REPORT
SUBSURFACE INVESTIGATION

PROPOSED CONCORD RESORT DEVELOPMENT – OFF-SITE IMPROVEMENTS
TOWN OF THOMPSON, SULLIVAN COUNTY, NEW YORK
CONCORD RESORT DEVELOPMENT

June 1, 2012

Prepared By:
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MTA Project No.: 8979-001*1D

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June 1, 2012

Concord Resort Development
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440 Park Avenue South, 7th Floor
New York, New York 10016

Attention: Ms. Karen E. Franz, P.E., LEED, AP
Vice President

Report
Subsurface Investigation
Proposed Concord Resort Development – Off-Site Improvements
Town of Thompson, Sullivan County, New York
Concord Resort Development

Introduction

This report presents the results of a subsurface investigation performed by Melick-Tully and Associates, P.C. (MTA) for buildings to be constructed on an out-parcel as part of the overall Concord Resort Development located in the Town of Thompson, Sullivan County, New York. The area discussed in this report is located in the southeast quadrant formed by the intersection of Route 42 and Concord Road, as shown on the Site Location Map, Plate 1.

Proposed Construction

Planning for the out-parcel improvements is currently in the preliminary stages; however, information shown on plans provided to us indicates that construction of two restaurants approximately 9,600 square feet in plan area and two hotels, one approximately 130 feet by 240 feet in overall plan dimensions, and a second 180 feet by 240 feet in overall plan dimensions are planned. Preliminary information indicates that the finished floor levels of the proposed hotels

and restaurants would be established close to the existing surface grades. The site would be serviced by on-site automobile parking and access roadways and several ponds to aid in stormwater management.

Structural loading information was not provided to us at this time; however, we anticipate that the structures would impose light to moderate foundation loads and relatively light floor slab loads.

Purpose and Scope of Work

The purpose of our services was to:

1) explore the subsurface soil, rock and groundwater conditions within the proposed building areas;

2) estimate the relevant geotechnical engineering properties of the encountered materials;

3) evaluate the site foundation requirements considering the anticipated structural loads and encountered subsurface conditions;

4) recommend an appropriate type of foundation for support of the proposed structures, and provide geotechnical-related foundation design and installation criteria, including an estimate of the Site Class as defined by the Building Code of New York State, 2010 Edition, for seismic design purposes;

5) provide recommendations for the support and the need for subdrainage of the lowest level floor slabs;

6) estimate the post-construction settlements of the recommended floor and foundation systems;

7) provide geotechnical-related parameters for use in pavement design; and

8) discuss appropriate earthwork considerations consistent with the proposed construction and encountered subsurface conditions.

To accomplish these purposes, a subsurface exploration program consisting of eleven test borings was performed at the site. The borings were advanced utilizing hollow-stem auger drilling equipment mounted on an all-terrain vehicle and extended to depths varying from approximately 2 to 22 feet below the existing surface grades. The locations of the explorations are shown on the Plot Plan, Plate 2.

All work was performed under the direct technical observation of an engineer from MTA. Our representative located the explorations in the field utilizing existing site features shown on plans provided to us, maintained continuous logs of the explorations as the work proceeded, and supervised the soil sampling operations. Numerous closely spaced soil samples were obtained from the borings using the general procedures of the Standard Penetration Test. Rock core samples were obtained from two of the borings using an NQ size core barrel.

All soil and rock samples obtained from the explorations were brought to our office where they were further examined in our soil mechanics laboratory. Detailed descriptions of the materials encountered in the explorations are shown on the individual boring logs, Plates 3-0-1 through 3-0-11. The soils were visually classified in general accordance with the Unified Soil Classification System presented on Plate 4 and the Engineering Rock Classification and Core Description Chart, Plate 5.

Five of the samples were subjected to laboratory testing consisting of grain-size analyses and moisture content determinations to aid in their engineering classification and evaluation. The results of the grain-size testing are presented on Plate 6, Gradation Curves, and the results of the moisture content testing are presented on Plate 6 and on the appropriate boring logs.

The results of our subsurface exploration program, our visual examination of the soil and rock samples, and a review of the laboratory test results have provided the basis for our engineering analyses and design recommendations. The following discussions of our findings are subject to the limitations attached as an Appendix to this report.

Site Conditions

Surface Features: The majority of the new development is currently occupied by an abandoned camp with numerous one-story, bungalows in various states of disrepair. A swimming pool is located in the northwest corner of the property and trees are scattered throughout the site.

Information shown on topographic plans provided to us indicates that the majority of the site slopes gently downward from north to south from a high of approximately Elevation +1,432 feet in the north central portion of the property adjacent to Concord Road downward to approximately Elevation +1,418 feet in the southeast corner of the proposed east hotel footprint. The site then drops off sharply around the west, south and east sides of the site to a low in the southwest corner of the site of Elevation +1,400 in an area identified as wetlands.

Subsurface Conditions: The following generalized strata were encountered in the explorations and are listed in order of increasing depth:

1) Topsoil: A surficial layer of topsoil was encountered in all of the explorations. The topsoil was generally found to range from approximately eight to twelve inches in thickness.

2) Fill: Fill consisting of fine to coarse sand with some organics was encountered in Boring No. 07. The fill materials extended to a depth of three feet below grade.

3) Silty Sand: Below the surficial topsoil and fill materials, the natural soils typically consisted of silty sands containing varying amounts of gravel,

cobbles and boulders which were encountered in all of the explorations performed for this study. The sandy soils are believed to be glacial in nature and extended to the completion depths in Borings No. 4, 5, 6 and 7 of approximately 20 to 22 feet below grade. These explorations are located in the eastern portion of the site.

4) Sandstone Bedrock: In seven of the eleven borings, sandstone bedrock was encountered at depths varying from approximately 2 to 16-1/2 feet below the existing surface grades. In addition, rock outcrops were evident in the area. In two of the borings, five feet of NQ rock core was extracted.

Groundwater was encountered in six of the eleven borings at depths of approximately six to ten feet below the existing surface grades upon their completion.

Findings and Recommendations

General: Based on the results of our study, it is our opinion that:

1) The proposed restaurant and hotel structures may derive their support from conventional shallow foundations established on the undisturbed natural soils, fractured to sound sandstone bedrock, or controlled compacted fill placed to reach the desired levels. Pavements and floor slabs may also derive their support from these materials.

2) Relatively sound sandstone bedrock was encountered at variable levels throughout the property, and at relatively shallow levels in the western portion of the site. Excavations below the surface of the sandstone could be required to install utilities, foundations, and deeper building features such as elevator pits. Depending on the final grades, blasting may be required.

3) The moisture levels observed in the materials subjected to laboratory testing indicate that the natural glacial soils appear to be at or close to moisture levels which would allow compaction to 95 percent of their maximum dry density. Due to the relatively high silt content of the materials, the soils are highly susceptible to disturbance from construction traffic. Consequently, aeration and drying of materials which are wet or which are allowed to become wet should be anticipated.

4) Groundwater was encountered in six of the explorations at depths of six to ten feet below the existing surface grades. Consequently, dewatering during and after construction should be anticipated.

Further discussions of these items are presented in subsequent sections of this report.

Site Preparation and Earthwork: The site should be cleared and grubbed of all vegetation, any existing structures should be demolished, and the existing subsurface elements such as foundations or utilities should be removed and the resulting demolition rubble legally disposed of off-site. After clearing, grubbing and demolition, the topsoil should be stripped for its full depth from within and at least ten feet beyond the proposed building and pavement areas. The topsoil would not be suitable for reuse as controlled compacted fill or backfill in building or paved areas.

Existing fill was only encountered in B-07, but due to the previous site development, fill will likely be present in other areas. All fill materials should be removed from within and at least ten feet beyond the limits of the proposed buildings.

After clearing and stripping, and prior to placement of controlled compacted fill in the areas to be raised, the exposed subgrade materials should be proofrolled and compacted to a dense and unyielding consistency with several passes of a heavy, self-propelled vibrating drum compactor with a minimum static drum weight of ten tons under the observation of a qualified geotechnical engineer from MTA. Any subgrade materials which appear to be soft or unstable should be excavated to the surface of competent soils and backfilled with controlled compacted fill. We believe that the majority of the soils exposed after stripping of the topsoil will consist of silty sands. These materials are susceptible to softening and disturbance once subjected to construction equipment traffic and changes in moisture content. Consequently, some aeration and drying of the in-place materials may be required in order to achieve a stable subgrade.

The majority of the on-site soils were observed to consist of silty sands with varying amounts of cobbles and boulders. The moisture content tests performed on samples obtained

from the explorations indicated that the materials are at or close to contents required for reuse as controlled compacted fill. However, if the earthwork operations are performed during or following periods of wet or freezing weather, compaction of the on-site soils to the required degree may be difficult.

Any imported fill required to complete the site grading within the building and paved areas should consist of uncontaminated, relatively well-graded granular soils containing less than 15 percent by weight of material passing a U.S. Standard No. 200 sieve and a maximum particle size of six inches. The fill supplier should provide documentation of the environmental quality of all imported fill.

All materials placed in building and paved areas should be spread in layers on the order of twelve inches or less in loose thickness and uniformly compacted to at least 95 percent of its maximum dry density as determined by the ASTM D-1557 test procedure. Backfill placed in confined areas such as foundation or utility trench excavations should be spread in thinner layers and uniformly compacted to similar densities using manually operated compaction equipment.

All construction excavations should be performed in accordance with the most recent OSHA Excavation Guidelines and governing safety codes. Based on the results of our explorations, we believe that the existing site soils would be considered a Type "C" soil as defined by the latest OSHA Excavation Regulations. Excavation side slopes should be flattened as necessary to maintain safe excavations or should be adequately braced.

Sandstone bedrock was encountered in seven of the borings at depths of approximately 2 to 16-1/2 feet below the existing surface grades. The rock depths were relatively shallow in the western portion of the property. Rock cores utilizing an NQ size core barrel which yields a rock

core approximately two inches in diameter were advanced in Borings B-08 and B-010. Approximately five feet of rock was cored at each boring and the rock was observed to generally grade sounder with depth. We believe that excavations could extend a few feet below the surface of the highly weathered portions of the bedrock using rippers, or large excavators fitted with rock teeth. Excavations below sounder portions of the bedrock could likely extend only a nominal depth below the sound rock using heavy construction equipment. In confined areas such as foundation or utility trench excavations, it should be anticipated that some blasting or extensive jackhammering may be required to achieve the proposed construction subgrade levels. In the two western buildings, based on the existing topography and currently anticipated finished floor levels, rock will be present in footing trenches. The depth to rock should be considered when contemplating the final building design levels and anticipated utility installation levels.

Groundwater was encountered at depths of approximately six to ten feet below the existing surface grades in six of the borings. We believe that water seepage will be variable in intensity, but that the majority of the site groundwater can be controlled by pumping from sumps located within or adjacent to the construction excavations. The contract documents should require the contractor to provide the equipment and whatever means necessary to maintain relatively dry excavations at all times.

Groundwater seepage above the levels encountered in the explorations should be anticipated, at least on a seasonal basis. We recommend the site stormwater utilities be installed as early as possible and be bedded in clean, three-quarter inch stone in order to intercept groundwater seepage to the extent possible.

Foundation Design Criteria: Following the previously described site preparation procedures, the proposed structures could be supported by conventional shallow foundations which derive their support from the undisturbed natural sandy soils, sandstone bedrock or controlled compacted fill installed to achieve the proposed floor slab subgrade levels. If the foundation excavations are allowed to remain open, it may be prudent to overexcavate the footings and place a four to six-inch thick layer of clean, three-quarter inch crushed stone in the excavations to protect the exposed subgrade soils from the effects of moisture and/or foot traffic prior to the installation of concrete. Foundations supported on the undisturbed natural soils or controlled compacted fill could be designed to impose maximum allowable net bearing pressures of up to 4,000 pounds per square foot. Allowable bearing pressures of four to five tons per square foot would be available for footings established on the sandstone bedrock. When foundation plans are developed, we can review them to differentiate whether designing some of the footings with a higher bearing pressure is feasible.

Exterior foundations should be established at least four feet below the lowest adjacent exterior grades, or deeper if required by local building codes, to provide protection from frost penetration. Interior foundations located in permanently heated portions of the proposed structures could be constructed at convenient depths below the ground floor slabs.

We estimate that total settlements of foundations supported by the native soils or controlled compacted fill that are designed and installed in accordance with our recommendations would be on the order of one-half of one inch. Foundations supported directly atop rock will experience negligible settlement.

Seismic Design Criteria: Based on the subsurface conditions encountered in the explorations performed for this study, we estimate that the site would be a Site Class "C" as defined by the Building Code of New York State for seismic design purposes. This estimate is based on our evaluation of the N-values obtained in the borings and the presence of the underlying subsurface bedrock.

Floor Slab Design Criteria: Following the previously described site preparation procedures, the ground floor slabs of the proposed structures may be supported at the indicated levels on the natural subgrade materials or controlled compacted fill. We recommend that the ground floor slabs of the proposed structures be underlain by a layer of coarse material consisting of at least six inches of clean, three-quarter inch crushed stone or washed gravel to provide a capillary break between the bottoms of the slabs and the underlying soils.

Immediately prior to floor slab construction, the exposed subgrade materials should be compacted to an unyielding condition under the observation of a qualified geotechnical engineer. Any subgrade materials which cannot be compacted as required should be excavated to the surface of suitable materials and replaced with controlled compacted fill or clean, three-quarter inch crushed stone.

We estimate that post-construction settlements of floor slabs supported by materials which are prepared in accordance with our recommendations would be less than one-quarter of one inch.

Pavement Design Criteria: We recommend that the paved areas be prepared in general accordance with our prior discussions, including the stripping of topsoil, proofrolling subgrades, and placement and compaction of fill. Immediately prior to pavement construction, the exposed

subgrade soils should be recompacted to a firm and unyielding consistency, and the upper two feet of the subgrade soils compacted to at least 95 percent of their maximum dry density as determined by the ASTM D-1557 test procedure. If the pavements are established on the natural soils consisting of silty sands, subgrade support conditions should be considered "fair" with an estimated California Bearing Ratio (CBR) of approximately five to seven percent.

Future Work

Because no detailed site grading or building plans have been provided to us, the recommendations provided in this report are general. When grading, utility and foundation plans are available, they should be provided to us to verify the applicability of our recommendations.

Please feel free to contact us if you have any questions regarding this report.

The following Plates and Appendix are attached and complete this report:

Plate 1 – Site Location Map
Plate 2 – Plot Plan
Plates 3-O-1 through 3-O-11 – Logs of Borings
Plate 4 – Unified Soil Classification System
Plate 5 – Engineering Rock Classification and Core Description Chart
Plate 6 – Gradation Curves
Appendix - Limitations

Respectfully submitted,

MELICK-TULLY and ASSOCIATES, P.C.

James H. Beattie, P.E.
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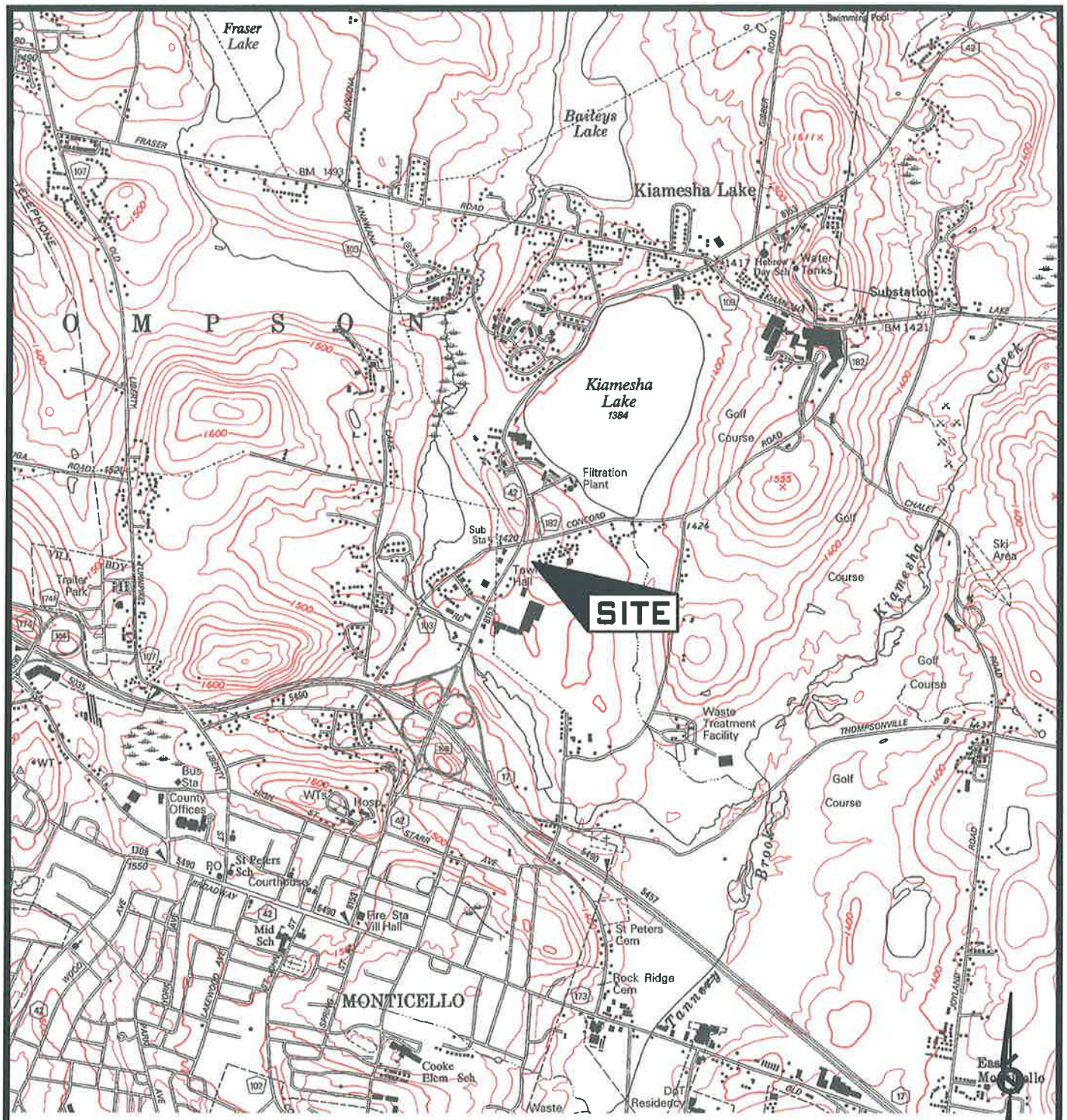
Vice President

JHB:TEH/mh
8979-001*1D
(3 copies submitted)



FROM: "Digital Raster Quadrangles" at 1:24,000 scale provided by New York State GIS Clearinghouse website (http://www.nysgis.state.ny.us/gisdata/quads/).

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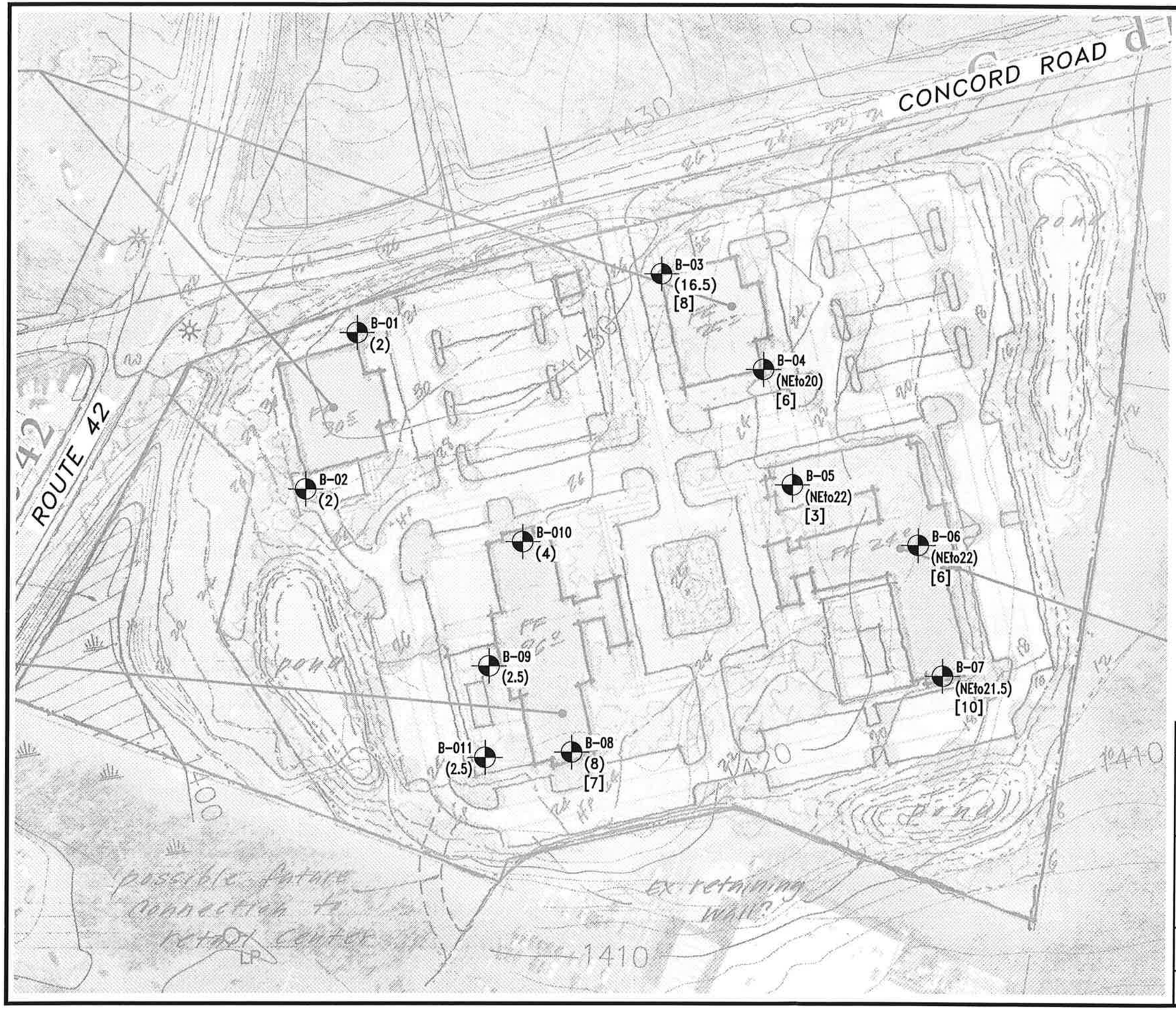
SITE LOCATION MAP

CONCORD OFF–SITE DEVELOPMENT
TOWN OF THOMPSON, NEW YORK
CONCORD RESORT DEVELOPMENT

JOB NO.	FILE NO.	DR. BY	CHK. BY	DATE	SCALE	PLATE
8979–001*1D	25299	VJD	JHB	4–23–12	1"=2,000'	1



KEY:

B-01	NUMBER AND APPROXIMATE LOCATION OF BORINGS PERFORMED FOR THIS STUDY
(2)	APPROXIMATE DEPTH IN FEET TO TOP OF ROCK
[8]	APPROXIMATE DEPTH IN FEET TO GROUNDWATER

NOTES:

1. This drawing is part of Melick–Tully and Associates, P.C. Report No. 8979–001*1D and should be read together with the report for complete evaluation.
2. General layout was obtained from a drawing prepared by Hart Howerton Ltd., entitled "Kiamesha Parcel #1–Grading Study" dated 2–12, scale 1"=100'.

PLOT PLAN

CONCORD OFF–SITE DEVELOPMENT
TOWN OF THOMPSON, NEW YORK
CONCORD RESORT DEVELOPMENT

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JOB NO.	FILE NO.
8979–001*1D	25299

DR. BY	CHK. BY	DATE	SCALE	PLATE
VJD	JHB	4–23–12	1"=100'	2

LOG OF BORING

BORING NO. B-01

COMPLETION DATE: 3/20/12 | SURFACE ELEVATION: +1,431 ft (±) | WATER LEVEL: *

JOB NUMBER: 8979-001*1D | READING DATE: 3/20/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
0	S1	54/9"				8" Topsoil	0
					SM	Red-brown fine to coarse sand, and silt, some fine to coarse gravel (moist)(very dense)	
						- auger refusal encountered @ 2' atop sandstone bedrock	
5							5
10							10
15							15
20						Boring completed @ 2'	20
						*Groundwater not encountered	
25							25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-1

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-02

COMPLETION DATE: 3/21/12 | SURFACE ELEVATION: +1,428 ft (±) | WATER LEVEL: *

JOB NUMBER: 8979-001*1D | READING DATE: 3/21/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						12" Topsoil	
	S1	18			SM	Red-brown fine to coarse sand, and silt, little fine to coarse gravel (moist)(medium dense)	
						- auger refusal encountered at 2' atop sandstone bedrock	
5							5
10							10
15							15
20						Boring completed @ 2' *Groundwater not encountered	20
25							25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-2

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-03

COMPLETION DATE: 3/20/12 | SURFACE ELEVATION: +1,428 ft (±) | WATER LEVEL: 8'

JOB NUMBER: 8979-001*1D | READING DATE: 3/20/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						8" Topsoil	
	S1	7	10.3		SM	Brown fine to coarsem sand, and silt, trace fine gravel (moist)(loose)	
	S2	66	6.2			Brown fine to coarse sand, and silt, little fine gravel (moist)(very dense)	
5	S3	57			SM		5
10	S4	50/4"				- grading (wet) @ 10'	10
15	S5	50/3"			SM	Red-brown fine to coarse sand, some silt, some fine to coarse gravel (wet)(very dense)(decomposed sandstone) - auger refusal encountered @ 16'-6" atop sandstone bedrock	15
20							20
25						Boring completed @ 16'-6" Groundwater encountered @ 8'	25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-3

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LOG OF BORING

BORING NO. B-04

COMPLETION DATE: 3/20/12 | SURFACE ELEVATION: +1,424 ft (±) | WATER LEVEL: 8'

JOB NUMBER: 8979-001*1D | READING DATE: 3/20/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
	S1	4			SM	8" Topsoil Red-brown fine to medium sand, some silt, trace fine gravel (moist)(loose)	
	S2	52				Red-brown fine to coarse sand, some silt, little fine gravel (moist)(very dense)	
5	S3	46	6.7			- grading (dense)	5
10	S4	30			SM		10
15	S5	41					15
20	S6	50/2"					20
25						Boring completed @ 20'-2" Groundwater encountered @ 6'	25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-4

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-05

COMPLETION DATE: 3/20/12 | SURFACE ELEVATION: +1,423 ft (±) | WATER LEVEL: 8'

JOB NUMBER: 8979-001*1D | READING DATE: 3/20/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						8" Topsoil	
	S1	18			SM	Red-brown fine to medium sand, some silt, little fine to coarse gravel (moist)(medium dense)	
	S2	61				Red-brown fine to coarse sand, and silt, little fine gravel (moist)(dense)	
5	S3	37	11.8		SM		5
10	S4	19				- grading (medium dense)	10
15	S5	63			SM	Red-brown fine to coarse sand, some silt, little fine gravel (moist)(very dense)	15
20	S6	35			SM	Red-brown fine to medium sand, some silt, some fine to coarse gravel (wet)(dense)(decomposed sandstone)	20
25						Boring completed @ 21'-8" Groundwater encountered @ 8'	25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-5

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-06

COMPLETION DATE: 3/20/12 | SURFACE ELEVATION: +1,418 ft (±) | WATER LEVEL: 8'

JOB NUMBER: 8979-001*1D | READING DATE: 3/20/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						8" Topsoil	
	S1	33			SM	Red-brown fine to coarse sand, some silt, and fine to coarse gravel (moist)(dense)	
	S2	26				Red-brown fine to medium sand, and silt, little fine gravel (moist)(medium dense)	
5	S3	24			SM		5
10	S4	17				Red-brown fine to coarse sand, and silt, some fine to coarse gravel (wet)(medium dense)	10
15	S5	29			SM		15
20	S6	77				- grading (very dense)	20
25						Boring completed @ 22' Groundwater encountered @ 6'	25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-6

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-07

COMPLETION DATE: 3/21/12 | SURFACE ELEVATION: +1,418 ft (±) | WATER LEVEL: 10'

JOB NUMBER: 8979-001*1D | READING DATE: 3/21/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
	S1	5				10" Topsoil	
						FILL - Black fine to coarse sand, some organic silt	
	S2	19			SM	Brown fine to coarse sand, some silt, little fine gravel (moist)(medium dense)	
5	S3	30			SM	Brown fine to coarse sand, and silt, little fine to coarse gravel (moist)(medium dense)	5
10	S4	22			SM	Brown fine to coarse sand, some silt, little fine to coarse gravel (wet)(medium dense to very dense)	10
15	S5	32					15
20	S6	98/11"					20
25						Boring completed @ 21'-5" Groundwater encountered @ 10'	25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-7

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-08

COMPLETION DATE: 3/21/12 | SURFACE ELEVATION: +1,418 ft (±) | WATER LEVEL: 10'

JOB NUMBER: 8979-001*1D | READING DATE: 3/21/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						12" Topsoil	
	S1	12	10.4			Brown fine to medium sand, and silt, trace fine gravel (moist)(medium dense to very dense)	
	S2	37			SM		
5	S3	50/4"					5
						- auger refusal encountered @ 8'	
	CORE RUN NO. 1			2 2 3 3 1		NQ CORE RUN NO. 1: 8' to 13' REC = 87% RQD = 62% Light green and gray, fair quality, coarse grained sandstone - grading to medium grained sandstone @ 12', with closely spaced joints	
10							10
15							15
20							20
						Boring completed @ 13' Groundwater encountered @ 7'	
25							25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-8

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-09

COMPLETION DATE: 3/21/12 | SURFACE ELEVATION: +1,427 ft (±) | WATER LEVEL: *

JOB NUMBER: 8979-001*1D | READING DATE: 3/21/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						12" Topsoil	
	S1 S2	50/1" 50/0"			SM	Brown fine to coarse sand, some silt, some fine to coarse gravel (moist)(very dense) - auger refusal encountered @ 2'-6" atop sandstone bedrock	
5							5
10							10
15							15
20						Boring completed @ 2'-6" *Groundwater not encountered	20
25							25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-9

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-010

COMPLETION DATE: 3/21/12
JOB NUMBER: 8979-001*1D

SURFACE ELEVATION: +1,427 ft (±)

WATER LEVEL: *
READING DATE: 3/21/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						8" Topsoil	
	S1	5			SM	Red-brown fine to coarse sand, some silt, little fine to coarse gravel (moist)(loose to dense)	
	S2	36				- auger refusal @ 4' atop sandstone bedrock	
5	CORE RUN NO. 1			2 3 4 3 4		NQ CORE RUN NO. 1: 4' to 9' REC = 100% RQD = 70% Light green and gray, fair quality, coarse grained sandstone, with closely spaced joints	5
10							10
15							15
20						Boring completed @ 9' *Groundwater not encountered	20
25							25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-10

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

LOG OF BORING

BORING NO. B-011

COMPLETION DATE: 3/21/12 | SURFACE ELEVATION: +1,426 ft (±) | WATER LEVEL: *

JOB NUMBER: 8979-001*1D | READING DATE: 3/21/12

DEPTH	SAMPLES	N-VALUE	MOISTURE CONTENT (%)	CORING TIMES (MIN./FT.)	SYMBOL	DESCRIPTION	DEPTH
						8" Topsoil	
	S1	53/10"			SM	Red-brown fine to coarse sand, little silt, trace fine to coarse gravel (wet)(very dense)	
						- auger refusal encountered @ 2'-6" atop sandstone bedrock	
5							5
10							10
15							15
20						Boring completed @ 2'-6" *Groundwater not encountered	20
25							25
30							30

NOTES FOR COLUMNS:
1. SAMPLE AT AVERAGE SAMPLING DEPTH
2. INDICATES THE NUMBER OF BLOWS TO ADVANCE A 2" OD SAMPLER A DISTANCE OF 12 INCHES USING A 140 POUND WEIGHT FALLING 30 INCHES

SOIL DESCRIPTION MODIFIERS:
TRACE 0 - 10%
LITTLE 10 - 20%
SOME 20 - 35%
AND OVER 35%

Typist/Date: kt/mh 3/12

Sheet: 1 of 1 PLATE: 3-O-11

MELICK-TULLY AND ASSOCIATES, P.C.
Geotechnical Engineers and Environmental Consultants

MAJOR DIVISIONS			LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than 50% of material is LARGER than No. 200 Sieve	GRAVEL & GRAVELLY SOILS More than 50% of coarse fraction RETAINED on No. 4 Sieve	CLEAN GRAVELS (Little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
		GRAVELS WITH FINES (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS More than 50% of coarse fraction PASSING a No. 4 Sieve	CLEAN SAND (Little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines.
			SP	Poorly-graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS More than 50% of material is SMALLER than No. 200 Sieve.	SILTS AND CLAYS	Liquid limit LESS than 50	ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS	Liquid limit GREATER than 50	MH	Inorganic silts, micaceous or diatomaceous fine sand or silty soils.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			PT	Peat, humus, swamp soils with high organic contents

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS.

GRADATION*		COMPACTNESS* sand and/or gravel		CONSISTENCY* clay and/or silt	
% Finer by Weight		Relative Density		Range of Shearing Strength in Pounds per Square Foot	
Trace	0% to 10%	Loose	0% to 40%	Very Soft	less than 250
Little	10% to 20%	Medium Dense	40% to 70%	Soft	250 to 500
Some	20% to 35%	Dense	70% to 90%	Medium	500 to 1000
And	35% to 50%	Very Dense	90% to 100%	Stiff	1000 to 2000
				Very Stiff	2000 to 4000
				Hard	Greater than 4000

**Values are from laboratory or field test data, where applicable. When no testing was performed, values are estimated.*

UNIFIED SOIL CLASSIFICATION SYSTEM

SOIL CLASSIFICATION CHART

ENGINEERING ROCK CLASSIFICATION AND CORE DESCRIPTION CHART (1)

DESCRIPTIVE TERMINOLOGY FOR JOINT SPACING

Description Term	Spacing of Joints
Very Close	Less than 2 inches
Close	2 inches to 1 foot
Moderately Close	1 foot to 3 feet
Wide	3 feet to 10 feet
Very Wide	Greater than 10 feet

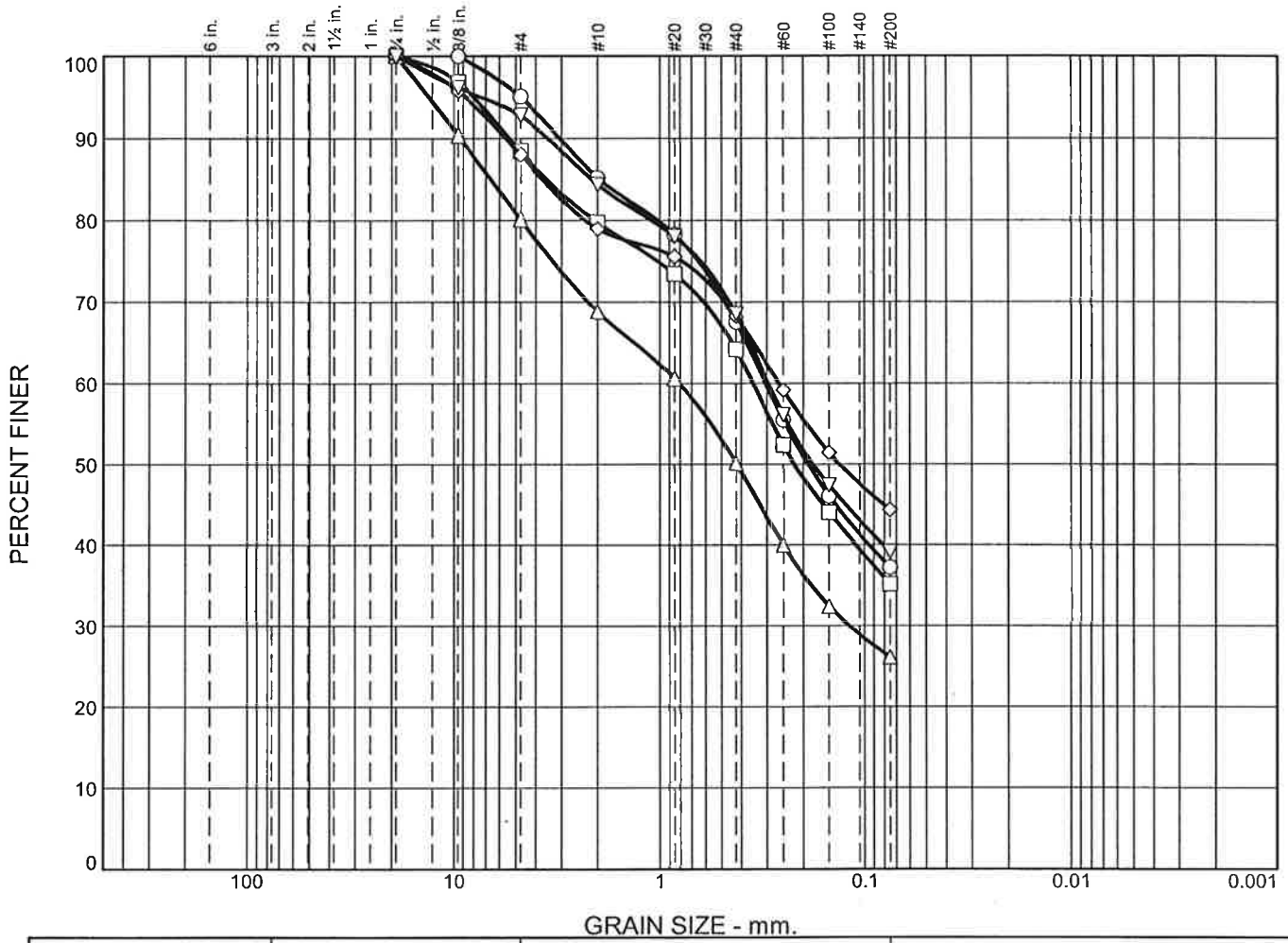
RELATIONSHIP OF RQD AND ROCK QUALITY

Rock Quality Designation (RQD) (2)	Description of Rock Quality
0 - 25%	Very Poor
25 - 50%	Poor
50 - 75%	Fair
75 - 90%	Good
90 - 100%	Excellent

(1) Core description system is based on a suggested system proposed in the ASCE Rock Mechanics Seminar in April and May of 1968 entitled "Geologic Considerations of Rock Mechanics" as presented by Don V. Deere.

(2) "Rock Quality Designation" is defined as a modified core recovery ratio which considers only pieces of core that are at least 4 inches long. Obvious fractures induced by drilling are ignored in this system.

Gradation Curve(s)



	% +3"	% Gravel		% Sand			% Fines
		Coarse	Fine	Coarse	Medium	Fine	
○	0.0	0.0	5.0	9.8	17.7	30.3	37.2
□	0.0	0.0	11.6	8.7	15.6	29.0	35.1
△	0.0	0.0	19.9	11.3	18.7	24.0	26.1
◇	0.0	0.0	12.0	9.0	10.8	23.9	44.3
▽	0.0	0.0	7.3	8.3	15.9	29.3	39.2

SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS
○	B-03	S-1	0-2	Fine to coarse Sand, and Silt, trace fine Gravel. (MC=10.3%)	SM
□	B-03	S-2	2-4	Fine to coarse Sand, and Silt, little fine Gravel. (MC=6.2%)	SM
△	B-04	S-3	5-7	Fine to coarse Sand, some Silt, little fine Gravel. (MC=6.7%)	SM
◇	B-05	S-5	5-7	Fine to coarse Sand, and Silt, little fine Gravel. (MC=11.8%)	SM
▽	B-08	S-1	0-2	Fine to coarse Sand, and Silt, trace fine Gravel. (MC=10.4%)	SM

Melick-Tully & Associates, P.C.

South Bound Brook, NJ

Client: Concord Resort Development

Project: Concord Resort Development, Thompson, NY

Project No.: 8979-001 **Plate** 6

APPENDIX

APPENDIX

Limitations

A. Subsurface Information

Locations: The locations of the explorations were approximately determined by tape measurement from an untitled plan provided to us by the site engineer. Elevations of the explorations were approximately determined by interpolation between contours shown on topographic plans provided to us by the site engineer. The locations and elevations of the explorations should be considered accurate only to the degree implied by the method used.

Interface of Strata: The stratification lines shown on the individual logs of the subsurface explorations represent the approximate boundaries between soil types, and the transitions may be gradual.

Field Logs/Final Logs: A field log was prepared for each exploration by a member of our staff. The field log contains factual information and interpretation of the soil conditions between samples. Our recommendations are based on the final logs as shown in this report and the information contained therein, and not on the field logs. The final logs represent our interpretation of the contents of the field logs, and the results of the laboratory observations and/or tests of the field samples.

Water Levels: Water level readings have been made in the explorations at times and under conditions stated on the individual logs. These data have been reviewed and interpretations made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater will occur due to variations in rainfall, temperature, and other factors.

Pollution/Contamination: Unless specifically indicated to the contrary in this report, the scope of our services was limited only to investigation and evaluation of the geotechnical engineering aspects of the site conditions, and did not include any consideration of potential site pollution or contamination resulting from the presence of chemicals, metals, radioactive elements, etc. This report offers no facts or opinions related to potential pollution/contamination of the site.

Environmental Considerations: Unless specifically indicated to the contrary in this report, this report does not address environmental considerations which may affect the site development, e.g., wetlands determinations, flora and fauna, wildlife, etc. The conclusions and recommendations of this report are not intended to supersede any environmental conditions which should be reflected in the site planning.

B. Applicability of Report

This report has been prepared in accordance with generally accepted soils and foundation engineering practices for the exclusive use of AKRF, Inc. for specific application to the preliminary design of the proposed project. No other warranty, expressed or implied, is made.

This report may be referred to in the project specifications for general information purposes only, but should not be used as the technical specifications for the work, as it was prepared for design purposes exclusively.

C. Reinterpretation of Recommendations

Change in Location or Nature of Facilities: In the event that any changes in the nature, design or location of the facilities are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

Changed Conditions During Construction: The analyses and recommendations submitted in this report are based in part upon the data obtained from eleven widely-spaced test borings performed for this study. The nature and extent of variations between the explorations may not become evident until construction. If variations then appear evident, it will be necessary to reevaluate the recommendations of this report.

Changes in State-of-the-Art: The conclusions and recommendations contained in this report are based upon the applicable standards of our profession at the time this report was prepared.

D. Use of Report by Prospective Bidders

This soil and foundation engineering report was prepared for the project by Melick-Tully and Associates, P.C. for design purposes and may not be sufficient to prepare an accurate bid. Contractors utilizing the information in the report should do so with the express understanding that its scope was developed to address design considerations. Prospective bidders should obtain the owner's permission to perform whatever additional explorations or data gathering they deem necessary to prepare their bid accurately.

E. Construction Observation

We recommend that Melick-Tully and Associates, P.C. be retained to provide on-site soils engineering services during the earthwork construction and foundation phases of the work. This is to observe compliance with the design concepts and to allow changes in the event that subsurface conditions differ from those anticipated prior to the start of construction.