SECOND REVISED
DRAFT GENERIC ENVIRONMENTAL IMPACT STATEMENT

FOR THE

WESTWOOD NEIGHBORHOOD
October 2015

Westwood

A Traditional Neighborhood
in the heart of Amherst.

Project Site located at
772 North Forest Road, and 385 and 391 Maple Road
Town of Amherst, Erie County, New York

APPENDIX I
Site Assessment Reports, Studies, & Correspondences

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Wetland Delineation Report

for

Westwood Country Club
772 North Forest Road

Town of Amherst
Erie County, New York

for

Mencsh Capital Partners, LLC

EARTH DIMENSIONS, INC.
* Soil & Hydrogeologic Investigations * Wetland Delineations
1091 Jamison Road, Elma NY 14059
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September 26, 2012
EDI Project Code: W1I09b

REPORT SUMMARIZING
THE RESULTS OF
A WETLAND DELINEATION SURVEY OF

Westwood Country Club

Prepared for Submission to

U.S. ARMY CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

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DATE PREPARED

September 26, 2012

Project Code: W1I09b

PROJECT INFORMATION

Project Name	Westwood Country Club
Street Address	772 North Forest Road
SBL	68.01-1-1
Town	Amherst
County	Erie
State	New York
Latitude/Longitude (NAD83)	42.99055 ° N, 78.77460 ° W
Investigation Area	171± Acres
USGS 7.5 Minute Topographical Map	Buffalo NE Quadrangle
Consultant	Earth Dimensions, Inc. 1091 Jamison Road Elma, New York 14059
Point of Contact	Scott Livingstone (716) 655-1717
Engineer	N/A
Property Owner	Forest Road Corporation
Waterway	Ellicott Creek
Hydrologic Unit Code	04120104
Authority	Section 404
Permit/ Letter Being Requested	Jurisdictional Determination

ACKNOWLEDGMENTS

Mencsh Capital Partners, LLC has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation study for the Westwood Country Club located in the Town of Amherst, County of Erie, and State of New York. EDI would like to thank Copy Market, Inc. for providing the duplicating and binding services.

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EXECUTIVE SUMMARY

Mencsh Capital Partners, LLC has proposed the development of a 171± acre site known as Westwood Country Club, in the Town of Amherst, County of Erie, and State of New York. Mencsh Capital Partners, LLC has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation report that would allow the U.S. Army Corps of Engineers (Corps) and New York State Department of Environmental Conservation (NYSDEC) to determine their jurisdictional authority over the investigation area, pursuant to Section 404 of the Clean Water Act and Article 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law.

A preliminary review of available information pertaining to vegetation, soils, and hydrology in the project area was implemented prior to conducting a field investigation at the site. Sources of information included the United States Geological Survey (USGS), Natural Resources Conservation Service (NRCS), National Wetland Inventory (NWI), and NYSDEC Freshwater Wetland maps. The USGS, NRCS and NWI maps indicate the potential for wetlands under federal jurisdiction.

EDI applied methodology specified by the *Corps of Engineers Wetlands Delineation Manual* (January 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (October 2009) to perform a delineation of Federal jurisdictional wetlands within the site. EDI identified eleven (11) wetland, pond and creek areas totaling 7.417± acres and within the investigation area. The identification number of the wetlands, their acreage and boundary flags are as follows:

TABLE 1: Wetlands & Waterways Summary

Wetland/Stream Identification #	Geographic Center (NAD83) Longitude	Geographic Center (NAD83) Latitude	Boundary Flags	Total Acreage On-Site/Linear feet	Wetland/Stream Type	Jurisdictional Determination
Wetland 1	78.77460	42.99055	W1-1 through W1-9	0.309±	Hardwood Swamp (PFO)	**Isolated**
Wetland 2	78.77410	42.98904	W2-1 through W2-6	0.229±	Scrub-Shrub Marsh (PSS)	**Isolated**
Wetland 3	78.77364	42.98960	W3-1 through W3-19	0.601±	Open Water (OW)	**Isolated**
Wetland 4	78.77182	42.98920	W4-1 through W4-12	1.02±	Open Water (OW)	**Isolated**
Wetland 5	78.77415	42.98770	W5-1 through W5-22	0.660±	Hardwood Swamp (PFO)	**Isolated**
Wetland 6	78.77503	42.98676	W6-1 through W6-14	0.915±	Open Water (OW)	**Isolated**
Wetland 7	78.77296	42.98952	W7-1 through W7-4	0.052±	Emergent Marsh (PEM)	**Isolated**
Wetland 8	78.77297	42.98551	W8-1 through W8-9	0.173±	Emergent Marsh (PEM)	**Isolated**
Wetland 9	78.77216	42.97896	W9-1 through W9-12	0.160±	Open Water (OW)	**Isolated**
Wetland 10	78.77383	42.98394	W10-1 through W10-6	0.058±	Hardwood Swamp (PFO)	**Isolated**
Wetland 11	78.76900	42.98599	W11-1 through W11-45	3.24±	Riverine	**Jurisdictional**
Total Wetland Acreage:				**7.417 ±**		

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SECTION I
INTRODUCTION

Mencsh Capital Partners, LLC has proposed the development of a 171± acre parcel known as the Westwood Country Club in the Town of Amherst, County of Erie, and State of New York. The project has been given the name Westwood Country Club and is located on USGS 7.5 minute quadrangle map indexed as Buffalo NE/2002 DeLorme (Figure 1).

Mencsh Capital Partners, LLC has retained Earth Dimensions, Inc. (EDI) to complete a wetland delineation study at this site. The investigation was designed to facilitate a determination of the extent of U.S. Army Corps of Engineers (USACE) and New York State Department of Environmental Conservation (NYSDEC) jurisdiction over the project area pursuant to Section 404 of the Clean Water Act and Article 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law.

EDI has performed a wetland delineation study at the site under guidelines specified by the *Corps of Engineers Wetlands Delineation Manual*, dated January 1987 (referred to hereafter as the Corps Manual) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* (referred to hereafter as the Northcentral and Northeast Regional Supplement). The purpose of this report is to present EDI's methods, results, conclusions and recommendations with respect to the Westwood Country Club project site.

SECTION II
SITE DESCRIPTION

Westwood Country Club is comprised of an irregular shaped parcel adjacent to the west of North Forest Road. It is bound to the south by Sheridan Drive, and to the southwest by Frankhauser Road. Ellicott Creek flows along a portion of the eastern boundary. The investigation area has a total acreage of 171± acres and is outlined on Figure 1 and depicted on the Wetland Delineation Map included in Attachment A (Figure 6).

The natural topography of Westwood Country Club is flat to gently sloping. The majority of the site consists of a maintained gold course. An area in the south east portion of the site consists of various buildings, including a clubhouse, pool, tennis courts, and parking lots. The undeveloped uplands within the investigation area consist of mown lawn, successional old field, successional shrubland, and successional northern hardwood communities. The wetland/pond/stream areas were found to consist of eutrophic pond, confined river, shallow emergent marsh, shrub-swamp and hardwood swamp communities. The vegetative community of the investigation area is described according to *Ecological Communities of New York State* (Edinger et al. 2002).

SECTION III
PRELIMINARY DATA REVIEW

A. SUMMARY OF FINDINGS

Several sources of information may be reviewed to facilitate the completion of a wetland delineation study. In some cases it is even possible to make a preliminary office wetland determination based upon available vegetation, soils, and hydrologic information for a project area.

EDI completed a preliminary review of several data sources at the onset of this study. The results of the review are summarized as follows:

1. USGS 7.5 Minute Topographical Map

   Figure 1 depicts Westwood Country Club on the Buffalo NE/2002 DeLorme quadrangle map. The figure depicts the flat to gently sloping topography of the site. Ellicott Creek is depicted along the eastern property line of the site.

2. USFWS National Wetlands Inventory Map

   The National Wetlands Inventory (NWI) map obtained from the USFWS Wetland Mapper http://www.fws.gov/wetlands/Data/Mapper.html displays four (4) wetlands labeled as **PUBHx***and **R2UBH**** within the investigation area. The wetlands are decoded as:

   *__[P]__ Palustrine,**[UB]** Unconsolidated bottom,**[H]** Permanently flooded,**[x]** Excavated

   ****[R]** Riverine, **[2]** Intertidal, **[UB]** Unconsolidated bottom, **[H]** Permanently flooded

3. Natural Resources Conservation Service Soils Map

Figure 3 presents the project area outlined on a copy of the Erie County Soil Survey map from the National Cooperative Soil Survey. As shown on that figure, the site has the following soil types:

Soil Conservation Service Legend

Designation	Description	Hydric Soil/ Inclusions?
CrA	Claverack Loamy Fine Sand 0 to 3 percent slopes	Inclusions Unlikely
Cv	Cosad Loamy Fine Sand	Inclusions Possible
La	Lakemont Silt Loam	Hydric Soils
Od	Odessa Silt Loam	Inclusions Possible
SaA	Schoharie Silt Loam 0 to 3 percent slopes	Inclusions Unlikely
SaB	Schoharie Silt Loam 3 to 8 percent slopes	Inclusions Unlikely
Te	Teel Silt Loam	Inclusions Possible
Ut	Urban land-Odessa Complex	Inclusions Unlikely

Claverack Loamy Fine Sand: The Claverack series consists of very deep, moderately well drained soils formed in sandy deposits that overlie clayey lacustrine sediments. They are nearly level to sloping soils in shallow deltas on lake plains. Slope ranges from 0 to 15 percent. Mean annual temperature is 48 degrees F. and mean annual precipitation is 40 inches.

Cosad Loamy Fine Sand: The Cosad series consists of very deep, somewhat poorly drained soils formed in sandy deposits that overlie clayey lacustrine sediments. They are nearly level soils on lake plains. Slope ranges from 0 to 8 percent. Mean annual temperature is 48 degrees F. and mean annual precipitation is 40 inches.

Lakemont silt loam: The Lakemont series consists of deep, poorly drained and very poorly drained soils of lake plains. They are nearly level soils formed in very slowly permeable reddish colored clayey lacustrine sediments. Slope ranges from 0 to 3 percent. Permeability is moderately slow in the surface and very slow in the subsoil sand substratum. Mean annual temperature is about 48° and mean annual precipitation is about 34 inches.

Odessa Silt Loam: The Odessa series consists of very deep, somewhat poorly drained soils formed in clayey lacustrine deposits. These soils are in moderately low areas on lake plains. Permeability is moderately slow in the surface layer and slow or very slow in the subsoil and substratum. Slope ranges from 0 to 20 percent. Mean annual temperature is 48 degrees F., and mean annual precipitation is 34 inches.

Schoharie Silt Loam: The Schoharie series consists of very deep, moderately well drained soils formed in clayey lacustrine sediments. They are on glacial lake plains and uplands mantled with lake sediments. Saturated hydraulic conductivity is moderately high or high in the mineral surface and subsurface and low through moderately high in the subsoil and substratum. Slope ranges from 0 through 60 percent. Mean annual temperature is 48 degrees F, and mean annual precipitation is 39 inches.

Teel Silt Loam: The Teel series consists of very deep, moderately well drained soils on floodplains. They formed in nearly level, silty alluvial deposits. Permeability is moderate throughout the solum. Slope ranges from 0 to 3 percent. Mean annual temperature is 49 degrees F, and mean annual precipitation is 37 inches.

Urban land: This complex consists of nearly level areas of Urban land and somewhat poorly drained Odessa soils. The complex is on relatively flat landscapes in the city of Buffalo and in metropolitan areas. Slope ranges from 0 to 3 percent. Mean annual temperature is about 48° and mean annual precipitation is about 34 inches.

The U.S. Department of Agriculture's National Technical Committee for Hydric Soils Criteria has developed a list of soils that often display hydric soil characteristics. Hydric soil typically forms in places of the landscape where surface water periodically collects for some time and/or where groundwater discharges sufficient to create waterlogged or anaerobic soils. Such anaerobic soils can support the growth and survival of hydrophytic vegetation that is tolerant of such conditions. Lakemont is a hydric and therefore may support wetland vegetation. Wetland hydrologic conditions, hydric soils, and hydrophytic vegetation are the three criteria of a wetland.

4. NYSDEC Freshwater Wetlands Map

The NYSDEC Freshwater Wetlands map obtained from the online NYSDEC Environmental Resource Mapper displays no state jurisdictional wetlands within or adjacent to the investigation area.

B. RESULTS OF AGENCY INFORMATION REVIEW

The preliminary data review revealed that the Corps may have jurisdiction over wetlands at the project location. The evidence consisted of the depiction of several wetlands and water features on the NWI map, hydric soils and soils with possible inclusions depicted within the project area as shown on the NRCS map (Figure 3). Therefore, it was considered necessary to perform a field investigation at the site in order to confirm the presence of federal and state protected wetlands. The methods specified in the *Corps of Engineers Wetlands Delineation Manual* (January 1987) and *Northcentral and Northeast Regional Supplement* (October 2009) were employed during the field investigation. Procedures, results, and conclusions of the wetland delineation study are presented in the remainder of this report.

SECTION IV

FIELD INVESTIGATION PROCEDURES

Step 1

EDI applied methodology specified by the *1987 Corps of Engineers Wetlands Delineation Manual* and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region* to perform a delineation of Federal jurisdictional wetlands within the site. EDI used the Level 2 Routine Determination method (on-site inspection necessary) since insufficient information was available for making a determination for the entire project area. This methodology is consistent with Part IV, Section D of the Corps Manual.

Step 2

EDI's initial evaluation of the project area revealed that no atypical situations existed. If an atypical situation had existed, EDI would have used methodology outlined in Part IV, Section F of the Corps manual and/or Section 5 of the *Northcentral and Northeast Supplement.*

Step 3

EDI made the determination that normal environmental conditions were present, as the area was not lacking hydrophytic vegetation or hydrologic indicators due to annual, seasonal or long-term fluctuations in precipitation, surface water, or groundwater levels. The *Northcentral and Northeast Supplement* defines the growing season as beginning when one of the following indicators of biological activity are evident in a given year: (1) above-ground growth and development of vascular plants and/or (2) soil temperature measured at 12" below ground surface reaches 41°F. The end of the growing season is defined as the point at which deciduous species lose their leaves or the last herbaceous plants cease flowering and their leaves become dry or brown, whichever comes latest. Based on this definition, the field work was performed during the growing season. The field work was conducted on September 17, 2012 and September 24, 2012.

Step 4

In order to accurately identify the limits of various vegetative communities and extent of wetlands on-site, a routine determination method was used. As depicted in Attachment A and included in Attachment B, eleven (11) data points were used to characterize the site.

Step 5

The plant community inhabiting each observation point was characterized in accordance with methods specified in the Northcentral and Northeast Regional Supplement. Dominant plant species were identified within four vegetative strata (i.e. herb, sapling/shrub, tree and liana (woody vines) at each sampling point. The Northcentral and Northeast Regional Supplement defines the vegetative strata in the following manner:

Herb – A non-woody individual of a macrophytic species. Seedlings of woody plants (including vines) that are less than 3.28 feet in height are considered to be herbs.

Sapling/Shrub – A layer of vegetation composed of woody plants < 3.0 inches in diameter at breast height but greater than 3.28 feet in height, exclusive of woody vines.

Tree – A woody plant > 3.0 inches in diameter at breast height, regardless of height (exclusive of woody vines)

Liana – A layer of vegetation in forested plant communities that consist of woody vines greater than 3.28 feet in height.

As outlined in the Northcentral and Northeast Regional Supplement, the quadrant sizes used for the vegetative strata were (i) a five-foot radius for herbs; (ii) a fifteen-foot radius for saplings and shrubs; and (iii) a 30-foot radius for trees and woody vines. Dominant plant species were identified within four vegetative strata (i.e. herb, sapling/shrub, tree and liana (woody vines) at each sampling point. The Corps Manual defines the vegetative strata in the following manner:

Herb – A non-woody individual of a macrophytic species. Seedlings of woody plants (including vines) that are less than 3.2 feet in height are considered to be herbs.
Sapling/Shrub – A layer of vegetation composed of woody plants < 3.0 inches in diameter at breast height but greater than 3.2 feet in height, exclusive of woody vines.
Tree – A woody plant > 3.0 inches in diameter at breast height, regardless of height (exclusive of woody vines)
Liana – A layer of vegetation in forested plant communities that consist of woody vines.

As outlined in the manual, the quadrant sizes used for the vegetative strata were (i) a 3.28-foot radius for herbs; (ii) a ten-foot radius for saplings/shrubs and woody vines; and (iii) a 30-foot radius for trees. Dominant plant species were estimated using aerial coverage methods. Dominant species are defined in the Corps Manual as the most abundant plant species that when ranked in descending order of abundance and cumulatively totaled immediately exceed 50 percent of the total dominance measure for the stratum, plus any additional species comprising 20 percent or more of the total dominance measure.

The wetland indicator status (OBL, FACW, FAC, FACU, or UPL) listed for each identified species by the U.S. Fish and Wildlife Service in the *National List of Plant Species that Occur in Wetlands: Northeast (Region 1)* was recorded. The U.S. Fish and Wildlife wetland indicator status listings are defined as follows:

OBL – Plants that occur almost always (estimated probability >99 percent) in wetlands under natural conditions, but which may also occur rarely (estimated probability < 1 percent) in nonwetlands.
FACW – Plants that occur usually (estimated probability >67 percent to 99 percent) in wetlands, but also occur (estimated probability 1 percent to 33 percent) in nonwetlands.
FAC – Plants with a similar likelihood (estimated probability 33 percent to 67 percent) of occurring in both wetlands and nonwetlands.
FACU – Plants that occur sometimes (estimated probability 1 percent to <33 percent) in wetlands, but occur more often (estimated probability >67 percent to 99 percent) in nonwetlands.
UPL – Plants that occur rarely (estimated probability < 1 percent) in wetlands, but occur almost always (estimated probability >99 percent) in nonwetlands under natural conditions.

The plant community data was summarized on the data forms provided in the *Northcentral and Northeast Regional Supplement* included in this report as Attachment B.

Step 6

Plant data from each observation point were tested against the hydrophytic vegetation criterion specified in the Corps Manual and Northcentral and Northeast Regional Supplement. The Northcentral and Northeast Regional Supplement identifies a four-tiered approach for making a determination of whether or not the hydrophytic vegetation criteria is met for a sample plot. Indicator 1 (Rapid Test for Hydrophytic Vegetation) was first applied to determine if all dominant species across all strata are rated OBL and/or FACW. If Indicator 1 did not meet the hydrophytic vegetation criteria, Indicator 2 was then applied (dominance test); if greater than 50% of all plant species across all strata were rated OBL, FACW, or FAC, the hydrophytic vegetation criteria was considered met. In rare cases, when Indicators 1 and 2 did not meet the hydrophytic vegetation criteria but soils and hydrology criteria were met, Indicators 3 (Prevalence Index) and 4 (Morphological Adaptations) were used to make a final determination. All observation points that met the hydrophytic vegetation criterion were considered potential wetlands. Soils were then characterized.

Step 7

The Corps Manual specifies that soils need not be characterized (and are assumed hydric soils) at sampling points meeting the hydrophytic vegetation criterion if: (i) all dominant plant species have an indicator status of OBL, or (ii) all dominant species have an indicator status of OBL and/or FACW, and the wetland boundary is abrupt (at least one dominant OBL species must be present). All observation points sampled during this field investigation were examined directly for soil and hydrologic characteristics.

Step 8

At observation points requiring a soil evaluation, soil borings were performed by an EDI Soil Scientist using methods specified in the *Northcentral and Northeast Regional Supplement*. Soil pits were dug using a tile spade. Testpits were generally dug to a depth of 20 inches below ground surface. Soils were examined for any of the hydric soil indicators, as outlined in the *Field Indicators of Hydric Soils in the United States*. A determination was made as to whether or not the hydric soil criterion was met. Soils data was recorded on the data forms included in Attachment B of this report.

Step 9

EDI's Soil Scientist examined hydrologic indicators using methods specified by the Northcentral and Northeast Regional Supplement at each observation point. The wetland hydrology criterion was met if: (i) one or more primary field indicators was materially present, (ii) available hydrologic records provided necessary evidence, or (iii) two or more secondary indicators were present. Results were recorded on data forms taken from the Corps Manual and are included in this report as Attachment B.

Step 10

A wetland determination was made for every observation point. If a sample plot met the hydrophytic vegetation, hydric soil, and wetland hydrology criteria, the area was considered to be wetland.

Step 11

Based on the results of the transected data, wetland boundaries were established for each identified wetland using plain green survey ribbon numbered consecutively along each wetland boundary. As outlined in the Corps Manual, the placement of flags was based on the limits of areas where all three parameters were met. Wetland flags were labeled W1-1 through W1-9, W2-1 through W2-6, W3-1 through W3-19, W4-1 through W4-12, W5-1 through W5-22, W6-1 through W6-14, W7-1 through W7-4, W8-1 through W8-9, W9-1 through W9-12, W10-1 through W10-6 and W11-1 through W11-45.

SECTION V
RESULTS AND CONCLUSIONS

Earth Dimensions, Inc. (EDI) has completed a wetland delineation study at Westwood Country Club located in the Town of Amherst, County of Erie, and State of New York. A field investigation was conducted by a Soil Scientist and a Wetland Ecologist from EDI. The wetland delineation study found eleven (11) wetlands totaling 7.417 ± acres present at Westwood Country Club.

General site maps are presented in Attachment A. Figure 3 shows the soil types mapped within the property. Field examination of the soil on the site showed moderate agreement to the published NRCS soil map (Figure 3). The site consisted primarily of Odessa silt loam and Cosad loamy fine sand soils, although much of the site was previously altered in association with the construction of the golf course.

Figure 5 depicts the vegetative communities as they currently exist. The majority of the site consists of a maintained golf course and country club facilities. The undeveloped uplands within the investigation area were comprised of mown lawn, successional old field, successional shrubland and successional northern hardwood communities. The wetland/pond/stream areas were found to consist of eutrophic pond, confined river, shallow emergent marsh, shrub-swamp and hardwood swamp communities. The vegetative community of the investigation area is described according to *Ecological Communities of New York State* (Edinger et al. 2002).

No data was taken in the mown lawn community. However, species present were consistent with the community description provided by Reschke.

The successional old field community consisted of the following species: hawthorn (*Crataegus spp.*), gray dogwood (*Cornus racemosa*), green ash (*Fraxinus pennsylvanica*), silky dogwood *(Cornus amomum)*, alder buckthorn *(Rhamnus frangula)*, bebb willow *(Salix bebbiana)*, Kentucky bluegrass (*Poa pratensis*), old field cinquefoil (*Potentilla simplex)*, Virginia strawberry (*Fragaria virginiana*), annual ryegrass *(Lolium perenne)*, timothy *(Phleum pretense)*, common cinquefoil *(Potentilla simplex)*, common self-heal *(Prunella vulgaris)*, poverty rush *(Juncus tenuis)*, winter bentgrass *(Agrostis hyemalis)*, white old-field aster *(Symphyotrichum pilosus)*, Canada goldenrod *(Solidago canadensis)*, garden vetch *(Vicia sativa)*, flat-top goldenrod *(Euthamia graminifolia)*, and red maple *(Acer rubrum)*.

The successional shrubland community consisted of the following species: green ash (*Fraxinus pennsylvanica),* Norway spruce *(Picea abies)*, black walnut *(Juglans nigra)*, box elder *(Acer negundo)*, glossy buckthorn *(Frangula alnus)*, American red raspberry *(Rubus ideaus)*, white old-field aster *(Aster pilosus)*, Canada goldenrod *(Solidago canadensis)*, Canada thistle *(Cirsium canadensis)*, curly dock *(Rumex crispus)*, dames rocket *(Hesperis matronalis)*, stinging nettle *(Urtica dioica)*, common motherwort *(Leonurus cardiaca)*, climbing nightshade *(Solanum dulcamera)*, white vervain *(Verbena urticifolia)*, Fuller's teasel *(Dipsacus sylvestris)*, and summer grape *(Vitis aestivalis)*.

The successional northern hardwood community consisted of the following species: green ash (*Fraxinus pennsylvanica),* American basswood *(Tilia americana)*, red oak *(Quercus rubra)*, pin oak *(Quercus palustris)*, eastern cottonwood *(Populus deltoides)*, American elm *(Ulmus americana)*, red maple *(Acer rubrum)*, hawthorn *(Crataegus spp.)*, black willow *(Salix nigra)*, black cherry *(Prunus serotina)*, black walnut *(Juglans nigra)*, box elder *(Acer negundo)*, common buckthorn *(Rhamnus cathartica)*, glossy buckthorn *(Frangula alnus)*, tatarian honeysuckle *(Lonicera tatarica)*, multiflora rose *(Rosa multiflora)*, Allegheny blackberry *(Rubus allegheniensis)*, dames rocket *(Hesperis matronalis)*, white snakeroot *(Ageratina altissima)*, Virginia creeper *(Parthenocissus quinquefolia)*, poison ivy *(Toxicodendron radicans)*, and summer grape *(Vitis aestivalis)*.

No data was taken in the eutrophic pond or confined river communities. However, species present were consistent with the community description provided by Reschke.

The shallow emergent marsh community consisted of the following species: green ash *(Fraxinus pennsylvanica)*, pin oak *(Quercus palustris)*, redosier dogwood *(Cornus sericea)*, red maple *(Acer rubrum)*, calico aster *(Symphyotrichum lateriflorum)*, white panicle aster *(Symphyotrichum lanceolatum)*, purple loosestrife *(Lythrum salicaria)*, sedge *(Carex spp.)*, and flat-top goldenrod *(Euthamia gaminifolia)*.

The shrub-swamp community consisted of the following species: pin oak *(Quercus palustris)*, green ash *(Fraxinus pennsylvanica)*, redosier dogwood *(Cornus sericea)*, red maple *(Acer rubrum)*, glossy buckthorn *(Frangula alnus)*, silver maple *(Acer saccharinum)*, broom sedge *(Carex scoparia)*, purple loosestrife *(Lythrum salicaria)*, soft rush *(Juncus effusus)*, woolgrass *(Scirpus cyperinus)*, fox sedge *(Carex vulpinoidea)*, green bulrush *(Scirpus atrovirens)*, boneset *(Eupatorium perfoliatum)*, and flat-top goldenrod *(Euthamia graminifolia)*.

The hardwood swamp community consisted of the following species: pin oak *(Quercus palustris)*, green ash *(Fraxinus pennsylvanica)*, red oak *(Quercus rubra)*, eastern cottonwood *(Populus deltoides)*, American elm *(Ulmus americana)*, tatarian honeysuckle *(Lonicera tatarica)*, calico aster *(Symphyotrichum lateriflorum)*, fowl mannagrass *(Glyceria striata)*, broom sedge *(Carex scoparia)*, and sweet woodreed *(Cinna arundinacea)*.

Hydrology is generally highly variable during a field investigation and accurate examinations of the landscape must be conducted to assure an accurate delineation.

As noted on Figure 7 (Site Drainage map), Ellicott Creek, a traditionally navigable waterway, flows north along the east side of the investigation area.

A map which depicts the site boundaries and the location of all observation points established during the field survey is included as Figure 6 in Attachment A of this report. Data forms are included as Attachment B. Attachment C consists of an aerial photograph of the site. Attachment D includes representative photographs of the project area. Attachment E notes the references used during the preparation of this report and during the field investigation. Attachment F provides the names, addresses and phone numbers of the survey personnel involved in the wetland delineation study.

SECTION VI
RECOMMENDATIONS

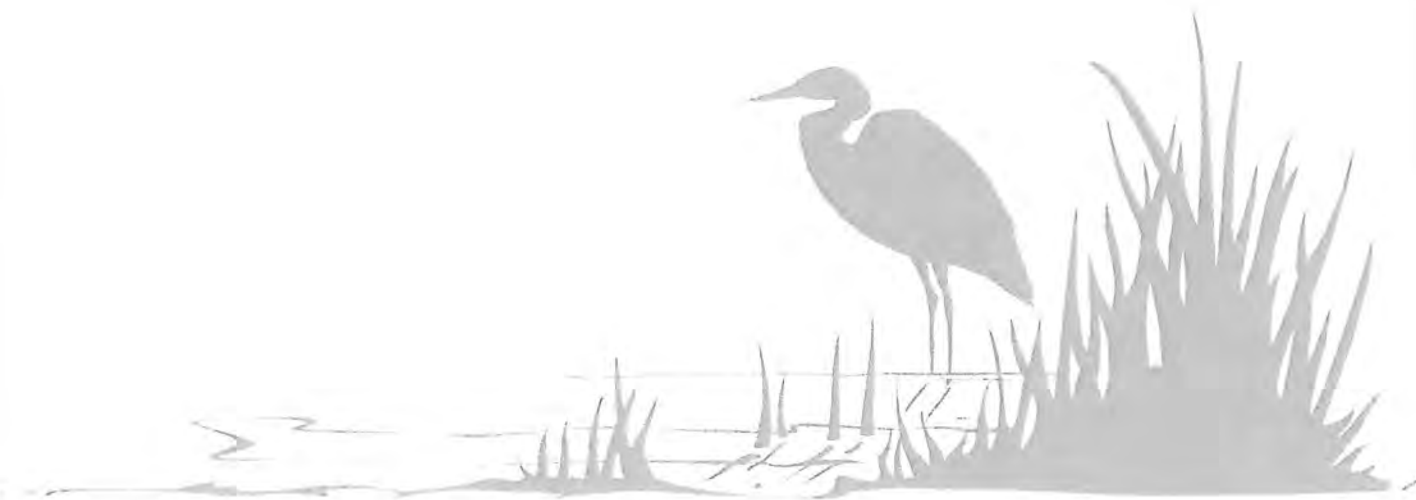
Eleven (11) wetland/pond/stream areas were identified during the course of a field investigation based upon the three parameter technique (vegetation, soils, and hydrology) outlined in the Corps Manual and *Northcentral and Northeast Regional Supplement.* It is EDI's professional opinion that Wetlands 1 through 10 are not connected to waters of the U.S. and would therefore be considered isolated. Wetland 11 (Ellicott Creek), however, is a traditionally navigable waterway and is regulated by the USACE. In addition, the creek is a NYSDEC Class B stream regulated under Article 15 of the New York State Conservation Law. NYSDEC and USACE approaches their regulatory analyses by first considering avoidance of wetlands and minimization of wetland losses. EDI recommends the following:

(1) Submit this report to USACE with a request for a wetland boundary confirmation and jurisdictional determination.

(2) If <u>no impacts</u> are proposed to federally regulated wetlands or Ellicott Creek based on the outcome of the jurisdictional determination, it is the professional opinion of EDI that the project may proceed without the need for a Section 404 Permit.

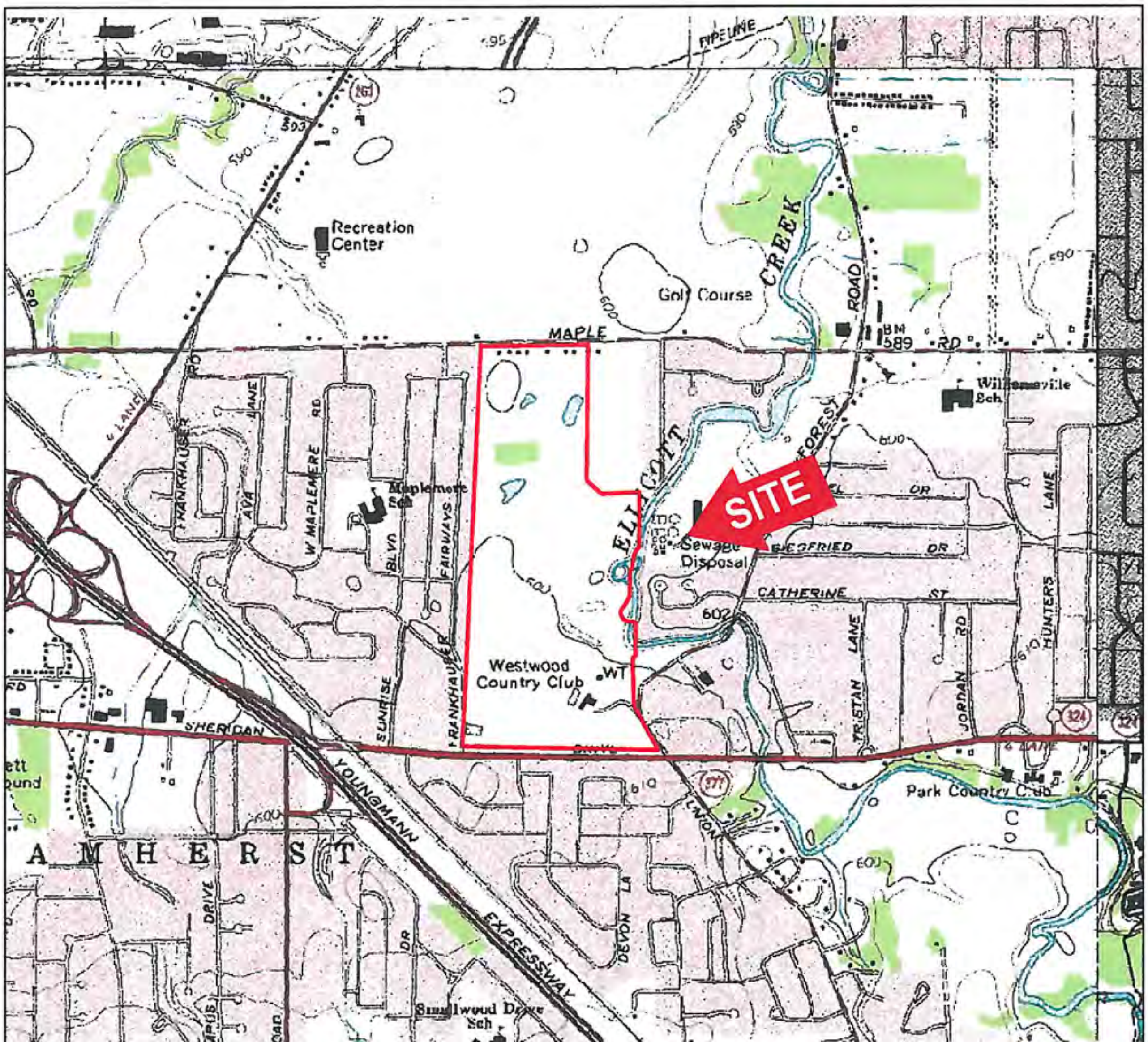
(3) If any jurisdictional wetland impacts are proposed, it is EDI's recommendation that a Joint Application for Permit and supporting documentation be submitted to the USACE and NYSDEC.

Westwood Country Club



ATTACHMENT A

Figures



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1091 Jamison Road, Elma NY 14059
(716) 655-1717 * Fax (716) 655-2915 www.earthdimensions.com

Figure 1: USGS 7.5 Minute Topographical Map
Buffalo NE Quadrangle/ 2002 DeLorme

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Figure 2: National Wetlands Inventory Map
http://www.fws.gov/wetlands/Data/Mapper.html
Site visited 9/11/2012

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Town of Amherst, Erie County, New York

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Figure 3: NRCS Erie County Soil Survey Map
http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx
Site visited 9/11/2012

Westwood Country Club
Town of Amherst, Erie County, New York

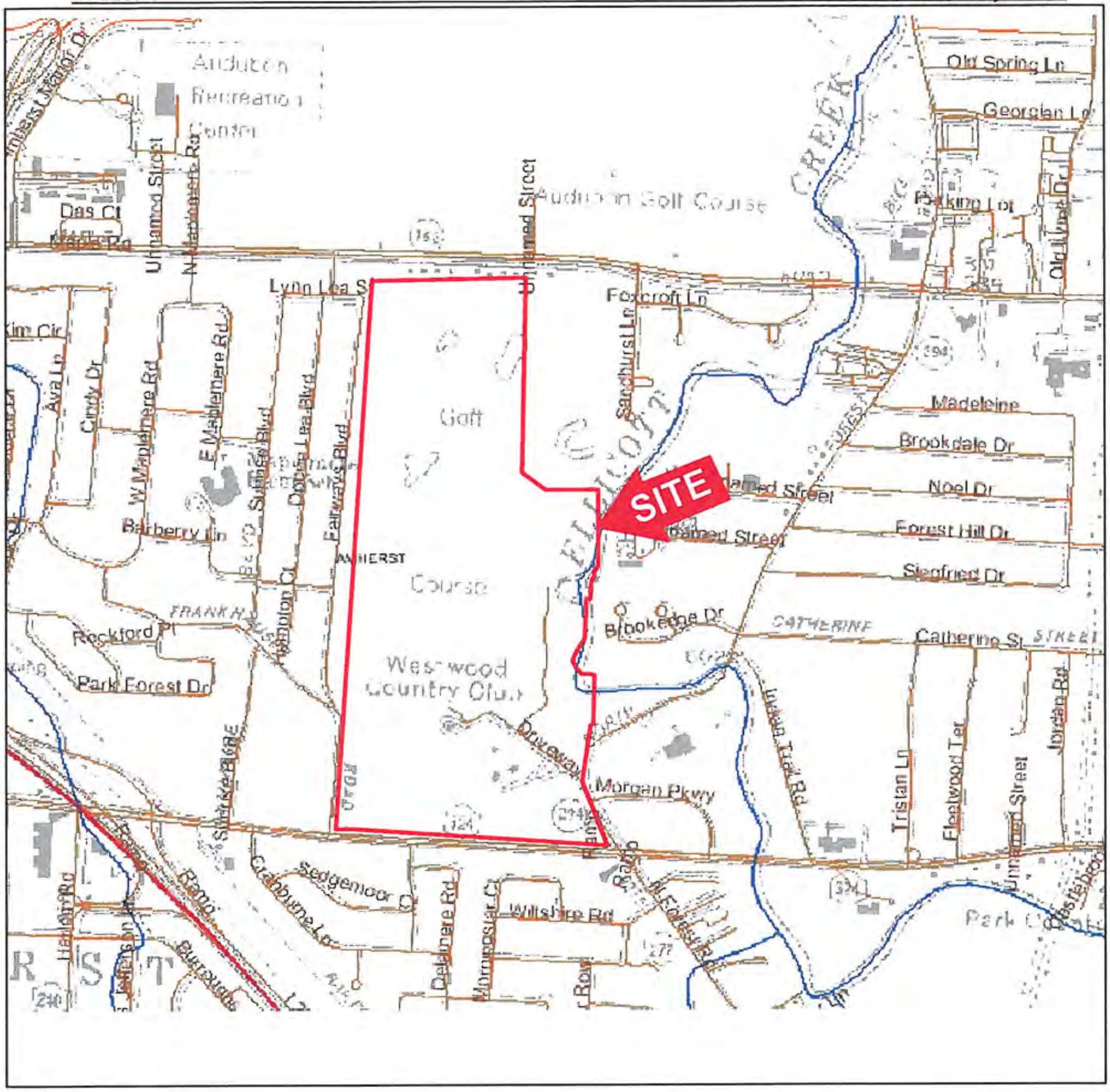

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Figure 4: NYSDEC Environmental Resource Mapper
http://www.dec.ny.gov/imsmaps/ERM/Viewer.htm
Site visited 9/11/2012

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Town of Amherst, Erie County, New York

Figure 5: General Vegetation Map

Town of Amherst — Erie County, New York

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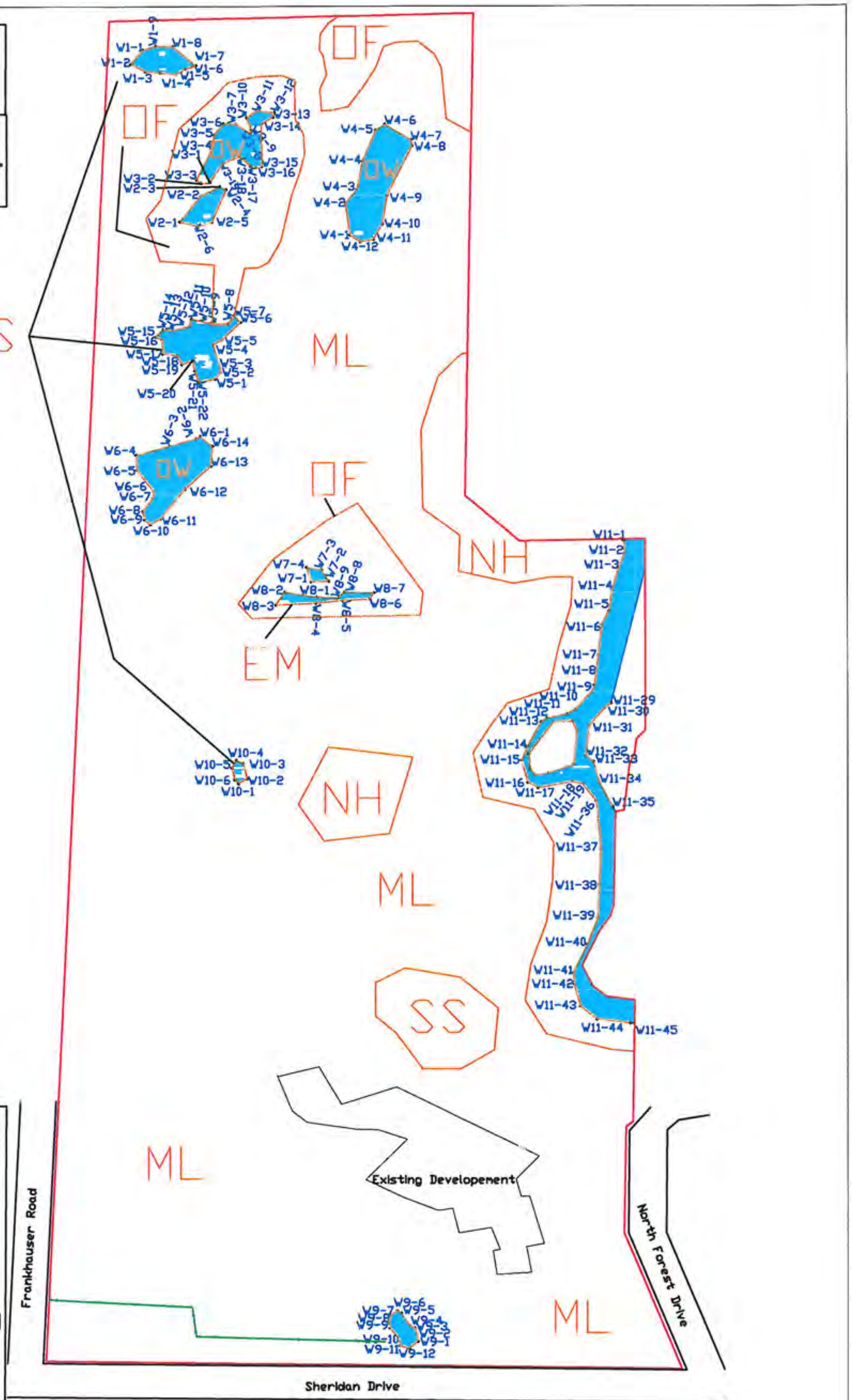


Westwood Country Club
LEGEND

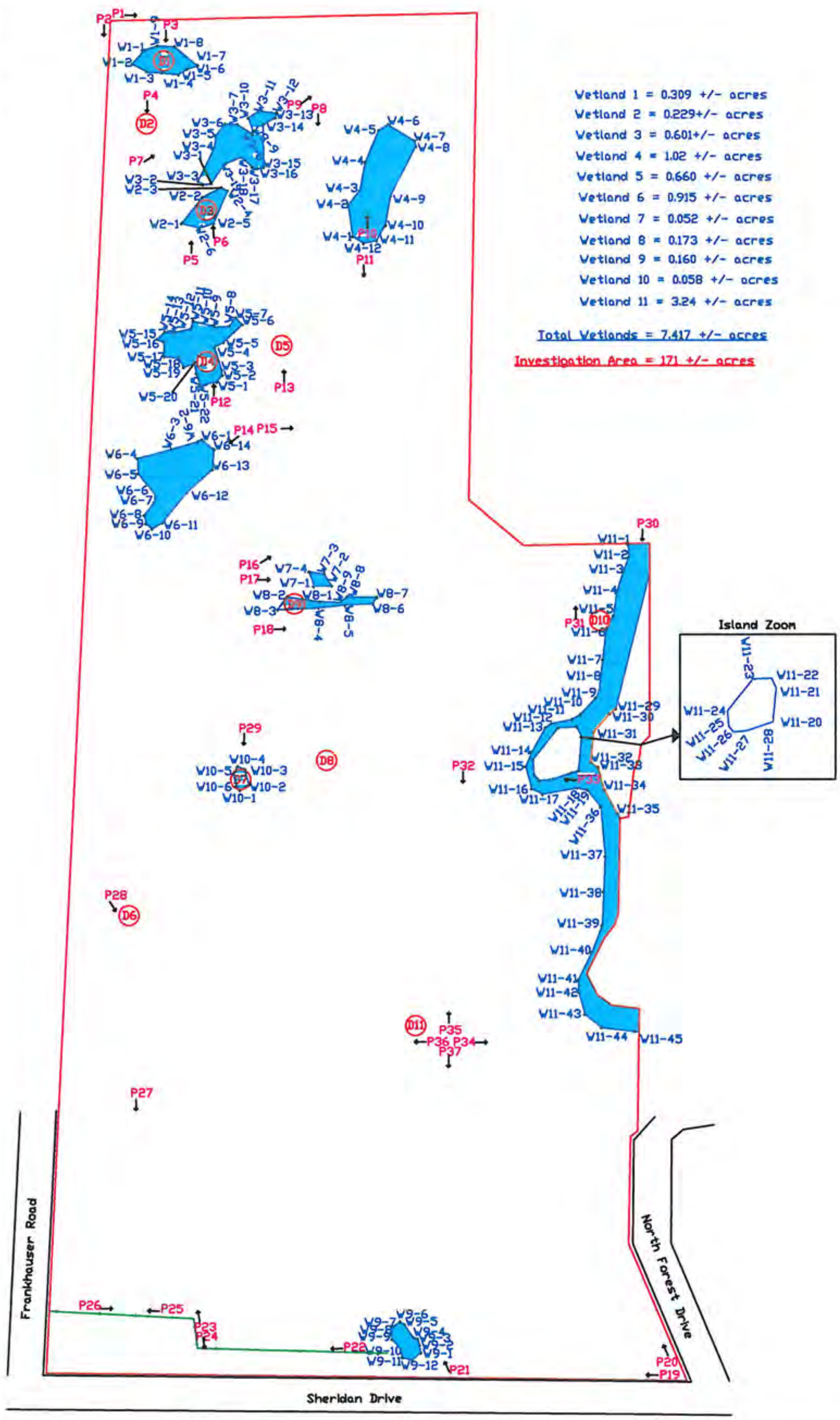
- Limits of Investigation
- Community Boundary
- W1-1 Wetland Boundary Flag
- Wetland Area
- NH Successional Northern Hardwood
- HS Hardwood Swamp
- OF Old Field
- SS Scrub-shrub Swamp
- SL Successional Shrubland
- EM Emergent Marsh
- ML Mown Lawn
- Open Water

Scale:
Map Date: September 25, 2012/ ARS for EDI Revised:
Base Map Provided By: Garmin GPSmap 62Sx 4-9 foot accuracy
File Name: Wetland Delineation Map.dwg
EDI Project Code: W1I09b

Figure 6: Wetland Delineation Map

Town of Amherst | Erie County, NY

EARTH DIMENSIONS, INC.

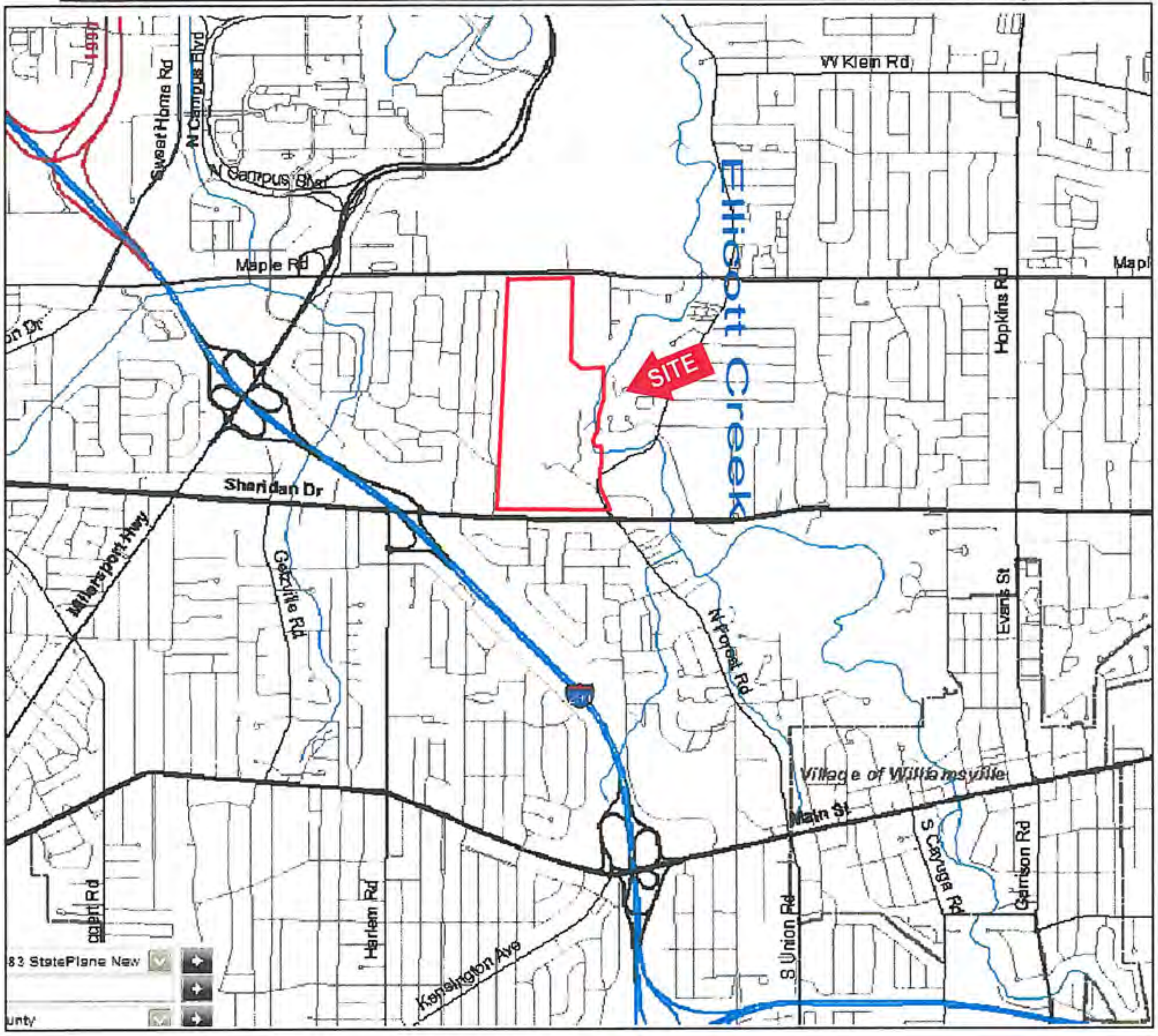


Westwood Country Club

LEGEND

- Limits of Investigation
- Drainages
- W1-1 Wetland Boundary Flag
- Wetland Area
- Photo Location
- D1 Data Point Location

Scale:
Map Date: September 25, 2012/ ARS for EDI Revised:
Base Map Provided By: Garmin GPSmap 62Sx 4-9 foot accuracy
File Name: Wetland Delineation Map.dwg
EDI Project Code: W1I09b



EARTH DIMENSIONS, INC.
* Soil & Hydrogeologic Investigations * Wetland Delineations
1091 Jamison Road, Elma NY 14059
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Figure 7: Drainage Map
http://gis1.erie.gov/GC/ErieCountyNY/default.htm
Site visited 9/11/2012

Westwood Country Club
Town of Amherst, Erie County, New York

Westwood Country Club

ATTACHMENT B

Data Forms

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 17, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D1

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONCAVE

Slope (%): 0 Lat: 42.99055 Long: -78.77460 Datum: NAD83

Soil Map Unit Name: Odessa S.H/loam NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: W1

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___ No X	Depth (inches): N/A	
Water Table Present?	Yes ___ No X	Depth (inches): N/A	
Saturation Present? (includes capillary fringe)	Yes ___ No X	Depth (inches): N/A	**Wetland Hydrology Present?** Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION : Use scientific names of plants.

Sampling Point: D1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	25	Y	FACW
2. Acer rubrum	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. Fraxinus pennsylvanica	5	Y	FACW
2. Rhamnus frangula	3	Y	FAC
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Herb Stratum (Plot size: 5')			
1. Juncus effusus	30	Y	FACW
2. Scirpus cyperinus	30	Y	FACW
3. Carex vulpinoidea	25	Y	OBL
4. Scirpus atrovirens	5	N	OBL
5. Eupatorium perfoliatum	10	N	FACW
6. Fraxinus pennsylvanica	5	N	FACW
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. NA			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- ___ Dominance Test is >50%
- ___ Prevalence Index is < 3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Young PFO/SS wetland

Community Type: Shrub/forested

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # 3 **Direction of Photo** South

Project Code: W1I09b

SOIL Sampling Point: DI

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	70	10YR 5/8	30	C	M	S.C	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- __ Histosol (A1)
- __ Histic Epipedon (A2)
- __ Black Histic (A3)
- __ Hydrogen Sulfide (A4)
- __ Stratified Layers (A5)
- __ Depleted Below Dark Surface (A11)
- __ Thick Dark Surface (A12)
- __ Sandy Mucky Mineral (S1)
- __ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- __ Sandy Gleyed Matrix (S4)
- __ Sandy Redox (S5)
- __ Stripped Matrix (S6)
- __ Dark Surface (S7) (**LRR R, MLRA 149B**)
- __ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- __ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- __ Loamy Mucky Mineral (F1) (**LRR K, L**)
- __ Loamy Gleyed Matrix (F2)
- __ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ~~Depleted Dark Surface (F7)~~
- __ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- __ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- __ Coast Prairie Redox (A16) (**LRR K, L, R**)
- __ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- __ Dark Surface (S7) (**LRR K, L**)
- __ Polyvalue Below Surface (S8) (**LRR K, L**)
- __ Thin Dark Surface (S9) (**LRR K, L**)
- __ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- __ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- __ Red Parent Material (TF2)
- __ Very Shallow Dark Surface (TF12)
- __ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):
Type: NONE
Depth (inches): N/A

Hydric Soil Present? Yes Y No ____

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 17, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D2

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): Flat

Slope (%): 1 Lat: 42.98994 Long: -78.77484 Datum: NAD83

Soil Map Unit Name: Odessa Silt loam NW I classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

VEGETATION : Use scientific names of plants.

Sampling Point: D2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
5.			
6.			
7.			
	= Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	Y	FACW
2. Rhamnus frangula	10	Y	FAC
3. Salix bebbiana	10	Y	FACW
4. Crataegus spp.	7	N	NI
5. Cornus racemosa	15	Y	FAC
6. Cornus [illegible]	5	N	FACW
7.			
	60 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Lolium [illegible]	7	N	FACU
2. [illegible]	15	Y	FACU
3. Poa pratensis	25	Y	FACU
4. Potentilla simplex	15	Y	FACU
5. Fragaria virginiana	10	Y	FACU
6. Prunella vulgaris	10	Y	FACU
7. Juncus tenuis	5	N	FAC
8. Agrostis [illegible]	5	N	FAC
9. Acer rubrum	3	N	FAC
10.			
11.			
12.			
	95 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # 4 **Direction of Photo** S

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	30	x 2 = 60
FAC species	23	x 3 = 69
FACU species	97	x 4 = 388
UPL species	0	x 5 = 0
Column Totals:	150 (A)	517 (B)

Prevalence Index = B/A = 3.446

Hydrophytic Vegetation Indicators:

- __ Rapid Test for Hydrophytic Vegetation
- __ Dominance Test is >50%
- __ Prevalence Index is < 3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: SSC upland [illegible]

Hydrophytic Vegetation Present? Yes ___ No X

Project Code: W1I09b

SOIL Sampling Point: D2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 5/4	85	10YR 5/6	15	C	M	SiC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes _____ No X

Remarks:

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 17, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D3

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONCAVE

Slope (%): 0 Lat: 42.98904 Long: -78.77410 Datum: NAD83

Soil Map Unit Name: Odessa silt loam NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___ Hydric Soil Present? Yes X No ___ Wetland Hydrology Present? Yes X No ___	**Is the Sampled Area within a Wetland?** Yes X No ___ If yes, optional Wetland Site ID: W2

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

VEGETATION : Use scientific names of plants.

Sampling Point: D3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	30	Y	FACW
2. Populus deltoides	5	Y	FAC
3.			
4.			
5.			
6.			
7.			
	35 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	60	Y	FACW
2. Acer rubrum	5	N	FAC
3.			
4.			
5.			
6.			
7.			
	65 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer saccharinum	7	N	FACW
2. Carex stipata	70	Y	FACW
3. Lythrum salicaria	10	N	FACW
4. Euthamia graminifolia	5	N	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	92 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
	= Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is ≤ 3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Young dense saplings

Community Type: Very young PFO/SS Swamp

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # 6 **Direction of Photo** South

Project Code: W1I09b

SOIL Sampling Point: D3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	7.5YR 4/2	80	10YR 5/6	20	C	M	S.L	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 17, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D4

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONCAVE

Slope (%): 0 Lat: 42.98770 Long: -78.77415 Datum: NAD83

Soil Map Unit Name: Schoharie Silt loam, 3-8% NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___		**Is the Sampled Area within a Wetland?** Yes X No ___
Hydric Soil Present? Yes X No ___		
Wetland Hydrology Present? Yes X No ___		If yes, optional Wetland Site ID: W5

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season W ater Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? Yes ___ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

VEGETATION : Use scientific names of plants.

Sampling Point: D4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus [illegible]	50	Y	FACW
2. Fraxinus pennsylvanica	15	N	FACW
3. Quercus rubra	10	N	FAC
4. Ulmus americana	5	N	FACW
5.			
6.			
7.			
	80 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	Y	FACW
2. Rhamnus frangula	10	Y	FAC
3. Lonicera tatarica	<2	N	FACU
4.			
5.			
6.			
7.			
	27 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Aster lanceolatum	10	Y	FACW
2. Glyceria striata	15	Y	OBL
3. Carex [illegible]	5	Y	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	30 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
	— = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

- __ Rapid Test for Hydrophytic Vegetation
- __ Dominance Test is >50%
- __ Prevalence Index is < 3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: PFO Hw Swamp

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # 12 **Direction of Photo** N

Project Code: W1I09b

SOIL Sampling Point: D4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	98	10YR 5/6	2	C	M	SiL	
6-12	10YR 5/2	85	10YR 5/8	15	C	M	SiCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 17, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D5

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): Lake Plain Local relief (concave, convex, none): CONVEX / FLAT

Slope (%): 1 Lat: 42 98796 Long: -78. 77876 Datum: NAD83

Soil Map Unit Name: Odessa S.I.L loam NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present? Yes ___ No X		
Wetland Hydrology Present? Yes ___ No X	If yes, optional Wetland Site ID: ____	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

Sampling Point: D5

VEGETATION : Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus rubra	65	Y	FACU
2. Quercus palustris	25	Y	FACW
3.			
4.			
5.			
6.			
7.			
	90 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhamnus cathartica	20	Y	FAC
2. Fraxinus pennsylvanica	10	Y	FACW
3. Prunus serotina	5	N	FACU
4. Tilia americana	7	N	FACU
5. Rhamnus frangula	5	N	FAC
6. Rubus allegheniensis	5	N	FACU
7.			
	52 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhamnus frangula	15	Y	FAC
2. Rosa multiflora	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	20 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 0	x 1 = 0
FACW species 35	x 2 = 70
FAC species 20	x 3 = 60
FACU species 107	x 4 = 428
UPL species 0	x 5 = 0
Column Totals: 162 (A)	558 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- ___ Dominance Test is >50%
- ___ Prevalence Index is < 3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: SNHW (portions of understory mowed)

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # 13 **Direction of Photo** N

Project Code: W1I09b

SOIL Sampling Point: D5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					SiL	
6-12	10YR 5/4	95	10YR 5/6	5	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 24, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D6

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): LAKE PLAIN Local relief (concave, convex, none): CONVEX

Slope (%): 1-3 Lat: 42.98272 Long: -78.77537 Datum: NAD83

Soil Map Unit Name: COSAD LOAMY FINE SAND NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ___ No X		**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present? Yes ___ No X		
Wetland Hydrology Present? Yes ___ No X		If yes, optional Wetland Site ID: ______

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season W ater Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? Yes ___ No X Depth (inches): N/A
(includes capillary fringe)

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

VEGETATION : Use scientific names of plants.

Sampling Point: D6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	10	X	FACW
2.			
3.			
4.			
5.			
6.			
7.			
= Total Cover	10		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
= Total Cover	5		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Phleum pratense	25	Y	FACU
2. Agrostis hyemalis	15	Y	FAC
3. [illegible]	10	N	FACU
4. [illegible]	10	N	FACU-
5. Fraxinus pennsylvanica	15	Y	FACW
6. Vicia sativa	10	N	FACU-
7. Solidago canadensis	5	N	FACU
8. Euthamia graminifolia	5	N	FAC
9.			
10.			
11.			
12.			
= Total Cover	95		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
= Total Cover	X		

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # ________ **Direction of Photo** ________

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	30	x 2 = 60
FAC species	20	x 3 = 60
FACU species	60	x 4 = 240
UPL species	0	x 5 = 0
Column Totals:	110 (A)	360 (B)

Prevalence Index = B/A = 3.27

Hydrophytic Vegetation Indicators:

- __ Rapid Test for Hydrophytic Vegetation
- __ Dominance Test is >50%
- __ Prevalence Index is < 3.0[1]
- __ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- __ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: SUC UPL field

Hydrophytic Vegetation Present? Yes ____ No X

Project Code: W1I09b

SOIL

Sampling Point: D6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	7.5YR 3/2	100					SiL	
6-12	7.5YR 5/4	100					SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 24, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D7

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): ______ Local relief (concave, convex, none): CONCAVE

Slope (%): <1 Lat: 42.98394 Long: -78.77383 Datum: NAD83

Soil Map Unit Name: COSAD LOAMY Fine Sand NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ___	Is the Sampled Area within a Wetland? Yes X No ___
Hydric Soil Present? Yes X No ___	
Wetland Hydrology Present? Yes X No ___	If yes, optional Wetland Site ID: W10

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)	X Water-Stained Leaves (B9)
___ High Water Table (A2)	___ Aquatic Fauna (B13)
___ Saturation (A3)	___ Marl Deposits (B15)
X Water Marks (B1)	___ Hydrogen Sulfide Odor (C1)
___ Sediment Deposits (B2)	___ Oxidized Rhizospheres on Living Roots (C3)
___ Drift Deposits (B3)	___ Presence of Reduced Iron (C4)
___ Algal Mat or Crust (B4)	___ Recent Iron Reduction in Tilled Soils (C6)
___ Iron Deposits (B5)	___ Thin Muck Surface (C7)
___ Inundation Visible on Aerial Imagery (B7)	___ Other (Explain in Remarks)
___ Sparsely Vegetated Concave Surface (B8)	

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

Sampling Point: D7

VEGETATION : Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus palustris	85	Y	FACW
2. Populus deltoides	10	N	FAC
3. Ulmus Americana	10	N	FACW
4.			
5.			
6.			
7.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	5	Y	FACW
2. Quercus palustris	10	Y	FACW
3.			
4.			
5.			
6.			
7.			
	15 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Cinna arundinacea	8	Y	FACW
2. Fraxinus pennsylvanica	3	Y	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	11 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is < 3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: (Pin oak swamp) PFO HW swamp

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # ____ **Direction of Photo** S

SOIL Sampling Point: D7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/2	95	10YR5/8	5	C	M	SiL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ✓ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes X No ___

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 24, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D8

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): LAKE PLAIN Local relief (concave, convex, none): CONVEX

Slope (%): 1-3 Lat: 42.98407 Long: -78.77289 Datum: NAD83

Soil Map Unit Name: COSAD LOAMY Fine Sand NWI classification: ______

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X	Is the Sampled Area within a Wetland?	Yes ___ No X
Hydric Soil Present?	Yes ___	No X		
Wetland Hydrology Present?	Yes ___	No X	If yes, optional Wetland Site ID: ______	

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

Sampling Point: D8

VEGETATION : Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Tilia americana	15	Y	FACU
2. Rhamnus cathartica	15	Y	FACU
3. Populus deltoides	25	Y	FAC
4. Ulmus americana	10	N	FACW
5. Acer negundo	10	N	FAC
6. Acer rubrum	10	N	FAC
7.			
	85 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')			
1. Rhamnus cathartica	35	Y	FACU
2. Crataegus spp.	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
	45 = Total Cover		

Herb Stratum (Plot size: 5')			
1. Lonicera tatarica	15	Y	FACU
2. Rhamnus cathartica	10	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		

Woody Vine Stratum (Plot size: 30')			
1. Vitis riparia	15	Y	FACW
2.			
3.			
4.			
	15 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW , or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW , or FAC: 14 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	10	x 2 = 20
FAC species	45	x 3 = 135
FACU species	115	x 4 = 460
UPL species	0	x 5 = 0
Column Totals:	170 (A)	615 (B)

Prevalence Index = B/A = 3.62

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is < 3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: SVC .N Hwood

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # ____ **Direction of Photo** ____

Project Code: W1I09b

SOIL Sampling Point: D8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/2	100					Sicl	
6-12	10YR5/4	100					Sic	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 24, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D9

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): LAKE PLAIN Local relief (concave, convex, none): CONCAVE

Slope (%): 0 Lat: 42.98551 Long: -78.77297 Datum: NAD83

Soil Map Unit Name: COSAD LOAMY FINE SAND NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ___	Is the Sampled Area within a Wetland? Yes Y No ___
Hydric Soil Present?	Yes X No ___	
Wetland Hydrology Present?	Yes X No ___	If yes, optional Wetland Site ID: W8

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes X No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

D9

VEGETATION : Use scientific names of plants. Sampling Point: D9

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	30	Y	FACW
2. Quercus palustris	20	Y	FACW
3.			
4.			
5.			
6.			
7.			
	50 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	Y	FACW
2. Cornus sericea	5	Y	FACW
3.			
4.			
5.			
6.			
7.			
	20 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer rubrum	5	N	FAC
2. Aster lateriflorus	5	N	FACW
3. Aster [illegible]	15	Y	FACW
4. [illegible]	30	Y	FACW
5. Fraxinus pennsylvanica	10	N	FACW
6. Lythrum salicaria	15	Y	FACW
7. Carex spp	5	N	NI
8. Euthamia graminifolia	5	N	FAC
9.			
10.			
11.			
12.			
	95 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species ____	x 1 = ____
FACW species ____	x 2 = ____
FAC species ____	x 3 = ____
FACU species ____	x 4 = ____
UPL species ____	x 5 = ____
Column Totals: ____ (A)	____ (B)

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is < 3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: PEM Shallow Emergent MARSH

Hydrophytic Vegetation Present? Yes X No ____

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # ____ **Direction of Photo** ____

Project Code: W1I09b

SOIL Sampling Point: D9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR3/1	98	10YR5/6	2	C	M	S.L	
3-12	10YR5/3	70	10YR5/6	10	C	M	S.L	
			10YR5/2	20	D	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149B)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR R, MLRA 149B)**
- ___ Polyvalue Below Surface (S8) **(LRR R, MLRA 149B)**
- ___ Thin Dark Surface (S9) **(LRR R, MLRA 149B)**
- ___ Loamy Mucky Mineral (F1) **(LRR K, L)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) **(LRR K, L, MLRA 149B)**
- ___ Coast Prairie Redox (A16) **(LRR K, L, R)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR K, L, R)**
- ___ Dark Surface (S7) **(LRR K, L)**
- ___ Polyvalue Below Surface (S8) **(LRR K, L)**
- ___ Thin Dark Surface (S9) **(LRR K, L)**
- ___ Iron-Manganese Masses (F12) **(LRR K, L, R)**
- ___ Mesic Spodic (TA6) **(MLRA 144A, 145, 149B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes Y No ___

Remarks:

Project Code: W1I09b

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 24, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D1C

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): STREAM TERRACE Local relief (concave, convex, none): CONVEX

Slope (%): 3-5 Lat: 42.98532 Long: -78.76942 Datum: NAD83

Soil Map Unit Name: Teel Silt loam NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___	No X
Hydric Soil Present?	Yes ___	No X
Wetland Hydrology Present?	Yes ___	No X

Is the Sampled Area within a Wetland? Yes ___ No X

If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): N/A
Water Table Present?	Yes ___	No X	Depth (inches): N/A
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

Sampling Point: D/0

VEGETATION : Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	15	Y	FACW
2. Salix nigra	35	Y	FACW
3. Juglans nigra	15	Y	FACU
4. Acer rubrum	10	N	FAC-
5.			
6.			
7.			
	75 = Total Cover		

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Fraxinus pennsylvanica	10	Y	FACW
2. Rhamnus cathartica	15	Y	FACU
3. Acer negundo	10	Y	FAC
4.			
5.			
6.			
7.			
	35 = Total Cover		

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. [illegible]	25	Y	NI
2. Euonymus [illegible]	15	Y	FACU
3. Fraxinus pennsylvanica	10	N	FACW
4. Parthenocissus quinquefolia	15	Y	FACU
5. Toxicodendron radicans	10	N	FAC
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75 = Total Cover		

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Vitis aestivalis	20	Y	FACU
2. Parthenocissus quinquefolia	15	Y	FACU
3. Toxicodendron radicans	15	Y	FAC
4.			
	50 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 12 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	70	x 2 = 140
FAC species	40	x 3 = 120
FACU species	100	x 4 = 400
UPL species	0	x 5 = 0
Column Totals:	210 (A)	660 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is < 3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: Sue (creek side) N Ave

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # ________ **Direction of Photo** ________

Plot 0 - invasive

Sampling Point: D10

SOIL

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100					SiL	
6-12	10YR 5/3	100					"	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks:

WETLAND DETERMINATION DATA FORM Northcentral and Northeast Region

Project/Site: Westwood Country Club – 772 North Forest Road City/County: Amherst/Erie County Sampling Date: September 24, 2012

Applicant/Owner: Mensch Capital Partners, LLC State: NY Sampling Point: D11

Investigator(s): Scott Livingstone & Jody Celeste Section, Township, Range: 68.01-1-1

Landform (hillslope, terrace, etc.): ____ Local relief (concave, convex, none): CONVEX

Slope (%): 3 Lat: 42.98158 Long: -78.77171 Datum: NAD83

Soil Map Unit Name: Claverack loamy fine sand, 0-3% slopes NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ___ (If no, explain in Remarks.)

Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Yes ___ No X Are "Normal Circumstances" present? Yes X No ___

Are Vegetation ___, Soil ___, or Hydrology ___ naturally problematic? Yes ___ No X (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS : Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ___ No X	**Is the Sampled Area within a Wetland?** Yes ___ No X
Hydric Soil Present?	Yes ___ No X	
Wetland Hydrology Present?	Yes ___ No X	If yes, optional Wetland Site ID: ____

Remarks: (Explain alternative procedures here or in a separate report.)

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ Microtopographic Relief (D4)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): N/A

Water Table Present? Yes ___ No X Depth (inches): N/A

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): N/A

Wetland Hydrology Present? Yes ___ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Project Code: W1I09b

Sampling Point: D11

VEGETATION : Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea abies	15	Y	NI
2. Juglans nigra	10	Y	FACU
3. Acer negundo	12	Y	FAC+
4. Fraxinus pennsylvanica	5	N	FACW
5.			
6.			
7.			
	42	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhamnus cathartica	35	Y	FACU
2. Rubus idaeus	10	Y	FAC-
3.			
4.			
5.			
6.			
7.			
	45	= Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Indicator Status
1. Rhamnus cathartica	2	N	FACU
2. Aster novae-angliae	7	N	FACW
3. Urtica dioica	20	Y	FACU
4. Solidago canadensis	15	Y	FACU
5. Cirsium arvense	10	Y	FACU
6. Rumex crispus	5	N	NI
7. Alliaria petiolata	7	N	NI
8. Leonurus cardiaca	10	Y	NI
9. Solanum dulcamara	5	N	FAC-
10. Verbena urticifolia	3	N	FACU
11. Dipsacus sylvestris	6	N	NI
12.			
	92	= Total Cover	

Woody Vine Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Vitis riparia	15	Y	FACW
2.			
3.			
4.			
	15	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	5	x 2 = 10
FAC species	25	x 3 = 75
FACU species	117	x 4 = 468
UPL species	0	x 5 = 0
Column Totals:	147 (A)	553 (B)

Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:

__ Rapid Test for Hydrophytic Vegetation

__ Dominance Test is >50%

__ Prevalence Index is < 3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines - All woody vines greater than 3.28 ft in height.

Community Type: Suc shrubland

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (Include photo numbers here or on a separate sheet.)

Photo # ____________ **Direction of Photo** ____________

Disturbed

SOIL Sampling Point: DM

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/3	100					l	
7-12	10YR 5/6	100					l	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Piedmont Floodplain Soils (F19) (**MLRA 149B**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) (**LRR R, MLRA 149B**)
- ___ Polyvalue Below Surface (S8) (**LRR R, MLRA 149B**)
- ___ Thin Dark Surface (S9) (**LRR R, MLRA 149B**)
- ___ Loamy Mucky Mineral (F1) (**LRR K, L**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10) (**LRR K, L, MLRA 149B**)
- ___ Coast Prairie Redox (A16) (**LRR K, L, R**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR K, L, R**)
- ___ Dark Surface (S7) (**LRR K, L**)
- ___ Polyvalue Below Surface (S8) (**LRR K, L**)
- ___ Thin Dark Surface (S9) (**LRR K, L**)
- ___ Iron-Manganese Masses (F12) (**LRR K, L, R**)
- ___ Mesic Spodic (TA6) (**MLRA 144A, 145, 149B**)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3] Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: NONE

Depth (inches): N/A

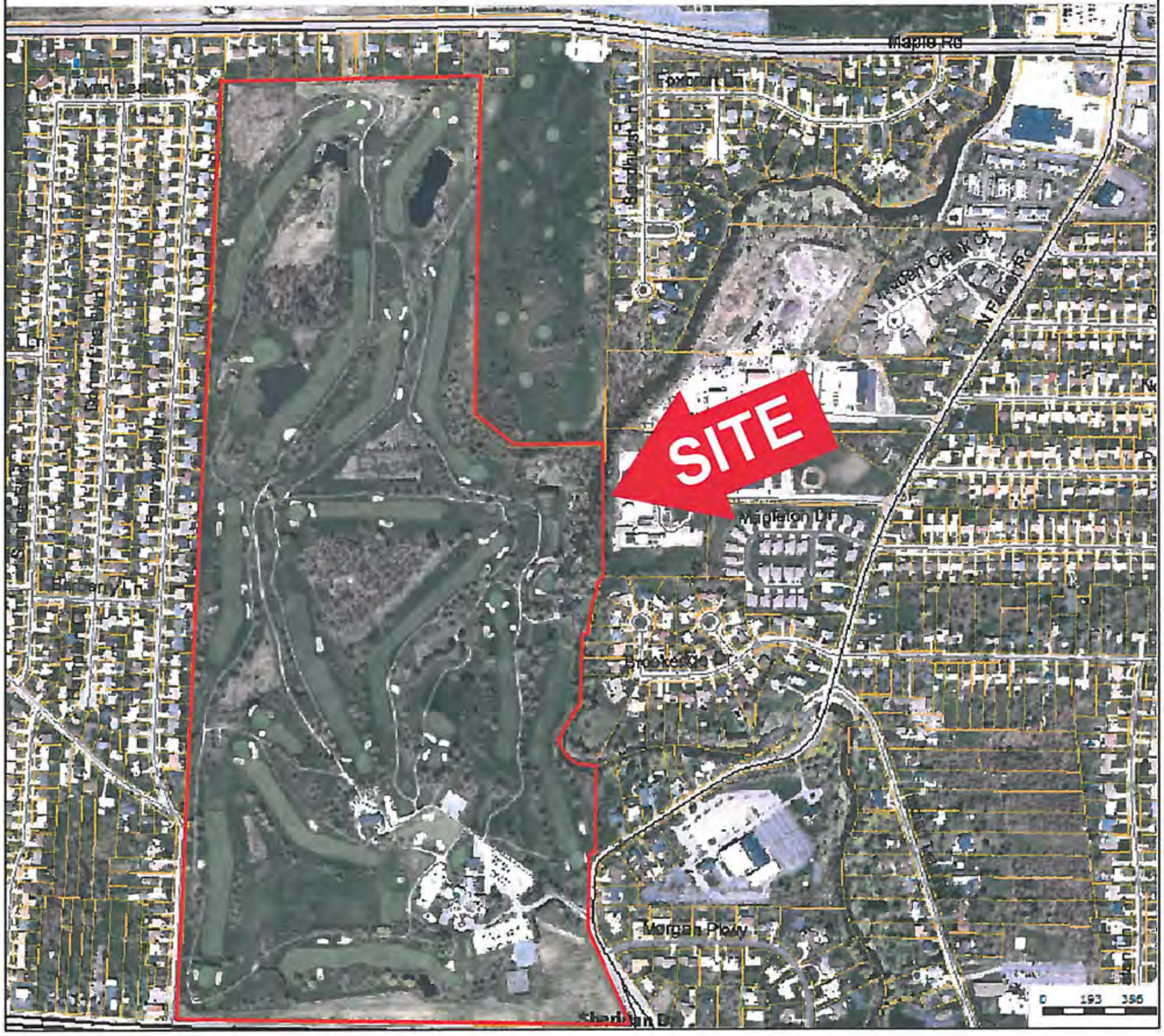
Hydric Soil Present? Yes ____ No X

Remarks:

Westwood Country Club

ATTACHMENT C

Aerial Photograph



EARTH DIMENSIONS, INC.
* Soil & Hydrogeologic Investigations * Wetland Delineations
1091 Jamison Road, Elma NY 14059
(716) 655-1717 * Fax (716) 655-2915 www.earthdimensions.com

Attachment C: Aerial Photograph
http://gis1.erie.gov/GC/ErieCountyNY/default.htm
Site visited 9/11/2012

Westwood Country Club
Town of Amherst, Erie County, New York

Westwood Country Club

ATTACHMENT D
Site Photographs

Photo 1: Facing east. Depicts the northern portion of the investigation area.

Photo 2: Facing south. Depicts the western portion of the investigation area.

Photo 3: Facing south. Depicts the young hardwood swamp of wetland W1 and data point D1.

Photo 4: Facing southwest. Depicts the old field community of data point D2.

Photo 5: Facing north. Depicts the old field community south of wetland W2.

Photo 6: Facing north. Depicts the scrub-shrub swamp community of wetland W2.

Photo 7: Facing northwest. Depicts open water cattail pond of wetland W3.

Photo 8: Facing south. Depicts the mowed lawn from the adjacent old field community.

Photo 9: Facing northeast. Depicts a cart path between two mowed lawn communities.

Photo 10: Facing north. Depicts the open water community of wetland W4.

Photo 11: Facing south. Depicts the mowed lawn community south of wetland W4.

Photo 12: Facing north. Depicts the hardwood swamp community of wetland W5 and data point D4.

Photo 13: Facing north. Depicts the successional northern hardwood community of data point D5.

Photo 14: Facing southwest. Depicts the open water community of Wetland W6.

Photo 15: Facing east. Depicts the mowed lawn community east of wetland W5.

Photo 16: Facing northwest. Depicts the mowed lawn community from the old field community.

Photo 17: Facing east. Depicts wetland W7.

Photo 18: Facing west. Depicts the mowed lawn community from wetland W8.

Photo 19: Facing west. Depicts the southern portion of the investigation area.

Photo 20: Facing north. Depicts the eastern portion of the investigation area.

Photo 21: Facing northwest. Depicts the open water community of wetland W9.

Photo 22: Facing west. Depicts the east end of an ditch on south side of investigation area.

Photo 23: Facing north. Depicts the bridge crossing the ditch at the south side of the investigation area.

Photo 24: Facing south. Depicts the bridge crossing the ditch at the south side of the investigation area.

Photo 25: Facing west. Depicts the culvert on the east side of the ditch.

Photo 26: Facing east. Depicts the second bridge at the south east side of investigation area

Photo 27: Facing south. Depicts the old field community Between two mowed lawn communities.

Photo 28: Facing southeast. Depicts the old field community of data point D6.

Photo 29: Facing south. Depicts the hardwood swamp community of wetland W10 and data point D7.

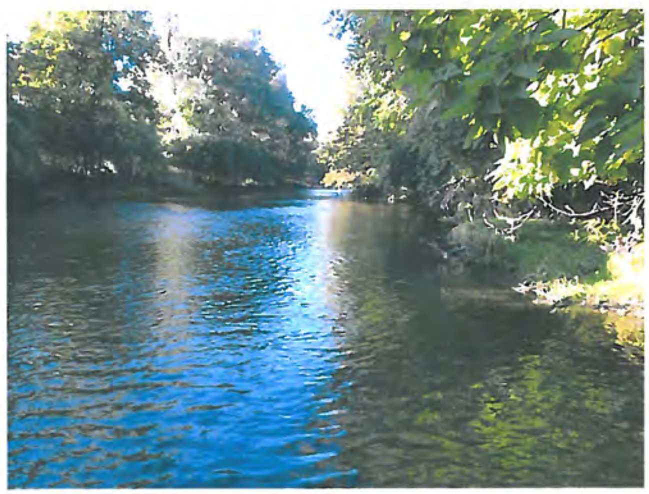


Photo 30: Facing south. Depicts Ellicott Creek.

Photo 31: Facing north. Depicts the successional northern hardwoods of data point D10.

Photo 32: Facing south. Depicts a small swale to the east of Ellicott Creek.

Photo 33: Facing west. Depicts the Ellicott Creek oxbow surrounding golf green.

Photo 34: Facing northeast. Depicts the area to the east of data point D11.

Photo 35: Facing west. Depicts the area to the east data point D11.

Photo 36: Facing southwest. Depicts the area to the east of D11.

Photo 37: Facing southeast. Depicts the area to the southeast of data point D11.

Westwood Country Club

ATTACHMENT E

References

INFORMATIONAL REFERENCES USED BY EARTH DIMENSIONS INC.

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Westwood Country Club

ATTACHMENT F
Wetland Investigation Personnel

WETLAND INVESTIGATION PERSONNEL

Soils and Hydrology Sampling
Scott Livingstone, Senior Soil Scientist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Vegetation Sampling
Jody Celeste, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

Report Preparation
Andy Steiner, Ecologist
Earth Dimensions, Inc.
1091 Jamison Road
Elma, New York 14059
(716) 655-1717

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

REPLY TO
ATTENTION OF:

April 22, 2013

Regulatory Branch

SUBJECT: Acceptance of Wetland Delineation, Application No. 1990-97632

Andrew J. Shaevel
Mencsh Capital Partners, LLC
350 Essjay Road
Williamsville, NY 14221

Dear Mr. Shaevel:

This pertains to your request for an approved jurisdictional determination for the 170 +/- acre Westwood Country Club site located at 772 North Forest Road in the Town of Amherst, Erie County, New York.

Section 404 of the Clean Water Act establishes Corps of Engineers jurisdiction over the discharge of dredged or fill material into waters of the United States, including wetlands, as defined in 33 CFR Part 328.3.

I am hereby verifying the Federal wetland boundary as shown on the attached wetland delineation map dated September 25, 2012. This verification was confirmed on November 8, 2012 and will remain valid for a period of five (5) years from the date of this correspondence unless new information warrants revision of the delineation before the expiration. At the end of this period, a new wetland delineation will be required if a project has not been completed on this property and additional impacts are proposed for waters of the United States. Further, this delineation/determination has been conducted to identify the limits of the Corps Clean Water Act jurisdiction for the particular site identified in this request. This delineation/determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985, as amended. If you or your tenant are United States Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resource Conservation Service prior to starting work.

Based upon my review of the submitted delineation and on-site observations, I have determined that Wetland 11 (Ellicott Creek) on the subject parcel is part of a surface water tributary system to a navigable water of the United States as noted on the attached Jurisdictional Determination (JD) form. Therefore, the wetland(s) is/are regulated under Section 404 of the Clean Water Act. Department of the Army authorization is required if you propose a discharge of dredged or fill material in this/these area(s).

In addition, I have determined that there is no clear surface water connection or ecological continuum between Wetland 1 through 10 on the parcel and a surface tributary system to a navigable water of the United States. Therefore, these waters are considered isolated, non-navigable, intrastate waters and not regulated under Section 404 of the Clean Water Act. Accordingly, you do not need Department of the Army authorization to commence work in these areas.

I encourage you to contact the appropriate state and local governmental officials to ensure that the proposed work complies with their requirements.

Finally, this letter contains an approved JD for the subject parcel. If you object to this JD, you may request an administrative appeal under Corps regulations at 33 CFR Part 331. Enclosed you will find a Notification of Appeal Process (NAP) fact sheet and Request for Appeal (RFA) form. If you request to appeal the above JD, you must submit a completed RFA form within 60 days of the date on this letter to the Great Lakes/Ohio River Division Office at the following address:

Attn: Appeal Review Officer
Great Lakes and Ohio River Division
CELRD-PDS-O
550 Main Street, Room 10524
Cincinnati, OH 45202-3222
Phone: 513-684-6212; FAX 513-684-2460

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 C.F.R. part 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP. Should you decide to submit an RFA form, it must be received at the above address by June 20, 2013.

It is not necessary to submit an RFA to the Division office if you do not object to the determination in this letter.

A copy of this letter has been sent to Scott J. Livingstone at Earth Dimensions, Inc.

Questions pertaining to this matter should be directed to me by calling 716-879-4342, by writing to the following address: U.S. Army Corps of Engineers, 1776 Niagara Street, Buffalo, New York 14207, or by e-mail at: Mark.L.Lester@usace.army.mil

Sincerely,

Mark L. Lester

Mark L. Lester
Biologist

Enclosures

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant: Mensch Capital Management, LLC		File Number: 1990-97632	Date: 4/22/2013
Attached is:			See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)		A
	PROFFERED PERMIT (Standard Permit or Letter of permission)		B
	PERMIT DENIAL		C
X	APPROVED JURISDICTIONAL DETERMINATION		D
	PRELIMINARY JURISDICTIONAL DETERMINATION		E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://www.usace.army.mil/CECW/Pages/reg_materials.aspx or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **OBJECT:** If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- **ACCEPT:** If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- **APPEAL:** If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- **ACCEPT:** You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- **APPEAL:** If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT		
REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)		
ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.		
POINT OF CONTACT FOR QUESTIONS OR INFORMATION:		
If you have questions regarding this decision and/or the appeal process you may contact: Mark L. Lester United States Army Corps of Engineers Buffalo District 1776 Niagara Street Buffalo, NY 14207 716-879-4342 Mark.L.Lester@usace.army.mil	If you only have questions regarding the appeal process you may also contact: Attn: Appeal Review Officer Great Lakes and Ohio River Division CELRD-PD-REG 550 Main Street, Room 10524 Cincinnati, OH 45202-3222 513-684-6212; FAX 513-684-2460	
RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.		
Signature of appellant or agent.	Date:	Telephone number:

APPROVED JURISDICTIONAL DETERMINATION FORM
U.S. Army Corps of Engineers

This form should be completed by following the instructions provided in Section IV of the JD Form Instructional Guidebook.

SECTION I: BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR APPROVED JURISDICTIONAL DETERMINATION (JD): 3/26/13

B. DISTRICT OFFICE, FILE NAME, AND NUMBER: Buffalo District, Westwood Country Club, LRB-1990-97632, Form 1 of 1 (Wetland 1 through 11)

C. PROJECT LOCATION AND BACKGROUND INFORMATION:

State: New York County/parish/borough: Erie County City: Town of Amherst
Center coordinates of site (lat/long in degree decimal format): Lat. 42.99055° **N**, Long. -78.77460° **W**.
Universal Transverse Mercator:
Name of nearest waterbody: Ellicott Creek
Name of nearest Traditional Navigable Water (TNW) into which the aquatic resource flows: Ellicott Creek
Name of watershed or Hydrologic Unit Code (HUC): 04120104

☒ Check if map/diagram of review area and/or potential jurisdictional areas is/are available upon request.
☐ Check if other sites (e.g., offsite mitigation sites, disposal sites, etc…) are associated with this action and are recorded on a different JD form.

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

☒ Office (Desk) Determination. Date: 11/8/12
☒ Field Determination. Date(s): 11/8/12

SECTION II: SUMMARY OF FINDINGS

A. RHA SECTION 10 DETERMINATION OF JURISDICTION.

There **Are no** "*navigable waters of the U.S.*" within Rivers and Harbors Act (RHA) jurisdiction (as defined by 33 CFR part 329) in the review area. [*Required*]

☐ Waters subject to the ebb and flow of the tide.
☐ Waters are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. Explain: .

B. CWA SECTION 404 DETERMINATION OF JURISDICTION.

There **Are** "*waters of the U.S.*" within Clean Water Act (CWA) jurisdiction (as defined by 33 CFR part 328) in the review area. [*Required*]

1. Waters of the U.S.

a. Indicate presence of waters of U.S. in review area (check all that apply): [1]

☒ TNWs, including territorial seas
☐ Wetlands adjacent to TNWs
☐ Relatively permanent waters[2] (RPWs) that flow directly or indirectly into TNWs
☐ Non-RPWs that flow directly or indirectly into TNWs
☐ Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
☐ Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
☐ Impoundments of jurisdictional waters
☒ Isolated (interstate or intrastate) waters, including isolated wetlands

b. Identify (estimate) size of waters of the U.S. in the review area:
Non-wetland waters: linear feet: width (ft) and/or 3.24 acres.
Wetlands: 4.18 acres.

c. Limits (boundaries) of jurisdiction based on: **1987 Delineation Manual**
Elevation of established OHWM (if known): .

2. Non-regulated waters/wetlands (check if applicable):[3]

☒ Potentially jurisdictional waters and/or wetlands were assessed within the review area and determined to be not jurisdictional. Explain: **Wetland 1 through 10 are isolated wetlands with no outlet. These wetlands have no potential to affect interstate commerce under 328.3(a)(3)(i-iii) (See Section IV.B of this form); therefore, Wetland 1 through 10 are considered to be an intrastate, non-navigable, isolated water. As a result, Wetland 1 through 10 are determined to not be jurisdictional under Section 404 of the Clean Water Act.**

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[1] Boxes checked below shall be supported by completing the appropriate sections in Section III below.
[2] For purposes of this form, an RPW is defined as a tributary that is not a TNW and that typically flows year-round or has continuous flow at least "seasonally" (e.g., typically 3 months).
[3] Supporting documentation is presented in Section III.F.

SECTION III: CWA ANALYSIS

A. TNWs AND WETLANDS ADJACENT TO TNWs

The agencies will assert jurisdiction over TNWs and wetlands adjacent to TNWs. If the aquatic resource is a TNW, complete Section III.A.1 and Section III.D.1. only; if the aquatic resource is a wetland adjacent to a TNW, complete Sections III.A.1 and 2 and Section III.D.1.; otherwise, see Section III.B below.

1. **TNW**
   Identify TNW: **Ellicott Creek.**

   Summarize rationale supporting determination: On June 12, 2008 an approved jurisdictional determination form for this TNW has been completed for this section of Ellicott Creek by the Buffalo District. Additionally, the Buffalo District has determined that a site/project specific jurisdictional determination involving this TNW is not required as a TNW designation has already been completed. This TNW jurisdictional determination form for this section of Ellicott Creek has been attached as supporting documentation.

2. **Wetland adjacent to TNW**
   Summarize rationale supporting conclusion that wetland is "adjacent": .

B. CHARACTERISTICS OF TRIBUTARY (THAT IS NOT A TNW) AND ITS ADJACENT WETLANDS (IF ANY):

This section summarizes information regarding characteristics of the tributary and its adjacent wetlands, if any, and it helps determine whether or not the standards for jurisdiction established under *Rapanos* have been met.

The agencies will assert jurisdiction over non-navigable tributaries of TNWs where the tributaries are "relatively permanent waters" (RPWs), i.e. tributaries that typically flow year-round or have continuous flow at least seasonally (e.g., typically 3 months). A wetland that directly abuts an RPW is also jurisdictional. If the aquatic resource is not a TNW, but has year-round (perennial) flow, skip to Section III.D.2. If the aquatic resource is a wetland directly abutting a tributary with perennial flow, skip to Section III.D.4.

A wetland that is adjacent to but that does not directly abut an RPW requires a significant nexus evaluation. Corps districts and EPA regions will include in the record any available information that documents the existence of a significant nexus between a relatively permanent tributary that is not perennial (and its adjacent wetlands if any) and a traditional navigable water, even though a significant nexus finding is not required as a matter of law.

If the waterbody[4] is not an RPW, or a wetland directly abutting an RPW, a JD will require additional data to determine if the waterbody has a significant nexus with a TNW. If the tributary has adjacent wetlands, the significant nexus evaluation must consider the tributary in combination with all of its adjacent wetlands. This significant nexus evaluation that combines, for analytical purposes, the tributary and all of its adjacent wetlands is used whether the review area identified in the JD request is the tributary, or its adjacent wetlands, or both. If the JD covers a tributary with adjacent wetlands, complete Section III.B.1 for the tributary, Section III.B.2 for any onsite wetlands, and Section III.B.3 for all wetlands adjacent to that tributary, both onsite and offsite. The determination whether a significant nexus exists is determined in Section III.C below.

1. **Characteristics of non-TNWs that flow directly or indirectly into TNW**

   (i) **General Area Conditions:**
   Watershed size: **Pick List**
   Drainage area: **Pick List**
   Average annual rainfall: inches
   Average annual snowfall: inches

   (ii) **Physical Characteristics:**
   (a) Relationship with TNW:
   ☐ Tributary flows directly into TNW.
   ☐ Tributary flows through **Pick List** tributaries before entering TNW.

   Project waters are **Pick List** river miles from TNW.
   Project waters are **Pick List** river miles from RPW.
   Project waters are **Pick List** aerial (straight) miles from TNW.
   Project waters are **Pick List** aerial (straight) miles from RPW.
   Project waters cross or serve as state boundaries. Explain: .

[4] Note that the Instructional Guidebook contains additional information regarding swales, ditches, washes, and erosional features generally and in the arid West.

Identify flow route to TNW[5]: .
Tributary stream order, if known: .

(b) General Tributary Characteristics (check all that apply):
Tributary is: ☐ Natural
☐ Artificial (man-made). Explain: .
☐ Manipulated (man-altered). Explain: .

Tributary properties with respect to top of bank (estimate):
Average width: feet
Average depth: feet
Average side slopes: Pick List.

Primary tributary substrate composition (check all that apply):
☐ Silts ☐ Sands ☐ Concrete
☐ Cobbles ☐ Gravel ☐ Muck
☐ Bedrock ☐ Vegetation. Type/% cover:
☐ Other. Explain: .

Tributary condition/stability [e.g., highly eroding, sloughing banks]. Explain: .
Presence of run/riffle/pool complexes. Explain: .
Tributary geometry: Pick List
Tributary gradient (approximate average slope): %

(c) Flow:
Tributary provides for: Pick List
Estimate average number of flow events in review area/year: Pick List
Describe flow regime: .
Other information on duration and volume: .

Surface flow is: Pick List. Characteristics: .

Subsurface flow: Pick List. Explain findings: .
☐ Dye (or other) test performed: .

Tributary has (check all that apply):
☐ Bed and banks
☐ OHWM[6] (check all indicators that apply):
☐ clear, natural line impressed on the bank ☐ the presence of litter and debris
☐ changes in the character of soil ☐ destruction of terrestrial vegetation
☐ shelving ☐ the presence of wrack line
☐ vegetation matted down, bent, or absent ☐ sediment sorting
☐ leaf litter disturbed or washed away ☐ scour
☐ sediment deposition ☐ multiple observed or predicted flow events
☐ water staining ☐ abrupt change in plant community
☐ other (list):
☐ Discontinuous OHWM.[7] Explain: .

If factors other than the OHWM were used to determine lateral extent of CWA jurisdiction (check all that apply):
☐ High Tide Line indicated by: ☐ Mean High Water Mark indicated by:
☐ oil or scum line along shore objects ☐ survey to available datum;
☐ fine shell or debris deposits (foreshore) ☐ physical markings;
☐ physical markings/characteristics ☐ vegetation lines/changes in vegetation types.
☐ tidal gauges
☐ other (list):

(iii) Chemical Characteristics:
Characterize tributary (e.g., water color is clear, discolored, oily film; water quality; general watershed characteristics, etc.).
Explain: .
Identify specific pollutants, if known: .

---

[5] Flow route can be described by identifying, e.g., tributary a, which flows through the review area, to flow into tributary b, which then flows into TNW.
[6] A natural or man-made discontinuity in the OHWM does not necessarily sever jurisdiction (e.g., where the stream temporarily flows underground, or where the OHWM has been removed by development or agricultural practices). Where there is a break in the OHWM that is unrelated to the waterbody's flow regime (e.g., flow over a rock outcrop or through a culvert), the agencies will look for indicators of flow above and below the break.
[7] Ibid.

(iv) **Biological Characteristics. Channel supports (check all that apply):**

- ☐ Riparian corridor. Characteristics (type, average width): .
- ☐ Wetland fringe. Characteristics: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

2. Characteristics of wetlands adjacent to non-TNW that flow directly or indirectly into TNW

(i) **Physical Characteristics:**

(a) General Wetland Characteristics:

Properties:

Wetland size: acres

Wetland type. Explain: .

Wetland quality. Explain: .

Project wetlands cross or serve as state boundaries. Explain: .

(b) General Flow Relationship with Non-TNW:

Flow is: Pick List. Explain: .

Surface flow is: Pick List

Characteristics: .

Subsurface flow: Pick List. Explain findings: .

- ☐ Dye (or other) test performed: .

(c) Wetland Adjacency Determination with Non-TNW:

- ☐ Directly abutting
- ☐ Not directly abutting
  - ☐ Discrete wetland hydrologic connection. Explain: .
  - ☐ Ecological connection. Explain: .
  - ☐ Separated by berm/barrier. Explain: .

(d) Proximity (Relationship) to TNW

Project wetlands are Pick List river miles from TNW.

Project waters are Pick List aerial (straight) miles from TNW.

Flow is from: Pick List.

Estimate approximate location of wetland as within the Pick List floodplain.

(ii) **Chemical Characteristics:**

Characterize wetland system (e.g., water color is clear, brown, oil film on surface; water quality; general watershed characteristics; etc.). Explain: .

Identify specific pollutants, if known: .

(iii) **Biological Characteristics. Wetland supports (check all that apply):**

- ☐ Riparian buffer. Characteristics (type, average width): .
- ☐ Vegetation type/percent cover. Explain: .
- ☐ Habitat for:
  - ☐ Federally Listed species. Explain findings: .
  - ☐ Fish/spawn areas. Explain findings: .
  - ☐ Other environmentally-sensitive species. Explain findings: .
  - ☐ Aquatic/wildlife diversity. Explain findings: .

3. Characteristics of all wetlands adjacent to the tributary (if any)

All wetland(s) being considered in the cumulative analysis: Pick List

Approximately ( ) acres in total are being considered in the cumulative analysis.

For each wetland, specify the following:

Directly abuts? (Y/N)	Size (in acres)	Directly abuts? (Y/N)	Size (in acres)

Summarize overall biological, chemical and physical functions being performed: .

C. SIGNIFICANT NEXUS DETERMINATION

A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by any wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical, and biological integrity of a TNW. For each of the following situations, a significant nexus exists if the tributary, in combination with all of its adjacent wetlands, has more than a speculative or insubstantial effect on the chemical, physical and/or biological integrity of a TNW. Considerations when evaluating significant nexus include, but are not limited to the volume, duration, and frequency of the flow of water in the tributary and its proximity to a TNW, and the functions performed by the tributary and all its adjacent wetlands. It is not appropriate to determine significant nexus based solely on any specific threshold of distance (e.g. between a tributary and its adjacent wetland or between a tributary and the TNW). Similarly, the fact an adjacent wetland lies within or outside of a floodplain is not solely determinative of significant nexus.

Draw connections between the features documented and the effects on the TNW, as identified in the *Rapanos* Guidance and discussed in the Instructional Guidebook. Factors to consider include, for example:

- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to carry pollutants or flood waters to TNWs, or to reduce the amount of pollutants or flood waters reaching a TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), provide habitat and lifecycle support functions for fish and other species, such as feeding, nesting, spawning, or rearing young for species that are present in the TNW?
- Does the tributary, in combination with its adjacent wetlands (if any), have the capacity to transfer nutrients and organic carbon that support downstream foodwebs?
- Does the tributary, in combination with its adjacent wetlands (if any), have other relationships to the physical, chemical, or biological integrity of the TNW?

Note: the above list of considerations is not inclusive and other functions observed or known to occur should be documented below:

1. **Significant nexus findings for non-RPW that has no adjacent wetlands and flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary itself, then go to Section III.D: .

2. **Significant nexus findings for non-RPW and its adjacent wetlands, where the non-RPW flows directly or indirectly into TNWs.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

3. **Significant nexus findings for wetlands adjacent to an RPW but that do not directly abut the RPW.** Explain findings of presence or absence of significant nexus below, based on the tributary in combination with all of its adjacent wetlands, then go to Section III.D: .

D. DETERMINATIONS OF JURISDICTIONAL FINDINGS. THE SUBJECT WATERS/WETLANDS ARE (CHECK ALL THAT APPLY):

1. **TNWs and Adjacent Wetlands.** Check all that apply and provide size estimates in review area:
   ☒ TNWs: linear feet width (ft), Or, 3.24 acres.
   ☐ Wetlands adjacent to TNWs: acres.

2. **RPWs that flow directly or indirectly into TNWs.**
   ☐ Tributaries of TNWs where tributaries typically flow year-round are jurisdictional. Provide data and rationale indicating that tributary is perennial: .
   ☐ Tributaries of TNW where tributaries have continuous flow "seasonally" (e.g., typically three months each year) are jurisdictional. Data supporting this conclusion is provided at Section III.B. Provide rationale indicating that tributary flows seasonally: .

   Provide estimates for jurisdictional waters in the review area (check all that apply):

☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

3. **Non-RPWs[8] that flow directly or indirectly into TNWs.**
☐ Waterbody that is not a TNW or an RPW, but flows directly or indirectly into a TNW, and it has a significant nexus with a TNW is jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional waters within the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .

4. **Wetlands directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands directly abut RPW and thus are jurisdictional as adjacent wetlands.
☐ Wetlands directly abutting an RPW where tributaries typically flow year-round. Provide data and rationale indicating that tributary is perennial in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

☐ Wetlands directly abutting an RPW where tributaries typically flow "seasonally." Provide data indicating that tributary is seasonal in Section III.B and rationale in Section III.D.2, above. Provide rationale indicating that wetland is directly abutting an RPW: .

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

5. **Wetlands adjacent to but not directly abutting an RPW that flow directly or indirectly into TNWs.**
☐ Wetlands that do not directly abut an RPW, but when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisidictional. Data supporting this conclusion is provided at Section III.C.

Provide acreage estimates for jurisdictional wetlands in the review area: acres.

6. **Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs.**
☐ Wetlands adjacent to such waters, and have when considered in combination with the tributary to which they are adjacent and with similarly situated adjacent wetlands, have a significant nexus with a TNW are jurisdictional. Data supporting this conclusion is provided at Section III.C.

Provide estimates for jurisdictional wetlands in the review area: acres.

7. **Impoundments of jurisdictional waters.[9]**
As a general rule, the impoundment of a jurisdictional tributary remains jurisdictional.
☐ Demonstrate that impoundment was created from "waters of the U.S.," or
☐ Demonstrate that water meets the criteria for one of the categories presented above (1-6), or
☐ Demonstrate that water is isolated with a nexus to commerce (see E below).

E. ISOLATED [INTERSTATE OR INTRA-STATE] WATERS, INCLUDING ISOLATED WETLANDS, THE USE, DEGRADATION OR DESTRUCTION OF WHICH COULD AFFECT INTERSTATE COMMERCE, INCLUDING ANY SUCH WATERS (CHECK ALL THAT APPLY):[10]
☐ which are or could be used by interstate or foreign travelers for recreational or other purposes.
☐ from which fish or shellfish are or could be taken and sold in interstate or foreign commerce.
☐ which are or could be used for industrial purposes by industries in interstate commerce.
☐ Interstate isolated waters. Explain: .
☐ Other factors. Explain: .

Identify water body and summarize rationale supporting determination: .

---

[8]See Footnote # 3.
[9] To complete the analysis refer to the key in Section III.D.6 of the Instructional Guidebook.
[10] Prior to asserting or declining CWA jurisdiction based solely on this category, Corps Districts will elevate the action to Corps and EPA HQ for review consistent with the process described in the Corps/EPA *Memorandum Regarding CWA Act Jurisdiction Following Rapanos.*

Provide estimates for jurisdictional waters in the review area (check all that apply):
☐ Tributary waters: linear feet width (ft).
☐ Other non-wetland waters: acres.
Identify type(s) of waters: .
☐ Wetlands: acres.

F. NON-JURISDICTIONAL WATERS, INCLUDING WETLANDS (CHECK ALL THAT APPLY):
☐ If potential wetlands were assessed within the review area, these areas did not meet the criteria in the 1987 Corps of Engineers Wetland Delineation Manual and/or appropriate Regional Supplements.
☒ Review area included isolated waters with no substantial nexus to interstate (or foreign) commerce.
☒ Prior to the Jan 2001 Supreme Court decision in "*SWANCC*," the review area would have been regulated based solely on the "Migratory Bird Rule" (MBR).
☐ Waters do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction. Explain: .
☐ Other: (explain, if not covered above): .

Provide acreage estimates for non-jurisdictional waters in the review area, where the sole potential basis of jurisdiction is the MBR factors (i.e., presence of migratory birds, presence of endangered species, use of water for irrigated agriculture), using best professional judgment (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet width (ft).
☒ Lakes/ponds: 2.696 acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☒ Wetlands: 4.721 acres.

Provide acreage estimates for non-jurisdictional waters in the review area that do not meet the "Significant Nexus" standard, where such a finding is required for jurisdiction (check all that apply):
☐ Non-wetland waters (i.e., rivers, streams): linear feet, width (ft).
☐ Lakes/ponds: acres.
☐ Other non-wetland waters: acres. List type of aquatic resource: .
☐ Wetlands: acres.

SECTION IV: DATA SOURCES.

A. SUPPORTING DATA. Data reviewed for JD (check all that apply - checked items shall be included in case file and, where checked and requested, appropriately reference sources below):
☒ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: project location map, vegetation map, wetland delineation map, and drainage map.
☒ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
☒ Office concurs with data sheets/delineation report.
☐ Office does not concur with data sheets/delineation report.
☐ Data sheets prepared by the Corps: .
☒ Corps navigable waters' study: Ellicot Creek TNW Jurisdictional Determination dated 6/12/08.
☐ U.S. Geological Survey Hydrologic Atlas: .
☐ USGS NHD data.
☐ USGS 8 and 12 digit HUC maps.
☒ U.S. Geological Survey map(s). Cite scale & quad name: 1:24,000 Buffalo NE NY.
☒ USDA Natural Resources Conservation Service Soil Survey. Citation: Erie County.
☒ National wetlands inventory map(s). Cite name: Town of Amherst, Erie County, NY.
☒ State/Local wetland inventory map(s): State Freshwater Wetland Map.
☐ FEMA/FIRM maps: .
☐ 100-year Floodplain Elevation is: (National Geodectic Vertical Datum of 1929)
☒ Photographs: ☒ Aerial (Name & Date): Aerials provided in ORM 11/8/12.
or ☒ Other (Name & Date): Site photos taken 9/17/12, 9/24/12, and 11/8/12.
☐ Previous determination(s). File no. and date of response letter: .
☐ Applicable/supporting case law: .
☐ Applicable/supporting scientific literature: .
☐ Other information (please specify): .

B. ADDITIONAL COMMENTS TO SUPPORT JD: Wetland 1 through 10 are outside Department of the Army jurisdiction because they do not meet the criteria for a jurisdictional water of the United States according to 33 CFR Part 328.3(a)(1-7) as follows:

1. does not/has not supported interstate or foreign commerce;

2. is not an interstate water/wetland;

3. the degradation or destruction of which would not affect interstate or foreign commerce and does not include such waters:

(i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or
(ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(iii) which are used or could be used for industrial purpose by industries in interstate commerce

4. is not an impoundment of water otherwise defined as WOUS under the definition;

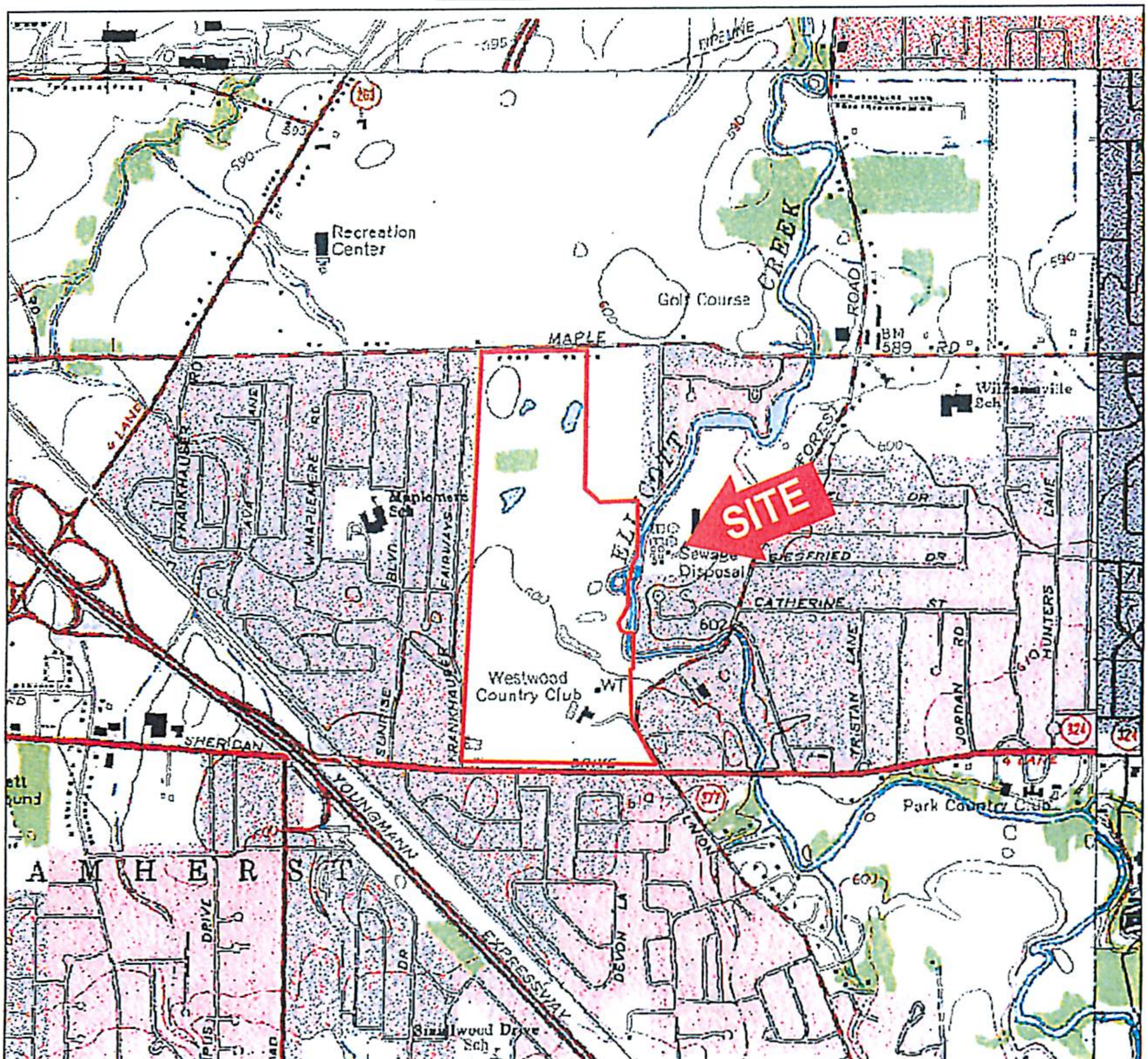
5. is not a tributary of waters identified in paragraphs (a)(1)-(4) of this section;

6. is not a territorial sea;

7. is not wetland adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1)-(6) of this section.

Mensch Capital Partners, LLC
D/A Processing No. 1990-97632
Erie County
Quad: Buffalo NE NY
Sheet 1 of 2

Westwood Country Club



EARTH DIMENSIONS, INC.
* Soil & Hydrogeologic Investigations * Wetland Delineations
1091 Jamison Road, Elma NY 14059
(716) 655-1717 * Fax (716) 655-2915 www.earthdimensions.com

Figure 1: USGS 7.5 Minute Topographical Map
Buffalo NE Quadrangle/ 2002 DeLorme

Westwood Country Club
Town of Amherst, Erie County, New York

Figure 6: Wetland Delineation Map

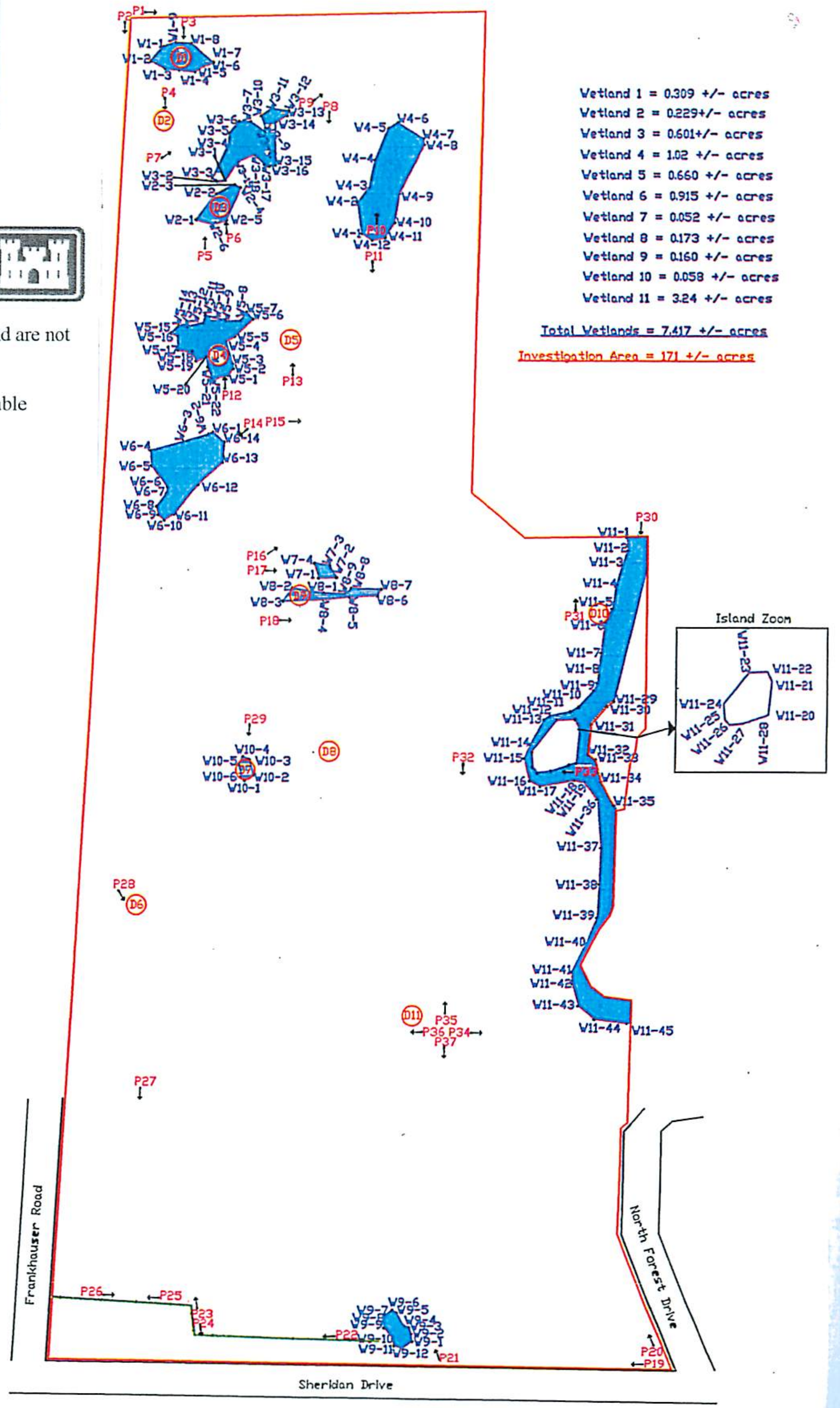
Town of Amherst Erie County, NY

EARTH DIMENSIONS, INC.

Mensch Capital Partners, LLC
D/A Processing No. 1990-97632
Erie County
Quad: Buffalo NE NY
Sheet 2 of 2

Wetland 1 through Wetland 10 are isolated waters and are not jurisdictional. (ML 4/22/13)

Wetland 11 (Ellicott Creek) is a Traditionally Navigable Waterway and is jurisdictional. (ML 4/22/13)



Wetland 1 = 0.309 +/- acres
Wetland 2 = 0.229+/- acres
Wetland 3 = 0.601+/- acres
Wetland 4 = 1.02 +/- acres
Wetland 5 = 0.660 +/- acres
Wetland 6 = 0.915 +/- acres
Wetland 7 = 0.052 +/- acres
Wetland 8 = 0.173 +/- acres
Wetland 9 = 0.160 +/- acres
Wetland 10 = 0.058 +/- acres
Wetland 11 = 3.24 +/- acres

Total Wetlands = 7.417 +/- acres

Investigation Area = 171 +/- acres

Westwood Country Club

LEGEND

- Limits of Investigation
- Drainages
- W1-1 Wetland Boundary Flag
- Wetland Area
- Photo Location
- D1 Data Point Location

Scale:

Map Date: September 25, 2012/ ARS for EDI
Revised:

Base Map Provided By: Garmin GPSmap 62Sx 4-9 foot accuracy

File Name: Wetland Delineation Map.dwg

EDI Project Code: W1I09b

From: Charles Rosenburg
Sent: Friday, May 24, 2013 10:54 AM
To: Jody Celeste
Subject: Re. Westwood Project Site (Town of Amherst)- Wetland Delineation

Jody,
Sorry for the long delay in replying to your request. I started a response shortly after receiving your email but then got distracted and my draft message was buried.
I inspected the DEC's GIS and reviewed the EDI delineation report for the Westwood Country Club parcel. I concur with the EDI statement on page 6 of the report that no state-regulated freshwater wetlands occur on or adjacent to the site. Also, please note that the DEC has not identified any "unmapped wetlands" (wetlands that meet DEC criteria but are not yet formally mapped) in the immediate vicinity of the project site. Please be aware that a state-protected stream (Ellicott Creek, Class B) occurs along a portion of the eastern boundary of the parcel. Any planned activities that would affect the bed or banks of Ellicott Creek (within 50 feet) would require an Article 15 Protection of Waters permit from DEC. The Region 9 Division of Environmental Permits can provide more information as necessary. If you have any questions, don't hesitate to contact me by phone or email.

Chuck

EMPIRE GEO SERVICES, INC.
A SUBSIDIARY OF SJB SERVICES, INC.

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MEMBER
ACEC New York
American Council of Engineering Companies of New York

April 24, 2014
Project No. BE-13-192

Mr. Bradley A. Packard, Project Manager
Mensch Capital Partners, LLC
350 Essjay Road, Suite 304
Williamsville, New York 14221

Re: Geotechnical Evaluation Report for
Proposed Westwood Country Club Development Project
North Forest Road
Amherst, New York

Dear Mr. Packard:

Empire Geo-Services, Inc. is pleased to submit three (3) copies of the enclosed Geotechnical Evaluation Report to Mensch Capital Partners, LLC (Mensch) for the above referenced project. We have also forwarded to you, via e-mail, an electronic pdf file copy of this report for your use and distribution, as appropriate.

Please contact me should you have any questions or wish to discuss this report. Thank you for considering Empire for this work and we look forward to working with you through completion of this project.

Sincerely,

EMPIRE GEO-SERVICES, INC.

John J. Danzer, P.E.
Senior Geotechnical Engineer

Enc.: Geotechnical Evaluation Report (3 Copies) & Electronic pdf file copy / via e-mail

cc: Mr. Robert J. Pidanick – Nussbaumer & Clarke, Inc. w/ Electronic pdf copy via e-mail only

EMPIRE GEO
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Geotechnical Evaluation Report for Proposed Westwood Country Club Redevelopment Project North Forest Road Amherst, New York

Prepared For:

Mensch Capital Partners, LLC
350 Essjay Road, Suite 304
Williamsville, New York 14221

Prepared By:

Empire Geo-Services, Inc.
5167 South Park Avenue
Hamburg, New York 14075

STATE OF NEW YORK
JOHN JOSEPH DANZER
065089
LICENSED PROFESSIONAL ENGINEER

4/24/14

Project No. BE-13-192
April 2014

Geotechnical Evaluation Report for
Proposed Westwood Country Club Redevelopment Project
North Forest Road
Amherst, New York

EXECUTIVE SUMMARY

Introduction

This report summarizes the results of a subsurface exploration program and geotechnical engineering evaluation completed by Empire Geo-Services, Inc. (Empire) for a proposed mixed use redevelopment project being considered by Mensch Capital Partners, LLC on the site of the Westwood Country Club off North Forest Road in Amherst, New York. The approximate location of the project site is shown on Figure No. 1.

The proposed redevelopment project is proposed within the existing Westwood Country Club golf course area, which is bounded by Maple Road to the north, North Forest Road, Ellicott Creek and the Audubon Par 3 Golf Course to the east, Sheridan Drive to the south and Frankhauser Road and Fairways Boulevard to the west.

The proposed redevelopment project is currently planned to include the following:

- 1 to 2 story single family residential home lots in the northern eastern portion of the site;
- Adjoining 1 to 2 story townhome style residential units in the northern western portion of the site;
- Larger 1 to 2 story single family residential home lots in the eastern center portion of the site;
- An approximate 30 acre parcel in the west center potion of the site for senior living development;
- Mixed use town center type development in the southern portion of the site including commercial/retail buildings, office buildings, multi family townhomes and multi family apartments; and
- Re-use of the existing club house building for conference and reception use, in association with construction of an adjoining hotel building.

In addition the project will also include construction of roadways, access drives and parking lot areas with access to the development from Sheridan Drive and Maple Road.

The subsurface exploration program consisted of a total of forty-nine (49) test borings, designated as B-1 through B-49, which were advanced across the site. Thirty (30) borings were advanced to apparent bedrock refusal, with the remaining nineteen (19) borings being advanced to a planned depth of 20 feet and then terminated. Apparent bedrock refusal was encountered at depths ranging between 13.5 feet and 62.5 feet and confirmed by rock coring in seven (7) of the test borings. Three (3) groundwater observation wells were installed in borings B-6, B-24 and B-48 to help assess groundwater conditions on the site, Geotechnical laboratory testing of selected recovered soil samples was also completed.

SJB Services, Inc. (SJB), our affiliated drilling and materials testing company, completed the test borings and laboratory testing for the subsurface exploration program. The test borings and groundwater observation well installations were completed between December 3rd, 2013 and February 5, 2014. The approximate locations of the test borings with respect to an aerial photograph of the existing site are shown on Figure No. 2 and the approximate locations of the test borings with respect to the currently proposed conceptual site development plan are shown on Figure No. 3.

The elevations presented in this report were referenced to the rim of an electrical manhole (temporary benchmark established by SJB), which is located off the front of the existing golf cart storage building, located in the south center portion of the site, as shown on Figure No. 2. This benchmark has an elevation El. datum of 602.38 feet, as measured and reported by Nussbaumer & Clarke, Inc.

This report summarizes the subsurface conditions encountered by the exploration program and presents preliminary geotechnical engineering considerations and recommendations to assist in planning and preliminary design of the site redevelopment. Specifically our evaluation addresses the soil, bedrock and groundwater conditions present on the site, with regard to their impacts on foundation, slab-on-grade floor construction, underground utility construction and pavement construction.

Existing Site Information

As part of our study Empire researched existing information concerning the geologic and flood plain conditions present in the Westwood Country Club site area, including the Soil Survey for Erie County, Surficial Geology and Bedrock Geology Maps, and FEMA Flood Plain Mapping.

The USDA – Erie County Soil Survey data indicate that the surficial soils (i.e. soils typically within the upper 5 feet of the existing ground surface) within the Westwood Country Club facility site consist predominately of “clay loam”, “silt loam”, and “loamy fine sand” type soils. These surficial soil types are similarly classified as CL, ML and SM group soils using the Unified Soil Classification System (USCS), respectively.

Geologic maps prepared by the New York State Geological Survey indicate the surficial overburden soils present consist predominately of glacial till deposits of clay, silt and bouldery clay, with glacial outwash deposits of sand and gravel along Ellicott Creek. The uppermost bedrock formation in this area is the upper (late) Silurian period, Camillus Shale formation of the Salina Geologic Group. This bedrock formation is characterized as medium hard, weathered to sound Shale rock, with occasional gypsum partings and seams and has a generally fair to good rock mass quality.

The FEMA flood plain mapping indicates the 500 year and 100 year flood plains from Ellicott Creek extend into the eastern portions of the Westwood Country Club facility site. The 500 year flood elevations range from El. 595 feet to El. 594 feet where it extends onto the site from the southern end to the center portion, and to about El. 593 feet where it extends onto the northern portion of the site.

Subsurface Exploration Results

The subsurface conditions encountered in the test borings consisted generally of surface topsoil, along with man placed fill or disturbed indigenous soils typically extending to depths ranging between about 2 feet and 5 feet, which are underlain by predominately indigenous glacial till deposited silty clay, clayey silt, silt, and silty or clayey sand soils, overlying the Camillus Shale Bedrock. Table 2 summarizes the surface topsoil depths, the depths and bottom elevation of the man-placed fill, the depth and elevation of auger refusal (i.e. apparent bedrock refusal), and the groundwater observations made in the test borings and the wells installed for this investigation.

The indigenous soils are classified as CL, CH, ML, SM-SC and SM group soils using the Unified Soil Classification System (ASTM D2488). The consistency of the cohesive silty clay and clayey silt soils typically ranged between medium and hard, while the more granular silty or clayey sand soils and the non-plastic silt soils were typically of a firm to very compact relative density. Deeper soft to very soft clay soil deposits having SPT "N" values of less than 4 or "woh - weight of hammer" (i.e. the sample spoon was advanced with only the weight of the drop hammer and drill rods applied statically to the sample spoon), were encountered in only a few test borings (B-1, B-18, B-20 and B-25). Accordingly, significant deposits of highly compressible soft to very soft clays, as present in other portions of northern Amherst, are generally absent within this site.

Shale bedrock, as indicated by the auger refusal conditions, and confirmed by rock coring, was encountered at depths ranging between about 13.5 feet (boring B-10) and 62.5 feet (boring B-1), with corresponding elevations ranging between approximately El. 586.9 feet to El. 543.4 feet. The bedrock core recovered consisted generally of gray, medium hard, sound, thinly bedded to bedded Shale Rock, with occasional partings, seams and layers of gypsum. The core recoveries ranged between 100% and 50%, and the rock quality designation (RQD) values ranged between 20% and 82% indicating the recovered rock cores have a varying rock mass quality ranging between "very poor" and "good".

Based on the water levels obtained at the completion of coring in borings B-4, B-43 and B-48, as well as the readings obtained in borings B-9, B-20 and B-25 following completion soil sampling to auger refusal, and the April 1st, 2014 level in well B-24 tends to suggest that a permanent groundwater table may be present at elevations in the range of about El 580 feet to El. 589 feet, although this is not confirmed by the other groundwater observation wells at this time, as they may be partially impacted by upper perched groundwater..

It also appears that zones of perched or trapped groundwater are present in the topsoil and the fill soils at or near the ground surface, at various locations on the site, due to the relatively low permeability of the underlying soils present, and depending on site drainage conditions. Such conditions were observed during the subsurface exploration where areas of standing water and spongy surface conditions were present, hindering some of the drill rig access.

Laboratory Test Results

The laboratory test data indicates the clay soils encountered within the upper reaches of the site below the immediate surface soils, (i.e. within the anticipated depths of proposed spread foundations) appear to be partially desiccated and have a generally non-existent to low potential susceptibility to shrinkage. Also, given the relatively medium stiff to hard nature of the indigenous clay soils and their inherent low permeability it is unlikely saturation and potential swelling of these soils would occur in an undisturbed state. The upper surficial clayey silt /silty clay fill soils, however, which are in a less dense condition, may be more susceptible to potential shrinkage and swelling where they are inundated with poor draining surface water.

Based on DIPRA tests performed the site soils tested appear to have a low corrosion potential to ductile iron waterline pipes and other buried metallic pipes/elements. Accordingly, cathodic protection or a suitable protective coating of metallic pipes and conduits, to resist potential corrosion, does not appear necessary. Also based on sulfate concentrations, the soils are considered to have a negligible potential for sulfate exposure. Accordingly, a Type I-II Portland Cement appears will be acceptable for the concrete structure elements placed in these soils.

Preliminary Geotechnical Considerations and Recommendations

General

The indigenous soils encountered consist predominately of partially desiccated, medium stiff to hard silty clay and clayey silt and firm to very compact silty or clayey sand deposits with some intermixed gravel, and occasional cobbles/boulders and shale fragments. These soils are non-organic, and are not considered to be highly compressible, nor highly susceptible to shrinkage, swelling, or liquefaction. Significant deposits of highly moist, soft to very soft clays, as present in other areas of northern Amherst and which have been problematic to residential foundation/structure movement and distress (i.e. basement foundation subsidence / settlement and lateral movement), are generally absent within this site.

The indigenous soil conditions encountered in the test borings are generally considered suitable to support the anticipated residential and mixed use structure loads using conventional spread foundation systems. In a few cases (i.e. within borings B-9, B-11, B-19, B-21, B-22 and B-45) some limited zones of weaker soils were encountered which may impact the use of spread foundations. Accordingly, these conditions possibly may require consideration of deep foundations (i.e. driven piles) particularly if a multiple-story more heavily loaded building structure would be proposed at or near these locations.

The existing fill and indigenous soil subgrades are also considered to be generally suitable for basement, at-grade and garage slab-on-grade floor construction, with proper site preparation. The soils encountered are also considered generally suitable for construction of the proposed infrastructure, including the roadways, parking lots, storm and sanitary sewers, waterlines and retention pond structures. The poor draining surface conditions, however, are expected to make site stripping and subgrade preparation difficult, particularly during wet periods

Given, the relatively low to medium low permeability of the soils present, both permanent and perched groundwater seepage if encountered should be relatively slow and of low quantities. Accordingly, these conditions should not significantly impact basement and utility construction. It is anticipated that conventional sump and pump methods of dewatering should generally be sufficient to control surface water, as well as permanent and perched groundwater seepage conditions, should they be encountered.

Based on the subsurface conditions encountered, the overall site should be classified as Seismic Site Class “D” in accordance with the Building Code of New York State. Therefore, seismic design may be based on this site classification.

Foundation Support

Preliminarily, it is expected that spread foundations can be sized, based on net allowable bearing capacities in the range of about 2,000 to 4,000 pounds per square foot (psf) ±, depending on location, foundation bearing depths and actual structure loads.

Spread foundations should bear on suitable, undisturbed, indigenous soil bearing grades, after the removal of all fill soils and any unsuitable indigenous soft or wet soils. Alternatively, the foundations may also bear on Engineered Fill (i.e. compacted Structural Fill or flowable backfill), which is placed over the suitable indigenous soil bearing grades, following excavation and removal of fill soils and any unsuitable indigenous soils which are present below the design bearing grade elevation of the footings.

Where zones of softer soils were encountered, which may impact the use of spread foundations for heavier building structures, the use of driven H-piles or pipe piles driven to refusal on the Shale bedrock appear would be the best suited deep foundation system option for the site conditions present. For preliminary information, a driven HP12x53 H-pile, driven to refusal on the bedrock, would be expected to develop an axial compressive capacity in the range of about 100 to 120 tons ± per pile. Other pile sections can also be used, based on product availability and costs, which would provide higher or lower allowable axial capacities, based on the actual pile section.

Basement Structure Design

Where suitable foundation drainage is provided, the basement walls can be designed for "at rest" lateral earth pressure computed on the basis of an "equivalent fluid unit weight" of 70 pounds per cubic foot (pcf). This is based on the assumption that the wall backfill beyond the drainage system is a suitable well draining granular backfill material, such as a crusher run stone Structural Fill. In this case suitable damp proofing of the walls and floors should also be provided. Alternatively, the basement structures could also be designed to resist potential full hydrostatic pressure. In such case the basement structure should also be fully water proofed.

The use of the on-site clayey silt, silty clay and silty or clayey sand soils to backfill the basement walls is not recommended as they will be susceptible to potential swelling in a looser disturbed state, which could cause additional lateral pressures on the basement walls. The on-site soils could be used, however, to backfill non-earth retaining foundation walls provided they can be properly placed and compacted to a stable and well engineered condition.

Slab-on Grade Floor Construction

The building floors can be constructed as slab-on-grade following proper subgrade preparation. For preliminary design purposes, a minimum of 6-inches of Subbase Stone is recommended beneath the lightly loaded floor slabs (residential floors, lightly loaded office floors, etc.). A minimum 12-inch thick layer of Subbase Stone is recommended beneath more heavily loaded floor slabs (i.e. garage areas, storage areas, mechanical rooms, etc.). A suitable stabilization/separation geotextile, such as Mirafi 500X, should be placed over the existing soil or fill soil subgrades prior to placement of the Subbase Stone layer.

Seismic Design Considerations

Based on the subsurface conditions encountered, the overall site should be classified as Seismic Site Class "D" in accordance with the Building Code of New York State. The soil conditions encountered are generally not considered to be susceptible to potential liquefaction in the case of a seismic event. Therefore, seismic design may proceed based on these considerations.

It is possible that a seismic shear wave velocity study of the site may refine and possibly upgrade the seismic design site class. This may be particularly beneficial in the areas of the mixed use commercial and apartment buildings depending on the costs associated with seismic reinforcement of these structures. It should be understood, however, that there is no guarantee that an upgrade can be made if a seismic shear wave study is performed, Pavement Design Considerations

The Town of Amherst requires a typical pavement section consisting of the following components for residential and commercial development roadways:

Town of Amherst Asphalt Concrete Pavement Section:

- 1.5 inches – Top Course
- 2.5 inches – Binder Course
- 4.0 inches – Base Course
- 11 inches – Subbase Stone Course

We would recommend, however, the Town of Amherst pavement section also include a suitable stabilization/separation geotextile (i.e. Mirafi 600X or suitable equivalent).

Pavement design recommendations are also provided for two (2) flexible pavement structure types within the proposed mixed use development areas. These include the following:

Heavy Duty Asphalt Concrete Pavement (for the entrance, access drives and pavement areas, which will be subject to delivery truck traffic):

- 1.5 inches – Top Course
- 3.0 inches – Binder Course
- 15 inches – Subbase Stone Course
- Stabilization/Separation Geotextile
- Prepared Subgrade

Light Duty Asphalt Concrete Pavement (for automobile / light SUV only parking areas):

- 1.5 inches – Top Course
- 2.0 inches – Binder Course
- 10 inches – Subbase Stone Course
- Stabilization/Separation Geotextile
- Prepared Subgrade

The installation of suitable drainage is also recommended to drain the pavement subbase course and subgrades in order to limit the potential for frost action and improve pavement structure performance and design life.

Underground Utility Construction

The in-situ soils should provide generally suitable subgrade conditions for underground utility construction, including storm and sanitary sewers, water lines, gas lines and buried electrical / communication conduits. Accordingly, standard bedding materials and thicknesses can generally be used to support this infrastructure.

Site Preparation

Measures to improve site drainage should be implemented as necessary prior to commencing the site stripping and subgrade preparation work.

All existing structures, trees, stumps, vegetation, topsoil, organic soils, etc., and any other deleterious materials within the proposed building pad areas and pavement areas should be removed. Following stripping and removal of the surface materials (i.e. topsoil, asphalt pavement, concrete pads and structures, etc.), the exposed subgrades should be proof-rolled. The subgrade proof-rolling should be done under the guidance of, and observed by qualified geotechnical engineering personnel. The subgrade fill placement necessary to raise the site grades and/or the placement of subbase courses may proceed following proper site preparation and acceptance of the existing soil subgrades.

The on-site soils could be used for constructing the fills for establishing the building pad and pavement areas, provided they can be properly placed and compacted in a controlled manner and to a stable well engineered condition, in accordance with our recommendations. It should be understood, however, that these soils will be very difficult to dry and work with. Therefore the use of imported granular fill materials will be better suited for building pad, roadway and parking lot fill areas. Efforts should be made to maintain the subgrades in a dry and stable condition at all times, and limit construction traffic directly over these soils, particularly if they become wet.

Additional Geotechnical Investigations

Additional investigations and further evaluations are recommended for final design when final building development plans and loading conditions, along with final site development plans, are established, as discussed further in the report. Empire can assist in planning the locations and scope of the additional explorations and evaluations that may be necessary for final design.

Closing

Additional more detailed site condition findings, along with considerations and recommendations for permitting, planning and preliminary design of the proposed site redevelopment project are presented in the Geotechnical Evaluation Report, which follows.

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APPENDICES

1.00 INTRODUCTION

1.10 GENERAL

This report summarizes the results of a subsurface exploration program and geotechnical engineering evaluation completed by Empire Geo-Services, Inc. (Empire) for a proposed mixed use redevelopment project being considered on the site of the Westwood Country Club off North Forest Road in Amherst, New York. The approximate location of the project site is shown on Figure No. 1.

Mensch Capital Partners, LLC (Mensch) retained Empire to complete this work, which was done in accordance with our proposal dated October 11, 2013. This work was completed to evaluate the geotechnical characteristics of the site, with regard to foundation support of the proposed mixed use buildings being considered for redevelopment of the site, and to provide preliminary geotechnical design and construction considerations / recommendations to assist the design team with planning and preliminary design.

The subsurface exploration program completed by Empire consisted of a total of forty-nine (49) test borings advanced across the site, of which thirty (30) borings were advanced to apparent bedrock refusal at depths ranging between 13.5 feet and 62.5 feet, with the remaining nineteen (19) borings being advanced to a planned depth of 20 feet and then terminated. Bedrock was cored in seven (7) of the test borings advanced to refusal. In addition, three (3) groundwater observation wells were installed and geotechnical laboratory testing of selected recovered soil samples was also completed. SJB Services, Inc. (SJB), our affiliated drilling and materials testing company, completed the test borings and laboratory testing for the subsurface exploration program.

On this basis, Empire prepared this report, which summarizes the subsurface conditions encountered by the test borings, groundwater observation wells and laboratory testing, and presents preliminary geotechnical engineering considerations and recommendations to assist in planning and preliminary design of the site redevelopment. Specifically our evaluation addresses the soil, bedrock and groundwater conditions present on the site, with regard to their impacts on foundation, slab-on-grade floor construction, underground utility construction and pavement construction.

1.20 SITE DESCRIPTION AND PROPOSED DEVELOPMENT PROJECT

The proposed site redevelopment project comprises approximately 170 acres and is bounded within the area of Maple Road to the north, North Forest Road, Ellicott Creek and the Audubon Par 3 Golf Course to the east, Sheridan Drive to the south and Frankhauser Road and Fairways Boulevard to the west. The redevelopment project is generally proposed within the existing Westwood Country Club golf course area, which currently consists of the golf tees, fairways, hazards, greens along with bordering cart paths, tall grass, trees, brush and ponds. The main club house building, pool and tennis amenities, maintenance buildings, access drive and parking lot areas are located in the southeast portion of the site, with access from North Forest Road. Grades across the site gradually drop in elevation about 10 to 13 feet from south (i.e. Sheridan Drive) to north (Maple Road). Figure No. 2 presents an aerial photograph of the existing site, along with the approximate locations of the test borings plotted on the plan.

The proposed redevelopment project is currently planned to include the following:

- 1 to 2 story single family residential home lots in the northern eastern portion of the site;
- Adjoining 1 to 2 story townhome style residential units in the northern western portion of the site;
- Larger 1 to 2 story single family residential home lots in the eastern center portion of the site;
- An approximate 30 acre parcel in the west center potion of the site for senior living development;
- Mixed use town center type development in the southern portion of the site including commercial/retail buildings, office buildings, multi family townhomes and multi family apartments; and
- Re-use of the existing club house building for conference and reception use, in association with construction of an adjoining hotel building.

In addition the project will also include construction of roadways, access drives and parking lot areas with access to the development from Sheridan Drive and Maple Road. Figure No. 3 presents a conceptual plan of the proposed site development along with the approximate locations of the test borings plotted on the plan.

The1 to 2 story single family residential homes and townhome residential units are expected to consist of wood framed construction, with possible basement structures. The commercial/retail buildings, office buildings, multi family townhomes and multi family apartments are also expected to be 1 to 2 stories with either wood or steel frame type construction, and with at grade ground floors constructed as slab-on-grade. Accordingly, basements are not anticipated for these structures. The new hotel building is expected to be multiple-story with steel frame or masonry with pre-cast plank type construction. The hotel building is also not expected to include a basement structure.

At this time the final building configurations and structure loads have not been established. The development plan currently anticipates that the building structures can generally be supported using conventional spread foundation systems, although it is understood that deep foundation systems could be necessary in some cases, depending on the actual structure loads and soil conditions present.

2.00 SUBSURFACE EXPLORATION

The subsurface exploration program completed to characterize the subsurface conditions consisted of a total of forty-nine (49) test borings, designated as B-1 through B-49. In addition, groundwater observation wells were installed in three (3) of the test borings (B-6, B-24 and B-48). The test borings and groundwater observation well installations were completed by SJB between December 3rd, 2013 and February 5, 2014. The approximate locations of the test borings with respect to an aerial photograph of the existing site are shown on Figure No. 2 and the approximate locations of the test borings with respect to the currently proposed conceptual site development plan are shown on Figure No. 3.

The proposed test boring locations were initially established on a site plan, along with location coordinates, prepared by Nussbaumer & Clarke, Inc. (N&C), which were provided to Empire through Mensch. The boring locations were established to provide general coverage over the project site. Using this plan and the location coordinates, SJB then staked the boring locations in the field using hand held global positioning satellite (gps) instrumentation and visual observations referenced to existing site features. The locations should be considered accurate only to the degree implied by the methodologies used.

The ground surface elevation at each test boring location was measured and recorded by SJB using laser survey level techniques. The elevations were referenced to the rim of an electrical manhole (benchmark established by SJB) located off the front of the existing golf cart storage building, located in the south center portion of the site. The approximate location of the benchmark is shown on Figure No. 2 and has an elevation El. datum of 602.38 feet, as measured and reported by N&C.

Thirty (30) borings were advanced to apparent bedrock refusal at depths ranging between 13.5 feet and 62.5 feet, with the remaining nineteen (19) boring advanced to a depths ranging between about 18 feet and 22 feet. Bedrock was cored in seven (7) of the test borings advanced to refusal (borings B-1, B-4, B-29, B-31, B-43, B-45 and B-47). The borings advanced to apparent bedrock refusal and the borings advanced to a depth of 18 to 22 feet (scheduled to be 20 feet) are designated on Figures No. 2 and No. 3.

The test borings were made using a Central Mine Equipment (CME) model 550X and a CME model 550SE rubber tire, all terrain drill rigs, using hollow stem auger and split spoon sampling techniques. Split spoon samples and Standard Penetration Tests (SPTs) were taken continuously from the ground surface to a depth of 12 feet or 16 feet and in intervals of five feet or less below the zone of continuous sampling until boring completion. The split spoon sampling and SPTs were completed in general accordance with *ASTM D 1586 - "Standard Test Method for Penetration Test and Split-Barrel Sampling of Soils"*.

After reaching auger refusal at test boring locations B-1, B-4, B-29, B-31, B-43, B-45 and B-47 the refusal material encountered was cored using a NQ size double tube core barrel in accordance with *ASTM D 2113 – "Standard Practice for Rock core Drilling and Sampling of Rock for Site Investigation"*. Five (5) feet of bedrock was cored at each of these locations.

Groundwater observation wells were installed in test borings B-6, B-24 and B-48 to help assess groundwater levels on the site. The wells were installed with hollow stem auger drilling techniques in general accordance with *ASTM D5092 Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers.* The well installation consisted of a 2-inch diameter PVC well screen and riser pipe with sand filter, bentonite seal and soil backfill. A protective flush mount surface casing and surrounding concrete seal were installed at the surface of boring B-6 to finish the well installation. The wells installed at borings B-24 and B-48 were completed with a PVC stickup riser and cap, and without a protective surface casing. Additional details regarding the construction of the observation wells are shown on the Monitoring Well Completion Records presented following their respective test boring logs in Appendix A.

A geologist from SJB prepared the test boring logs based on visual observation of the recovered soil samples and bedrock core, along with review of the driller's field notes. The soil samples were described based on visual/manual estimation of the grain size distribution, along with characteristics such as color, relative density, consistency, moisture, etc. In addition the Unified Soil Classification System

(USCS) group symbols were also established and are presented on the logs for the soil types encountered. The recovered rock core samples were also described, including characteristics such as color, rock type, hardness, weathering, bedding thickness, core recovery and rock quality designation (RQD). The test boring logs are presented in Appendix A, along with general information and a key of terms and symbols used to prepare the logs.

3.00 LABORATORY TESTING PROGRAM

Selected recovered soil samples were tested in SJB's geotechnical testing laboratory to confirm the visual soil classifications and provide index properties to aid in our evaluations. The laboratory testing program included the following index tests:

1. Moisture content in accordance with *ASTM D 2216 – "Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass"*.

2. Grain size distribution in general accordance with *ASTM C136 – "Standard Test Method for Particle-Size Analysis of Soils"*;

3. Liquid limit, plastic limit and plasticity index in accordance with *ASTM D 4318 – "Standard Test Method for Liquid Limit, Plastic Limit and Plasticity Index of Soils"*.

4. In addition, the samples tested for liquid limit, plastic limit and plasticity index were also tested for shrinkage limit in accordance with *ASTM D 427 – "Test Method for Shrinkage Factors of Soils by Mercury Method"*. Using the shrinkage test data and the moisture content data, Empire calculated the coefficient of linear extensibility (COLE factor) of the clay soils at the various measured moisture contents, to qualitatively evaluate their shrinkage potential. The COLE factors were determined following a procedure similar to those described in the *Soil Survey Investigation Report No. 42, Soil Survey Laboratory Methods Manual 1996, USDA, NRCS, NSSC.*

The soil samples tested for the above index properties, as well as a summary of the results, are presented on Table 1.

Composite soil samples were also prepared from test borings B-6 (samples S-2 through S-4, 2.0’-8.0’); B-34 (samples S-2 through S-5, 2.0’-10.0’); and B-45 (samples S-2 through S-5, 2.0’-10.0’) and were tested for the following:

- Resistivity, redox, pH, moisture, and sulfides according to procedures established by the Ductile Iron Pipe Research Association (DIPRA test) to provide an indication of the corrosion potential of the on-site soils with regard to buried metallic conduits; and

- Sulfate and chloride concentration in the soils, with regard to potential impacts on buried concrete structures.

This laboratory test data is also presented in Appendix B, as well as summarized on Table 1.

4.00 EXISTING SITE INFORMATION

As part of our study Empire researched existing information concerning the geologic and flood plain conditions present in the Westwood Country Club site area. This included:

- USDA - Natural Resource Conservation Service - Soil Survey for Erie County (http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx);

- NYSED – New York State Museum and Science Service - Surficial Geology and Bedrock Geology Maps (http://www.nysm.nysed.gov/gis/); and

- Erie County On-Line GIS Mapping System – FEMA Flood Plain Mapping (http://gis1.erie.gov/Geocortex/Essentials/Web/viewer.aspx?Site=FEMA&reloadkey=true).

4.10 SOIL SURVEY INFORMATION

The USDA – Erie County Soil Survey data indicate that the surficial soils (i.e. soils typically within the upper 5 feet of the existing ground surface) within the Westwood Country Club facility site consist predominately of “clay loam”, “silt loam”, and “loamy fine sand” type soils. These surficial soil types are similarly classified as CL, ML and SM group soils using the Unified Soil Classification System (USCS), respectively.

These soils typically consist of silty clay, clayey silt, non-plastic silt and silty fine sand and are of a medium-low to low permeability (i.e. poor draining). These soils are also considered to be highly moisture sensitive and have a relatively poor value (i.e. difficult to place and compact) as subgrade fill material to raise site grades beneath slab-on-grade and pavement construction. The locations of the various surficial soil types, as mapped by the Erie County Soil Survey, are presented in Appendix C1.

4.20 SURFICIAL AND BEDROCK GEOLOGY

Geologic maps prepared by the New York State Geological Survey indicate the surficial overburden soils present within the Westwood Country Club facility site consist predominately of glacial till deposits of clay, silt and bouldery clay, with glacial outwash deposits of sand and gravel along Ellicott Creek.

The geologic maps indicate the uppermost bedrock formation in this area is the upper (late) Silurian period, Camillus Shale formation of the Salina Geologic Group. This bedrock formation is characterized as medium hard, weathered to sound Shale rock, with occasional gypsum partings and seams and has a generally fair to good rock mass quality.

Excerpted portions of the surficial soil and bedrock geologic maps, along with applicable associated legends, are presented in Appendix C2.

4.30 FLOOD PLAIN MAPPING

Review of the FEMA flood plain mapping indicates the 500 year and 100 year flood plains from Ellicott Creek extend into the eastern portions of the Westwood Country Club facility site. The 500 year flood elevations range from El. 595 feet to El. 594 feet where it extends onto the site from the southern end to the center portion, and at about El. 593 feet where it extends onto the northern portion of the site.

The flood plain mapping obtained from the Erie County On-Line GIS Mapping System is presented in Appendix C3.

5.00 SUBSURFACE CONDITIONS

5.10 GENERAL SUBSURFACE CONDITIONS ENCOUNTERED

The test borings completed at the site encountered soil and bedrock conditions generally similar to those indicated by existing site information which was researched, as described above in Section 4.00. The stratigraphy encountered in the test borings consisted generally of surface topsoil, along with man placed fill or disturbed indigenous soils typically extending to depths ranging between about 2 feet and 5 feet, which are underlain by indigenous glacial till deposited silty clay, clayey silt, silt, and silty or clayey sand soils, overlying Shale Bedrock.

The consistency of the cohesive silty clay and clayey silt soils typically ranged between medium and hard, while the more granular silty or clayey sand soils and the non-plastic silt soils were typically of a firm to very compact relative density. Deeper soft to very soft clay soil deposits having SPT “N” values of less than 4 or “woh - weight of hammer” (i.e. the sample spoon was advanced with only the weight of the drop hammer and drill rods applied statically to the sample spoon), were encountered in only a few test borings (B-1, B-18, B-20 and B-25). Accordingly, significant deposits of wet, highly compressible, soft to very soft clays, as present in other portions of northern Amherst, are generally absent within this site.

Shale bedrock, as indicated by the auger refusal conditions, and confirmed by rock coring, was encountered at depths ranging between about 13.5 feet (boring B-10) and 62.5 feet (boring B-1), with corresponding elevations ranging between approximately El. 586.9 feet to El. 543.4 feet, with an average elevation of about El. 560.1 feet.

Groundwater levels measured in the groundwater observation wells (B-6, B-24 and B-48) ranged between depths of 0.6 feet, 8.2 feet and 2.4 feet bgs, respectively, during the site visit on April 1st, 2014.

The soil and bedrock stratigraphy encountered and the groundwater conditions observed are described in more detail in the following sections and on the test boring logs presented in Appendix A. Also included, is a table (Table 2) summarizing the surface topsoil depths, the depths and bottom elevation of the man-placed fill, the depth and elevation of auger refusal (i.e. apparent bedrock refusal), and the groundwater observations made in the test borings and the wells installed for this investigation.

5.20 SURFACE MATERIALS AND FILL SOILS

The driller noted a distinct topsoil layer at the ground surface of most of the test borings, with the exception of test borings B-21, B-27 and B-38. The topsoil thickness typically ranged between about 2-inches and 14-inches, based on the driller's measurements and interpretation of topsoil. These measurements are widely spaced and are subject to interpretation. Therefore, these measurements should not be solely relied on for construction quantity estimates.

Beneath the topsoil and at the ground surface of the remaining test borings, man placed fill and/or disturbed or reworked indigenous soils were encountered at most of the test boring locations. The fill soils consisted of red-brown, brown-black and black clayey silt and silty clay soils with occasional zones or inclusions of organics, cinders and wood. The fill, where present, was typically found to extend to depths ranging between about 2 feet and 5 feet bgs.

Most of the fill soils are similar in character to the indigenous soils and appear were most likely placed during past site grading associated with the country club development. It can be expected that fill soils will also be present, and will extend to the bottom of the existing foundations near and adjacent to the existing building structures and amenities as well as to the bottom of previous excavations for existing utility lines within the site.

5.30 INDIGENOUS SOILS

The indigenous soil deposits encountered beneath the surface materials and fill consisted predominately of glacial till deposited silty clay, clayey silt, silt and silty or clayey sand soils, which also contain some intermixed gravel, apparent occasional cobbles/boulders and shale fragments. These indigenous soil deposits were found to extend to the top of bedrock. The indigenous soils are classified as CL, CH, ML, SM-SC and SM group soils using the Unified Soil Classification System (ASTM D2488).

Standard Penetration Test (SPT) "N" values obtained in the indigenous silty clay and clayey silt soils ranged from "woh - weight of hammer" (i.e. the sample spoon was advanced with only the weight of the drop hammer and drill rods applied statically to the sample spoon), to "REF – sample spoon refusal" (i.e. 50 blows to advance the split spoon with 6-inches or less of penetration). The SPT "N" values indicate the consistency of the fine grained cohesive clayey silt and silty clay soils vary from very soft to hard, while the relative density of the more granular silty sand soils and non-plastic silt soils vary from loose to very compact.

Some limited zones of deeper soft to very soft clay soil deposits having SPT "N" values of less than 4 or "woh - weight of hammer" (i.e. the sample spoon was advanced with only the weight of the drop hammer and drill rods applied statically to the sample spoon), were encountered in only a few test borings (B-1, B-18, B-20 and B-25). Accordingly, significant deposits of soft to very soft clays, as present in other areas of northern of Amherst, are generally absent within this site. Some soft clay soils were also present in the upper reaches of a few of the test borings (B-8, B-9, B-11, B-19, and B-22).

5.40 BEDROCK

As discussed above, thirty (30) of the test borings were advanced through the overburden until auger refusal (presumed bedrock refusal) was encountered at depths ranging between about 13.5 feet (boring B-10) and 62.5 feet (boring B-1), with corresponding elevations ranging between approximately El. 586.9 feet to El. 543.4 feet. The borings, as well as the depth and elevation where auger refusal (presumed bedrock refusal) was encountered are summarized on Table 2. Within test borings B-7 and B-22 a zone of weathered Shale was encountered before reaching auger refusal.

Bedrock core samples were obtained from test borings B-1, B-4, B-29, B-31, B-43, B-45 and B-47 after reaching auger refusal. Five (5) feet of bedrock was cored at each of these locations. The bedrock core recovered consisted generally of gray, medium hard, sound, thinly bedded to bedded Shale Rock, with occasional partings, seams and layers of gypsum. Within test boring B-31, the recovered shale rock core was described as being partially slightly weathered and laminated.

The shale bedrock recovered is part of the Camillus Shale geologic formation. The core recoveries ranged between 100% and 50%. The rock quality designation (RQD) values ranged between 20% and 82% indicating the recovered rock cores have a varying rock mass quality ranging between "very poor" and "good".

5.50 GROUNDWATER CONDITIONS

Water level measurements were made in most of the test borings at the completion of overburden drilling and soil sampling. Freestanding water was encountered in borings B-1, B-4, B-5, B-9, B-14, B-20, B-21, B-25, B-26, B-29, B-36, B-37, B-40, B-43, B-45 and B-47 at depths ranging from 13.6 feet to 53.4 feet bgs. These water levels correspond to elevations ranging between El. 586.7 feet and El. 552.5 feet. Each of these borings were advanced to auger refusal (presumed bedrock refusal).

No freestanding water was recorded following the completion of overburden drilling and sampling, at the remaining test borings advanced to auger refusal or at the shallower test borings (i.e. test borings advanced to a depth of 18 to 22 feet and terminated). It is possible that in many cases within the deeper test borings, that groundwater may not have had sufficient time to accumulate and/or stabilize in the boring holes within the time that had elapsed from the completion of soil drilling operations and the time of the observations / measurements.

Following coring at boring locations B-4, B-43 and B-48, freestanding water was recorded at depths of 20.0 feet, 10.0 feet and 10.0 feet respectively below the existing ground surface. These depths correspond to elevations ranging between El. 581.5 feet and El. 583.2 feet. We note that water was added to these test borings to facilitate the rock coring. Water level measurements were not obtained at the completion of coring at the remaining rock core borings (B-1, B-29, B-31 and B-47).

A 2-inch diameter, PVC, groundwater observation well was installed in borings B-6 B-24 and B-48 following the completion of drilling. The wells installed at borings B-24 and B-48 extend to presumed top of bedrock (auger refusal) at depths of 41.3 feet and 31.0 feet, respectively. The well installed at boring B-6 is seated within the silty clay and clayey silt soils at a depth of 22.0 feet.

A geotechnical engineer visited the site on February 7th, February 17th, March 4th, and April 1st, 2014 to record the water level in the wells. The water level depths and corresponding elevations are as follows:

Groundwater Observation Well Water Level Depths and Elevations			
Boring / Well No.	Ground Surface El. (feet)	Water Level Depth (feet)	Water Level El. (feet)
February 7th, 2014			
B-6	603.1	1.1	602.0
B-24	598.6	30.1	568.5
B-48	595.8	3.6	592.2
February 17th, 2014			
B-6	603.1	2.1	601.0
B-24	598.6	13.1	585.5
B-48	595.8	4.5	591.3
March 4th, 2014			
B-6	603.1	4.4	598.7
B-24	598.6	8.1	590.5
B-48	595.8	3.5	592.3
April 1st, 2014			
B-6	603.1	0.6	602.5
B-24	598.6	8.2	590.4
B-48	595.8	2.4	593.4

The water levels observed and measured in the wells, particularly at boring locations B-6 and B-48, may in part be the result of wet surface conditions or perched water present in the upper soils. Based on the water levels obtained at the completion of coring in borings B-4, B-43 and B-48, as well as the readings obtained in borings B-9, B-20 and B-25 following completion soil sampling to auger refusal, and the level in well B-24 tends to suggest that a permanent groundwater table may be present at elevations in the range of about El 580 feet to El. 589 feet, although this is not confirmed by the other groundwater observation wells at this time. Continued monitoring of the water levels in the existing wells, particularly into the summer months, as well as the installation of additional wells is recommended to better confirm the depths / elevations of permanent groundwater conditions present on the site.

It also appears that zones of perched or trapped groundwater are present in the topsoil and fill soils at or near the ground surface, at various locations on the site, due to the relatively low permeability of the underlying soils present, and depending on site drainage conditions. Such conditions were observed during the subsurface exploration where areas of standing water and spongy surface conditions were present, hindering some of the drill rig access. These conditions can be particularly more prevalent following heavy or extended periods of precipitation and during seasonally wet periods, and therefore should be anticipated with the new development site preparation. The clayey and silty fill and indigenous soils encountered are considered to be poor draining soils.

6.00 LABORATORY TEST RESULTS

6.10 SHRINKAGE / SWELL POTENTIAL OF CLAY SOILS

A total of thirteen (13) silty clay / clayey silt soil samples, obtained at various locations and depths as summarized on Table 1, were evaluated qualitatively for shrinkage potential using soil shrinkage and moisture content index test data from the laboratory testing program.

The range of moisture content, liquid limit, plastic limit, plasticity index and shrinkage limit of the clay type soil samples tested, were as follows:

Index Property	Range
Moisture Content	10.7 % to 28.1 %
Liquid Limit	20 % to 61 %
Plastic Limit	12 % to 25 %
Plasticity Index	8 to 37
Shrinkage Limit	12 % to 23 %

The plasticity indices indicate the clay soils vary between a low and high plasticity. Based on the moisture contents and the shrinkage test data, the COLE factors determined ranged from 0 to 0.034.

The laboratory test data and COLE factors calculated suggest that the silty clay soils encountered within the upper reaches of the site below the immediate surface soils, (i.e. within the anticipated depths of proposed spread foundations) are partially desiccated and have a generally non-existent to low potential susceptibility to shrinkage. Therefore, spread foundation settlement should generally be limited to normal consolidation settlement as a result of the compressive structural loads.

The following conditions were noted to support these conclusions.

1. The moisture content of the clay soil samples tested were either lower or just slightly above their shrinkage limit.

2. The COLE factors determined generally ranged from 0 to 0.025, with one sample slightly greater at 0.034.

COLE factors of 0 correlate to a non-existent shrinkage potential. COLE factors between 0 and 0.03 correlate to a low shrinkage potential. COLE factors of 0.03 to 0.06 correlate to a moderate shrinkage potential and COLE factors of about 0.06 and greater correlate to a high to very high shrinkage potential.

With regard to potential swelling, the clay soils would have to be in a loose condition and be inundated with water for long periods to cause saturation and potential swelling. Given the relatively medium stiff to hard nature of the indigenous clay soils and their inherent low permeability it is unlikely saturation and potential swelling of these soils would occur in an undisturbed state. We note, however the upper surficial clayey silt /silty clay fill soils are in a less dense condition and may be more susceptible to potential shrinkage and swelling, where they are inundated with poor draining surface water.

In addition, drying and re-wetting cycles occurring in clayey fill soils, if used to backfill the foundation walls, could result in soil swelling/shrinkage cycles that can exert additional lateral pressures acting on earth retaining foundation walls. Such action may cause cracking and distortion of the walls if not properly accounted for. Accordingly, to reduce risks associated with the potential for soil expansion and minimize the potential for additional lateral earth pressures to act on the walls, the backfill against any earth retaining structures (i.e. basement foundation walls, depressed crawl space walls, pit structures, etc,) should consist of a suitable non-plastic soil such as a granular sand and gravel backfill material or a crusher run stone Structural Fill material.

6.20 SOIL CORROSION AND SULFATE ATTACK POTENTIAL

Three (3) composite soil samples were prepared from the samples obtained from the upper reaches of test boring locations B-6, B-34 and B-45. The composite samples were tested for resistivity, redox, pH, and sulfides according to procedures established by the Ductile Iron Pipe Research Association (DIPRA). These samples were also tested for chlorides and sulfates.

This analytical laboratory test data is included in Appendix B and is also summarized in the following tables.

Summary of DIPRA Test Results							
Test Boring	Sample Depth (feet bgs)	Resistivity (ohm-cm)	Redox (mv)	ph	Sulfides	Moisture (%)	Total DIPRA Points
B-6	2 to 8	15,000	-35.2	7.0	Negative	9.5	6
B-34	2 to 10	11,500	-22.6	6.4	Negative	8.9	6
B-45	2 to 10	2,700	9.0	7.6	Negative	23.9	7

Based on the DIPRA publication "American National Standard for Polyethylene Encasement for Ductile Iron Pipe Systems", if the total DIPRA points exceed 10, the soil is considered corrosive to ductile iron pipe, and protection against exterior corrosion should be provided.

Based on the test results, the site soils tested appear to have a low corrosion potential to ductile iron waterline pipes and other buried metallic pipes/elements. Accordingly, cathodic protection or a suitable protective coating of metallic pipes and conduits, to resist potential corrosion, does not appear necessary.

Summary of Chloride and Sulfate Test Results			
Test Boring	Sample Depth (feet bgs)	Chloride (mg/kg)	Sulfate (mg/kg)
B-6	2 to 8	15	N.D.
B-34	2 to 10	10	N.D.
B-45	2 to 10	18	N.D.

N.D. – Non Detectable within test parameters.

Based on the sulfate concentrations, the soils, which make up these samples, are considered to have a negligible potential for sulfate exposure. Accordingly, a Type I-II Portland Cement appears will be acceptable for the concrete structure elements placed in these soils.

Refer to the laboratory test data included in Appendix B for more information.

7.00 PRELIMINARY GEOTECHNICAL CONSIDERATIONS AND RECOMMENDATIONS FOR SITE DEVELOPMENT

7.10 GENERAL CONSIDERATIONS

The following general considerations and recommendations are provided to assist with the permitting, planning and preliminary design for the proposed mixed use redevelopment project being considered on the site of the Westwood Country Club. This information is based on the recently completed geotechnical investigation, which included 49 test borings completed across the site to characterize the soil and bedrock conditions present, groundwater observations during drilling and from 3 installed wells to assess groundwater conditions present on the site, and laboratory testing to further characterize soil conditions. Additional investigations and further evaluations will be necessary, as discussed below, for final design once final building development plans and loading conditions, along with final site development plans, are established.

Topsoil, along with underlying man-placed fill or disturbed indigenous soils, were encountered at the surface of most of the test boring locations. The topsoil thickness typically ranged between about 2-inches and 14-inches, based on the driller's measurements and interpretation of topsoil. The fill, where present, was typically found to extend to depths ranging between about 2 feet and 5 feet bgs.

The indigenous soils encountered consist predominately of medium stiff to hard silty clay and clayey silt and firm to very compact silty or clayey sand deposits with some intermixed gravel, and occasional cobbles/boulders and shale fragments. These soils are non-organic, and are not considered to be highly compressible, nor highly susceptible to shrinkage, swelling, or liquefaction. Significant deposits of highly moist, soft to very soft clays, as present in other areas of northern Amherst and which have been problematic to residential foundation/structure movement and distress (i.e. basement foundation subsidence / settlement and lateral movement), appear to be generally absent within this site.

Accordingly, the indigenous soil conditions encountered in the test borings are generally considered suitable to support the anticipated residential and mixed use structure loads using conventional spread foundation systems. Spread foundations and any underlying Engineered Fill (i.e. compacted Structural Fill or suitable flowable backfill material), however, will need to bear on suitable indigenous soil subgrades established below the upper existing man-placed fill and disturbed indigenous soils.

In a few cases (i.e. within borings B-9, B-11, B-19, B-21, B-22 and B-45) some limited zones of weaker soils were encountered which may impact the use of spread foundations from a structure bearing capacity and settlement stand point, particularly if a multiple-story more heavily loaded building structure would be proposed at or near these locations. Accordingly, these conditions possibly may require consideration of deep foundations (i.e. driven piles) for multiple-story more heavily loaded building structures at or near these locations.

The existing fill and indigenous soil subgrades are also considered to be generally suitable for basement, at-grade and garage slab-on-grade floor construction, with proper site preparation. The soils encountered are also considered generally suitable for construction of the proposed infrastructure, including the roadways, parking lots, storm and sanitary sewers, waterlines and retention pond structures.

Based on the water level observations made in the test borings, as well as in the groundwater observation wells, it appears that a permanent general groundwater zone (i.e. groundwater table) should generally not be encountered within the excavations for shallow spread foundations and shallow utility construction. The groundwater observations made during drilling and in well B-24 suggest that a permanent groundwater table may be present at elevations in the range of about El 580 feet to El. 589 feet, although this was not confirmed by all of the groundwater observation wells at this time.

Zones of perched or trapped groundwater are also present in the topsoil and upper fill soils at or near the ground surface, at various locations on the site, due to the relatively low permeability of the underlying soils present, and poor site drainage conditions. These conditions therefore will make site stripping and subgrade preparation difficult, particularly during wet periods.

Given, the relatively low to medium low permeability of the soils present, both permanent and perched groundwater seepage if encountered should be relatively slow and of low quantities. Accordingly, these conditions should not significantly impact basement and utility construction. It is anticipated that conventional sump and pump methods of dewatering should generally be sufficient to control surface water, as well as permanent and perched groundwater seepage conditions, should they be encountered.

Based on the subsurface conditions encountered, the overall site should be classified as Seismic Site Class “D” in accordance with Table 1613.5.2 of the Building Code of New York State - December 2010 (NYS Building Code). As previously stated, the soil conditions encountered are not considered to be susceptible to potential liquefaction in the case of a seismic event. Therefore, seismic design may be based on these criteria.

The following sections present additional and more detailed geotechnical considerations and recommendations to assist with permitting, planning, and preliminary design of the proposed site redevelopment project.

7.20 FOUNDATION SUPPORT

As stated above, the indigenous soil conditions encountered in the test borings are generally considered suitable to support the anticipated residential and mixed use structures using conventional spread foundation systems. Preliminarily, it is expected that spread foundations can be sized, based on net allowable bearing capacities in the range of about 2,000 to 4,000 pounds per square foot (psf) ±, depending on location, foundation bearing depths and actual structure loads.

Spread foundations should bear on suitable, undisturbed, indigenous soil bearing grades, after the removal of all fill soils and any unsuitable indigenous soft or wet soils. Alternatively, the foundations may also bear on Engineered Fill (i.e. compacted Structural Fill or flowable backfill), which is placed over the suitable indigenous soil bearing grades, following excavation and removal of fill soils and any unsuitable indigenous soils which are present below the design bearing grade elevation of the footings.

Suitable indigenous soil bearing subgrades should consist of stiff to hard silty clay and clayey silt soils or firm to very compact silty or clayey sand soils. Suitable bearing subgrade conditions were typically encountered in the test borings at depths ranging between about 2 feet and 5 feet bgs. At boring locations B-19 and B-22 suitable bearing subgrade conditions were deeper at about 10 feet and 6.5 feet, respectively.

In a few cases (i.e. within borings B-9, B-11, B-19, B-21, B-22 and B-45) zones of weaker soils were encountered which may impact the use of spread foundations. Accordingly, these conditions possibly may require consideration of a deep foundation system; particularly if multiple-story more heavily loaded building structures would be proposed at or near these locations.

Driven H-piles or pipe piles driven to refusal on the Shale bedrock appear would be the best suited deep foundation system option for the site conditions present. Zones of gypsum present in the Shale bedrock may require socketting of drilled piers in the bedrock in order to bear the piers on suitable bedrock below these zones. Therefore, it appears the use of drilled piers would be less favorable from both a constructability and economic standpoint.

For preliminary information, a driven HP12x53 H-pile, driven to refusal on the bedrock, would be expected to develop an axial compressive capacity in the range of about 100 to 120 tons ± per pile. Other pile sections can also be used, based on product availability and costs, which would provide higher or lower allowable axial capacities, based on the actual pile section.

7.30 BASEMENT STRUCTURE DESIGN CONSIDERATIONS

Basement structures should be designed for lateral earth pressures caused by the load of backfill against the wall and the surcharge effects from any permanent or temporary loads. In addition suitable foundation drainage should be provided to relieve potential hydrostatic pressure from developing against the basement walls and floors due to the possible presence of groundwater. In this case suitable damp proofing of the walls and floors should also be provided. Alternatively, the basement structures could also be designed to resist potential full hydrostatic pressure. In such case the basement structure should also be fully water proofed.

Where suitable foundation drainage is provided, the basement walls can be designed for “at rest” lateral earth pressure computed on the basis of an “equivalent fluid unit weight” of 70 pounds per cubic foot (pcf). This is based on the assumption that the wall backfill beyond the drainage system is a suitable well draining granular backfill material, such as a crusher run stone Structural Fill.

The use of the on-site clayey silt, silty clay and silty or clayey sand soils to backfill the basement walls is not recommended as they will be susceptible to potential swelling in a looser disturbed state, which could cause additional lateral pressures on the basement walls. The on-site soils could be used, however, to backfill non-earth retaining foundation walls provided they can be properly placed and compacted to a stable and well engineered condition.

The foundation drainage system should be properly designed, installed and maintained for long-term performance and should drain to a sump and pump system or a gravity drain relief point, which is not susceptible to potential backup.

The foundation drainage system should include a drainage/separation geotextile installed around drainage stone, which surrounds a slotted under-drain pipe. The drainage stone should be sized in accordance with the pipe slotting. A crushed aggregate conforming to NYSDOT Standard Specifications Section 703-02, Size Designation No. 1 (½-inch washed gravel or stone) is generally acceptable for slotted under-drain pipe. The foundation under-drain pipes should be set at a depth of about 1 foot below the top of the finish basement floor grade.

A pervious granular backfill (i.e. concrete sand or crusher run stone) or a suitable geosynthetic drainage composite (i.e. Miradrain, Grace Hydroduct, Delta MS, etc.) should be placed against the basement foundation wall, above the drainage system, to allow infiltration to the drainage system.

7.40 SLAB-ON-GRADE FLOOR CONSTRUCTION

The building floors can be constructed as slab-on-grade following proper subgrade preparation as outlined in Section 7.80. For preliminary design purposes, a minimum of 6-inches of Subbase Stone is recommended beneath the lightly loaded floor slabs (residential floors, lightly loaded office floors, etc.). A minimum 12-inch thick layer of Subbase Stone is recommended beneath more heavily loaded floor slabs (i.e. garage areas, storage areas, mechanical rooms, etc.). A suitable stabilization/separation geotextile, such as Mirafi 500X, should be placed over the existing soil or fill soil subgrades prior to placement of the Subbase Stone layer.

An imported suitable granular fill material is generally recommended to be used as subgrade fill to raise the site grades, beneath the Subbase Stone course for the slab-on-grade construction. The use of the soils from the site may be possible for the building pad site filling, provided the soil can be properly placed and compacted in a controlled manner, as discussed further in Section 7.80 below.

In order to limit potential post construction settlement, due to required site filling, we recommend the subgrade fill placement, in areas requiring more than about 2 to 3 feet of fill, be completed at least 1 to 2 months month in advance of the final subgrade preparation, Subbase Stone placement, and floor slab construction.

Preliminarily, the slab-on-grade floor slabs may be designed using a modulus of subgrade reaction of 150 pounds per cubic inch (pci) at the top of the subbase layer. It is recommended that the slab-on-grade be constructed such that it is not structurally connected to, or resting directly on, perimeter walls or column footings in order to limit differential settlement effects.

The above subbase stone thicknesses should not be considered sufficient for carrying construction vehicle loads. Therefore, contingencies should be planned for to temporarily increase the Subbase Stone thickness within the building pad areas to provide a suitable working surfaces to stage the construction, carry construction vehicle loads and protect the underlying subgrades. This will be particularly important when wet periods occur. The additional subbase stone material could then be removed and re-graded in preparation for the actual floor construction and/or re-used as foundation backfill or as pavement area subbase or as otherwise determined appropriate.

A moisture barrier is generally not considered warranted where the floor slabs are constructed at or above the final site grades, unless otherwise recommended by the finished flooring manufacturer. A suitable moisture barrier, however, is recommended beneath the below grade floor areas (i.e. basement areas) to reduce the potential for dampness.

7.50 SEISMIC DESIGN CONSIDERATIONS

Based on the subsurface conditions encountered in the test borings, the upper 100 feet of the site should be classified as Seismic Site Class “D” in accordance with the criteria presented on Table 1613.5.2 of the Building Code of New York State - December 2010 (NYS Building Code). The soil conditions encountered are generally not considered to be susceptible to potential liquefaction in the case of a seismic event. Therefore, seismic design may proceed based on these considerations.

The spectral response accelerations in the project area were obtained by Empire using the United States Geological Survey (USGS) web site application (https://geohazards.usgs.gov/secure/designmaps/us/). These accelerations were then adjusted, as recommended by the USGS, to obtain the 2% probability in 50 years mapping accelerations, as presented in the NYS Building Code.

Using the site location, the calculated spectral response accelerations for Site Class “B” soils are 0.221g for the short period (0.2 second) response (S_S) and 0.051g for the one second response These spectral response accelerations were then adjusted for the Seismic Site Class “D” soil profile determined for the project site.

Accordingly, the adjusted spectral response accelerations for Site Class "D" are as follows:

- Short Period Response (S_{MS}) - 0.354g
- 1 Second Period Response (S_{M1}) - 0.122g

The corresponding five percent damped design spectral response accelerations (S_{DS} and S_{D1}) are as follows:

- S_{DS} - 0.236g
- S_{D1} - 0.081g

It is possible that a seismic shear wave velocity study of the site may refine and possibly upgrade the seismic design site class. This may be particularly beneficial in the areas of the mixed use commercial and apartment buildings depending on the costs associated with seismic reinforcement of these structures. It should be understood, however, that there is no guarantee that an upgrade can be made if a seismic shear wave study is performed,

7.60 PAVEMENT DESIGN CONSIDERATIONS

The Town of Amherst requires a typical pavement section consisting of the following components for residential and commercial development roadways:

Town of Amherst Asphalt Concrete Pavement Section:

- 1.5 inches – Top Course
- 2.5 inches – Binder Course
- 4.0 inches – Base Course
- 11 inches – Subbase Stone Course

It is estimated that the existing subgrade soils will have a typical CBR value of about 2 to 3 ±. This correlates to a soil resilient modulus of about 3,500 psi, which has been used for our pavement design evaluations. The pavement sections were analyzed using the NYSDOT Thickness Design Manual for New and Reconstructed Pavement, along with the American Association of State Highway and Transportation Officials (AASHTO) "Interim Guide Method for Design of Flexible Pavements".

Based on our analyses, the Town of Amherst pavement section will provide approximately 1.2 million, 18-kip equivalent axle loads (EAL's) over its design life, provided the subgrades are prepared in accordance with the recommendations presented in Section 7.80. This design life is considered to be within an acceptable range for this type of application.

We would recommend, however, the Town of Amherst pavement section also include a suitable stabilization/separation geotextile (i.e. Mirafi 600X or suitable equivalent). It may also be necessary to increase the subbase thickness in some areas to improve subgrade conditions in some areas, as well as to promote drainage to underdrains, etc. as discussed below.

Pavement design recommendations are also provided for two (2) flexible pavement structure types within the proposed mixed use development areas. These include the following:

- A heavy duty asphalt concrete pavement for the entrance, access drives and pavement areas, which will be subject to delivery truck traffic. (Heavy Duty Asphalt Concrete Pavement Structure); and
- A light duty asphalt concrete pavement for automobile / light SUV only parking areas (Light Duty Asphalt Concrete Pavement Structure).

Heavy Duty Asphalt Concrete Pavement:

- 1.5 inches – Top Course
- 3.0 inches – Binder Course
- 15 inches – Subbase Stone Course
- Stabilization/Separation Geotextile
- Prepared Subgrade

Light Duty Asphalt Concrete Pavement:

- 1.5 inches – Top Course
- 2.0 inches – Binder Course
- 10 inches – Subbase Stone Course
- Stabilization/Separation Geotextile
- Prepared Subgrade

Based on our analyses, the Heavy Duty and Light Duty pavement sections will provide approximately 350,000 and 45,000 18-kip equivalent axle loads (EAL's), respectively, over their design life.

The installation of underdrains and/or edge drains is recommended to drain the pavement subbase course and subgrades in order to limit the potential for frost action and improve pavement structure performance and design life. Alternatively, the pavement subbase course can also be allowed to daylight/drain to an adjacent perimeter drainage swale.

Proper grading of the pavement structure subgrades is also recommended Accumulation of water on pavement subgrades should be avoided by grading the subgrade to a slope of at least 2 percent to allow drainage to the underdrains or drainage swale.

The subbase stone course for the above pavement sections should not be considered sufficient for use as construction haul roads. Therefore, contingencies should be planned for to temporarily increase the Subbase Stone thickness or provide additional base stabilization / reinforcement within the areas that will be used as construction roads and to stage the construction.

7.70 UNDERGROUND UTILITY CONSTRUCTION

The generally medium stiff to hard clayey silt and silty clay and firm to very compact silty or clayey soils should provide generally suitable subgrade conditions for underground utility construction, including storm and sanitary sewers, water lines, gas lines and buried electrical / communication conduits. Accordingly, standard bedding materials and thicknesses can generally be used to support this infrastructure. It should be expected, however, that in some localized cases that subgrade undercuts and the placement of additional bedding material or subgrade stabilizing materials may be required to provide suitable and stable subgrades for the utility construction. Therefore, some contingencies should be planned for, should such localized conditions be encountered.

7.80 SUBGRADE PREPARATION FOR PAVEMENT AND SLAB-ON-GRADE CONSTRUCTION

The site preparation work should be performed during seasonal dry periods to minimize potential degradation of the subgrade soils and potential undercuts which may be required to establish a stable base for construction. It should be understood that the indigenous subgrade soils that will be exposed are sensitive and will degrade and lose strength when they are wet and disturbed by construction equipment traffic. Accordingly, efforts should be made to maintain the subgrades in a dry and stable condition at all times, and not permit excessive or heavy construction traffic directly over these soils.

It is noted that zones of perched or trapped groundwater are present in the topsoil and upper fill soils at or near the ground surface, at various locations on the site, due to the relatively low permeability of the underlying soils and poor site drainage conditions present. Such conditions occurred during the subsurface exploration where areas of standing water and spongy surface conditions were present, hindering some of the drill rig access, until the site became frozen in the later part of January and early February. These conditions therefore will make site stripping and subgrade preparation difficult, particularly during wet periods, and therefore should be anticipated.

Measures to improve site drainage should be implemented as necessary prior to commencing the site stripping and subgrade preparation work. Such measures, may include installation of drainage swales to intercept and divert surface runoff away from the construction areas, sloping of the subgrade and “sealing” of the surface with a smooth drum roller to promote runoff, and restricting construction equipment traffic from traveling directly over the subgrade surfaces, especially when they are wet. The placement of a suitable base material and underlying stabilization geotextile, beneath haul roads, and in construction staging areas, will help to protect the subgrades and minimize problems associated with subgrade degradation.

All existing structures, trees, stumps, vegetation, topsoil, organic soils, etc., and any other deleterious materials within the proposed building pad areas and pavement areas should be removed. Following stripping and removal of the surface materials (i.e. topsoil, asphalt pavement, concrete pads and structures, etc.), the exposed subgrades should be proof-rolled. The proof-rolling should be performed, prior to the overlying fill placement, using a smooth drum roller weighing at least 10 tons.

The subgrade proof-rolling should be done under the guidance of, and observed by qualified geotechnical engineering personnel. In some cases it may be necessary to waive the proof-rolling requirement if wet subgrades are present. This should be determined by the geotechnical engineer (i.e. Empire). Any undercuts, which may be required as the result of the proof-rolling, should be performed based on guidance and evaluation of the conditions by the geotechnical engineer. Resulting undercuts should be backfilled with a suitable material as recommended by the geotechnical engineer.

The placement of an initial lift of suitable oversized stone fill material (i.e. “surge stone”, “shot rock”, minus 6-inch crusher run stone, No.3 & No.4 Stone, etc.) encased in stabilization geotextile top and bottom, may be necessary in some cases to help stabilize the subgrades prior to the subgrade fill placement, particularly if the existing subgrades are in a soft/wet condition.

The subgrade fill placement necessary to raise the site grades may proceed following preparation and acceptance of the existing soil subgrades.

The majority of the site filling and grading necessary to raise site grades should be performed sufficiently in advance of the foundation, pavement and utility construction. Therefore we recommend the subgrade fill placement, in areas requiring more than about 2 to 3 feet of fill, be completed at least 1 to 2 months in advance of the final subgrade preparation and subbase stone placement for floor slab and pavement construction.

The on-site soils could be used for constructing the fills for establishing the building pad and pavement areas, provided they can be properly placed and compacted in a controlled manner and to a stable well engineered condition, in accordance with our recommendations. It should be understood, however, that these soils will be very difficult to dry and work with. Therefore the use of imported granular fill materials will be better suited for building pad, roadway and parking lot fill areas. On-site soils used for filling within the building pad area and pavement areas must be free of all organics, and any soft, wet or otherwise deleterious material.

As stated above, the use of the fine grained on-site soils for site filling will be difficult to work with (i.e. dry for proper compaction), vs. an imported Suitable Granular Fill or Structural Fill material, particularly during seasonally inclement or wet weather. Efforts should be made to maintain the subgrades in a dry and stable condition at all times, and limit construction traffic directly over these soils, particularly if they become wet.

Subgrade fill placed to establish the building pad, roadway and parking lot areas, using the on-site soil material, should be compacted to a minimum of 95 percent of the maximum dry density as measured by the modified Proctor moisture-density relationship (ASTM D 1557). The subgrade fill should be placed in horizontal lifts that do not exceed a maximum loose lift thickness of 6 to 9 inches. The loose lift thickness should be reduced in conjunction with the compaction equipment used so that the required density is attained. On-site soil used for subgrade fill should have a moisture content within –3 % to +1 % of the optimum moisture content (determined by ASTM D 1557) when it is placed and compacted. On-site soils having moisture contents exceeding this range will require drying efforts to be implemented by the contractor.

The subgrade fill should be placed to a stable condition and should not “pump” or show signs of movement or significant deflection (i.e. unstable conditions) as it is being constructed. Any unsuitable conditions should be undercut and removed. The fill subgrades should also be properly graded, drained and protected from moisture and frost. Placement of fill over wet, soft, snow covered or frozen subgrades should not be permitted.

Suitable Granular Fill or Structural Fill as described below in Section 7.90, or other imported suitable granular soil materials are recommended as better suited for subgrade fill to raise the existing site grades for slab-on-grade and pavement construction. Empire, however, should be consulted regarding the acceptability of any off-site materials, which do not meet the requirements stated below for Suitable Granular Fill or Structural Fill. All fill placement and compaction should be closely monitored and tested on a “full-time” basis by qualified geotechnical engineering personnel.

7.90 STRUCTURAL FILL AND SUITABLE GRANULAR FILL MATERIALS

Structural Fill Material

Structural Fill (Subbase Stone) should consist of crusher run stone, which is free of clay, organics and friable or deleterious particles. The crusher stone should meet the requirements of New York State Department of Transportation, Standard Specifications, Item 304.12 – Type 2 Subbase, with the following gradation requirements.

Sieve Size Distribution	Percent Finer by Weight
2 inch	100
¼ inch	25-60
No. 40	5-40
No. 200	0-10

Suitable Granular Fill

Suitable Granukar Fill should be well graded from coarse to fine and classified as GW, GP, GM, SW, SP and SM soils using the Unified Soil Classification System (ASTM D-2487). It should have no more than 85- percent by weight material passing the No. 4 sieve, no more than 20- percent by weight material passing the No. 200 sieve and should be generally free of particles greater than 4-inches. It should also be free of topsoil, asphalt, concrete rubble, wood, debris, clay and other deleterious materials.

Material meeting the requirements of New York State Department of Transportation, Standard Specifications, Item 203.07 – Select Granular Fill is acceptable for use as Suitable Granular Fill.

Placement and Compaction

Structural Fill and Suitable Granular Fill should be compacted to a minimum of 95 percent of the maximum dry density as measured by the modified Proctor test (ASTM D1557). Placement of the fill should not exceed a maximum loose lift thickness of 6 to 9 inches, with the exception of the subbase course beneath the slab-on-grade and pavement construction, which can be placed in a single lift not exceeding 15-inches. It may be necessary to reduce the loose lift thickness depending on the type of compaction equipment used so that the required density is attained. The fill should have a moisture content within two percent of the optimum moisture content at the time of compaction.

8.00 RECOMMENDATIONS FOR ADDITIONAL GEOTECHNICAL INVESTIGATIONS

As discussed above, it is recommended that additional explorations be completed for final site redevelopment design particularly in the mixed use town center and future senior housing building development areas

Preliminarily we would recommend that additional test borings in the mixed use town center and senior housing building development areas be performed to provide an approximate frequency of at least one (1) boring per about 3,000 to 4,000 square feet of building footprint, with no less than 4 borings per building. The recommended depth of these borings will be dependent on the building structure loads and foundation bearing depths. At least half of these borings, however, should be extended to bedrock, if a deep foundation system appears may be warranted.

Additional borings within the proposed residential areas should be made to provide a frequency of about one (1) boring per 4 to 5 residential units, with these borings extending to a depth of about 20 feet ±. Additional borings along the proposed roadway and parking lot areas should be made to provide a frequency of about one (1) boring per 400 linear feet of road and/or about one (1) boring per about 10,000 square feet of parking lot area. The roadway borings should extend at least 5 feet beneath the anticipated utility inverts and the parking lot area borings should extend to a depth of about 6 feet.

Empire can be consulted to assist in planning the locations and scope of the additional explorations and evaluations that may be necessary for final design, based on the final development plans, building sizes and loads.

9.00 CONCLUDING REMARKS

This report was prepared to assist in evaluating the geotechnical characteristics of the subsurface conditions present at the Westwood Country Club site in Amherst, New York, with regard to the proposed mixed use redevelopment project being considered on the site. The report has been prepared for the exclusive use of Mensch Capital Partners, LLC and related parties, for specific application to this site and this project only.

The considerations and preliminary recommendations presented were prepared based on Empire Geo-Services, Inc.'s understanding of the proposed site redevelopment, as described herein, and through the application of generally accepted soils and foundation engineering practices. No warranties, expressed or implied are made by the conclusions, opinions, recommendations or services provided.

This report was prepared for site characterization and preliminary site development planning purposes only. It should not be considered as providing complete or sufficient subsurface information for final building foundation design and construction. Additional subsurface explorations and geotechnical engineering evaluations will be necessary based on the actual planned site development, including the building sizes, location, use and structural loads.

Additional information regarding the use and interpretation of this report is presented in Appendix D.

Sincerely,

EMPIRE GEO-SERVICES, INC.

John J. Danzer, P.E.
Senior Geotechnical Engineer

TABLES

TABLE 1

SUMMARY OF LABORATORY INDEX TESTS

**PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
NORTH FOREST ROAD
AMHERST, NEW YORK**

Test Boring Number	Sample Number	Sample Depth	Moisture Content (%)	Grain Size Distribution			Atterberg Limits				COLE Factor	Shrinkage Potential	Soil Description	USCS Group Soil
				Gravel (%)	Sand (%)	Silt & Clay (%)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index	Shrinkage Limit (%)				
B-1	S-3	4' - 6'	14.6	5.2	27.0	67.8	20	12	8	12	0.015	Low	Red-Brown Silty Clay / Clayey Silt, some Sand, trace gravel	CL / ML
B-3	S-4	6' - 8'	14.8	2.0	14.8	83.2	24	13	11	13	0.010	Low	Red-Brown Silty Clay, little Sand, trace gravel	CL
B-7	S-6	10' - 12'	12.6	8.3	17.4	74.3	24	12	12	13	0	Non - Existent	Brown-Gray, Silty Clay, little Sand, Trace gravel	CL
B-12	S-3	4'- 6'	13.1	8.6	23.2	68.2	24	13	11	12	0.009	Low	Red-Brown Silty Clay, some Sand, trace gravel	CL
B-14	S-4	6' - 8'	10.7	7.9	22.0	70.1	23	12	11	17	0	Non-Existent	Red-Brown Silty Clay, some Sand, trace gravel	CL
B-20	S-5	10' - 12'	23.3	0.0	1.0	99.0	37	17	20	19	0.025	Low	Red-Brown Silty Clay, trace sand	CL
B-22	S-3	4' - 6'	26.5	0.0	0.8	99.2	52	22	30	23	0.018	Low	Red-Brown Silty Clay, trace sand	CH
B-30	S-5	8' - 10'	11.4	4.3	22	72.8							Red-Brown Clayey Silt, some Sand, trace gravel	ML
B-31	S-6	10' - 12'	10.7	9.1	21.6	69.3	23	13	10	12	0	Non-Existent	Orange-Brown Silty Clay, some Sand, trace gravel	CL
B-35	S-7	15' - 17'	8.7	11.8	29.4	58.8							Red-Brown Clayey Silt, some Sand, little Gravel	ML
B-38	S-2	2' - 4'	21.3	0.0	3.8	96.2	44	20	24	20	0.008	Low	Brown Silty Clay, trace sand	CL
B-40	S-4	6' - 8'	12.0	2.2	14.8	83	25	14	11	13	0	Non-Existent	Red-Brown Silty Clay, little Sand, trace gravel	CL
B-44	S-3	4' - 6'	21.3	0.0	2.2	97.8	59	22	37	22	0	Non-Existent	Red-Brown Silty Clay, trace sand	CH
B-46	S-3	4' - 6'	28.1	0.0	0.8	99.2	61	25	36	22	0.034	Low-Medium	Red-Brown Silty Clay, trace sand	CH
B-48	S-5	8' - 10'	11.8	3.8	19.1	77.1	23	13	10	14	0	Non-Existent	Red-Brown Silty Clay, little Sand, trace gravel	CL
COMPOSITE SAMPLES											DIPRA Points	Chlorides / Sulfates (ppm)		
B-6	S-2 to S-4	2' - 8'	4.5 to 11.3	5.8	14.9	79.3					6	15 / ND	Red-Brown Silty Clay, little Sand, trace gravel	ML / CL
B-34	S-2 to S-5	2' - 10'	5.9 to 12.0	7.8	10.7	81.5					6	10 / ND	Red-Brown Silty Clay, little Sand, trace gravel	ML / CL
B-45	S-2 to S-5	2' - 10'	20.2 to 28.6	4.5	1.7	93.8					7	18 / ND	Red-Brown Silty Clay, trace sand	CL

TABLE 2 (SHEET 1 OF 3)

SUMMARY OF SUBSURFACE CONDITIONS

PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
NORTH FOREST ROAD
AMHERST, NEW YORK

Boring Number	Ground Surface El. (feet)	Total Boring Depth (feet)	Surface Material	Fill Depth (feet)	Bottom of Fill El. (feet)	Auger Refusal Depth (feet)	Auger Refusal El. (feet)	Depth of Freestanding Water in Boring (feet)	El. of Freestanding Water in Boring (feet)	Depth to Groundwater in Well (feet)	El. of Groundwater in Well (feet)
B-1	605.9	67.5	Topsoil	2.0	603.9	62.5	543.4	53.4	552.5		
B-2	603.7	20.0	12" - Topsoil	2.0	601.7	N.E.	N.E.	N.E.	N.E.		
B-3	603.1	20.0	12" - Topsoil	2.0	601.1	N.E.	N.E.	N.E.	N.E.		
B-4	601.5	53.5	3" - Topsoil	2.0	599.5	48.5	553.0	47.0	554.5		
B-5	603.2	32.7	2" - Topsoil	2.0	601.2	32.7	570.5	16.5	586.7		
B-6 w/Well	603.1	22.0	14" - Topsoil	2.0	601.1	N.E.	N.E.	N.E.	N.E.	0.6	602.5
B-7	603.0	47.6	8" - Topsoil	N.E.	N.E.	47.6	555.4	N.E.	N.E		
B-8	602.8	47.5	2" - Topsoil	N.E.	N.E.	47.5	555.3	N.E.	N.E.		
B-9	602.4	44.0	3" - Topsoil	2.0	600.4	44.0	558.4	22.0	580.4		
B-10 / 10A	600.4	13.5	3" - Topsoil	2.0	598.4	13.5	586.9	N.E.	N.E.		
B-11	601.7	45.7	4" - Topsoil	2.0	599.7	45.7	556.0	N.E.	N.E.		
B-12	599.1	20.0	4" - Topsoil	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.		
B-13	599.1	21.0	10" - Topsoil	2.0	597.1	N.E.	N.E.	N.E.	N.E.		
B-14	602.9	47.7	10" - Topsoil	2.0	600.9	47.7	555.2	38.2	564.7		
B-15	602.9	20.0	3.5" - Topsoil	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.		
B-16	599.5	20.0	6" - Topsoil	2.0	597.5	N.E.	N.E.	N.E.	N.E.		
B-17	598.2	22.0	Topsoil	2.0	596.2	N.E.	N.E.	N.E.	N.E.		

Boring Advanced to Auger Refusal

Boring Scheduled to be Advanced to 20 feet and Terminated

Boring Advanced 5 feet into Bedrock with Rock Coring

Groundwater Observation Well Installed in Boring. Water Level on April 1st, 2014

N.E. - Not Encountered N.E.B.C. - Not Encountered Before Water Added to Boring to Facilitate Rock Coring N.D. - Not Determined

Empire Geo-Services, Inc.
5167 South Park Avenue
Hamburg, New York 14075

TABLE 2 (SHEET 2 OF 3)

SUMMARY OF SUBSURFACE CONDITIONS

PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
NORTH FOREST ROAD
AMHERST, NEW YORK

Boring Number	Ground Surface El. (feet)	Total Boring Depth (feet)	Surface Material	Fill Depth (feet)	Bottom of Fill El. (feet)	Auger Refusal Depth (feet)	Auger Refusal El. (feet)	Depth of Freestanding Water in Boring (feet)	El. of Freestanding Water in Boring (feet)	Depth to Groundwater in Well (feet)	El. of Groundwater in Well (feet)
B-18	588.5	35.0	3" - Topsoil	4.0	584.5	35.0	553.5	N.E.	N.E.		
B-19	592.3	20.0	Topsoil	2.0	590.3	N.E.	N.E.	N.E.	N.E.		
B-20	597.0	43.5	Topsoil	2.0	595.0	43.5	553.5	16.5	580.5		
B-21	598.2	41.5	Native Soil	N.E.	N.E.	41.5	556.7	39.0	559.2		
B-22	599.1	44.1	11" - Topsoil	N.E.	N.E.	44.1	555.0	N.E.	N.E.		
B-23	596.8	22.0	11" - Topsoil	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.		
B-24 w/Well	598.6	41.3	Topsoil	4.0	594.6	41.3	557.3	N.E.	N.E	8.2	588.6
B-25	594.8	40.2	4" - Topsoil	2.0	592.8	40.2	554.6	13.6	581.2		
B-26	594.1	40.8	Topsoil	2.0	592.1	40.8	553.3	33.5	560.6		
B-27	594.3	22.0	Fill	2.0	592.3	N.E.	N.E.	N.E.	N.E.		
B-28	593.2	20.0	6" - Topsoil	2.0	591.2	N.E.	N.E.	N.E.	N.E.		
B-29	594.5	38.5	3" - Topsoil	2.0	592.5	33.5	561.0	19.3	575.2		
B-30	594.8	20.0	8" - Topsoil	4.0	590.8	N.E.	N.E.	N.E.	N.E.		
B-31	592.5	43.5	6" - Topsoil	N.E.	N.E.	38.5	554.0	N.E.B.C.	N.E.B.C.		
B-32	594.0	30.5	3" - Topsoil	4.0	590.0	30.5	563.5	N.E.	N.E.		
B-33	592.9	20.0	Topsoil	2.0	590.9	N.E.	N.E.	N.E.	N.E.		
B-34	593.4	31.4	12" - Topsoil	2.0	591.4	31.4	562.0	N.E.	N.E.		

Boring Advanced to Refusal

Boring Scheduled to be Advanced to 20 feet and Terminated

Boring Advanced 5 feet into Bedrock with Rock Coring

Groundwater Observation Well Installed in Boring. Water Level on April 1st, 2014.

N.E. - Not Encountered   N.E.B.C. - Not Encountered Before Water Added to Boring to Facilitate Rock Coring   N.D. - Not Determined

Empire Geo-Services, Inc.
5167 South Park Avenue
Hamburg, New York 14075

TABLE 2 (SHEET 3 OF 3)

SUMMARY OF SUBSURFACE CONDITIONS

PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
NORTH FOREST ROAD
AMHERST, NEW YORK

Boring Number	Ground Surface El. (feet)	Total Boring Depth (feet)	Surface Material	Fill Depth (feet)	Bottom of Fill El. (feet)	Auger Refusal Depth (feet)	Auger Refusal El. (feet)	Depth of Freestanding Water in Boring (feet)	El. of Freestanding Water in Boring (feet)	Depth to Groundwater in Well (feet)	El. of Groundwater in Well (feet)
B-35	593.0	32.5	7" - Topsoil	N.E.	N.E.	32.5	560.5	N.E.	N.E.		
B-36	593.3	31.0	3" - Topsoil	2.0	591.3	31.0	562.3	28.0	565.3		
B-37	592.1	22.5	8" - Topsoil	4.0	588.1	22.5	569.6	20.0	572.1		
B-38	592.4	24.0	Fill	2.0	590.4	24.0	568.4	N.E.	N.E.		
B-39	592.0	18.1	4" - Topsoil	2.0	590.0	N.E.	N.E.	N.E.	N.E.		
B-40	588.9	22.0	Topsoil	5.0	583.9	22.0	566.9	19.0	569.9		
B-41	590.3	20.0	3" - Topsoil	2.0	588.3	N.E.	N.E.	N.E.	N.E		
B-42	601.1	22.0	13" - Topsoil	2.0	599.1	N.E.	N.E.	N.E.	N.E.		
B-43	593.2	35.0	6" - Topsoil	2.0	591.2	30.0	563.2	20.0	573.2		
B-44	592.7	18.7	6" - Topsoil	2.0	590.7	N.E.	N.E.	N.E.	N.E.		
B-45	591.9	29.5	7" - Topsoil	2.0	589.9	24.5	567.4	15.0	576.9		
B-46	591.6	20.0	Topsoil	2.0	589.6	N.E.	N.E.	N.E.	N.E.		
B-47	594.9	39.0	6" - Topsoil	2.0	592.9	34.0	560.9	20.0	574.9		
B-48	595.8	31.0	3" - Topsoil	2.0	593.8	31.0	564.8	N.E.	N.E.	2.4	593.4
B-49	593.5	20.0	5" - Topsoil	2.0	591.5	N.E.	N.E.	N.E.	N.E.		

Boring Advanced to Refusal

Boring Scheduled to be Advanced to 20 feet and Terminated

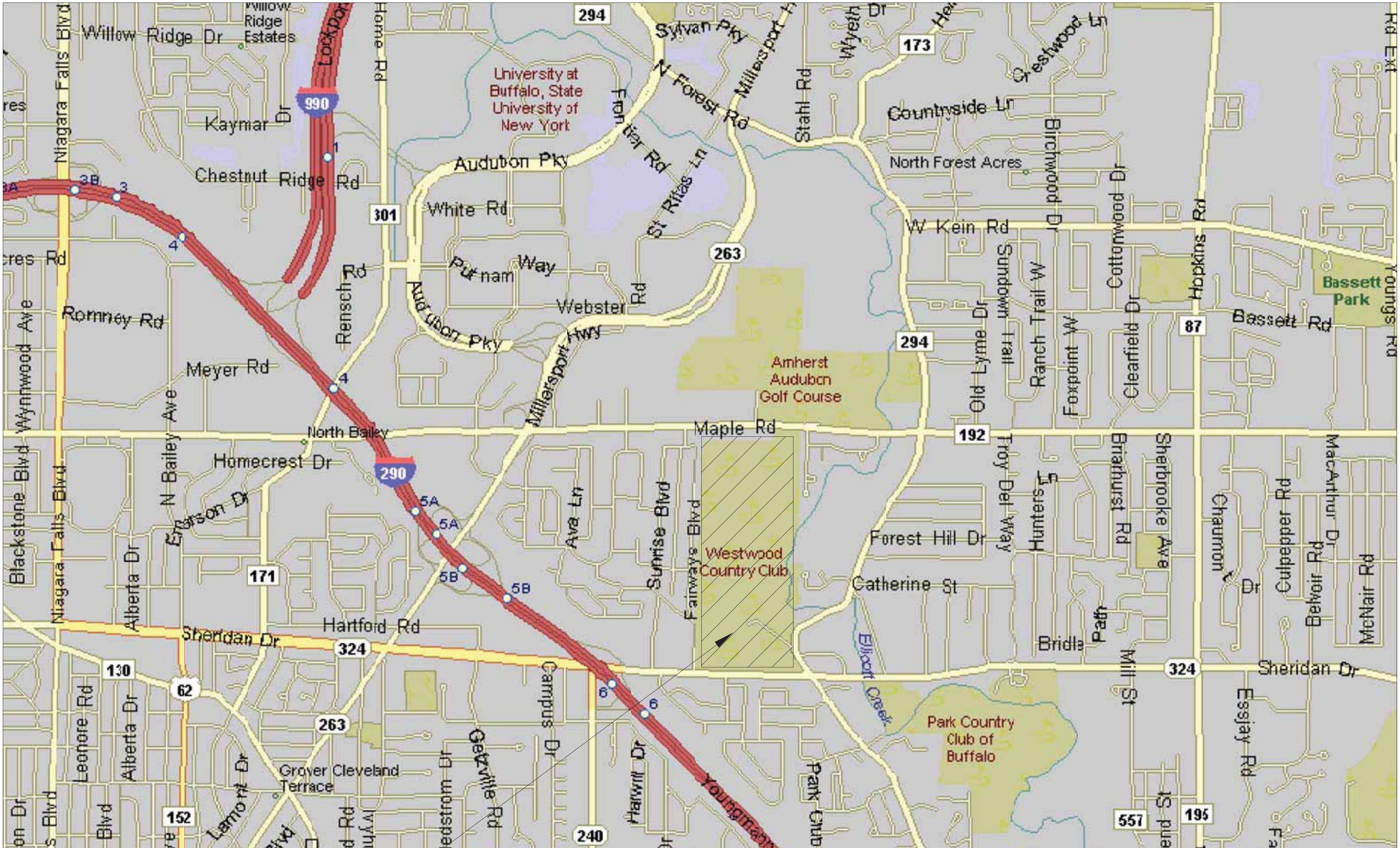
Boring Advanced 5 feet into Bedrock with Rock Coring

Groundwater Observation Well Installed in Boring. Water Level on April 1st, 2014.

N.E. - Not Encountered N.E.B.C. - Not Encountered Before Water Added to Boring to Facilitate Rock Coring N.D. - Not Determined

Empire Geo-Services, Inc.
5167 South Park Avenue
Hamburg, New York 14075

FIGURES



APPROXIMATE PROJECT SITE LOCATION

N

NOTE:
SITE LOCATION PLAN DEVELOPED
FROM MICROSOFT STREETS & TRIPS 2006

EMPIRE GEO SERVICES INC
a subsidiary of SJB Services, Inc.

PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
NORTH FOREST ROAD
AMHERST, NEW YORK

SITE LOCATION PLAN

DR BY: EDG	SCALE: NTS	PROJ NO.: BE-13-192
CHKD BY: JJD	DATE: 12/18/13	FIGURE NO: 1

LEGEND:

B-5 INDICATES APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING ADVANCED TO AUGER REFUSAL (PRESUMED BEDROCK REFUSAL).

B-6 INDICATES APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING ADVANCED TO AUGER REFUSAL, WITH GROUNDWATER OBSERVATION WELL INSTALLATION.

B-1 INDICATES APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING ADVANCED TO AUGER REFUSAL, WITH FIVE (5) FEET OF ROCK CORE.

B-2 INDICATES APPROXIMATE LOCATION AND DESIGNATION OF TEST BORING PLANNED TO BE ADVANCED TO TWENTY (20) FEET AND TERMINATED.

B.M. APPROXIMATE LOCATION OF BENCHMARK ESTABLIHSED BY SJB SERVICES, INC. TOP OF EXISTING ELECTRICAL MANHOLE RIM. BENCHMARK ELEVATION = 602.38 FEET AS ESTABLISHED AND REPORTED BY NUSSBAUMER & CLARKE, INC.

NOTE:

FIGURE DEVELOPED FROM DRAWING PROVIDED BY MENSCH CAPITAL PARTNERS, LLC.

EMPIRE GEO SERVICES INC
a subsidiary of SJB Services, Inc.

SUBSURFACE EXPLORATION PLAN EXISTING SITE CONDITIONS	PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT NORTH FOREST ROAD AMHERST, NEW YORK		
	DR BY: EDG	APPROX. SCALE: NTS	DATE: 04/23/14
	CHKD BY: JJD	PROJ NO.: BE-13-192	FIGURE NO: 2

LEGEND:

WESTWOOD COMMONS:

A.	OFFICE:	200,000 SQFT.
B.	RESIDENTIAL:	72 UNITS
C.	HOTEL:	130 KEYS
D.	MULTI-FAMILY:	280 UNITS
D.	NEIGHBORHOOD BUSINESS/OFFICE:	115,000 SQFT.
E.	LAKE EDGE TOWNHOMES / MULTI-FAMILY:	37 UNITS
F.	RIVER'S EDGE MULTI-FAMILY APARTMENTS:	56 UNITS
G.	EVENT SPACE	1.2 ACRES
H.	EXISTING CLUBHOUSE	

WESTWOOD RESIDENTIAL:

I.	PATIO HOME LOTS:	108 UNITS
J.	LARGER LOTS - SINGLE FAMILY	46 UNITS
K.	TOWNHOMES:	90 UNITS
L.	SENIOR LIVING FACILITY	ASSISTED LIVING 200 / INDEPENDENT 96

NOTES:

1. TOTAL PARKING COUNT IN THE WESTWOOD COMMONS AREA: 2,180 STALLS.
2. WESTWOOD PARKWAY WIDTH: 80 FT.
3. STANDARD ROADWAY WIDTH: 50 FT.

DENOTES PEDESTRIAN TRAILS (2MI.)

NOTE:

FIGURE DEVELOPED FROM DRAWING PROVIDED BY MENSCH CAPITAL PARTNERS, LLC.

EMPIRE GEO SERVICES INC
a subsidiary of SJB Services, Inc.

PROPOSED WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
NORTH FOREST ROAD
AMHERST, NEW YORK

SUBSURFACE EXPLORATION PLAN PROPOSED SITE DEVELOPMENT	DR BY: EDG/WMA	APPROX. SCALE: NTS	DATE: 04/23/14
	CHKD BY: JJD	PROJ NO.: BE-13-192	FIGURE NO: 3

APPENDIX A

TEST BORING LOGS

DATE			SJB SERVICES, INC. SUBSURFACE LOG		
START	12/3/2013			HOLE NO.	B-1
FINISH	12/3/2013			SURF. ELEV	605.9' ±
SHEET	1 OF 2			G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	WOH	1			TOPSOIL	
		3	6		4	Red-Brown Clayey SILT, tr.-little f-c Sand (moist, FILL)	WOH = Weight of
	2	7	9			Red-Brown Silty CLAY / Clayey Silt, some f-c Sand,	Hammer and Rods
		12	17		21	tr.gravel (moist, v.stiff, CL-ML)	
5	3	5	5				
		7	12		12	(stiff)	
	4	13	23				
		36	39		59	Contains some-and f-c Sand (hard)	
	5	9	16				
10		24	32		40	Becomes Brown	
	6	9	22				
		26	32		48	Contains tr.-little f-c Gravel	
15							
	7	8	13			Becomes Brown-Gray	
		18	22		31		
20							
	8	6	10			(v.stiff)	
		13	19		23		
25							
	9	8	10				
		13	18		23		
30							
	10	7	10				
		14	19		24		
35							
	11	6	7				
		9	15		16		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. KOSKE DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-1
START	12/3/2013	**SUBSURFACE LOG**	SURF. ELEV 605.9' ±
FINISH	12/3/2013		G.W. DEPTH See Notes
SHEET	2 OF 2		

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	7	7			(stiff)	
		8	12		15		
45							
	13	3	3			Brown-Gray Silty CLAY, tr.sand	
		3	4		6	(moist-wet, medium, CL)	
50							
	14	1	2			Becomes Red-Brown (soft)	
		1	2		3		
55							
	15	3	1				
		4	6		5		
							REF = Sample Spoon Refusal
60							
	16	50/0.1			REF		NQ '2' Size Rock Core
						Gray SHALE Rock, medium hard, sound, bedded.	RUN #1: 62.5' - 67.5' REC = 96% RQD = 82%
65							
						Boring Complete at 67.5'	Free standing water recorded at 53.4' prior to coring.
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. KOSKE

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	12/17/2013	**SJB SERVICES, INC.**	HOLE NO. B-2
FINISH	12/17/2013	**SUBSURFACE LOG**	SURF. ELEV 603.7' ±
SHEET	1 OF 1	SJB SERVICES, INC.	G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 12"
		5	6		8	Red-Brown and Black Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	5	4			Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		7	8		11		
5	3	4	7			(v.stiff)	
		22	25		29		
	4	8	9			Brown Clayey SILT, tr.-little f-c Sand (moist, v.stiff, ML)	
		19	23		28		
	5	7	8			Brown Silty CLAY, tr.sand (moist, v.stiff, CL)	
10		10	12		18		
	6	5	10				
		11	14		21		
15							
	7	5	7			Becomes Brown-Gray, contains little-some f-c Sand	
		15	16		22		
	8	8	8			Brown-Gray Clayey SILT, some f-c Sand, tr.gravel	
20		17	20		25	(moist, v.stiff, ML)	
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START: 12/17/2013	**SJB SERVICES, INC.**	HOLE NO. B-3
FINISH: 12/17/2013	**SUBSURFACE LOG**	SURF. ELEV 603.1' ±
SHEET 1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL	Driller notes approx. 12"
		2	3		3	Red-Brown and Black Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	5	6			Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		6	9		12		
5	3	7	8			(v.stiff)	
		8	11		16		
	4	10	12				
		11	14		23		
	5	10	12			Becomes Brown-Gray, contains little f-c Sand, tr.gravel	
10		14	17		26		
	6	15	17	50/0.3	REF	Contains tr.boulder fragments (hard)	REF = Sample Spoon Refusal
15							
	7	12	11			(v.stiff)	
		15	14		26		
20							
	8	15	10				No Recovery Sample #8
		12	16		22		
						Boring Complete at 22.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	
START	1/28/2014		HOLE NO. B-4
FINISH	1/30/2014		SURF. ELEV 601.5' ±
SHEET	1 OF 2		G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	Driller notes approx. 3"
		5	5		8	Red-Brown and Black Silty CLAY, tr.sand, tr.organics	Topsoil
	2	4	3			(moist, FILL)	
		4	6		7	Red-Brown Silty CLAY, tr.sand (moist, medium, CL)	
5	3	5	6			Brown Clayey SILT, tr.-little f-c Sand (moist, stiff, ML)	
		7	9		13		
	4	5	8			(v.stiff)	
		10	14		18		
	5	16	23			(hard)	
10		19	21		42		
	6	12	21				
		25	26		46		
15							
	7	5	9			Brown-Gray Silty CLAY, little-some f-c Sand, tr.gravel	
		11	13		20	(moist, v.stiff, CL)	
20							
	8	6	10			Brown-Gray Clayey SILT, little f-c Sand	
		13	19		23	(moist, v.stiff, ML)	
25							
	9	5	7				
		10	17		17		
30							
	10	5	6			Contains some f-c Sand, tr.-little f-c Gravel	
		12	14		18		
35							
	11	4	8				
		14	16		22		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE

START 1/28/2014

FINISH 1/30/2014

SHEET 2 OF 2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-4

SURF. ELEV 601.5' ±

G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS

LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK

PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	6	10				
		13	15		23		
45	13	8	14			Gray-Brown f-m SAND, some-and Silt, tr.-little f-c Gravel (moist, compact, SM)	
		26	37		40		
							NQ '2' Size Rock Core
50						Gray SHALE Rock, medium hard, sound, thinly bedded to bedded, numerous gypsum partings and seams.	RUN #1: 48.5' - 53.5' REC = 75% RQD = 40% 1
55						Boring Complete at 53.5'	Free standing water recorded at 47.0' prior to coring. Free standing water recorded at 20.0' after coring.
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	1/15/2014
FINISH	1/15/2014
SHEET	1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

SJB SERVICES, INC.

HOLE NO.	B-5
SURF. ELEV	603.2' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	3			TOPSOIL	Driller notes approx. 2"
		6	7		9	Brown-Black Clayey SILT, tr.sand, tr.organics	Topsoil
	2	5	6			(moist-wet, FILL)	
		7	8		13	Red-Brown Silty CLAY, tr.sand (moist-wet, stiff, CL)	
5	3	7	9			Becomes Brown (v.stiff)	
		11	15		20		
	4	14	17				
		19	15		36	Contains occasional Silt seams (hard)	
	5	4	8			Red-Brown Clayey SILT, little-some f-c Sand, tr.gravel	
10		6	7		14	(moist, stiff, ML)	
	6	11	12			(v.stiff)	
		10	12		22		
15							
	7	24	11				No Recovery Sample #7
		12	7		23		
20							
	8	15	11			Becomes Brown-Gray, contains some f-c Sand	
		10	18		21		
25							
	9	15	17			Brown-Gray Silty CLAY, little f-c Sand, tr.gravel	
		21	24		38	(moist, hard, CL)	
30							
	10	15	18			Brown-Gray Clayey SILT, some f-c Sand, tr.gravel	
		50	50/0.4		68	(moist, hard, ML)	
35						Boring Complete with Sample Spoon Refusal at 31.9' and Auger Refusal at 32.7'	Free standing water recovery at 16.5' at boring completion.
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550SE

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START 12/5/2013 FINISH 12/5/2013 SHEET 1 OF 1	**SJB SERVICES, INC.** **SUBSURFACE LOG**	HOLE NO. B-6 SURF. ELEV 603.1' ± G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK

PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	2			TOPSOIL	Driller notes approx. 14"
		1	2		3	Red-Brown Clayey SILT, little f-c Sand (moist, FILL)	Topsoil
	2	3	2			Red-Brown Silty CLAY, tr.sand (moist, medium, CL)	
		4	4		6		
5	3	4	5			Red-Brown Clayey SILT, tr.-little f-c Sand (moist, stiff, ML)	
		6	8		11		
	4	7	9				
		11	12		20	(v.stiff)	
	5	6	7				
10		6	9		13	(stiff)	
	6	7	8				
		7	11		15		
15	7	4	4			Brown-Gray Silty CLAY and f-c Sand, tr.gravel	
		5	7		9	(moist, stiff, CL)	
20							No free standing water
	8	8	8			Brown-Gray Clayey SILT and f-c Sand, tr.gravel	noted at boring completion
		11	12		19	(moist, v.stiff, ML)	
						Boring Complete at 22.0'	2" PVC Groundwater Observation Well installed at boring completion. Refer to installation log for details.
25							
30							
35							
40							

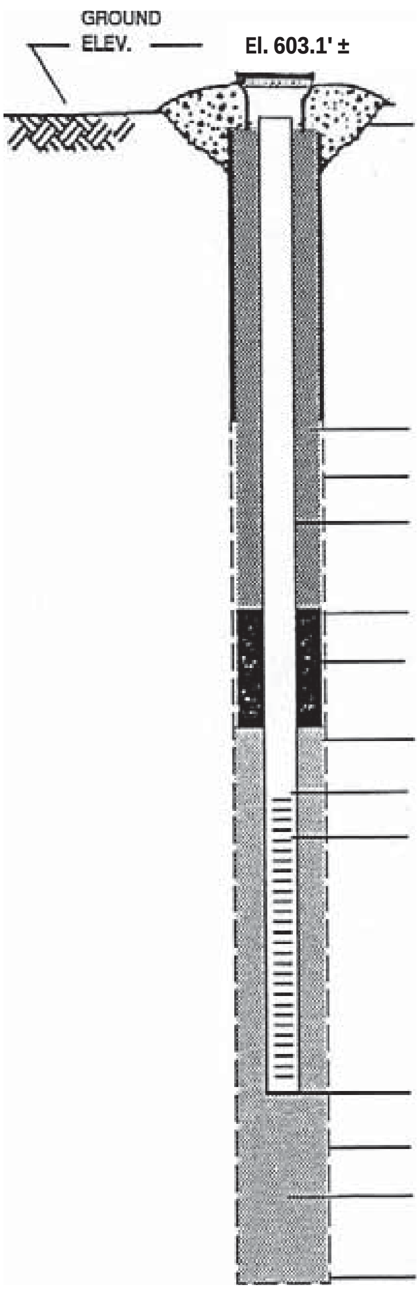
N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: T. FARRELL — DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

MONITORING WELL COMPLETION RECORD

WELL NUMBER: B-6	
PROJECT NAME: WESTWOOD CC	DRILLING METHOD: HOLLOW STEM AUGERS
PROJECT NUMBER: BE-13-192	GEOLOGIST: N/A
DRILLER: T. FARRELL	INSTALLATION DATE(S): 12/5/2013



TYPE OF SURFACE SEAL:	CONCRETE PAD WITH FLUSH MOUNT SURFACE CASING
TYPE OF BACKFILL:	AUGER CUTTINGS
BOREHOLE DIAMETER:	8" ±
I.D. OF RISER PIPE:	2.0"
TYPE OF RISER PIPE:	PVC
DEPTH OF SEAL:	5.0' El. 598.1' ±
TYPE OF SEAL:	BENTONITE CHIPS
DEPTH OF SAND PACK:	8.0' El. 595.1' ±
DEPTH OF TOP OF SCREEN:	10.0' El. 593.1' ±
TYPE OF SCREEN:	PVC
SLOT SIZE X LENGTH:	.010 X 10.0'
I.D. OF SCREEN:	2.0"
TYPE OF SAND PACK:	MORIE "O" FILTER SAND
DEPTH BOTTOM OF SCREEN:	20.0' El. 583.1' ±
DEPTH BOTTOM OF SAND PACK:	20.0' El. 583.1' ±
TYPE OF BACKFILL BELOW OBSERVATION WELL:	FILTER SAND
ELEVATION/ DEPTH OF HOLE:	22.0' El 581.1' ±

DATE			
START	12/12/2013	HOLE NO.	B-7
FINISH	12/12/2013	SURF. ELEV	603.0' ±
SHEET	1 OF 2	G.W. DEPTH	See Notes

SJB SERVICES, INC.
SUBSURFACE LOG

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	4	2			TOPSOIL	Driller notes approx. 8"
		3	2		5	Brown Silty CLAY, tr.sand (moist, medium, CL)	Topsoil
	2	3	3				
		3	5		6		
5	3	7	11			Red-Brown Clayey SILT, little f-c Sand, tr.gravel,	
		13	10		24	tr.boulder fragments (moist, v.stiff, ML)	
	4	10	8				
		5	5		13	(stiff)	
	5	7	8				
10		7	11		15	Becomes Brown	
	6	8	9			Brown-Gray Silty CLAY, tr.-little f-c Sand, tr.gravel	
		13	15		22	(moist-wet, v.stiff, CL)	
15							
	7	7	4				
		6	7		10	(stiff)	
20							
	8	6	5				No Recovery Sample #8
		7	6		12		
25							
	9	6	8			Brown-Gray Clayey SILT, little-some, f-c Sand, tr.gravel	
		8	12		16	(moist, v.stiff, ML)	
30							
	10	6	8			(stiff)	
		7	14		15		
35							
	11	10	12			(v.stiff)	
		9	5		21		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: T. FARRELL

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	12/12/2013	
FINISH	12/12/2013	
SHEET	2 OF 2	

SJB SERVICES, INC.
SUBSURFACE LOG

SJB SERVICES, INC.

HOLE NO. B-7
SURF. ELEV 603.0' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	4	5			Gray Highly Weathered SHALE Rock (wet)	
		3	7		8		
45	13	5	4				
		3	8		7		
	14	50/0.1			REF	Boring Complete with Sample Spoon Refusal at 47.5' and Auger Refusal at 47.6'	No free standing water encountered at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW
CLASSIFIED BY: Geologist
DRILLER: T. FARRELL
DRILL RIG TYPE : CME-550X
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO.	B-8
START	1/14/2014		SURF. ELEV	602.8' ±
FINISH	1/14/2014		G.W. DEPTH	See Notes
SHEET	1 OF 2			

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK

PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL	Driller notes approx. 2"
		2	3		3	Brown Silty CLAY, tr.sand (moist-wet, soft, CL)	Topsoil
	2	6	7			Becomes Red-Brown and Gray (moist, stiff)	
		5	5		12		
5	3	5	4			Becomes Brown	
		7	9		11		
	4	15	16			(hard)	
		17	19		33		
	5	5	5			Contains occasional Silt partings and seams (stiff)	
10		7	9		12		
	6	6	7			Red-Brown Clayey SILT, little f-c Sand, tr.gravel (moist, stiff, ML)	
		7	7		14		
15							
	7	9	8			Brown Silty CLAY, little f-c Sand, tr.gravel (moist, v.stiff, CL)	
		8	10		16		
20							
	8	7	12			Brown-Gray Clayey SILT, little f-c Sand, tr.gravel (moist, v.stiff, ML)	
		16	14		28		
25							
	9	7	15			Contains some f-c Sand	
		14	12		29		
30							
	10	12	17			(hard)	
		28	27		45		
35							
	11	16	17				
		23	25		40		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550SE

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/14/2014		
FINISH	1/14/2014		
SHEET	2	OF	2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-8
SURF. ELEV 602.8' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
PROJ. NO.: BE-13-192
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	13	17				No Recovery Sample #12
		16	15		33		
45							
	13	13	21			Contains occasional Shale fragments	
		38	32		59		
						Boring Complete with Auger Refusal at 47.5'	No free standing water encountered at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550SE

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

SJB SERVICES, INC.
SUBSURFACE LOG

DATE
START 1/27/2014
FINISH 1/27/2014
SHEET 1 OF 2

HOLE NO. B-9
SURF. ELEV 602.4' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	Driller notes approx. 3" Topsoil
		2	2		4	Brown-Black Silty CLAY, tr.sand, tr.organics (moist-wet, FILL)	
	2	2	3				
		3	4		6	Red-Brown Silty CLAY, tr.sand, occasional Silt partings (moist, medium, CL)	
5	3	4	7				
		9	15		16	(v.stiff)	
	4	5	8				
		10	14		18		
	5	4	5			(moist-wet, stiff)	
10		8	8		13		
	6	4	4				
		5	6		9		
15							
	7	2	2			Red-Brown Clayey SILT, some f-m Sand (moist-wet, medium, ML)	
		2	3		4		
20							
	8	9	12			Contains tr.gravel (moist, v.stiff)	
		14	16		26		
25							
	9	14	16			(hard)	
		15	17		31		
30							
	10	14	19			Gray-Brown f-c SAND, some-and Silt, tr.gravel (moist, compact, SM)	
		20	22		39		
35							
	11	13	15				
		17	19		32		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/27/2014		
FINISH	1/27/2014		
SHEET	2 OF 2		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-9
SURF. ELEV	602.4' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS
PROJ. NO.: BE-13-192
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	14	19			Brown-Gray f-m SAND and Silt, tr.gravel	
		21	23		40	(moist, compact, SM)	
45						Boring Complete with Auger Refusal at 44.0'	Free standing water recorded at 22.0' at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/27/2014
FINISH 1/27/2014
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-10
SURF. ELEV 600.4' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	Driller notes approx. 3"
		3	3		5	Black Organic Clayey SILT, little f-c Sand (moist, FILL)	Topsoil
	2	4	5			Red-Brown Clayey SILT, little f-c Sand, tr.gravel	
		7	6		12	(moist, stiff, ML)	
5	3	12	11				
		11	12		22		
	4	8	10				
		13	12		23		
	5	12	5				
10		15	17		20		
	6	5	14			(hard)	
		17	15		31		
15						Boring Complete with Auger Refusal at 13.5'	No free standing water encountered at boring completion.
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-10A
START	1/27/2014	**SUBSURFACE LOG**	SURF. ELEV 600.4' ±
FINISH	1/27/2014		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED IMPROVEMENTS   LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192   AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
0–11.7						OVERBURDEN SOILS	Boring B-10A is a continuation of Boring B-10. Driller notes moving 7' north and augering to refusal.
11.7						Boring Complete with Auger Refusal at 11.7'	No free standing water encountered at boring completion.
5							
10							
15							
20							
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW   CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ   DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	12/6/2013
FINISH	12/6/2013
SHEET	1 OF 2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-11
SURF. ELEV 601.7' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	Driller notes approx. 4"
		3	2		5	Black CINDERS, little Silt (moist, FILL)	Topsoil
	2	2	3			Red-Brown Silty CLAY, tr.sand (moist, medium, CL)	
		4	4		7		
5	3	4	4			Red-Brown Clayey SILT, tr.sand (moist, stiff, ML)	
		5	5		9		
	4	5	6			Becomes Brown	
		5	6		11		
	5	2	3			Brown Silty CLAY, tr.sand (moist-wet, medium, CL)	
10		2	3		5		
	6	3	3				
		4	5		7		
15							
	7	1	2			Contains some f-c Sand	
		2	3		4		
20							
	8	2	2			Contains tr.sand, tr.gravel	
		3	4		5		
25							
	9	8	9			Brown-Orange Clayey SILT, little f-c Sand, tr.gravel	
		12	13		21	(moist, v.stiff, ML)	
30							
	10	4	3			(wet, medium)	
		4	5		7		
35							
	11	2	1				
		3	1		4		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	12/6/2013
FINISH	12/6/2013
SHEET	2 OF 2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-11
SURF. ELEV	601.7' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	4	4			Contains some-and f-c SAND (stiff)	
		8	12		12		
45							
	13	21	50/0.2		REF	Gray SHALE Rock fragments (moist)	
						Boring Complete with Sample Spoon and Auger Refusal at 45.7'	No free standing water reading obtained at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/26/2014		
FINISH	1/26/2014		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-12
SURF. ELEV 599.1' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	Driller notes approx. 4"
		3	4		5	Red-Brown Silty CLAY, little f-c Sand	Topsoil
	2	3	5			(moist, medium, CL)	
		4	6		9	(stiff)	
5	3	5	7			Contains some f-c Sand, tr.gravel (v.stiff)	
		10	13		17		
	4	4	9				
		12	15		21		
	5	6	21			Becomes Brown-Gray, contains tr.gravel (hard)	
10		33	30		54		
	6	10	19				
		36	37		55		
15							
	7	13	28			Brown-Gray f-m SAND and Clayey Silt, tr.gravel	
		36	38		64	(moist, v.compact, SC-SM)	
	8	22	36				
20		34	39		70		
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	12/16/2013	
FINISH	12/16/2013	
SHEET	1 OF 1	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-13
SURF. ELEV	599.1' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	2			TOPSOIL	Driller notes approx. 10"
		2	3		4	Red-Brown Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	3	5			Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		7	7		12		
5	3	5	7			Red-Brown Clayey SILT, tr.sand (moist, stiff, ML)	
		8	12		15		
	4	4	2			Brown Fine SAND, some Silt, occasional Silt seams	
		3	2		5	(moist-wet, v.loose, SM)	
	5	4	8			Brown Silty CLAY, tr.sand (moist-wet, v.stiff, CL)	
10		8	8		16		
	6	5	6			Red-Brown Clayey SILT, little f-c Sand (moist, stiff, ML)	
		6	10		12		
15							
	7	3	7				
		6	8		13		
20	8	7	8				
		7	10		15		
						Boring Complete at 21.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 12/5/2013
FINISH 12/5/2013
SHEET 1 OF 2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-14
SURF. ELEV 602.9' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	3			TOPSOIL	Driller notes approx. 10"
		4	9		7	Red-Brown and Black Clayey SILT, little f-c Sand,	Topsoil
	2	12	6			tr.gravel (moist, FILL)	
		8	10		14	Red-Brown Silty CLAY, tr.-little f-c Sand	
5	3	8	7			(moist, stiff, CL)	
		10	11		17	Contains some f-c Sand, tr.gravel (v.stiff)	
	4	9	10				
		9	11		19		
	5	9	12				
10		11	15		23		
	6	10	14				
		15	18		29		
15							
	7	4	5			(moist-wet, stiff, CL)	
		6	8		11		
20							
	8	6	7			(v.stiff)	
		11	15		18		
25							
	9	12	14			Brown-Gray f-c SAND and Clayey Silt, little f-c Gravel	
		8	13		22	(moist, firm, SC-SM)	
30							
	10	15	10				Poor Recovery Sample
		9	12		19		#10
35							
	11	12	13			Red-Brown Silty CLAY, tr.sand (moist-wet, v.stiff, CL)	
		15	16		28		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW   CLASSIFIED BY: Geologist

DRILLER: T. FARRELL   DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	12/5/2013	
FINISH	12/5/2013	
SHEET	2 OF 2	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-14
SURF. ELEV 602.9' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	6	10				
		13	14		23		
45							
	13	13	18			Brown-Gray SILT and Fine Sand, tr.gravel	
		20	23		38	(moist, compact, ML)	
	14	50/0.1			REF		
						Boring Complete with Sample Spoon Refusal at 47.5' and Auger Refusal at 47.7'	Free standing water recorded at 38.2' at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. KOSKE DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/17/2014
FINISH 1/17/2014
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-15
SURF. ELEV 602.9' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	Driller notes approx. 3.5"
		5	6		8	Red-Brown Clayey SILT, little f-c Sand	Topsoil
	2	6	11			(moist, medium, ML)	
		12	14		23	(v.stiff)	
5	3	11	12			Becomes Brown	
		12	16		24		
	4	14	18			Contains tr.gravel (hard)	
		23	24		41		
	5	9	12			(v.stiff)	
10		14	16		26		
	6	12	14				
		11	16		25		
15							
	7	5	9				
		15	16		24		
	8	17	21			Contains some f-c Sand (hard)	
20		26	30		47		
						Boring Complete at 20.0'	No free standing water enountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550SE

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/17/2014		
FINISH	1/17/2014		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-16
SURF. ELEV	599.5' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	WOH	3			TOPSOIL	Driller notes approx. 6"
		4	4		7	Red-Brown Clayey SILT, little-some f-c Sand, tr.gravel	Topsoil
	2	12	11			(moist, FILL)	
		12	16		23	Red-Brown Clayey SILT, tr.-little f-c Sand	WOH = Weight of
5	3	10	11			(moist, v.stiff, ML)	Hammer and Rods
		18	17		29		
	4	16	25				
		27	33		52	Contains little f-c Gravel (hard)	
	5	11	18				
10		22	24		40		
	6	10	14				
		19	23		33		
15							
	7	5	10			(moist-wet, v.stiff)	
		10	12		20		
	8	15	21			Red-Brown Silty CLAY, tr.-little f-c Sand	
20		22	18		43	(moist, hard, CL)	
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ — DRILL RIG TYPE : CME-550SE

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	1/23/2014
FINISH	1/23/2014
SHEET	1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-17
SURF. ELEV 598.2' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N		SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	2				TOPSOIL	
		1	2		3		Brown-Black Silty CLAY, tr.sand, tr.organics (wet, FILL)	
	2	4	3				Gray-Brown f-c SAND and Silt (wet, FILL)	
		4	3		7			
5	3	4	6				Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		5	6		11			
	4	8	7				Red-Brown Clayey SILT, little f-c Sand, tr.gravel	
		8	11		15		(moist, stiff, ML)	
	5	6	11				Red-Brown Silty CLAY, tr.sand (moist, hard, CL)	
10		20	16		31			
	6	12	14					
		20	22		34			
15								
	7	10	10				(v.stiff)	
		12	15		22			
20								
	8	11	16				Brown-Gray Clayey SILT, some f-c Sand, tr.gravel	
		15	20		31		(moist, hard, ML)	
25							Boring Complete at 22.0'	No free standing water reading obtained at boring completion.
30								
35								
40								

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/20/2014	**SJB SERVICES, INC.**	HOLE NO. B-18
FINISH	1/20/2014	**SUBSURFACE LOG**	SURF. ELEV 588.5' ±
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK

PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 3"
		3	3		6	Brown-Black Silty CLAY, tr.sand, tr.organics	Topsoil
	2	5	6			(moist, FILL)	
		5	7		11		
5	3	3	5			Red-Brown Silty CLAY, tr.-little f-c Sand	
		5	4		10	(moist-wet, stiff, CL)	
	4	7	11			Brown-Gray Clayey SILT, some f-c Sand, tr.gravel	
		14	12		25	(moist, v.stiff, ML)	
	5	7	11				
10		12	15		23		
	6	8	8				Poor Recovery Sample #6
		10	14		18		
15							
	7	14	15			(hard)	
		17	21		32		
20							
	8	5	7				
		34	50/0.4		41		
25							
	9	4	8			Brown-Gray Silty CLAY, some f-c Sand, tr.gravel	
		12	14		20	(moist-wet, v.stiff, CL)	
30							
	10	1	1			Becomes Red-Brown (wet, medium)	
		3	2		4		
35							
						Boring Complete with Auger Refusal at 35.0'	No free standing water reading obtained at boring completion.
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE :

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE

START 1/23/2014

FINISH 1/23/2014

SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-19

SURF. ELEV 592.3' ±

G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK

PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	
		2	4		4	Black-Brown Clayey SILT, some f-c Sand (moist, FILL)	
	2	2	2			Yellow-Brown Silty CLAY, little Fine Sand	
		2	2		4	(moist-wet, medium, CL)	
5	3	3	3			Yellow-Brown Fine SAND, little-some Silt	
		2	2		5	(moist-wet, v.loose, SM)	
	4	2	2				
		3	2		5		
	5	2	2			Red-Brown Silty CLAY, little f-c Sand, tr.gravel	
10		4	5		6	(moist-wet, medium, CL)	
	6	4	6			(stiff)	
		5	7		11		
15							
	7	7	8			Red-Brown f-m SAND, some-and Silt, little f-c Gravel	
		12	14		20	(moist, firm, SM)	
	8	10	11			Contains tr.clay	
20		13	11		24		
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/21/2014
FINISH 1/21/2014
SHEET 1 OF 2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-20
SURF. ELEV 597.0' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	6	3			TOPSOIL	
		5	3		8	Black-Brown Clayey SILT, tr.sand, tr.organics	
	2	5	5			(moist-wet, FILL)	
		5	5		10	Red-Brown Clayey SILT, tr.sand (moist, stiff, ML)	
5	3	5	8				
		7	6		15		
	4	8	10			Red-Brown Silty CLAY, tr.sand (moist, v.stiff, CL)	
		12	8		22		
	5	6	6			Becomes Brown (stiff)	
10		6	6		12		
	6	3	4				
		5	6		9		
15							
	7	4	7			Brown-Gray Clayey SILT, little-some f-c Sand, tr.gravel	
		8	12		15	(moist, stiff, ML)	
20							
	8	12	13			(v.stiff)	
		15	14		28		
25							
	9	7	11				
		12	12		23		
30							
	10	3	7				
		12	13		19		
35							
	11	WOH/2.0			WOH	Brown-Gray Silty CLAY, tr.sand (moist-wet, v.soft, CL)	WOH = Weight of Hammer and Rods
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

SJB SERVICES, INC.
SUBSURFACE LOG

DATE		HOLE NO.	B-20
START	1/21/2014	SURF. ELEV	597.0' ±
FINISH	1/21/2014	G.W. DEPTH	See Notes
SHEET	2 OF 2		

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	WOH/2.0			WOH	Gray Fine SAND, some-and Silt, tr.gravel (wet, v.loose, SM)	WOH = Weight of Hammer and Rods
45						Boring Complete with Auger Refusal at 43.5'	Free standing water recorded at 16.5' at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO.	B-21
START	1/21/2014			SURF. ELEV	598.2' ±
FINISH	1/21/2014			G.W. DEPTH	See Notes
SHEET	1 OF 2				

SERVICES, INC.

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			Red-Brown Silty CLAY, tr.sand (moist, medium CL)	
		3	2		4		
	2	3	3				Poor Recovery Sample #2 and #3
		3	4		6		
5	3	6	9			Red-Brown Clayey SILT, little f-c Sand (moist, v.stiff, ML)	
		12	12		21		
	4	9	6			Contains tr.gravel	
		12	17		18		
	5	25	24			(hard)	
10		35	37		59		
	6	34	50/0.1		REF		REF = Sample Spoon Refusal
15							
	7	9	15			Becomes Brown	
		31	38		46		
20							
	8	3	2			Brown Silty CLAY, tr.sand (moist-wet, medium, CL)	
		3	3		5		
25							
	9	1	1			Becomes Red-Brown (v.soft)	
		1	1		2		
30							
	10	3	4			(stiff)	
		5	8		9		
35							
	11	12	23			Becomes Brown-Gray (hard)	
		22	28		45		
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	1/21/2014	
FINISH	1/21/2014	
SHEET	2 OF 2	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-21
SURF. ELEV 598.2' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	31	46	50/0.4	REF	Brown-Gray f-c SAND and Silt, little f-c Gravel (moist, v.compact, SM)	
						Boring Complete with Sample Spoon Refusal at 41.4' and Auger Refusal at 41.5'	Free standing water recorded at 39.0' at boring completion. REF = Sample Spoon Refusal
45							
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC.	HOLE NO. B-22
START	12/12/2013	SUBSURFACE LOG	SURF. ELEV 599.1' ±
FINISH	12/12/2013		G.W. DEPTH See Notes
SHEET	1 OF 2		

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	WOH	1			TOPSOIL	Driller notes approx. 11"
		1	2		2	Brown Silty CLAY, tr.sand (moist, v.soft, CL-CH)	Topsoil
	2	2	2			(medium)	
		3	3		5		WOH = Weight of
5	3	4	3				Hammer and Rods
		4	5		7	Becomes Red-Brown	
	4	4	5				
		5	5		10	(stiff, CL)	
	5	4	7				
10		8	7		15	Contains "and" f-c Sand, tr.gravel	
	6	12	7				No Recovery Sample #6
		8	8		15		and #7
15							
	7	13	8				
		9	10		17		
20							
	8	4	5			Contains tr.-little f-c Sand	
		4	6		9		
25							
	9	3	4			(medium)	
		4	4		8		
30							
	10	2	3			Becomes Brown	
		2	3		5		
35							
	11	5	6			Brown f-c SAND and Clayey Silt, little f-c Gravel	
		7	7		13	(moist, firm, SC-SM)	
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO.	B-22
START	12/12/2013		SURF. ELEV	599.1' ±
FINISH	12/12/2013		G.W. DEPTH	See Notes
SHEET	2 OF 2			

PROJECT: PROPOSED IMPROVEMENTS
PROJ. NO.: BE-13-192
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	37	42	50/0.3	REF	Gray Highly Weathered SHALE Rock (wet)	
45						Boring Complete with Sample Spoon Refusal at 41.3' and Auger Refusal at 44.1'	No free standing water reading obtained at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: T. FARRELL

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	12/12/2013		
FINISH	12/12/2013		
SHEET	1 OF 1		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-23
SURF. ELEV 596.8' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	3			TOPSOIL	Driller notes approx. 11"
		3	3		6	Brown Silty CLAY, tr.sand (moist, medium, CL)	Topsoil
	2	3	2				
		4	5		6		
5	3	2	4			Becomes Red-Brown, Contains occasional Silt seams	
		5	5		9	(stiff)	
	4	5	6			Red-Brown Clayey SILT, tr.sand, tr.gravel	
		7	6		13	(moist, stiff, ML)	
	5	7	8				
10		7	9		15		
	6	8	7				
		10	10		17	(v.stiff)	
15							
	7	7	10			Becomes Brown-Gray	
		12	14		22		
20							
	8	11	10			Gray-Brown f-m SAND and Clayey Silt, tr.gravel	
		11	14		21	(moist, firm, SC-SM)	
						Boring Complete at 22.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	1/22/2014	
FINISH	1/22/2014	
SHEET	1 OF 2	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-24
SURF. ELEV	598.6' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL	
		1	1		2	Black-Brown Clayey SILT, little f-c Sand, tr.gravel	
	2	2	2			(moist, FILL)	
		3	2		5	Contains tr.wood fragments	
5	3	5	4			Red-Brown and Gray Silty CLAY, tr.sand, occasional	
		4	5		8	Silt partings (moist, medium, CL)	
	4	9	9				
		9	8		18	(v.stiff)	
	5	10	7			Red-Brown Clayey SILT, tr.sand, occasional Fine Sand	
10		9	9		16	lenses (moist, v.stiff, ML)	
	6	10	12			Contains tr.gravel	
		15	15		27		
15							
	7	4	7			Brown-Gray Silty CLAY, little-some f-c Sand, tr.gravel	
		14	11		21	(moist, v.stiff, CL)	
20							
	8	6	15			(hard)	
		17	22		32		
25							
	9	10	14				
		17	20		31		
30							
	10	3	3			(medium)	
		4	5		7		
35							
	11	14	17			Brown-Gray f-m SAND, some-and Silt, tr.gravel	
		21	28		38	(moist, compact, SM)	
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK — DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-24
START	1/22/2014	**SUBSURFACE LOG**	SURF. ELEV 598.6' ±
FINISH	1/22/2014		G.W. DEPTH See Notes
SHEET	2 OF 2		

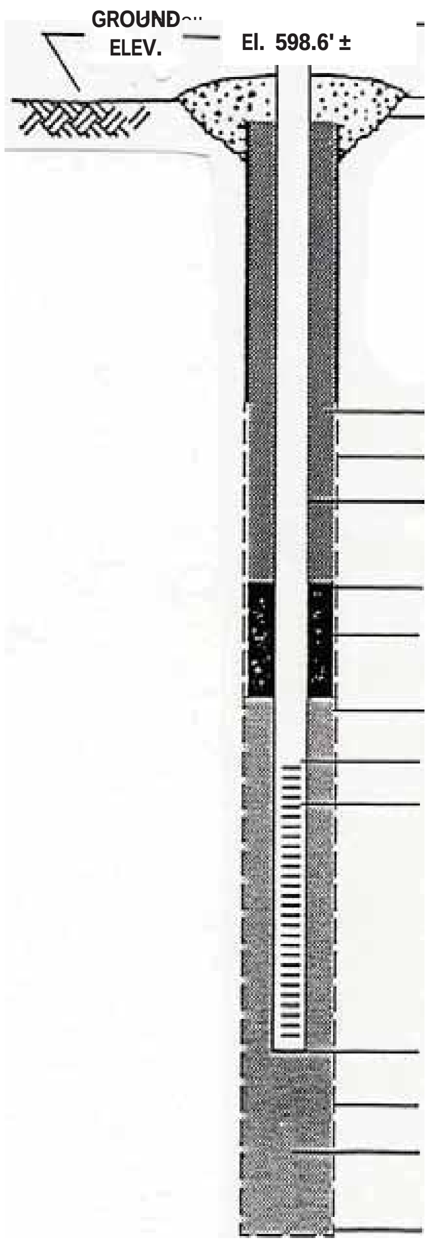
PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	47	50	50/0.2	REF	(v.compact)	
						Boring Complete with Sample Spoon Refusal at 41.2' and Auger Refusal at 41.3'	No free standing water reading obtained at boring completion. 2" PVC Groundwater Observation Well installed at boring completion. Refer to installation log for details.
45							
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

MONITORING WELL COMPLETION RECORD

WELL NUMBER: B-24	
PROJECT NAME: WESTWOOD CC	DRILLING METHOD: HOLLOW STEM AUGERS
PROJECT NUMBER: BE-13-192	GEOLOGIST: N/A
DRILLER: A. JAKUBCZAK	INSTALLATION DATE(S): 1/22/2014



RISER STICK-UP:	0.7' El. 599.3' ±
TYPE OF SURFACE SEAL:	NONE
TYPE OF BACKFILL:	AUGER CUTTINGS
BOREHOLE DIAMETER:	8" ±
I.D. OF RISER PIPE:	2.0"
TYPE OF RISER PIPE:	PVC
DEPTH OF SEAL:	32.0' El. 566.6' ±
TYPE OF SEAL:	BENTONITE CHIPS
DEPTH OF SAND PACK:	34.0' El. 564.6' ±
DEPTH OF TOP OF SCREEN:	36.0' El. 562.6' ±
TYPE OF SCREEN:	PVC
SLOT SIZE X LENGTH:	.010 X 5.0'
I.D. OF SCREEN:	2.0"
TYPE OF SAND PACK:	MORIE "O" FILTER SAND
DEPTH BOTTOM OF SCREEN:	41.0' El. 557.6' ±
DEPTH BOTTOM OF SAND PACK:	41.0' El. 557.6' ±
TYPE OF BACKFILL BELOW OBSERVATION WELL:	N/A
ELEVATION/ DEPTH OF HOLE:	41.0' El. 557.6' ±

DATE		
START	1/22/2014	
FINISH	1/22/2014	
SHEET	1 OF 2	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-25
SURF. ELEV	594.8' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL	Driller notes approx. 4"
		3	7		4	Red-Brown Clayey SILT, tr.-little f-c Sand (moist, FILL)	Topsoil.
	2	4	5			Red-Brown Clayey SILT, little-some f-c Sand, tr.gravel	
		9	9		14	(moist, stiff, ML)	
5	3	5	9			(v.stiff)	
		11	12		20		
	4	9	7				
		10	11		17		
	5	10	12			Contains little f-c Sand	
10		11	11		23		
	6	6	10				
		12	14		22		
15							
	7	12	14				
		16	17		30		
20							
	8	7	11				
		13	17		24		
25							
	9	10	13			Contains occasional boulder fragments	
		12	15		25		
30							
	10	2	6			Brown-Gray Silty CLAY, tr.sand (moist-wet, stiff, CL)	
		6	6		12		
35							
	11	WOH/2.0			WOH	Becomes Red-Brown (v.soft)	WOH = Weight of
							Hammer and Rods
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/22/2014		
FINISH	1/22/2014		
SHEET	2 OF 2		

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-25
SURF. ELEV	594.8' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	50/0.2			REF	Gray-Black Weathered SHALE Rock (moist-wet)	
						Boring Complete with Sample Spoon Refusal and Auger Refusal at 40.2'	Free standing water recorded at 13.6' at boring completion.
45							REF = Sample Spoon Refusal
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	1/23/2014
FINISH	1/23/2014
SHEET	1 OF 2

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-26
SURF. ELEV	594.1' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 — AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL	
		2	3		3	Brown-Black Organic Clayey SILT, little Fine Sand	
	2	4	5			(wet, FILL)	
		7	6		12	Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
5	3	4	7			Contains occasional Silt partings	
		8	7		15		
	4	11	11				
		10	5		21	(v.stiff)	
	5	7	5				
10		10	9		15	(stiff)	
	6	2	4			Brown Clayey SILT, little f-c Sand, tr.gravel	
		7	8		11	(moist, stiff, ML)	
15							
	7	5	8			Brown Silty CLAY, little f-c Sand (moist, v.stiff, CL)	
		13	14		21		
20							
	8	6	10			Brown Clayey SILT, little-some f-c Sand, tr.gravel	
		11	11		21	(moist, v.stiff, ML)	
25							
	9	8	11			Becomes Brown-Gray	
		12	14		23		
30							
	10	WOH	3			Red-Brown and Gray Silty CLAY, tr.sand	WOH = Weight of
		6	6		9	(moist, stiff, CL)	Hammer and Rods
35							
	11	8	11			Brown-Gray f-m SAND and Silt, tr.-little f-c Gravel	
		13	10		24	(moist, firm, SM)	
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ — DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO. B-26
START	1/23/2014		SURF. ELEV 594.1' ±
FINISH	1/23/2014		G.W. DEPTH See Notes
SHEET	2 OF 2		

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	12	6	50/0.3		REF	Contains little SILT, tr.shale	
						Boring Complete with Sample Spoon Refusal and Auger Refusal at 40.8'	Free standing water recorded at 33.5' at boring completion. REF = Sample Spoon Refusal
45							
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START 1/23/2014 FINISH 1/23/2014 SHEET 1 OF 1	**SJB SERVICES, INC.** **SUBSURFACE LOG**	HOLE NO. B-27 SURF. ELEV 594.3' ± G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			Brown-Black Silty CLAY, tr.sand (moist, FILL)	
		1	2		2		
	2	2	3			Brown Silty CLAY, tr.sand (moist, medium, CL)	
		2	2		5		
5	3	3	3			Becomes Red-Brown	
		4	7		7		
	4	4	5			(stiff)	
		7	7		12		
	5	6	7			(v.stiff)	
10		11	11		18		
	6	9	9				
		11	14		20		
15							
	7	12	16			Becomes Brown-Gray, contains little f-c Sand (hard)	
		20	26		36		
20							
	8	14	22			Brown-Gray Clayey SILT, some-and f-c Sand	
		26	27		48	(moist, hard, ML)	
25						Boring Complete at 22.0'	No free standing water reading obtained at boring completion.
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/17/2014
FINISH 1/17/2014
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-28
SURF. ELEV 593.2' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	4			TOPSOIL	Driller notes approx. 6"
		5	4		9	Brown-Black Clayey SILT, tr.sand, tr.organics	Topsoil
	2	4	6			(moist, FILL)	
		5	7		11	Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
5	3	3	9			Red-Brown Clayey SILT, little f-c Sand, tr.gravel	
		14	15		23	(moist, v.stiff, ML)	
	4	5	12				
		16	19		28		
	5	6	19				
10		25	27		44	(hard)	
	6	9	17				
		23	29		40		
15							
	7	6	13			Becomes Brown-Gray (v.stiff)	
		16	20		29		
	8	9	12			Red-Brown Silty CLAY, tr.sand (moist, v.stiff, CL)	
20		15	19		27		
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START 1/23/2014 FINISH 2/5/2014 SHEET 1 OF 1	**SJB SERVICES, INC.** **SUBSURFACE LOG**	HOLE NO. B-29 SURF. ELEV 594.5' ± G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	Driller notes approx. 3"
		2	2		4	Brown-Black Clayey SILT, tr.sand, tr.organics	Topsoil
	2	3	4			(moist, FILL)	
		5	9		9	Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
5	3	3	5				
		9	9		14		
	4	8	11			Red-Brown Clayey SILT, little-some f-c Sand, tr.gravel	
		13	15		24	(moist, v.stiff, ML)	
	5	15	16			(hard)	
10		18	18		34		
	6	7	12			(v.stiff)	
		14	16		26		
15							
	7	15	14				
		16	17		30		
20							
	8	8	30			Gay-Brown f-m SAND, some-and Silt, little f-c Gravel	
		38	36		68	(moist, v.compact, SM)	
25							
	9	10	17			Gray Fine SAND, some Silt (moist-wet, compact, SM)	
		28	25		45		
30							Free standing water
	10	15	25			Gray-Brown f-m SAND, some-and Silt, little f-c Gravel	recorded at 19.3' prior
		24	27		49	(moist, compact, SM)	to coring.
							NQ '2' Size Rock Core
35						Gray Shale Rock, medium hard, sound, thinly bedded	RUN #1: 33.5' - 38.5'
						to bedded, occasional gypsum partings.	REC = 82%
							RQD = 42%
40						Boring Complete at 38.5'	

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-30
START	1/17/2014	**SUBSURFACE LOG**	SURF. ELEV 594.8' ±
FINISH	1/17/2014		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	Driller notes approx. 8"
		3	5		6	Red-Brown Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	5	6				
		9	10		15		
5	3	7	9			Red-Brown Clayey SILT, tr.sand (moist, v.stiff, ML)	
		12	15		21		
	4	6	11				
		15	16		26		
	5	9	17			Contains little-some f-c Sand (hard)	
10		18	22		35		
	6	10	15			(v.stiff)	
		14	19		29		
15							
	7	5	11				
		15	15		26		
	8	15	7				
20		10	12		17		
25						Boring Complete at 20.0'	No free standing water encountered at boring completion.
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	1/17/2014	
FINISH	1/17/2014	
SHEET	1 OF 2	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-31
SURF. ELEV	592.5' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 — AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 6"
		3	5		6	Orange-Brown mottled Silty CLAY, tr.sand	Topsoil
	2	4	5			(moist, medium, CL)	
		6	7		11	Orange-Brown and Gray Silty CLAY, some Fine Sand	
5	3	4	10			(moist, stiff, CL)	
		11	22		21	Becomes Red-Brown, contains tr.sand (v.stiff)	
	4	6	10				
		13	19		23		
	5	16	50/0.3		REF	Contains little f-c Sand, tr.gravel, tr.boulder fragments	REF = Sample Spoon
10						(hard)	Refusal
	6	10	15			Contains some f-c Sand	
		23	26		38		
15							
	7	9	20				No Recovery Sample #7
		21	23		41		
20							
	8	6	9			Becomes Brown-Gray (v.stiff)	
		15	17		24		
25							
	9	5	4			Contains some f-c Sand (stiff)	
		7	11		11		
30							
	10	1	3			Brown Silty CLAY, tr.sand, numerous Silt partings and	
		8	10		11	seams (moist-wet, stiff, CL)	
35							
	11	23	31	50/0.4	REF	Brown f-c SAND and Silt, tr.gravel, tr.shale	
						(moist, v.compact, SM)	
							NQ '2' Size Rock Core
40							RUN #1: 38.5' - 43.5'

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK — DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	HOLE NO.	B-31
START	1/17/2014		SURF. ELEV	592.5' ±
FINISH	1/17/2014		G.W. DEPTH	See Notes
SHEET	2 OF 2			

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
						Gray SHALE Rock, medium hard, slightly weathered to sound, laminated to bedded, occasional gypsum partings and seams	REC = 75% RQD = Approx. 25%
45						Boring Complete at 43.5'	No free standing water reading obtained at boring completion.
50							
55							
60							
65							
70							
75							
80							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-32
START	1/31/2014	**SUBSURFACE LOG**	SURF. ELEV 594.0' ±
FINISH	1/31/2014		G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED IMPROVEMENTS
PROJ. NO.: BE-13-192
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 3"
		2	2		5	Brown-Black Silty CLAY, tr.sand, tr.organics	Topsoil
	2	4	3			(moist, FILL)	
		3	5		6		
5	3	5	8			Red-Brown Clayey SILT, tr.sand (moist v.stiff, ML)	
		10	13		18		
	4	6	7				
		9	10		16		
	5	8	10			(moist-wet)	
10		11	12		21		
	6	7	10			Contains tr.gravel	
		13	15		23		
15							
	7	6	12			Becomes Brown	
		12	16		24		
20							
	8	5	7			Brown Silty CLAY, tr.sand (moist-wet, v.stiff, CL)	
		11	10		18		
25							
	9	17	28			Brown-Gray f-m SAND and Silt, tr.gravel	
		27	29		55	(moist, v.compact, SM)	REF = Sample Spoon Refusal
30							
	10	50/0.4			REF	Gray-Brown SHALE Rock fragments (moist)	
						Boring Complete with Sample Spoon Refusal at 30.4' and Auger Refusal at 30.5'	No free standing water encountered at boring completion.
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW   CLASSIFIED BY: Geologist

DRILLER: S. WOLKEWICZ   DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

SJB SERVICES, INC.
SUBSURFACE LOG

DATE
START 1/24/2014
FINISH 1/24/2014
SHEET 1 OF 1

HOLE NO. B-33
SURF. ELEV 592.9' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	1			TOPSOIL	
		1	1		2	Red-Brown and Black Clayey SILT, little f-c Sand	
	2	6	5			(moist, FILL)	
		5	5		10	Brown Silty CLAY, tr.sand (moist, stiff, CL)	
5	3	2	4			Red-Brown f-c SAND, some-and Silt, tr.gravel	
		7	7		11	(moist-wet, firm, SM)	
	4	10	10			Red-Brown Clayey SILT, some-and f-c Sand, little f-c	
		12	13		22	Gravel (moist, v.stiff, ML)	
	5	11	13				
10		12	14		25	Contains little f-c Sand	
	6	8	11				
		12	15		23		
15							
	7	8	14				
		13	13		27		
	8	22	34				
20		38	27		72	Becomes Brown (hard)	
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	12/12/2013
FINISH	12/12/2013
SHEET	1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO.	B-34
SURF. ELEV	593.4' ±
G.W. DEPTH	See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	3			TOPSOIL	Driller notes approx. 12"
		4	4		7	Red-Brown and Black Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	11	4			Brown Clayey SILT, tr.sand (moist, stiff, ML)	
		5	6		9		
5	3	6	8			Red-Brown Silty CLAY, tr.sand, occasional Silt	
		7	7		15	partings (moist, stiff, CL)	
	4	10	7			Red-Brown Clayey SILT, tr.-little f-c Sand, tr.gravel	
		8	12		15	(moist, stiff, ML)	
	5	10	12				
10		13	13		25	(v.stiff)	
	6	15	10				
		12	15		22		
15							
	7	11	12			Gray-Brown f-c SAND and Clayey Silt, little f-c Gravel	
		15	17		27	(moist, firm, SC-SM)	
20							
	8	7	7				
		15	18		22		
25							
	9	41	50/0.3		REF	Brown-Gray f-m SAND and Silt, tr.gravel	REF = Sample Spoon
						(moist, v.compact, SM)	Refusal
30							
	10	50/0.4			REF		
						Boring Complete with Sample Spoon Refusal and Auger Refusal at 31.4'	No free standing water encountered at boring completion.
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		
START	12/13/2013	
FINISH	12/13/2013	
SHEET	1 OF 1	

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-35
SURF. ELEV 593.0' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	3			TOPSOIL	Driller notes approx. 7" Topsoil
		3	2		6	Orange-Brown and Gray Mottled Clayey SILT, tr.sand (moist, medium, ML)	
	2	3	3				
		4	5		7	Becomes Brown	
5	3	7	8			Red-Brown Silty CLAY, tr.sand (moist, v.stiff, CL)	
		11	11		19		
	4	10	10				
		9	11		19		
	5	6	10			Red-Brown Clayey SILT, little f-c Sand (moist, v.stiff, ML)	
10		11	13		21		
	6	7	12				
		14	16		26		
15							
	7	11	13			Contains some f-c Sand, little Gravel	
		15	15		28		
20							
	8	50/0.4			REF	Red-Brown f-m SAND and Silt, tr.gravel (moist, v.compact, SM)	No Recovery Sample #8 REF = Sample Spoon Refusal
25							
	9	39	50/0.1		REF	Becomes Brown-Gray, contains tr.boulder fragments (v.compact)	
30							
	10	50/0.2			REF		
35						Boring Complete with Sample Spoon Refusal at 30.2' and Auger Refusal at 32.5'	No free standing water reading obtained at boring completion.
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: T. FARRELL DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

SJB SERVICES, INC.
SUBSURFACE LOG

DATE
START 1/30/2014
FINISH 1/30/2014
SHEET 1 OF 1

HOLE NO. B-36
SURF. ELEV 593.3' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192
AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	Driller notes approx. 3"
		3	3		6	Brown Silty CLAY, tr.sand, tr.organics (moist, FILL)	Topsoil
	2	6	6			Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		7	8		13		
5	3	5	6				
		5	7		11		
	4	7	7				
		8	7		15		
	5	6	5			Red-Brown Clayey SILT, tr.-little f-c Sand	
10		8	12		13	(moist, stiff, ML)	
	6	12	15			(hard)	
		17	19		32		
15							
	7	15	17			Becomes Brown	
		21	18		38		
20							
	8	5	5			Brown-Gray f-m SAND, some-and Silt, tr.gravel	
		7	31		12	(moist, firm, SM)	
25							
	9	18	21			(compact)	
		27	41		48		REF = Sample Spoon Refusal
30							
	10	50/0.4			REF	Brown-Gray SHALE Rock fragements (wet)	
						Boring Complete with Sample Spoon Refusal at 30.4' and Auger Refusal at 31.0'	Free standing water recorded at 28.0' at boring completion.
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START 1/16/2014 FINISH 1/17/2014 SHEET 1 OF 1	**SJB SERVICES, INC. SUBSURFACE LOG**	HOLE NO. B-37 SURF. ELEV 592.1' ± G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	2			TOPSOIL	Driller notes approx. 8"
		3	4		5	Brown-Black Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	4	4				
		5	6		9		
5	3	3	6			Red-Brown Silty CLAY, tr.sand, occasional Silt	
		8	12		14	partings (moist, stiff, CL)	
	4	10	12			Red-Brown Clayey SILT, tr.sand (moist, v.stiff, ML)	
		15	17		27		
	5	9	14			Contains some f-c Sand (hard)	
10		17	18		31		
	6	10	13			(v.stiff)	
		15	14		28		
15							
	7	29	50/0.4		REF	Gray-Brown f-m SAND and Silt, tr.gravel, tr.boulder	REF = Sample Spoon
						fragments (moist, v.compact, SM)	Refusal
20							
	8	50/0.4			REF		No Recovery Sample #9
	9	50/0.0			REF		
						Boring Complete with Sample Spoon	Free standing water
25						and Auger Refusal at 22.5'	recorded at 20.0' at
							boring completion.
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	
START	1/23/2014
FINISH	1/23/2014
SHEET	1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-38
SURF. ELEV 592.4' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192
AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			Black-Brown Clayey SILT, little f-c Sand, tr.gravel	
		3	3		6	(moist, FILL)	
	2	2	4			Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		5	5		9		
5	3	3	5			(moist-wet)	
		8	12		13		
	4	13	14			(v.stiff)	
		13	15		27		
	5	17	14				
10		7	10		21		
	6	2	4				
		6	7		10		
15							
	7	5	17			Brown-Gray Clayey SILT, some f-c Sand, tr.gravel	
		26	24		43	(moist, hard, ML)	
20							
	8	8	17			Brown-Gray f-c SAND, some-and Silt, tr.gravel	
		21	19		38	(moist, compact, SM)	
25						Boring Complete with Auger Refusal at 24.0'	No free standing water encountered at boring completion.
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 1/16/2014
FINISH 1/16/2014
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-39
SURF. ELEV 592.0' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 4"
		2	3		5	Brown-Black Silty CLAY, tr.sand, tr.organics	Topsoil
	2	7	9			(moist, FILL)	
		10	10		19	Brown Silty CLAY, tr.sand (moist, v.stiff, CL)	
5	3	6	7				
		10	8		17	Becomes Red-Brown	
	4	4	7				
		8	9		15	(stiff)	
	5	10	9			Contains occasional Silt seams (v.stiff)	
10		8	9		17		
	6	4	5			Red-Brown f-c SAND and Silt, tr.gravel	
		5	9		10	(moist-wet, loose, SM)	
							REF = Sample Spoon
							Refusal
15							
	7	21	38			Brown-Gray f-m SAND and Silt, tr.gravel, tr.boulder	
		41	49		79	fragments (moist, v.compact, SM)	
	8	50/0.1			REF		
20						Boring Complete at 18.1'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550SE
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE			
START	1/29/2014	**SJB SERVICES, INC.**	HOLE NO. B-40
FINISH	1/29/2014	**SUBSURFACE LOG**	SURF. ELEV 588.9' ±
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	
		2	2		5	Black Organic Silty CLAY, tr.sand (moist, FILL)	
	2	3	3			Becomes Red-Brown	
		6	7		9		
5	3	4	7				No Recovery Sample #3
		10	11		17		
	4	8	8			Red-Brown Silty CLAY, tr.-little f-c Sand	
		7	10		15	(moist, stiff, CL)	
	5	17	15			(hard)	
10		16	18		31		
	6	15	18			Red-Brown f-m SAND and Silt, tr.gravel	
		21	19		39	(moist, compact, SM)	
15							
	7	18	21			Becomes Brown-Gray	
		27	33		48		
20							
	8	22	23			(v.compact)	
		35	50/0.4		58		
25						Boring Complete with Sample Spoon Refusal at 21.9' and Auger Refusal at 22.0'	Free standing water recorded at 19.0' at boring completion.
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	
START	1/28/2014	**SUBSURFACE LOG**	HOLE NO. B-41
FINISH	1/28/2014		SURF. ELEV 590.3' ±
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	4	5			TOPSOIL	Driller notes approx. 3"
		7	10		12	Brown Silty CLAY, tr.sand, tr.organics (moist, FILL)	Topsoil
	2	5	4			Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		5	4		9		
5	3	5	5			Contains occasional Silt partings	
		7	6		12		
	4	14	9			(v.stiff)	
		7	8		16		
	5	4	5			(moist-wet, stiff)	
10		5	7		10		
	6	3	4			Contains little f-c Sand, tr.gravel	
		5	8		9		
15							
	7	17	31			Brown-Gray f-m SAND, some-and Silt, tr.gravel	
		47	50/0.3		78	(moist, v.compact, SM)	
	8	18	28				
20		35	44		63		
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 12/17/2013
FINISH 12/17/2013
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-42
SURF. ELEV 601.1' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 — AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	1			TOPSOIL	Driller notes approx. 13"
		3	3		4	Black Clayey SILT, little Fine Sand (moist, FILL)	Topsoil
	2	5	6				
		7	9		13	Brown Silty CLAY, tr.sand (moist, stiff, CL)	
5	3	9	8				
		8	10		16	(v.stiff)	
	4	12	8				No Recovery Sample #4
		9	9		17		
	5	8	11				
10		12	13		23	(moist-wet)	
	6	10	10				
		12	12		22		
15							
	7	9	9			Becomes Red-Brown, contains little f-c Sand	
		10	10		19		
20							
	8	8	9				
		8	12		17		
						Boring Complete at 22.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: T. FARRELL — DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		SJB SERVICES, INC. SUBSURFACE LOG	
START	1/30/2014		HOLE NO. B-43
FINISH	1/31/2014		SURF. ELEV 593.2' ±
SHEET	1 OF 1		G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	4			TOPSOIL	Driller notes approx. 6"
		5	6		9	Black Organic Clayey SILT, little f-c Sand (moist, FILL)	Topsoil
	2	4	6			Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		7	7		13		
5	3	5	8			Becomes Red-Brown (v.stiff)	
		10	12		18		
	4	6	6			(stiff)	
		9	14		15		
	5	2	6			Red-Brown Clayey SILT, little-some f-c Sand, tr.-little	
10		7	11		13	f-c Gravel (moist, stiff, ML)	
	6	5	5				
		8	9		13		
15							
	7	6	27			Becomes Brown-Gray (hard)	
		48	50		75		
20							
	8	8	13			Contains little f-c Sand (v.stiff)	
		12	15		25		
25							
	9	10	12				
		16	17		28		Free standing water recorded at 20.0' prior to coring.
30							NQ '2' Size Rock Core
						Gray SHALE Rock, medium hard, sound, thinly bedded to bedded, grades predominantly gypsum at approximately 34.0'	RUN #1: 30.0' - 35.0' REC = 60% RQD = 40%
35							
						Boring Complete at 35.0'	Free standing water recorded at 10.0' after coring.
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE	**SJB SERVICES, INC.**	HOLE NO. B-44
START 1/16/2014	**SUBSURFACE LOG**	SURF. ELEV 592.7' ±
FINISH 1/16/2014		G.W. DEPTH See Notes
SHEET 1 OF 1		

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 6"
		4	7		7	Red-Brown and Black Silty CLAY, tr.sand (moist, FILL)	Topsoil
	2	7	8			Red-Brown Clayey SILT, tr.sand, occasional Fine Sand	
		4	10		12	lenses (moist, stiff, ML)	
5	3	5	8			Red-Brown Silty CLAY, tr.sand (moist, v.stiff, CL-CH)	
		10	12		18		
	4	11	14				
		17	8		31	Contains occasional Silt seams (hard)	
	5	11	10			(v.stiff)	
10		8	10		18		
	6	20	14				Poor Recovery Sample #6
		15	17		29		
15							
	7	18	40			Brown-Gray f-m SAND, some Silt, tr.gravel, tr.boulder	REF = Sample Spoon
		39	42		79	fragments (moist, v.compact, SM)	Refusal
	8	44	50/0.2		REF		
20						Boring Complete with Sample Spoon Refusal at 18.7'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ DRILL RIG TYPE : CME-550SE

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START 2/4/2014 FINISH 2/4/2014 SHEET 1 OF 1	**SJB SERVICES, INC.** **SUBSURFACE LOG**	HOLE NO. B-45 SURF. ELEV 591.9' ± G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	3	3			TOPSOIL	Driller notes approx. 7"
		5	5		8	Brown-Black Silty CLAY, tr.sand, tr.organics	Topsoil
	2	4	5			(moist, FILL)	
		6	9		11	Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
5	3	3	6				
		9	10		15		
	4	5	8			(v.stiff)	
		12	15		20		
	5	3	4			(wet, medium)	
10		4	3		8		
	6	3	3				
		4	5		7		
15							
	7	4	4				
		4	5		8		
							REF = Sample Spoon
20							Refusal
	8	50/0.4			REF	Gray f-m SAND, some-and Silt, tr.gravel (moist, SM)	
							NQ '2' Size Rock Core
25	9	50/0.0			REF		
						Gray SHALE Rock, medium hard, sound, thinly bedded to bedded, occasionally gypsum seams.	RUN #1: 24.5' - 29.5' REC = Approx. 50% RQD = Approx. 20%
30						Boring Complete at 29.5'	Free standing water recorded at 15.0' prior to coring. Free standing water recorded at 10.0' after coring.
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

SJB SERVICES, INC.
SUBSURFACE LOG

DATE
START 1/28/2014
FINISH 1/28/2014
SHEET 1 OF 1

HOLE NO. B-46
SURF. ELEV 591.6' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB, AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	4	4			TOPSOIL	
		4	4		8	Black Organic Silty CLAY, tr.sand (moist, FILL)	
	2	4	6			Red-Brown Silty CLAY, tr.sand (moist, stiff, CL-CH)	
		7	8		13		
5	3	7	7				
		6	7		13		
	4	11	10				
		12	13		22	(v.stiff)	
	5	11	13			Contains tr.gravel	
10		12	11		25		
	6	2	4			(moist-wet, medium)	
		4	4		8		
15							
	7	10	20			Red-Brown f-m SAND and Silt, tr.gravel	
		38	33		58	(moist, v.compact, SM)	
	8	21	33				
20		42	44		75		
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW

CLASSIFIED BY: Geologist

DRILLER: S. WOLKIEWICZ

DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE		**SJB SERVICES, INC.**	HOLE NO. B-47
START	1/31/2014	**SUBSURFACE LOG**	SURF. ELEV 594.9' ±
FINISH	2/3/2014	SJB SERVICES, INC.	G.W. DEPTH See Notes
SHEET	1 OF 1		

PROJECT: PROPOSED IMPROVEMENTS — LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 — AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	4	5			TOPSOIL	Driller notes approx. 6"
		6	6		11	Red-Brown Silty CLAY, tr.sand, tr.organics (moist, FILL)	Topsoil
	2	3	7			Red-Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		8	10		15		
5	3	5	5			Red-Brown Clayey SILT, little f-c Sand, tr.gravel	
		9	12		14	(moist, stiff, ML)	
	4	4	8			(v.stiff)	
		10	14		18		
	5	6	10			Red-Brown Silty CLAY, tr.-little f-c Sand, tr.gravel	
10		20	23		30	(moist, v.stiff, CL)	
	6	8	15			Red-Brown Clayey SILT, tr.-little f-c Sand	
		25	29		40	(moist, hard, ML)	
15							
	7	15	19				
		31	25		50		
20							
	8	12	21				
		26	29		47		
25							
	9	17	22			Contains some f-c Sand	
		24	24		46		
							REF = Sample Spoon Refusal
30							
	10	12	42	50/0.3	REF	Gray f-c SAND, some Silt, tr.gravel, tr.shale (moist, v.compact, SM)	Free standing water recorded at 20.0' prior to coring.
35						Gray SHALE Rock, medium hard, sound, thinly bedded to bedded, grade to predominantly gypsum at approximately 36.5'	RUN #1: 34.0' - 39.0' REC = 100% RQD = 64%
40						Boring Complete at 39.0'	

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW — CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK — DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE
START 2/3/2014
FINISH 2/3/2014
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-48
SURF. ELEV 595.8' ±
G.W. DEPTH See Notes

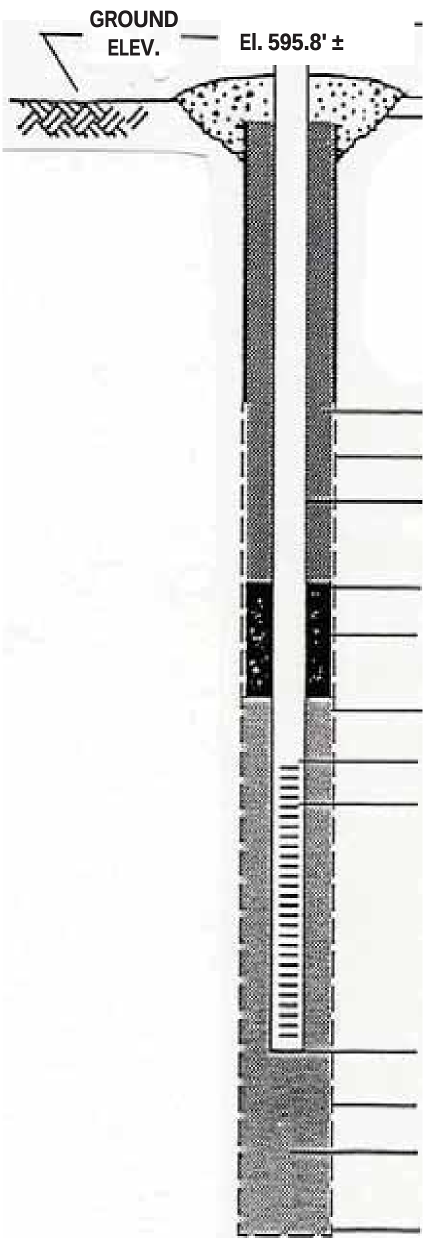
PROJECT: PROPOSED IMPROVEMENTS LOCATION: WESTWOOD COUNTRY CLUB
PROJ. NO.: BE-13-192 AMHERST, NEW YORK

DEPTH FT.	SMPL NO.	0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	1	2			TOPSOIL	Driller notes approx. 3"
		5	5		7	Brown Silty CLAY, tr.sand, tr.organics (moist, FILL)	Topsoil
	2	3	4			Brown Silty CLAY, tr.sand (moist, stiff, CL)	
		5	6		9		
5	3	4	13			Becomes Red-Brown, contains occasional Silt partings	
		16	17		29	(v.stiff)	
	4	6	10			Red-Brown Silty CLAY, little f-c Sand, tr.gravel	
		18	18		28	(moist, v.stiff, CL)	
	5	3	13				
10		24	26		37		
	6	5	15			(hard)	
		27	30		42		
15							
	7	7	18			Becomes Brown-Gray	
		26	28		44		
20							
	8	6	11				
		28	30		39		
25							
	9	4	10			Contains little-some f-c Sand (v.stiff)	
		19	25		29		REF = Sample Spoon Refusal
30						Brown-Gray f-c SAND and Silt, tr.gravel, tr.shale	
	10	16	50/0.4		REF	(moist, SM)	
						Boring Complete with Sample Spoon Refusal at 30.9' and Auger Refusal at 31.0'	No free standing water encountered at boring completion.
35							2" PVC groundwater observation well installed at boring completion. Refer to installation log for details.
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist
DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

MONITORING WELL COMPLETION RECORD

WELL NUMBER: B-48	
PROJECT NAME: WESTWOOD CC	DRILLING METHOD: ASTM D1586 USING HSA
PROJECT NUMBER: BE-13-192	GEOLOGIST: N/A
DRILLER: A. JAKUBCZAK	INSTALLATION DATE(S): 2/3/2014



RISER STICK-UP:	0.9' El. 596.7' ±
TYPE OF SURFACE SEAL:	NONE
TYPE OF BACKFILL:	AUGER CUTTINGS
BOREHOLE DIAMETER:	+/- 8"
I.D. OF RISER PIPE:	2.0"
TYPE OF RISER PIPE:	PVC
DEPTH OF SEAL:	22.0' El. 573.8' ±
TYPE OF SEAL:	BENTONITE CHIPS
DEPTH OF SAND PACK:	24.0' El. 571.8' ±
DEPTH OF TOP OF SCREEN:	25.0' El. 570.8' ±
TYPE OF SCREEN:	PVC
SLOT SIZE X LENGTH:	.010 X 5.0'
I.D. OF SCREEN:	2.0"
TYPE OF SAND PACK:	MORIE "O" FILTER SAND
DEPTH BOTTOM OF SCREEN:	30.0' El. 565.8' ±
DEPTH BOTTOM OF SAND PACK:	30.0' El. 565.8' ±
TYPE OF BACKFILL BELOW OBSERVATION WELL:	NATIVE SOILS
ELEVATION/ AUGERED DEPTH:	31.0' El. 564.8' ±

DATE
START 2/4/2014
FINISH 2/4/2014
SHEET 1 OF 1

SJB SERVICES, INC.
SUBSURFACE LOG

HOLE NO. B-49
SURF. ELEV 593.5' ±
G.W. DEPTH See Notes

PROJECT: PROPOSED IMPROVEMENTS
LOCATION: WESTWOOD COUNTRY CLUB
AMHERST, NEW YORK
PROJ. NO.: BE-13-192

DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	N	SOIL OR ROCK CLASSIFICATION	NOTES
	1	2	3			TOPSOIL	Driller notes approx. 5"
		4	4		7	Black Organic Clayey SILT, tr.-little f-c Sand	Topsoil
	2	3	5			(moist-wet, FILL)	
		5	7		10	Brown-Black Silty CLAY, tr.sand (moist, FILL)	
5	3	5	9			Red-Brown Clayey SILT, tr.sand (moist, v.stiff, ML)	
		10	13		19		
	4	4	12				
		14	16		26		
	5	6	9			Becomes Brown-Gray	
10		16	17		25		
	6	5	14			Contains tr.gravel (hard)	
		18	21		32		
15							
	7	8	12				
		20	27		32		
	8	10	16				
20		28	31		44		
						Boring Complete at 20.0'	No free standing water encountered at boring completion.
25							
30							
35							
40							

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW
CLASSIFIED BY: Geologist
DRILLER: A. JAKUBCZAK
DRILL RIG TYPE : CME-550X
METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

APPENDIX B

LABORATORY TEST DATA

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-1

Attached are the results of laboratory testing conducted on various samples from the above referenced project. Mr. John Danzer, representing Empire –Geo Services, Inc, chose samples contained in this report.

The testing conducted was as follows:

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil & Rock

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Samples were received at the SJB Services, Inc. laboratory on January 21, 2014 where they were processed for testing.

If the reviewer should have any questions concerning this report, please do not hesitate to contact our office at any time.

SJB Services, Inc.

Paul Gregorczyk
Laboratory Manager

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-1

SAMPLE NUMBER: 14-033
SAMPLE LOCATION: B-1, S-3: 4' – 6'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
14.6 %	20	12	8

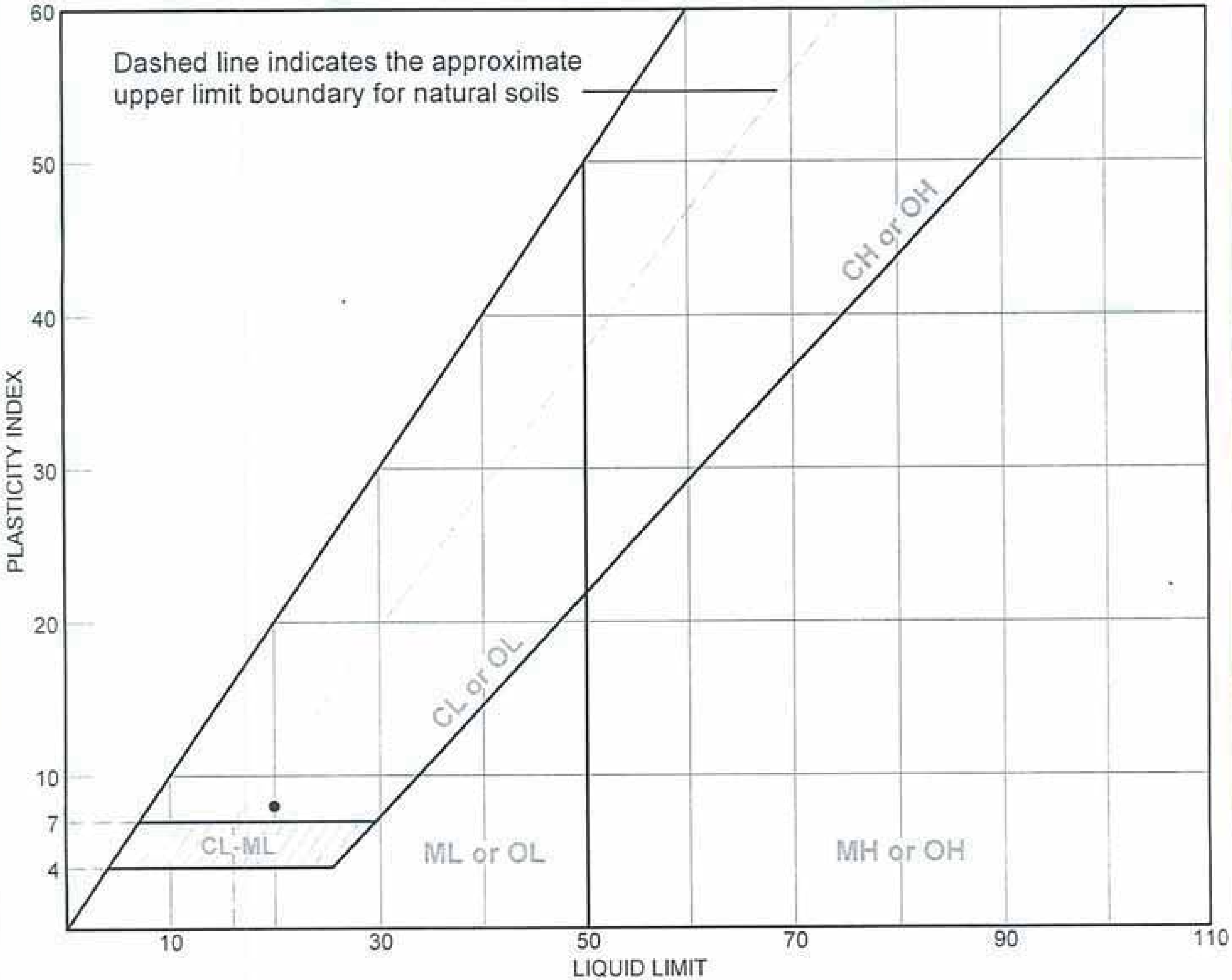
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 27.7 %
Value of Shrinkage Limit = 12
Value of Shrinkage Ratio = 2.02

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
¾"	100.0
½"	98.4
3/8"	97.6
¼"	95.8
#4	94.8
#10	91.9
#20	88.6
#40	85.2
#100	76.8
#200	57.8

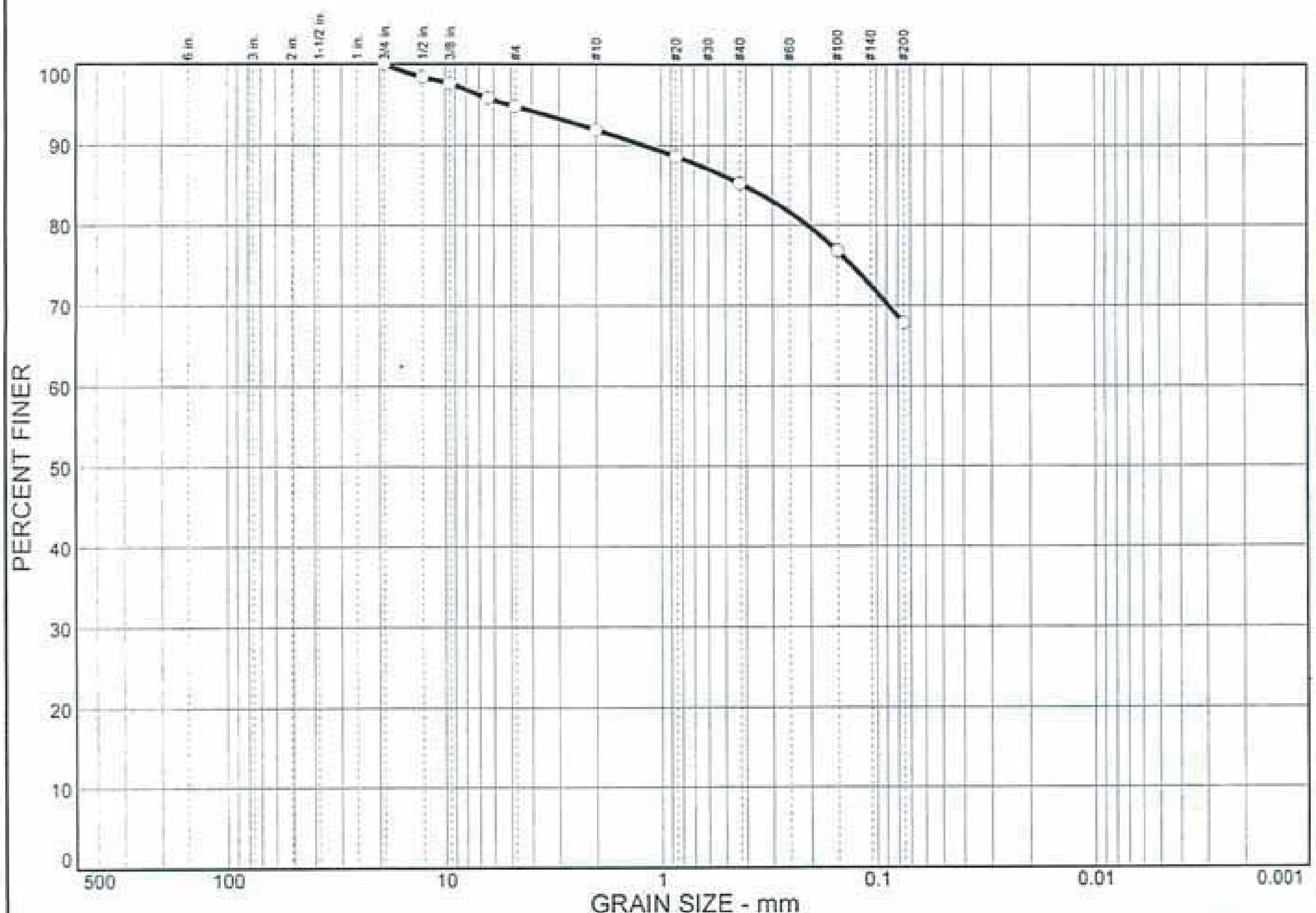
SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-1	S-3	4' - 6'	14.6 %	12	20	8	

SJB SERVICES, INC.	**Client:** MENSCH CAPITAL PARTNERS, LLC **Project:** WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT **Project No.:** BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	5.2	27.0	67.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	98.4		
.375 in.	97.6		
.25 in.	95.8		
#4	94.8		
#10	91.9		
#20	88.6		
#40	85.2		
#100	76.8		
#200	67.8		

* (no specification provided)

Soil Description

B-1, S-3: 4' - 6'

Atterberg Limits

PL= 12 LL= 20 PI= 8

Coefficients

D_{85}= 0.411 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-033

Sample No.: S-3 **Source of Sample:** B-1 **Date:** 1-29-14
Location: B-1, S-3: 4' - 6' **Elev./Depth:** 4' - 6'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-1

SAMPLE NUMBER: 14-034
SAMPLE LOCATION: B-3, S-4: 6' – 8'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
14.8 %	24	13	11

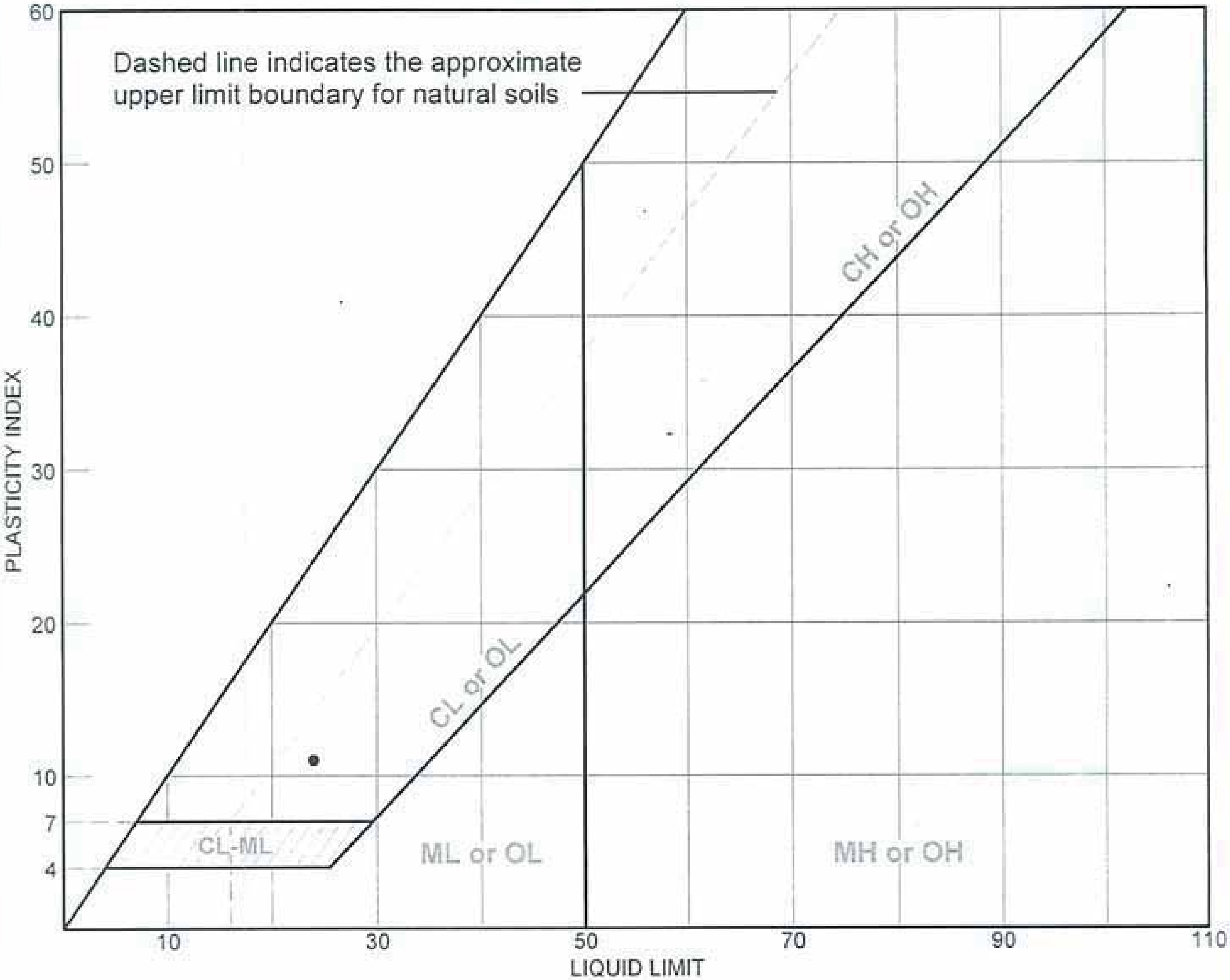
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 32.3 %
Value of Shrinkage Limit = 13
Value of Shrinkage Ratio = 1.94

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
½"	100.0
3/8"	98.8
¼"	98.3
#4	98.0
#10	97.2
#20	95.6
#40	94.0
#100	89.5
#200	83.2

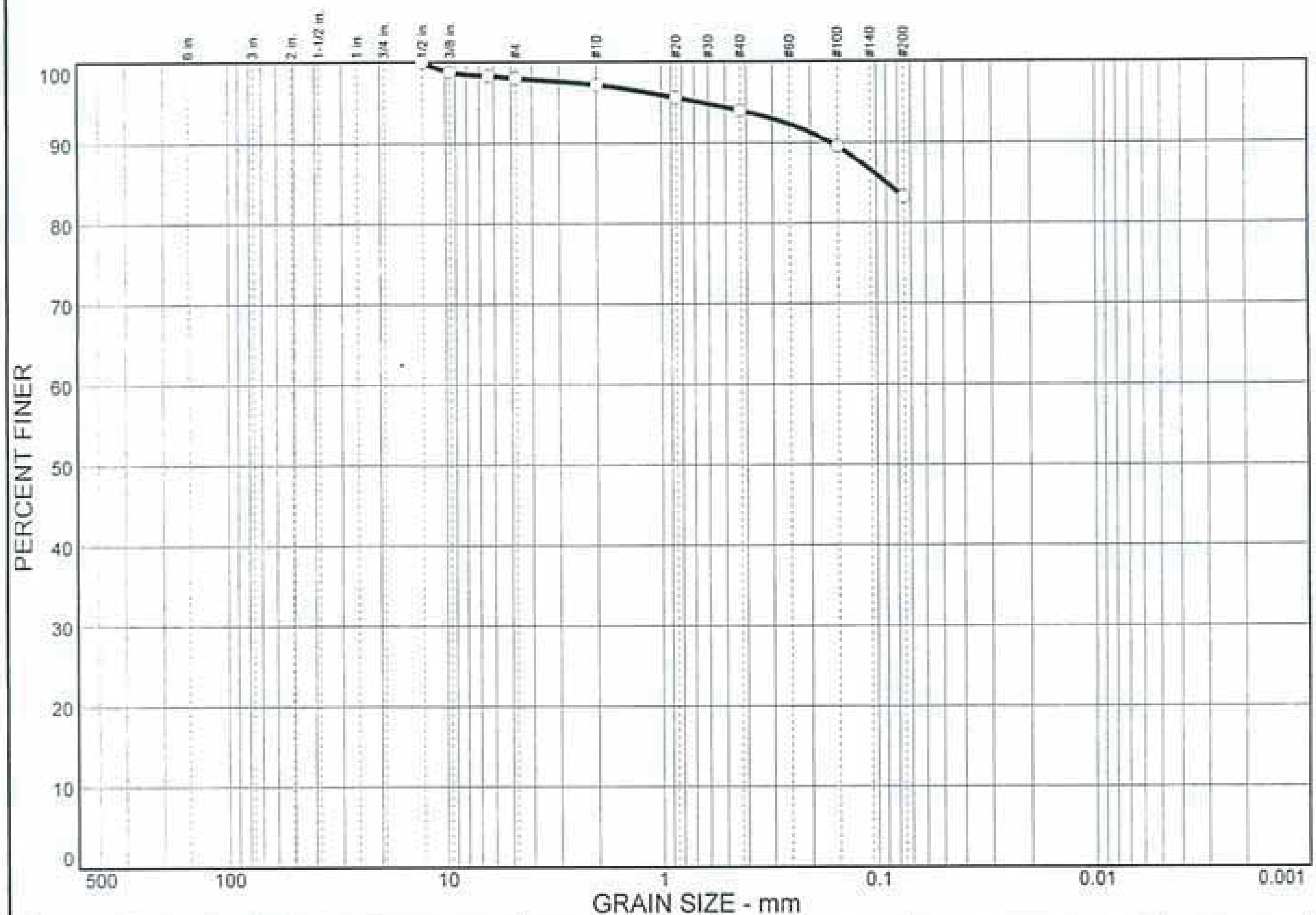
SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-3	S-4	6' - 8'	14.8 %	13	24	11	

SJB SERVICES, INC.	**Client:** MENSCH CAPITAL PARTNERS, LLC **Project:** WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT **Project No.:** BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	2.0	14.8	83.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	98.8		
.25 in.	98.3		
#4	98.0		
#10	97.2		
#20	95.6		
#40	94.0		
#100	89.5		
#200	83.2		

* (no specification provided)

Soil Description

B-3, S-4: 6' - 8'

Atterberg Limits

PL= 13 LL= 24 PI= 11

Coefficients

D_{85}= 0.0899 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-034

Sample No.: S-4 Source of Sample: B-3 Date: 1-29-14
Location: B-3, S-4: 6' - 8' Elev./Depth: 6' - 8'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

SJB SERVICES, INC.

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-1

SAMPLE NUMBER: 14-039
SAMPLE LOCATION: B-7, S-6: 10' – 12'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
12.6 %	24	12	12

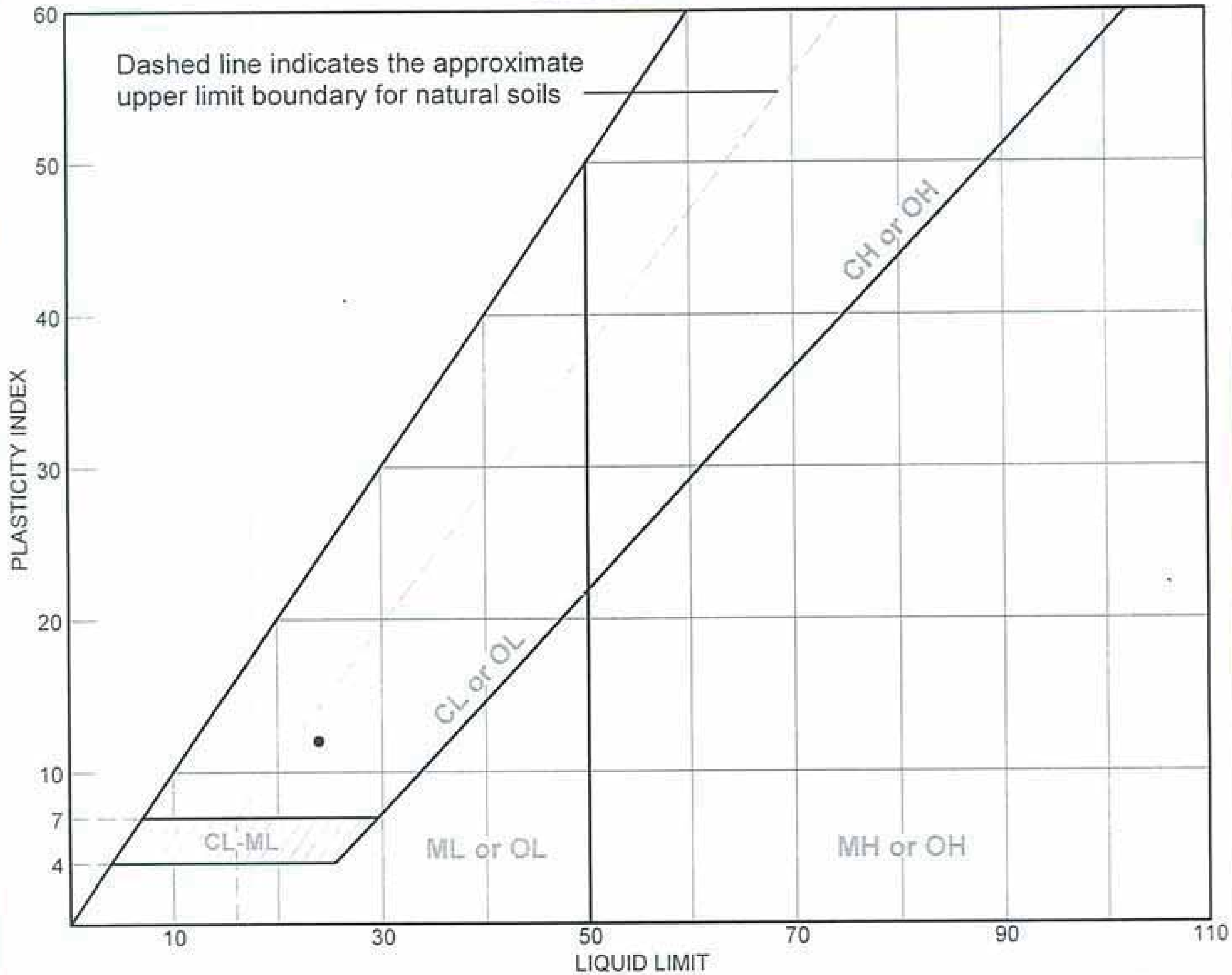
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 37.9 %
Value of Shrinkage Limit = 13
Value of Shrinkage Ratio = 1.93

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
¾"	100.0
½"	97.2
³/₈"	95.9
¼"	92.5
#4	91.7
#10	89.1
#20	86.8
#40	85.0
#100	80.2
#200	74.3

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-7	S-6	10' - 12'	12.6 %	12	24	12	

SJB SERVICES, INC.	Client: MENSCH CAPITAL PARTNERS, LLC Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	8.3	17.4	74.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	97.2		
.375 in.	95.9		
.25 in.	92.5		
#4	91.7		
#10	89.1		
#20	86.8		
#40	85.0		
#100	80.2		
#200	74.3		

Soil Description

B-7, S-6: 10' - 12'

Atterberg Limits

PL= 12 LL= 24 PI= 12

Coefficients

D_{85}= 0.425 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-039

* (no specification provided)

Sample No.: S-6 Source of Sample: B-7 Date: 1-29-14
Location: B-7, S-6: 10' - 12' Elev./Depth: 10' - 12'

SJB SERVICES, INC.	Client: MENSCH CAPITAL PARTNERS, LLC Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT Project No: BE-13-192

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

SAMPLE NUMBER: 14-040
SAMPLE LOCATION: B-14, S-4: 6' – 8'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
10.7 %	23	12	11

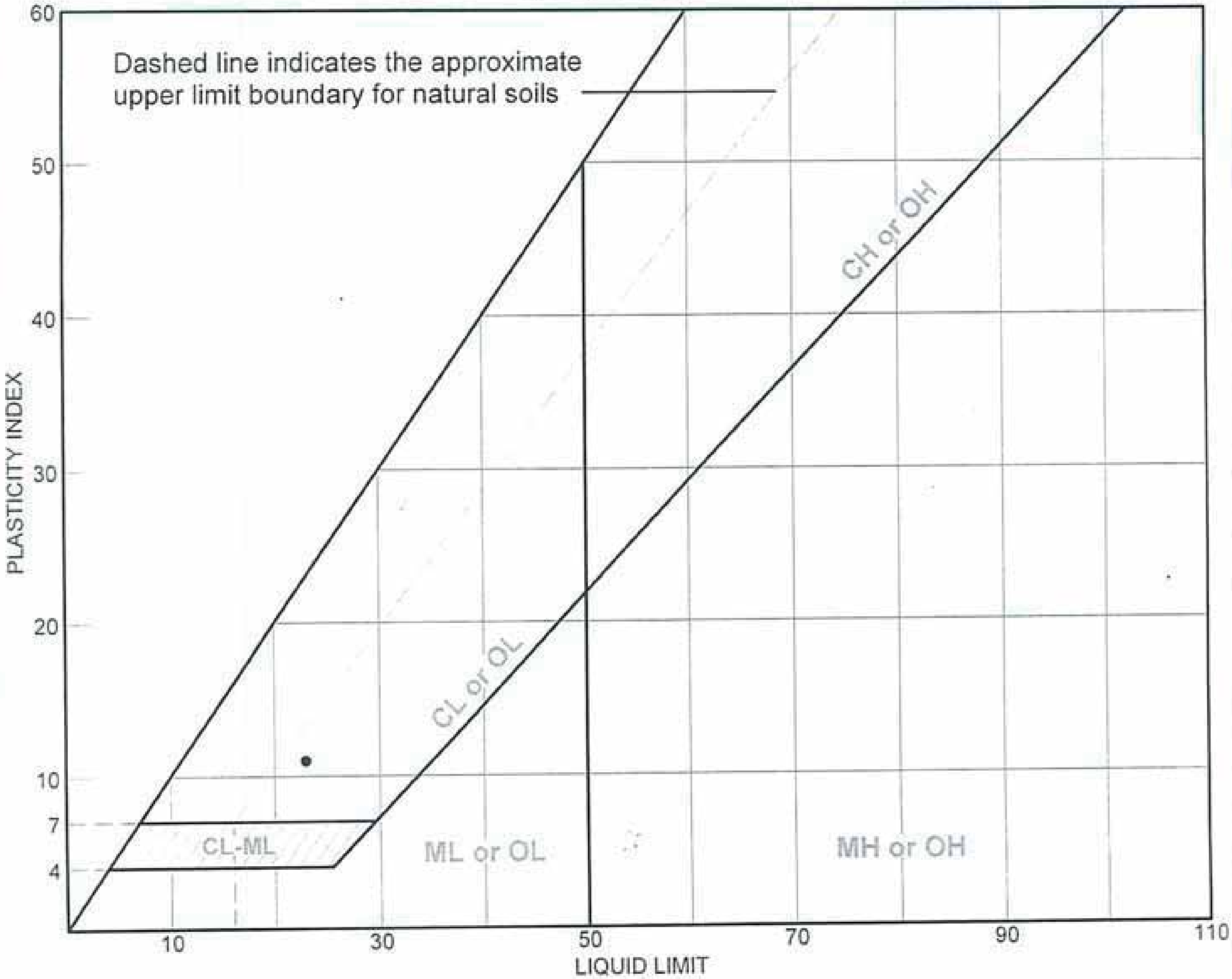
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 32.9 %
Value of Shrinkage Limit = 17
Value of Shrinkage Ratio = 1.93

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
¾"	100.0
½"	97.0
³/₈"	95.3
¼"	93.2
#4	92.1
#10	89.4
#20	86.5
#40	84.1
#100	77.6
#200	70.1

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-14	S-4	6' - 8'	10.7 %	12	23	11	

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report

% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	7.9	22.0	70.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	97.0		
.375 in.	95.3		
.25 in.	93.2		
#4	92.1		
#10	89.4		
#20	86.5		
#40	84.1		
#100	77.6		
#200	70.1		

* (no specification provided)

Soil Description

B-14, S-4: 6' - 8'

Atterberg Limits

PL= 12 LL= 23 PI= 11

Coefficients

D_{85}= 0.541 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 13-040

Sample No.: S-4 **Source of Sample:** B-14 **Date:** 1-29-14
Location: B-14, S-4: 6' - 8' **Elev./Depth:** 6' - 8'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

SJB SERVICES, INC.

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

SAMPLE NUMBER: 14-041
SAMPLE LOCATION: B-22, S-3: 4' – 6'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
26.5 %	52	22	30

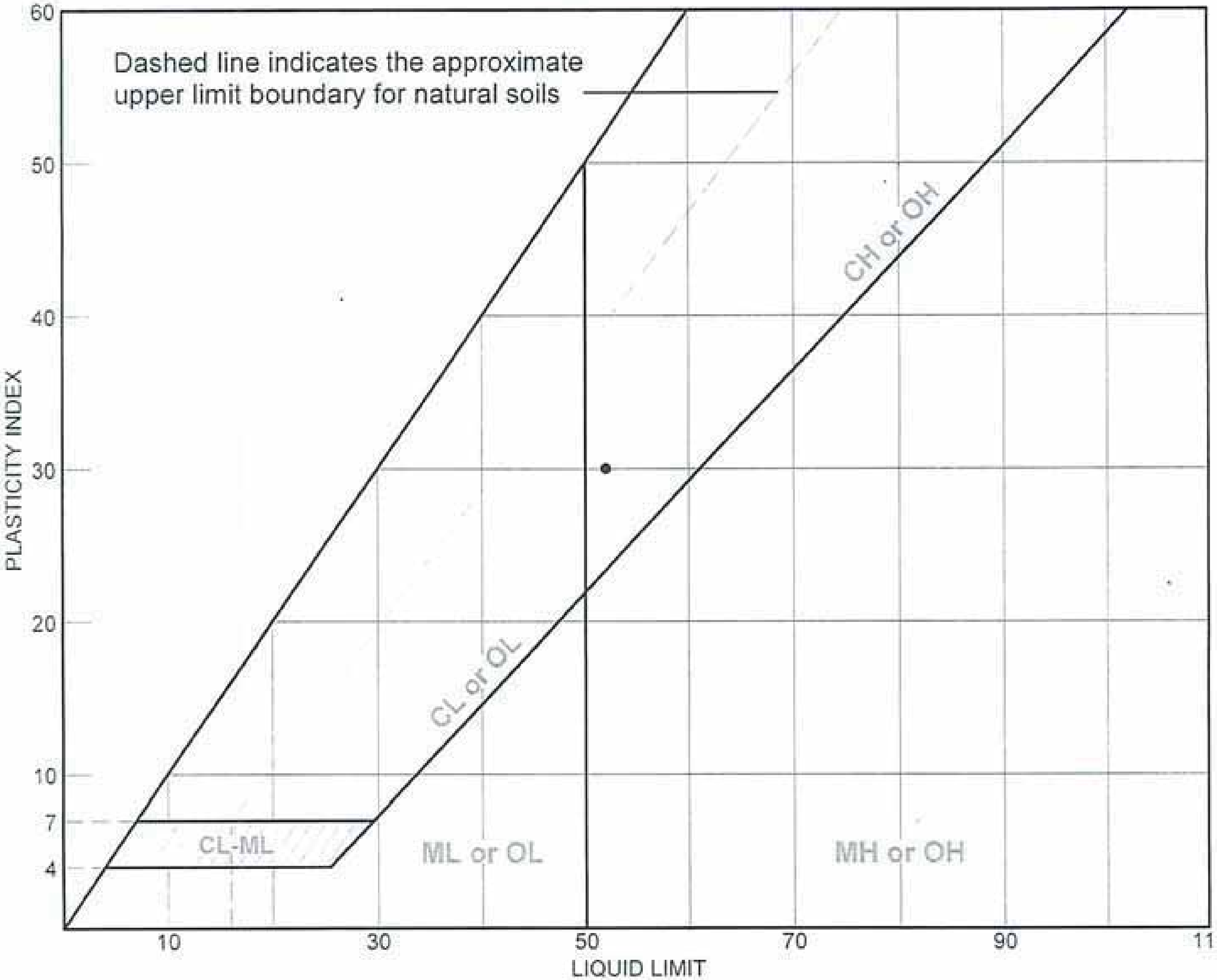
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 64.8 %
Value of Shrinkage Limit = 23
Value of Shrinkage Ratio = 1.69

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
#4	100.0
#10	100.0
#20	99.9
#40	99.8
#100	99.5
#200	99.2

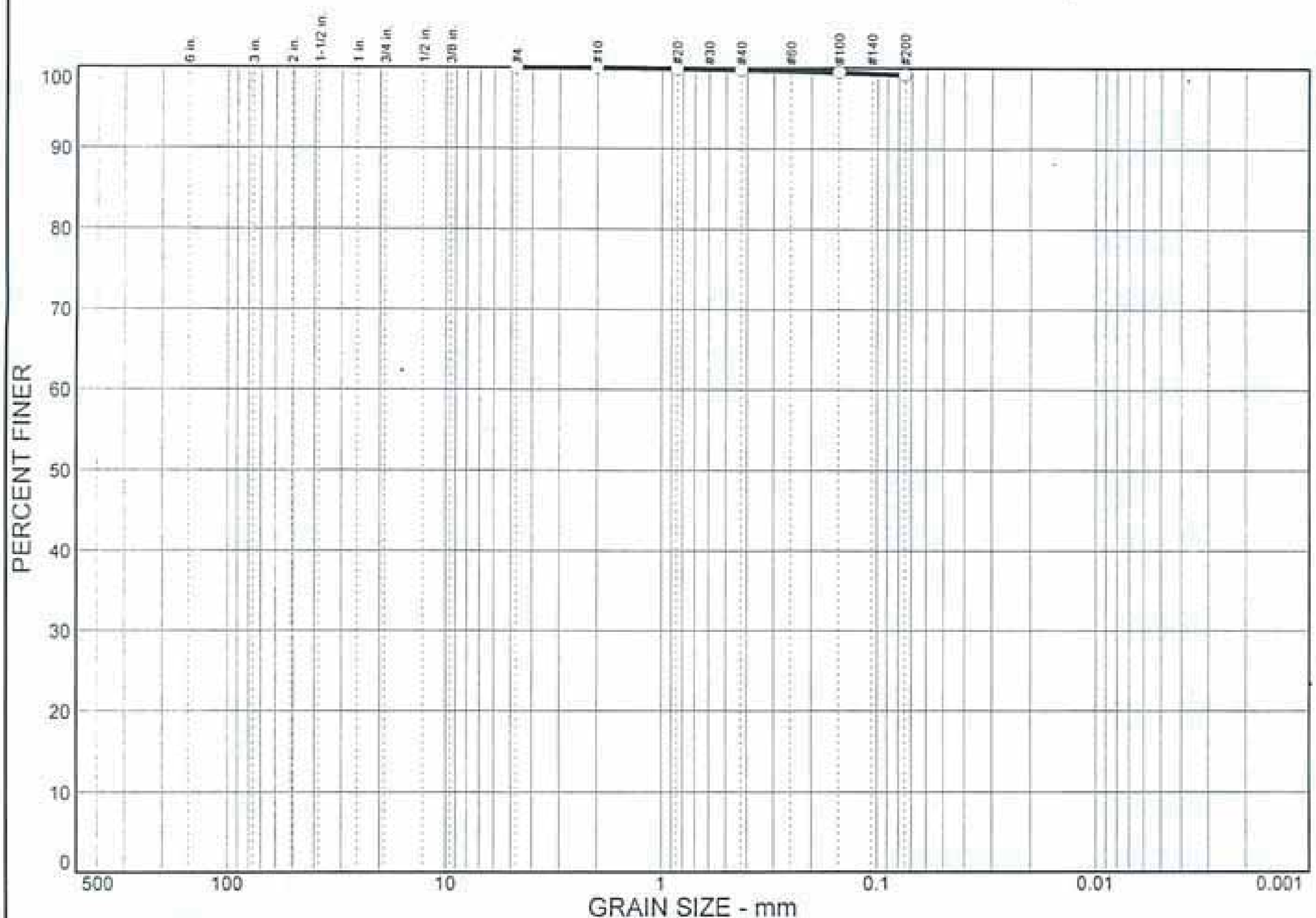
SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-22	S-3	4' - 6'	26.5 %	22	52	30	

SJB SERVICES, INC.	**Client:** MENSCH CAPITAL PARTNERS, LLC **Project:** WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT **Project No.:** BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	0.8	99.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.9		
#40	99.8		
#100	99.5		
#200	99.2		

* (no specification provided)

Soil Description

B-22, S-3: 4' - 6'

Atterberg Limits

PL= 22 LL= 52 PI= 30

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-041

Sample No.: S-3 Source of Sample: B-22 Date: 1-29-14
Location: B-22, S-3: 4' - 6' Elev./Depth: 4' - 6'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

SJB SERVICES, INC.

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Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **January 29, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-1

SAMPLE NUMBER: 14-047
SAMPLE LOCATION: B-35, S-7: 15' – 17'

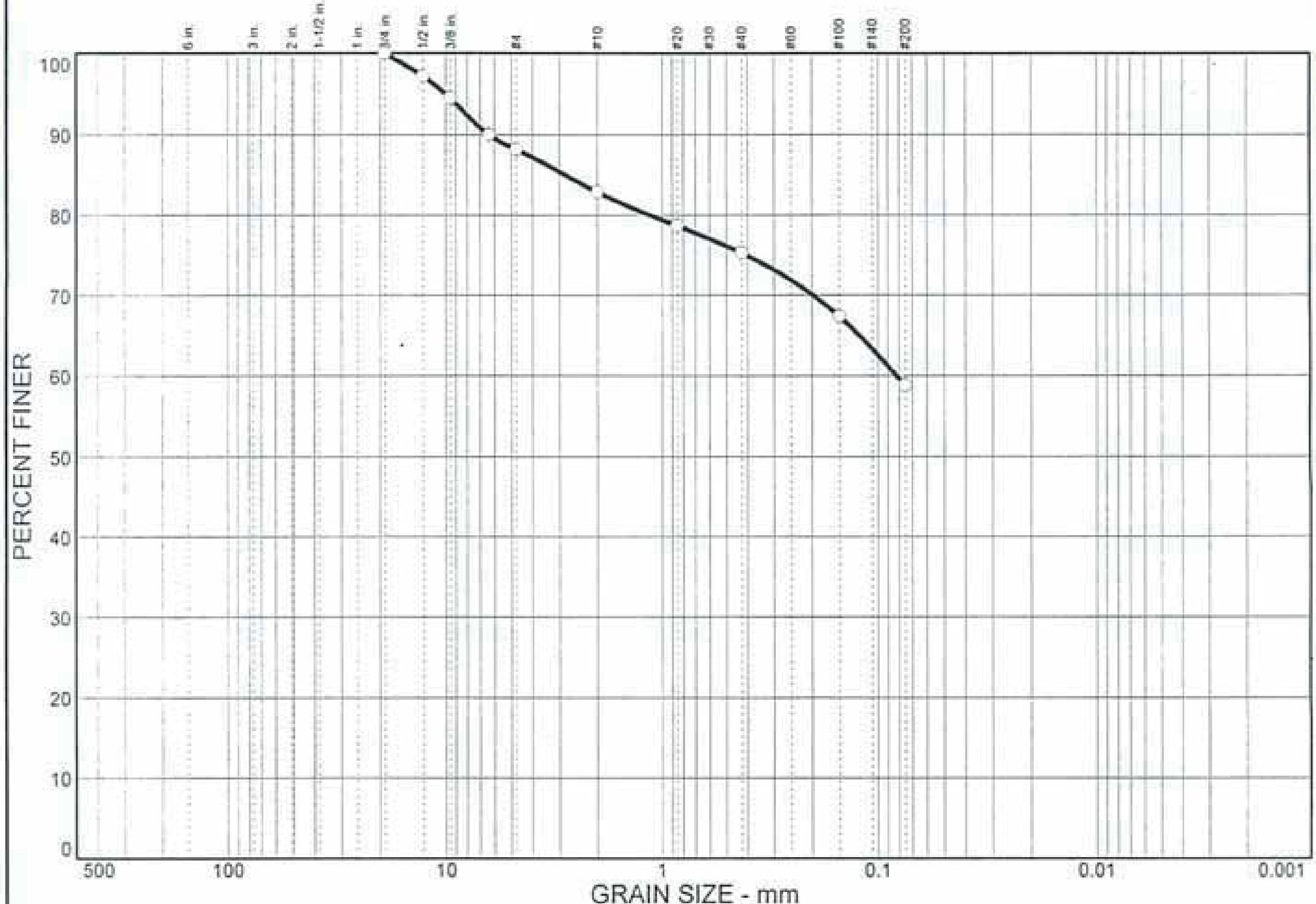
ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock

Moisture Content: 8.7 %

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
¾"	100.0
½"	97.2
³/₈"	94.5
¼"	90.0
#4	88.2
#10	82.9
#20	78.7
#40	75.3
#100	67.4
#200	58.8

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	11.8	29.4	58.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	97.2		
.375 in.	94.5		
.25 in.	90.0		
#4	88.2		
#10	82.9		
#20	78.7		
#40	75.3		
#100	67.4		
#200	58.8		

* (no specification provided)

Soil Description

B-35, S-7: 15' - 17'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 2.81 D_{60}= 0.0821 D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-047

Sample No.: S-7 **Source of Sample:** B-35 **Date:** 1-29-14
Location: B-35, S-7: 15' - 17' **Elev./Depth:** 15' - 17'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

SJB SERVICES, INC.

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Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 6, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

Attached are the results of laboratory testing conducted on various samples from the above referenced project. Mr. John Danzer, representing Empire –Geo Services, Inc, chose samples contained in this report.

The testing conducted was as follows:

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil & Rock

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Samples were received at the SJB Services, Inc. laboratory on January 27, 2014 where they were processed for testing.

If the reviewer should have any questions concerning this report, please do not hesitate to contact our office at any time.

SJB Services, Inc.

Paul Gregorczyk
Laboratory Manager

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 6, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-098
SAMPLE LOCATION: B-20, S-5: 8' – 10'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
23.3 %	37	17	20

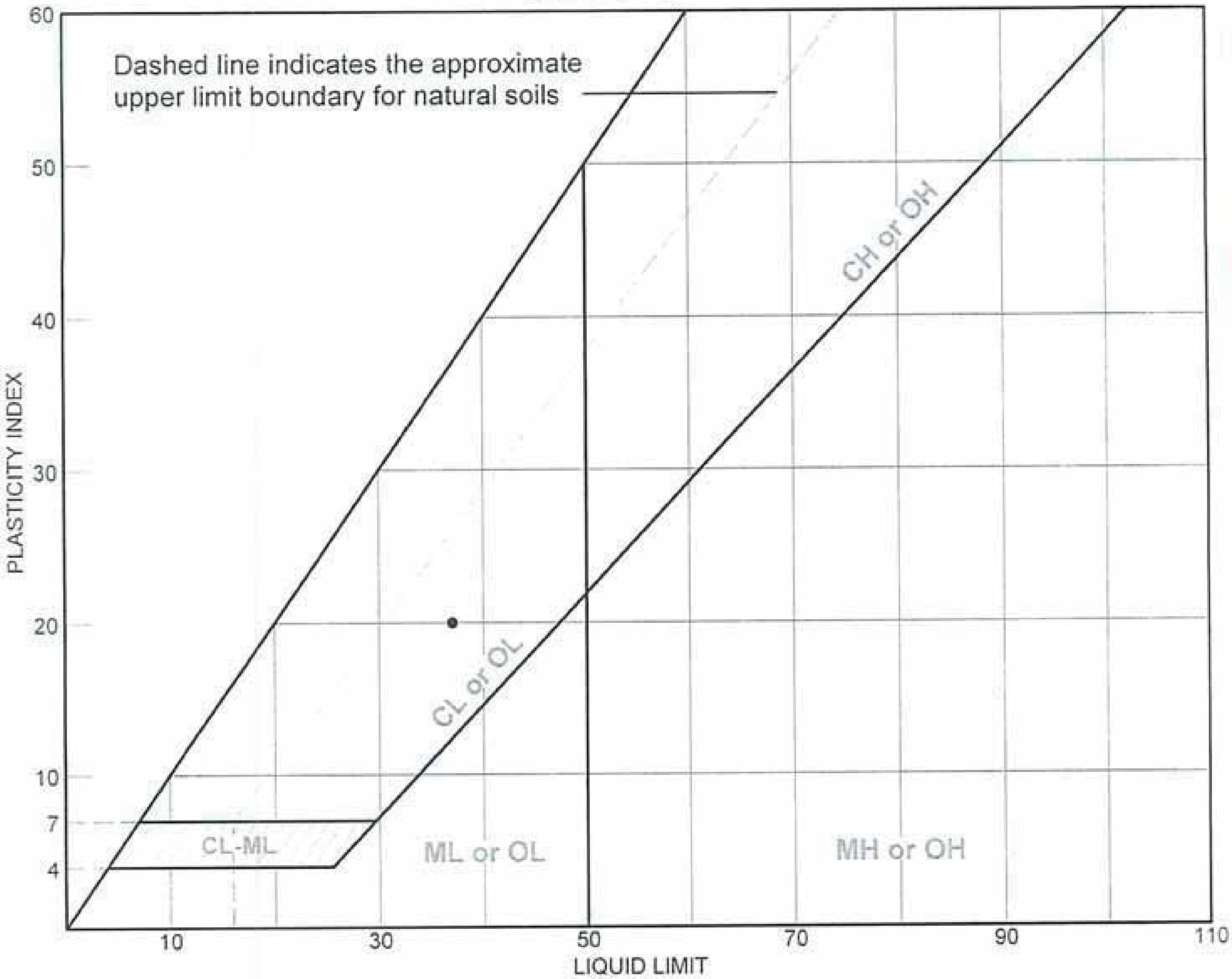
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 51.6 %
Value of Shrinkage Limit = 19
Value of Shrinkage Ratio = 1.81

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
#4	100.0
#10	99.8
#20	99.7
#40	99.5
#100	99.3
#200	99.0

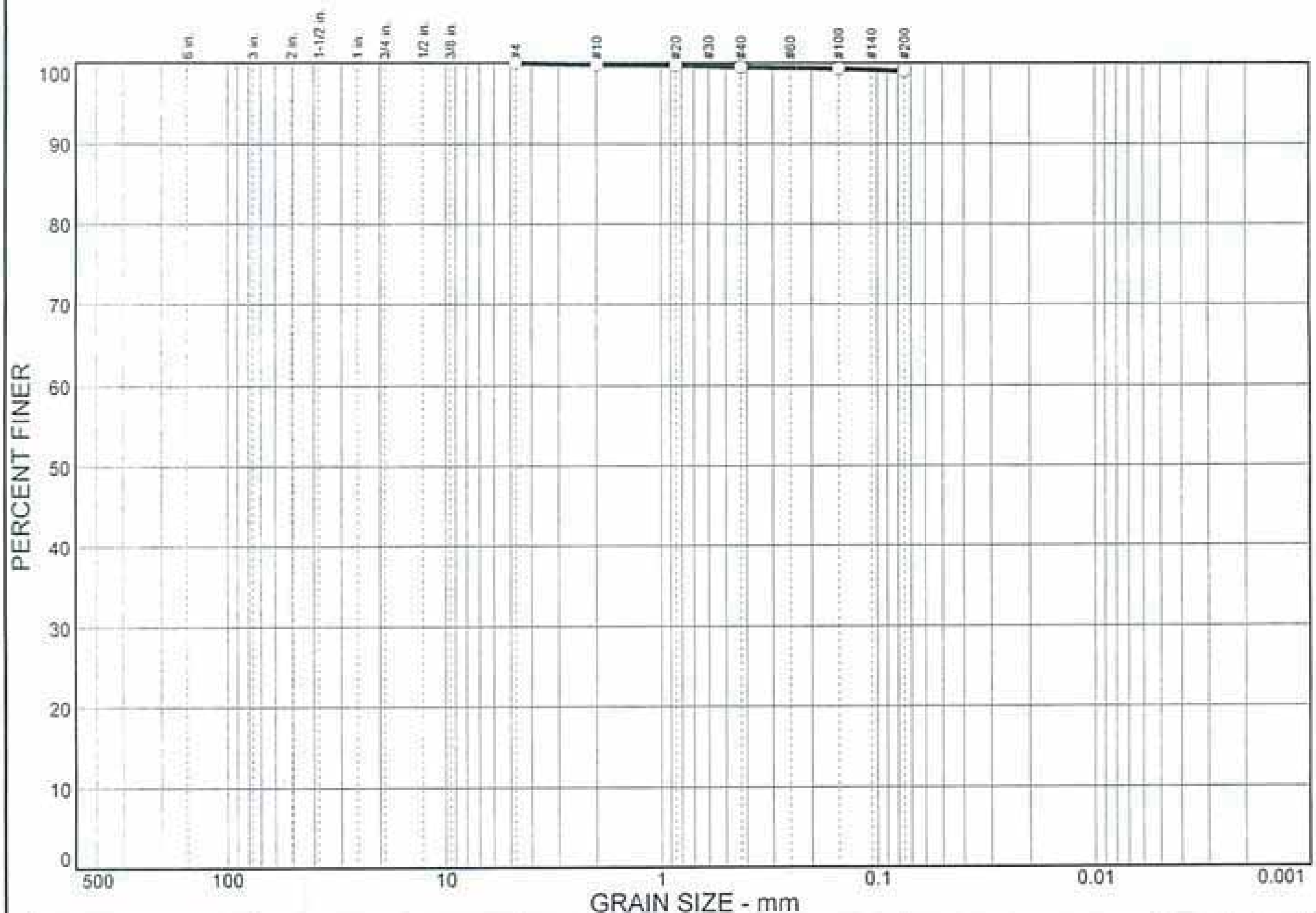
SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-20	S-5	8' - 10'	23.3 %	17	37	20	

SJB SERVICES, INC.	**Client:** MENSCH CAPITAL PARTNERS, LLC **Project:** WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT **Project No.:** BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	1.0	99.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#20	99.7		
#40	99.5		
#100	99.3		
#200	99.0		

* (no specification provided)

Soil Description

B-20, S-5: 8' - 10'

Atterberg Limits

PL= 17 LL= 37 PI= 20

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-098

Sample No.: S-5 Source of Sample: B-20 Date: 2-6-14
Location: B-20, S-5: 8' - 10' Elev./Depth: 8' - 10'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

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Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 6, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-099
SAMPLE LOCATION: B-30, S-5: 8' – 10'

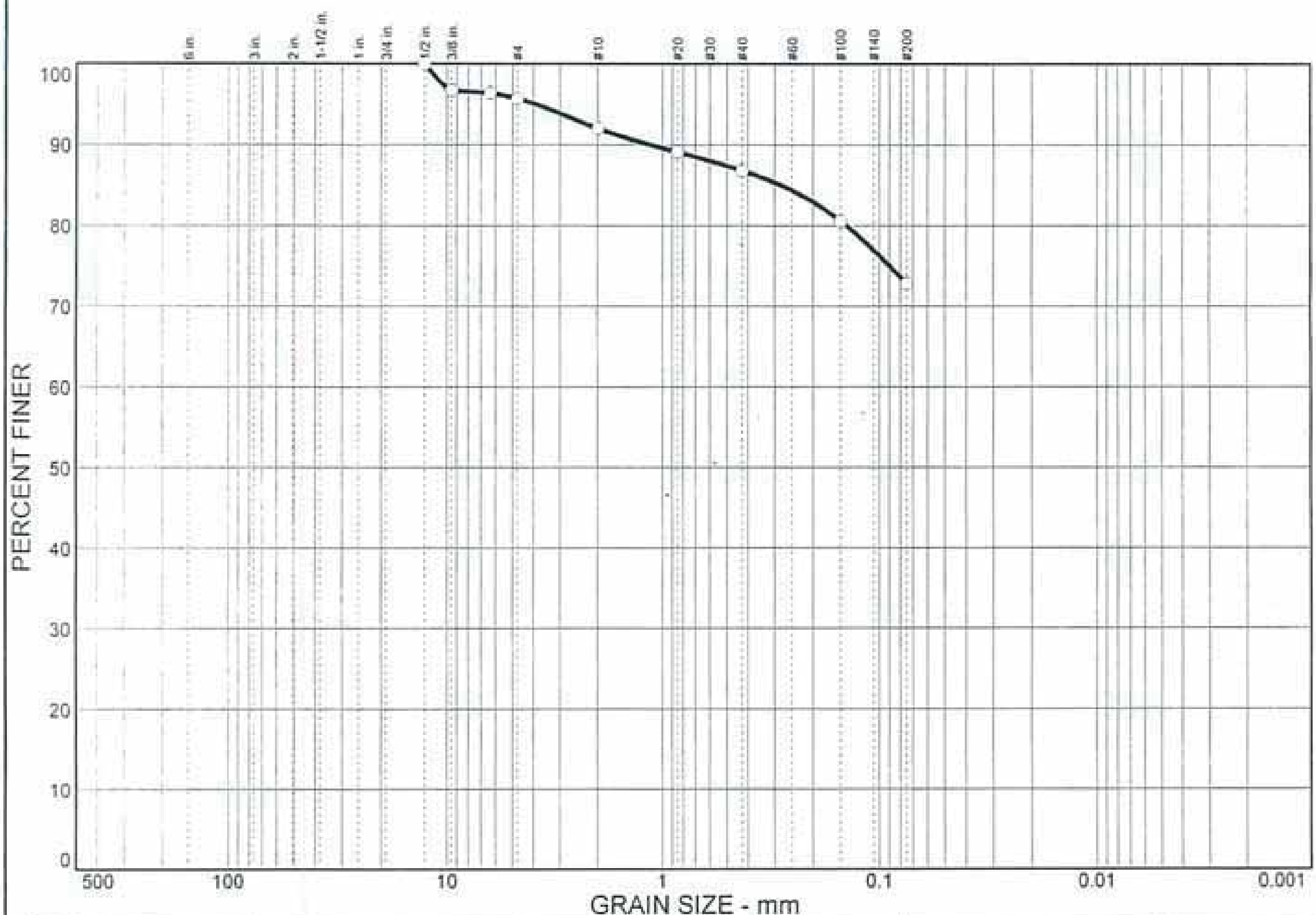
ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content = 11.4 %

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
½"	100.0
³/₈"	96.7
¼"	96.4
#4	95.7
#10	92.0
#20	89.1
#40	86.8
#100	80.6
#200	72.8

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.3	22.9	72.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	96.7		
.25 in.	96.4		
#4	95.7		
#10	92.0		
#20	89.1		
#40	86.8		
#100	80.6		
#200	72.8		

* (no specification provided)

Soil Description

B-30, S-5: 8' - 10'

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.282 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-099

Sample No.: S-5 **Source of Sample:** B-30 **Date:** 2-6-14
Location: B-30, S-5: 8' - 10' **Elev./Depth:** 8' - 10'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No: BE-13-192

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Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 6, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-100
SAMPLE LOCATION: B-44, S-3: 4' – 6'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
21.3 %	59	22	37

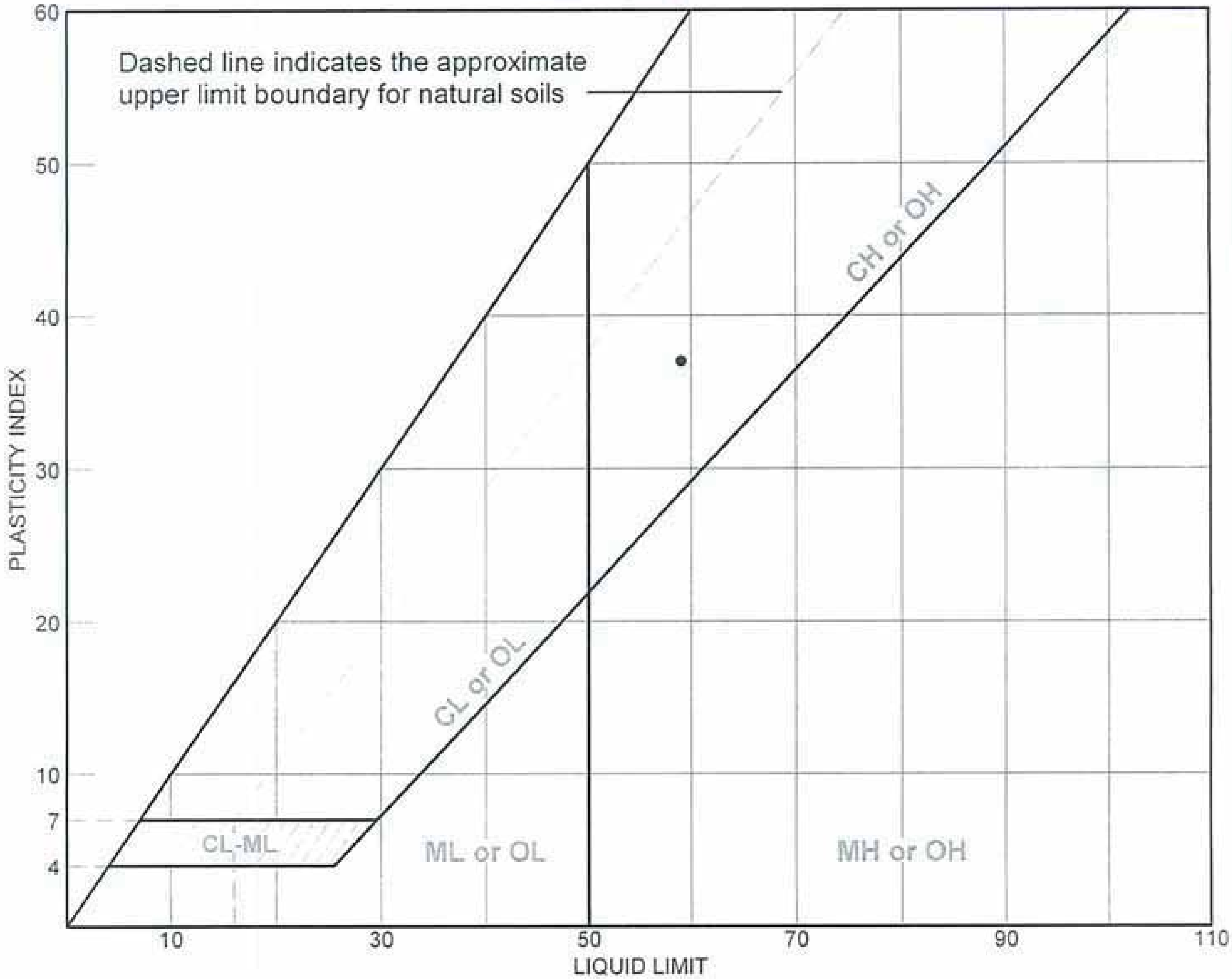
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 72.6 %
Value of Shrinkage Limit = 22
Value of Shrinkage Ratio = 1.69

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
#4	100.0
#10	100.0
#20	99.8
#40	99.6
#100	99.0
#200	97.8

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



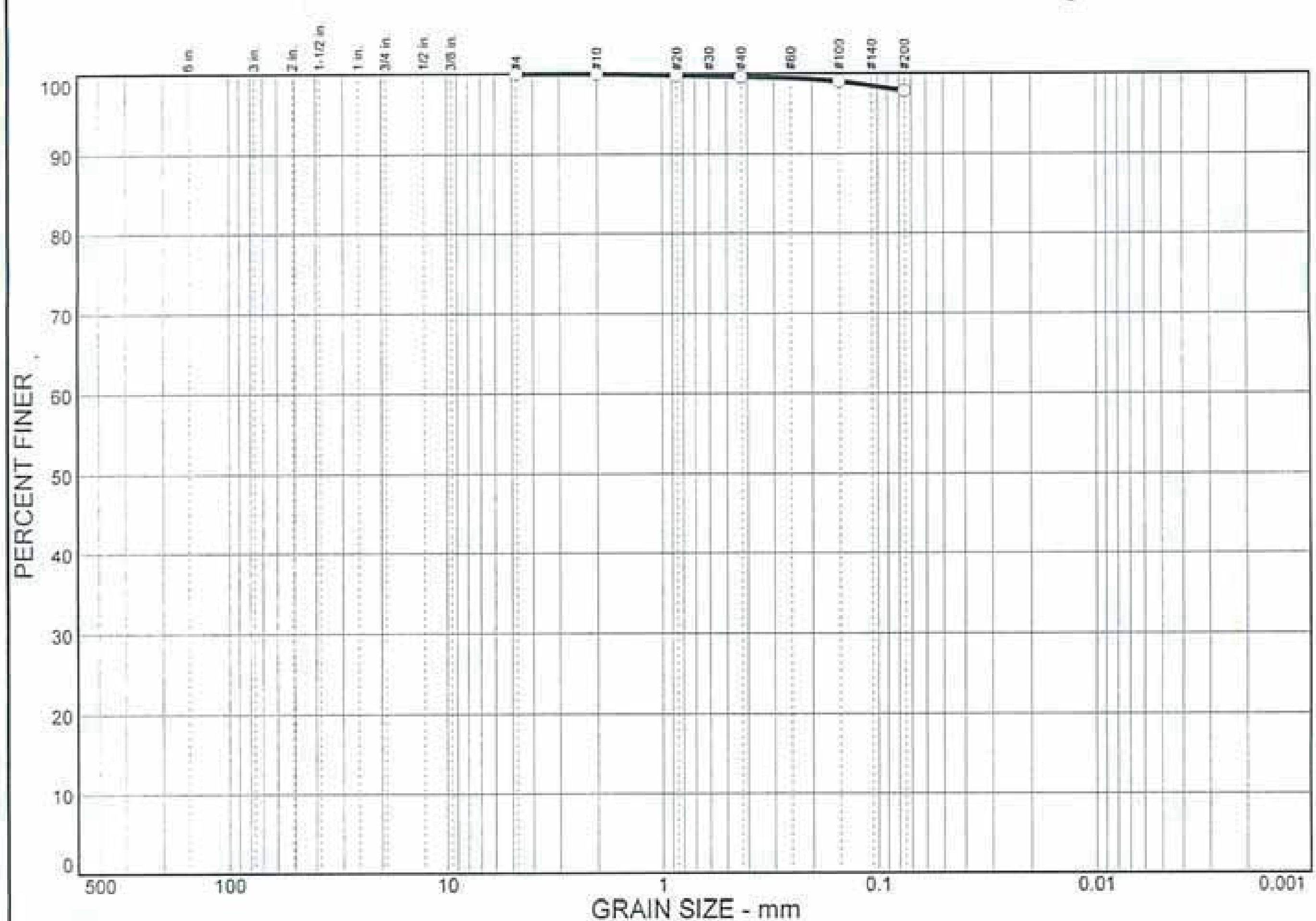
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-44	S-3	4' - 6'	21.3 %	22	59	37	

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	2.2	97.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	100.0		
#20	99.8		
#40	99.6		
#100	99.0		
#200	97.8		

* (no specification provided)

Soil Description

B-44, S-3: 4' - 6'

Atterberg Limits

PL= 22 LL= 59 PI= 37

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-100

Sample No.: S-3 **Source of Sample:** B-44 **Date:** 2-6-14
Location: B-44, S-3: 4' - 6' **Elev./Depth:** 4' - 6'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

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Laboratory Test Report

PROJECT: Proposed Westwood Country Club Development Project

CLIENT: Mensch Capital Partners, LLC.

DATE: February 14, 2014

PROJECT NO.: BE-13-192
REPORT NO.: LTR-3

Attached are the results of laboratory testing conducted on various samples from the above referenced project. Mr. John Danzer, representing Empire –Geo Services, Inc, chose samples contained in this report.

The testing conducted was as follows:

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil & Rock

ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Samples were received at the SJB Services, Inc. laboratory on February 7, 2014 where they were processed for testing.

If the reviewer should have any questions concerning this report, please do not hesitate to contact our office at any time.

SJB Services, Inc.

Paul Gregorczyk
Laboratory Manager

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 14, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-3

SAMPLE NUMBER: 14-122
SAMPLE LOCATION: B-12, S-3: 4 – 6'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
13.1 %	24	13	11

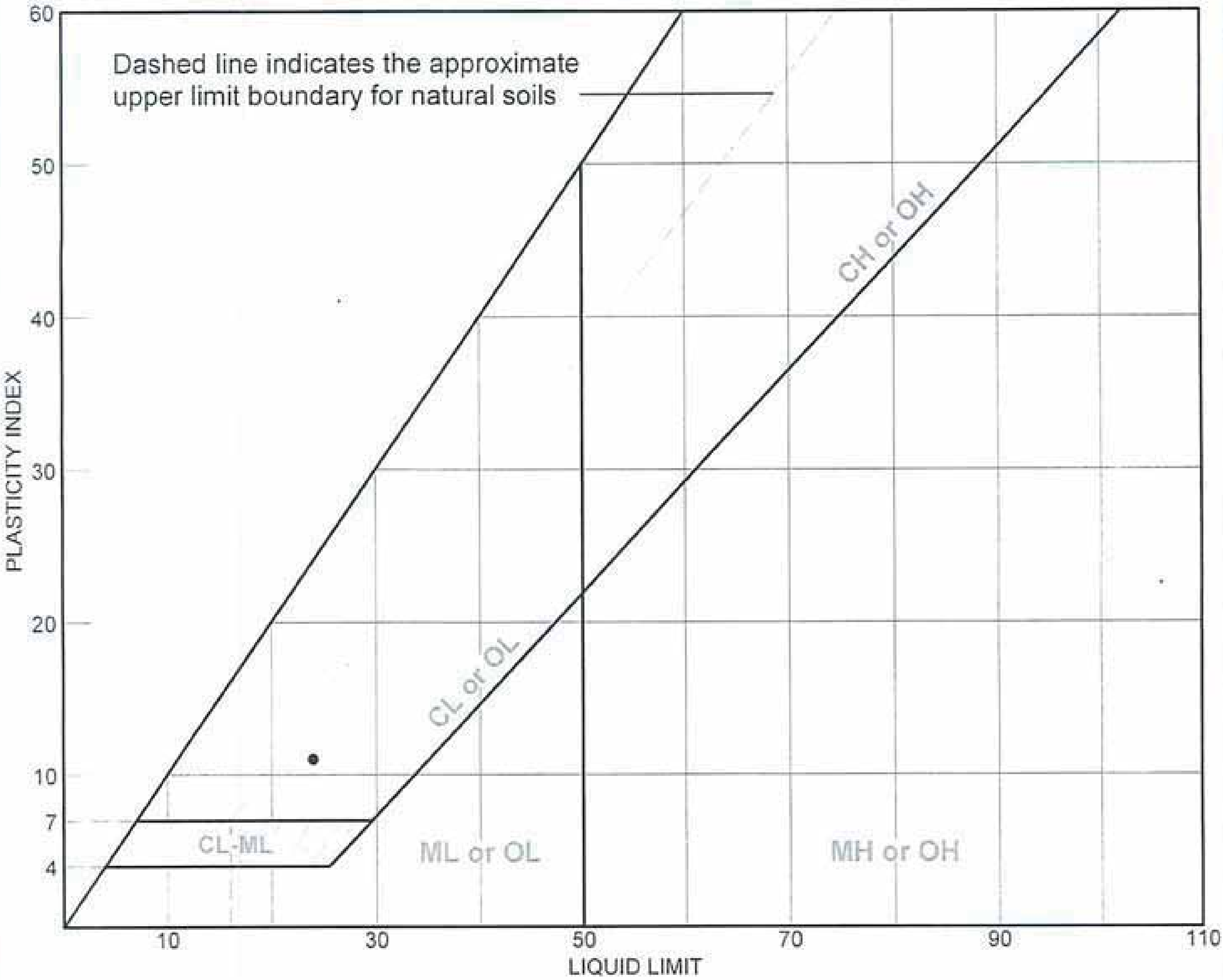
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 28.5 %
Value of Shrinkage Limit = 12
Value of Shrinkage Ratio = 1.98

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
½"	100.0
³/₈"	98.0
¼"	93.5
#4	91.4
#10	87.6
#20	84.5
#40	82.1
#100	75.7
#200	68.2

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



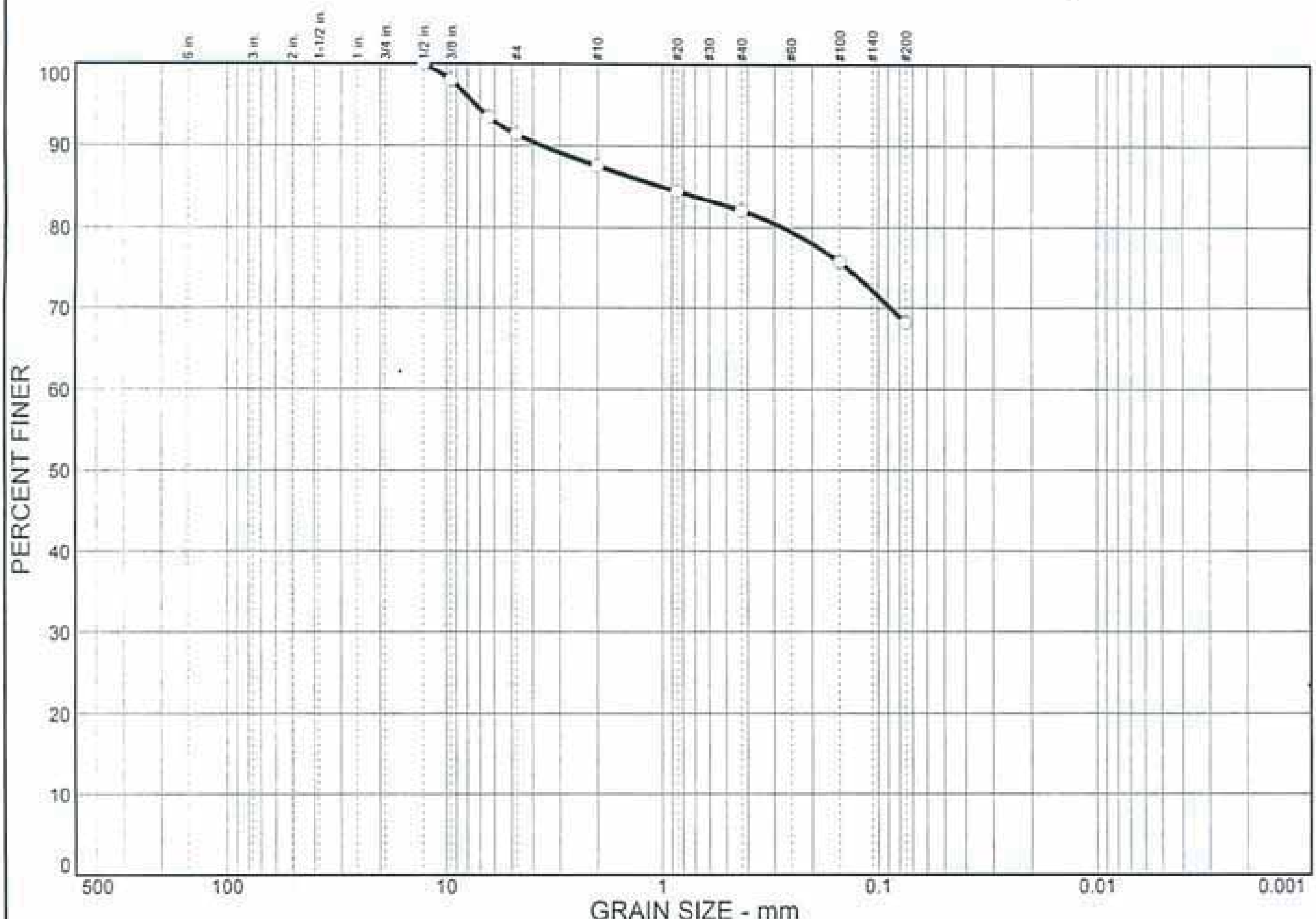
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-12	S-3	4' - 6'	13.1 %	13	24	11	

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	8.6	23.2	68.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.5 in.	100.0		
.375 in.	98.0		
.25 in.	93.5		
#4	91.4		
#10	87.6		
#20	84.5		
#40	82.1		
#100	75.7		
#200	68.2		

* (no specification provided)

Soil Description

B-12, S-3: 4' - 6'

Atterberg Limits

PL= 13 LL= 24 PI= 11

Coefficients

D_{85}= 0.983 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-122

Sample No.: S-3 Source of Sample: B-12 Date: 2-14-14
Location: B-12, S-3: 4' - 6' Elev./Depth: 4' - 6'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

Western New York Office
5167 South Park Avenue
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Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 14, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-123
SAMPLE LOCATION: B-31, S-6: 10' – 12'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
10.7 %	23	13	10

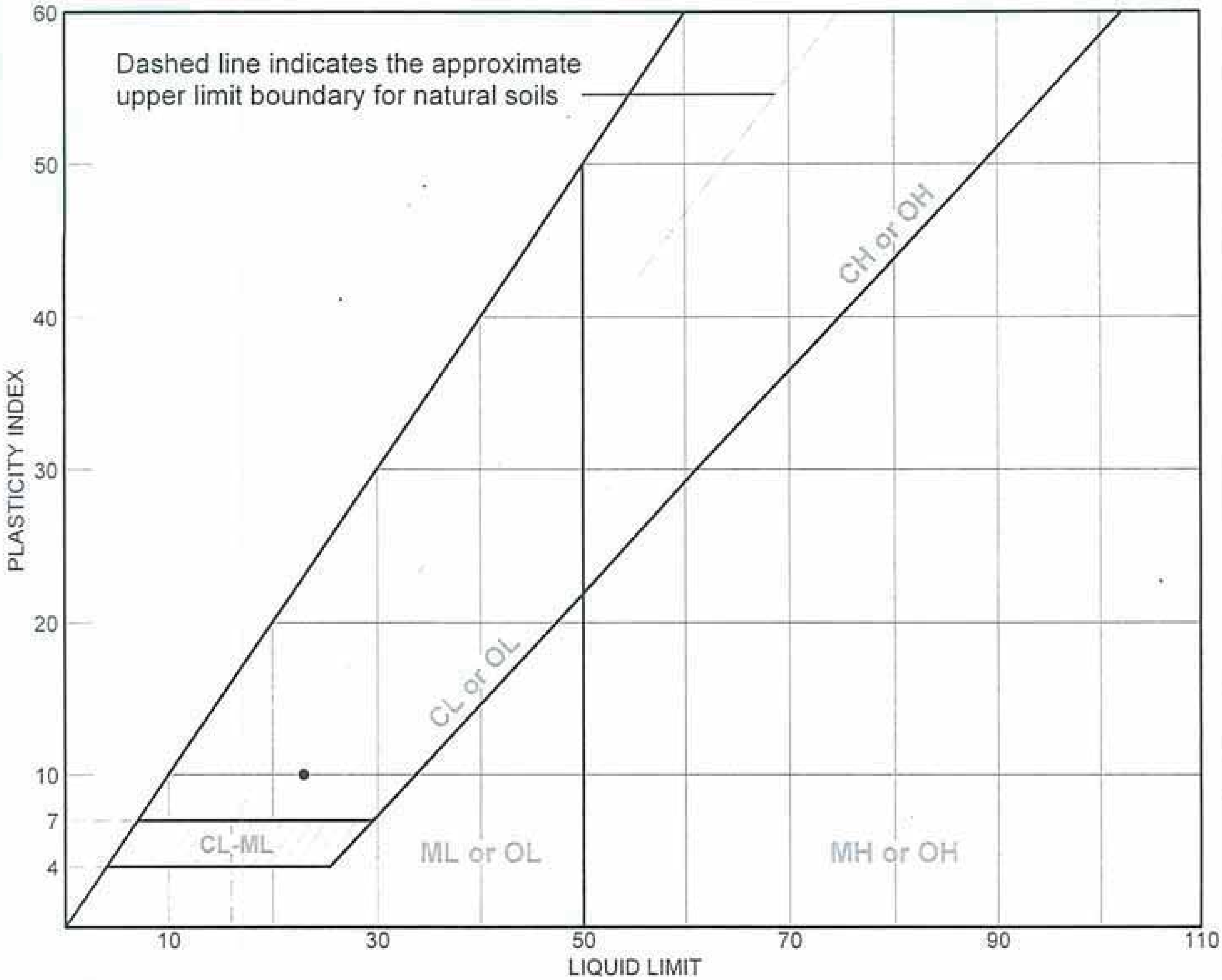
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 43.0 %
Value of Shrinkage Limit = 12
Value of Shrinkage Ratio = 1.94

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
¾"	100.0
½"	96.5
⅜"	94.4
¼"	92.2
#4	90.9
#10	87.1
#20	84.5
#40	82.4
#100	76.4
#200	69.3

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



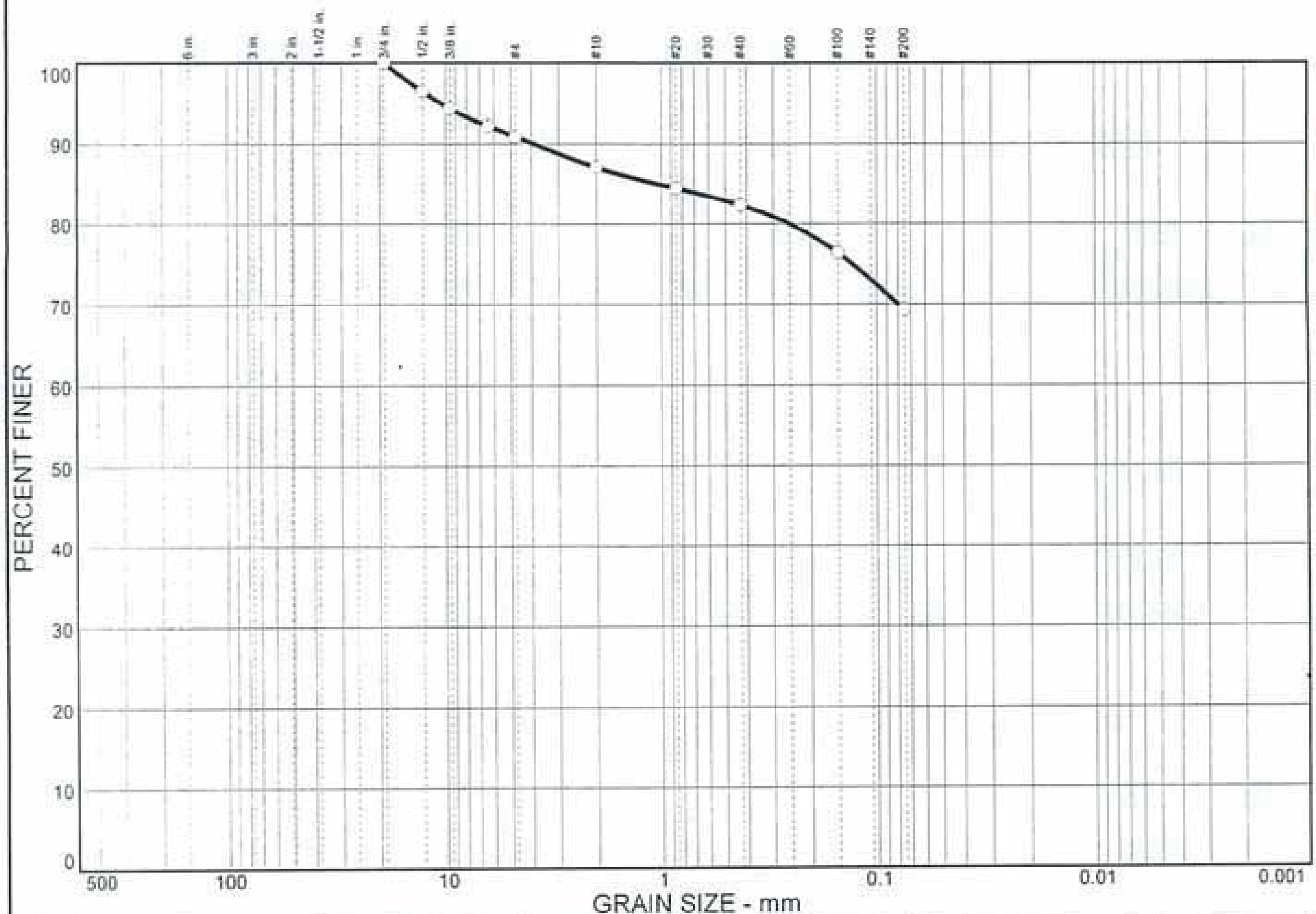
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-31	S-6	10' - 12'	10.7 %	13	23	10	

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	9.1	21.6	69.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75 in.	100.0		
.5 in.	96.5		
.375 in.	94.4		
.25 in.	92.2		
#4	90.9		
#10	87.1		
#20	84.5		
#40	82.4		
#100	76.4		
#200	69.3		

* (no specification provided)

Soil Description

B-31, S-6: 10' - 12'

Atterberg Limits

PL= 13 LL= 23 PI= 10

Coefficients

D_{85}= 1.02 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-123

Sample No.: S-6 **Source of Sample:** B-31 **Date:** 2-14-14
Location: B-31, S-6: 10' - 12' **Elev./Depth:** 10' - 12'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 14, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-124
SAMPLE LOCATION: B-38, S-2: 2' – 4'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
21.3 %	44	20	24

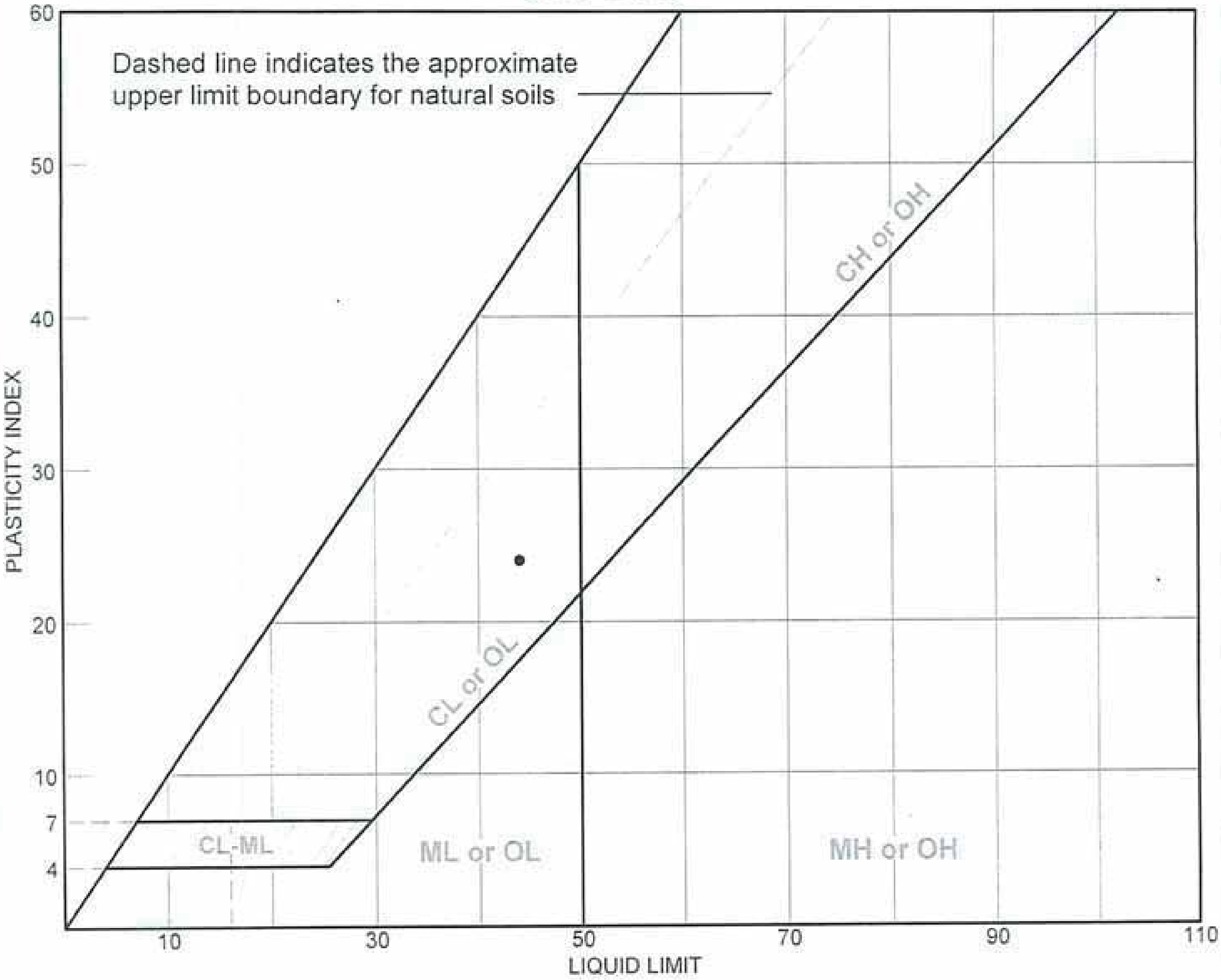
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 51.2 %
Value of Shrinkage Limit = 20
Value of Shrinkage Ratio = 1.64

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
#4	100.0
#10	99.6
#20	99.2
#40	98.7
#100	97.3
#200	96.2

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-38	S-2	2' - 4'	21.3 %	20	44	24	

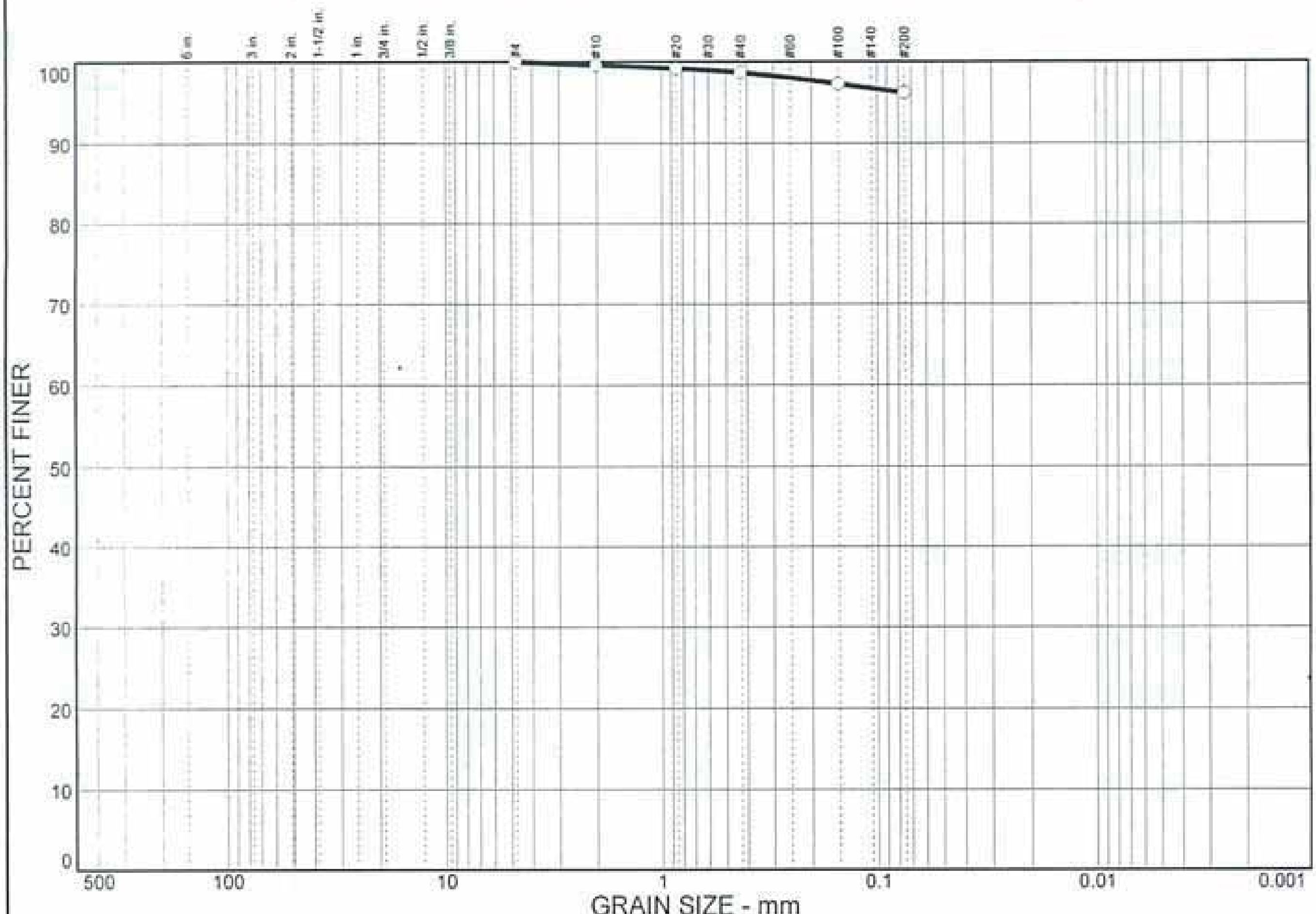
SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC

Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	3.8	96.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.6		
#20	99.2		
#40	98.7		
#100	97.3		
#200	96.2		

* (no specification provided)

Soil Description

B-38, S-2: 2' - 4'

Atterberg Limits

PL= 20 LL= 44 PI= 24

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-124

Sample No.: S-2 Source of Sample: B-38 Date: 2-14-14
Location: B-38, S-2: 2' - 4' Elev./Depth: 2' - 4'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No: BE-13-192

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: Proposed Westwood Country Club Development Project

CLIENT: Mensch Capital Partners, LLC.

DATE: February 14, 2014

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-125
SAMPLE LOCATION: B-40, S-4: 6' – 8'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
12.0 %	25	14	11

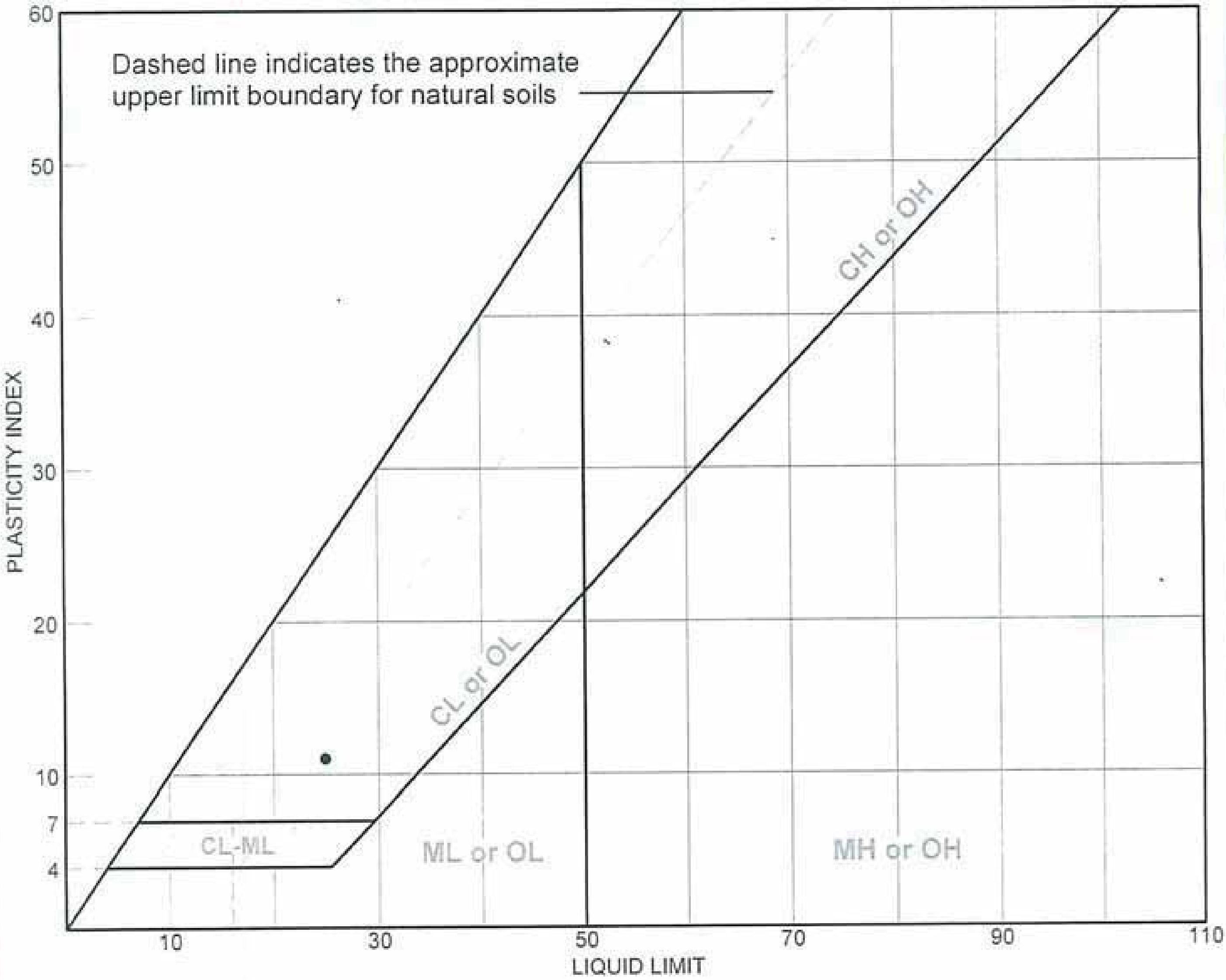
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 31.5 %
Value of Shrinkage Limit = 13
Value of Shrinkage Ratio = 1.95

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
3/8"	100.0
¼"	98.8
#4	97.8
#10	95.8
#20	94.0
#40	92.6
#100	88.6
#200	83.0

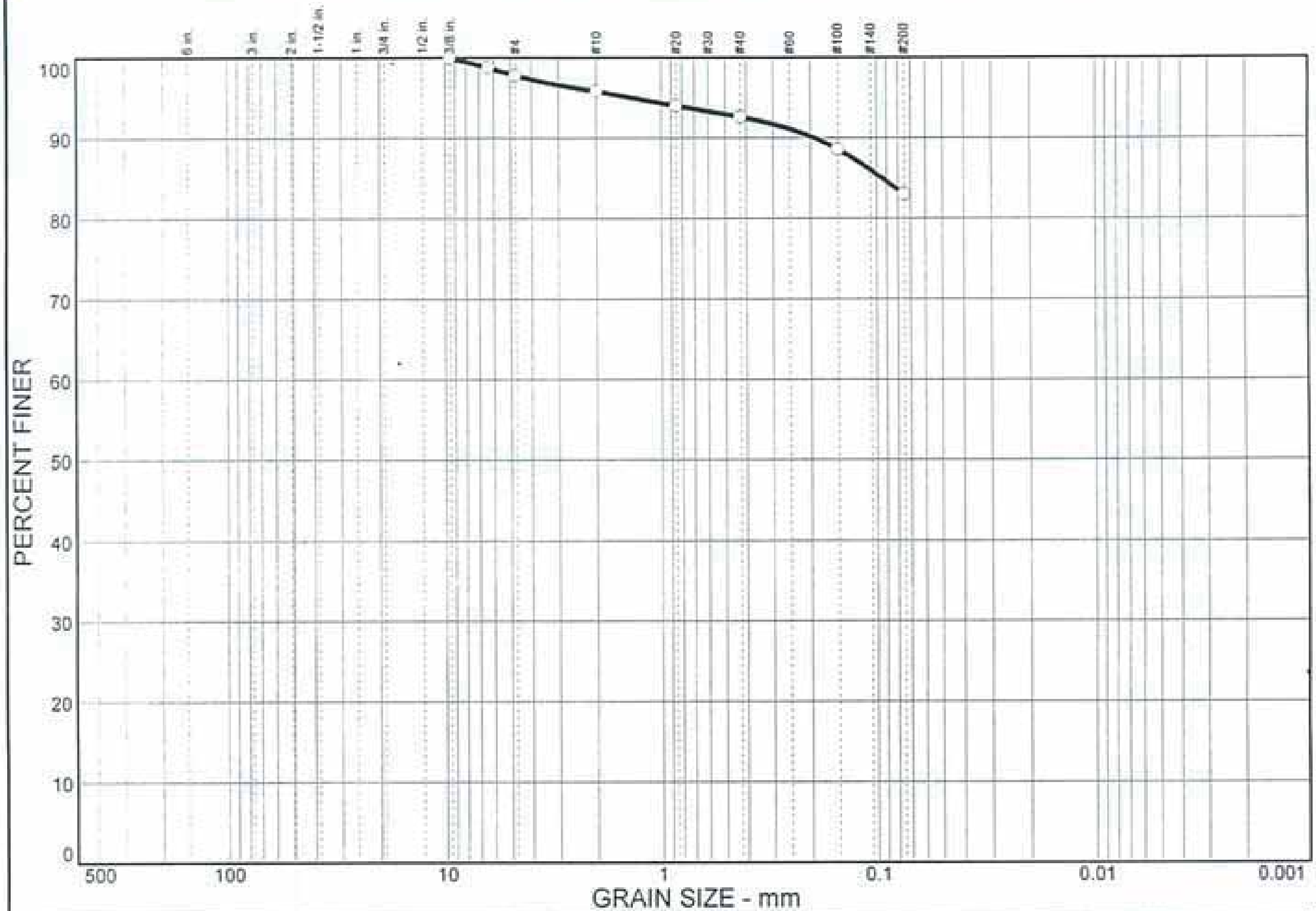
SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-40	S-4	6' - 8'	12.0 %	14	25	11	

SJB SERVICES, INC.	Client: MENSCH CAPITAL PARTNERS, LLC Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	2.2	14.8	83.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
.25 in.	98.8		
#4	97.8		
#10	95.8		
#20	94.0		
#40	92.6		
#100	88.6		
#200	83.0		

* (no specification provided)

Soil Description

B-40, S-4: 6' - 8'

Atterberg Limits

PL= 14 LL= 25 PI= 11

Coefficients

D_{85}= 0.0941 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-125

Sample No.: S-4 Source of Sample: B-40 Date: 2-14-14
Location: B-40, S-4: 6' - 8' Elev./Depth: 6' - 8'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

Western New York Office
5167 South Park Avenue
Hamburg, NY 14075
Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: Proposed Westwood Country Club Development Project

CLIENT: Mensch Capital Partners, LLC.

DATE: February 14, 2014

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-126
SAMPLE LOCATION: B-46, S-3: 4' – 6'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
28.1 %	61	25	36

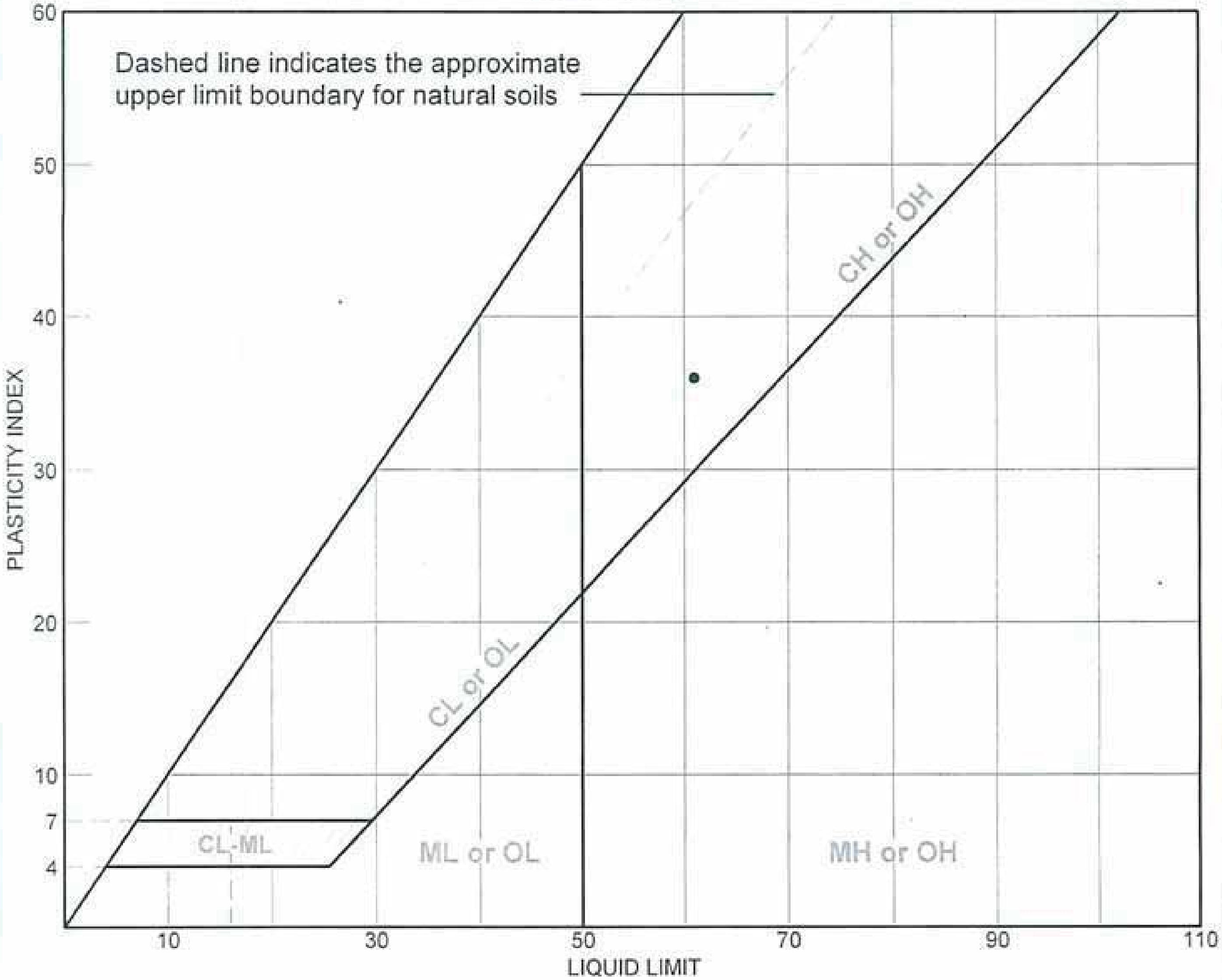
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 66.6 %
Value of Shrinkage Limit = 22
Value of Shrinkage Ratio = 1.65

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
#4	100.0
#10	99.9
#20	99.9
#40	99.7
#100	99.4
#200	99.2

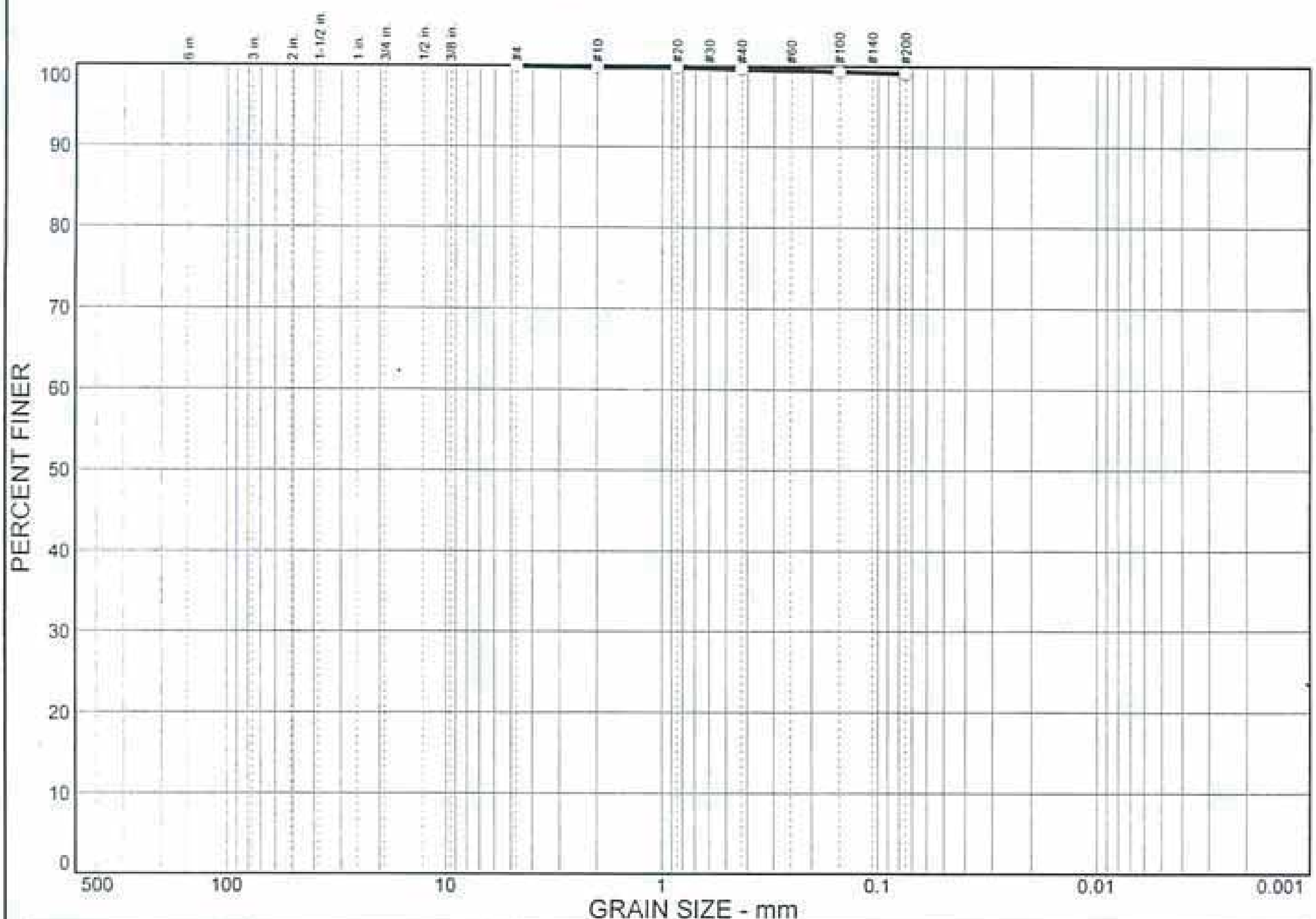
SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-46	S-3	4' - 6'	28.1 %	25	61	36	

SJB SERVICES, INC.	**Client:** MENSCH CAPITAL PARTNERS, LLC **Project:** WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT **Project No.:** BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	0.0	0.8	99.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.9		
#20	99.9		
#40	99.7		
#100	99.4		
#200	99.2		

* (no specification provided)

Soil Description

B-46, S-3: 4' - 6'

Atterberg Limits

PL= 25 LL= 61 PI= 36

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-126

Sample No.: S-3 Source of Sample: B-46 Date: 2-14-14
Location: B-46, S-3: 4' - 6' Elev./Depth: 4' - 6'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

Western New York Office
5167 South Park Avenue
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Phone: (716) 649-8110
Fax: (716) 649-8051

Laboratory Test Report

PROJECT: **Proposed Westwood Country Club Development Project**

CLIENT: **Mensch Capital Partners, LLC.**

DATE: **February 14, 2014**

PROJECT NO.: BE-13-192
REPORT NO.: LTR-2

SAMPLE NUMBER: 14-127
SAMPLE LOCATION: B-48, S-5: 8' – 10'

ASTM D-2216: Laboratory Determination of Water (Moisture) Content of Soil &Rock
ASTM D-4318: Liquid Limit, Plastic Limit, and Plasticity Index of Soil

Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index
11.8 %	23	13	10

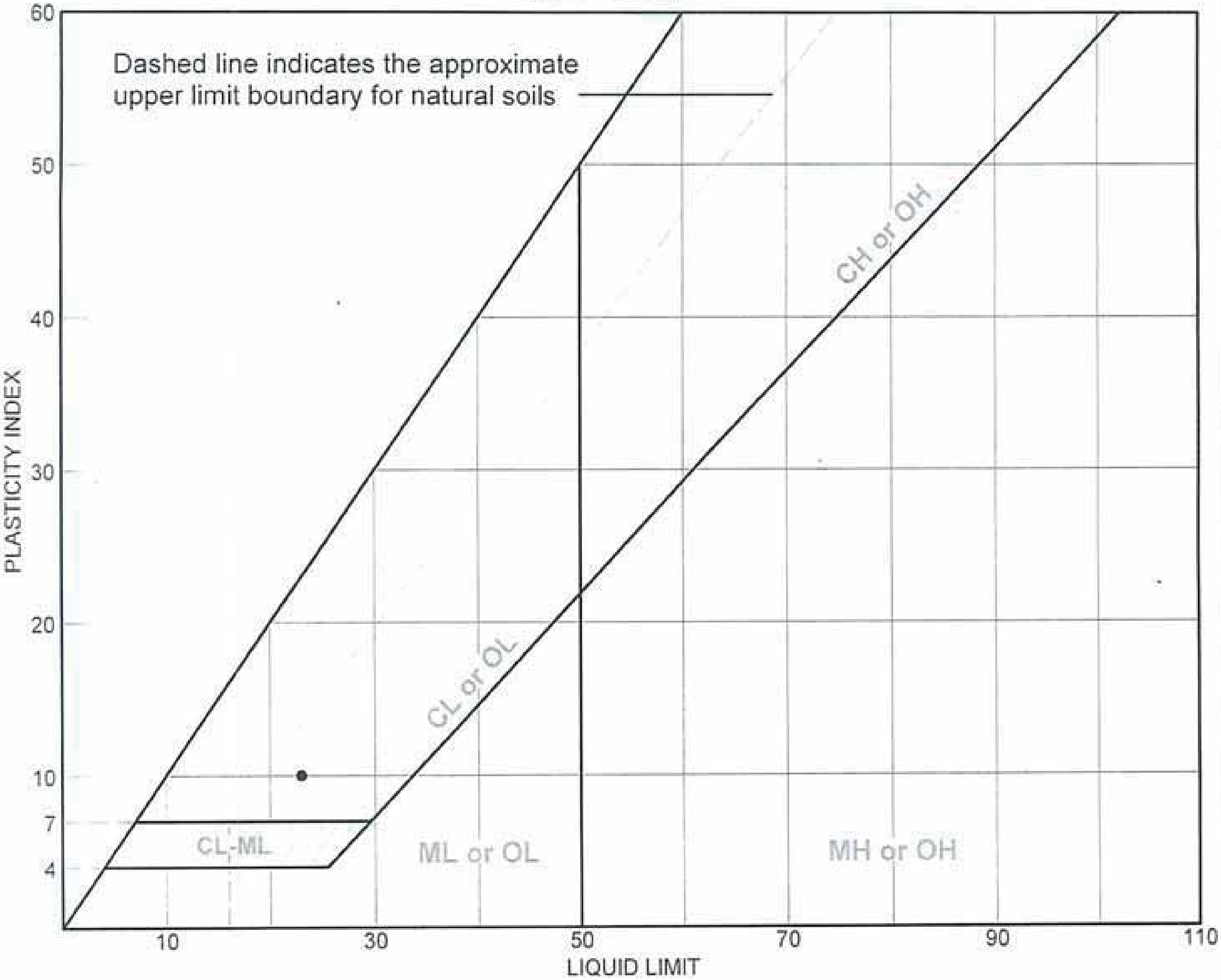
ASTM D-427: Shrinkage Factors of Soils by the Mercury Method

Value of Initial Water Content = 34.4 %
Value of Shrinkage Limit = 14
Value of Shrinkage Ratio = 1.94

ASTM C-136: Sieve Analysis of Fine and Coarse Aggregates

Sieve Size	*Percent Passing*
$^3/_8$"	100.0
¼"	97.9
#4	96.2
#10	93.0
#20	90.5
#40	88.5
#100	83.5
#200	77.1

SJB SERVICES, INC. LIQUID AND PLASTIC LIMITS TEST REPORT



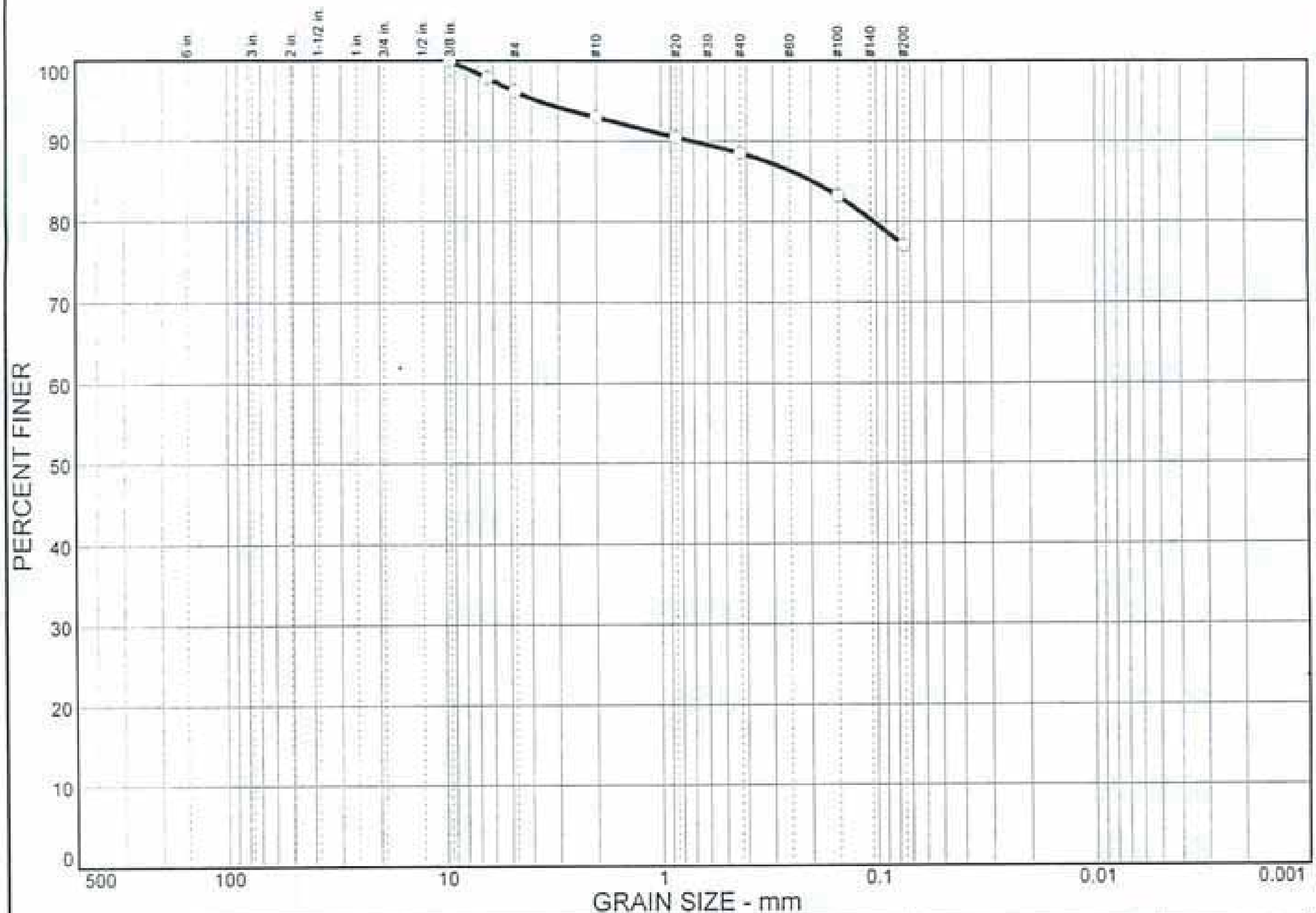
SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	B-48	S-5	8' - 10'	11.8 %	13	23	10	

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT

Project No.: BE-13-192

ASTM C-136: Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	3.8	19.1	77.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.375 in.	100.0		
.25 in.	97.9		
#4	96.2		
#10	93.0		
#20	90.5		
#40	88.5		
#100	83.2		
#200	77.1		

* (no specification provided)

Soil Description

B-48, S-5: 8' - 10'

Atterberg Limits

PL= 13 LL= 23 PI= 10

Coefficients

D_{85}= 0.196 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

SAMPLE NUMBER: 14-128

Sample No.: S-5 Source of Sample: B-48 Date: 2-14-14
Location: B-48, S-5: 8' - 10' Elev./Depth: 8' - 10'

SJB SERVICES, INC.

Client: MENSCH CAPITAL PARTNERS, LLC
Project: WESTWOOD COUNTRY CLUB DEVELOPMENT PROJECT
Project No: BE-13-192

SJB SERVICES, INC.
Contract Drilling and Testing

Rochester Office
535 Summit Point Drive
Henrietta, NY 14467
Phone: 585-359-2730
Fax: 585-359-9668

Summary of Laboratory Testing

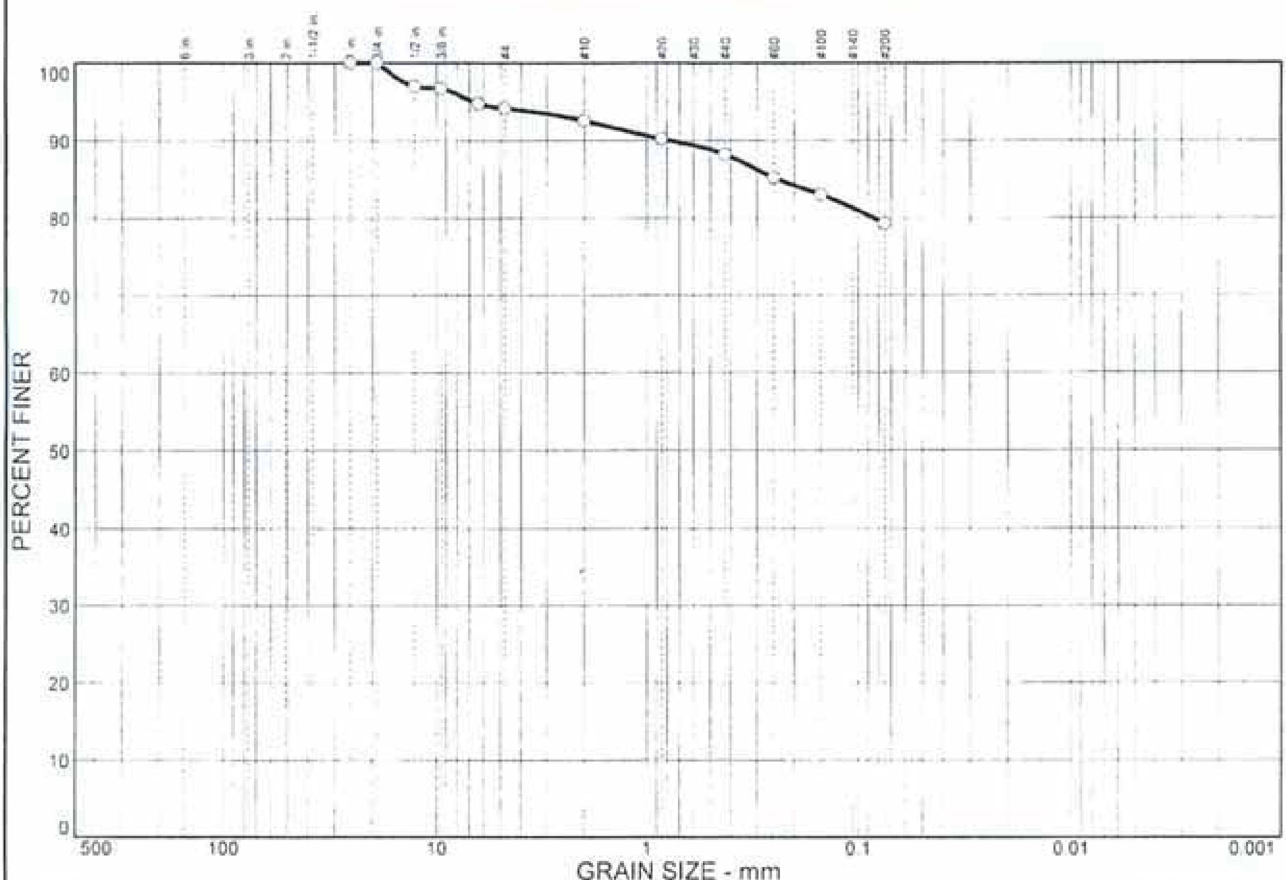
Project: Westwood Country Club Development Project **Date:** 02-03-2014
Client: Mensch Capital Partners
Project Number: BE-13-192

Lab Id#	Location	Depth (ft)	Moisture Content (%)
14-035	B-6, S-2	2 – 4	4.5
14-036	B-6, S-3	4 – 6	11.3
14-037	B-6, S-4	6 – 8	10.3
14-042	B-34, S-2	2 – 4	6.1
14-043	B-34, S-3	4 – 6	5.9
14-044	B-34, S-4	6 – 8	12.0
14-045	B-34, S-5	8 – 10	10.1

SJB Laboratory Technician: William Gilmore

Respectfully submitted:
SJB Services, Inc.

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	5.8	14.9	79.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 in.	100.0		
3/4 in.	100.0		
1/2 in.	97.0		
3/8 in.	96.7		
1/4 in.	94.8		
#4	94.2		
#10	92.6		
#20	90.2		
#40	88.2		
#60	85.2		
#100	83.0		
#200	79.3		

* (no specification provided)

Soil Description

Fines, Little Sand, Trace Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.240 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

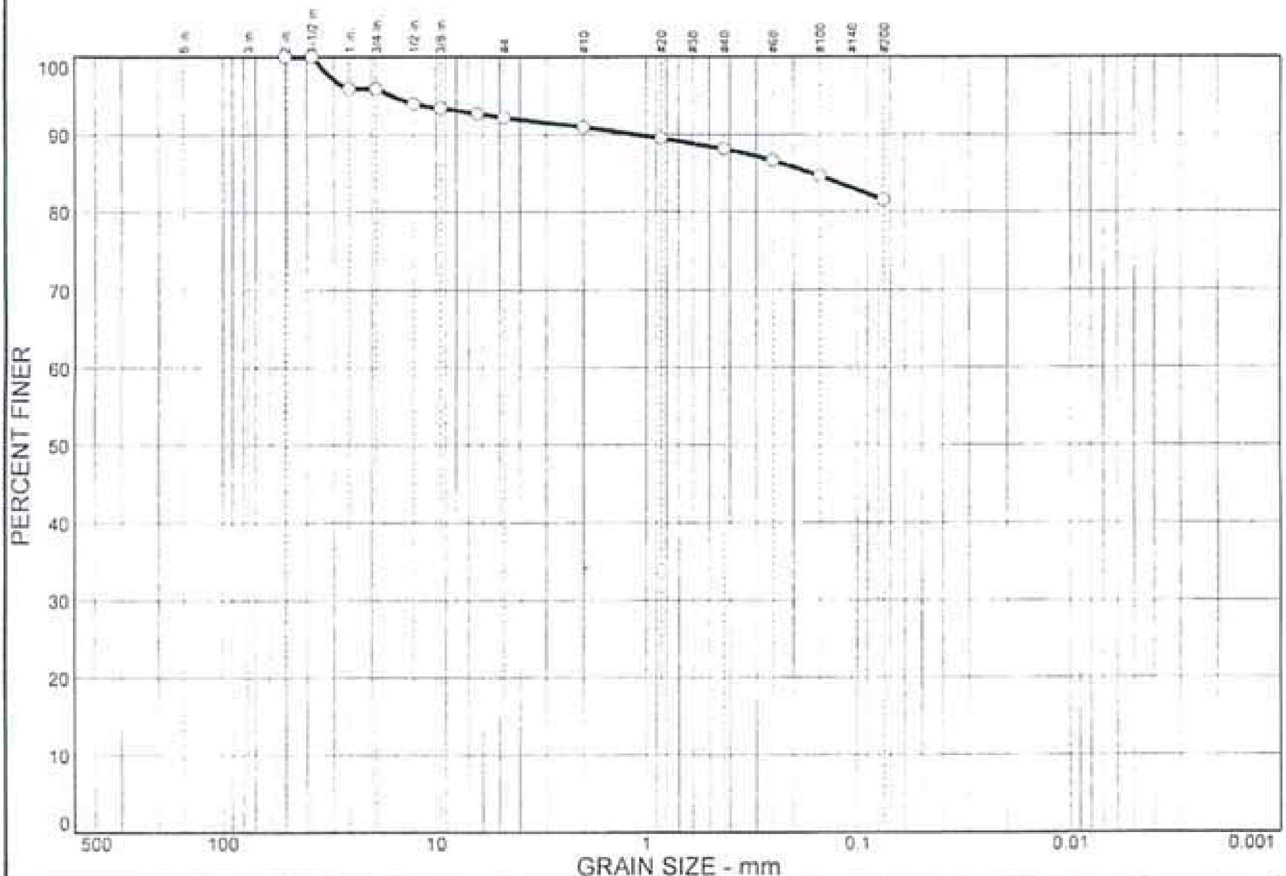
Remarks

Sample No.: 14-038 **Source of Sample:** B-6 **Date:** 02-03-2014
Location: B-6 **Elev./Depth:** 2' - 8'

SJB SERVICES, INC.

Client: Mensch Capital Partners
Project: Westwood Country Club development Project
Project No: BE-13-192 **Plate** 14-038

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	7.8	10.7	81.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2 in.	100.0		
1.5 in.	100.0		
1 in.	95.9		
3/4 in.	95.9		
1/2 in.	94.0		
3/8 in.	93.4		
1/4 in.	92.7		
#4	92.2		
#10	91.0		
#20	89.5		
#40	88.1		
#60	86.6		
#100	84.6		
#200	81.5		

* (no specification provided)

Soil Description

Fines, Trace Sand, Trace Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= 0.165 D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: 14-046 Source of Sample: B-34 Date: 02-03-2014
Location: B-34 Elev./Depth: 2' - 10'

SJB SERVICES, INC.

Client: Mensch Capital Partners
Project: Westwood Country Club development Project
Project No: BE-13-192 Plate 14-046

Rochester Office
535 Summit Point Drive
Henrietta, NY 14467

LABORATORY D.I.P.R.A. TESTS

Project: Westwood Country Club

Project Number: BE-13-192

Town /City: N/A

Date: 02-03-2014

Client: Mensch Capital Partners

Technician: William Gilmore

Summary of Laboratory Analysis Soil

Lab ID:	Location:	Resistivity (Ohm-cm)	Redox (mv)	PH	Sulfides (+,T,-)	% Moisture Content (wet, moist, dry)	TOTAL POINTS
		Points	*Points*	*Points*	*Points*	*Points*	
14-038	B-6 Composite	*15,000*	*-35.2*	*6.95*	-	*Moist (9.5%)*	6
	Depth = 2' – 8'	*0*	*5*	*0*	*0*	*1*	
14-046	B-34 Composite	*11,500*	*-22.6*	*6.35*	-	*Moist (8.9%)*	6
	Depth = 2' – 10'	*0*	*5*	*0*	*0*	*1*	

Per the Ductile Iron Pipe Research Association (DIPRA), point totals 10 or greater should be considered for Cathodic Protection.

SJB SERVICES, INC.
Contract Drilling and Testing

Rochester Office
535 Summit Point Drive
Henrietta, NY 14467
Phone: 585-359-2730
Fax: 585-359-9668

Summary of Laboratory Testing

Project:	Westwood Country Club Development Project	**Date:**	02-03-2014
Client:	Mensch Capital Project		
Project Number:	BE-13-192		

Lab#	Location	Depth (Feet)	Chlorides (ppm)	Sulfates (ppm)
14-038	B-6 Composite	2 – 8	15	ND
14-046	B-34 Composite	2 – 10	10	ND

SJB Laboratory Technician: William Gilmore

Respectfully submitted:
SJB Services, Inc.

Chuck Guzzetta
District Manager

SERVICES, INC.
Contract Drilling and Testing

Rochester Office
535 Summit Point Drive
Henrietta, NY 14467
Phone: 585-359-2730
Fax: 585-359-9668

Summary of Laboratory Testing

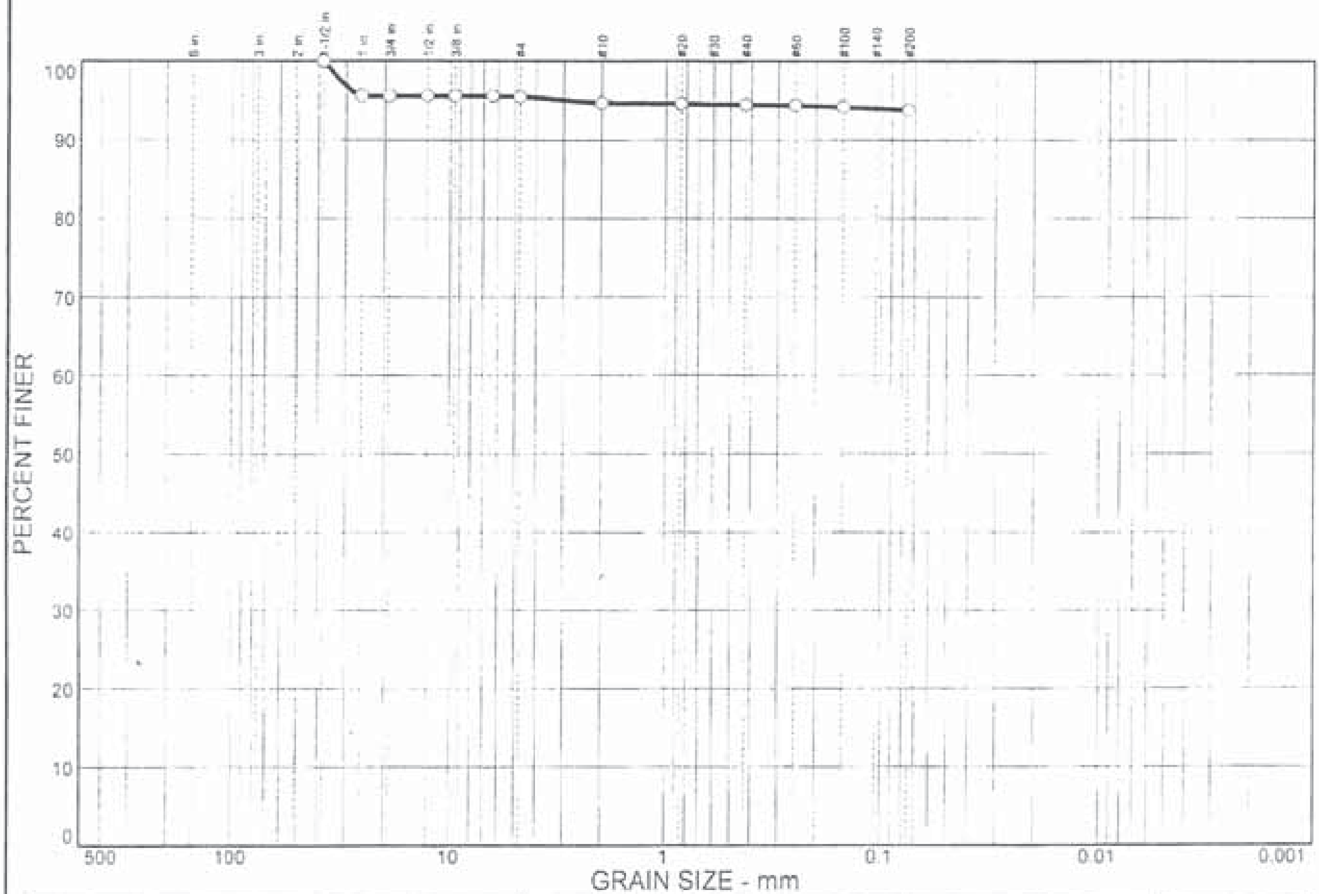
Project: Proposed Westwood Country Club Development Project **Date:** 02-24-2014
Client: Mensch Capital Partners, LLC
Project Number:

Lab Id#	Location	Depth (ft)	Moisture Content (%)
14-121	B-45	2 – 4	23.1
14-122	B-45	4 – 6	23.4
14-123	B-45	6 – 8	28.6
14-124	B-45	8 – 10	20.2
14-125	B-45	2 – 10	23.9

SJB Laboratory Technician: William Gilmore

Respectfully submitted:
SJB Services, Inc.

Particle Size Distribution Report



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	4.5	1.7	93.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1.5 in.	100.0		
1 in.	95.6		
3/4 in.	95.6		
1/2 in.	95.6		
3/8 in.	95.6		
1/4 in.	95.6		
#4	95.5		
#10	94.7		
#20	94.6		
#40	94.5		
#60	94.4		
#100	94.2		
#200	93.8		

* (no specification provided)

Soil Description

Fines, Trace Gravel, Trace Sand

Atterberg Limits

PL= LL= PI=

Coefficients

D_{85}= D_{60}= D_{50}=
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample No.: 14-125 **Source of Sample:** B-45 Composite **Date:** 02-24-2014
Location: B-45 Composite **Elev./Depth:** 2' - 10'

SJB SERVICES, INC.

Client: Mensch Capital Partners
Project: Westwood Country Club development Project
Project No: BE-13-192 **Plate** 14-125

Rochester Office
535 Summit Point Drive
Henrietta, NY 14467

LABORATORY D.I.P.R.A. TESTS

Project: Westwood Country Club

Town /City: N/A

Client: Mensch Capital Partners

Technician: William Gilmore

Project Number: BE-13-192

Date: 02-24-2014

Summary of Laboratory Analysis Soil

Lab ID:	Location:	Resistivity (Ohm-cm)	Redox (mv)	PH	Sulfides (+,T,-)	% Moisture Content (wet, moist, dry)	TOTAL POINTS
		Points	*Points*	*Points*	*Points*	*Points*	
14-125	B-45 Composite	*2,700*	*9.0*	*7.55*	*-*	*Wet (23.9%)*	**7**
	Depth = 2' – 10'	*1*	*4*	*0*	*0*	*2*	

Per the Ductile Iron Pipe Research Association (DIPRA), point totals 10 or greater should be considered for Cathodic Protection.

SJB SERVICES, INC.
Contract Drilling and Testing

Rochester Office
535 Summit Point Drive
Henrietta, NY 14467
Phone: 585-359-2730
Fax: 585-359-9668

Summary of Laboratory Testing

Project:	Westwood Country Club Development Project	**Date:**	02-24-2014
Client:	Mensch Capital Project		
Project Number:	BE-13-192		

Lab#	Location	Depth (Feet)	Chlorides (ppm)	Sulfates (ppm)
14-125	B-6 Composite	2 –10	18	ND

SJB Laboratory Technician: William Gilmore

Respectfully submitted:
SJB Services, Inc.

Chuck Guzzetta
District Manager

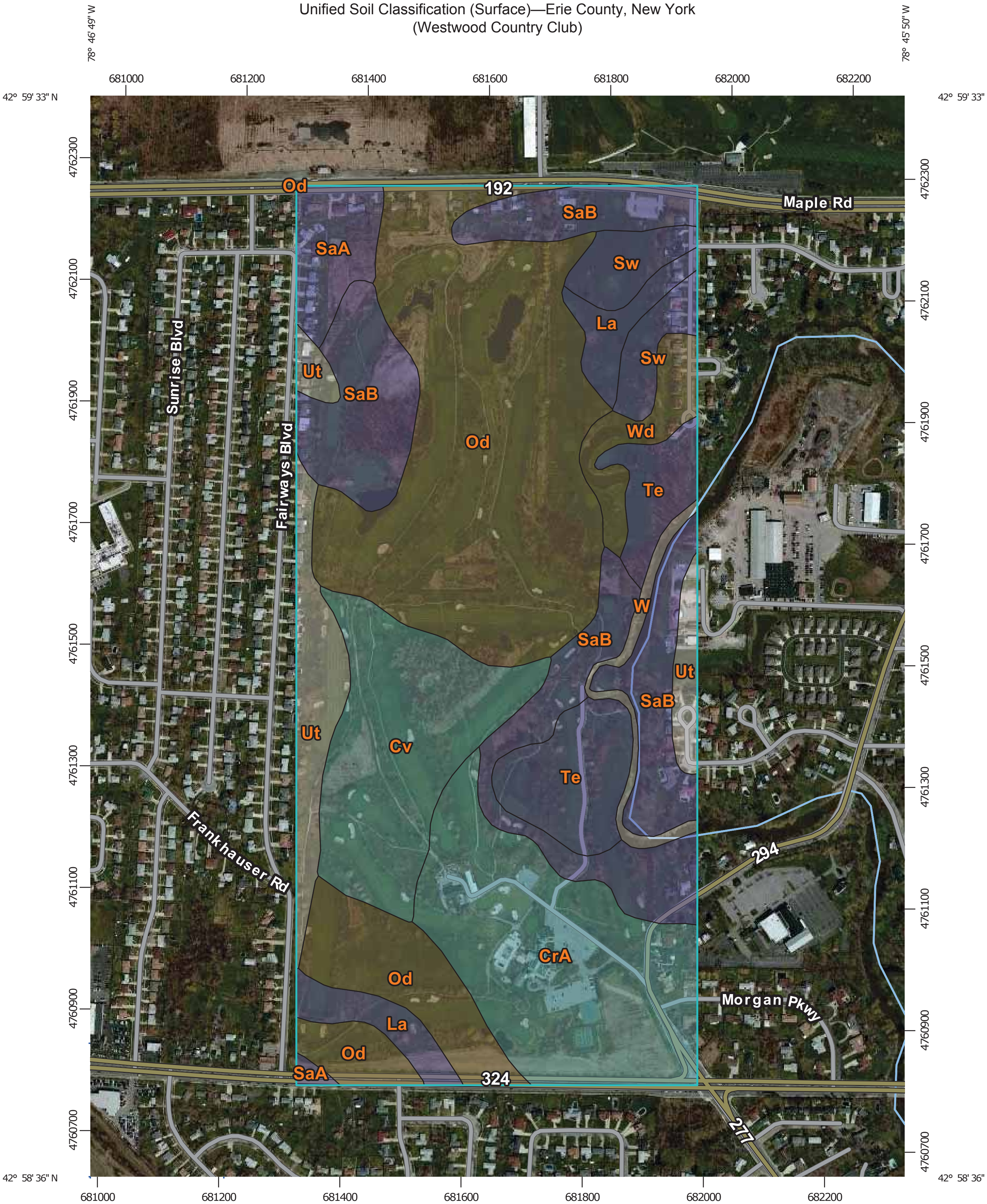
APPENDIX C

EXISTING SITE INFORMATION

APPENDIX C1

SOIL SURVEY INFORMATION

Unified Soil Classification (Surface)—Erie County, New York
(Westwood Country Club)



Map Scale: 1:8,660 if printed on A portrait (8.5" x 11") sheet.

Meters: 0, 100, 200, 400, 600

Feet: 0, 400, 800, 1600, 2400

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 17N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

Soil Rating Polygons

- CH
- CL
- CL-A (proposed)
- CL-K (proposed)
- CL-ML
- CL-O (proposed)
- CL-T (proposed)
- GC
- GC-GM
- GM
- GP
- GP-GC
- GP-GM
- GW
- GW-GC
- GW-GM
- MH
- MH-A (proposed)
- MH-K (proposed)
- MH-O (proposed)
- MH-T (proposed)
- ML
- ML-A (proposed)
- ML-K (proposed)
- ML-O (proposed)
- ML-T (proposed)
- OH
- OH-T (proposed)
- OL
- PT
- SC
- SC-SM
- SM
- SP
- SP-SC
- SP-SM
- SW
- SW-SC
- SW-SM
- Not rated or not available

Soil Rating Lines

- CH
- CL
- CL-A (proposed)
- CL-K (proposed)
- CL-ML
- CL-O (proposed)
- CL-T (proposed)
- GC
- GC-GM
- GM
- GP
- GP-GC
- GP-GM
- GW
- GW-GC
- GW-GM
- MH
- MH-A (proposed)
- MH-K (proposed)
- MH-O (proposed)
- MH-T (proposed)
- ML
- ML-A (proposed)
- ML-K (proposed)
- ML-O (proposed)
- ML-T (proposed)
- OH
- OH-T (proposed)
- OL
- PT
- SC
- SC-SM
- SM
- SP
- SP-SC
- SP-SM
- SW
- SW-SC
- SW-SM
- Not rated or not available

Soil Rating Points

- CH
- CL
- CL-A (proposed)
- CL-K (proposed)
- CL-ML
- CL-O (proposed)
- CL-T (proposed)
- GC
- GC-GM
- GM
- GP
- GP-GC
- GP-GM
- GW
- GW-GC
- GW-GM
- MH
- MH-A (proposed)
- MH-K (proposed)
- MH-O (proposed)
- MH-T (proposed)
- ML
- ML-A (proposed)
- ML-K (proposed)
- ML-O (proposed)
- ML-T (proposed)
- OH
- OH-T (proposed)
- OL
- PT
- SC
- SC-SM
- SM
- SP
- SP-SC
- SP-SM
- SW
- SW-SC
- SW-SM
- Not rated or not available

Water Features

- Streams and Canals

Transportation

- Rails

MAP INFORMATION

- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

The soil surveys that comprise your AOI were mapped at 1:15,800.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Erie County, New York
Survey Area Data: Version 11, Dec 1, 2011

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 2, 2010—Jul 1, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Unified Soil Classification (Surface)

Unified Soil Classification (Surface)— Summary by Map Unit — Erie County, New York (NY029)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CrA	Claverack loamy fine sand, 0 to 3 percent slopes	SM	36.1	14.9%
Cv	Cosad loamy fine sand	SM	25.9	10.7%
La	Lakemont silt loam	CL	8.2	3.4%
Od	Odessa silt loam	ML	77.6	32.0%
SaA	Schoharie silt loam, 0 to 3 percent slopes	CL	7.4	3.1%
SaB	Schoharie silt loam, 3 to 8 percent slopes	CL	41.8	17.2%
Sw	Swormville clay loam	CL	8.2	3.4%
Te	Teel silt loam	CL	15.4	6.3%
Ut	Urban land-Odessa complex		13.4	5.5%
W	Water		2.9	1.2%
Wd	Wayland silt loam	ML	5.9	2.4%
Totals for Area of Interest			**242.8**	**100.0%**

Description

The Unified soil classification system classifies mineral and organic mineral soils for engineering purposes on the basis of particle-size characteristics, liquid limit, and plasticity index. It identifies three major soil divisions: (i) coarse-grained soils having less than 50 percent, by weight, particles smaller than 0.074 mm in diameter; (ii) fine-grained soils having 50 percent or more, by weight, particles smaller than 0.074 mm in diameter; and (iii) highly organic soils that demonstrate certain organic characteristics. These divisions are further subdivided into a total of 15 basic soil groups. The major soil divisions and basic soil groups are determined on the basis of estimated or measured values for grain-size distribution and Atterberg limits. ASTM D 2487 shows the criteria chart used for classifying soil in the Unified system and the 15 basic soil groups of the system and the plasticity chart for the Unified system.

The various groupings of this classification correlate in a general way with the engineering behavior of soils. This correlation provides a useful first step in any field or laboratory investigation for engineering purposes. It can serve to make some general interpretations relating to probable performance of the soil for engineering uses.

For each soil horizon in the database one or more Unified soil classifications may be listed. One is marked as the representative or most commonly occurring. The representative classification is shown here for the surface layer of the soil.

Rating Options

Aggregation Method: Dominant Condition

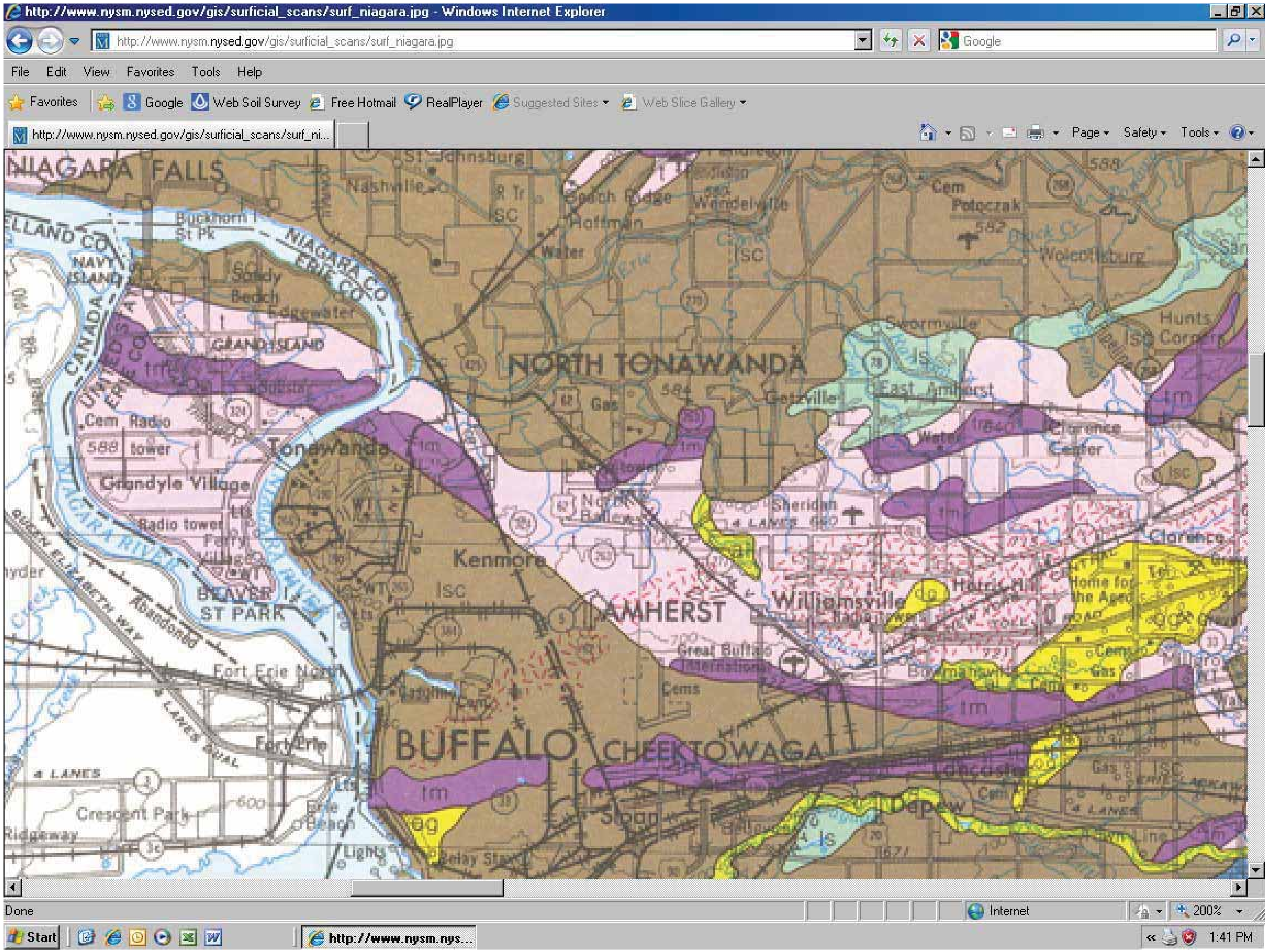
Component Percent Cutoff: *None Specified*

Tie-break Rule: Lower

Layer Options (Horizon Aggregation Method): Surface Layer (Not applicable)

APPENDIX C2

SURFICIAL AND BEDROCK GEOLOGY

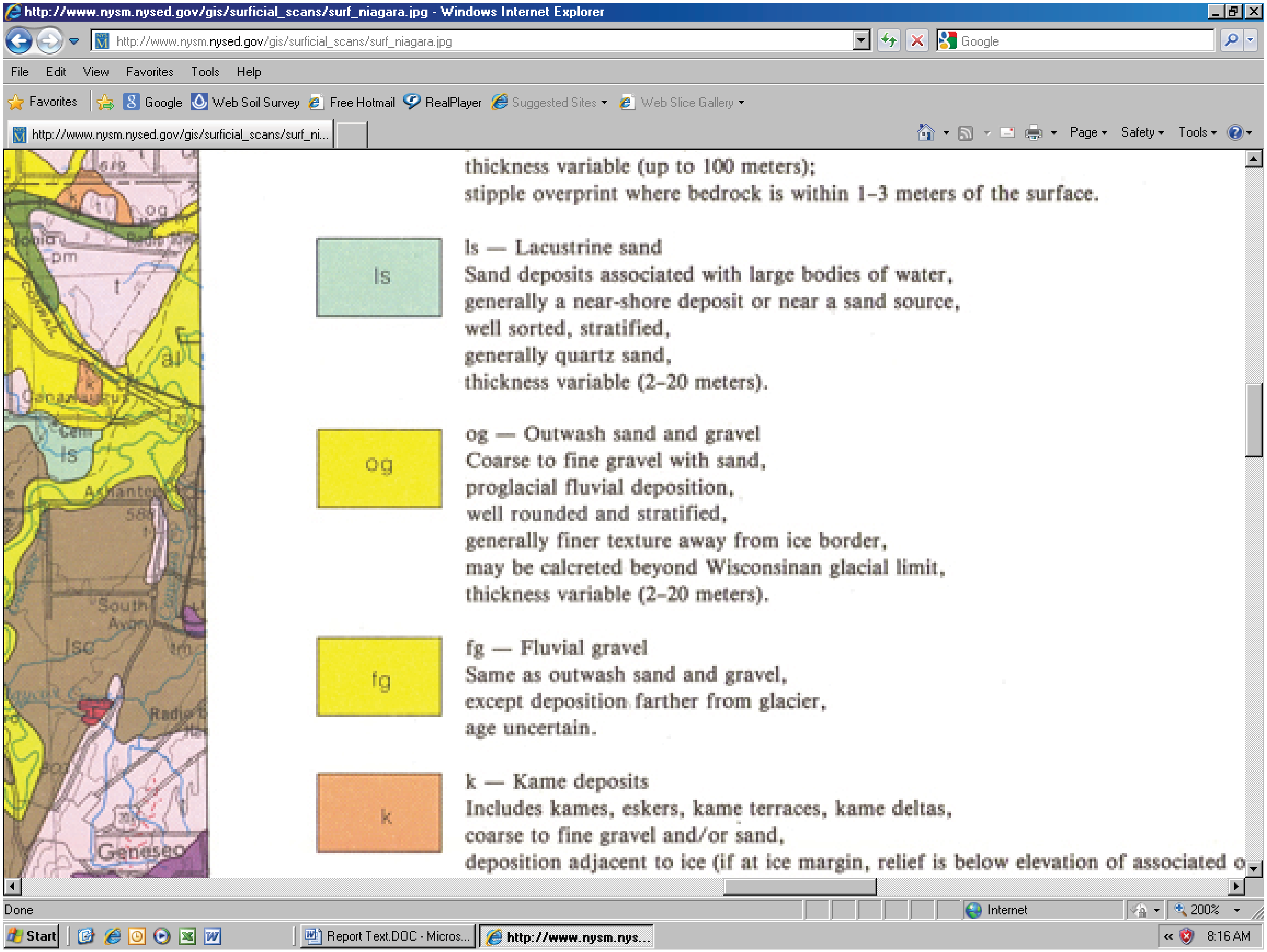

http://www.nysm.nysed.gov/gis/surficial_scans/surf_niagara.jpg - Windows Internet Explorer
http://www.nysm.nysed.gov/gis/surficial_scans/surf_niagara.jpg
Google
File Edit View Favorites Tools Help
Favorites
Google
Web Soil Survey
Free Hotmail
RealPlayer
Suggested Sites
Web Slice Gallery
Page
Safety
Tools
NIAGARA FALLS
NORTH TONAWANDA
Tonawanda
GRAND ISLAND
Grandyle Village
NIAGARA RIVER
BEAVER IS ST PARK
Kenmore
AMHERST
Williamsville
BUFFALO
CHEEKTOWAGA
East Amherst
Clarence Center
Clarence
Depew
Lancaster
Fort Erie
Crescent Park
Ridgeway
CANADA
UNITED STATES
NIAGARA CO
ERIE CO
lm
ISC
Done
Internet
200%
Start
1:41 PM

generally more permeable than till,
deposition adjacent to ice,
more variably drained,
may include ablation till,
thickness variable (10–30 meters).

t — Till
Variable texture (e.g. clay, silt-clay, boulder clay),
usually poorly sorted diamict,
deposition beneath glacier ice,
relatively impermeable (loamy matrix),
variable clast content — ranging from abundant well-rounded diverse lithologies in valley tills to relatively angular, more limited lithologies in upland tills, tends to be sandy in areas underlain by gneiss or sandstone,
potential land instability on steep slopes,
thickness variable (1–50 meters).

r — Bedrock
Exposed or generally within 1 meter of the surface.

Bedrock stipple overprint
Bedrock may be within 1–3 meters of the surface,
may sporadically crop out,
variable mantle of rock debris and glacial till.



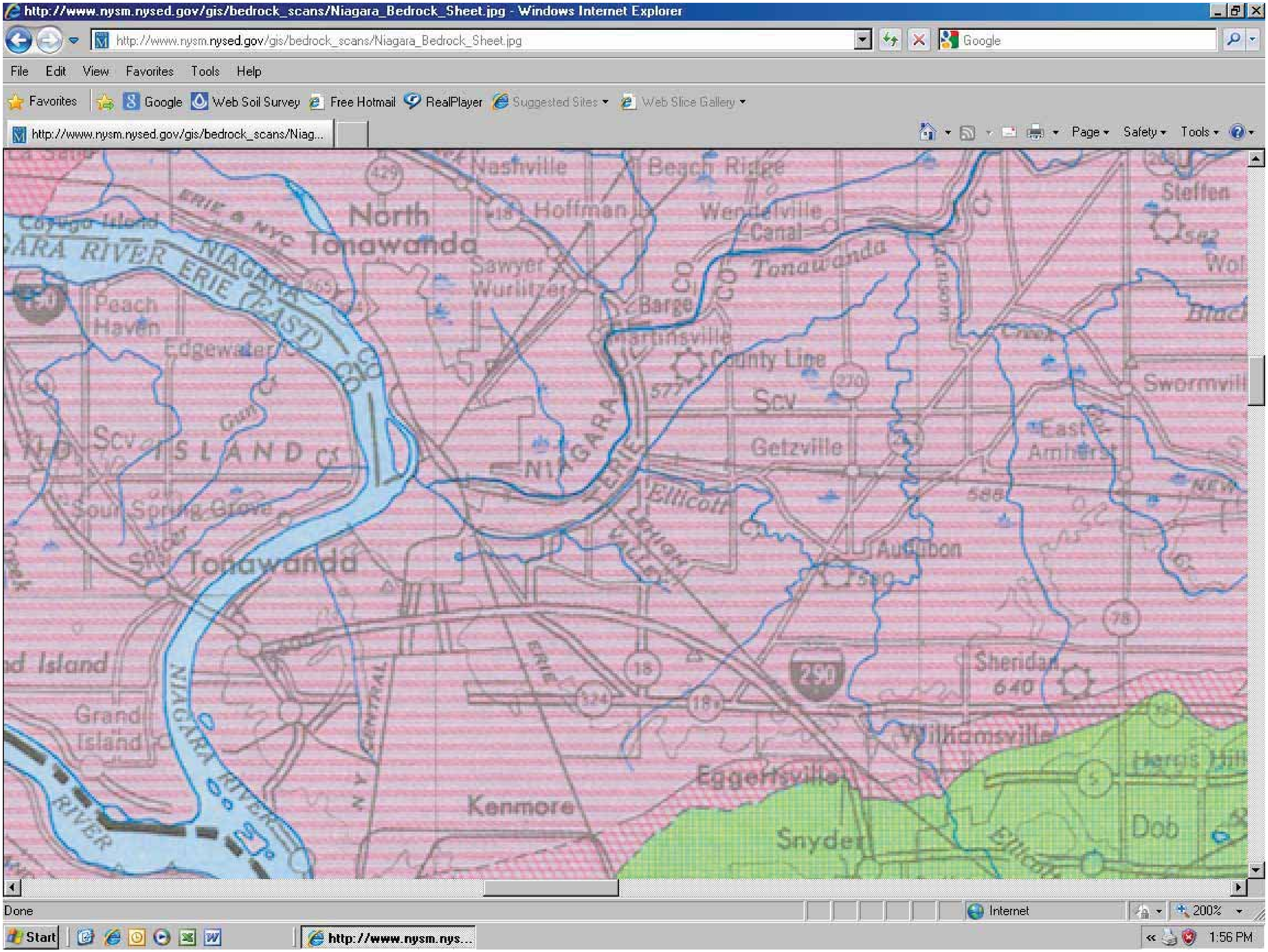
thickness variable (up to 100 meters);
stipple overprint where bedrock is within 1–3 meters of the surface.

ls — Lacustrine sand
Sand deposits associated with large bodies of water,
generally a near-shore deposit or near a sand source,
well sorted, stratified,
generally quartz sand,
thickness variable (2–20 meters).

og — Outwash sand and gravel
Coarse to fine gravel with sand,
proglacial fluvial deposition,
well rounded and stratified,
generally finer texture away from ice border,
may be calcreted beyond Wisconsinan glacial limit,
thickness variable (2–20 meters).

fg — Fluvial gravel
Same as outwash sand and gravel,
except deposition farther from glacier,
age uncertain.

k — Kame deposits
Includes kames, eskers, kame terraces, kame deltas,
coarse to fine gravel and/or sand,
deposition adjacent to ice (if at ice margin, relief is below elevation of associated o



http://www.nysm.nysed.gov/gis/bedrock_scans/Niagara_Bedrock_Sheet.jpg - Windows Internet Explorer
File Edit View Favorites Tools Help
Favorites
Google
Web Soil Survey
Free Hotmail
RealPlayer
Suggested Sites
Web Slice Gallery
Page
Safety
Tools
North Tonawanda
Nashville
Hoffman
Beach Ridge
Tonawanda
Sawyer
Wurlitzer
Barge
Getzville
County Line
Scv
Swormville
East Amherst
Steffen
Peach Haven
Edgewater
ISLAND
Tonawanda
Ellicott
Audubon
NIAGARA RIVER
Grand Island
Kenmore
Eggertsville
Williamsville
Sheridan
640
Snyder
Dob
Done
Internet
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Start
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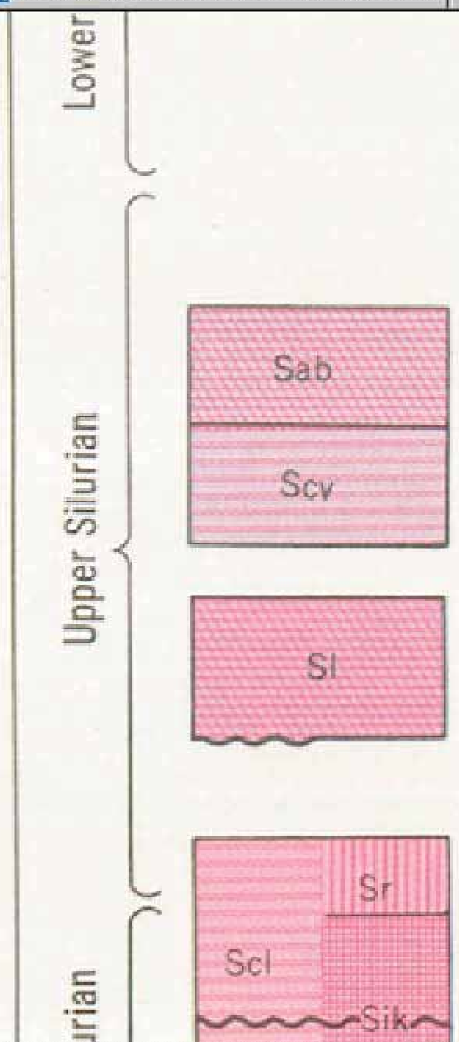

Bois Blanc Formation—dolostone, limestone, sandstone (Springvale).

Do Oriskany Sandstone.

AKRON DOLOSTONE AND SALINA GROUP
400-700 ft. (120-210 m.)

Sab Akron Dolostone; Bertie Formation—dolostone, shale.

Scv Camillus, Syracuse, and Vernon Formations—shale, dolostone, salt, and gypsum.

LOCKPORT GROUP
150-200 ft. (45-60 m.)

Sl Guelph, Oak Orchard, Eramosa, and Goat Island Dolostones; Gasport Limestone—local bioherms.

CLINTON GROUP
100-150 ft. (30-45 m.)

Scl Decew Dolostone; Rochester Shale; Irondequoit and Merriton Limestones.

Sr Decew Dolostone; Rochester Shale.

Sik Irondequoit Limestone; Rockway Dolostone; Hickory Corners Limestone; Neahga Shale; Kodak Sandstone.

APPENDIX C3

FLOOD PLAIN MAPPING

Erie County On-Line Mapping System

Legend

- Base Flood Elevation
- Flood Hazard Lines
  - <all other values>
  - 0.2 PCT ANNUAL CHANCE FLOO
  - 0.2 PCT ANNUAL CHANCE FLOO
  - 1 PCT ANNUAL CHANCE FLOOD
  - 1 PCT ANNUAL CHNACE FLOOD
  - APPARENT LIMIT
  - AREA NOT INCLUDED
  - END OF SPATIAL EXTENT
  - FLOODWAY
  - ZONE BREAK/ FLOODWAY
  - FLOWAGE EASEMENT BOUNDAI
  - LIMIT OF DETAILED STUDY
  - LIMIT OF DETAILED STUDY/ ZON
  - LIMIT OF FLOODWAY
  - LIMIT OF FLOODWAY/ ZONE BRE
  - LIMIT OF STUDY
  - SOURCE BOUNDARY
  - STATE ENCROACHEMENT LINE
  - ZONE BREAK
  - ZONE D
  - Not Printed / ZONE D
- Cross Section Lines
- Streets and Highways
  - Interstate
  - Primary State Road
  - Secondary State Road
  - County Road
  - Local Road
- Parcels

1: 10,476

Notes

Enter Map Description

0.3 — 0 — 0.17 — 0.3 Miles

ERIE COUNTY, NEW YORK
DEPARTMENT OF ENVIRONMENT & PLANNING
OFFICE OF GEOGRAPHIC INFORMATION SERVICES

APPENDIX D

GEOTECHNICAL REPORT LIMITATIONS

GEOTECHNICAL REPORT LIMITATIONS

Empire Geo-Services, Inc. (Empire) has endeavored to meet the generally accepted standard of care for the services completed, and in doing so is obliged to advise the geotechnical report user of our report limitations. Empire believes that providing information about the report preparation and limitations is essential to help the user reduce geotechnical-related delays, cost over-runs, and other problems that can develop during the design and construction process. Empire would be pleased to answer any questions regarding the following limitations and use of our report to assist the user in assessing risks and planning for site development and construction.

PROJECT SPECIFIC FACTORS: The conclusions and recommendations provided in our geotechnical report were prepared based on project specific factors described in the report, such as size, loading, and intended use of structures; general configuration of structures, roadways, and parking lots; existing and proposed site grading; and any other pertinent project information. Changes to the project details may alter the factors considered in development of the report conclusions and recommendations. *Accordingly, Empire cannot accept responsibility for problems which may develop if we are not consulted regarding any changes to the project specific factors that were assumed during the report preparation.*

SUBSURFACE CONDITIONS: The site exploration investigated subsurface conditions only at discrete test locations. Empire has used judgement to infer subsurface conditions between the discrete test locations, and on this basis the conclusions and recommendations in our geotechnical report were developed. It should be understood that the overall subsurface conditions inferred by Empire may vary from those revealed during construction, and these variations may impact on the assumptions made in developing the report conclusions and recommendations. *For this reason, Empire should be retained during construction to confirm that conditions are as expected, and to refine our conclusions and recommendations in the event that conditions are encountered that were not disclosed during the site exploration program.*

USE OF GEOTECHNICAL REPORT: Unless indicated otherwise, our geotechnical report has been prepared for the use of our client for specific application to the site and project conditions described in the report. *Without consulting with Empire, our geotechnical report should not be applied by any party to other sites or for any uses other than those originally intended.*

CHANGES IN SITE CONDITIONS: Surface and subsurface conditions are subject to change at a project site subsequent to preparation of the geotechnical report. Changes may include, but are not limited to, floods, earthquakes, groundwater fluctuations, and construction activities at the site and/or adjoining properties. *Empire should be informed of any such changes to determine if additional investigative and/or evaluation work is warranted.*

MISINTERPRETATION OF REPORT: The conclusions and recommendations contained in our geotechnical report are subject to misinterpretation. *To limit this possibility, Empire should review project plans and specifications relative to geotechnical issues to confirm that the recommendations contained in our report have been properly interpreted and applied.*

Subsurface exploration logs and other report data are also subject to misinterpretation by others if they are separated from the geotechnical report. This often occurs when copies of logs are given to contractors during the bid preparation process. *To minimize the potential for misinterpretation, the subsurface logs should not be separated from our geotechnical report and the use of excerpted or incomplete portions of the report should be avoided.*

OTHER LIMITATIONS: Geotechnical engineering is less exact than other design disciplines, as it is based partly on judgement and opinion. For this reason, our geotechnical report may include clauses that identify the limits of Empire's responsibility, or that may describe other limitations specific to a project. These clauses are intended to help all parties recognize their responsibilities and to assist them in assessing risks and decision making. Empire would be pleased to discuss these clauses and to answer any questions that may arise.

Phase 1A Cultural Resource Investigation
Westwood Country Club Property
Town of Amherst, Erie County, New York

OPRHP 12PR4942

January, 2013

Prepared for:

Mensch Capital Partners, LLC
350 Essjay Road
Williamsville, New York 14221

Prepared By:

Robert L. Dean

Heritage Preservation & Interpretation Inc.
P.O. Box 277 Steamburg, NY 14783-0277

Management Summary

Project Review No.: 12PR4942

Project Name: Westwood Country Club
Town of Amherst, Erie County, New York

Involved State and Federal Agencies: NYS OPRHP, DEC,

Location Information:
Location: South of Maple Road north of Sheridan Drive, immediately west of Ellicott Creek.
Minor Civil Division: Town of Amherst (
County: Erie

Survey Area:
Number of Acres (Hectares) in Project: ±170 Acres (±68.8 hectares)

USGS 7.5′ Quad: Buffalo NE (date)

Archaeological Survey Overview: No formal field survey was completed for this location since the investigation was limited to the Phase 1A level.

Number and Size of Units: Not applicable.

Results of Archaeological Survey: No field survey conducted.

Results of Architectural Survey:
Number of buildings/structures /cemeteries within the project area:
Unspecified
Number of buildings/structures/cemeteries adjacent to the project area:
In excess of thrity structures nearby since the project area adjoins residential subdivisions.
Number of previously determined NR listed or eligible buildings/structures/cemeteries/districts:
None
Number of identified eligible buildings/structures/cemeteries/districts:
None to date.

Report Author(s): Robert L. Dean, Heritage Preservation and Interpretation Inc.

Date of Report: January 7, 2013

Table of Contents

EXECUTIVE SUMMARY

Applicant Name: Mensch Capital Partners, LLC
350 Essjay Road
Williamsville, New York 14221

Project/Facility Name: Westwood Country Club

OPRHP Project Review No.: 12PR4942

Project/Facility Location: South of Maple Road, north of Sheridan Drive and immediately west of Ellicott Creek.

Recommendations of the Phase 1A Report

☐ No additional work recommended

☑ Additional work recommended

Results of the Phase 1B Report --- PHASE 1A ONLY ---

☐ No sites found in project area

☐ Sites found in project area

Recommendations of the Phase 1B Report --- PHASE 1A ONLY ---

☐ No additional work recommended

☐ Additional work recommended

☐ Phase 2 Report Attached ☐Yes ☐No

☐ Project should be modified to avoid site(s)

☐ Applicant should seek direction from DEC/OPRHP as to need for additional work

Recommendations of the Phase 2 Report (If appropriate) --- PHASE 1A ONLY ---

☐ Site(s) do not appear to meet the criteria of the NY State Register of Historic Places

☐ Site(s) do appear to meet the criteria of the NY State Register of Historic Places

☐ Project should be modified to avoid site(s)

☐ An opinion should be obtained from the NYS Office of Parks, Recreation and Historic Preservation (OPRHP) on the significance of the site(s)

Summary Prepared By: Robert L. Dean, Heritage Preservation & Interpretation Inc.
Date: January 7, 2013

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CULTURAL RESOURCE INVESTIGATION
PHASE 1A REPORT

Applicant Name: Mensch Capital Partners, LLC
350 Essjay Road
Williamsville, New York 14221

Project/Facility Name: Westwood Country Club

OPRHP Project Review No.: 12PR4942

Project/Facility Location: South of Maple Road, north of Sheridan Drive and immediately west of Ellicott Creek.

Description of Project: Specific development plans are unknown but expectations are for the construction of commercial or residential structures

Description of Impacts: Unspecified but expected to be severe ands to include stripping of topsoil, excavation for foundations, construction of utilities and other infrastructure, grading/filling.

Total Area of Project Site: ±170 acres (±68.8 hectares)

Total Area to be Impacted: less than 170 acres (<68.8 hectares)

ENVIRONMENTAL INFORMATION

Topography: Level to rolling terrain elevations of ca. 590 to 600 feet (±180 to 183 meters). The project is located on the Erie-Ontario Lake Plain, the northern extension of the greater Central Lowlands physiographic province. The current topography has been altered to varying extents by the current and former land use on this tract as a golf course.

Geology: Western New York is underlain by sedimentary bedrock that derive from the Lower Paleozoic period. These strata generally consist of sandstone, siltstone, mudstone, shale, limestone, etc. The bedrock outcrops in some of the more deeply cut stream channels and along road and railway cuts. Some of those outcrops include chert deposits which were used as a raw material for chipped stone tools throughout the pre-contact period.

All of this portion of Erie County was glaciated and surface deposits can include glacial till, outwash and glacial lake sediments. Commercially valuable deposits of sand and gravel occur in the county as a result of glacial deposition.

Soils: The location is mapped within six separate soil types: Claverack loamy fine sand, Cosad loamy fine sand, Lakemont silt loam, Odessa silt loam, Schoharie silt loam and Teel silt loam (Figure 3, Table 2).

Drainage: The project is within the greater St. Lawrence river drainage system. The local drainage is provided by Ellicott Creek which is adjacent to portions of the project on the east. Ellicott Creek is a northwesterly trending stream that empties into Tonawanda Creek. That stream empties into the Niagara River and thence to Lake Ontario.

Vegetation: Since this is an active golf course the predominant vegetation cover is grass. There are also trees that have been planted along fairways and in other locations as part of the general golf course landscaping scheme. One vegetated zone that has persisted since at least 1927 is located in the northwest quarter of the property.

Forest Zone: This region is within the Northern Hardwoods/Eastern Deciduous Hardwoods Forest (Hunt 1974, Elias 1980). This zone marks the furthest extent of some southern species and the southern extent of some northern species. Trees tend to develop in associations that are based on similarities in elevation, soils, drainage and aspect (facing of the terrain).

Manmade Features and Alterations: The project area is within a golf course and has been subject to a variety of previous disturbances including landscaping (tees, traps, greens), drainage and water system construction, pathways, and construction of several structures and parking areas.

DOCUMENTARY RESEARCH

1. Site Files (within 1 mile)
   - ☑ Statewide Inventory of Historic Properties
   - ☑ State Register of Historic Places
   - ☑ National Register of Historic Places
   - ☑ State/National Register Eligible
   - ☑ SUNY Buffalo Highway Archaeological Survey

Sensitivity Assessment/Site Prediction

Archaeological sensitivity for pre-contact sites is rated as moderate to high on the basis of the number of nearby recorded sites, generally level terrain and the proximity to a major waterway. As can be seen in Figure 4 the majority of sites tend to follow the course of Ellicott Creek.

Sensitivity for historic properties is generally low based on a review of historic maps and atlases available for the township. Specific locations of historic (mid/late-19th century to early-20th century) resources appeared restricted to the areas adjacent to earlier roadways in the southern part of the property.

The general lack of recorded properties directly within the project area is a reflection of a lack of previous examination rather than an indication of any lack of habitation.

Historic Map Review

1854, Map of Erie County, New York Figure 5
1866, Stone and Stewart Figure 6
1880, F.W. Beers, Illustrated Historic Atlas of Erie County, New York. Figure 7
1900/1901, 15 minute topographic maps (Buffalo NE and Tonawanda) Figure 8
1909, New Century Atlas of Erie County, New York Figure 9
1915, New Century Atlas of Greater Buffalo, Vol. 3 (not illustrated)
1927, Aerial Photographs Figures 10 and 11
1948, 15 minute topographic maps (Buffalo NE and Tonawanda) Figure 12
1951 Aerial Photographs Figure 13
1994—2011 Aerial Photographs Figure 14
Summary information derived from historic map data is presented as Table 3.

Recommendations: A Phase 1B investigation is recommended but the requirements should consider that prior disturbance in many locations has been sufficient to preclude the necessity of general subsurface testing. Once a specific site/project plan has been produced then the grounds need to be inspected and determinations made as to the need for, and type of, testing to be done. This site-specific testing program should be sufficient to identify extant resources.

Attachments/Exhibits

- ☑ General Location Map Figure 1
- ☑ Topographic Map Figure 2
- ☐ Project Map/Site Plan
- ☑ Site File Information Table 1 and Figure 4
- ☑ Other (specify) Figures 5 through 14

Phase 1A Report Prepared By: Robert L. Dean, Heritage Preservation & Interpretation Inc
Date: January 7, 2013

Table 1: Cultural Resources Recorded Within Approximately One Mile of the Project Area
Data obtained from SUNY Buffalo Archaeological Survey and NYS OPRHP
Westwood Country Club—Town of Amherst, Erie County, New York

Site Number(s)	Site Name(s)	Distance from APE m(ft)	Time Period	Site Type
02902.0000256 UB 2788	J. Getz	Adjacent 655m (2149') from center	Historic, Euro-American, ca. 1830	Residence
02902.000023	Foundation	887m (2910')	Historic, Euro-American	Structure
02902.000036 UB 2121	Indian Trail	1202m (3944')	Prehistoric Late Archaic (Brewerton)	Camp
02902.000037 UB 2122	Sad Sun	1307m (4288')	Prehistoric Unidentified affiliation	Lithic scatter
02902.000083 UB 2212	Georger	1414m (4639')	Prehistoric Unidentified affiliation	Camp
UB 864	Ellicott Creek	1161m (3809')	Prehistoric Unidentified affiliation	Lithic scatter
UB 1488	Seventeenth Green	1174m (3852')	Prehistoric Unidentified affiliation	Camp
02902.000885	Meadowbrook	1591m (5220')	Prehistoric Unidentified affiliation	Lithic scatter
02902.000004 UB251	UB Campus Amherst Area A	1615m (5229')	Prehistoric Unidentified affiliation	Unspecified
UB 1576	Ellicott Creek 2	1665m (5463')	Prehistoric Unidentified affiliation	Stray find
02902.000452	MCI 04/37-1	1682m (5518')	Prehistoric	Unknown
02902.000454	MCI 04/48-1	1770m (5807')	Unspecified	Unspecified
02902.000002 UB 222	UB Campus Amherst Area 2	2015m (6611')	Prehistoric Unidentified affiliation	Stray find
02902.000244 UB 2733	Park School	2107m (6913')	Prehistoric Unidentified affiliation	Unspecified
02902.000015 UB 895	UB Amherst Campus West	2160m (7087')	Prehistoric Unidentified affiliation	Lithic scatter
02902.000?? UB 196	UB Campus Amherst Area 1	2170m (7119')	Prehistoric Unidentified affiliation	Unspecified
02902.000003 UB 232	UB Campus Amherst Area 3	2180m (7152')	Prehistoric Unidentified affiliation	Stray find
02902.000090 UB 2489	Oswald-Burgasser	2300m (7546')	Historic, Euro-American ca. 1855	Residence
02902.000006 UB 252C	UB Campus Amherst Area 'C'	2300m (7546')	Prehistoric Unidentified affiliation	Unspecified

A0xxx = NYS OPRHP UB = SUNY Buffalo SUBi = SUNY Binghamton
RMSC = Rochester Museum & Science Center NYSM = NY State Museum

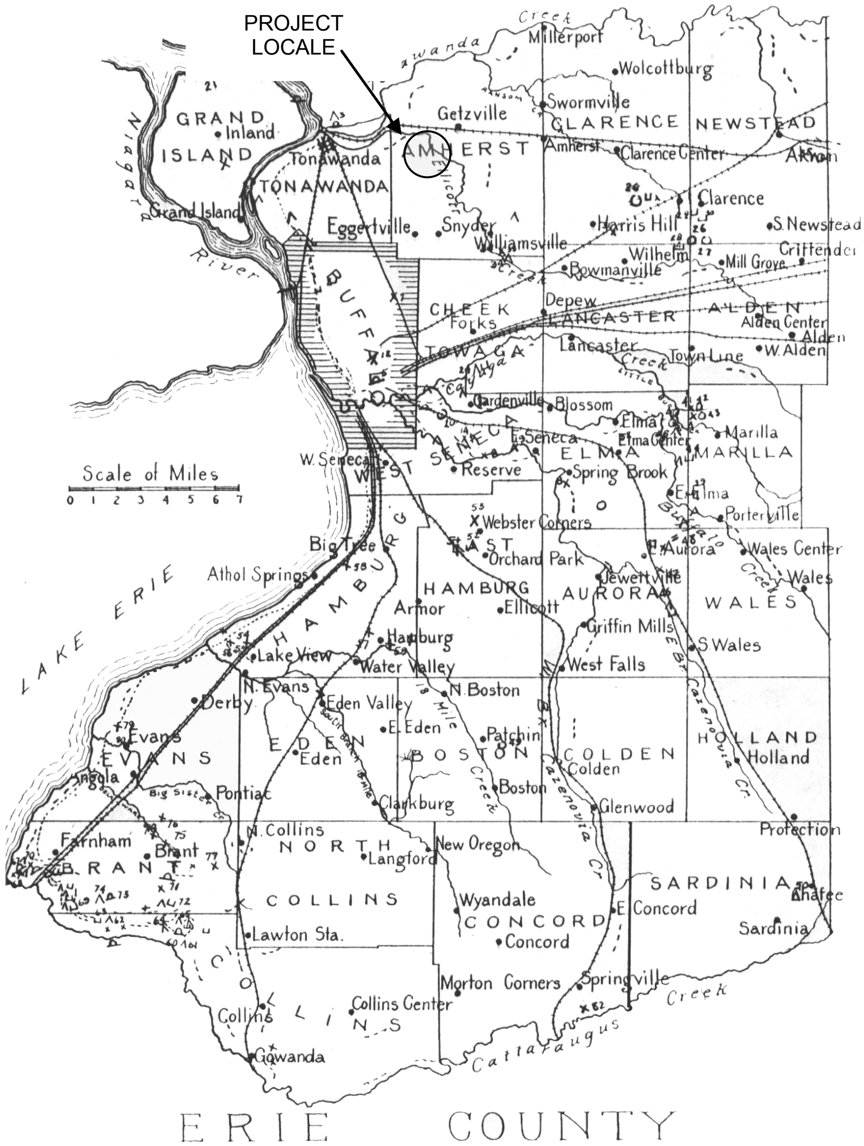
Table 1—continued				
Site Number(s)	Site Name(s)	Distance from APE m(ft)	Time Period	Site Type
02902.000007 UB 252D	UB Campus South	2332m (7651')	Prehistoric Unidentified affiliation	Unspecified
02902.000018 UB 1251	Stahl Road	2338m (7671')	Prehistoric Unidentified affiliation	Lithic scatter
UB 2415	Old Millersport Road	2387m (7831')	Prehistoric Unidentified affiliation	Camp
02902.000039	Centerpoint Chert Quarry	2445m (8022')	Prehistoric, Multiple Affiliations	Quarry
02902.000244	Park School	2455m (8054')	Prehistoric Unidentified affiliation	Information from a local collection
02902.000006 UB 260	UB Campus Amherst Area 4	2498m (8196')	Prehistoric Unidentified affiliation	Stray find
02902.000077	Centre House Tavern	2534m (8314')	Historic, Euro-American	Presumably an Historic Tavern
UB 2039	Dickson's Nightmare	2570m (8432')	Historic, Euro-American	Residence
02902.000896	Reist Mill Complex	2598m (8524')	Historic, Euro-American	Historic Mill
UB 2676	UB Letchworth Woods	2795m (9173')	Prehistoric Unidentified affiliation	Lithic scatter
UB 1888	Amherst 79-2	2827m (9275')	Prehistoric, Late Archaic	Camp
UB 1887	Amherst 79-1	2839m (9314')	Prehistoric Unidentified affiliation	Camp
02902.000188	Parker, Erie Site 81	2904m (9528')	Prehistoric Unidentified affiliation	Workshop
Sites represent recorded properties within approximately one mile of the project boundaries. Distance measures were made from a point near the center of the project area.				
A0xxx = NYS OPRHP UB = SUNY Buffalo SUBi = SUNY Binghamton RMSC = Rochester Museum & Science Center NYSM = NY State Museum				

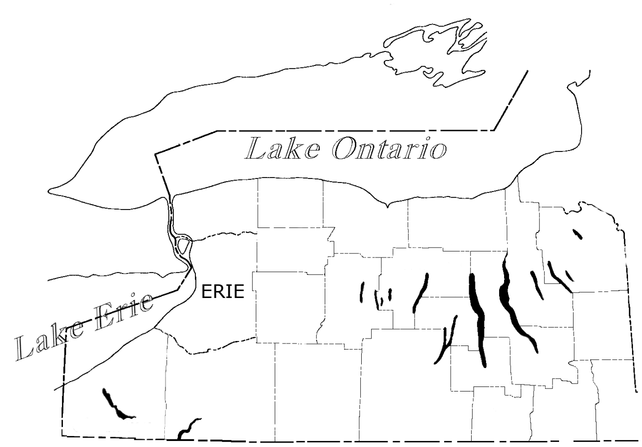
The sites identified in Table 1 include six properties that date from the Historic period. In this case all appear to be of 19th century construction. The sites break down as: 1 mill, 1 undefined structure location, 1 tavern and 3 residences.

Prehistoric sites include twenty-five properties. Two were listed as Archaic camps and the remainder were not identified with any specific cultural affiliation. The unaffiliated sites were categorized as follows: 6 camps, 6 lithic scatters, 4 stray finds, 1 workshop (presumably a lithic workshop), 1 chert quarry (very probably used during multiple stages of prehistory), 1 site obtained from a local collection, and 4 properties of unknown or unspecified type.

One site was noted on base maps but had no good data associated on either its date of occupation or type.

Figure 1: General Project Location Map
Westwood Country Club; Town of Amherst, Erie County, New York





County map taken from Parker 1920.
North is to the top of the page.

Figure 2: Project Location and Topography
Westwood Country Club; Town of Amherst, Erie County, New York
Portions of USGS 7.5' Buffalo NE, Lancaster, Tonawanda E, and Clarence Center quadrangles

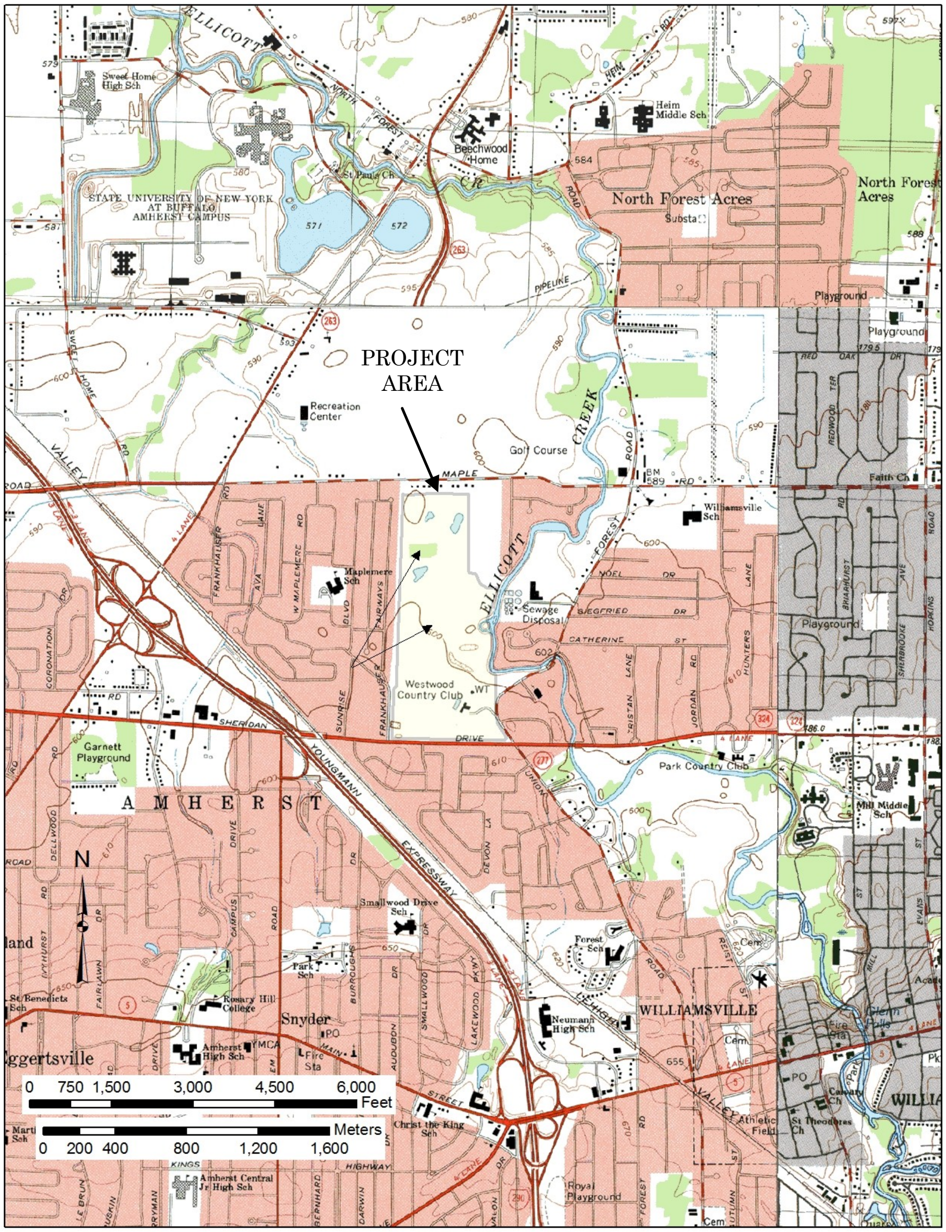


Figure 3: Soils Map—Westwood Country Club
Information obtained from USDA Soil Data Mart

Table 2: Soil Data (USDA Official Soil Series Description) Westwood Country Club Town of Amherst, Erie County, New York				
Name	Soil Horizon Depth cm (in)	Color	Texture, Inclusions	Drainage and Landform
Cl—Claverack loamy fine sand	Ap: 0-20cm (0-8 in) Bw1: 20-33cm (8-13 in) Bw2: 33-46cm (13-22 in) BC: 46-81cm (22-32 in) 2C: 81-183cm (32-72 in)	VDkGBrn YBrown YBrown Pale Brown Reddish Brown	Loamy fine sand Loamy fine sand Loamy fine sand Loamy fine sand Silty clay	"very deep, moderately well drained", "formed in sandy deposits that overlie clayey lacustrine sediments", "in shallow deltas on lake plains", "prime farmland"
CrA—Cosad loamy fine sand	Ap: 0-23cm (0-9in) Bw1: 23-53cm (9-21in) Bw2: 53-76cm (21-30in) 2C: 76-183cm (30-72in)	VDk Brown Pale Brown Brown Reddish Brown	Loamy fine sand Loamy fine sand Loamy fine sand Silty clay	"very deep, somewhat poorly drained" ,"formed in sandy deposits that overlie clayey lacustrine sediments", "on lake plains", "Prime farmland if drained"
La—Lakemont silt loam	Ap: 0-20cm (0-8 in) Btg1: 20-43cm (8-17 in) Btg2: 43-66cm (17-26 in) C: 66-152cm (26-60in)	Black Gray Pinkish Gray Dk reddish gray	Silty clay loam Silty clay Silty clay Silty clay loam	"deep, poorly drained soils of lake plains", "formed in very slowly permeable reddish colored clayey lacustrine sediments"
Od –Odessa silt loam	Ap: 0-20cm (0-8in) Bt/E: 20-25cm (8-10 in) Bt1: 25-38cm (10-15 in) Bt2: 38-64cm (15-25 in) C: 64-183cm (25-72 in)	Dk G Brown Brown Reddish brown Dk RBrown Dk RGray	Silt loam Silty clay loam Silty clay Silty clay Silty clay	"very deep, somewhat poorly drained soils formed in clayey lacustrine deposits" "in moderately low areas on lake plains", "Prime farmland if drained"
SaB—Schoharie silt loam	Ap: 0-20cm (0-8in) E: 20-28cm (8-11 in) Bt/E: 28-46cm (11-18 in) Bt: 46-83cm (18-33 in) C1: 83-132cm (33-52 in) C2: 132-183cm (52-72 in)	Dark Brown Pale Brown Reddish Brown Reddish Brown Reddish Brown Reddish Brown	Silt loam Silt loam Silty clay Clay Silty clay Silty clay	"very deep, moderately well drained soils formed in lacustrine sediments. They are on glacial lake plains and uplands mantled with lake sediments", "Prime farmland"
Te—Teel silt loam	Ap: 0-25cm (0-10 in) Bw1: 25-46 (10-18 in) Bw2: 46-61cm (18-24 in) BCg: 61-97cm (24-38 in) CgL 97-183cm (38-72 in)	VDKGrBrown DkGrBrown Brown Grayish Brown DkGrBrown	Silt loam Silt loam Silt loam Silt loam Silt loam	"very deep, moderately well drained soils on floodplains. They formed in nearly level, silty alluvial deposits", "Prime farmland"

KEY:
Shade: Lt–Light, Dk–Dark, V–very, Ex-extremely.
Color: Brn–Brown, Blk–Black, Gry–Gray, GBrn–Gray Brown, StrBrn–Strong Brown, RBrn–RedBrown, YBrn–Yellow Brown, OGM–Orange/Gray Mottled, YGM–Yellow/Gray Mottled
Soils: Cl–Clay, Lo–Loam, Si–Silt, Sa–Sand, Ls–Loess
Other: /–Mottled, Grl–Gravel, Cbs–Cobbles, Pbs–Pebbles, Rts–Roots

There were at least sixty-one archaeological sites recorded within a ca. two mile radius of the project area. Within roughly one mile there were thirty-two sites evident and none were located directly within the project area and only one was adjacent. Twenty-five sites dated from the prehistoric period and included camps, lithic scatters, stray finds, a chert quarry, a lithic workshop, and several sites that were not, or could not be, defined. Historic Euro-American properties included a mill complex, a tavern, an undifferentiated structure location, and three residences. One property had no data on either occupation or function.

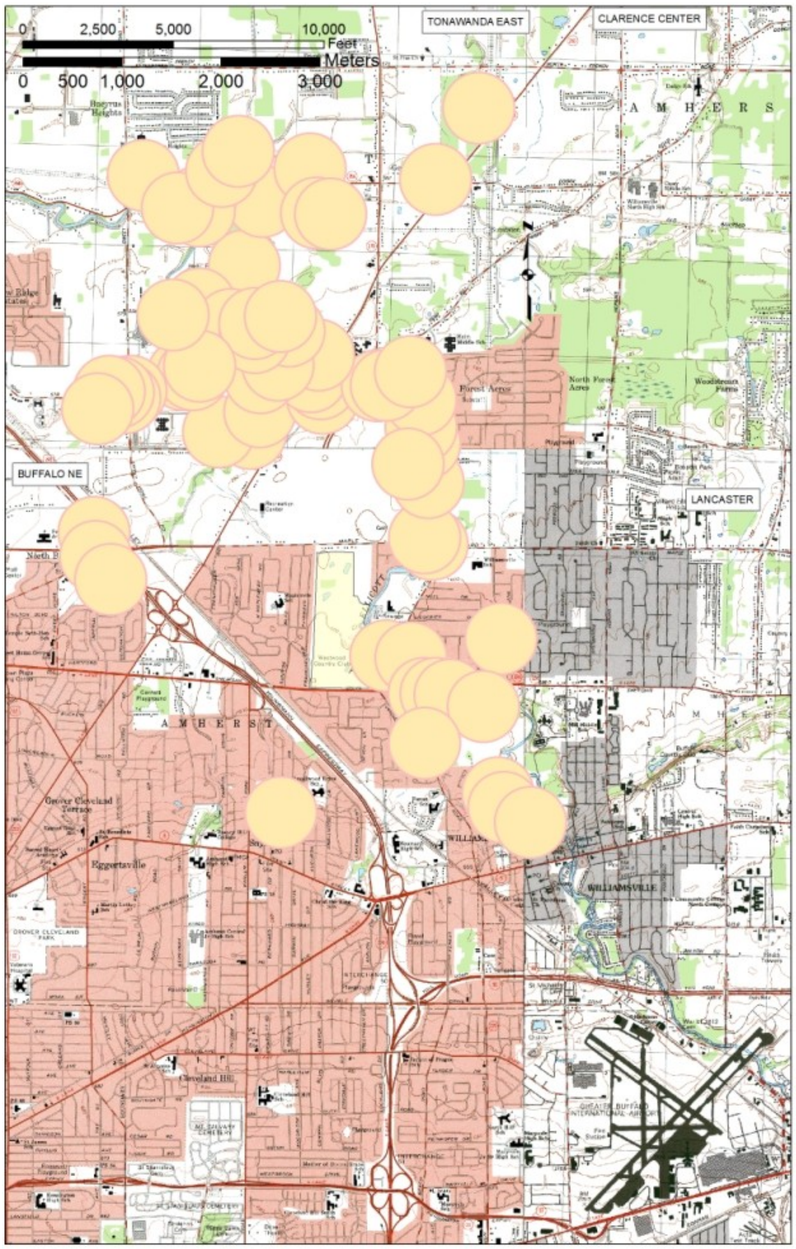
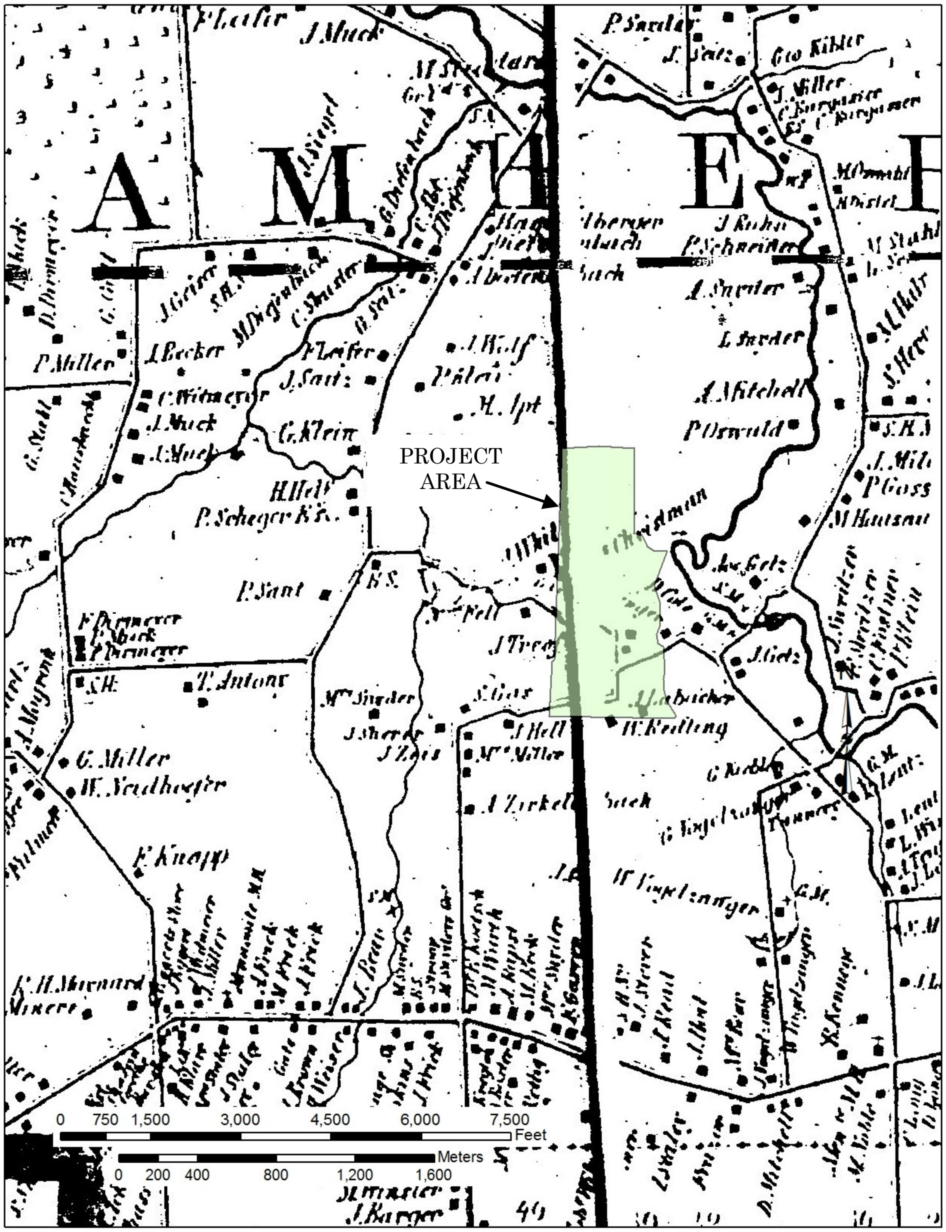


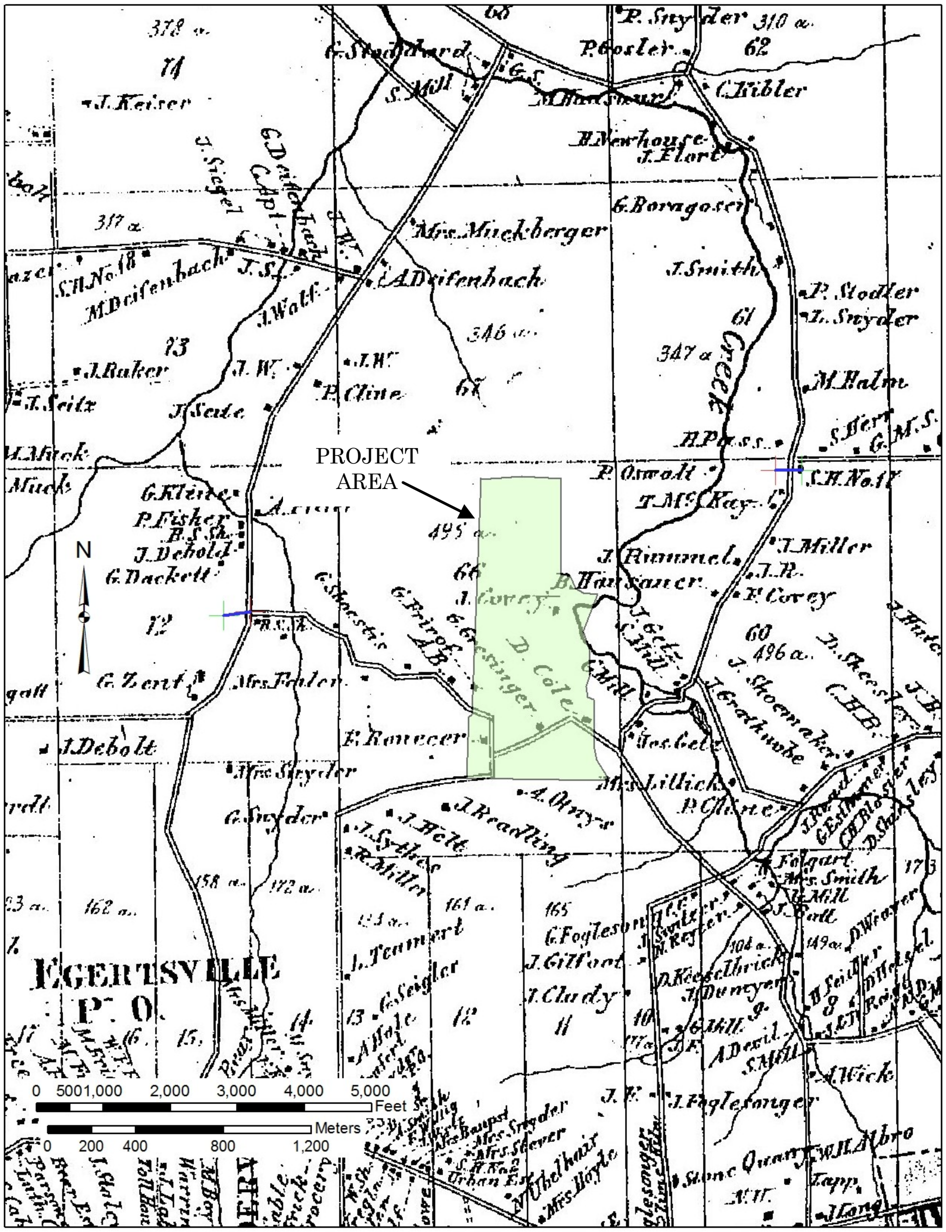
Figure 4: Distribution of Selected Archaeological Sites within ca. Two Miles
Map indicates that the majority of properties trend along the course of Ellicott Creek.

Figure 5: A Portion of Geil's 1854 *Map of Erie County, New York*



Georeferencing of this map is not precise but the general location is appropriate. Roadways and several residences ("D. Cole", "Christman") and are indicated within the property.

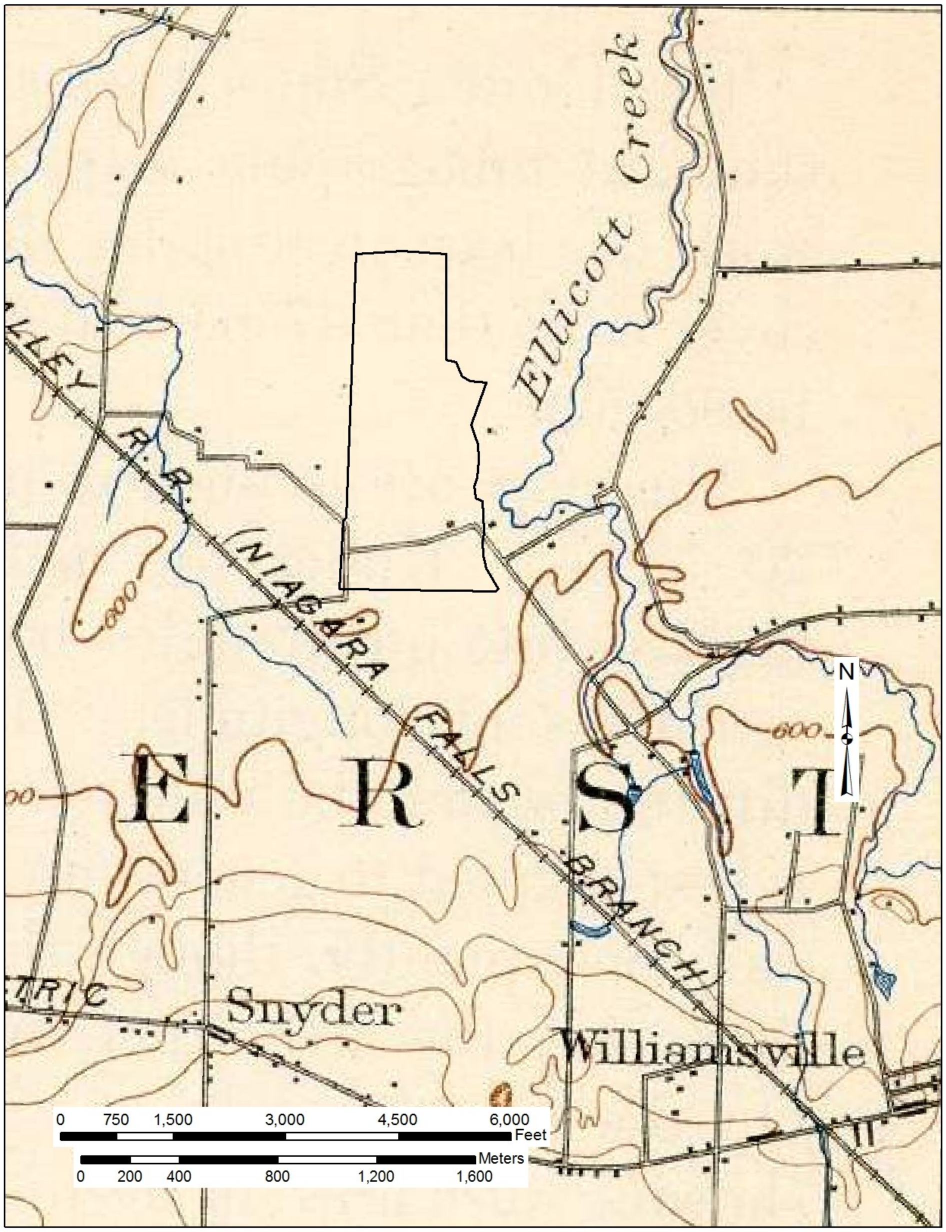
Figure 6: A Portion of Stone & Stewart's 1866 Map of Erie County, New York



Roads shown on 1854 map are still present. Neither Maple Road or Sheridan Drive have been constructed. Residences along the southern roadways are listed for "G. Gresinger" and "D. Cole". The structure previously noted identified as Christman's is now shown as the residence of "J. Covey".

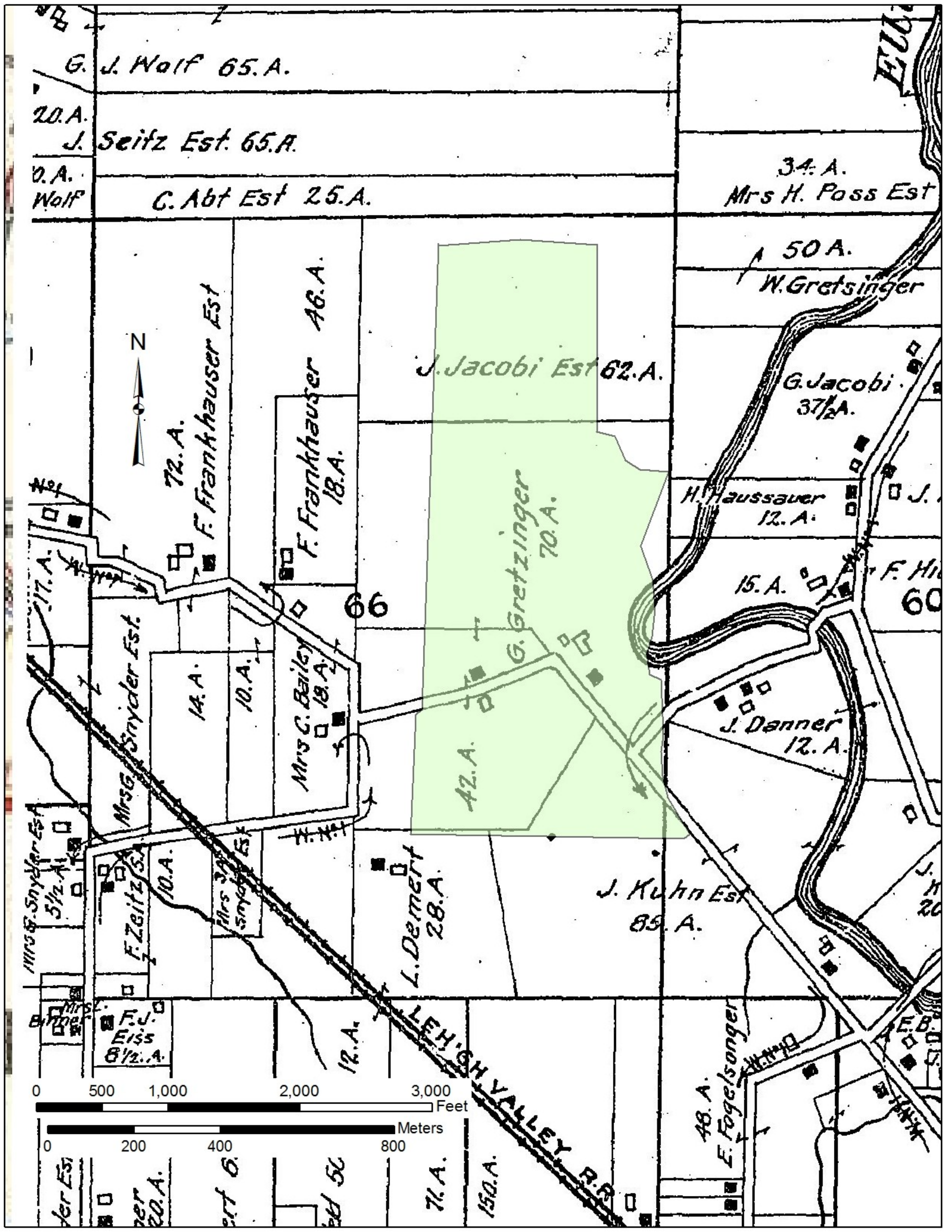
Figure 7: A Portion of F.W. Beers 1880 Map of the Town of Amherst, Erie County, New York

Figure 8: A Portion of the 15 minute Buffalo (1901/1940) and Tonawanda (1900) topographic maps



Roadways in the southern part of the property persist. Structure symbols along the north side of the road maintain the same positions as previously noted "Gretsinger" and "Cole" residences. No activity is apparent across the remainder of the property.

Figure 9: A Portion of the 1909 New Century Atlas, Town of Amherst, Erie County, New York
A 1915 version of this map also exists but it is identical to the 1909 version in this specific area.



Georeferencing is not precise and appears to have displaced the project area to the east of its actual location. The majority of the area is attributed to "G. Gretzinger"(sic). Two residential structures are shown in the general locations where these have been previously plotted. This map provides additional detail in indicating that the western structure had an associated barn or similar outbuilding on the south side of the road. The eastern structure is associated with two structures to the northwest.

Figure 10: 1927 Aerial Photograph of the Project Area and Surrounding Portions of the Town of Amherst, Erie County, New York

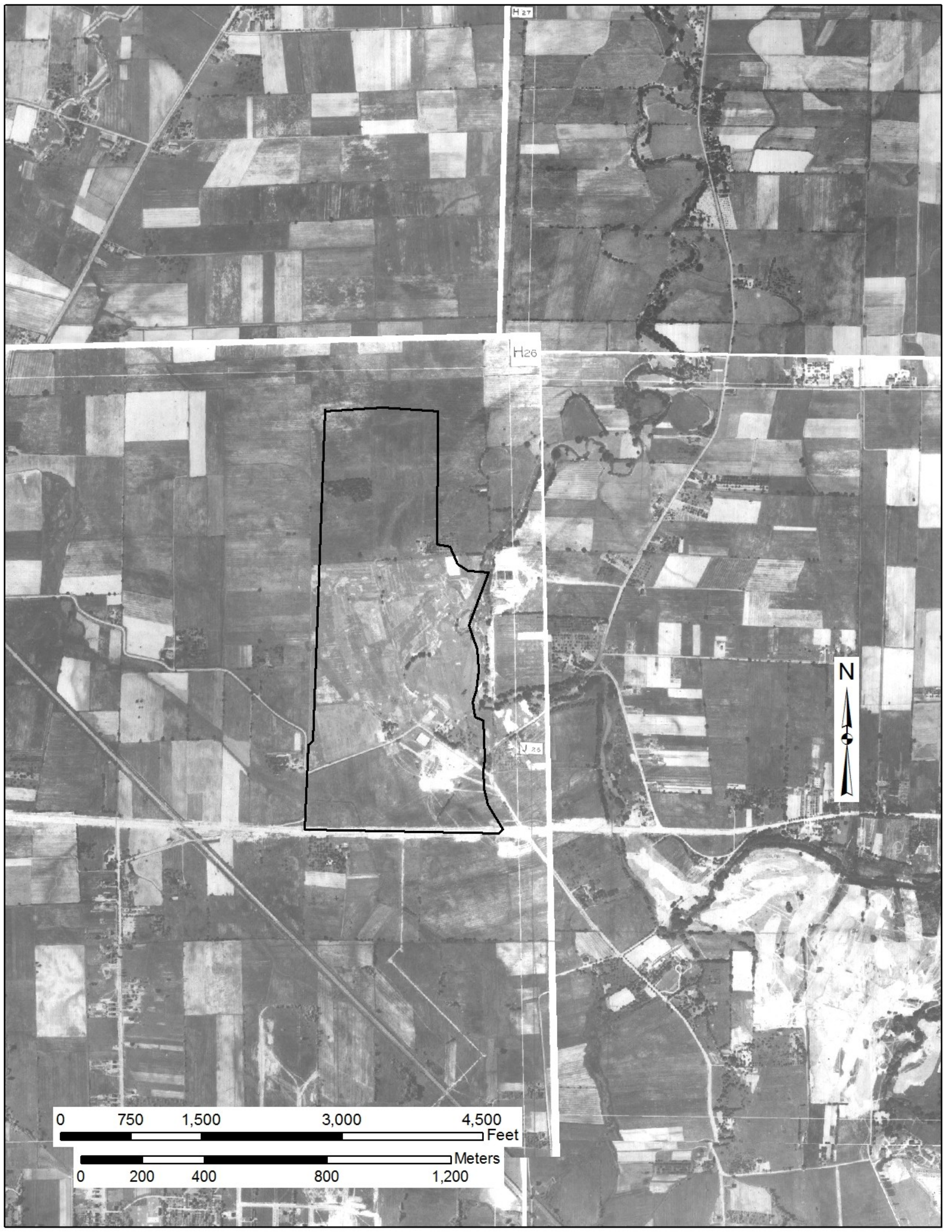
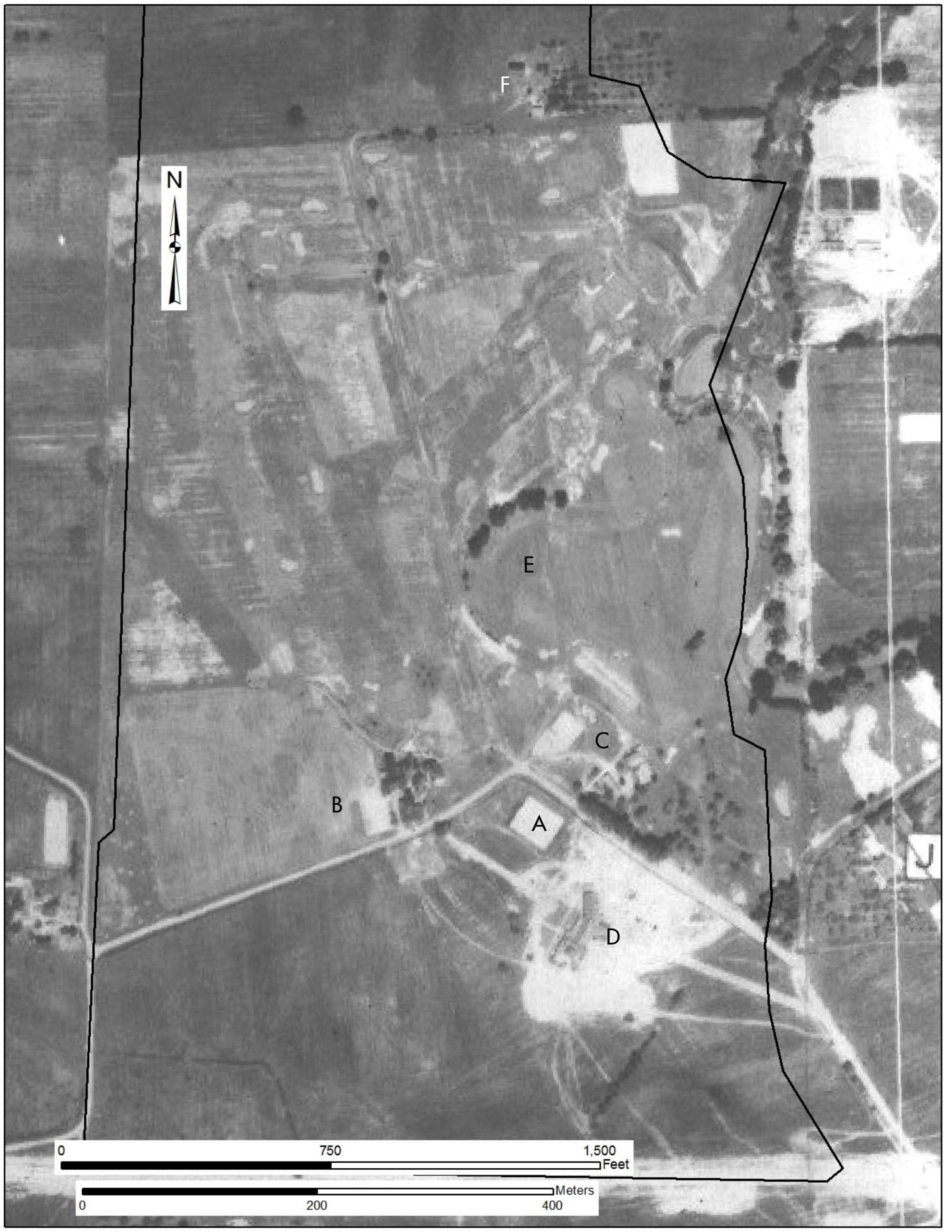


Figure 11: Detail -1927 Aerial Photograph of the Project Area
Town of Amherst, Erie County, New York



A. Single large structure
B. Area of former Grets(z)inger Residence/complex
C. Area of former Cole/Gretzinger residence/complex
D. General area of country club buildings
E. Extinct meander/channel of Ellicott Creek
F. Orchard and several apparent small structures

Several fairways, greens and hazards are apparent. Most of the areas on north and south ends of the property are relatively undisturbed at this date.

Figure 12: Portions of the 15 minute Buffalo and Tonawanda topographic maps, 1948

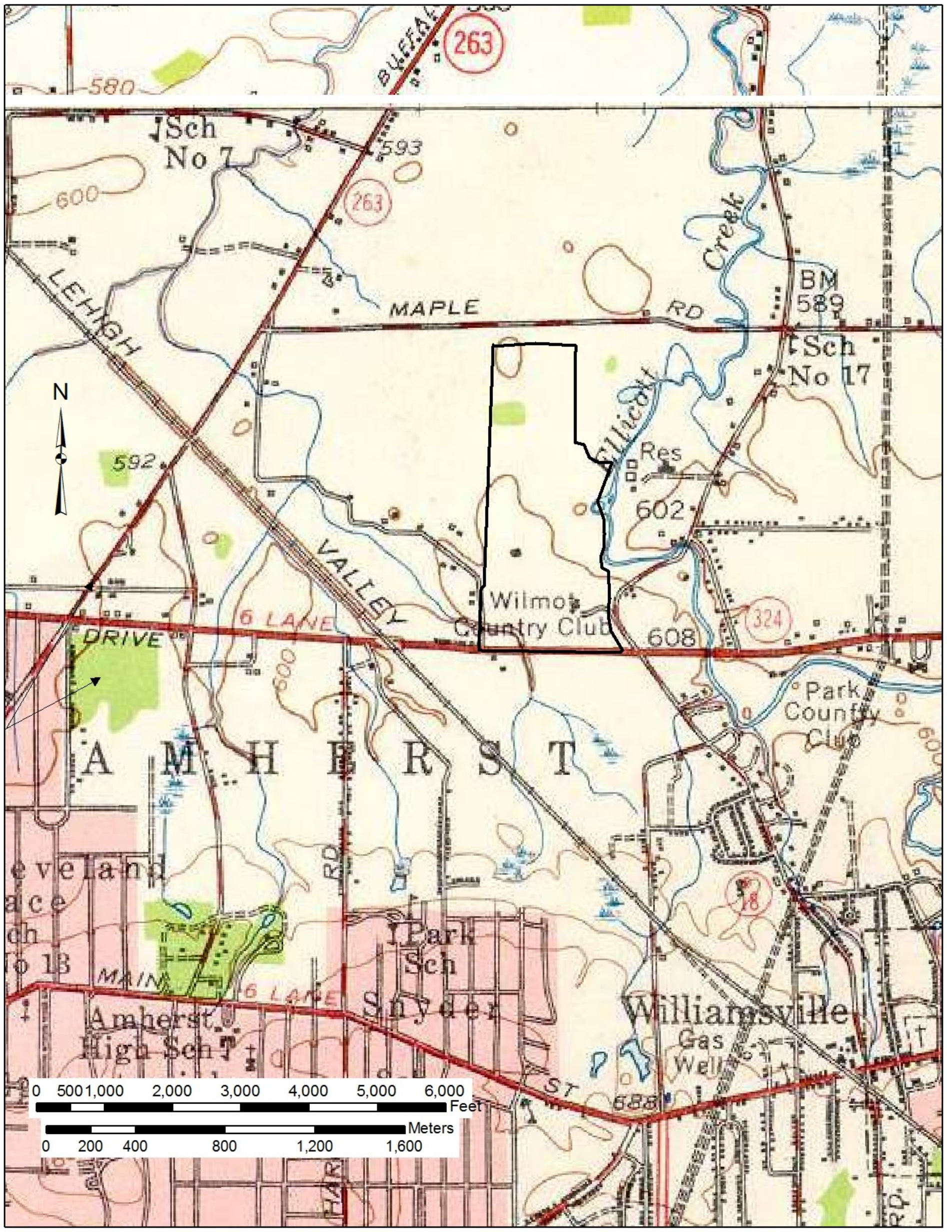
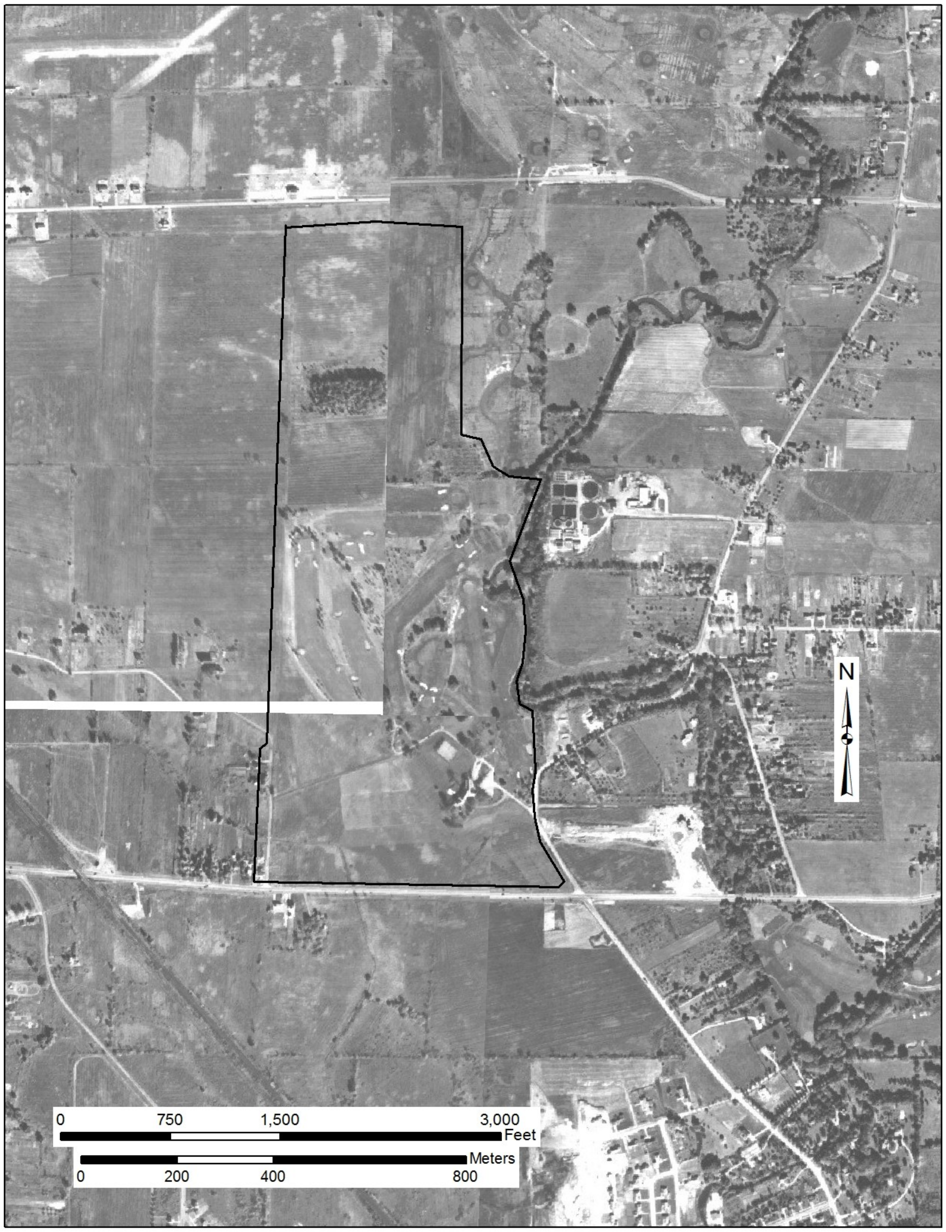


Figure 13: 1951 Aerial Photographs of the Project Area
Westwood Country Club Locality, Town of Amherst, Erie County, New York

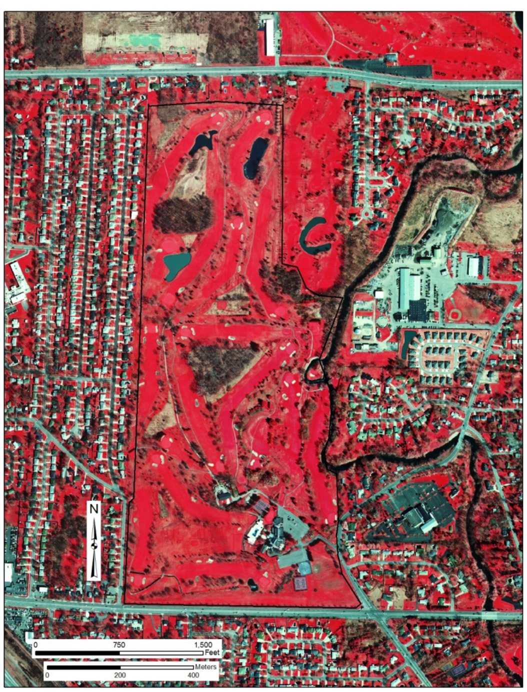


The country club building sare more pronounced and the limits of the golf course do not appear to have exceeded those evident on the 1927 aerials. Roadways from the 19th century are apparent but probably used only internally. Wooded tract in northwest first noted on 1927 aerials is present.

Figure 14: 1994—2011 Aerial Photograph of the Project Area
Westwood Country Club Locality, Town of Amherst, Erie County, New York

1994 Color Infra-red

2002 Natural Color



2005 False Color Infra-red

2011 Natural Color

Table 3: Summary of Historic Map Data, Westwood Country Club Locality

1854 Samuel Geil. First indication of roadways and there are several residences within the project area. Neither of the current major east-west roadways (Maple Road and Sheridan Drive) exist.

The roads across the southern part of the project area continue to be shown on maps and aerials up to 1938.

1866: Roads shown in 1854 remain and there are two residences present: "G. Gretsinger" and "D. Cole". The latter residence shows continuity with the 1854 listing. The "Christman" residence, north of those along the roadways is now attributed to "J. Covey".

1880: Roads in the southern part of the property are still present but there shapes have changed somewhat. One residence is still shown along the north side of the road and is attributed to "G. Gretsinger" showing continuity with the 1866 map.

A portion of the property to the north of the roadway is labeled as the "Kibler Est[ate]" and may include one or more structure symbols in the area where the "Covey" residence had been drawn.

There do not appear to be any structures in the area where the Christman/Covey residence had been shown.

1900/1901: The roads in the southern part of the property conform to the arrangement shown on the 1880 map. Only two structure symbols are present along the north side of the road and appear to be in the same locations as residences previously attributed to "G. Gretsinger" and "D. Cole"

1909/1915: The majority of the area is attributed to "G. Gretzinger"(sic). Two residential structures are shown in the general locations where these have been previously plotted. This map provides additional detail in indicating that the western structure had an associated barn or similar outbuilding on the south side of the road. The eastern structure is associated with two structures to the northwest.

1927: Aerial photos show the roadways that have been present since the late-19th century. They also show that construction of the country club has been started. Sheridan Drive, on the south edge of the project area, has been constructed or is in the process of being constructed.

A rectangular vegetation zone is evident in the northwest quarter of the property. That general area, apparently a wooded section is still evident on current maps and aerial photographs.

1948: The roadways that had been evident in the southern part of the property since 1866 are no longer represented. A newer roadway off North Forest Road accesses the country club buildings and the area is identified as the "Wilmot Country Club". The small wooded zone in the northwest is still apparent.

There is an apparent structure symbol in the southwest quarter of this map. It seems rather outsized for symbols used for residential locations. There is no structure shown on the 1951 aerial photograph in this general area. For that reason it was thought that the symbol might have been added to the particular map that was scanned. However, other digital versions of the map do show the structure symbol.

1951: The country club locale shows more clearly and does not appear to have significantly expanded beyond its 1927 limits. The 19th century roadways in the south are more clearly defined but are probably only used as private accesses with the exception of the portion on the east representing the country club entrance.

The expansion of the country club golf course to its current extent occurred prior to 1994. Aerial photographs from 1994, 2002, 2005, and 2011 (Figure 14) show the minimal changes to the area.

CULTURAL RESOURCE INVESTIGATION
SUPPORTIVE DATA

Applicant Name: Mensch Capital Partners, LLC
350 Essjay Road
Williamsville, New York 14221

Project/Facility Name: Westwood Country Club

OPRHP Project Review No.: 12PR4942

Project/Facility Location: South of Maple Road, north of Sheridan Drive and immediately west of Ellicott Creek.

Reports should include the items listed below. Bracketed information is optional. Put a check mark next to each item appended.

PLEASE NOTE: Most attachments below often provide precise locational and compositional data on archaeological sites. This information is confidential to protect the resource from vandalism. All attachments with site-specific information should be omitted from report copies which will be available to the general public.

- ☑ Qualifications of principal investigator(s) On file
- ☑ Topographic map with project area noted (Figure 2)
- ☐ Map(s) of test locations, field inspection, and areas of cultural material
  (Maps must have titles, legend, bar scale, and directional arrow)
- ☐ Site inventory forms (Mark "Confidential")
- ☐ Artifact catalog
- ☐ Record of soil Stratigraphy in each test
- ☑ Copies of relevant, supplemental historic maps Figures 5 through 14

For report which include Site Evaluation and Delineation (Phase 2), the following items should also be included,

- ☐ Project map with site boundaries delineated
- ☐ Soil profiles
- ☐ Photographs, as appropriate, characterizing project area and documenting salient cultural features
- ☐ Recommendations

Supportive Data Prepared By: Robert L. Dean, Heritage Preservation & Interpretation Inc
Date: January 7, 2013

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SUNY Buffalo Archaeological Survey
n.d. SUNY Buffalo Archaeological Survey, Department of Anthropology, SUNY Buffalo, Amherst, New York.

USDA Natural Resources Conservation Service
n.d. Soil Data Mart and Official Soil Descriptions

United States Geological Survey

1900 15' Tonawanda, NY topographic map

1901 15' Buffalo, NY topographic map (reprinted in 1913, 1925, 1940)

1948 15' Tonawanda, NY topographic map

1948 15' Buffalo, NY topographic map

Phase 1B Cultural Resource Investigation: Westwood Country Club Town of Amherst, Erie County, New York

December 30, 2013

Prepared for:

Mensch Capital Partners, LLC
350 Essjay Road
Williamsville, New York 14221

OPRHP 12PR4942

Prepared By:

Robert L. Dean
and
Cameron R. Dean

Heritage Preservation & Interpretation Inc.
P.O. Box 277 Steamburg, New York 14783-0277

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Introduction

A Phase 1A cultural resource investigation was conducted for the Westwood Country Club in advance of plans for future multi-use developments (Dean 2013). The current primary use of the property is recreational and the majority of its acreage is covered by an eighteen hole golf course. The Phase 1A report could not identify the specific extent to which various portions of the property had been disturbed since it was developed as a golf course. However, it did indicate that some level of Phase 1B investigation was warranted based on varying levels of sensitivity within the property and varying levels of potential for archaeological deposits to occur.

This report provides information on how a Phase 1b testing strategy was developed. It then summarizes the results of the testing program and offers recommendations on whether or not any additional archaeological investigation is required at the several loci of previous activity that were identified.

References

Dean, Robert L. 2013, January	Phase 1A Cultural Resource, Westwood Country Club Property. Town of Amherst, Erie County, New York. 12PR4942, Heritage Preservation & Interpretation Inc., Steamburg, NY.

A Phase 1A investigation of the Westwood Country Club property was conducted in 2012 (Dean 2013). It was determined that a significant percentage of the property had been disturbed to construct and later improve the golf course and grounds. However, there was potential for the survival of some archaeological deposits. No previous archaeological survey had been conducted within the property but several investigations have been done in surrounding areas. These surveys had reported a variety of prehistoric and historic archaeological sites. The Phase 1A report provided a map showing the locations of archaeological resources within approximately two miles of the project area (Figure 1). These were depicted with rather large buffers—a convention used to protect the precise location of sites with the intent of preventing vandalism/looting. It is debatable whether or not this is a necessary practice. The majority of formally recorded sites have been identified by modern cultural resource investigations dating from the last fifty years. Since these sites were most often discovered during surveys done in advance of development, the bulk of those properties have been destroyed.

Archaeologists across the state, and across much broader regions, often note that one of the principal factors in the location of most prehistoric archaeological sites is their proximity to a water source. This association may relate to transportation, resource acquisition, ceremonial concerns, and other factors. A second principal attribute also cited in the positioning or selection of past habitations is the presence of relatively level land.

There are, or at least seem to be, distinct differences between the distribution of archaeological sites in differing physiographic zones. One might expect that sites on the Erie-Ontario Lake Plain would be dispersed more broadly or uniformly than those in the Allegheny Plateau. In the latter area the prime long term habitation sites are constrained by the topography. Thus, the majority of recorded sites are located on bottomlands along waterways. The size of the water course also seems to be directly related to the density of past occupations. That is, a major river valley will contain higher numbers of archaeological sites than are recorded along tributary streams. Generally just considering stream ranks across the region, as stream sizes shrink so do the number of associated sites. Across the plateau another area archaeological sensitivity occurs on the extreme uplands—hill and ridge tops. Site density is still rather low compared to values recorded on bottomland positions. The lowest sensitivity areas are the slopes intervening between valley bottoms and hilltops. The exception occurs in areas where local geology has produced bedrock outcrops and/or boulder fields where rockshelter sites may be found.

Across the Lake Plain there are fewer constraints on site location based on simple topography. One might expect sites to be somewhat more uniformly distributed but would show a tendency to locate with respect to nearby water and relatively level land. It should be possible to more finely detail site distributions according to function and duration of occupation to determine if longer term settlements followed the noted conventions more so than smaller camps and special use sites. In general, however, site data is not detailed enough to conduct such analyses.

To better examine the distribution of archaeological sites near the project area the recorded sites identified in the Phase 1A investigation were plotted against water sources on the current 7.5-minute topographic maps. It was apparent after the initial outlining of waterways that some sites seemed to be well removed from streams, ponds, or older marshlands. However, closer inspection of the topographic maps and the stream plots indicated two relevant factors. First, and somewhat expected in developed urban locales, the courses of some waterways were the result of human manipulation of these drainages. In some cases the changes were small and were necessary, apparently to redirect flows away from residential and/or commercial properties. In cases where long straight runs were evident it seemed most probable that these channels were constructed to drain broad areas of poorly drained land. Historic maps and air photos that had been geo-referenced to the modern topographic maps were re-examined to determine if additional drainages could be identified. It was quickly found that additional streams/channels could be discerned. Most of these additional drainageways plotted were taken from the 1948 edition of 15-minute topographic maps.

Prehistoric archaeological sites were then reviewed again against the additional hydrology data. The initial plot of sites that were directly associated with water sources accounted for a very high percentage of the total number of sites present. After the extra data was included virtually all of the recorded sites were accounted for. This is demonstrated by the plot of prehistoric sites and mapped water sources (Figures 2 and 3). The breakdown of prehistoric sites across this area by site types and cultural affiliation is provided in Tables 1 and 2.

Although these tables provide values within discrete categories they do not account for changes in the way in which archaeological sites have previously been classified. Some early archaeological surveys often categorized any small distribution of artifacts as a camp. Investigations conducted in the last thirty years or so have tried to make a distinction between a camp and a lithic scatter but there is no single definition that truly distinguishes between these site types. Combining lithic scatters and camps in this area accounts for thirty-one sites, or 58.5% of the total. If lithic workshops were included in the tally, since it can be argued that these sites are a subset of the lithic scatter category, then some 64% of the recorded sites are accounted for. The next most common site type in the area is the stray find, most often represented by single artifact finds or very small numbers of artifacts (ca. less than ten items) in a limited area. Together, camps/scatters and stray finds account for 83% of the recorded resources. Adding in the sites for which no type has been identified brings the total to 96%.

When looking at this set of sites from the perspective of their cultural affiliation we see a much more stark picture of the data—forty-three (±83%) of fifty-two sites have not been identified with a specific archaeological culture. Of the remaining nine properties five were classified as Archaic. While this may be a factual identification there is also a strong possibility that the determination was based on a general pattern of classifying sites as *Archaic* as a catch-all category when the actual affiliation was uncertain.

Values for site size and detailed composition were not collected but the data suggest that the sites within this sample area are all rather limited in size and complexity. No village sites or distinct special use sites have been recorded. It would appear that the majority, if not all, of these sites are rather small activity areas that have not been associated with specific functions beyond the level of lithic reduction/processing. Whether or not functional types can be identified by use wear analysis or some other means of artifact analysis remains uncertain.

Figures 2 and 3 also show several shaded areas that are the elevated portions within and just outside the project area. These roughly correspond to the 600 feet contour line. Archaeological sites are often found on elevated positions and one might expect this to be especially the case in a locale where relief is quite limited and soil drainage is poor. Looking at the sample area there seems to be no correlation between elevated terrain and water sources. The general trend in elevation across this area is from lower lands to the north to higher ground to the south. In the north there seems to be only an association between water sources and archaeological sites. However, there are not many elevated spots evident on topographic maps. In the south, there do seem to be a few sites that occur on higher ground and not directly along waterways. However, when one considers the stream meanders in these areas then it seems probable that an earlier position of the water source was the primary reason for the sites' presence.

Table 1: Prehistoric Sites by Site Type Proposed Westwood Development		
Camp	15	28.3%
Collection	1	1.9%
Lithic Scatter	16	30.2%
Lithic Workshop	3	5.7%
Not Identified	7	13.2%
Quarry	1	1.9%
Stray Find	10	18.9%

Table 2: Prehistoric Sites by Cultural Affiliation Proposed Westwood Development		
Late Woodland	1	1.9%
Early Woodland, Meadowood	1	1.9%
Archaic	5	9.6%
Archaic, Brewerton	1	1.9%
Archaic Lamoka	1	1.9%
Unidentified	43	82.7%

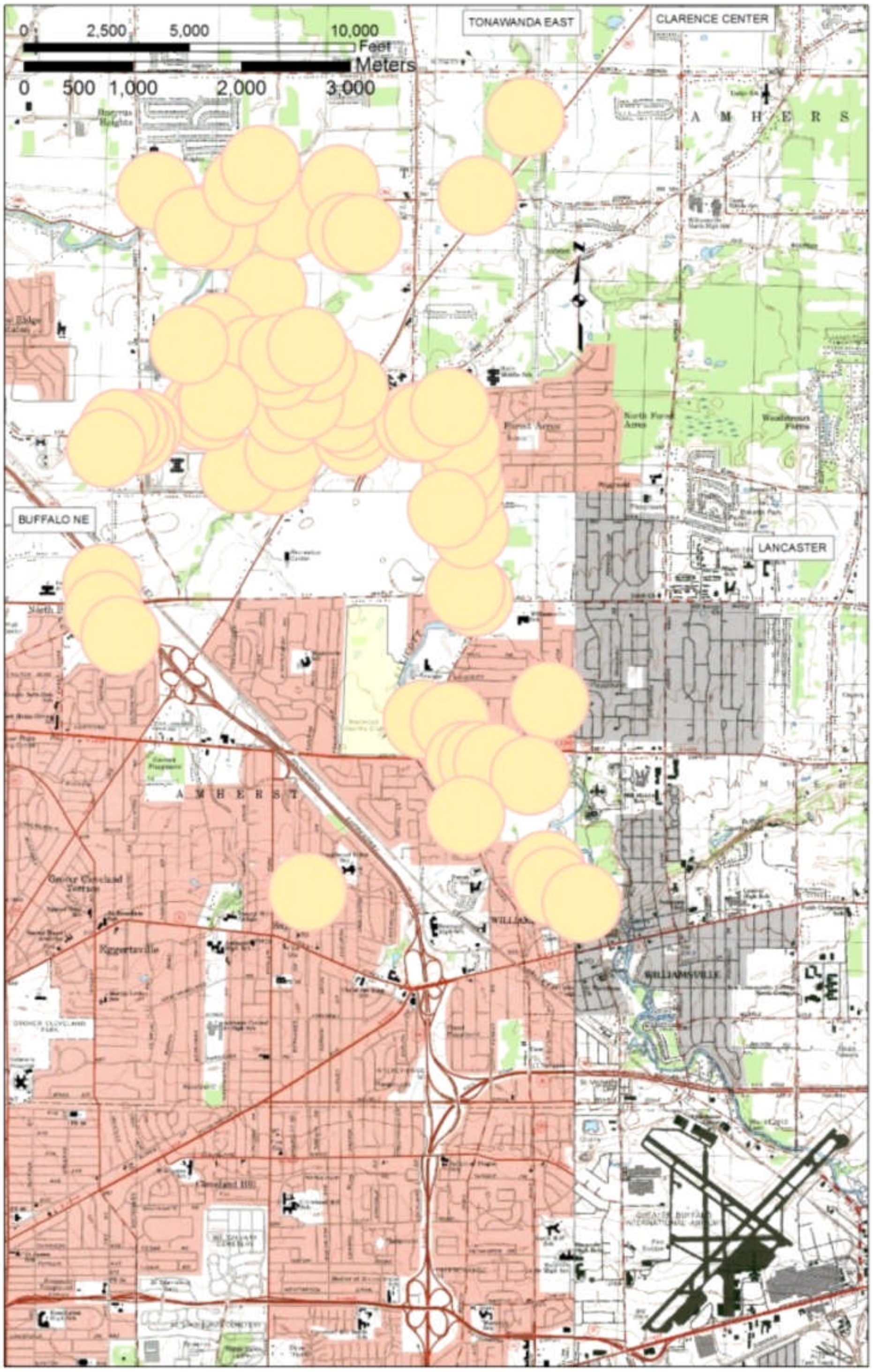


Figure 1: Distribution of all Archaeological Sites within ca. Two Miles of the Project Area
Originally provided as Figure 4 in the Phase 1A report (Dean 2012)

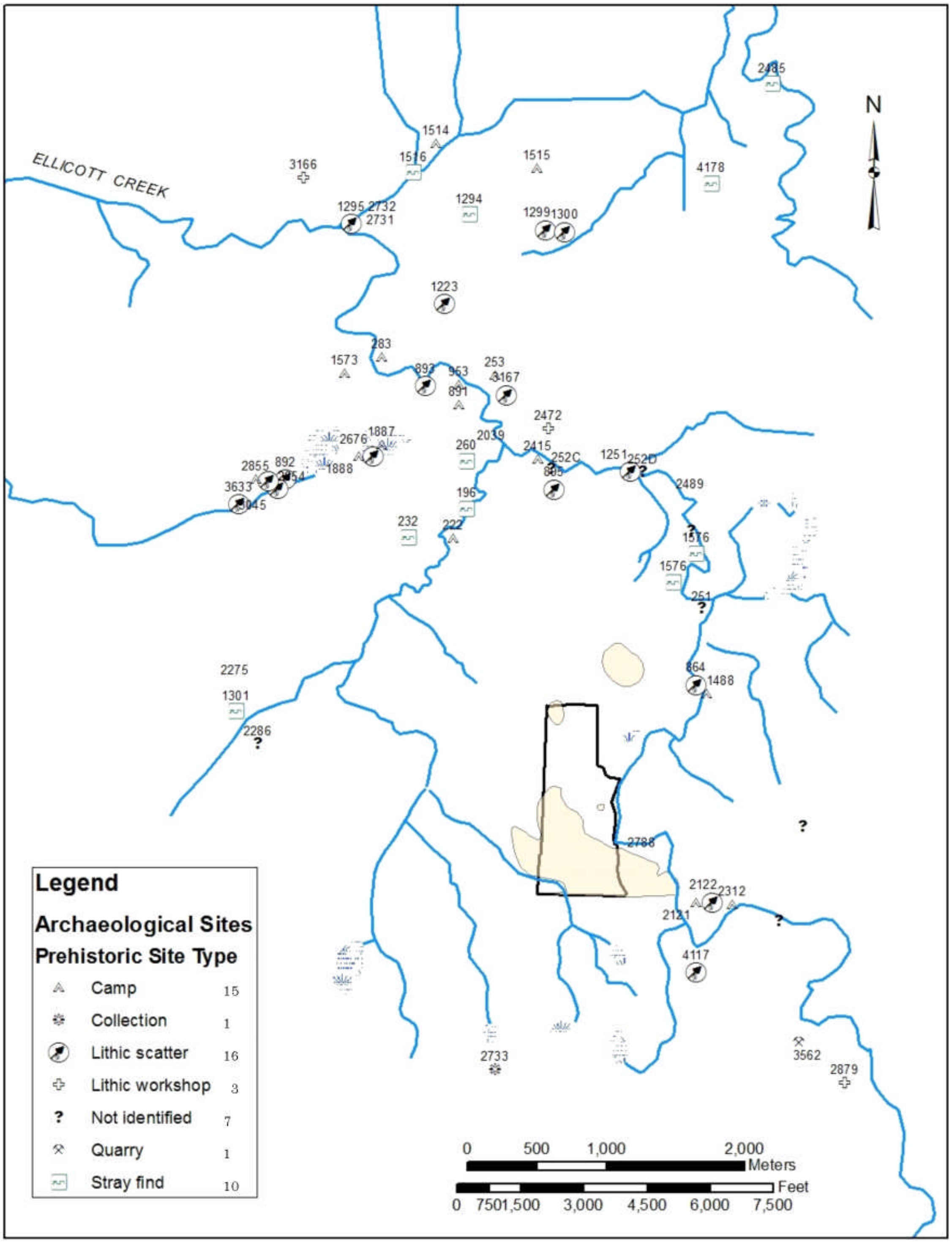


Figure 2: Distribution of Prehistoric Archaeological Site Types in Relation to Water Sources
The waterways have been plotted from 15' and 7.5' topographic maps.

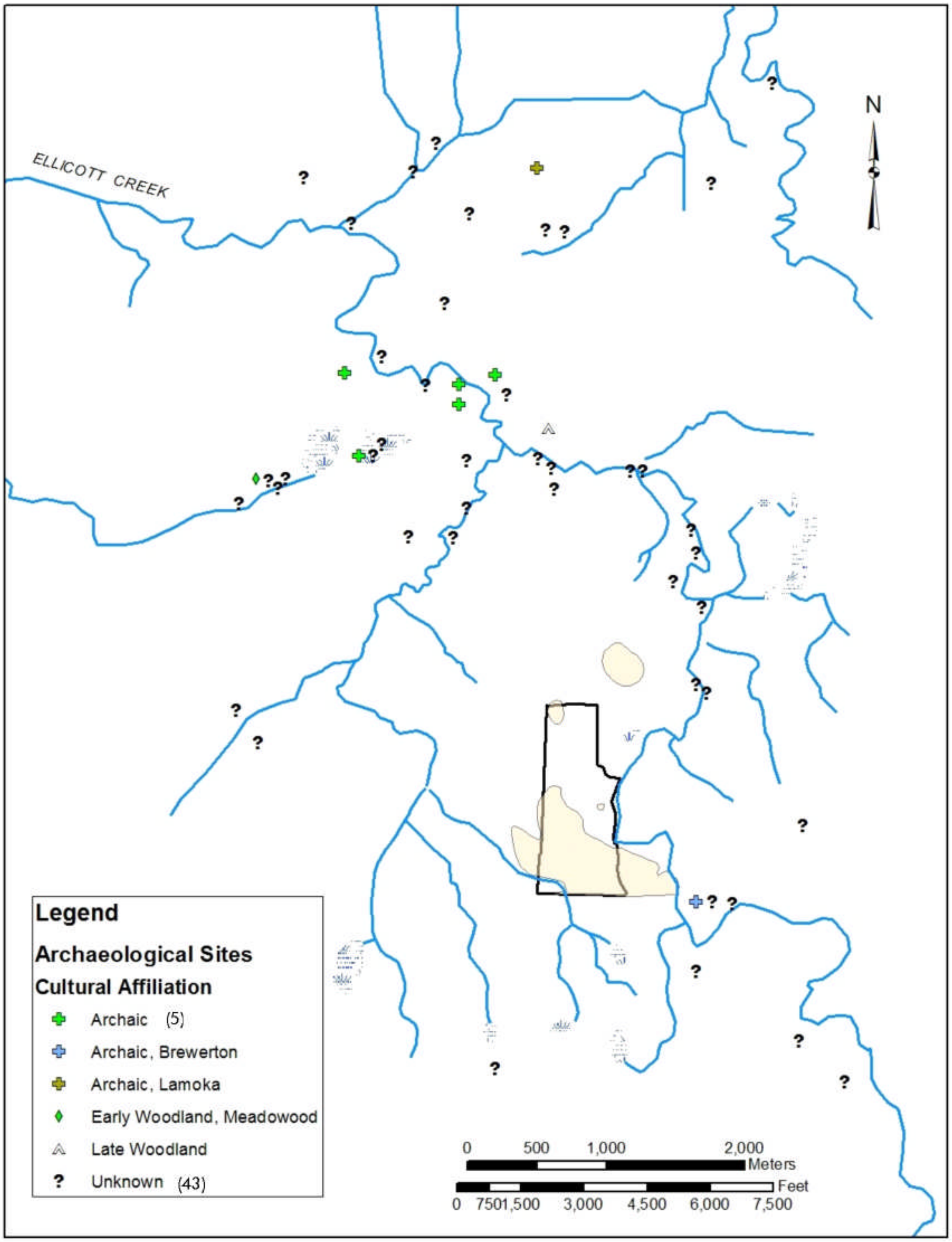


Figure 3: Distribution of Prehistoric Archaeological Sites by Cultural Affiliation in Relation to Water Sources

Proposed Testing Plan

Field testing for archaeological deposits on this property must consider several factors. First is the general level of disturbance across the proposed development. Second, is the distribution of the recorded archaeological sites nearby. The only assumption made here is that virtually all of the proposed development has been subject to some level of prior disturbance through landscaping done during the construction and improvements to the golf course. Certainly, varying levels of disturbance occurred in different areas but there is insufficient documentation available to pinpoint separate locations and equate those with specific types and intensities of past terrain modifications.

Because of the nature of the test areas within both a disturbed locale and an active golf course, field methodology may vary from state standards. Specifically, if prior disturbance is obvious and considered severe then shovel tests will not be excavated. Similarly, testing will not be done in any areas where it seems likely that the excavation will pose a safety hazard to the course users. Testing will be opportunistic and will be done in locations that appear minimally disturbed. Some locations may be examined by auger tests simply to see whether any unusual soil profiles can be discerned. When shovel tests are excavated they will be at least 40cm on a side and the soil removed will be sifted through ¼-inch mesh hardware cloth screens in an attempt to recover any artifacts that might be present. An effort will be made to preserve sod levels and to replace and plug(s) in manner that will permit quick re-establishment of the cover at these small test locations.

After reviewing the proposed development plan, site distribution maps, and the several historic and modern air photos of the existing golf course, eight areas have been selected for field inspection and testing. The most sensitive location within the property—adjoining Ellicott Creek along its eastern edge—is to remain undeveloped. Thus, all remaining portions of the property are considered of lesser sensitivity though not completely devoid of potential. The several test areas proposed were selected to provide broad spatial coverage and to examine varied zones of differing elevation, original soil drainage, proximity to water, and, ideally, lesser degrees of disturbance.

Area 1 is a small wooded stand that may have been minimally disturbed since the golf course was developed. A roughly rectangular wooded zone has been present here, although possibly a bit further north, since the 1920's. Whether this is due to the location not being suited for development due to drainage issues or other factors is unknown but should be easily evaluated.

Area 2 is narrow section along the proposed main access road which traverses an area that may have avoided some of the more intensive disturbance to which the majority of this location was subjected.

Area 3 is in the northwest corner of the property and lies on elevated terrain at the 600 feet contour. As has been noted, although there is no direct correlation between nearby sites and any elevated positions that does not exclude such spots from prior occupation/utilization.

Area 4 is another potentially more lightly disturbed zone in the southwestern portion of the property. It is on elevated terrain above the 600 feet contour.

Area 5 is a section along the southern part of the proposed main access road and on or above the 600 feet contour.

Area 6 is a very small area in the southeastern part of the property and represents the location of a cul-de-sac at the end of a proposed primary access. It is at the 600 feet contour and also near an apparent former stream channel/meander.

Area 7 is within a the southern portion of the proposed main access in what appears to be an island of green space.

Area 8 is a narrow and irregular zone along what appears to be a former stream channel/ meander and which could be the most sensitive area of the project area.

Figure 4: Location of Proposed Test Areas for Phase 1b Investigations at the Westwood Golf Course
Town of Amherst, Erie County, New York
The hatched area is a ca. 21 acre portion that is not to be developed.
Bold black lines indicate the location of proposed primary access roads.

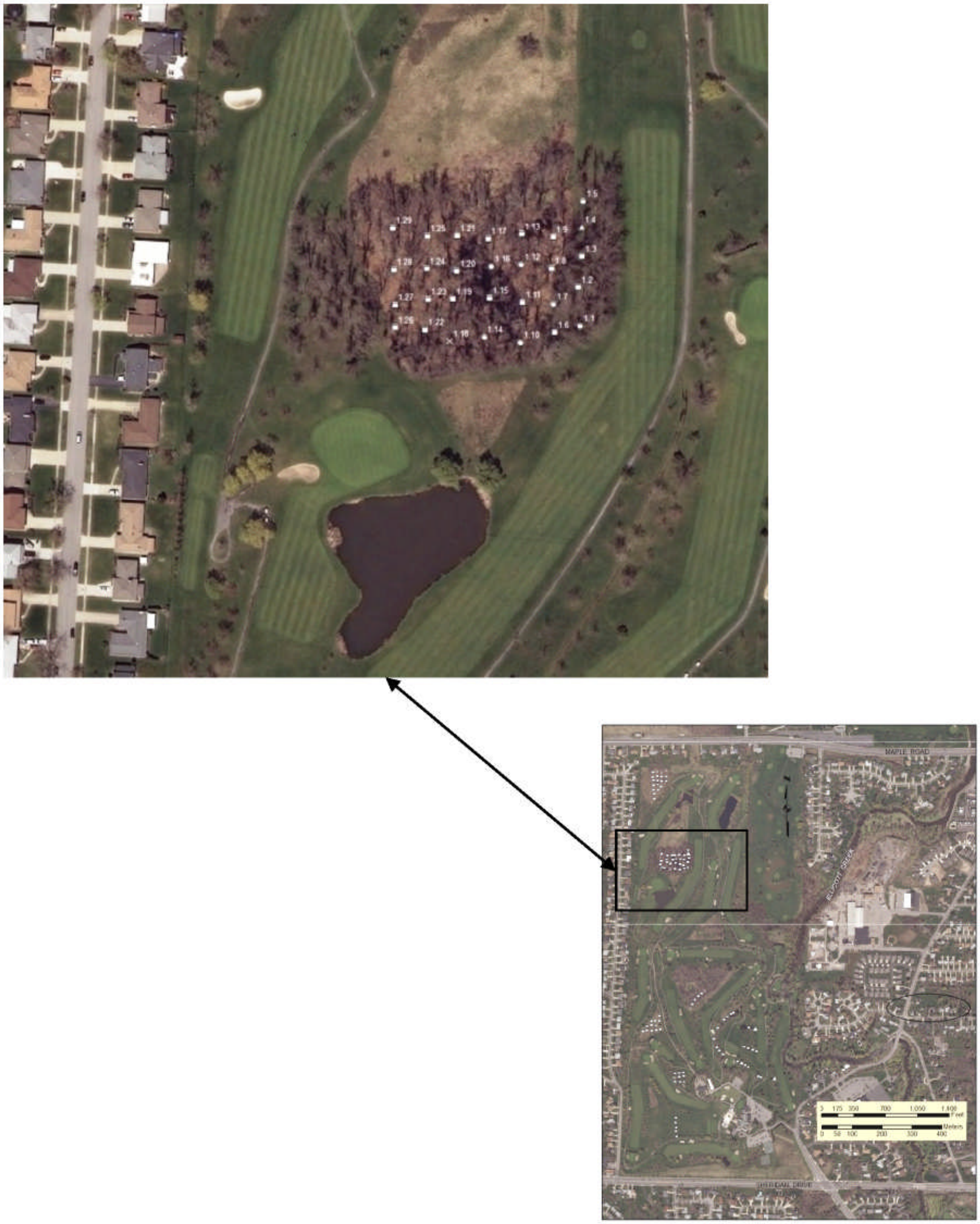


Figure 5: Distribution of Shovel Tests, Test Area 1
Westwood Country Club, Amherst, New York

Phase 1b Field Testing

Field investigations at the Westwood property were begun on November 20 and continued until December 5 when it was necessary to halt fieldwork during a prolonged period of winter weather. By that time the majority of the areas proposed for testing had been examined. Field work was restarted on December 18 and was primarily directed towards excavating supplemental tests at the several places where prehistoric and early historic artifacts had been recovered.

The results of testing at each of the designated areas are summarized in the following. In general, shovel tests averaged 40cm on a side and were excavated into a subsoil level or to a point where it was evident that the location was disturbed or conditions prevented deeper manual excavation (water, dense or large stones). Soil removed from each shovel test was sifted through one-quarter inch mesh hardware cloth screens in an effort to recover any artifacts present. Soil was sifted onto a poly tarp to assist in backfilling. Data recorded for each test included the number of soil levels observed. Notes kept for each soil level included: depths below surface, soil color, soil texture, gravel/stone content, moisture level, opinions on disturbance, and the presence/absence of artifacts.

Test Area 1

This test area was selected since it appeared to be one of, or possibly the only, area that appeared relatively undisturbed since the golf course was developed in the early twentieth century. It was a wooded plot whose location seemed to have shifted only slightly south from its earlier position.

Testing across this area was done along a series of parallel transects oriented north-south. Shovel tests were excavated at 15m intervals along each transect. As was the case elsewhere on this project the soil drainage was an issue. Much of the area was wet and most depressions or other low spots contained pooled water. There was a light scatter of modern debris across this area and the lands adjacent on the north were very noticeably built up.

Twenty-eight shovel tests were excavated to cover this area. Seven tests were positive for modern artifacts, one of which was a piece of sawn refuse bone. What appeared to be a chert flake was recovered from one test (1.4) but, after cleaning, was not classifiable as a waste flake.

No supplemental testing was done in this area and no further investigation is recommended there.

Table 3: Test Area 1 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
1.1	1	0 - 18	silt, only small roots; 10YR 3/2	bent iron piece
	2	18 - 33	compact silt clay or silt, tree roots; OGM	- - -
1.2	1	0 - 19	silt, small roots get larger w/depth; 10YR 3/2-3/3	- - -
	2	19 - 33	compact, somewhat blocky silt clay, small roots; OGM	- - -
1.3	1	0 - 12	sandy silt, small roots; 10YR 3/2	- - -
	2	12 - 22	silty; mix of grays & some L1	- - -
	3	22 - 37	compact silt clay, roots; bright OGM	- - -
1.4	1	0 - 14	compact lightly sandy silt, small roots; 10YR 2/1-2/2	chert?
	2	14 - 28	lightly sandy silt; mixed 10YR 3/3-4/3 & pale gray	- - -
	3	28 - 42	silt clay; OGM	- - -
1.5	1	0 - 16	silt, some sand, small roots; 10YR 3/3	brown bottle glass
	2	16 - 28	silt?, one large root; mixed brown & dark OGM	- - -
	3	28 - 38	loamy; OGM	- - -
1.6	1	0 - 13	lightly sandy silt; 10YR 3/3	- - -
	2	13 - 26	compact sticky silt clay; bright OGM, darker w/depth	- - -
1.7	1	0 - 15	sandy silt, dense roots; 10YR 3/2-3/3	plastic redware
	2	15 - 35	clay silt, dense roots; OGM	- - -
1.8	1	0 - 17	'loose' silt w/wood chips or mulch; 10YR 3/2	- - -
	2	17 - 30	silty root churned zone, mixed soils	- - -
	3	30 - 44	rooty silty fine sand; OGM	- - -
1.9	1	0 - 31	lightly sandy silt, small roots, large one at 24cm, soils gets sticky w/depth; 10YR 3/1-3/2	- - -
	2	31 - 41	copact somewhat blocky silt clay; OGM	- - -
1.10	1	0 - 29	'loose' & silty, deep fine root mat; 10YR 3/2	bottle glass brn & clr
	2	29 - 42	compact sandy clay; OGM (bright orange)	- - -
1.11	1	0 - 28	'loose' silt, fine roots & a few larger; 10YR 3/2	- - -
	2	28 - 45	compact silt clay; OGM	- - -
1.12	1	0 - 35	sandy silt, fine & small roots; 10YR 3/2-3/3	wrapper plastic
	2	35 - 49	silt clay w/pockets of sand; OGM	- - -
1.13	1	0 - 19	sandy silt, fine roots; 10YR 3/2	- - -
	2	19 - 30	mottled sandy silt; gray and dark gray	- - -
	3	30 - 44	compact silty sand; pale OGM	- - -
1.14	1	0 - 25	silt, some clay content, sticky, fine and small roots; 10YR 3/2-3/1	wrapper plastic
	2	25 - 39	sticky silty clay w/roots; OGM	- - -
1.15	1	0 - 26	silt/wood/roots; 10YR 3/1-3/2	- - -
	2	26 - 41	stiff clay, grays w/some orange	- - -
	3	41 - 47	stiff clay; orange brown	- - -

Test	Level	Depths (cm)	Soil Description	Artifacts
1.16	1	0 - 12	'loose', silty, fine roots, wood pieces, sticky & wet; black	- - -
	2	12 - 27	wet/muddy silt, water at 20cm; dark gray	refuse bone, sawn
1.17	1	0 - 14	sticky silt clay, small roots; 10YR 3/2	- - -
	2	14 - 38	heavy, sticky clay, some roots; OGM	- - -
1.18	pot hole zone, water pooled; no test			
1.19	1	0 - 26	silt, some sandy spots, fine roots; 10YR 3/3	- - -
	2	26 - 39	stiff silty clay; OGM	- - -
1.20	1	0 - 11	silt & fine roots; very dark gray brown to black	- - -
	2	11 - 28	sticky, heavy clay; OGM	- - -
1.21	1	0 - 31	sticky silt, large roots; very dark gray brown to black	- - -
	2	31 - 45	dense clay; OGM	- - -
1.22	1	0 - 31	clay silt, fine roots & larger; very dark gray brown	- - -
	2	31 - 42	silty clay, small roots; OGM	- - -
1.23	1	0 - 20	sticky sandy clay silt w/assorted roots; dark gray	- - -
	2	20 - 36	stiff silt clay; pale OGM	- - -
1.24	1	0 - 31	very lightly sandy silt, damp to wet, fine roots; dark gray	- - -
	2	31 - 41	stiff heavy clay; OGM	- - -
1.25	1	0 - 25	heavy wet silty clay w/roots, dense at base; gray	- - -
	2	25 - 41	wet, silty clay w/roots; OGM seepage in this level	- - -
1.26	1	0 - 36	very loose, wet, sticky mulch or chopped leaves in clay; dark gray, many roots	- - -
	2	36 - 46	stiff dense clay; OGM	- - -
1.27	1	0 - 22	leaf litter, sticks, plastic bits, very loose and very little actual soil; very dark gray brown to black	
	2	22 - 41	very compact clay; OGM	- - -
1.28	1	0 - 24	rather loose clay silt, fine & large roots; dark gray	- - -
	2	24 - 36	dense clay; OGM	- - -
1.29	1	0 - 25	wet clay silt, small roots; dark gray	- - -
	2	25 - 35	clay or silty clay, stiff & heavy; OGM	- - -

Photograph 1

View of southeast corner of Test Area 1

Photograph 2

View of built up area along the north edge of Test Area 1

Photograph 3

Iron rod located in STP 1.1

Not collected

Test Area 2

This area was selected based primarily on the possibility that it had been less disturbed than other locales. Much of this test area was wooded with varying density of understory. It had originally been intended to cover the area by excavating a series of shovel tests along parallel north-south transects. However, after completing the initial line of tests it was determined that the area consisted of sections that were very poorly drained and/or were significantly disturbed. The single test transect consisted of only seven shovel tests (Table 4) and none produced anything other than modern materials.

Table 4: Test Area 2 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
2.1	1	0 - 17	sandy mud w/dense grass roots, water pooled at 17cm; brown	- - -
2.2	1	0 - 26	wet to muddy clay silt, sticky, small roots; brown	golf ball tar
	2	26 - 38	stiff, wet silt clay; light orange brown	- - -
2.3	1	0 - 17	wet/muddy, 1 piece crushed stone; brown	- - -
	2	17 - 27	more mud, water pooled at 21cm; lighter brown or yellow brown	- - -
2.4	1	0 - 30	wet sticky silt or clay silt, muddy in spots, wetter with increased depth; dark brown	- - -
	2	30 - 41	wet to muddy silt clay; orange brown	- - -
2.5	1	0 - 26	very wet & sticky silt or silt clay, dense small roots & some larger tree roots; brown	- - -
	2	26 - 41	heavy wet silty clay, wet; dark orange brown	- - -
2.6	no test, path/trail and a dump zone on west			
2.7	no test, all disturbed			

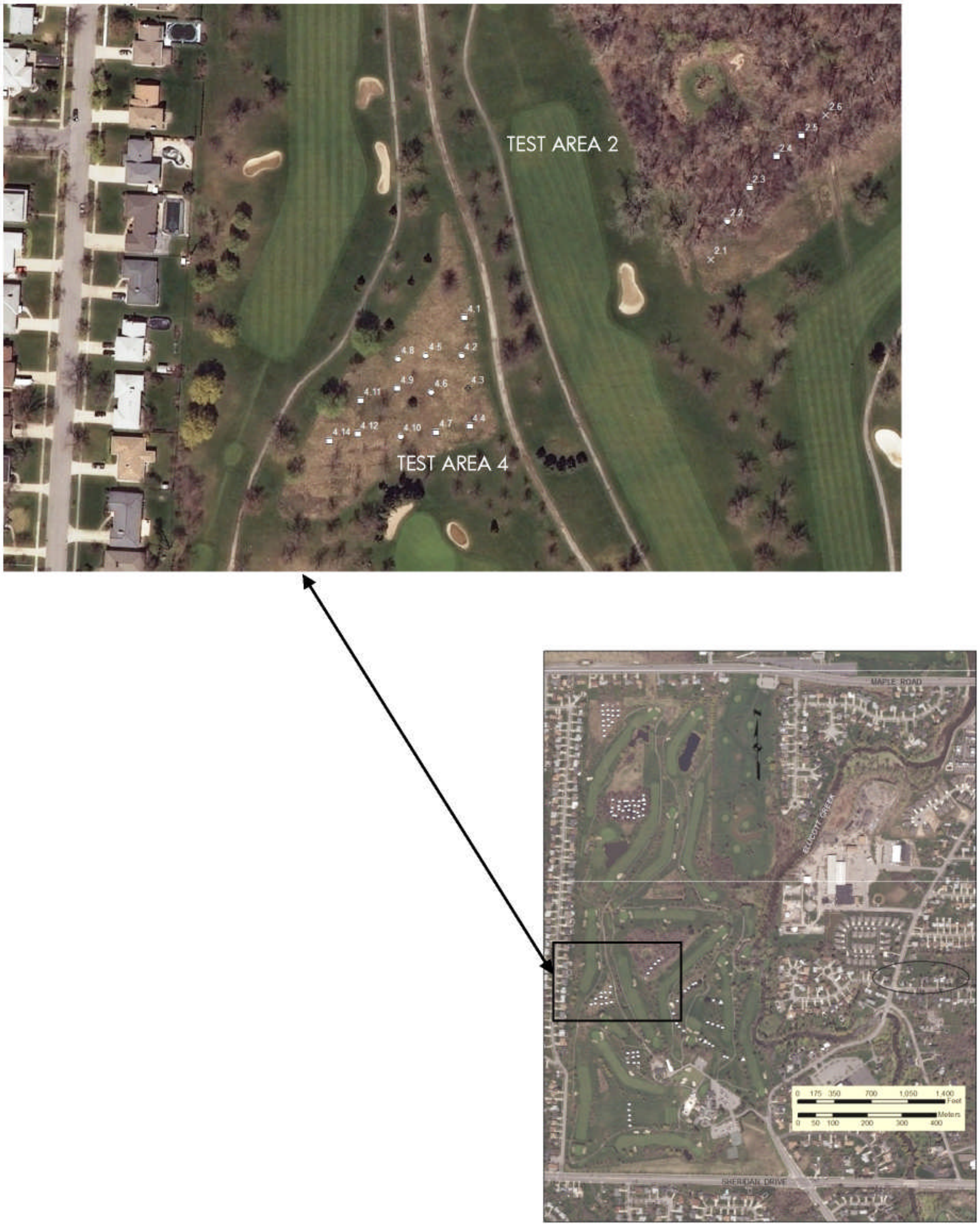


Figure 6: Distribution of Shovel Tests, Test Areas 2 and 4
Westwood Country Club, Amherst, New York

Photograph 4:
Test Area 2, looking north, start of single shovel test transect.

Photograph 5:

Area 2
Looking northeasterly,
note extent of ice in background

Photograph 6:

Area 2
Looking westerly at
refuse disposal area

Figure 7: Distribution of Shovel Tests, Test Area 3
Westwood Country Club, Amherst, New York

Test Area 3

This test area, in the northwest corner of the property, had been selected on the basis of its position on elevated terrain at the 600 feet contour. The cover was a mix of young trees, saplings, shrubs and assorted low plants. The entire test area was quite wet and standing water was evident in most locations. Fourteen shovel tests were excavated along a series of north-south transects and none produced either prehistoric or historic materials (Table 5). In addition to the drainage issue there were also indications of prior disturbance in the form of mounded soil and one large block of concrete.

Photograph 7:

General view of Test Area 3
Looking northerly

Photograph 8:

View of large concrete block
and mounded soil zone in background
in Test Area 3

Photograph 9:

Detail of cover and water in portions
of Test Area 3

Table 5: Test Area 3 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
3.1	soil cap removed and was entirely brown mud, pooled water at 20cm; abandoned			
3.2	1	0 - 16	wet silt, grass roots, brown	- - -
	2	16 - 33	heavy wet silty clay; OGM & brown	- - -
3.3	1	0 - 14	wet silt clay?, deep & dense grass roots, gray brown	- - -
	2	14 - 33	clay, wet, tough; brown	- - -
3.4	1	0 - 15	wet silt clay, dense grass roots; brown	- - -
	2	15 - 28	wet, heavy, dense clay; OGM	- - -
3.5	1	0 - 19	silt clay, dense roots, 1 stone; brown with some blobs of orange brown	- - -
	2	19 - 35	wet dense silty clay; very orange but becomes a more usual OGM with depth	- - -
3.6	1	0 - 20	wet & muddy silt clay, dense roots; brown	- - -
	2	20 - ?	dense clay, water at 24cm; brown?	- - -
3.7	1	0 - 15	wet to muddy silt clay, dense grass roots; brown	- - -
	2	15 - 30	dense clay; brown, gray & reddish brown	- - -
3.8	1	0 - 15	wet clay, grass and shrub roots; brown	- - -
	2	15 - 30	dense clay; brown & reddish brown	- - -
3.9	1	0 - 27	stiff clay w/dense roots; brown	- - -
	2	25+	roots end ca. 25cm but soil does not improve, abandoned	- - -
3.10	1	0 - 16	silt clay, roots; brown	- - -
	2	16 - 31	dense heavy clay; dark OGM w/brown	- - -
3.11	1	0 - 18	wet to muddy silt clay, heavy & dense, dense roots; brown	- - -
	2	18 - 32	wet clay, dense, some water; OGM	- - -
3.12	water pooled and muddy zone, no test			
3.13	1	0 - 16	wet to muddy silt clay or clay, dense grass roots; brown and some reddish brown	- - -
	2	16 - 28	wet dense clay; OGM	- - -
3.14	1	0 - 11	silty, moss roots, wet; brown	- - -
	2	11 - 30	compact, lightly silty sand, water at 30cm; light brown	- - -
3.15	1	0 - 20	wet to muddy clay, dense grass & shrub roots; brown	- - -
	2	20 - 35	dense clay, dense shrub and sapling roots, some water but seepage is slow after it is bailed out; brown	- - -
3.16	water pooled here is 10+cm deep, no test			
3.17	1	0 - 21	silt clay, dense grass & shrub roots; brown	- - -
	2	21 - 35	silt clay, not dense; OGM (mostly orange)	- - -
3.18	1	0 - 22	wet to muddy silty clay, grass roots; brown	- - -
	2	22 - 32	water at 22, silt clay; OGM & reddish brown; slow seepage	- - -
3.19	no test, wet zone with pooled water			

Test Area 4

This test area was selected since it seemed to have some potential as a lightly disturbed zone and it was located within the 600 feet contour. The area was a grassy, weedy zone with a few mature trees and some scattered saplings or shrubs. Thirteen shovel tests were excavated on a series of north-south transects (Table 6). One test (4.3) produced five chert flakes, a chunky piece of chert and a fragment of clear bottle glass. Five supplemental tests were excavated around this test: one produced an additional chert flake and two contained modern materials.

All of this area had been noted to be quite poorly drained and standing water became more pronounced as one moved westerly. Several shovel tests produced fragments of what appeared to be ceramic (redware) drainage tile. This assumption was confirmed when intact segments of tile were encountered. Because of the disturbance and the low frequency of artifacts this location was not designated as a new archaeological site.

Photograph 10:

Looking north, Area 4

Photograph 11:

Looking south, Area 4

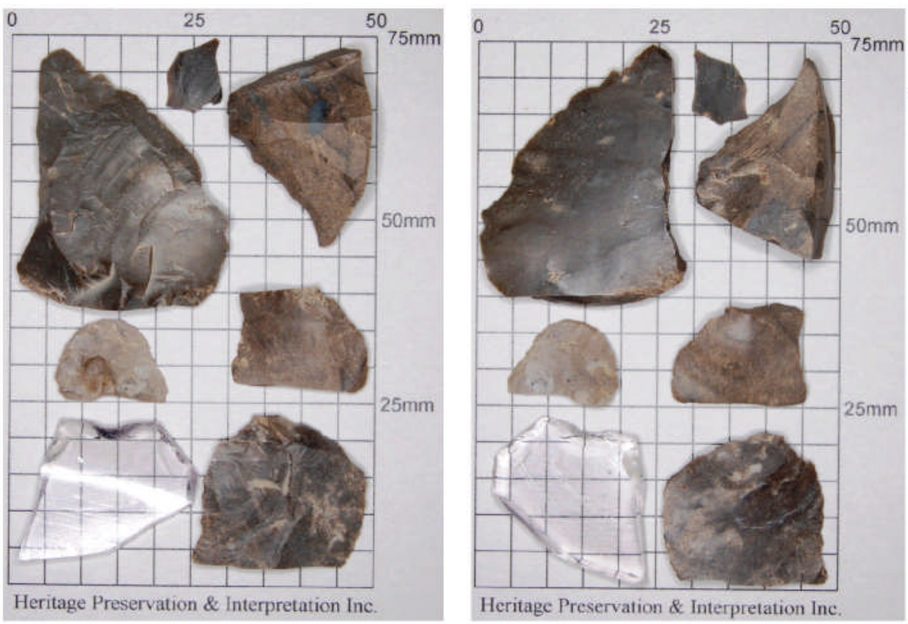
Figure 8: Distribution of Shovel Tests, Test Area 4
Westwood Country Club

Table 6: Area 4 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
4.1	1	0 - 41	wet to muddy silt clay and water, dense grass roots, water pools throughout; dark gray brown	- - -
	2	41 - 51	dense clay and water pools; OGM	- - -
4.2	1	0 - 35	sticky silt clay, dense grass roots; brown	whiteware
	2	35 - 51	stiff, heavy silty clay or clay; OGM	- - -
4.3	1	0 - 38	wet silt clay, dense grass roots, some gravel	5 chert flakes 1 chert chunk bottle glass
	2	38 - 58	stiff, heavy clay; OGM becomes mostly gray at base	- - -
Supplemental Tests at STP 4.3			30-36cm of snow cover	
5m North	1	0 - 30	silt clay w/small roots, not frozen but a bit stiff, some light gravel; dark brown	cherty piece
	2	30+	clay, very stiff; OGM with blobs of reddish brown	- - -
5m East	1	0 - 42	stiff silt clay, small roots & some larger; dark brown	coal n.c. tiny clear glass
	2	42+	silty clay; OGM	- - -
5m South	1	0 - 42	stiff and rooty silt clay, single stone and some gravel; dark brown	chert flake clear plastic
	2	42+	stiff silty clay; OGM	- - -
10m South	1	0 - 30	silt clay, many small roots, quite stiff; dark brown	- - -
	2	30+	stiff silty clay; OGM	- - -
5m West	1	0 - 32	silt clay, heavy, very rooty, would be wet if not so cold;	- - -
	2	32+	silty clay; dark OGM	- - -
4.4	1	0 - 33	wet to muddy silt clay, dense grass roots, 1 tree root; brown	- - -
	2	33 - 45	stiff clay or silty clay; reddish brown	- - -
4.5	1	0 - 34	wet silt clay, dense grass roots; dark brown	coal cinder
	2	34 - 45	stiff clay; brown to orange brown; slow seepage	- - -
4.6	1	0 - 33	muddy, sticky silt clay, dense grass roots, steady seepage; gray brown	redware
	2	33 - 46	stiff clay; OGM	- - -
4.7	1	0 - 35	wet to muddy silt clay, dense grass roots; dark brown	- - -
	2	35 - 49	silty clay, very light seepage; OGM	- - -
4.8	1	0 - 31	wet to muddy silty clay, dense grass roots, seepage	redware tile
	2	31 - 47	clay w/some gravel, redware fragments continue; more mottled with depth, also some larger stones and more gravel; some red brown and some OGM	redware tile
4.9	1	0 - 48	mud w/dense grass roots, seepage, a few cobbles, silt clay	- - -
	2	48 - 64	silty, somewhat compact, water filling test but all seems to be from Level 1; dark orange brown	- - -

Table 6—continued

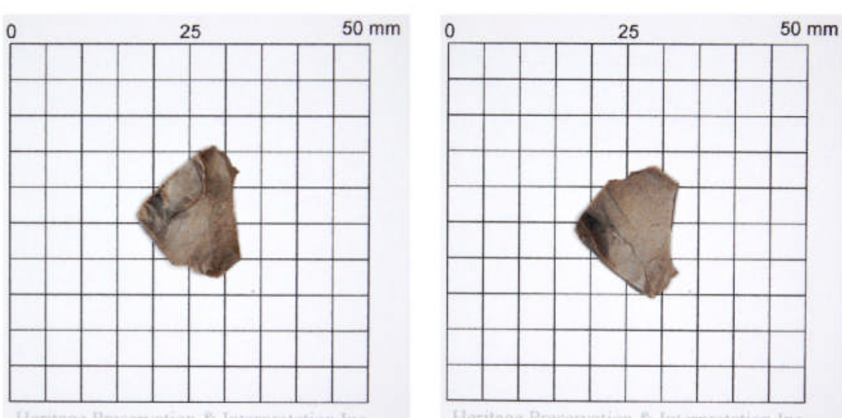
Test	Level	Depths (cm)	Soil Description	Artifacts
4.10	1	0 - 40	wet silty clay, a few cobbles, water pooling at 40cm where hit a redware drain tile trending NW/SE; abandon	
4.11	1	0 - 37	muddy silt clay, dense grass roots, seepage throughout	- - -
	2	37 - 54	compact silt clay, seepage seems to be from below; orange brown	- - -
4.12	1	0 - 34	sticky silt clay, dense grass roots & small sapling roots; heavier & denser with depth; dark brown	- - -
	2	34 - 48	dense clay; brown, lighter than level 1 and not distinct in profile	- - -
4.13	1	0 - 36	wet to muddy silt clay, dense grass roots, cobble, water fills test as being dug; brown	- - -
	2	36 - 51	dense clay, wet, water fills; lighter brown	- - -



Photograph 12a/b

Views of artifacts recovered from STP 4.3, Level 1

chert flakes and a fragment of clear bottle glass



Photograph 13a/b

Single chert flake recovered from supplemental shovel test 5m South of STP 4.3, Level 1

Test Area 5

This area was selected primarily because it was on the 600 feet contour. It is the proposed location of a major access road. Field inspection found the location to be less than expected and there were no indications of its occupying an elevated position. One prominent elevated feature was present but it was an artificial construct. The area was tested during a warming period and the melting snow highlighted regularly spaced furrows across the landscape which appeared most likely related to providing better drainage.

A single line of shovel tests was excavated across this area and none were productive of either prehistoric or historic cultural material.

Table 7: Test Area 5 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
5.1	1	0 - 26	sticky silt clay, dense grass roots; brown	- - -
	2	26 - 37	clay, no seepage but surface wet and water pooled; red brown or reddish brown	- - -
5.2	1	0 - 27	sticky, compact clay silt; brown	- - -
	2	27 - 40	lightly sandy silt, rapid seepage at base; OGM	
5.3	1	0 - 15	dense silty clay, grass roots, citronella ants; brown	- - -
	2	15 - 60	clay and silt clay, mixed in a manner that seems to to confirm this is an artificial construct	- - -
5.4	1	0 - 27	compact sticky clay silt; light brown	- - -
	2	27 - 47	stiff silt clay, light seepage; pale OGM	- - -
5.5	1	0 - 23	wet, compact, sticky clay silt mix; brown	- - -
	2	23 - 36	dense clay; reddish brown	- - -

Figure 9: Distribution of Shovel Tests, Test Area 5
Westwood Country Club, Amherst, New York

Photograph 14:
Looking north from the south end of the single transect
used to test across Area 5

Photograph 15:
View of vicinity of Test Area 5 showing furrows that have been
identified as drainage enhancement features.

Test Area 6

This area was selected because it was located on the 600 feet contour and it was near an apparent former stream channel. Field inspection determined that the earlier assumption of the area's proximity to a waterway was erroneous. Additionally, the area had been subject to previous disturbance from existing golf course features and a former structural component. The structural features consisted of several concrete slabs as shown in Figure 10 and appear to be the supports for a former water tower noted on topographic maps.

No shovel testing was conducted in this Test Area.

Photograph 16:

General view of locale of structural features in Test Area 6. Peripheral slab in foreground (ca. 70cm x 70cm). Apparent remnants of a former water tower.

Photograph 17:

View of central slabs, structural feature. Test Area 6

Figure 10: Structural features located in Test Area 6.

Inset is a sketch map showing approximate orientation of concrete slabs. These represent supports for a former water tower.

Test Area 7

This area was selected as it was thought to have been a relatively undisturbed locale. That assumption was in error and probably the result of poor map/aerial photograph interpretation. The area was located immediately adjacent, and northwest of, the golf course's maintenance buildings. A part had been previously disturbed by the construction of an elevated tee. Shovel tests were excavated to the west of the tee to expose soil profiles and compare them to the other test areas. Eight of a possible ten tests were excavated along three test transects. The two tests not dug were skipped due to standing water. All of the soils were wet and none produced any prehistoric artifacts. Modern material was noted in two tests.

Table 8: Area 7 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
7.1	1	0 - 27	damp to wet sticky clay loam, some angular stones; dark brown	- - -
	2	27 - 39	dense clay, seepage from base; light brown	- - -
7.2	1	0 - 33	sticky silty clay, wet, a few stones; dark brown	- - -
	2	33 - 46	clay, one cobble; brown	- - -
7.3	1	0 - 26	wet silt clay, a few tree roots; dark brown	clinker/slag.
	2	26 - 37	clay, some roots, seepage only evident in L1; brown	- - -
7.4	water zone			
7.5	1	0 - 35	wet to muddy silt clay, many roots; dark brown	- - -
	2	35 - 52	wet sandy (coarse grit) silt clay, seepage throughout; reddish brown	- - -
7.6	1	0 - 30	clay silt mix, small roots, not wet; dark brown	- - -
	2	30 - 44	silt clay, heavy & dense, light seepage from base; lighter brown than Level 1	- - -
7.7	1	0 - 28	silty, many small roots 10YR 3/3	- - -
	2	28 - 41	dense clay, very tough to dig; brown	- - -
7.8	1	0 - 28	wet then compact silt, grass roots; dark brown	- - -
	2	28 - 43	dense clay; brown	- - -
7.9	no test, water			
7.10	1	0 - 25	wet but solid silt clay, shale or slate fragment	PVC fragment clear glass
	2	25 - 38	dense clay, hard to dig; brown	- - -

Photograph 18:

General view of Test Area 7, looking easterly.
Elevated tee in background.
Single test transect ran north to south (left to right in photograph).

Figure 11: Distribution of Shovel Tests, Test Area 7
Westwood Country Club, Amherst, New York

Test Area 8

This area was selected because it was along an extinct meander of Ellicott Creek. This alone made it the single most archaeologically sensitive area within the project. Shovel testing along this section of the project was begun on the southern and/or western side of the former creek channel. Tests were placed at 15m intervals where possible but none were located on any of the golf courses active features (tees, greens, fairways). In general, the southern/western side of the old channel appeared to be ideally suited for past occupations. It was significantly elevated form the former waterway and these adjoining lands were relatively level. Many areas would have been suitable for a broad range of site types from fishing/hunting camps to larger and longer term settlement.

Twenty-four shovel tests were initially excavated in this Test Area (Table 9), eighteen on the southern and/or western side of the old creek channel and six on its lower, opposite bank. Six shovel tests contained prehistoric artifacts in the form of chert debitage (flakes and shatter). One of those also contained an assortment of historic artifacts that have been assumed to be associated with an historic structure foundation and walkway. Five of the positive tests were located on the southern/western side of the creek channel and one was on the opposite bank.

The most extensive area of prehistoric activity was identified in the southeast portion of Test Area 8. Initial testing to the west of a fairway (STP 8.1 and 8.2) produced multiple pieces of chert debitage. A test excavated east of the noted fairway and west of a small utility building (STP 8.3) also produced multiple pieces of chert debitage as well as a few historic/modern items. It has been assumed for now that this distribution of positive tests is indicative of a larger occupation zone which will require additional testing and would be best investigated through a Phase 2 level study. The location has been recorded as the Westwood 1 Pre-Contact site (OPRHP Site number A02902.001323).

Shovel test 8.4, which was located 15m west of STP 8.1, also contained a single chert flake but was primarily the location of an assortment of historic artifacts that included ceramics, refuse bone, metal, and glass. The flake may represent a western extension of the Westwood 1 site which overlaps this historic component. The scatter of historic material very probably represents a midden deposit that should extend down the former creek bank. The materials are considered to be associated with an historic foundation located to the southwest of STP 8.4. The foundation, which is quite visible, was oriented east-northeast/west-southwest and measured ca. 7m wide by ca. 15m long with an apparent cellar hole on its eastern side. A L-shaped walkway consisting of nine concrete slabs is also present on the east. This location also requires additional testing and is another location that would best be investigated through a Phase 2 level study. It has been recorded as the Westwood Historic site (OPRHP Site number A02902.001326.

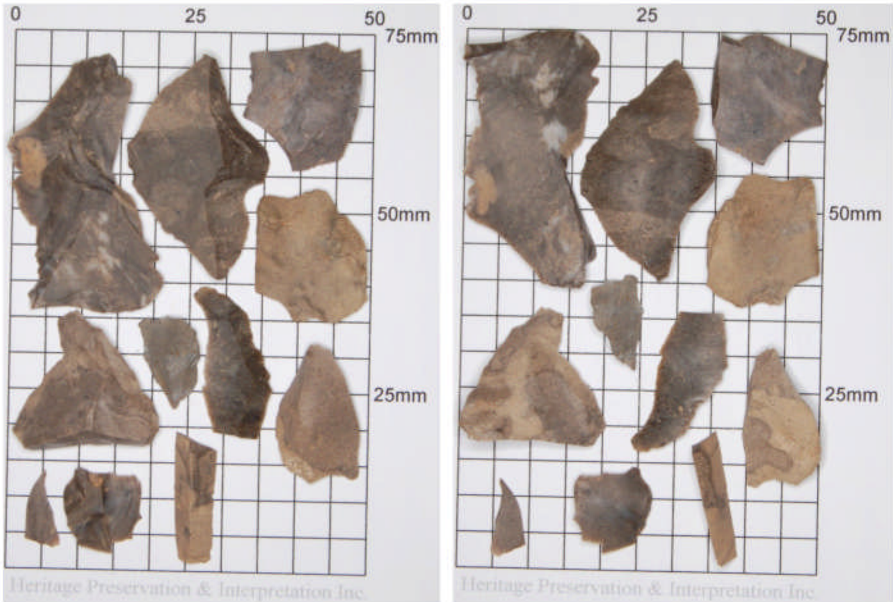
Shovel test 8.8, excavated in the area of a cluster of trees with very 'knobby' trunks. The test produced a single chert flake. Four supplemental tests were excavated around this find spot—one each in the cardinal directions and five meters from the original shovel test. None of those tests produced any additional prehistoric artifacts but several did show previous disturbance in the form of mixed soil levels and cinder deposits. No site number was assigned to this location and no additional investigation has been recommended.

Shovel test 8.16 was positive for a small chert flake fragment and a small fragment of redware. The test was located on a spot that was significantly elevated above the former stream channel. It was also north of an easterly trending broad cut through the old stream bank. That feature may represent a former tributary drainage that was widened by the golf course. Some landscaping seemed likely in the find area as the depth of Level 1 soil was less than had been observed elsewhere. This locale also had the appearance of having been leveled. Four supplemental shovel tests were excavated around this find spot. Those done to the east and north were each 5m from the original test and were negative. One test located 5m to the west contained a another small chert flake. A test placed 10m to the west was negative. All of the supplemental tests in this area had shallow Level 1 soils compared to other locations. The location has been assigned a formal site number (OPRHP A02902.00324) and has been identified as the Westwood 2 Pre-Contact site. Because of the limited quantity of artifacts recovered and the apparent landscaping done here, no additional study is recommended.

Shovel test 8.19 was the first test excavated on the lower, eastern or northern side of the former creek channel and it was positive for chert debitage (7 flakes, 1 shatter) in Level 1. The test was located to the west of a fairway and atop the former low creek bank. Four supplemental tests were excavated around this find spot, one each in the cardinal directions and 5m distant. Two of these supplemental tests were positive for additional prehistoric material. The test to the west produced fifteen chert flakes and the test to the south had a single chert flake. This location has been identified as the Westwood 3 Pre-Contact site (OPRHP Site number A02902.001325). The site is in an area on the margin of proposed future developments. If the site is found to be within a zone that will be disturbed then Phase 2 level study is recommended. If the site is outside a zone scheduled for immediate development then the area should be identified on base maps and avoided by any future construction.

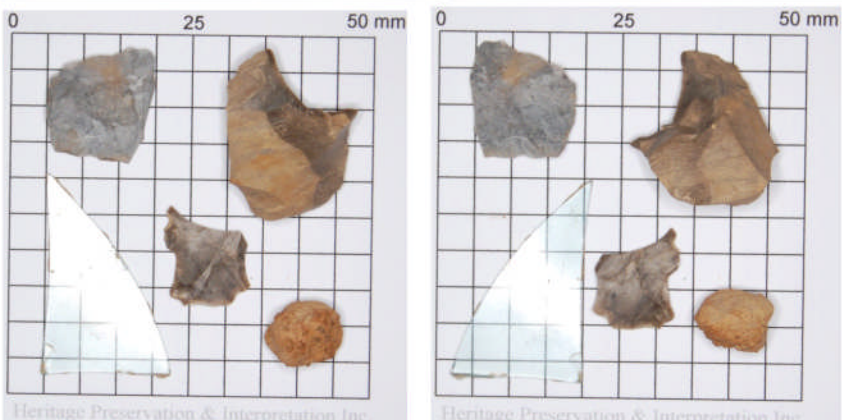
Figure 12:

Distribution of Shovel Tests, Test Area 7 and Locations of Archaeological Sites Recorded by the Phase 1b Survey



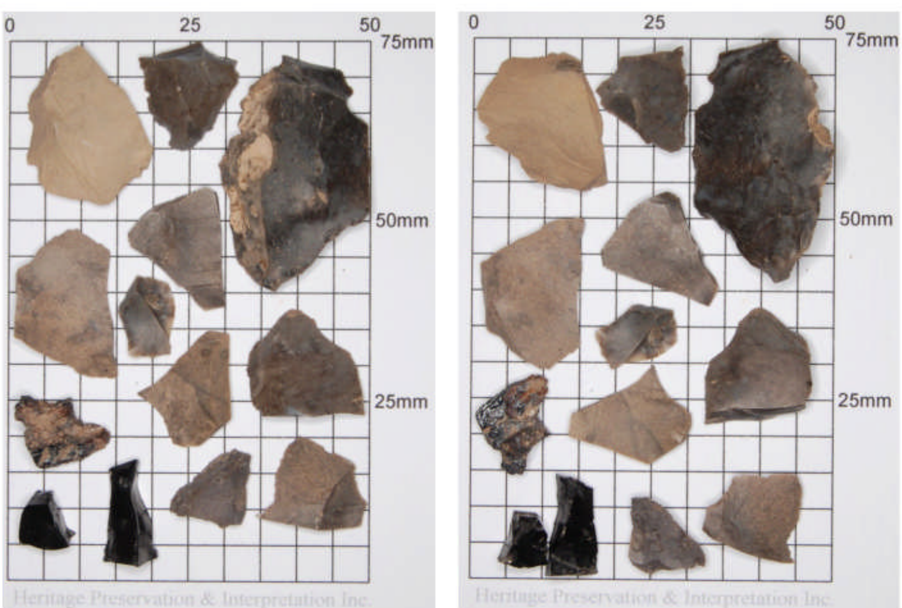
Photograph 19a/b

Artifacts recovered from
STP 8.1, Level 1



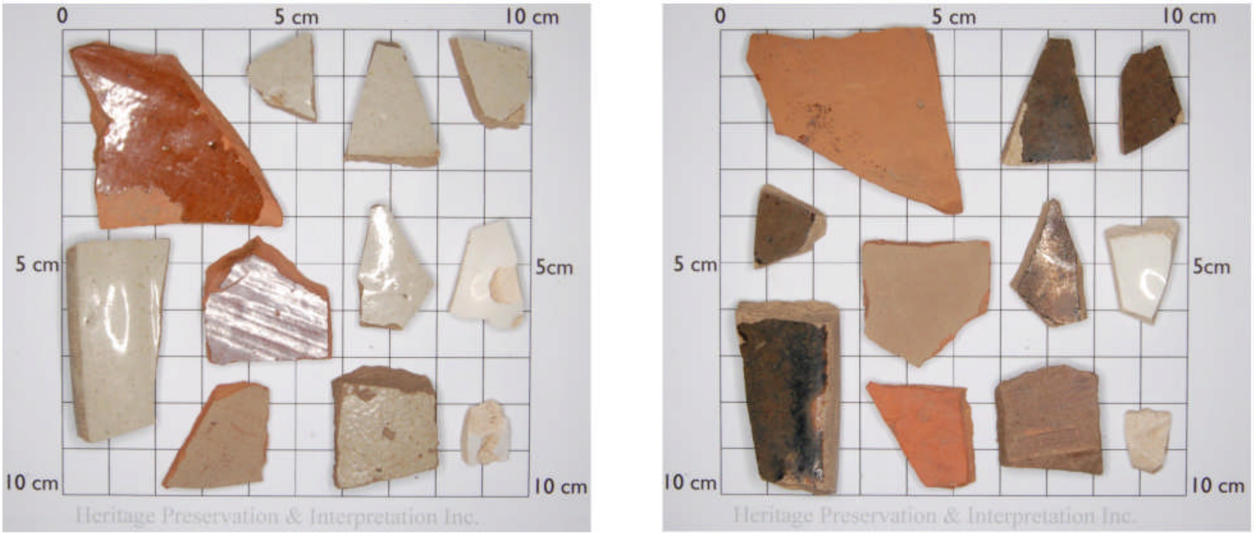
Photograph 20a/b

Artifacts recovered from
STP 8.2, Level 1

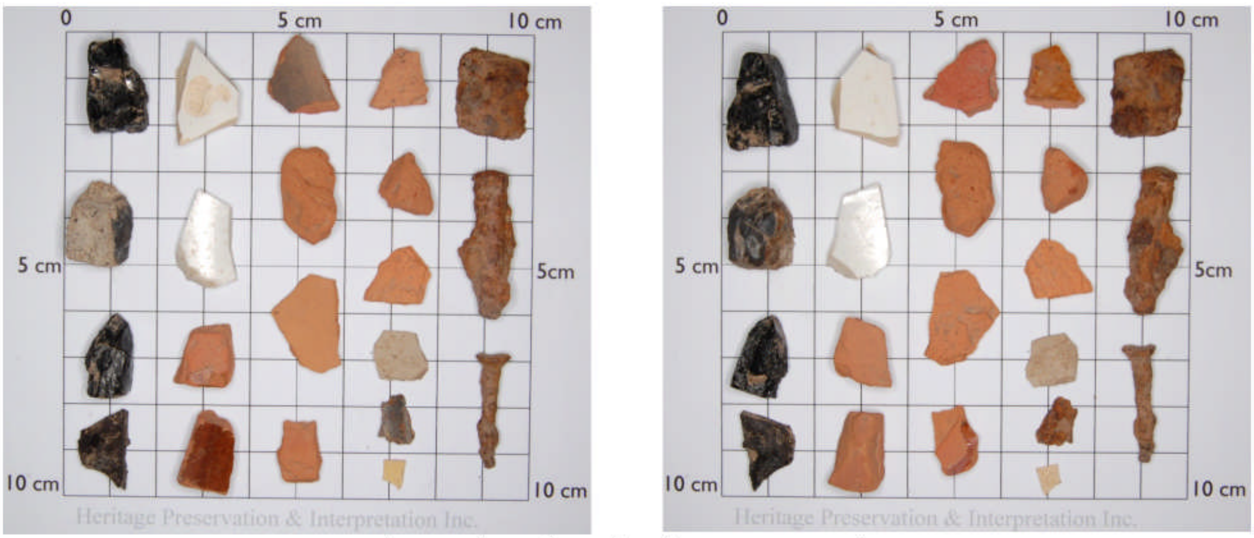


Photograph 21a/b

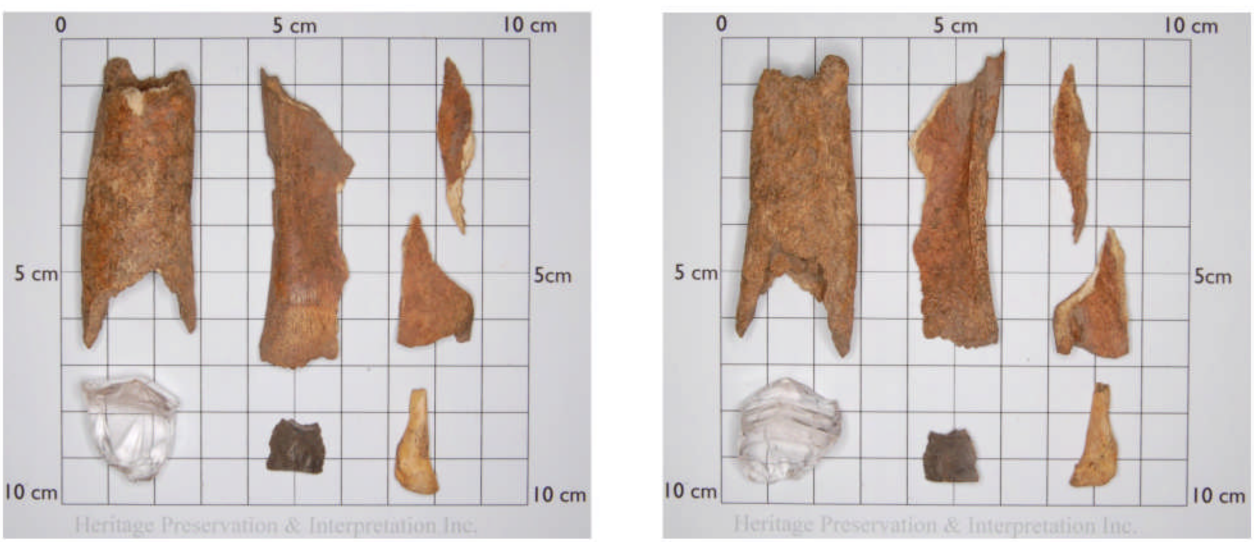
Artifacts recovered from
STP 8.3, Level 1



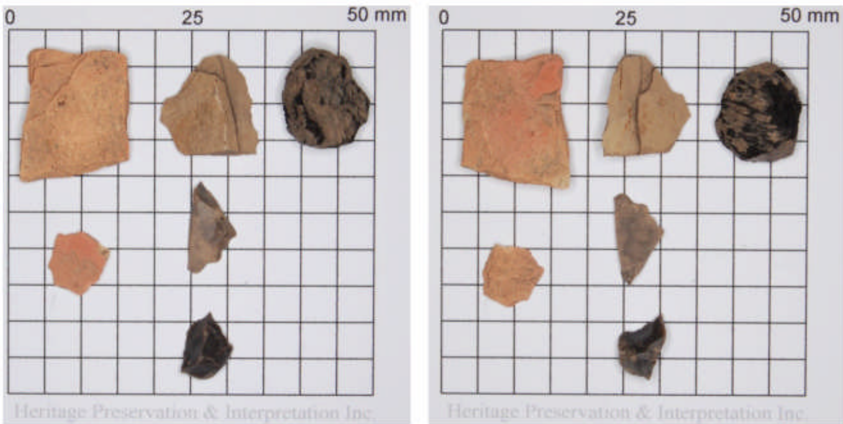
Photograph 22a/b: Artifacts from STP 8.4, Level 1



Photograph 23a/b: Artifacts from STP 8.4, Level 1

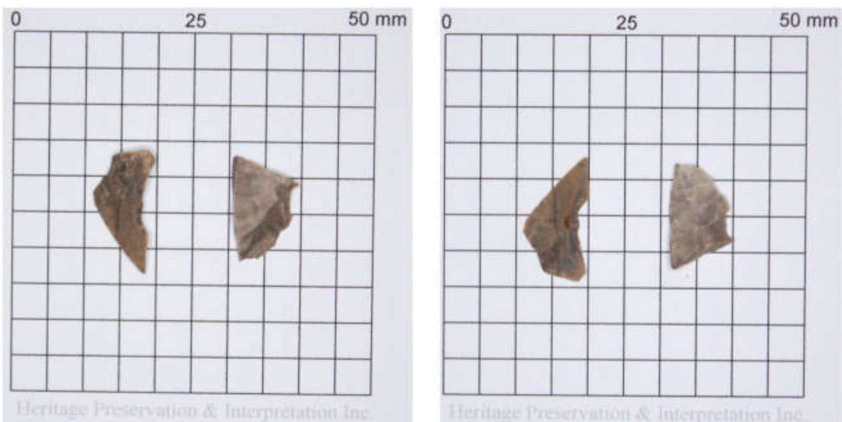


Photograph 24a/b: Artifacts from STP 8.4, Level 1



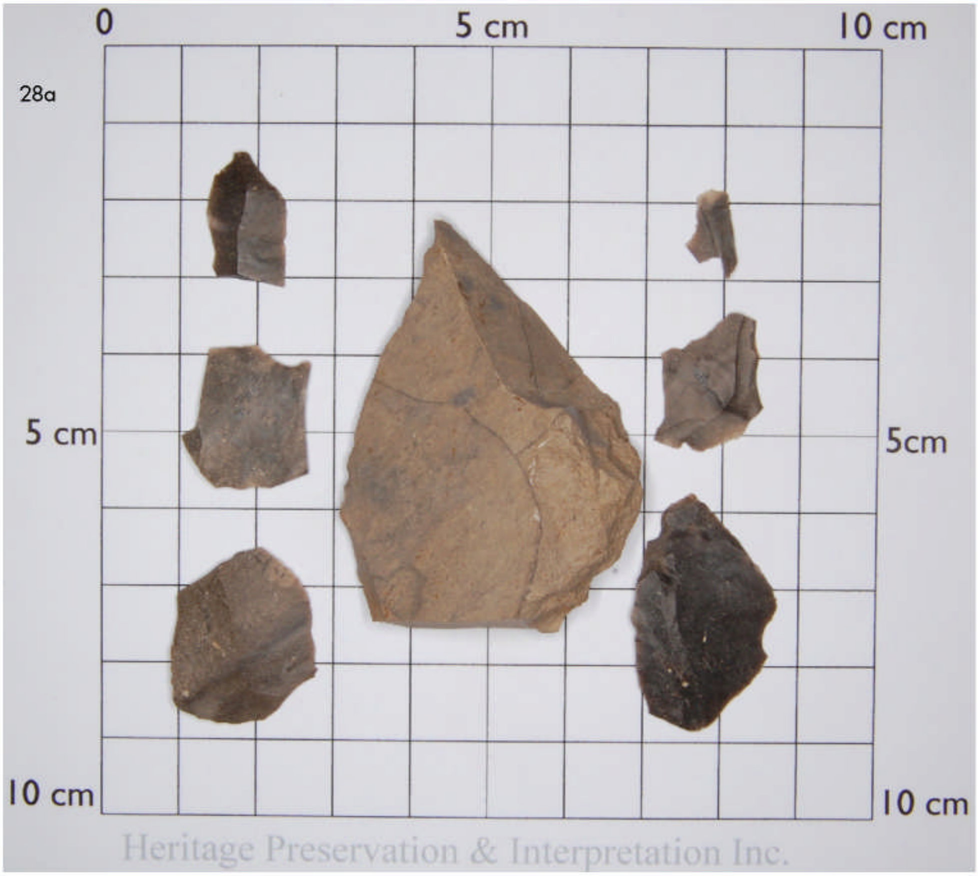
Photograph 25 a/b

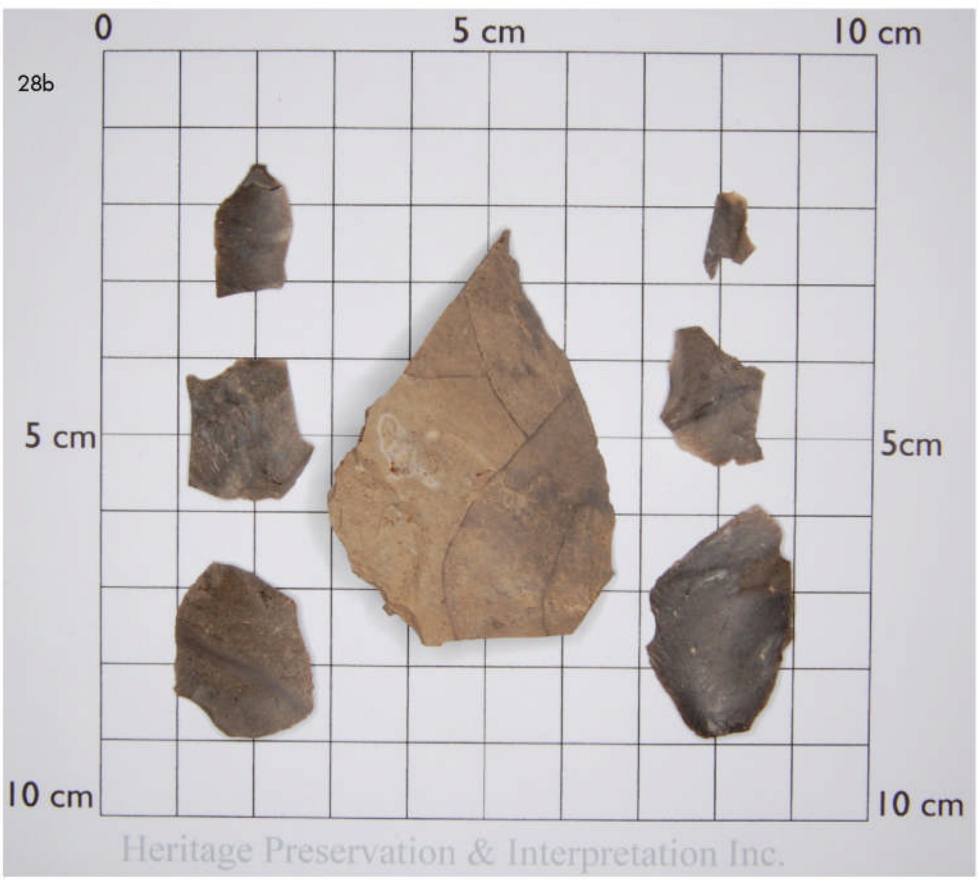
Chert flakes recovered from
STP 8.16. Level 1



Photograph 26 a/b

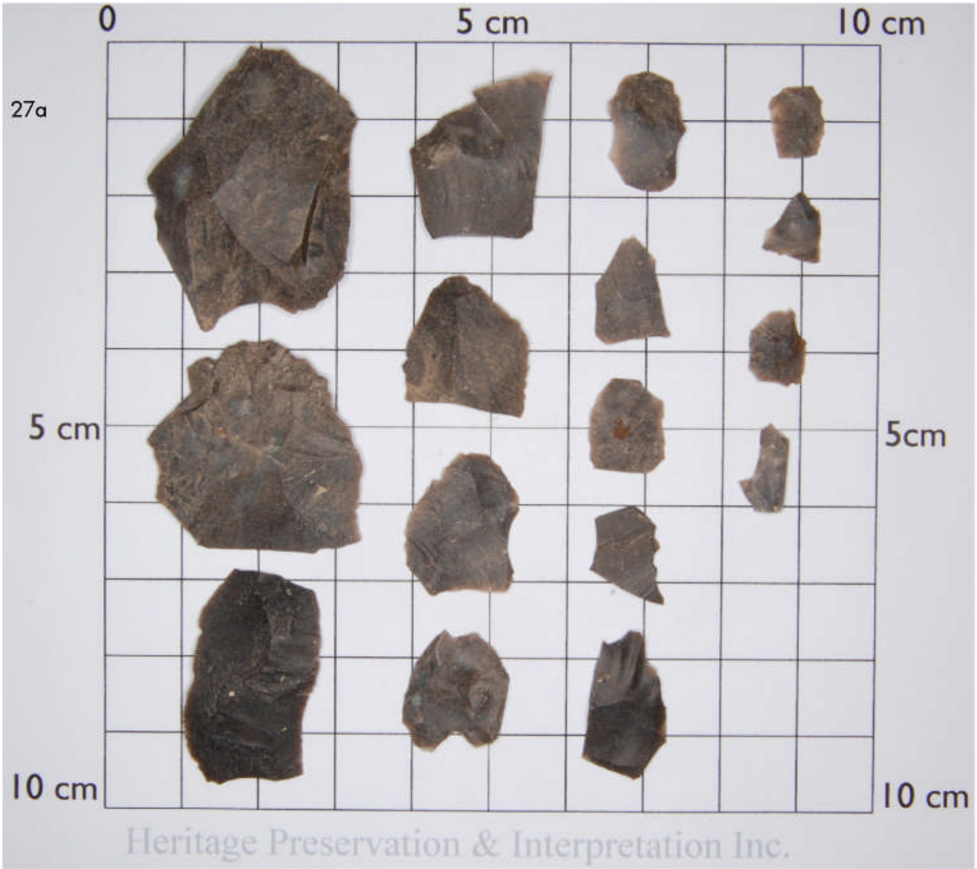
Chert flakes recovered from
Supplemental Shovel Test
5m West of STP 8.16





Photograph 27a/b

Artifacts recovered from STP 8.19, Level 1



Photograph 28a/b

Chert flakes recovered from Supplemental Test 5m south of STP 8.19

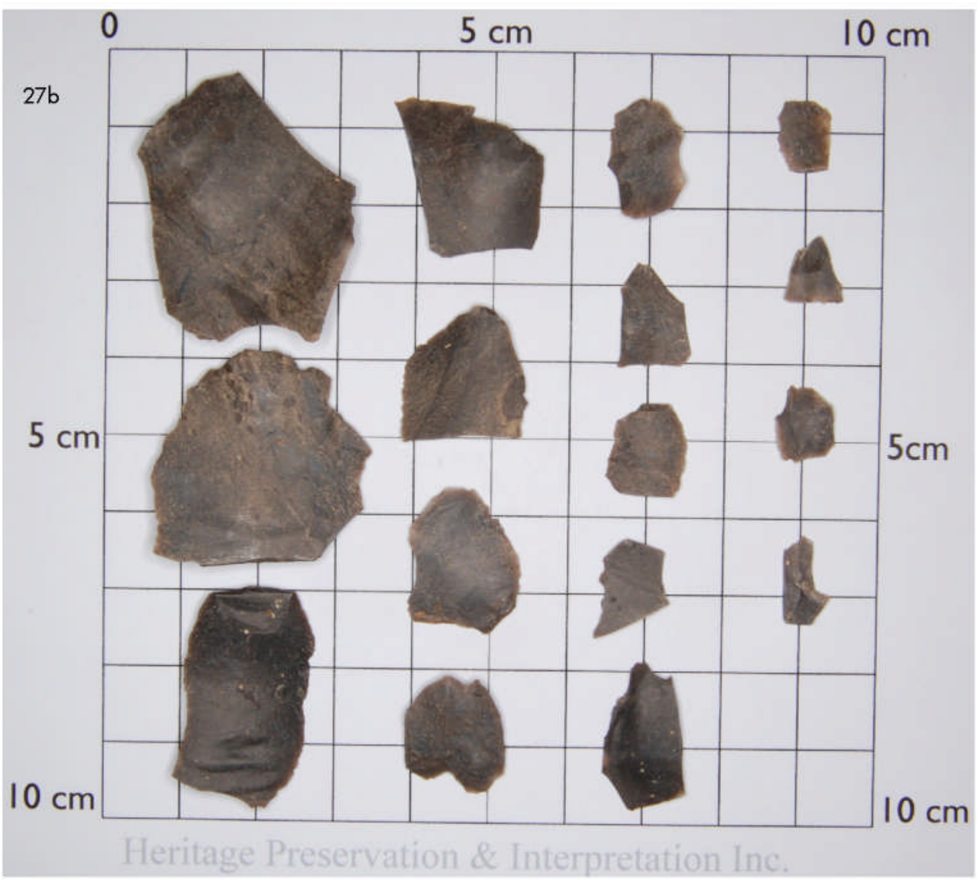


Table 9: Area 8 Shovel Test Summary

Test	Level	Depths (cm)	Soil Description	Artifacts
8.1	1	0 - 28	sandy silt loam, some tree roots; 10YR 4/3	11 chert flakes
	2	28 - 42	silt clay; deep brown	- - -
8.2	1	0 - 27	silt loam, quite dry; 10YR 4/3	2 chert flakes 1 chert shatter 1 glass
	2	27 - 42	silt clay mix; reddish brown	- - -
8.3	1	0 - 30	compact clay silt, grass roots; 10YR 3/3	8 chert flakes 2 chert chunks coal cinder
	2	30 - 38	dense clay; reddish brown	2 chert flakes tiny
8.4	1	0 - 25	silt loam, grass roots; 10YR 3/3	stoneware redware bottle glass refuse bone metal/nail 1 chert flake
	2	25 - 36	dense clay; OGM and reddish brown	- - -
8.5	1	0 - 21	sticky damp silt; 10YR 3/3	whiteware wire 'clam' shell
	2	21 - 34	dense clay; OGM and reddish brown	- - -
8.6	1	0 - 21	cinder zone; black	nails
	2	21 - 27	ash/cinder zone, some large stones; gray	- - -
	3	27 - 40	very lightly sandy silt clay; OGM	- - -
8.7	1	0 - 18	compact silt or silt clay, sandy spots; 10YR 4/2	clear glass coal
	2	18 - 33	dense silty clay; OGM	- - -
8.8	1	0 - 30	sandy silt loam; 10YR 4/3	chert flake?
	2	30 - 50	silty sand; light brown w/some orange brown	- - -
	3	50 - 58	clay; OGM	- - -
Supplemental Tests at 8.8			variable snow cover to 30cm	
5m North	1	0 - 28	silt loam, small roots, a few cobbles; rich dark brown (top 6-7cm frozen)	- - -
	2	28 - 47	lightly silty sand; mixed dark gray, orange brown, and light brown	- - -
5m East	1	0 - 21	silt loam, small roots; rich dark brown (cap not frozen)	golf ball 14cm
	2	21 - 42	mixed zone—fill?—silt clay, clay and some sand, gravel. cobbles and one large chunk of lime?; OGM and brown	- - -
	3	42 - 75	silty sand; dark gray grades to brown at base	- - -

Test	Level	Depths (cm)	Soil Description	Artifacts
5m West	1	0 - 25	silt atop a cinder zone; dark brown above cinders	rusted nail n.c. coal
	2	25 - 37	compact silt, not mottled, appears natural	- - -
5m South	1	0 - 16	rich brown silt or silt loam;	- - -
	2	16 - 27	cinder zone	- - -
	3	27 - 42	compact silt or silt loam; OGM	- - -
8.9	1	0 - 12	silt; 10YR 3/3	- - -
	2	12 - 30	cinder zone	ceramic frag.
	3	30 - 42	dense clay; brown w/gray	- - -
8.10	1	0 - 14	silt; 10YR 4/3	- - -
	2	14 - 22	cinder zone	- - -
	3	22 - 30	silt & stones, one very large	- - -
	4	30 - 41	sandy silt clay; brown	- - -
8.11	1	0 - 13	lightly sandy silt; 10YR 4/3	- - -
	2	13 - 20	cinder zone, dense	- - -
	3	20 - 30	clay & large stones, densely packed; brown & orange brown	- - -
8.12	1	0 - 24	lightly sandy silt; 10YR 4/3	- - -
	2	24 - 33	cinder zone, dense, a bit wet	- - -
	3	33+	rock and clay zone; brown	- - -
8.13	1	0 - 17	compact silt clay; brown	
	2	17 - 31	clay, not dense; OGM	- - -
8.14	1	0 - 16	compact dense silt clay; gray to gray brown	redware
	2	16 - 27	dense clay; reddish brown	- - -
8.15	1	0 - 12	compact silty clay; gray brown	- - -
	2	12 - 23	clay; dark brown	- - -
8.16	1	0 - 11	compact, somewhat sandy silt or silt clay; 10YR 3/3	chert flake small frag redware
	2	11 - 21	dense clay, some roots; brown w/gray	- - -
Supplemental Tests at 8.16			ca. 18cm snow cover	
5m East	1	0 - 19	silt or silt clay, roots, quite stiff; very dark brown (top 8cm frozen)	- - -
	2	19+	dense clay w/roots; dark brown	- - -
5m North	1	0 - 16	clay silt, roots, very stiff; dark brown (top 7cm frozen)	- - -
	2	16+	very dense clay; reddish brown	- - -
5m West	1	0 - 14	silt clay, roots; brown (cap not frozen)	small flake
	2	14 - 30	dense clay; OGM & reddish brown	- - -
10m West	1	0 - 15	silt, many small roots; very dark brown (top 5cm frozen)	- - -
	2	15+	dense clay; OGM	- - -

Test	Level	Depths (cm)	Soil Description	Artifacts
8.17	1	0 - 15	silt or silt clay, some gritty spots, small tree roots; gray brown	- - -
	2	15 - 26	dense clay, roots continue; OGM	- - -
8.18	1	0 - 26	compact silt, roots; gray brown	- - -
	2	26 - 34	silty clay, roots continue; OGM	- - -
Following tests were on opposite side of former stream channel				
8.19	1	0 - 28	lightly sandy silt loam, roots; 10YR 4/3	7 chert flakes 1 chert shatter
	2	28 - 42	silty sand w/some areas of clay; OGM	- - -
Supplemental Tests at 8.19			30cm+ snow cover, cap not frozen on any test	
5m North	1	0 - 27	damp sticky silt, dense grass roots; light brown	- - -
	2	27 - 40	clay silt, not compact; dark OGM	- - -
5m East	1	0 - 27	silt or clay silt, grass roots; brown	- - -
	2	27 - 37	compact silt clay; dark OGM w/dark inclusions	- - -
5m West	1	0 - 30	wet, sticky silt or clay silt, dense grass roots; brown flakes from ca. 25cm to subsoil interface	15 chert flakes
	2	30 - 57	silt to silt clay, not compact; OGM	- - -
5m South	1	0 - 27	silt or clay silt, grass roots, a few small tree roots; brown	1 flake/shatter
	2	27 - 40	silt clay, very easy to dig; OGM	- - -
8.20	1	0 - 26	clay loam?, many roots; gray brown	- - -
	2	26 - 41	silty clay; brown, quite uniform	- - -
8.21	1	0 - 32	silt loam, some tree roots; gray brown	- - -
	2	32 - 46	soft, damp and very easy to dig, soil is somewhat plastic so call it lightly sandy clayey silt or silt loam	- - -
8.22	1	0 - 27	silty loam, grass roots, no stones; brown	- - -
	2	27 - 40	silty clay, no stones, no roots, not compacted; brown	- - -
8.23	1	0 - 27	lightly sandy silt loam, grass roots; brown	- - -
	2	27 - 37	compact sandy silt loam; orange brown	- - -
8.24	1	0 - 32	lightly sandy silt loam, some small roots; 10YR 4/3	- - -
	2	32 - 47	compact sandy silt; OGM to orange brown	- - -

Photograph 29
Looking westerly, area of STPs 8.1, 8.2, 8.4 (A02902.001323 and 1326)
Historic foundation is in area of shrub on extreme left of photograph (A02902.001326)

Photograph 30
Looking easterly from STP 8.1 across fairway to area of STP 8.3.
This is currently the eastern extent of site A02902.001323, Westwood 1 Pre-Contact.

Photograph 31

Looking westerly towards area of STP 8.8

Location of a single chert flake find. Supplemental tests indicated disturbance and no additional prehistoric artifacts were recovered.

Photograph 32

Looking northerly towards area of STP 8.16.

Area was recorded as site A02902.001324, Westwood 2 but no additional work has been recommended due to sparse material and previous disturbance.

Photograph 33

Looking easterly at STP 8.19.

This tests produced multiple chert flakes and supplemental tests recovered additional material. Site recorded as Westwood 3 Pre-Contact, A02902.001325.

Photograph 34: Area of Westwood Historic Site, Looking southeast.

Photograph 35

Looking southwesterly
Area of Westwood Historic Site
Cellar hole is marked by snowy
area to right of shrub

Photograph 36

Detail, cellar hole area at
Westwood Historic Site
Looking northerly

Westwood Country Club, Club House and the *Windows on the Green* Restaurant

The primary structure located on the Westwood Country Club grounds is the club house and restaurant (*Windows on the Green)* complex. The core of the structure was built in 1928 and has been identified as "Tudor-inspired". Aerial photographs from 1927 indicated that a complex of structures had existed in this general locale. However, the buildings at that point do not appear to match well with later structure footprints. A much more detailed examination of the early aerials could possibly provide better information on the extent of former structures.

The 1951 aerial photographs show the core of the current club house/restaurant present. The additions to the main building and adjoining expansions have all been constructed since that time.

Because of the sprawling nature of the complex it is very difficult to take photographs that show both the overall appearance of the structure(s). The photographs that have been included (Photographs 38 and 39) are broad exterior shots that provide a general view of the complex. No interior photographs were taken and no detailed maps or plans were readily available.

A formal site number has not yet been requested for the structure. Additional input from NYS OPRHP is required to determine the extent of, and need for, any additional research required for this component of the property.

Photograph 38: View of Main Entrance of Club House/Restaurant
This is the southern face of the building.

Photograph 39: View of the Clubhouse/Restaurant complex.
Looking south of east.

Summary and Recommendations

One hundred shovel tests were initially excavated in seven of the eight areas selected for testing. One locale, Test Area 6, was eliminated from testing due to the extent of previous disturbance and the presence of concrete pads which were determined to be supports for a former water tower. As had been somewhat expected, the majority of tests were negative for archaeological deposits or any indications of activity prior to the construction of the country club/golf course. Nevertheless, eight tests were positive for prehistoric artifacts (chert debitage) and one test was positive for historic artifacts which were generally classified as domestic items.

Table 10: Summary of Shovel Test Coverage
Selected Areas Within the Westwood Country Club

Area	Tests Excavated	Positive Tests Prehistoric Items	Positive Tests Historic Items	Supplemental Tests
Test Area 1	28	0	0	0
Test Area 2	5	0	0	0
Test Area 3	17	0	0	0
Test Area 4	13	1	0	4
Test Area 5	5	0	0	0
Test Area 6	0	0	0	0
Test Area 7	8	0	0	0
Test Area 8	24	7	1	12
Totals	100	8	1	16

Subsurface testing was conducted in seven of eight areas within the Westwood Country Club and a total of one hundred tests were excavated to complete the basic coverage. The initial testing was conducted between November 20 and December 5, 2013 with several breaks due to poor weather conditions. Supplemental testing was conducted on December 18 and 19. Conditions were far from ideal since there was a general snow cover across the project area that ranged from ca. 7 to 14 inches. Three areas (Area 1, Area 4, and Area 8) contained shovel tests that were positive for prehistoric artifacts (chert debitage).

Test Area 1

Test Area 1 was eliminated from further testing after cleaning the material collected there. The item originally collected as a chert flake had been incorrectly classified.

Test Area 4

One test excavated in this area (STP 4.3) produced five chert flakes and a single shatter-like piece from level 1. Five supplemental tests were excavated at this find spot (5N, 5E, 5W, 5S, 10S). Two of the tests produced additional chert items: one was a chunky piece and one was a small flake. There were also pieces of modern material located in some of these tests as well as in other tests across Test Area 4.

Generally, this area, like a very large portion of the Westwood property, was poorly drained. Most of the tests were noted to be wet and water usually filled the excavations. Virtually all low spots contained pooled water. The amount of water covering the surface increased as one moved to the west. The level of disturbance in this Test Area was also noticeably higher than elsewhere as evidenced by fragmented drain tiles as well as some intact drain tiles uncovered by shovel tests.

Because of the drainage issues and their associated disturbance, other obvious areas of disturbance and soil displacement, the somewhat deeper Level 1 soils, and the mix of prehistoric and modern artifacts, this locale was not recommended for assignment of a formal site number.

Test Area 8

This was an irregular area that flanked an extinct meander of Ellicott Creek. It was considered to be the most sensitive test area within the project area and the most likely to produce indications of extant prehistoric sites. That assumption appeared to be borne out by field testing. Most of the soils within this area were also markedly different from other test areas with respect to drainage. Prehistoric artifacts were recovered from four of the locations during the initial phase of testing.

1) Three shovel tests positive for multiple chert artifacts were in this locale (8.1, 8.2, 8.3) and it generally appeared to be one of the best locations along the former stream channel for any previous occupation. Two positive tests (8.1, 8.2) were located west of a fairway and were spaced 15m apart. A third positive test (8.3) was located on the east side of the noted fairway and was

west of a small utility structure. The separation between positive tests due to the presence of the fairway was at ca. 40m. No supplemental testing was done across this area because of the spread between the positive tests and the expectation that Phase 2 level testing will be required to properly evaluate the locality. It was recommended that this area be formally identified as a prehistoric/Pre-Contact archaeological site. It has been assigned OPRHP site number A02902.001323, and is designated as the Westwood Pre-Contact 1 site.

2) Approximately 40m west of the first noted area there were multiple tests with historic artifacts and one (8.4) also contained a single chert flake. The flake may indicate that the Westwood Pre -Contact 1 site extends this far west. Regardless of whether or not that it is the case the other artifacts recovered in test 8.4 and 8.5 have been tentatively identified as associated with the historic foundation to the southwest. The material has not been precisely dated but seems to cover a time range that may extend from the late-19th through early-20th centuries. Phase 2 investigations have been recommended for this location because of the nature of the site, its possible extent, and the need for larger test excavation units. The site has been recorded as Westwood Historic and was assigned OPRHP site number A02902.001326.

3) A somewhat problematic chert flake was recovered shovel test 8.8. Four supplemental tests were excavated at this find spot and were arrayed at 5m intervals in the cardinal directions. None of these tests produced any additional prehistoric material but did show previous disturbance in the form of cinder deposits and some mixed/mottled soil. No site number was recommended for this location and no additional investigation has been recommended.

4) Initial testing recovered a small chert flake fragment from a shovel test 8.16. The topographic position at this location was similar to that noted at the Westwood Pre-Contact 1 site, atop a significantly elevated position adjacent to the former creek channel. However, landscaping activity did seem to have occurred and Level 1 soil was noticeably more shallow than elsewhere. Four supplemental tests were excavated (5N, 5E, 5W, 10W) and one produced another very small chert flake. The tests did show that the shallow Level 1 soil continued across this area. It was recommended that the location be identified as an archaeological site but no additional investigation has been recommended due to the paucity of artifacts and obvious disturbance due to landscaping. The site has been assigned OPRHP site number A02902.001324 and has been recorded as the Westwood Pre-Contact 2 site.

5) This location was the first spot tested on the lower, northern or eastern, side of the extinct creek meander. Initial shovel testing recovered 7 chert flakes and a rather large piece of chert (that might be classified as a flake or shatter) from Level 1 soil. Four supplemental tests were excavated at this location, 5m distant and in the cardinal directions. The supplemental test to the west produced 15 chert flakes and the test to the south produced a single chert flake. The

flakes generally appeared to be in the lower part of Level 1 (ca. 25cm+) and at or just above the L1/L2 interface. It was recommended that the site be formally recorded and it was assigned OPRHP site number A02902.001325. It is recorded as the Westwood Pre-Contact 3 site. This location has been recommended for Phase 2 testing. However, the site may be within or on the edge of an area which may not be scheduled for future development. If it is outside the proposed development zone it should probably still be considered for additional investigation.

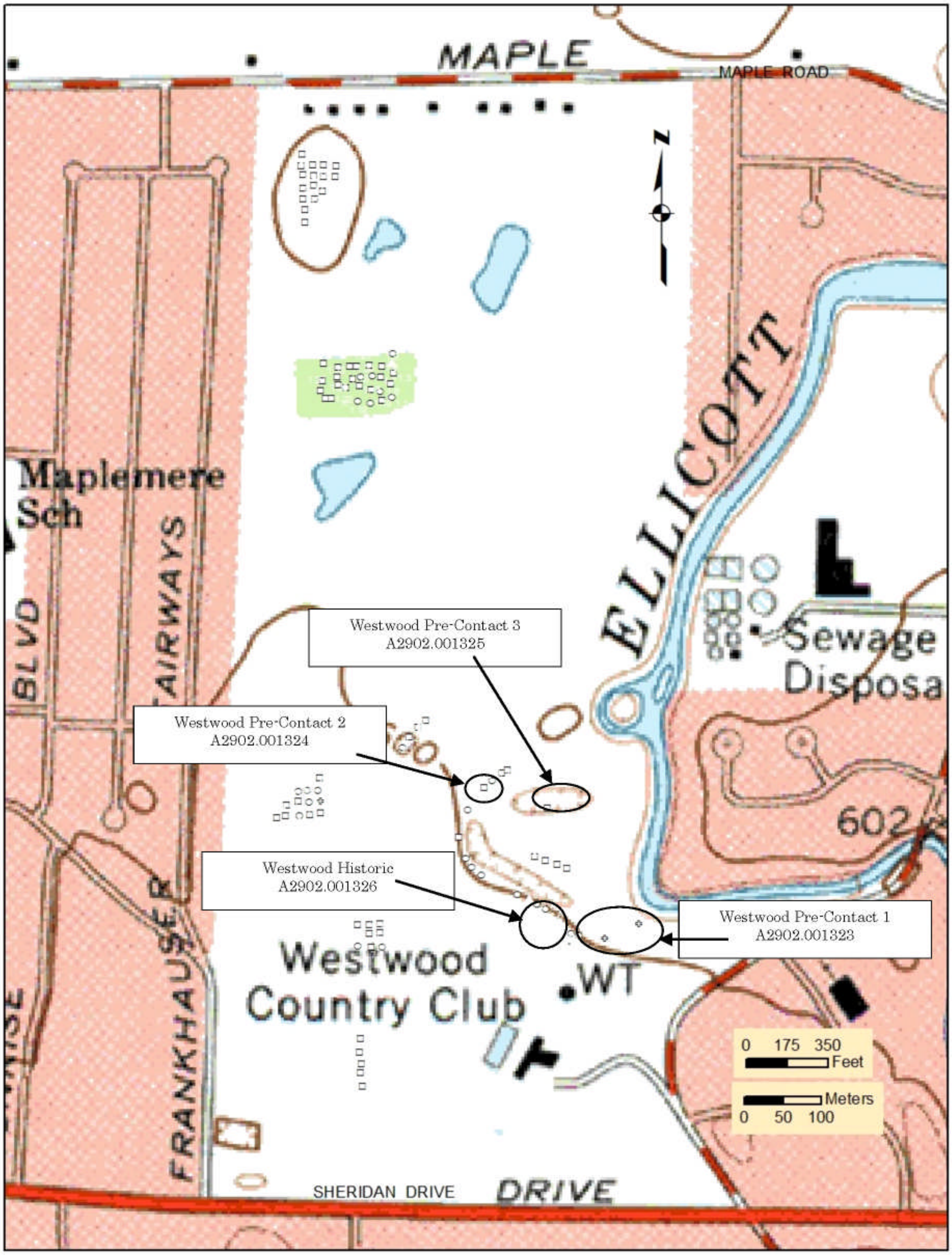


Figure 13: Location of Archaeological Sites Recorded by Phase 1B Survey
USGS 7.5' Buffalo NE Quadrangle.
Note the circle and "WT" which indicate a water tower in the area that had been designated Test Area 6.

OFFICE OF PARKS, RECREATION, HISTORIC PRESERVATION
NEW YORK STATE

New York State Office of Parks, Recreation and Historic Preservation

Division for Historic Preservation
P.O. Box 189, Waterford, New York 12188-0189
518-237-8643

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

June 10, 2014

Sean Hopkins
Hopkins & Sorgi
5500 Main Street, Suite 100
Williamsville, NY 14221
(via email only)

Re: SEQRA
Westwood County Club
Maple Rd
Town of Amherst, Erie County
12PR04942

Dear Mr. Hopkins:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the *Phase IB Cultural Resources Investigation Report*, prepared by Robert Dean and dated December 2013, in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the Division for Historic Preservation and relate only to Historic/Cultural resources.

Based upon this review, the OPRHP concurs with the recommendation for a Phase II Site Evaluation or avoidance of the Westwood Pre-Contact 1 site (A02902.001323), the Westwood Historic site (A02902.001326), and the Westwood Pre-Contact 3 site (A02902.001325). We have no further archaeology concerns with the Westwood Pre-Contact 2 site (02902.001324) or for any other portions of the current project area. If avoidance is chosen, the OPRHP requests an avoidance plan.

Please refer to the attachment for building/structure comments. I can be reached at ext. 3280 with any questions you may have.

Sincerely,

Nancy Herter

Nancy Herter
Historic Preservation Program Analyst, Archaeology

cc. Robert Dean *(via email only)*

REQUEST FOR ADDITIONAL INFORMATION BUILDINGS/STRUCTURES/DISTRICTS

PROJECT NUMBER 12PR04942

(Westwood County Club/Maple Rd/T/AMHERST)

In order for us to complete our evaluation of the historic signification of all buildings/structures/districts within or adjacent to your project area we will need the following additional information

- [ ] Full project description showing area of potential effect.
- [ ] Clear, original photographs of buildings/structures 50 years or older.

  [ ] within or [ ] immediately adjacent to the project area
  ** *key all photographs to a site map*

- [ ] Clear, original photographs of the surroundings looking out from the project site in all direction, *keyed to a site map.*
- [x] Date of construction.
- [x] Brief history of property. golf course
- [x] Clear, original photographs of the following:

  golf course typical and any outstanding design features
- [x] Other:

  History, contruction date, name of designer of golf course.

Please provide only the additional information checked above. If you have any question concerning this request for additional information, please call Robert T. Englert at 518-237-8643. ext 3268

PLEASE BE SURE TO REFER TO THE PROJECT NUMBER NOTED ABOVE WHEN RESPONDING TO THIS REQUEST