

VINTAGE VISTA

LEAD AGENCY SEQR FINDINGS
STATEMENT

TOWN OF MONROE PLANNING BOARD

TOWN OF MONROE, COUNTY OF ORANGE,
STATE OF NEW YORK

ADOPTED OCTOBER 9, 2007

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LEAD AGENCY WRITTEN SEQR FINDINGS STATEMENT

Vintage Vista - Major Subdivision SEQRA - Findings Statement

Project Description

The project called Vintage Vista is a proposed 28-lot major subdivision incorporating the construction of approximately 1,740 linear feet of roadway, on a 10.5-acre site on County Route 44 (Seven Springs Road) in the Town of Monroe. The project incorporates a through road access to adjoining lands in the Village of Kiryas Joel, and another road access that will constitute the sole access to an adjoining multi-family development in the Village of Kiryas Joel.

Location and Zoning Designations of Site

The site of Vintage Vista is composed of 2 parcels designated as Town of Monroe Tax Map Section 1, Block 2, Lots 2 and 9. The site is in the northernmost portion of the Town of Monroe, adjoining the Village of Kiryas Joel to the west and the Village/Town of Woodbury to the north. The site is in the URM (Urban-Residential-Multifamily) district.

The site is crossed by an AT&T easement that runs diagonally through the site in a north-south direction. The applicant proposes to relocate the easement within the subdivision in accordance with AT&T requirements.

Filing of Application

Prior to the application being filed, the applicant conceptually approached the Planning Board about a possible site plan for a multiple dwelling group on the site, pursuant to Section 57-13N of the Town of Monroe Code. The applicant's representative submitted two alternate plans for a multiple dwelling group, but the Planning Board was concerned about the availability of adequate public water to serve the project.

The project application was filed in late July, 2004 for a plan involving a nine (9) lot subdivision, to be served by individual wells and municipal sewers. Of the proposed 9 lots, only 8 were to be designated for residential use, and the remaining parcel was potentially further subdividable. Given the character and location of the site, and given the further potential development capacity of the site, the Planning Board determined that it would be inappropriate for it to proceed to divide the property without considering the overall road layout and the entire site, as well as the pending development proposals for 151 multiple dwelling units on the adjoining property to the west, in the Village of Kiryas Joel. The applicant submitted a Full EAF and modified sketch plans showing an overall 29-lot subdivision of the

property, with connections to the west based on plans provided for the adjoining development in Kiryas Joel known as Vaad Mountain.

Lead Agency Notice

At its April 12, 2005 meeting, the Planning Board classified the action as Unlisted, and voted to seek Lead Agency status for Coordinated Review. The Board circulated Notice of Intent to seek Lead Agency status on April 27, 2005, receiving no objections from any of the potentially Interested or Involved Agencies. Notice was sent to the Village of Kiryas Joel, the Town of Woodbury, Orange County Department of Environmental Facilities and Services, Orange County Department of Public Works, Orange County Planning Department, the Town of Monroe Town Board, and NYS Office of Parks, Recreation and Historic Preservation.

Positive Declaration and Scoping Session

In August, 2005 the Planning Board adopted a Positive Declaration, finding that the action may have a significant adverse impact in the areas of traffic, water supply, and grading among other issues. The Planning Board scheduled a public scoping session, and on August 31, 2005 circulated the Positive Declaration to Interested and Involved Agencies with a draft scoping document.

The public scoping session was held on September 20, 2005, and the written comment period was kept open through October 5, 2005. Several written comments were received on the proposed scope, not only from the Board's own consultants, but also on behalf of the Village of Kiryas Joel. The DEIS scoping outline was revised in accordance with the additional information and the Board adopted the revised scope on October 14, 2005.

The action that was the subject of the Positive Declaration was a 29-lot subdivision; however, in order to be conservative in its impact evaluation, the Lead Agency required the applicant to evaluate the possibility of each single family detached lot incorporating a possible accessory apartment allowed pursuant to Article VII of the Town of Monroe Code.

DEIS Submission and Acceptance

The applicant submitted a Draft Environmental Impact Statement (DEIS) dated April 28, 2006. However, at its June 13, 2006 meeting the Board rejected the document as inadequate in scope and content, supplying detailed reasons. At its September 12, 2006 meeting, the Board determined that the revised DEIS should be accepted as complete, subject to incorporating specific revisions. The revised document was filed on October 11, 2006 and posted on the internet.

Public Hearing, 239 GML Referral and Comments

The Planning Board held a combined public hearing on the DEIS and on the subdivision on November 21, 2006. The public hearing was closed on the same night, subject to a ten-day written comment period. Comments were submitted from the public, as well as from Interested and Involved Agencies, the Board members and consultants.

The Planning Board circulated the DEIS to the Orange County Planning Department, and made a formal submittal pursuant to Section 239 of General Municipal law on November 28, 2006. The Department submitted advisory comments on the DEIS on November 20, 2006, and reported on December 8, 2006 that it could not act until it received a Full Statement, which it stated requires a Final EIS or Findings Statement, after which its 30-day review period would commence.

FEIS Submission and Acceptance, Reduction in Lot Count

The applicant prepared a Final Environmental Impact Statement (FEIS) addressing the comments from the DEIS hearing and submitted it on January 17, 2007. The Board rejected the document for a list of specific detailed reasons, and the applicant went through several rounds of revisions, accompanied by some significant modifications to the subdivision plan in order to substantively address the Board's concerns. In the course of responding to the Board's concerns, the plans were revised so as to reduce the lot count from 29 to 28.

At its September 11, 2007 meeting the Board determined to file the FEIS subject to some minor revisions. The completed FEIS was filed on September 18, 2007 and also posted on the internet, with a ten-day consideration period.

WHEREAS, the Lead Agency has given due and thorough consideration to the Draft and Final Environmental Impact Statements, the transcript of the public hearing, all written agency and public comment received, all oral comment received by agencies in the course of consultant meetings, all comments submitted by its professional consultants, observations made during field visits, and all submitted plans and other information submitted by the applicant and its representatives with regard to this application. The Lead Agency considered all of the above-mentioned information with regard to the potentially significant harmful environmental impacts that may be expected from the overall project. These findings show that the Lead Agency has considered and addressed each significant area of the plan's overall potential environmental impact.

NOW THEREFORE BE IT DETERMINED that the Lead Agency finds that all requirements of NYCRR Part 617 have been met, and further makes the following findings:

1. Consistent with social, economic, and other essential considerations from among the reasonable alternatives thereto, the action to be carried out or approved consistent with the following written Findings Statement minimizes or avoids adverse environmental effects to the maximum extent practicable, consistent with other applicable requirements of law.
2. The proposed project known as Vintage Vista consists of a residential subdivision of 28 lots in the URM district. The project proposes a new through town road connecting from Orange County Route 44 (Seven Springs Road) to a public road in the Village of Kiryas Joel, and a spur road terminating at a cul de sac at the Village of Kiryas Joel line, serving not only this project but providing the sole access for Buildings 19 through 26, containing 88 units out of an adjoining project known as Vaad Mountain, a complex containing approximately 151 units of multiple dwelling units in the Village of Kiryas Joel.

The action to be taken by the Planning Board at this time is limited to the adoption of SEQR Findings, thus closing the SEQR process and permitting a Full Statement to be made to the Orange County Planning Department according to its stated requirements, pursuant to Section 239 of General Municipal Law. The Planning Board is without jurisdiction to act on this application without complying with the requirements of General Municipal Law.

Specific Environmental Conditions, Mitigations and Findings

A. Land Use and Zoning/Community Character

Land Use and Zoning

As evaluated in this Findings Statement, the project known as Vintage Vista involves preliminary subdivision approval for 28 as-of-right single family detached lots in the URM district. The subdivision would be accessed by way of a proposed new town road connecting from CR 44 (Seven Springs Road) to another recently constructed municipal through road in the Village of Kiryas Joel. A spur from the project road is proposed to end in a cul de sac, also at the Village of Kiryas Joel boundary, and this roadway is planned to serve as the sole means of access to 88 out of 151 multiple dwelling units under development in an adjoining project known as Vaad Mountain.

Although the project is described as an as-of-right subdivision of single family detached residential lots, the Planning Board specifically requested that the DEIS evaluate the effects of having each dwelling developed with an accessory dwelling unit as a “worst-case” analysis of maximum potential utility and other impacts. Accessory dwelling units, as provided for in Article VII of the Town of Monroe Code, are not intended to be the equivalent of a full-fledged single family unit; Article VII

limits the unit to not more than two bedrooms in size, and places additional restrictions such as requiring owner occupancy, along with other design-related requirements. Article VII is administered by the Building Inspector, and individual homeowners desiring to avail themselves of this provision need to apply to the Building Inspector for authorization. Nevertheless, in order to simplify the evaluation of this maximum potential build-out, the Planning Board asked for the EIS to consider the units as though they were equivalent with respect to traffic, water and sewer use, etc.

The lots are proposed to be served by municipal sewers, and are proposed to be provided with municipal water via the Village of Kiryas Joel. As part of the agreement to provide water, this project will provide an access easement for the Village of Kiryas Joel to obtain access to a new water tank that will provide water to the northern corner of the Village.

Variances and Waivers

The only waivers requested for this project are two slope waivers for the project road specifications. Although the road grades do not exceed the town's limit of 10% in any location, the slope within 100 feet of the intersection of Roads A and B exceeds 4%, and Road B maintains a 10% grade for a distance of 490 feet, exceeding the limit of 200 feet. The Board has determined to grant these requested waivers. In the absence of these waivers, there would need to be much more extensive grading and export of fill than is currently being proposed on this site.

Local and County Plan

This plan is consistent with the current Town of Monroe Comprehensive Plan adopted in 1998. Consistent with existing grades and development patterns, the plan promotes interconnectivity with other streets, and the plan further incorporates arrangements for sidewalks. The plan promotes drainage swales and other low-impact devices for managing stormwater and stormwater quality.

The plan also appears to be consistent with the adjoining Town of Woodbury Comprehensive Plan for this area.

It appears that the proposed project is consistent with the Orange County Comprehensive Plan adopted in 2003. These Findings note that the Orange County Department of Planning did not identify any conflicts with the County Plan in the course of advisory review of the DEIS and plans. The site is located within a Priority Growth area as identified in the Plan, and the plans promote walking within the site and promote pedestrian connections with the Village of Kiryas Joel.

Community Character/Visual

The DEIS incorporated photo-analysis simulations that depicted site visibility from several selected vantage points. The photos of the existing site demonstrated the poor condition of the existing site, containing areas of fill, a single family dwelling with accessory goat farm, storage bins, trailers and debris. The analysis indicated

that even with the clearing, the developed site would not be visible from existing parkland such as Crane's Park within the Village of Monroe, nor would it be visible from the commuter parking lot near the Heritage Trail. The site will be visible from Ace Farm, as is the adjoining development in the Village of Kiryas Joel that is under construction.

The appearance of the site development would be consistent with the adjoining area-wide development, which is a mix of higher density uses in an area that is actively expanding. However, careful site planning has significantly reduced the amount of grading and both the extent and height of retaining walls that will be needed within the site.

Planning, Zoning, & Community Character Findings/Mitigation Measures:

- A1. Zoning & Planning: Apart from two slope waivers needed for the road for slope within 100 feet of the intersection of Roads A and B exceeding 4%, and for Road B maintaining a 10% grade for a distance of 490 feet, exceeding the limit of 200 feet, the plans comply with requirements of the zoning and subdivision regulations, and the plan also appears to comply with both local and regional plans.
- A2. Community Character: Site development will not be visible from existing parkland and scenic overlook areas, and the character and density of the use is consistent with adjacent development. The site will be walkable and will connect with adjoining properties with both roads and sidewalks.

B. Soils, Geology and Topography

The site is a sloped property that contains a graded terrace for the existing house and storage areas on the site. The bulk of the site (43%) contains slopes between 15-25%, with 37% of the site sloped between 0-15 %, and approximately 20% containing grades of 25% or more. The lowest elevation on the site is the southernmost corner of the property, at 862 feet, and the highest is the northernmost corner, at 992 feet.

The bulk of the site soils are Swartswood and Mardin, very stony, sloping (SXC), with the remainder in Mardin gravelly silt loam soils, at 3-8% slopes and 8-15% slopes (MdB, MdC). The Mardin soils are located in the southeastern and eastern perimeter of the site. All of the site soils are deep over bedrock, contain a seasonally perched water table, and pose moderate erosion hazards, according to the Orange County Soil Survey. This Soil Survey lists moderate limitations for shallow excavations, construction of dwellings with basements, roads, lawns and landscaping for the Swartswood and Mardin soils, but the Mardin soils are severely limited for shallow excavations and dwellings with basements due to wetness. The soils limitations are not insuperable and reflect engineering difficulties and costs.

The DEIS stated that 10.1 acres, or approximately 95% of the site, would be disturbed. The DEIS also contained a preliminary cut and fill estimate, based on the proposed grading plan which proposed significant on-site grading and projected the need for extensive cut and fill operations, with cuts of up to 25 feet in some areas. Estimated calculations in the DEIS projected a net surplus of 25,000 cubic yards of material that would need to be removed from the site. This volume translated to at least 1,250 truckloads to haul the material away. Assuming a rate of five loads per hour over a six hour period per work day, and assuming six workdays per week the DEIS estimated that soil removal operations would extend over a seven week period. Phasing was proposed to limit the disturbance area to not more than five acres at a time. The subdivision plans accompanying the DEIS also showed the need for tall retaining walls ranging from ten to twenty feet in some areas of the plan. This was a matter of considerable concern to the Planning Board, raising additional related questions of public health and safety, among others.

In order to respond to the Planning Board's concerns about the grading and the extensive tall retaining walls, the applicant substantially revised the proposed grading plan, submitting revised plans as part of the Final Environmental Impact Statement (FEIS). The revised plans reduced the project size by one lot, and significantly reduced both the extent of retaining walls proposed within the site and the height of such walls. Retaining walls in the FEIS plans are generally four feet high, and only one short segment of wall is proposed to be eight feet. The revised grading plan results in cuts and fills not exceeding 18 feet. This is a significant improvement from the plan accompanying the DEIS, and although the same 10.1 acres of the site will require clearing and grading, the revised grading is far less invasive than the grading that had originally been proposed.

The FEIS contains a geotechnical report that evaluates and addresses the specific on-site surface and subsurface soil characteristics, including the suitability of some of the site soils for use as fill material, and detailed guidance for carrying out construction activities within the onsite soils. The geotechnical report indicates that subsurface soils in the already-developed area of the site contain pockets of wood debris. The subsurface wood debris would need to be removed from the site, but the applicant's engineer has observed that the unsuitable material could be sorted and removed, without needing to remove the entire area of disturbed soils.

All of the recommendations of the geotechnical study will be implemented (this entire report is included as an attachment). Erosion control measures are incorporated as an integral part of the plan, which will minimize and avoid siltation and erosion.

Issues relating to the management and oversight of any onsite retaining walls are addressed in Section K of these Findings.

Soils, Geology and Topography Findings/Mitigation Measures:

- B1. Erosion control measures are incorporated in the plan as part of compliance with Phase II stormwater management requirements, and this includes measures to stabilize all disturbed surfaces as well as to limit the area disturbed at any one time to five acres or less.

- B.2 The revised 28-lot plan incorporated in the FEIS significantly reduces both the extent of cut and fill operations on the site, as well as significantly reducing the extent and height of retaining walls incorporated in the plan. Therefore, the 28-lot FEIS plan will be the preferred alternative.
- B.3 Soil types at the site are deep and are unlikely to involve the need for blasting. In the event that blasting is needed, a blasting plan is incorporated in the FEIS and is appended to this Findings Statement.
- B.4. The FEIS contains a detailed, site-specific geotechnical report that evaluates and addresses the specific on-site surface and subsurface soil characteristics, including the suitability of some of the site soils for use as fill material, and detailed guidance for carrying out construction activities within the onsite soils. All recommendations of the geotechnical report will be implemented. The full geotechnical report is appended to this Findings Statement.
- B.5. Issues relating to the management and oversight of any onsite retaining walls (along with stormwater management facilities and sidewalks) are addressed in Section K of these Findings.

C. Surface and Groundwater Resources (includes Wetlands)

Wetlands, Surface Water Resources

The only identified surface water resource present on the site was a narrow band of wetland identified in the DEIS as Wetland A, comprising 2, 300 square feet (0.053 acres) in size or less than one percent of the site area. It is located parallel to and east of the existing residential driveway. The wetland is described as a combination of palustrine persistent emergent and scrub-shrub broad-leafed deciduous wetland, with a seasonally flooded water regime. It appears to occupy a man-made drainage way, namely the un-maintained driveway ditch that carries surface and subsurface discharge. The wetland's functions are essentially limited to nutrient and sediment removal, and are naturally limited by its small size. This wetland is proposed to be eliminated by the project, and its functions will be replaced by the proposed stormwater management basins and water quality swales.

Groundwater Resources

The site contains an existing well associated with the existing house. This is proposed to be abandoned and will be sealed and decommissioned in accordance with Health Department standards. This will include the removal of the existing casing to below the finished grade elevations and grouting.

Site Drainage & Water Quality Issues, Stormwater Management

Sedimentation and erosion are always a possibility where earth is disturbed and vegetation removed, but this possibility will be reduced or avoided by compliance with the Phase II stormwater management plan prepared for the site, despite the proposed disturbance totaling over 10 acres of disturbed area.

Pre-and Post-construction stormwater runoff analysis has been conducted, and post-construction conditions will either be the same or less than under existing conditions. Runoff flows downgrade to three distinct outlet points, and the SWPPP analyses each of the three culverts and shows no increase in flows to each of these. Three stormwater ponds are provided, and earthen forebays with littoral shelves are incorporated in stormwater quality wet ponds where applicable. Additional stormwater quality management for the lots west of spur Road A is provided in the form of a water quality swale at the rear of lots one through seven. The (dry) water quality swale replaces nine drywells that had earlier been proposed on the site. All of the stormwater features are provided with access easements.

The stormwater management plan that is prepared for the site is based on a specific level of impervious cover as shown on the plans. Should that impervious cover increase, it is possible that the sizing of the stormwater basins planned for the site may be inadequate, and that additional stormwater management provisions may need to be made. In such a case, additional engineering studies may be called for, and additional stormwater management solutions may need to be provided by the individual lot owner or owners increasing the impervious lot coverage.

Flooding is not a possibility on this site, as the site is not located near a watercourse that is known to flood or to be seasonally inundated.

Potable water supplies and sanitary wastewaters are addressed under the heading of Community Services.

Surface and Groundwater Resources Findings/Mitigation Measures:

- C1. Erosion control measures are incorporated in the plan as part of compliance with Phase II stormwater management requirements, and this includes measures to stabilize all disturbed surfaces as well as to limit the disturbed area to five acres or less at any one time. The SWPPP prepared for the site avoids increasing stormwater flows from the site under developed conditions and also provides for stormwater quality, not only within wet pond/littoral shelves in the stormwater basins, but also in the form of a dry water quality swale.
- C2. The existing private well on the site will be formally abandoned and sealed on accordance with OCDOH requirements; this will avoid potential contamination to the groundwater resource. Water supply and septic waste disposal is addressed in Section F of this document.
- C3. The plan eliminates the narrow ditch paralleling the existing driveway, designated local wetland A and totaling 2,300 square feet (0.053

acres) in size. The wetlands functions will be replaced by the proposed stormwater management plan.

- C4. The stormwater management plan that is prepared for the site is based on a specific level of impervious lot coverage being built as shown on the plans. If additional impervious area is proposed for the site beyond what is shown on the approved plans, it is possible that the sizing of the stormwater basins planned for the site may be inadequate, and additional stormwater management provisions may need to be made. In such a case, additional engineering studies may need to be provided and additional stormwater management techniques implemented at the cost of the individual(s) proposing such increased coverage.

D. Ecology

The DEIS described seven ecological communities on the site, three of which are urban/disturbed and relate to the existing paved, cleared and built areas on the site. The bulk of the site cover, roughly two-thirds of the site, is an Appalachian Oak-Hickory Forest. Portions of the site include Successional Shrublands and Successional Old Fields. As noted above in Section C of these Findings, the wetland located onsite is only approximately 0.053 acres in size; this area is adjacent and parallel to the existing site driveway. Most of the undeveloped site lands show evidence of past disturbance, and the vegetative and shrub strata include many invasive alien species. Only the east slope of the site was less disturbed. The largest trees on the site (50-65 cm or 20-26 in. dbh) were located along a stone wall behind the old house site.

Rare or Endangered Species, Habitat

The New York State Natural Heritage Program listed the presence of one animal species (timber rattlesnake) listed as threatened in NYS, and four plant species or communities (green rock cress, glaucous sedge, and spring avens, and pitch pine-oak-heath rocky summit) listed as imperiled or rare in NYS. Ecologist J. G. Barbour evaluated the site for the possible presence of these species and the potential suitability of the site for the same, and his report indicated that the site did not contain any suitable habitat for these imperiled plant species. Furthermore, no part of the site contained a high number of native plant species. There was no pitch pine-oak-heath rocky summit ecological community on the site, nor were conditions suitable to support such a community.

Timber rattlesnakes have been reported at a construction site on Schunnemunk Mountain located 2.7 miles from this site, and the ecologist's report noted that intervening development would tend to inhibit their movement, making it unlikely though it not impossible for them to travel such a distance to the site. The report further noted that the site was poorly suited to rattlesnake habitat except for

foraging purposes. The report concluded that it was improbable for timber rattlesnakes to use the site.

The DEIS concluded that the project would create no negative impacts on rare or endangered species, on their habitat, or on rare ecological communities.

Ecological impacts on non-rare species were also evaluated. Approximately 7 acres of Appalachian Oak-Hickory Forest will be cleared, and only about a half acre of woodland will be retained. However, street tree plantings are incorporated on the plans. Disturbed areas of the site will be stabilized with plantings as part of the erosion control plan, and there will also be plantings in and around the stormwater basins. Breeding birds making use of this area will be disrupted if clearing is undertaken during the breeding season (April-June). However, the ecological communities present on the site are neither rare nor endangered, and their disturbance will not be expected to create any significant harmful impacts.

Habitat value of the restored site will be shifted to a more urbanized character, and accordingly the DEIS considered possible impacts relating to the urban-wildland interface. The Homeowners Association that is proposed for this project will be an appropriate venue for transmitting information about possible nuisance wildlife issues, if needed.

Ecology Findings/Mitigation Measures:

- D1. No threatened or endangered species are present on the site, nor any suitable habitat for the same, nor any rare ecological associations. The nature of the site habitat will be unavoidably changed, consistent with the site's being fully developed in accordance with the zoning, but the site will be stabilized and re-vegetated, and the plans include street trees in accordance with town requirements.
- D2. Any potential nuisance wildlife issues that project residents may encounter can be addressed via the Homeowners Association as a tool for educational outreach to the homeowners.
- D3. Additional tree clearing or preservation measures that may be needed to address the health and status of the 0.5 acre wooded area to remain shall be addressed via an additional landscape bond, as part of the final tree preservation/planting plan in the final plat.

E. Traffic & Transportation

The site has frontage only on Seven Springs Mountain Road, which is designated as County Route 44. A few hundred feet west of the site, CR 44 forms a Y-shaped intersection with Forest Road and Mountain Road (also designated as CR 44), running in a north-south direction. Mountain Road extends north, terminating at its intersection with NYS Route 208, and Forest Road extends south. All roads in the project vicinity are two-lane streets with one lane in each direction.

The following intersections were studied:

- CR 105 and Dunderberg Road (CR 64)
- CR 105 and Bakertown Road
- Bakertown Road and Acres Road
- Seven Springs Road and Forest Road/Schunnemunk Road
- Forest Road and Acres Road
- Mountain Road and Forest Road
- Mountain Road (CR44) and Seven Springs Road
- NYS Route 208 and Mountain Road
- Seven Springs Mountain Road and proposed site Road A

The DEIS included a traffic study incorporating traffic counts at the specified intersections on December 13 and 14, 2005 during the morning and afternoon peak hours. Traffic projections were made using a year 2008 “build” date, and the traffic projections also included pending projects such as Mountain Road Townhouses A, B, and C totaling 202 condominiums, Hakiryah I and II totaling 248 condominiums, several public use facilities and retail development in the Village of Kiryas Joel, as well as other nearby pending projects in the Town of Monroe. The DEIS determined, as a worst-case, that 29 single family dwellings with 29 accessory apartments would generate 8 entering and 28 exiting peak AM trips, and 30 entering and 17 exiting peak PM trips. An arrival-departure distribution was determined, with the bulk of the site traffic assumed to be approaching from the west or south.

The traffic study indicated that the project would change the overall operating Level of Service (LOS) at only one of the studied intersections (CR 105 and Dunderberg Road) under Build Conditions, and this would not be significantly harmful, dropping from LOS B to LOS C in the PM peak. The study also showed that the existing conditions at the NYS Route 208 and Mountain Road (CR 44) intersection were poor during the AM peak hour, and failing (LOS F) during the PM peak hour even during 2005. The 2008 “No-Build” conditions projected failing Levels of Service (LOS F) during both AM and PM peak hours, with severe delays exceeding 100 seconds per vehicle. The proposed new intersection of Road A with Seven Springs Mountain Road will operate at LOS A, even with the effects of additional traffic from the adjoining development in the Village of Kiryas Joel included.

The failing Level of Service conditions at the intersection of CR 44 and NYS Route 208 were a concern, notwithstanding the distant location of the intersection from the site outside the Town of Monroe. The Lead Agency understands that this intersection’s congested condition is the result of existing traffic flows originating from multiple, diverse sources not under the control of the Town of Monroe Planning Board, and that traffic through this intersection will continue to increase regardless of any land use activities taking place in the unincorporated Town of Monroe. The

Lead Agency also understands that the regulatory powers to authorize or carry out any improvements at this intersection lie with the NYS Department of Transportation and the Orange County Department of Public Works, respectively. However, the Lead Agency did request the applicant to complete a signal warrant analysis, to determine whether the intersection would meet signal warrants. The completed signal warrant analysis concluded that current traffic volumes satisfy three signal warrants. The Lead Agency will ensure that the warrant analysis is forwarded to NYSDOT for their review and approval, if this has not already been done. At a minimum, this information will help the jurisdictional highway agencies in their process of resolving the congestion at this intersection, which is the maximum that the Lead Agency is able to accomplish.

The proposed project roads will be dedicated as town roads and will be 30 feet wide. Waivers required to town road specifications are discussed in Section A of this document, to which the reader is referred.

Sight Distance at Intersection

The posted speed limit on Seven Springs Mountain Road is 40 mph, but the traffic study determined that the 85th percentile speed is 49 mph in both directions along the site's frontage. Measurements of **Intersection Sight Distance** (adequate distances to see oncoming vehicles from various directions while turning into or out of a side street) at the proposed new Road A intersection with Seven Springs Mountain Road show that 790 feet of sight distance is available to the left, with 544 feet to the right. According to accepted traffic engineering standards, the 790 feet is more than adequate under all conditions. However, the 544 foot sight distance is slightly less than that recommended for left turn movements from a stop, where 555 feet are recommended for a speed of 50 mph. By interpolation, for 49 mph – the measured 85th percentile travel speed – the required Intersection Sight Distance is virtually met. Furthermore, **Stopping Sight Distance** (distances needed to stop completely in order to avoid collision) is adequate under all conditions, for all speeds and movements.

The DEIS recommended that roadside vegetation be cleared to maintain adequate sight distances, and recommended that the County consider lowering the speed limit to 30 mph on this section of roadway. The Lead Agency cannot control this matter, however, and in any case it must be noted that any deficiency is slight and relates to travel speeds that already exceed the posted speed limit. Also note that the intersection of Road A and Seven Springs Mountain Road has been located to provide optimal sight distances.

Sidewalks

Plans include pedestrian provisions internally and these will extend to external roads. In order to accommodate the sidewalk on the site adjacent to Seven Springs Mountain Road, it will be located outside the public road ROW and will be maintained by the Homeowners Association. Sidewalks will be provided on both sides of the project roads within the project site, to provide for the active pedestrian usage within the surrounding community.

Accident Data

Accident data were also analyzed. No specific patterns or clusters of accidents were recorded, and no contributing causes were identified that could be exacerbated by the project.

Construction Traffic

Construction traffic was closely evaluated, given the extensive amount of excess fill material that must be removed from the site. See Section B for related information.

Traffic Findings/Mitigation Measures:

- E1. The project incorporates sidewalks internally within the development and along Seven Springs Mountain Road outside the county road ROW. These sidewalks shall be maintained by the Homeowners Association, in the absence of other municipal maintenance provisions. The access road and sidewalk plans will be revised to incorporate the Mountain Road Corridor improvements, in accordance with the Mountain Road Corridor Improvements Study prepared by Leonard Jackson Associates for planned Village of Kiryas Joel upgrades to infrastructure in the roadway system, if these improvements are constructed prior to Vintage Vista receiving final plat approval. Otherwise, the final location and status of these sidewalks will be coordinated throughout the actual site construction schedule with the status of any improvements that may be carried out on Mountain Road.
- E2. As noted in Section B of these Findings, the DEIS offered a mitigation measure restricting truck traffic related to earth moving. In the interests of avoiding weekend noise impacts on the adjoining properties, the applicant has voluntarily agreed to restrict this further than what was stated in the DEIS. This voluntary restriction as follows: earth moving will be limited to not more than five loads per hour, over a six-hour period that will avoid the peak AM and PM

highway hours, during a five day work week excluding Shabbos and Sundays. The weekday peak AM highway hour is from 8-9 AM, and the PM peak is from 4:45 to 5:45 PM.

- E3. The Orange County DPW will, in its review of the proposed Road A intersection, consider what measures are appropriate to address the slight, ten-foot shortfall in sight distance to the right for left turn movements from a stop, based on a 50 mph travel speed. There are multiple options available, and the OCDPW will determine whether traffic calming measures such as speed trailers are needed, whether the speed limit should be lowered, or other measures, none of which are under the jurisdiction or control of the Lead Agency Planning Board.
- E4. The completed signal warrant analysis for the CR 44 and NYS Route 208 intersection, incorporated in FEIS Appendix B concluded that current traffic volumes satisfy three signal warrants. The Lead Agency will ensure that the warrant analysis is forwarded to NYSDOT for their review and approval, if this has not already been done. This document provides a specific mechanism for the dissemination of this report to NYSDOT, namely, via the Southeast Orange County Traffic Task Force.

F. Community Services (includes Water and Sewer Services)

Water and Sewer Service

The existing dwelling is served by an individual well and septic system. These will both be removed as part of the construction operation, and the site is to be served by connection to Orange County sewer district #1 central sewers, and with Village of Kiryas Joel central water service on an outside user basis. Accordingly, no Town water district is being requested. The public water service connection will also provide central water for firefighting.

Water consumption is projected at approximately 30,450 gallons per day (gpd). This calculation is based on full buildout of the site with all lots incorporating an accessory dwelling unit. The Village water supply adequacy study confirms that there will be sufficient capacity available to supply this and other pending projects within the Village, with the placement into service of two wells (designated as Wells 27 and 28) that were pending approval at the time of the DEIS. These plans incorporate an access easement for a portion of the access drive leading to a new Village of Kiryas Joel water tank.

Sewage flows are projected at approximately 26,390 gpd, using the same conservative assumptions as for water consumption. The discharge will flow into the OCSD#1, to lines located in Mountain Road. The sewer plant has recently completed an expansion and has sufficient capacity to accommodate the site flows.

Off-site work will need to be done in Seven Springs Road and portions of Forest Road in order to complete the sewer line connection, but this is incorporated into the plans, and must meet all county specifications.

As noted above, the existing well and septic system will need to be removed or decommissioned. The geotechnical report, which is referenced in Section B of these Findings, incorporates specific recommendations for the safe removal of the old septic system. The recommendations of that report are incorporated as mitigation measures in these Findings, and the full report is appended to this document. The well casing will be cut down, sealed and grouted according to requirements of the Orange County Health Department.

School

As set forth in the EIS, the project demographics make it likely that school aged children generated from the site would be privately educated. Therefore, as evaluated in the EIS, no harmful impacts were projected on the Monroe-Woodbury School District, and therefore any school tax revenues generated by the project were deemed likely to constitute a net positive fiscal impact. School tax revenues were estimated at over \$300,000 for the project without accessory dwelling units, and at nearly \$400,000 for the project with accessory dwellings. There is always some possibility that students within the project could require special education, however, and in such case the Monroe-Woodbury School District would be responsible for the costs. It was not possible to generate meaningful projections in this regard, but for the purpose of these Findings it will suffice to note that the generation of special education students within the site would off-set the projected school tax revenues, depending on the number of such students and their level of needed service.

Recreation

The addition of the project's new residential population will increase the need for town-wide recreational facilities, but no parkland is being provided onsite. As part of any final approval, the sponsor will pay an in-lieu recreation fee to the Town of Monroe.

Emergency Services

The project will impose additional emergency services demands on existing volunteer emergency service providers. This project provides for through road access (i.e, the project road "B" connects to a through road that connects to Mountain Road in the Village of Kiryas Joel) and will have a central water supply, with hydrants spaced at required intervals. Water pressure from the completed supply network will need to meet NFPA requirements. No information was available with respect to community ambulance services such as Monroe Volunteer

Ambulance and Hatzollah, or the New York State Police, so no conclusions can be drawn other than to note that the action involves a development allowed by zoning.

AT&T

The site is crossed by an AT&T easement that passes diagonally through the site. Because of the restrictions that apply to the easement, it requires relocation within the proposed plan and other accommodation. The plans depict the relocated 33-foot wide easement along with other structural accommodations including but not limited to manholes and 4-inch steel pipe placed 60-inches deep. This easement is a private matter between the applicant and the utility, and although the easement is shown on the plans along with relevant notes, the Planning Board is not authorized to make any determination of sufficiency in its regard, nor does the Town enforce any conditions relating to the easement.

Community Service Findings/Mitigation Measures:

- F1. Water: The project is to be served by the Village of Kiryas Joel municipal water system, which is projected to have adequate capacity to serve this and other projects' needs with the additional water supplied by two new wells (designated as Wells 27 and 28) that are pending approval and/or completion. These Findings rely on the assurance that the two wells be placed in service by the time the project is ready to connect. These Findings further rely on the assurance that the project will in fact be served by the Village of Kiryas Joel municipal water system. In the absence of such service, then the project would require further evaluation.
- F2. Sewer: The project is to be served by connection with OCSD #1, which has adequate capacity to serve the project's needs. The offsite work that is needed to effect a connection is an integral part of this project.
- F3. The existing well and septic system will need to be removed or de-commissioned. The geotechnical report, which is referenced in Section B of these Findings, incorporates specific recommendations for the safe removal of the old septic system. The recommendations of that report are incorporated as mitigation measures in these Findings, and the full report is appended to this document. The well casing will be cut down, sealed and grouted according to requirements of the Orange County Health Department.
- F4. School: Project demographics make it unlikely that there would be any school children generated to the Monroe-Woodbury School District, which means that the action would generate a beneficial fiscal impact. There is always some possibility that students within the project could

require special education, however, and in such case the Monroe-Woodbury School District would be responsible for the costs. It was not possible to generate meaningful projections in this regard, but for the purpose of these Findings it will suffice to note that the generation of special education students within the site would off-set the projected school tax revenues, depending on the number of such students and their level of needed service.

- F5. Recreation: The addition of the project's residential population will increase the need for townwide recreational facilities, but none are provided on the site. Therefore, as provided for under Town Law, the sponsor will pay a per-lot in-lieu recreation fee to the Town.
- F6. Fire: The project will be supplied with central water and fire hydrants. Through road access is provided between Mountain Road and Seven Springs Road, via Roads B and its connecting road through the Village of Kiryas Joel. Road A terminates in a cul de sac with a turnaround meeting town dimensional requirements. Water pressure from the completed supply network will need to meet NFPA requirements.
- F7. AT&T: The plans depict the relocated 33-foot wide easement along with other structural accommodations including but not limited to manholes and 4-inch steel pipe placed 60-inches deep. This easement is a private matter between the applicant and the utility, and although the easement is shown on the plans along with relevant notes, the Planning Board is not authorized to make any determination of sufficiency in its regard, nor does the Town enforce any conditions relating to the easement.

G. Fiscal Impacts

The DEIS contained a fiscal impact analysis comparing the estimated revenues and costs that would be generated by the project.

As noted in the previous section on Community Services, the fiscal impact analysis contained in the DEIS projected a significant revenue surplus for the Monroe-Woodbury School District, due to the project's specific demographics which would result in school children receiving private education, with no assumption that special education would be required. The analysis projected town and county tax totals ranging from \$95,509 to \$122,539 depending on whether or not the single family units incorporated accessory apartments. The municipal service providers did not anticipate the need for any capital expenditures on behalf of the project.

Fiscal Impact Findings/Mitigation Measures:

- G1. Fiscal impacts of the project are expected to be beneficial, so no mitigation measures are needed. See also Section F of this document for related consideration.

H. Noise Impacts

Temporary construction-related noise increases would be expected due to construction. Ambient noise sources are consistent with the surrounding mix of land uses, primarily residential and traffic noise on adjoining roadways. Elevated noise levels will be generated from heavy construction equipment during site clearing, excavation, grading, and the actual construction of site improvements and house construction. However, site construction is not expected to extend for longer than 18 months.

Noise Findings/Mitigation Measures:

- H1. Temporary, unavoidable construction-related noise increases would be expected due to construction, but these would not be expected to be significant as they would be short term and temporary. As noted in Section E of these Findings, the applicant offered a mitigation measure restricting truck traffic related to earth moving. In the interests of avoiding weekend noise impacts on the adjoining properties, the applicant has voluntarily agreed that earth moving will be limited to not more than five loads per hour, over a six-hour period that will avoid the peak AM and PM highway hours, during a five day work week excluding Shabbos and Sundays. The weekday peak AM highway hour is from 8-9 AM, and the PM peak is from 4:45 to 5:45 PM. Operational mufflers will be maintained on all construction equipment to minimize noise emissions to a minimum.

I. Cultural Resources

A Phase IA Cultural Resources analysis was completed for the site to determine whether any historic or prehistoric cultural resources would be affected by the project. Analysis indicated that there were no properties in or adjacent to the site area that were either listed or eligible to be listed in the State or National Registers of Historic Places. Phase IB archeological field testing conducted for the nearby Forest Edge site in 2005 did not encounter any archeological resources, despite the Phase IA indication of moderate likelihood of pre-contact archeological resources being found.

Based on documentary research and the physical characteristics of the site, the Phase IA study concluded that there was low archeological sensitivity, and no further study was recommended.

Cultural Resources Impact Findings/Mitigation Measures:

11. Phase IA research concluded that the site had low archeological sensitivity, and no further study was recommended.

J. Alternatives:

Three alternatives were evaluated in the course of this SEQR review: (1), the No Action alternative, which forms a benchmark for evaluating project-generated impacts, (2) an alternate site layout that would have accommodated a multiple dwelling group of 28 residential units, and (3) the original site layout and grading plan evaluated in the DEIS. The No-action alternative was rejected by the applicant as inconsistent with its goals.

Multiple Dwelling Group Alternative

The Town of Monroe zoning allows multiple dwelling groups in this district by special permit, with a maximum of five two-bedroom or larger units per net acre. Net acreage calculations deduct steep slopes and existing easements. Based on the net area for this site, no more than 28 multiple dwelling units could be placed on the site, and the use would also require service by central water and sewer.

This alternative would have created similar physical site impacts to the proposed action and similar water and sewer usage figures to the as-of-right single family detached proposal. However, the multiple dwelling units would eliminate the possibility of accessory apartments, since the special permit does not provide for any accessory residential uses. This alternative was deemed infeasible as municipal water would not have been made available to this plan, which would have required the applicant to develop its own on-site central water supply, which may have been technically infeasible and which would have been cost-prohibitive. Furthermore, this alternative would have foreclosed the possibility of a through road connection from the Village of Kiryas Joel developments to the north, which would have contravened the policies of the Town of Monroe Comprehensive Plan.

DEIS Plan Layout and Grading Alternative

The plans on which the DEIS was based (the previous plan set) required extensive cut and fill operations, with cuts of up to 25 feet in some areas of the site. This resulted in a projected net surplus of 25,000 cubic yards of material that required removal from the site. Furthermore, the subdivision plans accompanying the DEIS also showed the need for tall retaining walls ranging from ten to twenty feet in some areas of the plan. This was a matter of considerable concern to the Planning Board, raising additional related questions of public health and safety, among others.

In order to respond to the Planning Board's concerns about the grading and the extensive tall retaining walls, the applicant substantially revised the proposed

grading plan, submitting revised plans as part of the Final Environmental Impact Statement (FEIS). The revised plans reduced the project size by one lot, and significantly reduce both the extent of retaining walls proposed within the site and the height of such walls. Retaining walls in the FEIS plans are generally four feet high, and only one short segment of wall is proposed to be eight feet. The revised grading plan results in cuts and fills not exceeding 18 feet. This is a significant improvement from the plan accompanying the DEIS, and although the same 10.1 acres of the site will require clearing and grading, the revised grading is far less invasive than the grading that had originally been proposed.

Alternatives - Findings/Mitigation Measures:

- J1. The preferred alternative is the plan consistent with that accompanying the Final EIS. This plan is an as-of-right development proposal that supports the policies of the Town of Monroe Comprehensive Plan by completing a through road connection with the adjoining property to the west, which the multiple dwelling alternative would not accommodate. It contains one lot less than the DEIS plan (28 lots instead of 29), and its grading significantly reduces both the extent of grading that is needed on the site but also reduces the height and extent of retaining walls that were required in the DEIS plan, thus avoiding multiple concerns relating to the effect of the walls on the plan. Therefore, the FEIS plan reasonably minimizes the impacts of the action consistent among the different alternatives.

K. Other:

Retaining Walls, Drainage, Sidewalks & Internal Community Facilities

As noted in Section B of this document, the revised plan layout accompanying the FEIS substantially reduced the site grading and the height and extent of retaining walls required in the plans in order to make use of the site and connect with the existing adjoining development grades. This plan revision substantially mitigated concerns about safety and the long-term maintenance of the retaining walls. Nevertheless, the Planning Board recognized that the remaining retaining walls in the plan still required maintenance provisions. Therefore, the FEIS plans incorporate access easements for all walls crossing lot lines. The Homeowners Association to be formed for this development will carry out inspection and maintenance work as needed for the walls.

The plans incorporate other shared facilities that require maintenance. While typically the Town encourages developers to form municipal drainage districts to

provide for new stormwater management facilities, the Planning Board cannot compel them to do so against their will. As long as there is another acceptable arrangement to provide for maintenance and the facilities meet the Town's requirements, then the maintenance needs will be adequately met. In this case, the stormwater facilities will be maintained by the Homeowners Association. Access easements have been provided for all of these facilities.

The Homeowners Association will also maintain the sidewalks.

The Planning Board considered the need for alternate maintenance provisions in the event that the Homeowners Association were unable to fulfill its tasks. As noted above, municipal benefit districts can be formed to carry out such work. This is municipal matter that is outside the Planning Board's jurisdiction. While it would be possible for the Town Board to authorize the formation of a back-up benefit district, so that a regulatory structure already existed to carry out the work in case of failure, the Town Board has previously been unwilling to do so as it constitutes a fiscal burden. Benefit districts could be formed in the future if called for.

- K1. The applicant prefers to provide for the maintenance of common facilities such as retaining walls, stormwater management facilities, and sidewalks by way of a Homeowners Association. This meets requirements that maintenance be provided for.

APPENDIX A– BLASTING PLAN

A Final Geotechnical Investigation, which includes additional detail regarding soil testing, is included in Appendix B of this Findings Statement. The Report indicates, “bedrock surface was not encountered within the 40-50 ft. depth of the test borings. However this does not eliminate the possibility that bedrock will be encountered during site development due to unidentified variation in the depth to the bedrock surface and/or bedrock outcropping.” As such, a preliminary blasting plan is set forth below:

Blasting Permit

A blasting contractor licensed in the State of New York shall perform all blasting and all work shall be in accordance with the Chapter 22, Blasting, of the Town of Monroe Code. No blasting shall occur without first acquiring a permit from the Town Clerk and payment of required permitting fees.

Insurance

The Blasting Contractor shall provide the Town with a Certificate of Insurance by an insurance company authorized to do business in the State of New York in a form that is acceptable to the Town Attorney. The insurance policy shall include but not be limited to specific endorsement covering all liabilities that might arise from blasting and providing bodily injury, wrongful death and property damage coverage in the minimum amounts required by the Town Code. The policy shall incorporate a provision that holds the Town of Monroe harmless.

Blasting Guidelines

Blasting operations shall be performed within the following guidelines:

- Blasting shall be limited to the hours between sunrise and sunset and shall in no event be performed before 8:00 a.m. or after 7:00 p.m. Nor shall any blasting be performed on Saturdays, Sundays or holidays.
- The manner of conduct of all blasting shall conform to the rules, regulations and requirements of the New York Board of Standards and Appeals or the Industrial Commission of the State of New York promulgated under the authority of the New York State labor law.
- A pre-blast coordination meeting shall be held with the Town Engineer or Building Inspector.

- At least three minutes before firing a blast, warning shall be given and shall include at a minimum workers carrying a red flag on all sides of the blast along any avenue of approach capable of being used by the public.
- Warning signs acceptable to the Town of Monroe shall be posted on all sides of the blast with. Signs shall be posted by 8:00 a.m. of the day of the blast and shall be removed after blasting operations are completed.

Blasting Contractor

Prior to the start of any blasting operation, the applicant will obtain the services of a blasting contractor. The blasting contractor will be selected based on his capability of performing this type of work as shown by submission of his qualifications to include the following:

- Compliance with all applicable State, Local and Federal standards set forth in regulations covering the explosives stage of the work.
- Compliance with licensing requirements for the blasting contractor as prescribed by the current code.
- A review of the blasting contractor's successful completion of this type of work within the last five years.
- A review of five projects of a similar nature which the blasting contractor has successfully completed.
- A review of the blasting contractor's insurance coverage to ensure that it is in accordance with the current code.

The blasting contractor will be required to conform to the requirements of all governmental authorities having jurisdiction and follow all applicable provisions as adopted by the Institute of Makers of Explosives, OSHA, local regulations and Section 170.05 of the Standard Specifications of the New York State Department of Transportation including, but not limited to, notification of neighboring property owners, permitting, insurance, blast screening or matting, warning flags or horns, and transportation and storage of explosives. In addition, the blasting contractor shall use limited charges to avoid off-site damage.

Pre-Blasting Survey and Vibration Consultant

Prior to the start of blasting operations, areas requiring blasting shall be identified in the field and a blasting schedule will be developed. Neighboring property owners, the Town's engineering and appropriate representatives from adjacent municipalities will be notified of pending blasting activities at least 24 hours prior to commencement. The Applicant will obtain the services of a qualified independent specialist to examine all adjacent structures.

In addition to the above-mentioned requirements, if necessary and required, the Applicant will also employ the services of a qualified vibration consultant to record, measure and analyze the ground vibrations and airborne noise from the blasting operations. The vibration consultant will furnish a report, which will detail the results of each blasting operation.

APPENDIX B - GEOTECHNICAL STUDY



GEOTECHNICAL ENGINEERING REPORT

PROPOSED VINTAGE VISTA SUBDIVISION – PHASE 1 Town of Monroe, Orange County, NY

Prepared by

TRC Engineers, Inc.
16000 Commerce Parkway
Suite B
Mount Laurel, New Jersey 08054

June 29, 2007
TRC Project No. 55932

Submitted to

Building 54 LLC
5 Dover Terrace
Monsey, NY 10952



16000 Commerce Parkway
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Mount Laurel, NJ 08054

856.273.1224 PHONE
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June 29, 2007

Building 54 LLC
5 Dover Terrace
Monsey, NY 10952

Attn: Mr. David Ausch

Re: Final Geotechnical Study
Proposed Vintage Vista Subdivision-Phase I
Town of Monroe, Orange County, New York
Our Project No.: 55932

Dear Mr. Ausch:

We are pleased to present the results of our final geotechnical engineering study for this project. Work was initiated after receipt of signed authorization to proceed by Mr. David Ausch granted on March 11, 2007 and performed in accordance with our proposal dated February 27, 2007. A preliminary report was submitted on October 11, 2006. We trust that this report contains the information you require. Thank you for the opportunity to assist on this project.

Sincerely,

TRC Engineers, Inc.

A handwritten signature in black ink, appearing to read "Tom Caruso", written over the printed name.

Thomas M. Caruso, E.I.T.
Geotechnical Engineer

A handwritten signature in black ink, appearing to read "Fred Brinker", written over the printed name.

Frederick A. Brinker, P.E.
Manager, Geotechnical Engineering Services

Cc: Tom Holmes/TRC, Nina Peek/Saccardi and Schiff, Inc.

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APPENDICES

APPENDIX A - FIELD DATA

Site Location Map

Drawing 1

Test Boring Location Plan

Drawing 2

Test Boring/Pit Logs

Key To Symbols

Methods and Tools for Advancing Boreholes

APPENDIX B - LABORATORY DATA

APPENDIX C - STANDARD SYMBOLS

1.0 INTRODUCTION

1.1 Proposed Construction

The project site is being considered for construction of a residential development. Information pertaining to proposed building locations and proposed site grading were provided to us prior to the investigation. Information pertaining to structural loading conditions was not provided to us for this investigation; however, it is assumed that loads will be typical for residential construction.

1.2 Objectives

The objectives of our work were to determine subsurface conditions at the project site in order to evaluate those conditions with respect to the proposed construction. A preliminary study was performed by TRC during the Fall of 2006. The scope of work for the preliminary investigation included drilling of seven (7) test borings to final depths of 20 ft below the existing ground surface (bgs) using a truck mounted drill rig. Some minor site clearing was anticipated. However, due to the fact that the majority of the site is steeply grading and densely wooded, portions of the site, especially to the north and northeast, were inaccessible by a truck mounted drill rig and required extensive site clearing. Therefore, an objective of this final investigation was to perform additional test borings at previously inaccessible portions of the site using a track mounted drill in conjunction with site clearing (performed by TRC). Furthermore, the test borings drilled for the final study were extended to depths that exceed the proposed cuts in order to better define the probability that bedrock will be encountered during site development. Other objectives were to evaluate information obtained from the final investigation in order to confirm/expand on tentative recommendations provided in the preliminary report regarding the following items:

- Foundation support for the proposed structures.
- Ground water conditions and management thereof.
- Lateral earth pressure parameters for use in retaining wall design.
- Soil material and compaction requirements for support of buildings, floor slabs, and pavements.
- Presence/approximate top of rock surface, if encountered.
- Impact of subsoil and rock conditions on the development.
- Reusability of on-site soils in compacted fill and pavement subgrade.
- Excavation issues in soil and rock
- Pavement design parameters.
- Frost penetration depth and effects.



2.0 FIELD AND LABORATORY WORK

2.1 Field Work

A series of four test borings (B-1F through B-4F, where F indicates Final Study) were drilled from May 1, 2007 through May 3, 2007 using a track-mounted drill rig in accordance with ASTM 1586 procedures. Test boring locations were established by TRC prior to drilling. The locations of Borings B-2F through B-4F were in areas that were not previously accessible during the preliminary study in the northeast which are steeply sloping portions of the site and areas that needed extensive clearing of trees/vegetation and use of a track-mounted drill rig. Boring B-1F was drilled in the southern portion of the site near the location of a proposed storm water basin. The locations of the borings, as shown on the attached location plan, are approximated. The subsurface exploratory operations were performed under the direction of one of our geotechnical engineers.

The test borings were advanced to depths of 40 to 50 ft below the ground surface. Rock was not encountered within the depth of the borings. However, this does not eliminate the possibility that rock will be encountered during site development due to unidentified variations in the depth to the bedrock surface and/or bedrock outcropping. Ground surface elevations at the test boring locations were interpolated from the topographic survey plan developed by Saccardi and Schiff, Inc. (SSI). The test boring logs and a location drawing are attached in Appendix A. The logs from Test Borings B-1 through B-6 and Test Pits TP-1 through TP-7 performed for the preliminary investigation as well as Test Borings B-1F through B-4F from the final study are also included in Appendix A.

2.2 Laboratory Testing

The soil samples obtained from the test borings were delivered to our ASTM/AASHTO accredited soil mechanics laboratory and examined by a member of our geotechnical engineering staff to check the field classifications. Representative soil samples were tested to determine physical and engineering properties. Laboratory testing including determination of dry unit weights, moisture contents, standard proctors (ASTM D698), California Bearing Ratio (CBR) values and grain size distributions (gradation analysis) all results are presented in Appendix B.



3.0 SITE CONDITIONS

3.1 Site Conditions

The project site is located north of the intersection of Mountain Road with County Highway # 44 in the Town of Monroe, Orange County, NY. A site location map is included in Appendix A. The southern half of the site slopes up steeply in the east direction, away from Mountain Road and then comes to a plateau. At the center of the plateau area is an existing concrete floor slab. Directly east of the concrete slab is an existing steel shed, which, at the time of this investigation, was being used to house livestock. Southeast of the shed is an existing wood frame house. The plateau portion of the site is overgrown with tall grass and weeds with portions of this area asphalt paved. It is likely that the plateau was constructed by cutting the uphill portion of the site and filling the lower area. A narrow asphalt paved road, moderately to steeply sloping, extends from County Highway #44 to the plateau portion of the site. The northern portion of the site is densely wooded and slopes steeply up, away from the plateau. The ground surface elevations vary from Elev. 840 near Mountain Road to Elev. 990 at the northeast corner of the property.

3.2 Geology

Available geologic information indicates the surficial geology as glacial till consisting of a clastic, relatively impermeable (loamy matrix), poorly sorted clay, silty clay and boulder clay that tends to be sandy in areas. Bedrock geology is described as being part of the Hamilton group and is at the contact of two geologic formations, the Skunnemunk Formation and the Bellvale Formation. These formations consist of conglomerate and Cornwall shale.

3.3 Subsurface Conditions

The subsoils encountered during both the preliminary and final geotechnical investigations have been grouped into two individual strata based on their engineering properties. A brief description of each follows:

Stratum 1 - FILL

The test borings/test pits performed during the **preliminary investigation** within the plateau portion of the site (Borings B-1 and B-3, and Test Pits TP-6 and TP-7), encountered “uncontrolled” FILL materials from the ground surface to depths ranging from 2 to 12 ft below the existing ground surface (bgs). The FILL stratum generally consisted of gray silty clay to clayey silt and gravel/cobbles with varying quantities of sand and debris (wood). Standard Penetration Test (SPT) N-values indicate this stratum to range from “soft” to “very stiff” in consistency. The test pits encountered easy to moderate excavating conditions through this stratum. This fill is unsuitable for support of foundations

Stratum 2 – Glacial TILL

In borings performed for the **final investigation** (B-1F through B-4F), this stratum was encountered at the ground surface extending to the termination depth of the borings. In borings performed during the **preliminary investigation**, this stratum was encountered underlying the existing 0.5 to 1 ft thick topsoil layer at Test Pits TP-1 through TP-5 and Borings B-4 through B-6, underlying the existing FILL at Test Pits TP-6 and TP-7, and Borings B-1 and B-3, and from the ground surface at Boring B-2, extending to the termination depth of the test pits (9 to 13 ft bgs) and the borings (20 ft bgs). This stratum has been classified as glacial TILL and generally consists of varying quantities of gravel and cobbles in a clayey SILT to silty CLAY matrix, with varying quantities of sand depending upon depth and location. In general, SPT N-values indicate this stratum to range from “stiff” to “hard” in consistency within the first 6 ft of the boring, and ranging from “hard” to “very hard” below this depth. At borings B-1F through B-4F, SPT N-values indicate this stratum to be “soft” to “medium stiff” within the first two feet below the ground surface. The test pits (excavated as part of the preliminary investigation) encountered moderate to difficult excavating conditions within the top 5 ft, increasing to very difficult below this depth. For ease of discussion, the following table presents a summary of the range of soil parameters determined through laboratory testing for both the preliminary and final investigations, with the exception of CBR values, which is discussed in Section 4.6 of this report.

Soil Parameter	Range of Values Determined from Laboratory Testing	
	Preliminary Investigation	Final Investigation
Moisture Content (percent)	6 to 8	3.5 to 12
Liquid Limit (percent)	21 to 24	NA
Plasticity Indices	36 to 49	NA
Void Ratio	0.27 to 1.05	NA
Dry Unit Weight (pcf)	125.0 to 132.5	126.5 to 136.5
Permeability (cm/sec)	3.4×10^{-5} to 5.5×10^{-5}	NA
Maximum Dry Density (pcf)	127.1	125.5
Optimum Moisture (percent)	10.1	10.1

The fact that laboratory testing indicates an *insitu* dry unit weight in excess of the maximum dry density is most likely indicative of a sample with a high gravel content. It is expected however that the insitu density of this material is close to its maximum dry density based on SPT N-values.

3.4 *Ground Water*

Groundwater observations were made during and shortly after the completion of drilling of the test borings. At Borings B-1F through B-4F (Final Study) groundwater was not observed within the depth of the borings. However, Test Borings B-1 through B-3 (preliminary study) indicate that excavations are likely to encounter perched water conditions at depths ranging from 3 to 7 ft, bgs. Groundwater levels are for the times noted and may not reflect daily or seasonal fluctuations in the groundwater levels.

4.0 FINAL ANALYSIS & RECOMMENDATIONS

The “dense” natural soils are suitable for foundation support and construction of residential structures. The existing on-site fill soils are not suitable for support of structures. Because the natural soils are silty and clayey, these materials are moisture sensitive, and may become difficult to work with, especially during wet seasons. Earthwork during winter or spring should be avoided. The natural site soils of Stratum 2 were observed to contain large cobble and boulder size rock. If natural site soils are reused as structural fill for support of shallow foundations and floor slabs, cobbles and boulders should be removed from the soil prior to placement and compaction. Massive bedrock was not encountered within the depth of the test borings; however, difficult excavation conditions will be encountered with increasing depth due to increased stiffness and percentage of cobbles and boulders.

4.1 Foundations

The proposed residential buildings can be supported on spread footings founded in the dense natural soils or compacted load-bearing structural fill constructed on competent natural materials after removal of Stratum 1 fills, where encountered, or where compacted fill placement is required for final grades. Spread footings may be designed for a bearing capacity of 2500 psf. To guard against punching type failure, minimum widths of continuous and isolated footings should be 18 and 24 in., respectively. Foundation subgrades should be set at a depth of least 4 ft below the ground surface, or otherwise protected against the effects of frost penetration.

The natural soils are moisture sensitive and will experience loss of strength when wet and disturbed by construction activity. Foundation subgrades should not be exposed in open excavations over an extended period of time. However, if foundation excavations are to be open for a period of more than 24 hours, consideration could be given to over-excavating subgrades to a depth of 6 in. below bottom of foundation elevations. The over excavation should be replaced with clean aggregate stone similar to AASHTO No. 57 aggregate to create a working platform and to help minimize disturbance to foundation subgrades.

4.2 Floor Slabs

Floor slabs can be supported on prepared load bearing structural fill or prepared natural soil subgrades. Before foundation or floor slab construction on compacted fills, all topsoil and unsuitable materials, including the existing fill of Stratum 1, must be removed and the exposed natural subgrades proofrolled in the presence of a Geotechnical Engineer to determine if any soft, saturated or otherwise unsuitable zones exist. Soft, saturated, or otherwise unstable areas must be over-excavated to competent stable subgrade conditions and replaced with clean compacted load bearing structural fills.

During the test pit excavation portion of the preliminary study, a variable quantity of cobbles and boulders was observed to exist within the natural site soils. Therefore, it is our recommendation that cobbles and boulders observed at the surface of all foundation and floor slab subgrades be removed to a depth ranging from 6 to 12 in. below the bottom of the foundations and replaced with a compacted load-bearing structural fill consisting of clean stone similar to AASHTO No. 57 aggregate.

Any existing utilities should be removed and relocated outside the building areas.

4.3 Earthwork and Site Grading

A comparison of proposed vs. existing grades based on the topographic plan provided by SSI indicates that both cuts and fills ranging from 2 to 18 feet will be required to attain proposed roadway and building area final grades. Locally, we expect that cuts on the order of 10 feet below proposed final grades may be required for utility excavations.

Complete removal of the unsuitable Stratum 1 fill (on the order of 10 feet) will be required prior to commencing compacted fill placement. According to the Test Borings/Pits, the Stratum 1 fill materials are located at the western most (plateau) portion of the site where compacted fill construction will be required to raise the site to final grades. If Stratum 1 fills are left in place, loading induced from new compacted fills and the proposed residential structures will induce substantial total and differential settlements. We recommend that Stratum 1 fills should be removed in their entirety to expose firm and dry natural subgrade soils and the overexcavation replaced with compacted structural fill material. As indicated previously, the bedrock surface was not encountered within the 40 to 50 ft depth of the test borings (B-1F through B-4F). However, **this does not eliminate** the possibility that bedrock will be encountered during site development due to unidentified variation in the depth to the bedrock surface and/or bedrock outcropping. While difficult excavation may occasionally be encountered within the Glacial TILL materials, especially below a depth of 10 ft, these materials generally appear able to be excavated with heavy-duty excavating and earthmoving equipment, as evidenced by the test pit excavations.

The natural on-site soils are considered Type B soils per OSHA excavation regulations. The sidewalls of confined excavations deeper than 4 ft must be sloped, benched or adequately shored per OSHA 29 CFR 1926 regulations. Open excavations in the on-site soils should not be steeper than 1H: 1V. Trench boxes could be used in conjunction with open cut slopes to permit access to confined excavations such as utility excavations.

Careful moisture control must be exercised during earthwork operations when using the silty and clayey portions of the on-site soils. Moisture control will be critical to achieve proper compaction.



Prior to construction of compacted fills or foundations, all existing topsoil, existing structures, and existing fills of Stratum 1 encountered underlying the plateau portion of the site should be completely removed from within building and roadway areas. Any existing structural components and below grade features of existing buildings should be cleaned out and concrete walls removed to at least 5 ft (if founded below vertical extents of Stratum 1 FILL materials) below proposed new foundation bottoms.

All fills should be placed in layers not exceeding 8 to 10 in. loose measure. No cobbles or rocks within new fills should be greater than 2/3 the lift thickness, or about 5 in. in diameter. This criterion may be modified in the field depending on the conditions present at the time of construction and on the compaction equipment used. Furthermore, this may require sorting or field sieving the soils to remove large cobbles or boulders. Alternatively, crushing the oversized materials could be considered. Fills in the building area for the support of foundations and floor slabs should be compacted to not less than 98 percent of maximum dry density (ASTM D698). Fills in paved areas should be compacted to not less than 95 percent of maximum dry density. The top of structural fill in the building areas should extend 5 ft beyond the outside edge of the building and the side slopes of unconfined fills should not be steeper than 1 vertical on 2 horizontal. Fills in landscaped areas should be compacted to at least 90 percent of maximum dry density.

Final site grading should be such that permanent slopes, in general, do not exceed 3H:1V to maintain slope stability, however, slope grading of 2H:1V may be acceptable locally.

4.4 Ground Water Management

Ground water was not observed during the drilling of Borings B-1F through B-4F as previously stated. Groundwater was, however, encountered in the test borings performed during the preliminary study.

The ground water observations in the test pits performed as part of the **preliminary study** indicated dry condition to depths of 13 ft. However, groundwater observations in the test borings performed during the **preliminary study** indicate that excavations could encounter perched water conditions at depths ranging from 3 to 7 ft, bgs. Therefore, if basements are planned in areas of little or no cut, they should be established on the basis of the worst case seasonal high ground water and perched water conditions. Furthermore, soil mottling was observed in the test pits as shallow as 2 ft bgs in natural soils. Mottling may also be the result of perched water conditions, or may have occurred from past geologic events and not necessarily indicate seasonal high groundwater conditions. If basements are proposed, the minimum requirement for basement construction would be high quality damp-proofing, exterior perimeter foundation drains, floor slab under-drains, all connected to sumps and pumps or gravity outlets.

4.5 Lateral Earth Pressure Design Parameters and Retaining Wall Design

The following soil parameters may be used to estimate the lateral earth pressures on below-grade walls.



Lateral Earth Pressure Parameters		
	Stratum 2	Imported Structural Fill
γ (pcf)	130	135
ϕ	30°	34°
c (psf)	0	0
c_a (psf)	0	0
δ (concrete)	17°	31°
K_p	3.0	3.53
K_o	0.5	0.44
K_a	0.33	0.28

The at-rest earth pressure values (K_o) should be used in the design of non-yielding walls. Heavy compaction equipment and excessive compactive effort could lead to overstress of the walls.

The retaining walls should be constructed with at least 18 in. of free draining aggregate layer placed on the back end of the walls to alleviate the build up of hydrostatic pressures. Water could then be removed from within this drainage zone through gravity outlets and weep holes constructed through the wall. Imported fills, if necessary for drainage, should be approved by the Geotechnical Engineer and meet the grading requirements specified in Section 605-2.02 of the NYSDOT Standard Specification (Granular Filter Materials) for Underdrain Filter Type I granular fill material.

4.6 Pavement Design Recommendations

The “firm/dense” natural on site soils are acceptable for pavement support. However, the silty/clayey soils have moderate to high frost susceptibility and can easily loose strength when wet. Therefore, we recommend placement of a minimum 10 in. thick non-frost susceptible granular material per NYDOT AGGREGATE SUBBASE-OPTION A, as a subbase for general roadway pavement construction. The pavement design given below was based on the laboratory determined CBR value of 4 percent, ESAL equal to 1,900,000 and 1,200 vehicles per day. It is recommended that that the designer check local township and/or county requirements regarding pavement design thicknesses and apply the more stringent pavement section as may be applicable.

FLEXIBLE BITUMINOUS PAVEMENT DESIGN 20 YEAR DESIGN LIFE – HEAVY TRUCK TRAFFIC	
<i>Component</i>	Thickness (in.)
NYDOT HMA Top Course Type 6	1.5
NYDOT HMA Base Course Type 1	4.0
NYDOT Aggregate Subbase Option A	10.0

5.0 RECOMMENDATIONS FOR FURTHER GEOTECHNICAL SERVICES

We recommend that TRC provide engineering consultation and field inspection services during field verification testing during the placement of compacted fill materials, foundation materials, spread footing construction, retaining wall and pavement construction. This is to determine if subsurface conditions encountered during construction are similar to those assumed from the test borings, and that they have comparable engineering properties and influences on the design of the foundation systems. We would be pleased to provide these additional services, which are not included in our present scope of work.

6.0 LIMITATIONS

This work has been done in accordance with our authorized scope of work and in accordance with generally accepted practice in the fields of geotechnical and foundation engineering. This warranty is in lieu of all other warranties either expressed or implied. Our conclusions and recommendations are based on the data revealed by this investigation. We are not responsible for any conclusions or opinions drawn from the data included herein, other than those specifically stated, nor are the recommendations presented in this report intended for direct use as construction specifications. This report is intended for use with regard to the specific project discussed herein and any changes in loads, structures, or locations should be brought to our attention so that we may determine how they may affect our conclusions. An attempt has been made to provide for normal contingencies but the possibility remains that unexpected conditions may be encountered during construction. If this should occur, or if additional or contradictory data are revealed in the future, we should be notified so that modifications to this report can be made, if necessary. If we do not review the relevant construction documents and witness the relevant construction operations, then we cannot be responsible for any problem that may arise from the misunderstanding or misinterpretation of this report or failure to comply with our recommendations.

