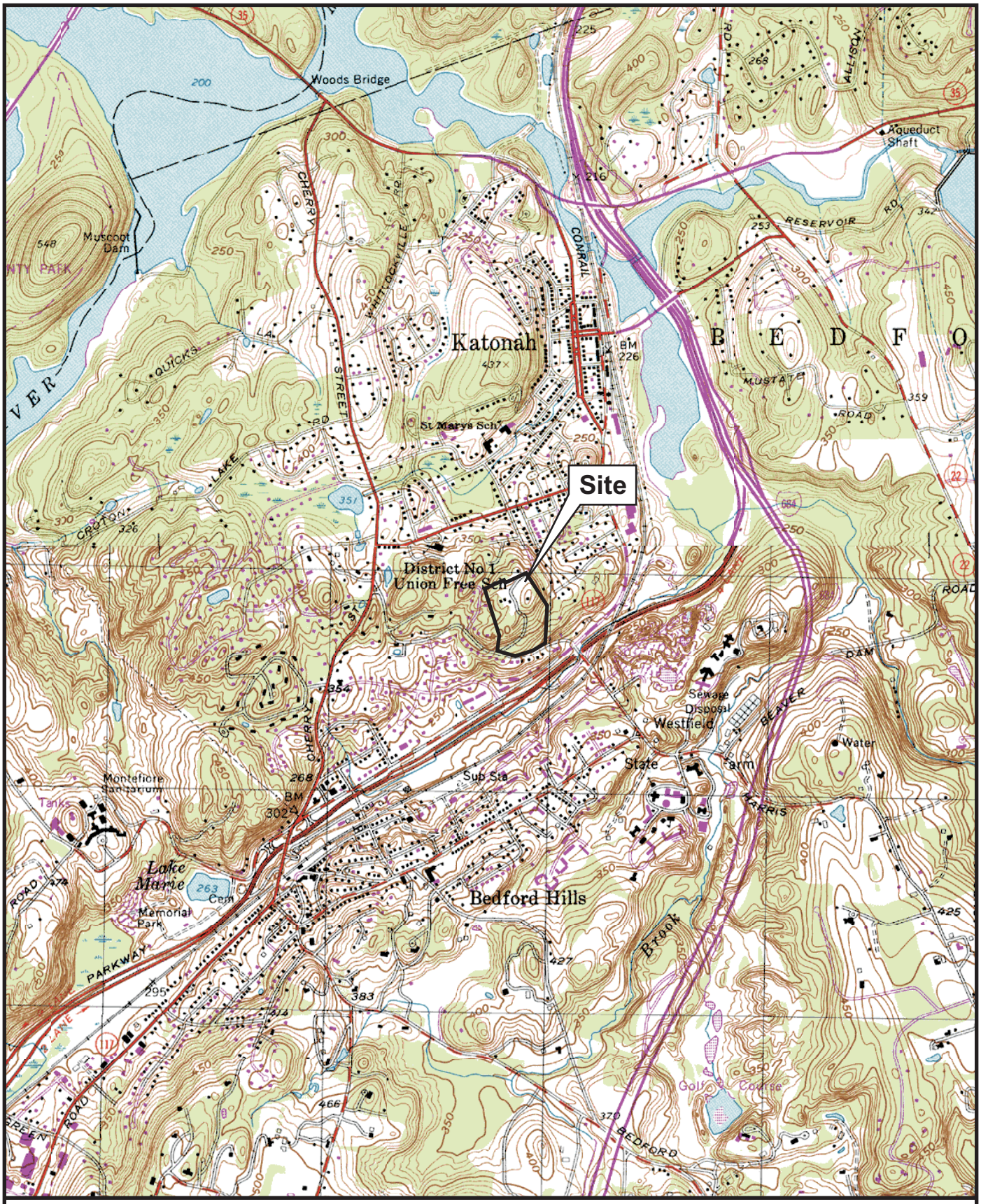
Assign responsibility for the maintenance program - The responsibility for the monitoring and maintenance of the Erosion Control Plan will be detailed in the project specifications or construction drawings.

In addition to the Soil Erosion and Sediment Control Plan, the project engineer has developed a detailed Construction Phasing Plan for the project, as provided on the attached full sized drawing. The phasing plan is as follows:

- Install stabilized construction entrance at the site access point.
- Install silt fence, barrier fence, and tree protection as shown.
- Install inlet protection as required.
- Minimize clearing within the limits of disturbance as required for construction.
- Install soil stockpiling protection.
- Install temporary sediment basins at the locations of micro pool detention ponds to intercept and detain the sediment during the construction period. At the completion of the construction period the ponds will be converted to permanent storm water detention basins.
- Excavate for buildings, roads, and utilities. Stock pile the soil in designated areas shown on the Erosion Control Plans.
- Perform temporary stabilization over all disturbed areas.
- Perform construction work.

- Perform immediate temporary stabilization on areas of completed work.
- Remove temporary soil erosion control measures.
- Remove temporary soil erosion and sediment control measures within disturbed area and structural areas.
- A Notice of Intent (NOI) shall be submitted to the NYSDEC prior to the start of construction fall compliance with the terms and schedule of the approved SWPPP. The contractor must comply with the SPDES general permit (mentioned above) for storm water discharges during construction activities. A copy of the NOI and SWPPP will be filed with the Town of Bedford.

Following construction, erosion will be prevented by established vegetation and by the storm water management and storm water quality devices specified on the drawings. Construction of the permanent storm water management systems will commence as soon as practicable in the construction of residential development so that these systems will be fully functional at the completion of construction. Temporary sediment and erosion control measures will be eliminated after each drainage area has been properly stabilized by permanent measures. Other areas of disturbance will be permanently stabilized with lawn and landscaping.



N

W E

S

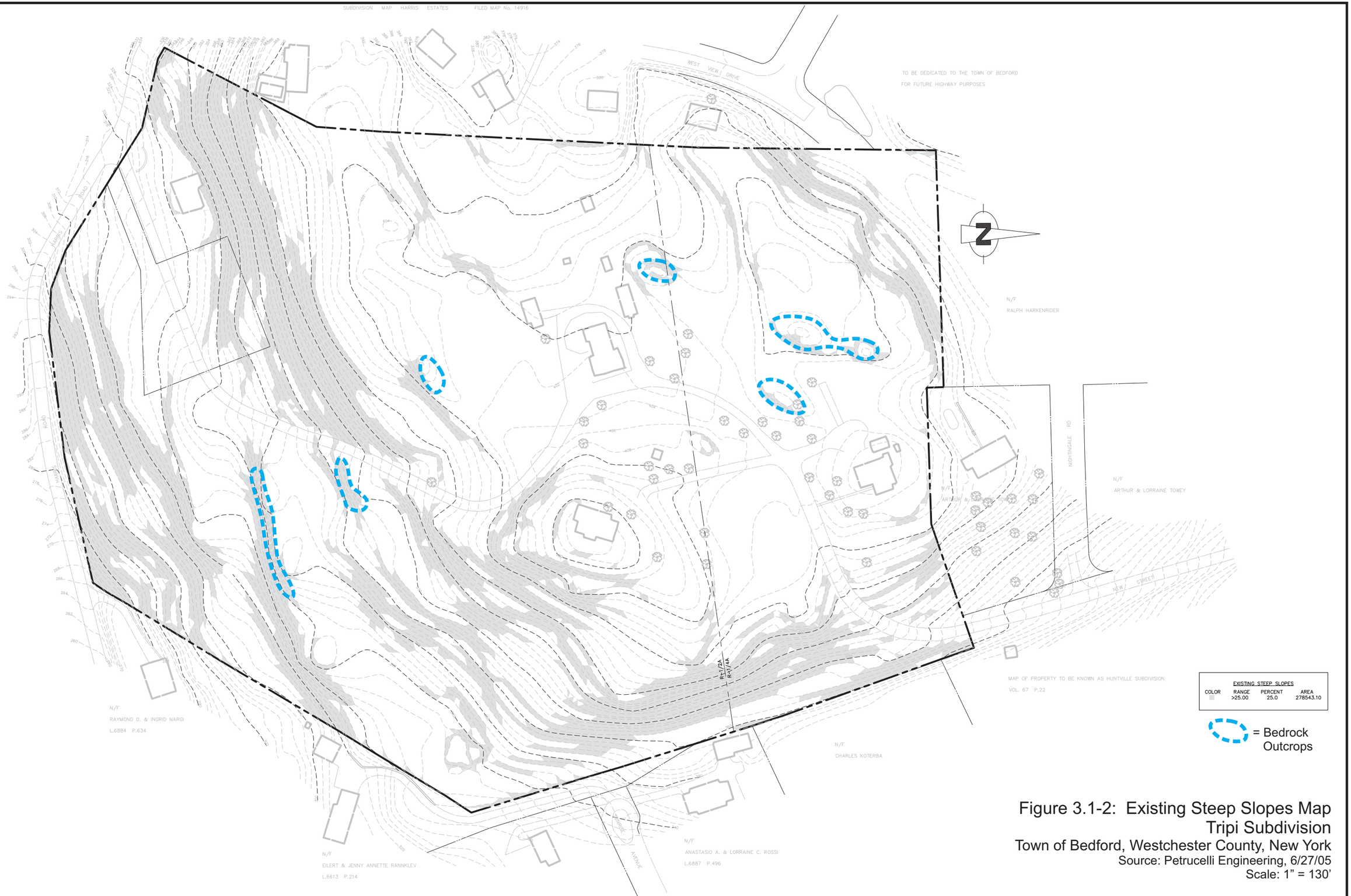
Site Property Boundary

Figure 3.1-1: Local Topography
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: NYSDEC 7.5-minute Topographic Map, Mount Kisco Quad
Scale: 1" = 2,000'

File 06055 3/19/07
JS:\06055\

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

SUBDIVISION MAP HARRIS ESTATES FILED MAP No. 14916



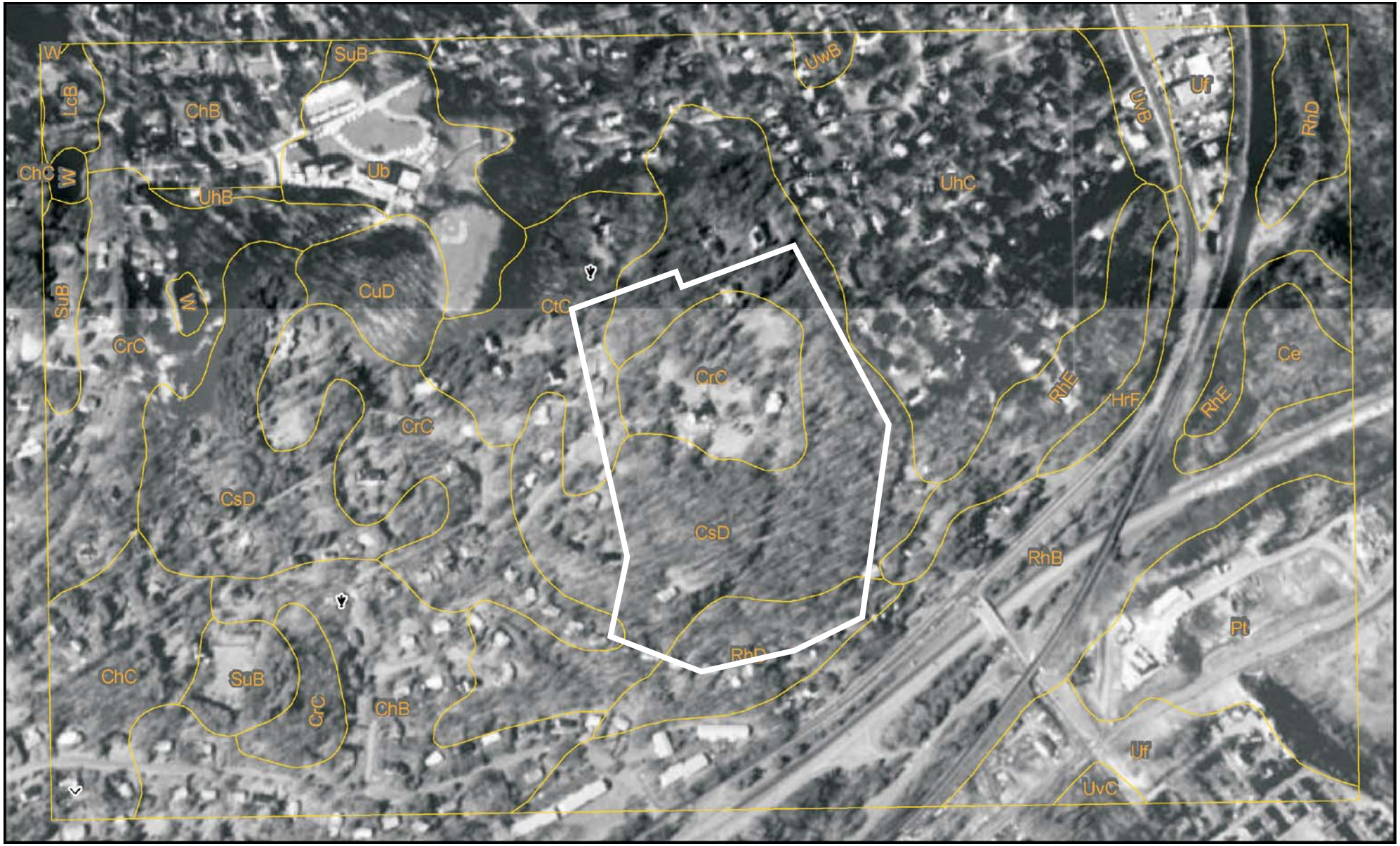
EXISTING STEEP SLOPES			
COLOR	RANGE	PERCENT	AREA
	>25.00	25.0	278543.10

= Bedrock Outcrops

Figure 3.1-2: Existing Steep Slopes Map
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: Petrucelli Engineering, 6/27/05
Scale: 1" = 130'

File 06055 11/21/08
JS:\06055\

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418



N
W E
S

0 200 400 800 Feet

Figure 3.1-3: Soils Map
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: Soil Survey of Westchester County
U.S. Dept. of Agriculture, Soil Conservation Service
Approx. Scale: 1 inch = 480 feet

File 04031 4/19/07
JS:\04031\

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

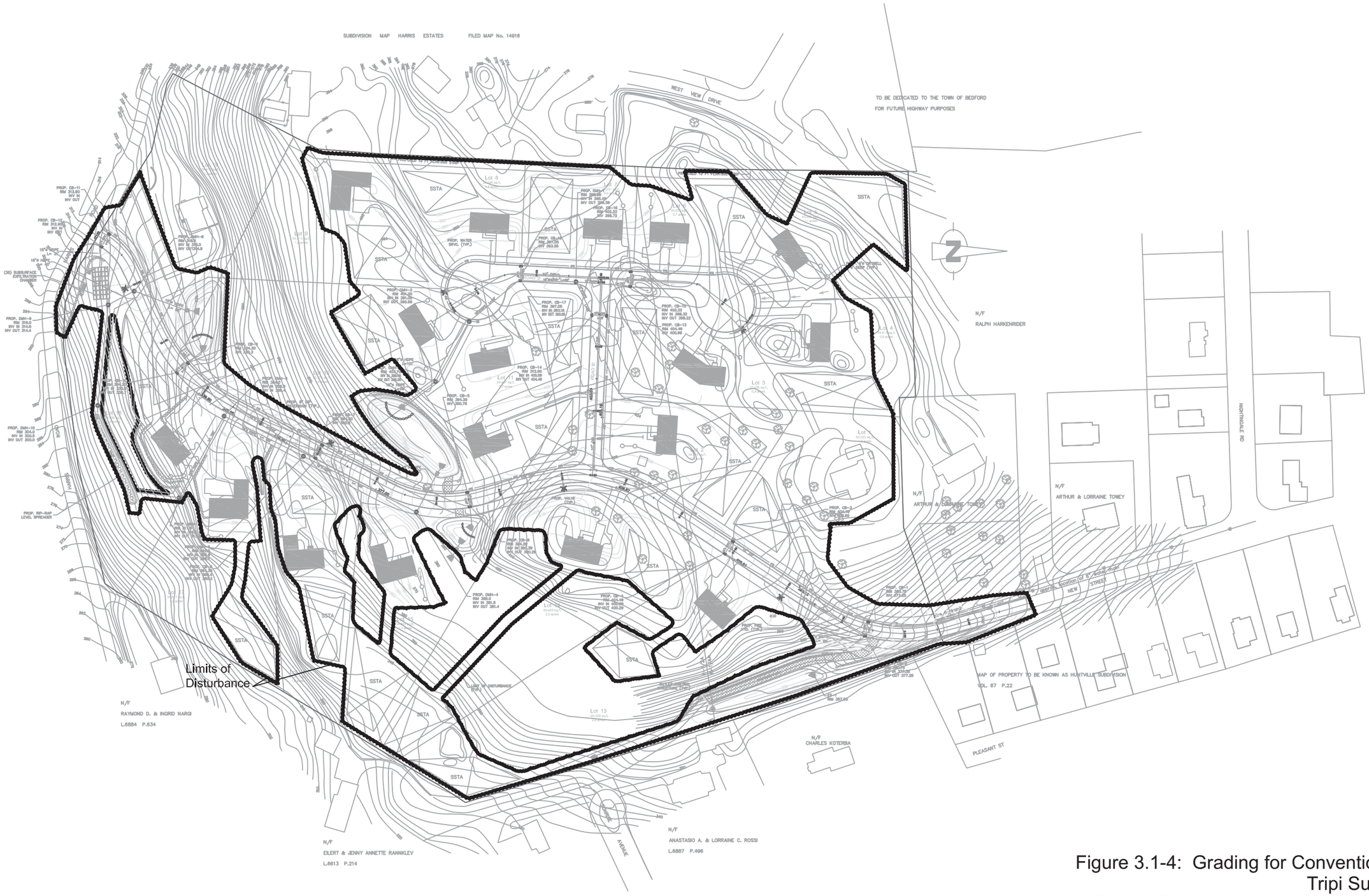
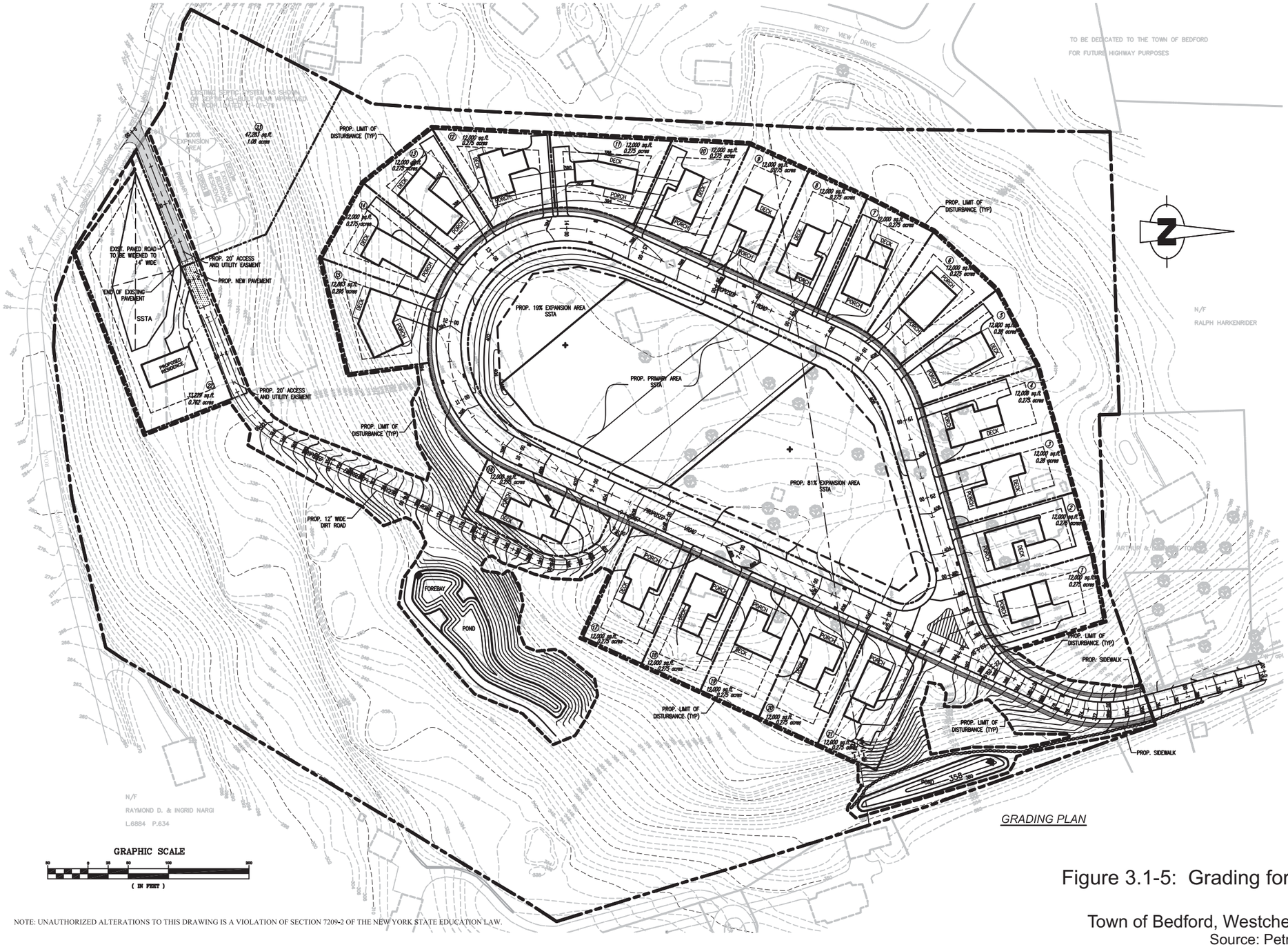


Figure 3.1-4: Grading for Conventional Plan
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: Petrucelli Engineering, 12/03/08
Scale: 1” = 150’

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418



GRADING PLAN

Figure 3.1-5: Grading for Conservation Plan
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: Petrucelli Engineering, 3/04/09
Scale: 1" = 130'

File 06055 9/07/10
JS:\06055\

Tim Miller Associates, Inc.,10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

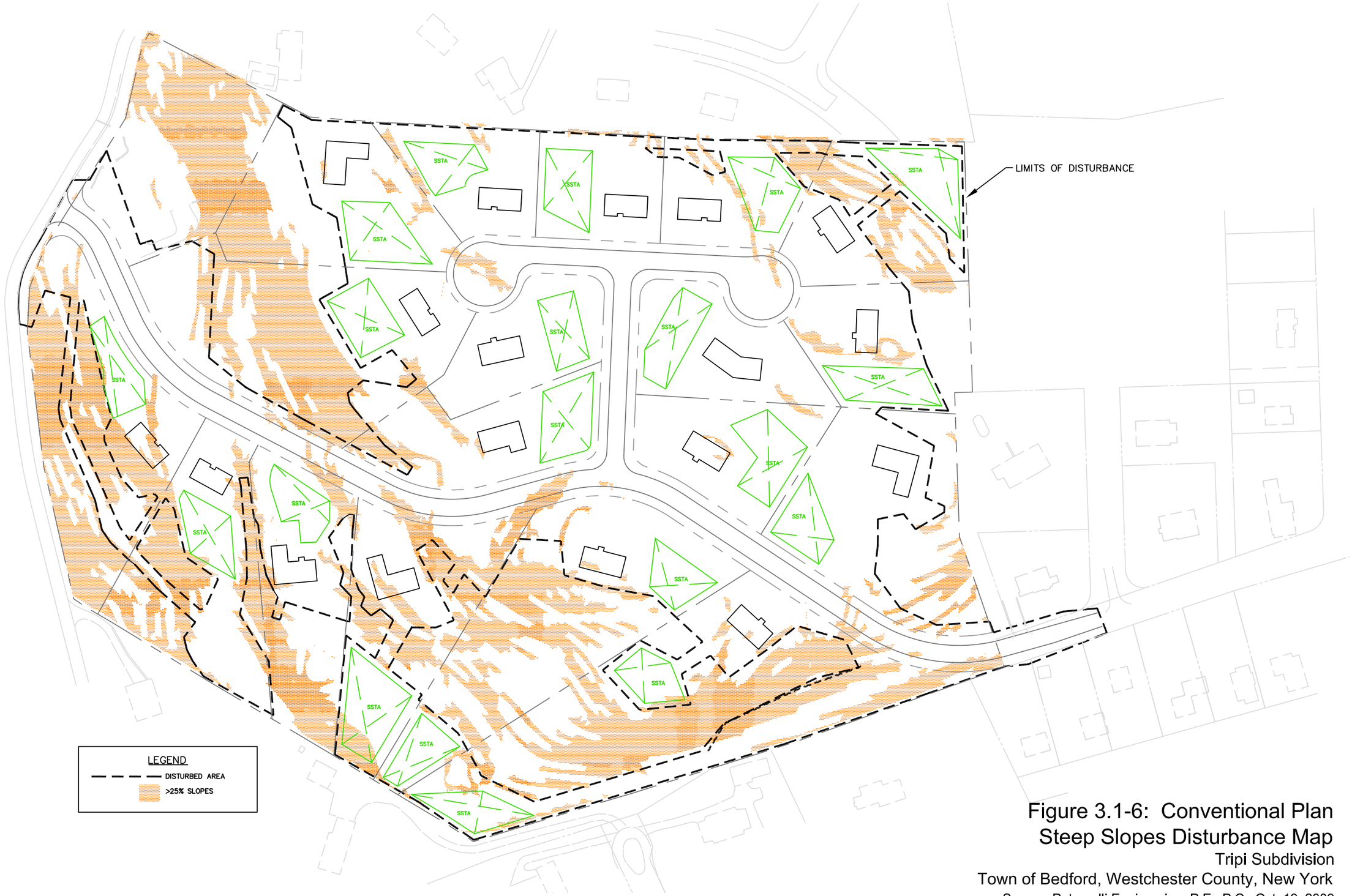


Figure 3.1-6: Conventional Plan Steep Slopes Disturbance Map

Tripi Subdivision

Town of Bedford, Westchester County, New York

Source: Petrucelli Engineering, P.E., P.C., Oct. 19, 2009

Scale: 1" = 130'

SUBDIVISION MAP HARRIS ESTATES FILED MAP No. 14916

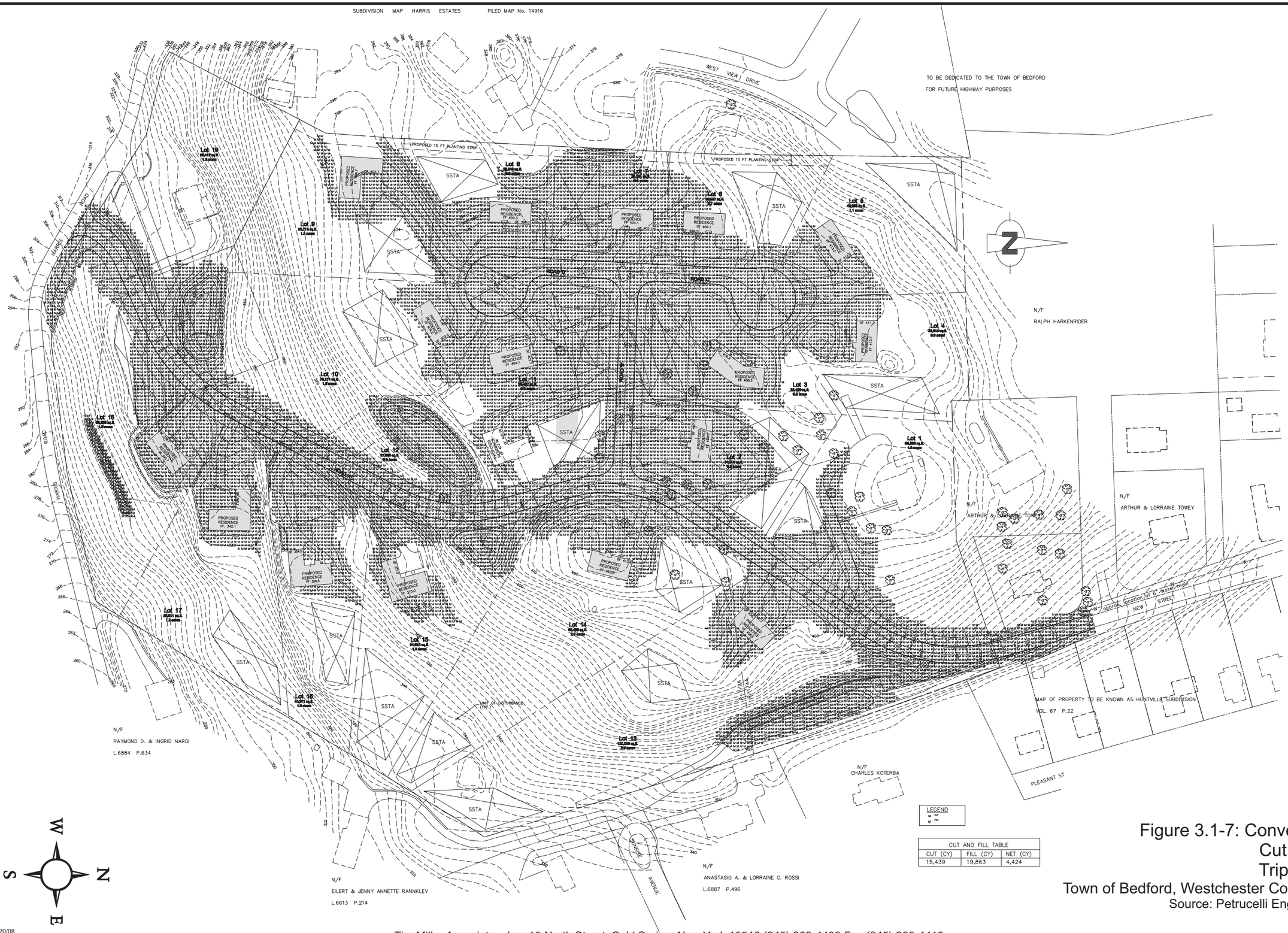


Figure 3.1-7: Conventional Plan
Cut and Fill Map
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: Petrucelli Engineering, 4/12/07
Scale: 1" = 130'

File 06055 11/20/08
JS:\06055\