Pennsylvania American Water

June 14, 2005

Joseph F. Mullen, P.E.
CHA
Scranton Life Building
Suite 700
538 Spruce St.
Scranton PA 18503-1820

RE: Water Service Availability for the Mohegan Sun at Pocono Downs Plains Twp, PA.

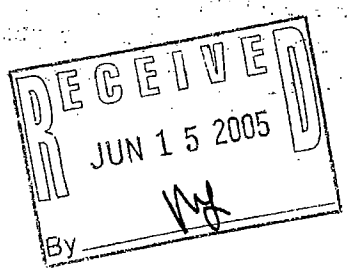
Dear Mr. Mullen:

Upon reviewing our Distribution Maps, relative to the area in question, we have determined that it would be feasible and Pennsylvania-American Water is willing to provide domestic water service to this site based on the preliminary information provided to us. Please note a hydrant flow test can be scheduled with (John Vols at 969-7501-ext 232) to verify actual fire flow requirements and should be submitted along with final plan approval for our review prior to installation. Please keep us advised of your planning and scheduling and allow at least 6-8 weeks for complete processing of the water service application. Please note PAWC provides one service connection for the new building free of charge sized to provide the total water demand required by the customer with the full size meter positioned prior to any water service takeoffs. Understand any additional meter requests serving a premise or multiple premises shall be supplied through an independent service pipe from a separate control valve or valve box.

To supply water to the building will require a meter pit installation. The installation and cost of the meter pit will be the responsibility of the customer. Meter pit installations are required on all services 4" and larger, and where the building is over 100 feet from the curb stop to the building. The location of the water meter pit should be within 30 feet of the proposed point of connection to existing Pennsylvania-American Water Company facilities.

Please note Pennsylvania-American Water Company must be notified at (570) (830-6545) when the service line and meter pit is scheduled to be installed and the customer is ready for connection. The **alignment and location of the water service connection and meter pit must be coordinated with the area supervisor Mark Baloh who can be reached at 969-7501 ext 242.** When the connection is complete, the customer must call the meter department (Frank Podminick) at (570) 969-7501 ext 229 to schedule the turn on and meter setting.

Please understand that no formal action can be taken until you have met the application requirements of the Pennsylvania-American Water. **If you have any questions, please do not hesitate to contact our office at 100 N. Penna. Ave in Wilkes-Barre 570 830-6545.**



RWE GROUP

Sincerely,
Gary Naugle,
Network Supervisor
New Service

PG Energy
a division of Southern Union Company

June 17, 2005

Clough Harbour & Associates LLP
Scranton Life Building, Suite 700
538 Spruce Street
Scranton, Pa 18503-1820

Attn: Joseph F. Mullen, PE

RE: Mohegan Sun at Pocono Downs
CHA Project No.: 13989

Dear Joseph Mullen,

As Per your request we have conducted a preliminary investigation as to the availability of natural gas to the above-mentioned project. The results of that study are as follows:

Gas service could be provided to this project.

Final cost and approval will be pending formal application, permits, utility easements and engineering estimates. If you have any questions please do not hesitate to call me at 570-829-8901.

Sincerely yours,

Joseph A. Bauman
Marketing Representative
PG Energy

RECEIVED
JUN 21 2005
By

One PEI Center
Wilkes-Barre, PA 18711-0601

Incorporated 1962
LUZERNE COUNTY PENNSYLVANIA

WVSA WYOMING VALLEY SANITARY AUTHORITY

June 27, 2005

Joseph F. Mullen
Clough Harbour & Associates LLP
Scranton Life Building Suite 700
538 Spruce Street
Scranton, PA 18503-1820

Re: Mohegan Sun at Pocono Downs
CHA Project No. 13989

Dear Mr. Mullen:

Recipient of ...nor's ...ward for ...onmental ...cellence

Be advised that the Wyoming Valley Sanitary Authority (WVSA) has sufficient treatment capacity to service the estimated 75,000 gallons per day of combined sanitary sewage generated by proposed gaming entertainment facility at Pocono Downs in Plains Township. No overload exists or is projected within five years at WVSA.

Approval is contingent upon receipt of estimated project flows within a one-year period. Additional flows or flows not connected within a one year period will require reapproval.

Very truly yours,

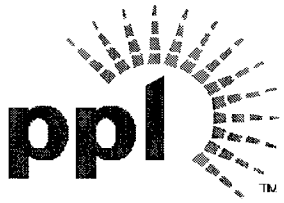
Fred J. DeSanto
Executive Director

cc:
James B. Tomaine
Sandy Bartosiewicz

RECEIVED
JUN 28 2005

Shipping Address: 1000 Wilkes-Barre Street, Hanover Township, Wilkes-Barre, PA 18706
Mailing Address: P.O. Box 33A, Wilkes-Barre, PA 18703-1333 • (570) 820-9872 • FAX (570) 825-5039 or 825-0772 • Web Site www.wvsa.org

PPL Electric Utilities
Paul J. Philpott
344 South Poplar Street
Hazleton, PA 18201-7199
Tel. 570.459.7430
Fax. 570.459.7257



July 26, 2004

Mr. Joe Mullen
Senior Project Manager
Clough Harbour & Associates LLP
Scranton Life Building Suite 700
538 Spruce Street
Scranton, PA 18504

Dear Mr. Mullen:

As of today's date, PPL's existing infrastructure can accommodate up to 9.43 MVA load at Pocono Downs. If necessary, PPL will reinforce its infrastructure in order to accommodate a larger load in exchange for a revenue guarantee equal to the costs of the reinforcement and paid to PPL through electric distribution charges over a term of no more than 5 years.

This agreement does not include any alternate supply charges, and PPL cannot guarantee alternate supply capacity in the future. At the present time, the costs to provide alternate supply to a 9.43 MVA load should be under $50,000, and costs to supply the temporary casino with alternate supply should be minimal.

Please contact me by phone or email if you have additional questions.

Sincerely,

Paul J. Philpott
Regional Project Manager
PPL Electric Utilities

#13989

Luzerne Conservation District
485 Smith Pond Road, Shavertown, PA 18708
Phone (570) 674-7991 • Fax (570) 674-7989
E-mail: info@luzernecd.org

10/13/05

Downs Racing L.P.
1280 Highway 315
Wilkes-Barre, PA 18702

Re: Erosion and Sediment Control Plan Approval
Minor Modification #3
Mohegan Sun at Pocono Downs
Plains Township, Luzerne County

Dear Sir or Madam:

The Erosion & Sediment Pollution Control plan has been reviewed and is adequate to meet the requirements of PA Title 25, Chapter 102, Erosion Control and the erosion and sediment pollution control requirements of the Conservation District.

The Luzerne Conservation District has reviewed this plan solely to determine whether it is adequate to satisfy the requirements of 25 Pa. Code 102.1 et seq., the erosion control regulations of the Department of Environmental Protection and the erosion and sediment pollution control requirements of the District.

By a determination that the plan is adequate to meet those requirements, neither the Conservation District nor the county assumes any responsibility for the implementation of the plan or the proper construction and operation of the facilities contained in the plan. The design, structural integrity, and installation of the control measures are the responsibility of the landowner and/or the earth-mover. Before any construction or earth-disturbance may begin the appropriate and necessary local, state, and federal permits must be secured from the agency having permitting authority.

A copy of the Erosion and Sedimentation Control Plan must be available at the site of the earth-moving activity during construction at all times until the project is completed.

Failure to begin earth-disturbance within two (2) years of the date of this letter will require a re-submission and review by the District.

If you have any questions regarding this or other projects, please contact our office at the above address and telephone number.

Sincerely,

Heather Graham
Resource Conservation Specialist II

cc: Plains Township
Clough Harbor
File Copy

GEOTECHNICAL ENGINEERING REPORT

POCONO DOWNS GAMING & RACING DEVELOPMENT

PLAINS TOWNSHIP, PENNSYLVANIA

May, 2005

Prepared for:

Jeter Cook & Jepson Architects, Inc.

450 Church Street

Hartford, Connecticut 06103

Prepared by:

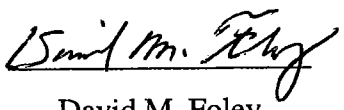
CLOUGH HARBOUR & ASSOCIATES LLP

Scranton Life Building Suite 700
538 Spruce Street
Scranton, PA 18503-1820

CHA Project No. 13989.1007.150

This report has been prepared and reviewed by the following qualified engineers employed by Clough Harbour & Associates LLP (CHA).

Report Prepared By:



David M. Foley
Geotechnical Engineer

Report Reviewed By:

Warren A. Harris IV, P.E.
Senior Geotechnical Engineer

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TABLES

APPENDICES

1.0 INTRODUCTION

This report summarizes the results of a geotechnical investigation performed by Clough Harbour & Associates LLP (CHA) for Jeter Cook & Jepson Architects, Inc., to evaluate a site adjacent to the Pocono Downs Racetrack in the Plains Township, Pennsylvania for the construction of a gaming facility, parking garage and associated parking lots. The project site is shown on the Site Location Map (Figure 1) included in Appendix A.

The primary objectives of the investigation were to evaluate subsurface conditions at the project site and provide geotechnical design parameters and recommendations for the proposed facilities.

2.0 PROJECT AND SITE DESCRIPTION

The Mohegan Tribal Gaming Authority plans to construct a casino adjacent to the Pocono Downs Racetrack located in the Plains Township, Pennsylvania. The project site is located two miles northeast of Wilkes-Barre, on route 315. The eastern portion of the site contains the existing parking lots for Pocono Downs Raceway. The western portion of the site is vegetated with grass and some trees and brush, and is the site of the closed East Side Landfill. The site also contains a small heavily wooded area to the south which separates the existing parking area from a residential area. The site generally slopes downward from the center in all directions. Exposed bedrock was noted at the northern end of the site. No surface water was noted at the site.

We understand that the proposed casino, with a footprint of approximately 410,000 square feet, will include both one-story and two-story area for gaming, entertainment, and dining. In addition to the casino, a five-story parking garage that will provide parking for approximately 1,300 cars, and four parking lots that will provide parking for an additional 3,200 cars will be constructed. Based on preliminary information available for the project, the finished floor elevations for the casino and the parking garage are reported to be approximately elevation 720 feet.

3.0 SUBSURFACE INVESTIGATION

CHA conducted a subsurface investigation consisting of forty eight (48) soil borings designated as B-1 through B-48. The investigation began on February 21, 2005 and was completed on March 2, 2005. The soil borings were located in the field by CHA during the subsurface investigation using a hand held GPS unit. Coordinates and elevations of the as-drilled soil boring locations were obtained from a field survey completed by CHA. The soil boring locations are shown on the Boring Location Plan (Figure 2) in Appendix A.

Nature's Way Environmental Consultants & Contractors, Inc. of Crittenden, New York was retained by CHA to advance the soil borings. The field investigation was performed under the observation of CHA geotechnical engineers who ensured proper drilling and sampling methods were utilized. The CHA geotechnical engineers also inspected and classified samples, and prepared field logs documenting subsurface conditions.

The soil borings were advanced with two truck-mounted drill rigs. Hollow stem augers (HSA) with inside diameters of 2.25 inches and 4.25 inches were used to advance the boreholes. Typically, split spoon samples were obtained continuously to 10 - 12 feet below grade and at standard 5-foot intervals thereafter, in general accordance with American Society for Testing and Materials guidelines (ASTM D 1586). The split spoon samples were advanced by a 140 (±) pound hammer free falling 30 (±) inches. "Blow counts" are recorded on the soil boring logs, and indicate the penetration resistance for a 6-inch advancement of the split spoon. Initially, the spoon is driven six inches to seat the sampler in undisturbed material. The number of blows required to drive the sampler the next 12 inches is taken as the standard penetration resistance or "N" value. This value is indicative of the soil's in-place compactness or consistency. The final six inch increment that the spoon is driven is not included in the determination of "N". Refusal is defined as a resistance of greater than 50 blows per six inches of penetration.

An NX size core barrel was used to obtain rock core samples in borings B-14, B-22, B-27, B-39 and B-41. The Rock Quality Designation (RQD) values were then determined for the core

samples. RQD is defined as the sum of the length of core pieces 4 inches and longer, divided by the length of the core run, expressed as a percentage. The RQD values provide an indication of the relative degree of jointing or fracturing of the bedrock.

4.0 SITE GEOLOGY

4.1 Regional Geology

Based upon review of the *Surficial Materials of Pennsylvania (Berg, T.M. (1980))*, the site is located in a region of sandy soils. The bedrock at the site is mapped as fine to coarse sandstone, siltstone and shale along with conglomerates of numerous anthracite coals in repetitive sequence according to the *Geologic Map of Pennsylvania - Map 64 (Sevon, W.D. (1989)).*

A review of maps obtained from the Pennsylvania Office of Surface Mining & Enforcement (OSM&E) indicates that coal mining in the bedrock within the proposed project site limits was completed in the past. The maps reviewed indicate the following coal veins in the vicinity of the project site in increasing depth order: Five Foot, Cooper, Bennett, Checker, Top Ross, Ross, Three Foot, Top Red Ash, and Red Ash. It appears that all veins were deep mined, and select veins were strip mined.

4.2 Subsurface Stratigraphy

Subsurface conditions encountered in individual soil borings are detailed and described on the subsurface logs included in Appendix B of this report. The site has had a variety of land uses and therefore the conditions found at the site are variable. In order to describe the numerous soil borings, the site can be separated into three areas consisting of a landfill area (west portion of the site), a wooded area (southern portion of the site) and an existing parking area (central and eastern portion of the site). The approximate boundaries for these areas are shown on the Boring Location Plan (Figure 2) in Appendix A. Laboratory testing of soil samples from various borings was also performed to aid in the classification of site soils. Laboratory test reports are included in Appendix C.

EXISTING PARKING AREA

The existing parking area is located in the central and eastern portion of the site. Soil borings taken in this area include B-1, B-2, B-10 through B-20, B-25 through B-35, B-43 and B-44. Conditions in this area can generally be described as follows, in order of increasing depth:

Asphalt – A layer of asphalt was encountered soil boring B-1, B-2, B-10 through B-20, B-28, B-30 and B-32. The asphalt layer ranged from 0.2 feet to 0.5 feet thick in locations investigated.

Fill – Fill with varying amounts of silt, fine to coarse sand and fine to coarse gravel was encountered below the asphalt layer or ground surface in all of the soil borings except for B-43. The fill was encountered to a depth ranging from 0.3 feet to 22 feet below ground surface. Based on standard penetration test resistance values the fill was loose to very compact. The water content of the fill was visually classified as moist. Coal ash was noted in the fill samples obtained from borings B-10, B-12, B-16, B-19, B-20, B-28 and B-42. Additionally, an unidentified white "plaster-like" material was noted in the fill in boring B-32.

Sand – Fine to coarse sand with varying amounts of silt and fine to coarse gravel was encountered below the fill in soil borings B-2, B-10, B-16, B-17, B-18, B-19, B-32, B-34 and B-35. The sand was encountered at depths ranging from 3 feet to 22 feet below ground surface. Based on standard penetration test resistance values the sand was loose to very compact. The water content of the sand was visually classified as moist to wet.

Gravel– Fine to coarse gravel with varying amounts of silt and fine to coarse sand was encountered below the sand or fill in soil borings B-2, B-35 and B-44. The gravel ranged in depth from 8 feet to 11.5 feet below ground surface. Based on standard penetration test resistance values the gravel was medium compact to very compact. The water content of the sand was visually classified as moist.

Sandstone Bedrock - Sandstone bedrock was encountered below the fill in borings B-16, B-17, B-30, B-31, B-33 and B-44. The bedrock was brown to gray in color and was generally highly weathered. Bedrock was encountered at depths ranging from 0.5 feet to 15 feet below ground surface. Auger and spoon refusal in borings B-1, B-11, B-12, B-13, B-15, B-18, B-19, B-29, B-32, B-34, B-35, and B-43 was also interpreted as bedrock. . Reference the Bedrock Contour Map (Figure 3) in Appendix A for an approximate interpretation of bedrock elevations within this area of the site.

Shale Bedrock - Shale bedrock was encountered below the fill in borings B-14, B-25, B-27, B-28 and B-33. The bedrock was generally gray in color and varied from being slightly weathered to highly weathered. For shale bedrock in which rock core samples were taken the Rock Quality Designation (RQD) values ranged from being very poor to poor. Bedrock was encountered at depths ranging from 3 feet to 12.5 feet below ground surface. Auger and spoon refusal in borings B-1, B-11, B-12, B-13, B-15, B-18, B-19, B-29, B-32, B-34, B-35, B-42 and B-43 was also interpreted as bedrock. . Reference the Bedrock Contour Map (Figure 3) in Appendix A for an approximate interpretation of bedrock elevations within this area of the site.

WOODED AREA

The wooded area is located in the southern portion of the site. Soil borings taken in this area include B-3, B-4, B-5, B-6, and B-9. Conditions in this area can generally be described as follows, in order of increasing depth:

Topsoil – A layer of topsoil was encountered in the all soil borings except for boring B-9. The topsoil layer ranged from 0.2 feet to 0.3 feet thick in locations investigated.

Sand – Fine to coarse sand with varying amounts of silt and fine to coarse gravel was encountered in all soil borings in this location. Based on standard penetration test resistance values the sand ranged from loose to very compact. The water content of the sand was visually classified as moist. The sand layer extended to boring termination in soil borings B-4 and B-5, and extended to bedrock in B-3, B-6 and B-9.

Gravel – A layer of fine to coarse gravel with varying amounts of silt and fine to coarse sand was encountered within the sand in soil borings B-4 and B-9. The gravel was brown to gray in color and was visually classified as moist. Based on standard penetration test resistance values the gravel ranged from being medium compact to very compact.

Sandstone Bedrock - Sandstone bedrock was encountered below the fill in borings B-5 and B-6. The bedrock was brown to gray in color and was visually classified as moist. Bedrock was encountered at depths 8 feet and 11 feet below ground surface in B-6 and B-5 respectively. Auger and spoon refusal in boring B-3 was also interpreted as bedrock. . Reference the Bedrock Contour Map (Figure 3) in Appendix A for an approximate interpretation of bedrock elevations within this area of the site.

4.3 Groundwater Conditions

Groundwater was detected during drilling in soil borings B-22 and B-46 at a depth of 40 and 4 feet, respectively. The groundwater levels shown on subsurface logs were determined by direct measurement of groundwater in the boreholes during drilling operations and by visual observation of the moisture content of soil samples collected during the drilling. Temporary piezometers were installed in soil borings B-3, B-11, B-27 and B-38. The piezometers were read on March 23, 2005. Groundwater was measured in B-3 and B-38 at depths of 6.5 and 5.1 feet, respectively. No groundwater was observed in B-11 and B-27. Groundwater levels are recorded on the subsurface logs included in Appendix B.

Note that groundwater levels at the site at any given time may differ from those shown on the subsurface logs and described in this report due to seasonal factors that effect groundwater such as temperature and precipitation. Based on groundwater information available from the subsurface investigation, it appears that groundwater is perched within the site soils at some locations across the site. For design, we recommend that groundwater is considered to be at the final bedrock surface.

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1 Foundations

Parking Garage:

As stated in Section *2.0 Project and Site Description*, the proposed finished floor elevation for the parking garage is planned to be elevation 720 feet. Upon inspection of the preliminary site plan for the project, the proposed parking garage will be located partially within the limits of the closed East Side Landfill. Based on information obtained during the subsurface investigation, a shallow foundation system for the parking garage would bear on a combination of bedrock, fill soils, and solid waste.

Due to the nature of the proposed parking structure and anticipated loading conditions, we recommend that all footings bear on the bedrock in lieu of varying bearing materials in order to eliminate the potential for differential settlement of the structure. Since bedrock within the footprint of the proposed parking garage is relatively shallow below the fill soils and solid waste, lowering all garage footings to the bedrock will be a cost effective and feasible construction alternative as opposed to constructing a portion of the garage on a deep foundation system such as piles or drilled shafts. We also recommend that all solid waste within the footprint of the parking garage be removed to the underlying bedrock and backfilled with structural fill to avoid damage to the floor slab caused by differential compression/decomposition of the solid waste, and potential safety issues relating to landfill gas generation below the structure.

Subsequently, spread footings founded on the sandstone bedrock encountered in the area should be designed using an allowable bearing pressure of 5 tons per square foot (tsf). The bottom elevation of footings should be a minimum of four feet below the final exterior ground surface elevation to protect against frost action in weathered bedrock and bedrock fractures. Excavation within the parking garage footprint and adjacent to perimeter footings should be backfilled with structural fill in accordance with the placement and compaction procedures included in *Section*

5.6 Structural Fill. Carefully compacted backfill will provide uniform slab support and prevent total and differential slab movement.

Casino:

As stated in Section *2.0 Project and Site Description*, the proposed finished floor elevation for the casino is planned to be elevation 720 feet. Upon review of the preliminary site plan for the project and information obtained during the subsurface investigation, a shallow foundation system for the casino would bear on bedrock over a portion of the structure footprint, and the remainder would be located within fill soils. Because some of the fill soils contain materials that may break down over time (plaster-like material, coal ash), and due to the uncertainty regarding placement of the existing fill, these soils are not deemed suitable for support of the casino foundations.

Since bedrock within the footprint of the proposed casino is relatively shallow below the fill soils, excavation of fill soils and lowering spread footings to the deeper bedrock will be a cost effective and feasible alternative as opposed to constructing a portion of the garage on a deep foundation system such as piles or drilled shafts. Lowering all spread footings to bedrock as opposed to placing a portion of the footings on structural backfill and a portion on bedrock will also eliminate the potential for differential settlement of the casino structure.

As an alternative, the deeper footing excavations to bedrock through the fill may be backfilled with structural fill to within four feet of finished grade and shallow bedrock areas over-excavated and backfilled with two feet of structural fill to result in all footings bearing on structural fill. This method will also eliminate the potential for differential settlement of the casino structure.

An additional construction alternative for the casino foundations would be to backfill the deeper footing excavations through site fill soils to bedrock with flowable fill to the bottom of the footings. The shallow footings for the casino would then bear on a combination of flowable fill and bedrock, thus eliminating the potential for differential settlement of the casino structure.

Subsequently, spread footings founded on the sandstone bedrock encountered in the area should be designed using an allowable bearing pressure of 5 tons per square foot (tsf). Alternatively, spread footing founded on structural fill or flowable fill should be designed using an allowable bearing pressure of 2.5 tsf and 5 tsf, respectively. The bottom elevation of footings should be a minimum of four feet below the final exterior ground surface elevation to protect against frost action in weathered bedrock and bedrock fractures or structural fill. All excavation for foundation construction should be backfilled with structural fill in accordance with the placement and compaction procedures included in *Section 5.6 Structural Fill.* Carefully compacted backfill will provide uniform slab support and prevent differential slab movement.

5.2 Floor Slabs

The fill soils at the site are uncontrolled and will provide varying support characteristics for the parking garage and casino floor slabs, therefore, floor slabs should not be founded directly on the existing fill soils. The following features are recommended as part of the floor slab construction.

- To minimize differential settlement of floor slabs the, subgrade beneath the floor slabs, including bedrock, should be over excavated a minimum of 12 inches and replaced with structural fill.

- Subgrade soil within structure footprints after the over excavation is performed should be proof rolled using a smooth drum roller with a gross weight of at least 10 tons. The roller should operate in its vibratory mode, and complete at least 6 passes at a speed not exceeding 3 feet per second. Areas that tend to "pump" or "weave" under the passing roller should be additionally undercut by at least 12 inches and backfilled with structural fill. If the vibratory roller tends to "bring up" moisture, the subgrade should be proof rolled with the roller operating in the static mode.

- Any deleterious or unidentified "plaster-like" material found below the casino floor slab area should be removed and replaced with compacted structural fill. All solid waste and landfill

cover soils below the parking garage floor slab area should be completely removed and replaced with structural fill.

- A subgrade modulus of 100 pounds per cubic inch should be used for design of concrete floor slabs on compacted structural fill.

- A minimum of 6 inches of clean, compacted crushed stone should be placed beneath floor slabs to enhance support and provide a working base above the soil sub-grade. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The actual thickness of the stone layer should be based on design requirements. The stone should be underlain by a 6 ounce per square yard or heavier, non-woven geotextile with an apparent opening size (AOS) equal to or smaller than the U.S. Standard sieve size of 70 such as a Mirafi 160N or a geotextile of similar qualities. This will provide separation between the stone and underlying structural fill soils.

- The crushed stone should be kept moist, but not wet, immediately prior to floor slab concrete placement.

- A polyethylene vapor retarder with a thickness of at least 10 mils should be used between the crushed stone and concrete slabs in areas where slabs will be covered with floor tile, carpeting, or other material to help prevent potential adverse affects of caused by moisture.

- If a polyethylene vapor retarder is used, adequate curing procedures should be specified to prevent slab curling due to excessive moisture loss in the slab surface.

- A geotechnical engineer should be retained to observe proof rolling of the subgrade and review subgrade conditions prior to slab construction and make recommendations for any unsuitable conditions encountered.

5.3 Retaining/Basement Walls

Walls that retain earth and are not restrained against lateral movement should be designed to resist "active" earth pressures. Walls that retain earth and are restrained against lateral movement should be designed to resist "at rest" earth pressures. Weep holes and/or other drainage features should be provided to limit the potential for development of hydrostatic pressure behind the walls. We recommend that a 12-inch layer of drainage stone be placed immediately behind retaining/basement walls.

Structural backfill should extend a distance behind each wall at least half the wall height. The structural backfill should be capped with a layer of relatively impervious material to minimize percolation of surface water behind retaining/basement walls. Walls can then be designed based on the engineering properties of the structural backfill (as defined in Table 1) as follows:

- Total unit weight: 125 pcf
- Buoyant unit weight: 65 pcf
- Angle of internal friction: 32 degrees
- Coefficient of active earth pressure (level backfill) (Ka): 0.31
- Coefficient of at-rest earth pressure (Ko): 0.47
- Friction factor, concrete footing on structural fill soils 0.45

5.4 Parking Areas and Access Roads

Based on review of the preliminary site plan for the project and information obtained from the subsurface investigation, the proposed parking areas and access roads will generally be constructed on natural soils, solid waste, and fill soils. The natural and fill soils are acceptable for the support of pavement for the parking areas and access roads. However, in areas where pavement will be constructed over the closed landfill, the potential for pavement damage exists due to varying support caused by large scale or localized compression of the solid waste.

In order to minimize the risk of potential pre-mature pavement damage within the landfill area to the fullest extent practical, dynamic compaction of the existing solid waste could be performed. Alternatively, we recommend the installion a geogrid over the existing solid waste during pavement subgrade preparation to reduce the risk of pavement damage within the landfill area. A 12 inch minimum layer of structural fill should be provided between the geogrid material and pavement subbase material. No more than 24 inches of structural fill should be placed over the existing solid waste during subgrade preparation prior to placement of pavement subbase material in order to limit additional overburden pressure and subsequent potential for settlement in pavement.

A CBR value to be used for pavement design was estimated using the correlations of CBR to Unified Soil Classification reported in the text *Correlations of Soil Properties (Carter, M. and Bently, S.P., 1991).* Based on a generalized soil classification of SM/ML for the natural and fill soils, a CBR value of 15 may be used for pavement design in areas outside of the existing landfill footprint. For pavements located over the landfilled waste, a CBR value of 5 should be used for design.

Pavement subgrade soils should preferably contain less than about 8 percent fines (soil particles passing the No. 200 sieve). When the fines content of a pavement subgrade soil is greater than about 8 percent, the performance and longevity of the pavement may be impacted by frost action due to the decreased drainage capabilities of the soil. Laboratory testing of site soils included in Appendix C shows that existing site soils generally contain more than 10 percent fines. These soils are not free draining and will tend to trap water in the pavement subbase. Subsequently, underdrains should be provided in the pavement design or the subbase layer should be daylighted where proposed grading allows to promote rapid drainage and removal of water from the pavement subbase. The use of a woven geotextile below the subbase is also recommended provide separation and confinement of the subbase from site soils to prevent clogging. This will enhance pavement performance and life by guarding against the negative impacts of frost action. In addition, a properly chosen woven geotextile will provide additional reinforcement strength. This will increase the resistance of the pavement to physical deterioration and loss of strength,

thereby extending the pavement life. We recommend a Mirafi 600X woven geotextile, or a geotextile of similar characteristics and quality.

5.5 Site Preparation

The areas within the casino and parking garage footprints and parking and access road areas should be stripped of vegetation, topsoil, and asphalt. The site should then be excavated/graded to required elevations. **All solid waste within the footprint of the proposed parking garage should be removed to bedrock, and all soil fill/bedrock within the remainder of the garage footprint should be removed as described in *Section 5.1 Foundations*.** Solid waste shall be removed from the site and deposited at a site permitted to receive this material. The existing fill soils and bedrock within the footprint of the casino structure should be excavated where necessary to achieve the required elevations for foundations and floor slabs as described in *Section 5.1 Foundations*. Any areas that contain organic material or unidentified "plaster-like" material (as noted during the subsurface investigation) at the excavation grade should be over excavated and backfilled with structural fill.

Based on the information obtained during the subsurface investigation and the preliminary finished floor elevations for the proposed structures, rock excavation or blasting may be required during earthwork operations. Bedrock may be removed with a ripping blade mounted on a bulldozer, or a hydraulic hammer mounted on an excavator. Controlled blasting may become necessary for economical rock removal. To limit potential for blasting damage to nearby structures, blasting vibrations should be limited to a maximum peak particle velocity of 2 inches per second (2 ips) at the closest structure to the blast. We recommend that a precondition survey be performed of all structures within 200 feet of any location where blasting will be performed. We also recommend that blasting vibrations be monitored at the nearest structure for each blast. Precondition surveys and blast vibration monitoring should be performed by an independent firm experienced in this type of work. The controlled blasting should be conducted such that the final bearing surface of the bedrock is not disturbed to the point where the bearing capacity of the bedrock is affected. The final bedrock surface should be benched or leveled in areas where

foundation will be founded. Flowable fill may also be used over bedrock to create a uniform surface for foundation construction for proposed parking garage and casino structures.

Subsequent to stripping the site and excavating to proposed grades, the exposed site soils should be proof rolled using a smooth drum roller with a gross weight of at least 10 tons. The roller should operate in its vibratory mode, and complete at least six passes at a speed not exceeding 3 feet per second (fps). Any areas which pump or weave during proof rolling should be undercut by a minimum of 12 inches and backfilled with structural fill. If the vibratory roller tends to "bring up" moisture, the site soils should be proof rolled with the roller operating in the static mode.

The site should be brought to grade using structural fill beneath the structure footprints, parking areas, and roadways. Structural fill should meet the gradation requirements and be compacted as indicated in *Section 5.6 Structural Fill.* Laboratory testing performed on natural and fill soils at the site indicated that these materials do not meet the requirements for structural fill, particularly the fines content requirements. Therefore, these soils should not be used as backfill within structure footprints, however, these soils may be used as fill in parking, roadway, and landscape areas provided that strict care is taken with regard to moisture control during placement and compaction of these soils. In addition, asphalt that is excavated from the site may be milled and used as fill outside structure footprints.

Any landscaping that is proposed to abut the exterior walls of the structure shall be provided with an underdrain to allow water to freely drain away from the walls. Removing excess water from the landscaped areas adjacent to the structure will prevent water from wicking into the interior slab. Water that wicks into the interior slab could cause environmental conditions or water damage to interior elements. Landscape areas between the building perimeter and sidewalks should always have internal drainage otherwise these areas become reservoirs of water that seep towards sidewalks, landings and parking areas. This additional water contributes to daily icing of paved surfaces.

5.6 Structural Fill

Structural fill should be used for backfilling solid waste excavations, footing excavations, backfilling undercuts, and raising grades within structure and pavement areas. Material suitable for structural fill should consist of sound, durable, non-plastic sand and gravel, free of stumps, roots, other organics and any frozen or deleterious materials meetin the following requirements:

TABLE 1
Gradation Requirements for Structural Fill

Sieve Size	Percent Passing by Weight
4 inch	100
No. 40	0 to 70
No. 200	0 to 10

Laboratory testing on the natural and fill soils at the site show that these soils do not meet the requirements of structural fill. However, the natural and fill soils at the site may be used in lieu of structural fill as previously described in *Section 5.5 Site Preparation.*

Structural fill should be placed in loose lifts not exceeding 8 inches in thickness and should be compacted to at least 95 percent of the maximum laboratory dry density as determined by the modified Proctor test (ASTM D-1557). Structural fill around footings should be thoroughly compacted to provide uniform slab support.

5.7 Seismic Site Classification and Design Parameters

Based upon the information available from the subsurface investigation, the preliminary finished floor elevations for the proposed parking garage and casino structures, the foundation recommendations included herein, and in accordance with Section 1615, Earthquake Loads – Site Ground Motion, of the 2000 International Building Code (IBC), the site class for the subject

property is defined as C. In addition the following seismic design, site coefficients were determined:

- Maximum Spectra Response Acceleration at Short Periods (S_s) 0.24g
- Maximum Spectra Response Acceleration at 1 Second Period (S_1) 0.07g
- Site Coefficient F_a 1.2
- Site Coefficient F_v 1.7

5.8 Control of Water

Based on the groundwater levels observed at the site during the geotechnical investigation, groundwater may be encountered during site work and foundation construction. Project specifications should require that groundwater be maintained at a minimum depth of 2 feet below excavation bottom at all times to maintain stable conditions. It should be the responsibility of the contractor to maintain dry conditions so that all construction may be completed in the dry. Dewatering methods suitable for this site include the use of well points, sumps, diversion and drainage ditches, toe drains and other similar methods. Pumps should be of sufficient capacity to control the groundwater, and operated in a manner which will limit the withdrawal of fines from the soil. It is recommended that pumps be installed in sumps lined with a geotextile and crushed stone. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The geotextile should be a 6 ounce per square yard or heavier, non-woven geotextile with an apparent opening size (AOS) equal to or smaller than the U.S. Standard sieve size of 70 such as a Mirafi 160N or a geotextile of similar qualities.

The subgrade soils beneath floor slabs and backfill adjacent to foundations should be maintained in a drained condition at all times since water build-up could result in wet slabs, cracking, and heaving. We recommend that drain tile with crushed stone or gravel backfill be placed adjacent to exterior footings at a depth of four feet below the final ground surface. The crushed stone or gravel backfill should extend a minimum of 12 inches around the drain tile. The upper one foot of backfill adjacent to the foundation should be relatively impervious and the ground surface

should be graded so that surface water runoff is directed away from the building. Drain tile should also be placed beneath the floor slab within the crushed stone or gravel subbase. All drain tiles should be connected to a storm sewer, daylighted at a lower elevation, or piped to a sump equipped with duplex pumps.

Surface runoff should be diverted away from excavations during construction.

5.9 Frost Heave

The on site soils contain significant amounts of fines (soil particles passing the No. 200 sieve). Soils that contain significant amounts of fine grained particles (i.e. silts and clays) are frost susceptible and may contribute to upward ground movement below exterior pavements and concrete flatwork such as slabs or sidewalks when in the presence of water and exposed to freezing temperatures. The fine grained soils will typically retain a higher content of water than coarser grained soils, and cause upheaval as the ground freezes. Ground heave below concrete flatwork will be more prevalent at transitional elements with varying depths and sections such as curb lines and building entrances. Therefore, in addition to the underdrains installed below paved areas as described in *Section 5.3 Parking Areas and Access Roads*, we recommend that underdrains be provided to a depth of four feet (or at the bedrock surface where less than four feet deep) at these transitions to allow water to freely drain from the subsurface soils to minimize frost action upon concrete flatwork.

5.10 Chemical Analysis

A pH, sulfate, and chloride analysis of select soil samples from test borings B-11, B-20, B-32, B-34 and B-42 was performed to determine if the on-site fill soils are corrosive. The laboratory test results are included in Appendix C. The samples were tested by Atlantic Testing Laboratories, Limited of Clifton Park, New York

The measured sulfate contents in the five samples tested ranges from 164 to 6,340 mg/kg, with three out of the five samples tested having a sulfate content exceeding 1,600 mg/kg. The fill

soils at the site should therefore be considered aggressive to steel and considered to have a severe effect on concrete. Test results on a fourth sample show a moderate effect on concrete.

We therefore recommend that appropriate measures be implemented in the project design to provide sufficient protection of foundation concrete and reinforcing steel from chemical attack.

5.11 Mining Analysis

An assessment of past mining activities in the area of the project site was completed to evaluate the potential impact of these activities on the proposed project. The analysis consisted of reviewing maps obtained from the Pennsylvania Office of Surface Mining & Enforcement (OSM&E) and a hydrogeologic investigation report prepared by Meiser & Earl, Inc. for the East Side Landfill which is part of the project site.

A review of the available information indicates that coal mining in the bedrock within the proposed project limits was completed in the past. Both the information from the OSM&E and the East Side Landfill report indicate the following coal veins in the vicinity of the project site in increasing depth order: Five Foot, Cooper, Bennett, Checker, Top Ross, Ross, Three Foot, Top Red Ash, and Red Ash. It appears that all veins were deep mined, and select veins were strip mined.

The upper most or Five Foot coal vein on average is about 55 to 65 feet above the next deepest or Cooper coal vein. Based on available elevation data, the Five Foot vein ranges about 110 to 160 feet below the preliminary finished floor elevation (elev. 720') in the area of the proposed parking garage, and ranges about 30 to 130 feet below the preliminary finished floor elevation (elev. 720') in the area of the proposed casino.

Information obtained from the OSM&E indicates that there have been no emergency subsidence control problems in the vicinity of the project site. Management at the Pocono Downs facility has also confirmed that subsidence has not been an issue at the current facilities. Since a

considerable thickness of overburden and bedrock exists between the proposed construction and the most shallow mined coal vein, and no previous subsidence problems have been noted in the vicinity, it does not appear that a high degree of risk exists with regard to the impact of subsidence on the proposed construction.

6.0 EXCAVATIONS

In general, all excavations should be performed in accordance with the Occupational Safety and Health Administration (OSHA) standards and other applicable local, State, and Federal regulations. In areas where sufficient sloping of excavation cuts is not possible, excavations should be shored, sheeted and braced.

7.0 OBSERVATION DURING CONSTRUCTION

A qualified geotechnical engineer should carefully observe all aspects of the earthwork including grubbing, topsoil stripping, excavation, proof rolling, undercuts, filling, and drain installation to insure that proper subgrade support is achieved. The geotechnical engineer should carefully inspect the final bearing surface for foundations and floor slabs to ensure that adequate foundation support is provided. The inspection of the bearing surface in structural fill should include probing at select locations to verify the bearing capacity of the structural fill and identify where load bearing surfaces may have been disturbed.

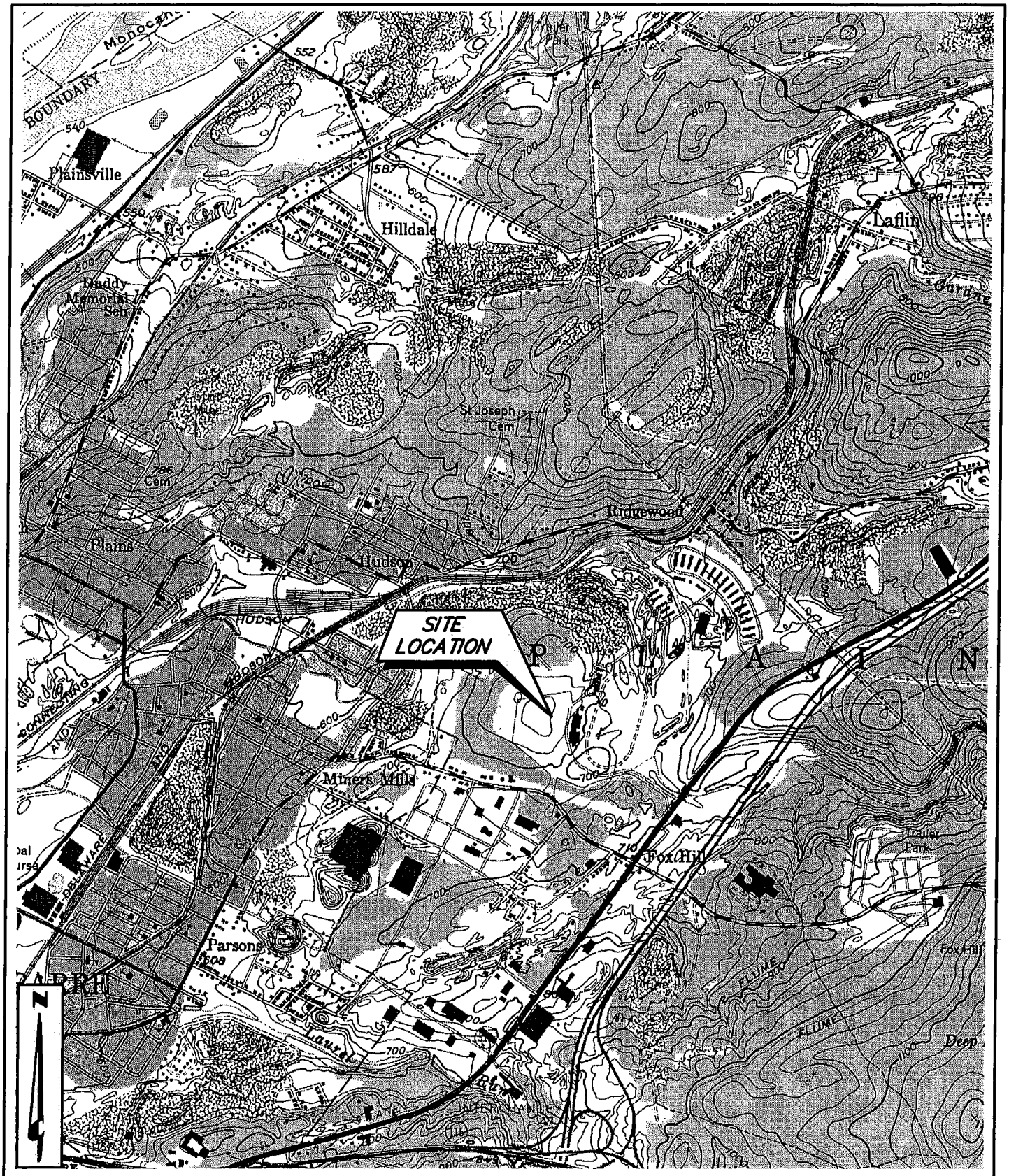
The on-site or off-site materials used as fill to raise grades, backfill undercuts and footing excavations, and beneath footings, floor slabs, and pavement should be tested by a qualified soils laboratory to verify they meet the specified gradations, and to determine their maximum dry density for compaction. In-place density tests should be performed on all fill soils to verify that compaction methods and equipment achieve the required densities.

8.0 CLOSURE

The geotechnical recommendations presented in this report are based, in part, on project and subsurface information available at the time this report was prepared and in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made. Some variation of subsurface conditions may occur between locations explored that may not become evident until construction. Depending on the nature and extent of the variations, it may be necessary to re-evaluate the recommendations presented in this report.

APPENDIX A

Figures



SOURCE: U.S.G.S. 7.5' Topographic
QUADRANGLE: PITTSTON, PA

SCALE: 1"=2000'

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13989.1007.1502

DATE: 03-15-2005

FIGURE 1

SITE LOCATION MAP

POCONO CASINO

PLAINS
PENNSYLVANIA

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APPENDIX B

Test Boring Logs

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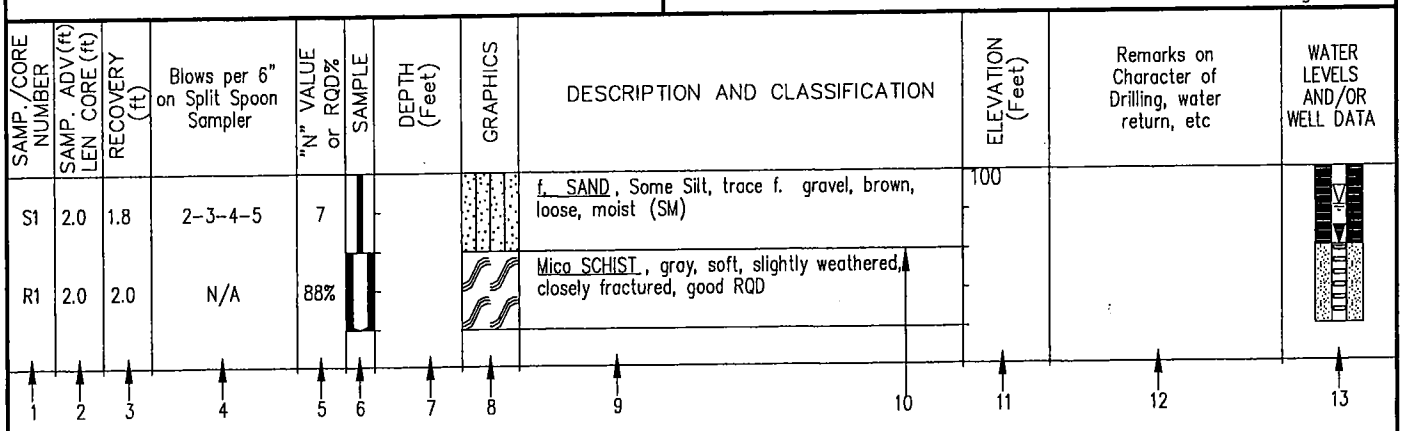
LEGEND TO SUBSURFACE LOGS



Subsurface Logs present material classifications, test data, and observations from subsurface investigations at the subject site as reported by the inspecting geologist or engineer. In some cases, the classifications may be made based on laboratory test data when available. It should be noted that the investigation procedures only recover a small portion of the subsurface materials at the site. Therefore, actual conditions between borings and sampled intervals may differ from those presented on the Subsurface Logs. The information presented on the logs provide a basis for an evaluation of the subsurface conditions and may indicate the need for additional exploration. Any evaluation of the conditions reported on the logs must be performed by Professional Engineers or Geologists.

1. SAMP./CORE NUMBER – Samples are numbered for identification on containers, laboratory reports or in text reports.

2. SAMP.ADV/LEN.CORE – Length of sampler advance or length of coring run measured in feet.

3. RECOVERY – Amount of sample actually recovered after withdrawing sampler or core barrel from bore hole measured in feet.

4. SAMPLE BLOWS/6" – Unless otherwise noted, blow counts represent values obtained by driving a 2.0" (O.D.), 1-3/8" (I.D.) split spoon sampler into the subsurface strata with a 140 pound weight falling 30" as per ASTM D 1586. After an initial penetration of 6" to seat the sampler into undisturbed material, the sampler is then driven an additional 2 or 3 six inch increments.

5. "N" Value or RQD % – "N" VALUE – The sum of the second and third sample blow increments is generally termed the Standard Penetration Test (SPT) "N" value. CORE RQD – Core Rock Quality Designation, RQD, is defined as the summed length of all pieces of core equal to or longer than 4 inches divided by the total length of the coring run. Fresh, irregular breaks distinguishable as being caused by drilling or recovery operations are ignored and the pieces are counted as intact lengths. RQD values are valid only for cores obtained with NX size core barrels.

6. SAMPLE – Graphical presentation of sample type and advance or core run length. See Table 1.

7. DEPTH – Depth as measured from the ground surface in feet.

8. GRAPHICS – Graphical presentation of subsurface materials. See Table 4. Dual soil classification and rock graphics may vary and are not shown on Table 4.

9. DESCRIPTION AND CLASSIFICATION – SOIL – Recovered samples are visually classified in the field by the supervising geologist or engineer unless otherwise noted. Particle size and plasticity classification is based on field observations, and using the Unified Soil Classification System (USCS). See Table 4. USCS symbols are presented in parentheses following the soil description. Where necessary, dual symbols may be used for combinations of soil types. Relative proportions, by weight and/or plasticity, are described in general accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Publication 479, 6-1970. See Table 2. Soil density or consistency description is based on the penetration resistance. See Table 3. Soil moisture description is based on the observed wetness of the soil recovered being dry, moist, wet, or saturated. Water introduced into the boring during drilling may affect the moisture content of the materials. Other geologic terms may also be used to further describe the subsurface materials. ROCK – Rock core descriptions are based on the Inspector's observations and may be examined and described in greater detail by the project engineer or geologist. Terms used in the description of rock core are presented in Table 5.

10. DIVISION LINES – Division lines between deposits are based on field observations and changes in recovered material. Solid lines depict contacts between two deposits of different geologic depositional environment of known elevation. Dashed lines represent estimated elevation of contacts between two deposits of different geologic depositional environment. Dotted lines depict transitions of deposits within the same depositional environment, such as grain size or density.

11. ELEVATION – Elevation of strata changes in feet.

12. REMARKS – Miscellaneous observations.

13. WATER LEVELS & WELL DATA – Hollow water level symbol, if present, represents level at which first saturated sample or water level was encountered. Solid water level symbol, if present, depicts the most probable static water elevation at the time of drilling or as measured in an installed observation well at a later date. Subsurface water conditions are influenced by factors such as precipitation, stratigraphic composition, and drilling/coring methods. Conditions at other times may differ from those described on the logs. For graphical presentation of observation/monitoring well construction, see Table 6. Elevations of changes in construction are noted at the bottom of each section.

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LEGEND TO SUBSURFACE LOGS

TABLE 1
TYPICAL SAMPLE TYPES

SPLIT SPOON (1 3/8" I.D.)

NX SIZE ROCK CORE

SHELBY TUBE "UNDISTURBED"

AUGER SAMPLE

TABLE 2
SAMPLE MATERIAL PROPORTIONS

ADJECTIVE	PERCENTAGE OF SAMPLE
"and"	35% – 50%
"some"	20% – 35%
"little"	10% – 20%
"trace"	< 10%

Standard split spoon samples may not recover particles with any dimension larger than 1 3/8". Therefore, reported gravel percentages may not reflect actual conditions.

TABLE 3
DENSITY/CONSISTENCY

GRANULAR SOILS		COHESIVE SOILS	
Blows/ft.	Density	Blows/ft.	Consistency
< 5	Very Loose	< 2	Very Soft
5–10	Loose	2–4	Soft
11–30	Med. Compact	5–8	Med. Stiff
31–50	Compact	9–15	Stiff
> 50	Very Compact	16–30	Very Stiff
		> 30	Hard

TABLE 4
USCS CLASSIFICATION, PARTICLE SIZE, & GRAPHICS

	MAJOR PARTICLE SIZE DIVISION	USCS SYMBOL	GRAPHIC SYMBOL	GENERAL DESCRIPTION
COARSE GRAINED SOILS	GRAVEL Coarse: 3"–3/4" Fine: 3/4"–#4 Classification based on > 50% being gravel	GW		Well graded gravels, gravel & sand mix.
		GP		Poorly graded gravels, gravel & sand mix.
		GM		Gravel, sand and silt mix.
		GC		Gravel, sand and clay mix.
	SAND Coarse: #4–#10 Med.: #10–#40 Fine: #40–#200 Classification based on > 50% being sand	SW		Well graded sand, sand & gravel mix.
		SP		Poorly graded sand, sand & gravel mix.
		SM		Sand and silt mix.
		SC		Sand and clay mix.
FINE GRAINED SOILS	SILT & CLAY Classification based on > 50% passing #200 sieve.	ML		Inorganic silt, low plasticity.
		CL		Inorganic clay, low plasticity.
		OL		Organic silt/clay, low plasticity.
		MH		Inorganic silt, high plasticity.
		CH		Inorganic clay, high plasticity.
		OH		Organic silt/clay, high plasticity.
ORGANIC SOILS		Pt		Peat and other highly organic soils.
FILL		Fill		Miscellaneous fill materials.

TABLE 5
ROCK CLASSIFICATION TERMS

HARDNESS:

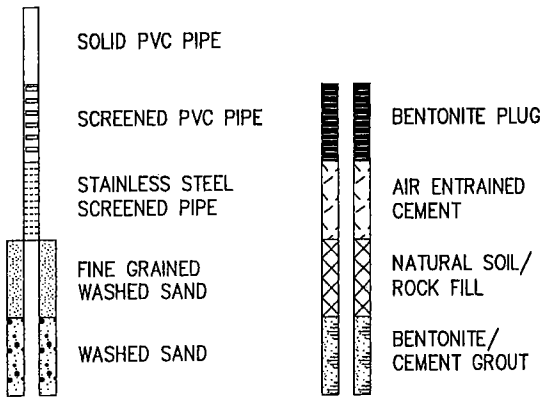
Very Soft	Carves
Soft	Grooves with knife
Med. Hard	Scratched easily with knife
Hard	Scatched with difficulty
Very Hard	Cannot be scratched with knife

WEATHERING:

Fresh	Slight or no staining of fractures, little or no discoloration, few fractures.
Slightly	Fractures stained, discoloration may extend into rock 1", some soil in fractures.
Moderately	Significant portions of rock stained and discolored, soil in fractures, loss of strength.
Highly	Entire rock discolored and dull except quartz grains, severe loss of strength.
Complete	Weathered to a residual soil.

BEDDING:		FRACTURE SPACING:		RQD:	
Massive	> 40"	Massive/V. Wide	> 6'	Excellent	> 90%
Thick	12' – 40"	Thick/Wide	2' – 6'	Good	76% – 90%
Medium	4" – 12"	Med./Med.	8" – 24"	Fair	51% – 75%
Thin	< 4"	Thin/Close	2 1/2" – 8"	Poor	25% – 50%
		V. Thin/V. Close	< 2 1/2"	V. Poor	< 25%

TABLE 6
WELL CONSTRUCTION



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Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-1

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/25/2005 9:20:00 AM

FINISH DATE and TIME: 2/25/2005 10:35:00 AM

SURFACE ELEV: 693.64 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-25-05	10:35 AM	During Drilling	None	12.6	12.6

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	1.5	1.5	18-23-16	39				**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, red/dark gray, compact, moist **(FILL)**			
S-2	1.3	1.3	29-32-50/.3	R				**f.m.c. SAND**, trace f.c. gravel, trace silt, trace coal, dark gray, v. compact, moist **(FILL)**			
									690		
S-3	0.2	0	50/.2	R				INSUFFICIENT RECOVERY		Spoon bounced with hammer blows. Auger grinds hard @ 5'.	
						5					
S-4	0.9	0.9	50-50/.3	R				**f.m.c. SAND**, Some f.c. Gravel, trace silt, dark gray/brown, v. compact, moist **(FILL)**			
S-5	0.8	0.8	32-50/.3	R				**f.m.c. SAND**, little f.c. gravel, trace silt, dark gray, v. compact, moist **(FILL)**	685		
						10					
										Auger grinds hard @ 12'.	
S-6	0.1	0.1	75/.1	R				**COAL ASH** black, v. compact, moist **(FILL)**		Auger and spoon refusal @ 12.6' interpreted as bedrock.	
								End of Boring at 12.6 ft	680		
						15					
									675		
						20					
									670		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-2

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/25/2005 8:15:00 AM

FINISH DATE and TIME: 2/25/2005 9:00:00 AM

SURFACE ELEV: 697.31 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-25-05	9:00 AM	During Drilling	None	14.2	14.2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions. Advanced auger from 0' to 0.5'.	
S-1	1.5	1.2	6-24-14	38				**f.m.c. SAND**, little f.c. gravel, little silt, dark gray, compact, moist **(FILL)**			
S-2	0.1	0	50/.1	R				INSUFFICIENT RECOVERY	695		
S-3	2	0.5	30-45-17-13	62		5		**f.c. GRAVEL**, Some Silt, Some f.m.c. Sand, dark gray, v. compact, moist **(FILL)**		S-3 Lab Results: % Gravel = 44 % Sand = 34 % Fines = 22 Moisture Content = 8%	
								becomes m. compact **(FILL)**			
S-4	2	1.6	5-6-12-17	18				**f. SAND**, little silt, m. brown, m. compact, moist **(SM)**	690		
S-5	2	1.7	19-26-22-30	48		10		**f. SAND**, Some Silt, brown, compact, moist **(SM)**			
									685		
S-6	1.2	0.8	36-32-50/.2	R				**f.c. GRAVEL**, little f.m.c. sand, trace silt, brown, v. compact, moist **(GP)**			
						15		End of Boring at 14.2 ft		Auger and spoon refusal @ 14.2' interpreted as bedrock.	
									680		
						20					
									675		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-3

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 3/2/2005 9:15:00 AM

FINISH DATE and TIME: 3/2/2005 10:00:00 AM

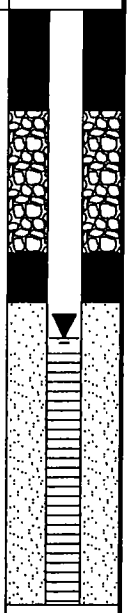
SURFACE ELEV: 701.76 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-2-05	10:00 AM	During Drilling	None	11.8	11.8
	3-23-05	11:15 AM	Static	6.5	11.8	11.8

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.
					0	**TOPSOIL**	701.76	Water Level observation based on soil moisture content and may not represent static conditions.
S-1	2	1	1-2-3-4	5		**f.m.c. SAND**, Some Silt, trace f.c. gravel, light brown, loose, moist **(SM)**	700	
S-2	2	1.5	8-11-13-14	24		**f.m.c. SAND**, Some Silt, little f.c. gravel, brown/gray, m. compact, moist **(SM)**		
S-3	2	0.8	18-17-15-15	32	5	**f.m.c. SAND**, little f.c. gravel, little silt, trace coal, gray, compact, moist **(SM)**		
S-4	0.3	0.2	50/.3	R		BOULDER/COBBLE	695	Auger grinds hard 6'-7'
S-5	0.2	0	50/.2	R		BOULDER/COBBLE		Auger grinds hard 8'-8.5'
S-6	1.8	0.8	21-20-28-50/.3	48	10	**f.m.c. SAND**, little f.c. gravel, little silt, trace coal, gray, compact, moist **(SM)**		
						End of Boring at 11.8 ft	690	Auger and spoon refusal @ 11.8' interpreted as bedrock.
					15		685	
					20		680	
					25			

WATER LEVELS AND/OR WELL DATA



SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-4

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 3/1/2005 2:45:00 PM

FINISH DATE and TIME: 3/1/2005 3:45:00 PM

SURFACE ELEV: 704.14 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-1-05	3:45 PM	During Drilling	None	13	14.8

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
					TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1	7-2-3-3	5	f.m.c. SAND Some Silt, trace f.c. gravel, light brown, loose, moist **(SM)**			
S-2	2	1.5	4-8-21-24	29	f.c. GRAVEL, Some f.m.c. Sand, trace silt, brown, m. compact, moist **(GP)**			
S-3	0.3	0.3	50/.3	R	becomes v. compact **(GP)**	700		
					BOULDER/COBBLE		Hard grinding from 4.5' to 5.5'.	
					5			
S-4	2	1.4	12-17-16-14	33	f.m.c. SAND little silt, little coal, trace f.c. gravel, dark gray, compact, moist **(SM)**			
					becomes m. compact **(SM)**			
S-5	2	1.2	15-9-8-6	17		695		
					10			
S-6	2	0.8	9-6-24-12	30	f.m.c. SAND little f.c. gravel, little silt, trace coal, dark gray, m. compact, moist **(SM)**			
					becomes compact **(SM)**			
S-7	1.8	1.2	17-15-35-50/.3	50		690		
					15			
					End of Boring at 14.8 ft		Terminated boring @ 14.8' in soil.	
						685		
					20			
						680		
					25			

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-5

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 3/1/2005 3:50:00 PM

FINISH DATE and TIME: 3/1/2005 4:45:00 PM

SURFACE ELEV: 704.13 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-1-05	4:45 PM	During Drilling	None	13.3	13.3

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1	1-2-3-4	5				**f.m.c. SAND**, Some Silt, trace f.c. gravel, light brown, loose, moist **(SM)**			
S-2	2	1.2	5-17-23-22	40				**f.m.c. SAND**, little f.c. gravel, little silt, brown, compact, moist **(SM)**			
S-3	0.9	0.9	28-50/.4	R		5		**f.m.c. SAND**, Some Silt, little f.c. gravel, gray, v. compact, moist **(SM)**	700		
S-4	0.4	0.4	50/.4	R				**f.m.c. SAND**, little f.c. gravel, little silt, dark gray, v. compact, moist **(SM)**			
S-5	2	1.5	22-18-21-25	39		10		becomes compact **(SM)**	695	Auger grinding hard from 10' to 11' interpreted to be completely weathered bedrock.	
S-6	0.3	0.1	50/.3	R				**SANDSTONE**, gray, moderately weathered. End of Boring at 13.3 ft	690	Sandstone fragment in spoon. Auger and spoon refusal @ 13.3' in bedrock.	
						15					
						20			685		
						25			680		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-6

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 3/2/2005 8:00:00 AM

FINISH DATE and TIME: 3/2/2005 9:00:00 AM

SURFACE ELEV: 694.97 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-2-05	9:00 AM	During Drilling	None	10.5	10.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	0.5	7-12-10-11	22				**f.m.c. SAND**, Some Silt, trace c. gravel, light brown, m. compact, moist **(SM)**		S-2 Lab Results: % Gravel = 8 % Sand = 55 % Fines = 37 Moisture Content = 9.5%	
S-2	2	1.4	7-28-27-24	55				**f.m.c. SAND and SILT** trace f.c. gravel, trace coal, gray, v. compact, moist **(SM)**			
S-3	1.3	1.3	7-30-50/.3	R		5		**Similar Soil (SM)**	690		
S-4	2	1	9-11-20-12	31				**f.m.c. SAND**, little silt, trace f.c gravel, trace coal, gray, compact, moist **(SM)**			
S-5	0.9	0.2	21-50/.4	R				**f.m.c. SAND**, little silt, trace f.c. gravel, gray, v. compact, moist **(Completely Weathered Sandstone)**		Sandstone gravel lodged in end of sampler. Slow/Difficult drilling 9' to end.	
S-6	0	0	50/0	R		10		No Recovery	685		
								End of Boring at 10.5 ft		Auger and spoon refusal @ 10.5'.	
						15			680		
						20			675		
						25			670		

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-7

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 3:30:00 PM

FINISH DATE and TIME: 2/28/2005 4:45:00 PM

SURFACE ELEV: 700.34 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	4:45 PM	During Drilling	None	13	15

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL	700	Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.2	7-6-15-17	21				**f.m.c. SAND**, little f.c. gravel, trace coal ash, trace brick, dark gray, m compact, moist **(SOLID WASTE)**			
S-2	2	1	11-17-12-14	29				**f.m.c. SAND**, little f.c. gravel, trace coal ash, trace glass, dark gray, m compact, moist **(SOLID WASTE)**			
S-3	1.8	0.4	7-4-50/.3	R		5		**f.m.c. SAND**, little plastic, little wood, brown, v. compact, moist **(SOLID WASTE)**	695		
S-4	0.3	0	50/.3	R				No Recovery			
S-5	2	1.2	8-12-14-17	26				**f.m.c. SAND**, little f.c. gravel, little wood, trace silt, brown, m. compact, moist **(SOLID WASTE)**			
S-6	1.7	0.3	11-17-21-50/.2	38		10		**f.m.c. SAND**, little f.c. gravel, little silt, brown, compact, moist **(SOLID WASTE)**	690		
S-7	2	1.2	7-11-14-20	25		15		**f.m.c. SAND**, little f.c. gravel, brown, m. compact. moist **(SP)**	685	Boring terminated @ 15' in soil.	
								End of Boring at 15 ft			
						20			680		
						25			675		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-8

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 12:00:00 PM

FINISH DATE and TIME: 2/28/2005 12:45:00 PM

SURFACE ELEV: 715.23 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	12:45 PM	During Drilling	None	8.5	8.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL	715	Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.2	2-6-8-8	14				**COAL ASH** black, m. compact, moist **(SOLID WASTE)**			
S-2	2	1	7-8-16-16	24				**f.c. GRAVEL**, Some f.m.c. Sand, little coal ash, trace silt, brown/black, m. compact, moist **(SOLID WASTE)**			
S-3	2	0.9	8-16-12-14	28		5		**f.m.c. SAND**, little f.c. gravel, little silt, trace coal ash, gray, m. compact, moist **(SOLID WASTE)**	710		
S-4	2	1.3	12-12-16-20	28				**Similar Soil**			
S-5	0.2	0	50/.2	R				No Recovery			
								End of Boring at 8.5 ft		Auger and spoon refusal @ 8.5' on what is interpreted as bedrock.	
						10			705		
						15			700		
						20			695		
						25			690		

SUBSURFACE LOG 13989-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-9

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 12:00:00 PM

FINISH DATE and TIME: 2/28/2005 1:00:00 PM

SURFACE ELEV: 726.69 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	1:00 PM	During Drilling	None	13.4	13.4

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	1.5	4-4-5-8	9				f.m.c. SAND, trace f. gravel, trace silt, brown, loose, moist (SP)	725	Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	1.3	1.2	15-22-50/.3	R				f.m.c. SAND, little clay, trace silt, trace f.c. gravel, light brown, v. compact, moist (SP)			
S-3	2	1.8	19-23-27-25	50		5		f.m.c. SAND, little f.c. gravel, trace silt, trace coal, dark gray, compact, moist (SP)			
S-4	0.9	0	47-50/.4	R				INSUFFICIENT RECOVERY	720		
								BOULDER/COBBLE		Auger grinds hard from 7' to 7.5'.	
S-5	2	0.3	18-24-24-24	48		10		f.c. GRAVEL, Some f.m.c. Sand, trace silt, dark gray, compact, moist (GP)	715		
S-6	0.4	0.4	70/.4	R		15		f.m.c. SAND, trace f. gravel, trace silt, dark gray, compact, moist (SP)	710	Auger and spoon refusal @ 13.4' interpreted as bedrock.	
								End of Boring at 13.4 ft			
						20			705		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-10

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/23/2005 8:45:00 AM

FINISH DATE and TIME: 2/23/2005 10:00:00 AM

SURFACE ELEV: 729.30 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	10:00 AM	During Drilling	None	24	26

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	0.5	11-4-4-5	8				f.m.c. SAND little f.c. gravel, trace silt, dark gray/red, loose, moist **(FILL)**			
S-2	2	1.1	12-13-18-20	31				f.m.c. SAND trace f.c. gravel, trace silt, dark gray/brown, compact, moist **(FILL)**			
S-3	2	1.5	16-16-15.-17	31		5		f.m.c. SAND little silt, trace f. gravel, trace coal ash, dark gray, compact, moist **(FILL)**	725		
S-4	2	1.2	5-7-19-15	26				becomes m. compact **(FILL)**			
S-5	2	0.8	14-11-16-17	27		10		Similar Soil **(FILL)**	720		
S-6	0.8	0.8	21-50/.3	R		15		f.m.c. SAND little f.c. gravel, little silt, trace coal ash, dark gray, v. compact, moist **(FILL)**	715		
S-7	1.4	1	31-40-50/.3	R		20		f.m.c. SAND trace f.c. gravel, trace silt, trace coal ash, dark gray, v. compact, moist **(FILL)**	710		
S-8	2	1.8	19-42-41-48	83		25		f.m.c. SAND little f.c. gravel, trace silt, brown/gray, v. compact, moist **(SP)**	705	Sandstone gravel in split spoon shoe.	
								End of Boring at 26 ft		Boring terminated @ 26' in soil.	

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-11

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/22/2005 10:30:00 AM

FINISH DATE and TIME: 2/22/2005 11:30:00 AM

SURFACE ELEV: 723.02 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	11:30 AM	During Drilling	None	14.6	14.6
	3-23-05	11:00 AM	Static	None	14.6	14.6

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	1.3	1	13-23-50/.3	R				**ASPHALT** **f.c. GRAVEL**, Some f.m.c. Sand, red/dark gray, v. compact, moist **(FILL)**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	0.9	0.6	33-50/.3	R				**f.m.c. SAND**, little f.c. gravel, trace silt, dark gray, v. compact, moist **(FILL)**	720		
S-3	1.8	1	15-28-30-50/.3	58		5		**Similar Soil (FILL)**			
S-4	2	0.8	34-35-34-34	69				**Similar Soil (FILL)**			
S-5	2	1.5	18-50-35-35	85		10		**f.m.c. SAND and SILT**, little f. gravel, gray, v. compact, moist **(FILL)**	715 710	S-5 Lab Results: % Gravel = 11 % Sand = 52 % Fines = 37 Moisture Content = 7.6%	
S-6	0.6	0.2	40-50/.1	R		15		**f.m.c. SAND**, trace f. gravel, trace silt, dark gray, v. compact, moist **(FILL)** End of Boring at 14.6 ft		Auger and spoon refusal @ 14.6' interpreted as bedrock.	
						20			705 700		
						25					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-12

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/24/2005 11:35:00 AM

FINISH DATE and TIME: 2/24/2005 1:35:00 PM

SURFACE ELEV: 711.71 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	2-24-05	1:35 PM	During Drilling	None	18.7	18.7

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions. Advanced auger from 0' to 0.5'.	
S-1	1.5	1.5	11-12-30	42				f.m.c. SAND, Some f.c. Gravel, red/black/dark gray, compact, moist **(FILL)**	710		
S-2	2	1.2	21-28-23-28	51				f.m.c. SAND, little f.c. gravel, little silt, trace coal ash, dark brown, v. compact, moist **(FILL)**			
S-3	2	0.4	27-34-44-51	78		5		f.c. GRAVEL, little f.m.c. sand, trace silt, gray, v. compact, moist **(FILL)**			
S-4	2	1.5	26-22-30-30	52				f.m.c. SAND, Some f.c. Gravel, little silt, trace coal ash, dark brown, v. compact, moist **(FILL)**	705		
S-5	1.4	0.1	44-28-50/.4	R				INSUFFICIENT RECOVERY **(FILL)**		Sandstone gravel in split spoon shoe.	
						10			700		
										Auger grinds hard @ 13'.	
S-6	0.8	0.8	50-50/.3	R		15		f.c. GRAVEL, Some f.m.c. Sand, trace silt, brown, v. compact, moist **(FILL)**	695		
S-7	0	0	50/0	R				No Recovery		Auger grinds hard @ 18'.	
								End of Boring at 18.7 ft		Auger and spoon refusal @18.7' interpreted as bedrock.	
						20			690		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-13

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/24/2005 10:35:00 AM

FINISH DATE and TIME: 2/24/2005 11:35:00 AM

SURFACE ELEV: 721.10 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-24-05	11:35 AM	During Drilling	None	8	8

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	1.5	1.5	23-23-50	73				**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, dark gray, v. compact, moist **(FILL)**	720		
S-2	2	1.5	35-32-23-32	55				**f.m.c. SAND** trace f.c. gravel, trace silt, brown, v. compact, moist **(FILL)**			
S-3	1.4	1.4	45-46-50/.4	R		5		**f.m.c. SAND** little silt, trace f.c. gravel, dark gray, v. compact, moist **(FILL)**			
S-4	0.7	0.7	37-50/.2	R				**f.m.c. SAND** Some f.c. Gravel, trace silt, dark gray, v. compact, moist **(FILL)**	715		
S-5	0	0	50/0	R				No Recovery		Auger grinds hard from 7' to termination. Auger and spoon refusal @ 8' interpreted as bedrock.	
								End of Boring at 8 ft			
						10			710		
						15			705		
						20			700		
						25			695		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-14

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 3/1/2005 9:00:00 AM

FINISH DATE and TIME: 3/1/2005 10:00:00 AM

SURFACE ELEV: 720.37 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 14.5' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-1-05	10:00 AM	During Drilling	None	14.5	14.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT	720	Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	1.5	1.2	12-25-32	57				**f.m.c. SAND**, Some f.c. Gravel, trace silt, dark gray, v. compact, moist **(FILL)**			
								Similar Soil (FILL)			
S-2	1.9	1.5	20-32-23-50/.4	55							
								f.c. GRAVEL, Some f.m.c. Sand, trace silt, dark gray, compact, moist **(FILL)**			
S-3	2	1.5	43-30-18-20	48		5			715		
S-4	0.9	0.5	17-50/.4	R				**f.m.c. SAND**, Some f.c. Gravel, trace silt, dark gray, v. compact, moist **(FILL)**			
S-5	0.1	0	50/.1	R				No Recovery		Auger grinds hard from 7.5' to 8.5'	
										Slow/difficult drilling from 9' to 14.5'.	
						10			710		
S-6	0.7	0.5	85-50/.2	R				**f.c. GRAVEL**, little f.m.c. sand, little silt, grey, v. compact, moist **(HIGHLY WEATHERED SHALE)**			
								SHALE, gray, m. hard, highly weathered, v. close fracture spacing, poor RQD		Auger refusal @ 14.5'.	
						15			705		
R-1	5.5	5		38%							
								becomes slightly weathered			
						20		End of Boring at 20 ft	700		
						25			695		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-15

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/22/2005 9:40:00 AM

FINISH DATE and TIME: 2/22/2005 10:20:00 AM

SURFACE ELEV: 726.55 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	10:20 AM	During Drilling	None	11	11

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	1.4	1	6-16-65/.4	R				**f.m.c. SAND**, Some f.c. Gravel, little silt, dark gray, v. compact, moist **(FILL)**	725		
S-2	1.3	0.5	30-27-50/.3	R				**f.c. GRAVEL**, Some f.m.c. Sand, trace brick, red/dark gray, v. compact, moist **(FILL)**			
S-3	2	0.8	40-34-25-25	59		5		**f.m.c. SAND**, little f.c. gravel, little silt, dark gray, v. compact, moist **(FILL)**			
S-4	2	1.4	17-16-16-39	32				**f.m.c. SAND**, Some f.c. Gravel, little silt, dark gray, compact, moist **(FILL)**	720		
S-5	2	1.1	12-12-21-22	33				**f.m.c. SAND**, little f.c. Gravel, trace silt, dark gray, compact, moist **(FILL)**			
S-6	0	0	50/0	R		10		No Recovery		Slow/difficult drilling from 10' to termination.	
								End of Boring at 11 ft	715	Auger and spoon refusal @ 11' interpreted as bedrock.	
						15			710		
						20			705		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-16

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/23/2005 10:20:00 AM

FINISH DATE and TIME: 2/23/2005 11:20:00 AM

SURFACE ELEV: 732.42 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	11:20 AM	During Drilling	None	16.5	16.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	0.9	0.9	8-50/.4	R				**ASPHALT** **f.c. GRAVEL**, Some f.m.c. Sand, red/dark gray, v. compact, moist **(FILL)**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	0.8	0.8	25-50/.3	R				**f.m.c. SAND**, trace f.c. gravel, trace silt, dark gray, v. compact, moist **(FILL)**	730	Advanced auger from 0' to 0.2'. Auger grinds hard @ 3'.	
S-3	2	1.4	50-35-35-35	70		5		**f.m.c. SAND**, little f.c. gravel, trace silt, trace coal ash, dark gray/black, v. compact, moist **(FILL)**			
S-4	0.9	0.6	40-50/.4	R				**f.m.c. SAND**, Some f.c. Gravel, trace silt, dark gray, v. compact, moist **(FILL)**	725		
S-5	0.3	0.3	50/.3	R		10		**f.m.c. SAND**, little f.c. gravel, light brown, v. compact, moist **(SP)**	720	Auger grinds hard @ 12.5. Interpreted to be completely weathered bedrock.	
S-6	0.4	0.4	50/.4	R		15		**f.m.c. SAND**, little f.c. gravel, light brown, v. compact, moist **(Completely Weathered Sandstone)**			
S-7	0	0	50/0	R				End of Boring at 16.5 ft	715	Auger and spoon refusal @ 16.5' in bedrock.	
						20			710		
						25					

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-17

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/21/2005 1:00:00 PM

FINISH DATE and TIME: 2/21/2005 2:15:00 PM

SURFACE ELEV: 720.94 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-21-05	2:15 PM	During Drilling	None	20.5	20.5

SAMP./CORE NUMBER	SAMP ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions. Advanced auger from 0' to 1'.	
S-1	1	0.7	12-22					**f.m.c. SAND**, little silt, trace f. gravel, dark gray, v. compact, moist **(FILL)**	720		
S-2	0.8	0.3	32-50/.3	R				**f.m.c. SAND**, little f.c. gravel, little silt, dark gray, v. compact, moist **(FILL)**			
S-3	2	1	14-25-32-50	57		5		**f.m.c. SAND**, little f.c. gravel, trace silt, dark gray, very compact, moist **(FILL)**			
S-4	0.9	0.4	30-35-38-50/.3	73				**c. GRAVEL**, trace f.m.c. sand, trace silt, v. compact, moist **(FILL)**	715		
S-5	0.3	0.5	31-39-50/.3	R		10		**f.m.c. SAND**, little f.c. gravel, trace silt, dark gray, v. compact, moist **(FILL)**	710	Auger grinds hard @ 12'.	
S-6	0.4	0.4	50/.4	R		15		**f.m.c. SAND**, light brown, v. compact, moist **(SP)**		Slow/difficult drilling from 15' interpreted to be completely weathered bedrock.	
S-7	0.1	0.1	50/.1	R				**f.m.c. SAND**, light brown, v. compact, moist **(Completely Weathered Sandstone)**	705		
S-8	0	0	50/0	R		20		No Recovery End of Boring at 20.5 ft	700	Auger and spoon refusal @ 20.5' in bedrock.	
						25			695		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-18

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/22/2005 8:30:00 AM

FINISH DATE and TIME: 2/22/2005 9:30:00 AM

SURFACE ELEV: 721.68 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	9:30 AM	During Drilling	None	13	13

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.2	18-17-14-15	31				f.m.c. SAND, little f.c. gravel, trace silt, dark gray, compact, moist **(FILL)**	720		
S-2	0.8	0.2	28-50/.3	R				becomes v. compact **(FILL)**			
S-3	0.8	0.6	54-50/.3	R		5		f.m.c. SAND, trace silt, light brown, v. compact, moist **(SP)**			
S-4	0.4	0.4	85/.4	R				f.m.c. SAND, trace f.c. gravel, light brown, v. compact, moist **(SP)**	715		
S-5	0.3	0.3	70/.3	R		10		f.m.c. SAND, Some Silt, trace f.c. gravel, light brown, v. compact, moist **(SP)**		Slow/difficult drilling from 8.5' to termination. S-5 Lab Results: % Gravel = 9 % Sand = 71 % Fines = 20 Moisture Content = 1.6%	
								No Recovery	710		
S-6	0	0	50/0	R		15		End of Boring at 13 ft		Auger and spoon refusal @ 13' on what is interpreted as bedrock.	
									705		
						20					
									700		
						25					

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-19

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/23/2005 2:10:00 PM

FINISH DATE and TIME: 2/23/2005 2:40:00 PM

SURFACE ELEV: 728.43 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	2:40 PM	During Drilling	None	5	5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions. Advanced auger from 0' to 0.5'.	
S-1	1.4	1.4	8-23-50/.4	R				**f.c. GRAVEL**, little f.m.c. sand, trace silt, red/dark gray, v. compact, wet **(FILL)**			
S-2	0.4	0.4	50/.4	R				**f.c. GRAVEL**, little f.m.c. sand, trace silt, trace coal ash, light brown/gray, v. compact, wet **(FILL)**	725		
S-3	0.3	0.3	100/.3	R				**f.m.c. SAND**, little f.c. gravel, trace silt, brown, v. compact, moist **(SP)**		Sandstone fragment in shoe. Auger grinds hard @ 4.5' Auger and spoon refusal @ 5' on what is interpreted as bedrock.	
S-4	0	0	50/0	R		5		End of Boring at 5 ft			
						10			720		
						15			715		
						20			710		
						25			705		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-20

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/23/2005 1:00:00 PM

FINISH DATE and TIME: 2/23/2005 2:00:00 PM

SURFACE ELEV: 731.51 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	2:00 PM	During Drilling	None	24	26

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1	8-13-20-13	33				**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, dark gray/red, compact, moist **(FILL)**	730		
S-2	2	1.2	14-15-11-23	26				**f.c. GRAVEL**, little f.m.c. sand, trace silt, dark gray, m. compact, miost **(FILL)**			
S-3	2	0.5	32-13-11-12	24		5		**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, dark gray, m. compact, miost **(FILL)**			
S-4	2	1.3	9-5-7-10	12				**f.m.c. SAND**, Some Silt, Some f.c. Gravel, trace coal ash, dark gray/brown, m. compact, moist **(FILL)**	725		
S-5	2	1	12-10-8-6	18		10		**Similar Soil (FILL)**		S-5 Lab Results: % Gravel = 17 % Sand = 55 % Fines = 28 Moisture Content = 12.2%	
									720		
S-6	2	1.2	6-4-5-6	9		15		becomes loose **(FILL)**			
									715		
S-7	2	1	9-6-5-5	11		20		**f.c. GRAVEL**, Some f.m.c. Sand, little silt, trace coal ash, brown/dark gray, m. compact, moist **(FILL)**			
									710		
S-8	2	1.4	7-8-9-9	17		25		**f.m.c. SAND**, Some f.c. Gravel, trace silt, trace coal ash, brown/dark gray, m. compact, moist **(FILL)**		Boring terminated @ 26' in soil.	
								End of Boring at 26 ft			

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-21

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 12:00:00 PM

FINISH DATE and TIME: 2/28/2005 12:45:00 PM

SURFACE ELEV: 732.77 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	12:45 PM	During Drilling	None	11	11

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	0.9	7-12-12-5	24				**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, gray, m. compact, moist **(SOLID WASTE)**			
								f.m. SAND, trace c. gravel, trace silt, m. brown, m. compact, moist **(SOLID WASTE)**	730		
S-2	2	1	7-8-9-9	17							
								f.m. SAND, little c. gravel, little silty clay, gray, m. compact, moist **(SOLID WASTE)**			
S-3	2	1.3	7-10-12-12	22		5					
								f.m.c. SAND, little silty clay, little coal ash, trace f.c. gravel, gray, v. compact, moist **(SOLID WASTE)**			
S-4	2	0.9	18-38-46-21	84					725		
								f.m.c. SAND, little f.c. gravel, trace coal ash, trace silt, brown, m. compact. moist **(SOLID WASTE)**			
S-5	2	1.2	14-12-15-16	27							
S-6	0.4	0.3	50/.4	R		10		**f.m.c. SAND**, little silty clay, trace coal ash, gray, v. compact, moist **(SOLID WASTE)**			
S-7	0	0	50/0	R				No Recovery			
								End of Boring at 11 ft		Auger and spoon refusal @ 11' on what is interpreted as bedrock.	
									720		
						15					
									715		
						20					
									710		
						25					

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-22

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/24/2005 7:40:00 AM

FINISH DATE and TIME: 2/24/2005 3:40:00 PM

SURFACE ELEV: 722.34 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 43.5' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-24-05	2:00 PM	During Drilling	40	40	42

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1	9-9-10-6	19				**COAL ASH** black, m. compact, moist **(SOLID WASTE)**			
								f.m. SAND, Some Coal Ash, little f.c. gravel, little silt, trace plastic, trace paper, trace wood, brown/black, loose, moist **(SOLID WASTE)**	720		
S-2	2	1.3	4-3-6-7	9				becomes m. compact **(SOLID WASTE)**			
S-3	2	1.2	7-8-7-6	15		5					
								COAL ASH Some f.m. Sand, little silt, trace f.c. gravel, black, loose, wet **(SOLID WASTE)**			
S-4	2	0.3	5-2-6-4	8					715		
								INSUFFICIENT RECOVERY		Spoon bounced on what is interpreted to be rubber or plastic.	
S-5	2	0.1	5-4-9-29	13							
						10		**f.m. SAND**, little coal ash, trace fabric, trace wood, trace plastic, trace silt, m. compact, black, moist **(SOLID WASTE)**			
S-6	2	1.1	12-6-6-4	12					710		
								f.m. SAND, Some Glass, little plastic, little coal ash, trace silt, black, v. loose, moist **(SOLID WASTE)**			
S-7	2	1	7-2-2-4	4		15			705		
						20		**f.m. SAND**, little silt, trace wood, trace coal ash, trace plastic, trace paper, black, loose, moist **(SOLID WASTE)**			
S-8	2	0.4	6-1-5-13	6					700		
								f.m. SAND, little silt, little coal ash, trace c. sand, trace f. gravel, brown, m. compact, moist **(FILL)**		End of garbage @ approximately 22.5'.	
S-9	2	1.7	9-11-19-27	30		25					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-22

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
									695		
						30		becomes v. compact **(FILL)**			
S-10	2	1.2	25-25-29-29	54					690		
						35		**f.m. SAND**, little f.c. gravel, little silt, little c. sand, trace coal ash, brown/black, compact, moist **(FILL)**			
S-11	2	2	14-14-24-23	38					685		
						40		becomes wet **(FILL)**			▽
S-12	2	2	10-16-18-22	34					680		
								SANDSTONE, gray, slightly weathered, close fracture spacing, fair RQD		Auger and spoon refusal @ 43.5'.	
						45					
R-1	5	4.7		68%					675	Void in bedrock between 45.5' and 46'.	
								End of Boring at 48.5 ft			
						50					
									670		
						55					
									665		

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-23

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 2:00:00 PM

FINISH DATE and TIME: 2/28/2005 3:15:00 PM

SURFACE ELEV: 699.28 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	3:15 PM	During Drilling	None	13	15

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL			
S-1	2	0.9	4-2-7-8	9				f.c. GRAVEL, Some f.m.c. Sand, little silt, brown, loose, moist **(SOLID WASTE)**			
S-2	2	0.5	8-7-6-7	13				f.m.c. SAND, little f.c. gravel, trace coal ash, trace brick, brown/black/red, m. compact, moist **(SOLID WASTE)**			
S-3	2	0.9	9-17-23-25	40		5		f.m.c. SAND, Some f.c. Gravel, trace silt, trace glass, gray, compact, moist **(SOLID WASTE)**	695		
S-4	2	0.3	8-3-9-20	12				FABRIC, trace f.m.c. sand, gray/brown, m. compact, moist **(SOLID WASTE)**			
S-5	1.3	0	10-20-50/.3	R				NO RECOVERY			
						10			690		
S-6	2	0.9	10-11-6-16	17				PAPER, little plastic, little f.m.c. sand, white, m. compact, moist **(SOLID WASTE)**			
S-7	2	1.2	10-7-4-3	11				f.m.c. SAND, trace f. gravel, trace silt, brown, m. compact, moist **(SOLID WASTE)**	685		
						15		End of Boring at 15 ft		Boring terminated @ 15' in solid waste.	
									680		
						20					
									675		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-24

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 4:00:00 PM

FINISH DATE and TIME: 2/28/2005 4:30:00 PM

SURFACE ELEV: 722.14 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	4:30 PM	During Drilling	None	13.5	13.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.5	15-12-30-30	42				f.c. GRAVEL, Some f.m.c. Sand, black, compact, moist **(SOLID WASTE)**			
								becomes m. compact **(SOLID WASTE)**	720		
S-2	2	0.5	12-11-12-14	23							
S-3	0.8	0.5	31-50/.3	R				becomes v. compact **(SOLID WASTE)**			
						5					
S-4	0.3	0	75/.3	R				NO RECOVERY		Spoon bounced with hammer blows.	
									715		
S-5	2	1.2	41-13-11-9	24				f.m.c. SAND, little f.c. gravel, little plastic, trace silt, brown, m. compact, moist **(SOLID WASTE)**		Spoon bounced for the first 6 inches of sample.	
						10					
									710		
S-6	0.5	0	75/.5	R				NO RECOVERY		Spoon was wet with dark liquid.	
								End of Boring at 13.5 ft		Auger and spoon refusal @ 13.5' interpreted as bedrock.	
						15					
									705		
						20					
									700		
						25					

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-25

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/23/2005 4:00:00 PM

FINISH DATE and TIME: 2/23/2005 5:00:00 PM

SURFACE ELEV: 724.10 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	5:00 PM	During Drilling	None	19.2	19.2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	1.2	7-13-34-26	47				f.m.c. SAND, little f.c. gravel, trace silt, brown/black, compact, moist **(FILL)**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	0.3	0.3	50/.3	R				becomes v. compact **(FILL)**		Auger grinds hard @ 3'	
S-3	0.8	0.3	50-50/.3	R		5		f.m.c. SAND, little f.c. gravel, brown/gray, v. compact, moist **(HIGHLY/COMPLETELY WEATHERED SHALE)**	720		
S-4	0.8	0.8	52-50/.3	R				f.m.c. SAND, trace f.c. gravel, gray, v. compact, moist **(HIGHLY/COMPLETELY WEATHERED SHALE)**			
S-5	0.2	0.2	50/.2	R		10		Similar Soil **(HIGHLY/COMPLETELY WEATHERED SHALE)**	715		
S-6	0.9	0.9	47-50/.4	R		15		f.c. GRAVEL, little f.m.c. sand, little silt, v. compact, moist **(HIGHLY WEATHERED SHALE)**	710		
S-7	0.2	0.2	50/.2	R		20		Similar Soil **(HIGHLY WEATHERED SHALE)** End of Boring at 19.2 ft	705		
						25			700		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-26

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/24/2005 2:00:00 PM

FINISH DATE and TIME: 2/24/2005 3:00:00 PM

SURFACE ELEV: 735.49 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-24-05	3:00 PM	During Drilling	None	17.5	17.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	1	5-12-28-12	40	**f.c. GRAVEL**, little f.m.c. sand, trace silt, red/dark gray, compact, moist **(FILL)**	735	Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	1.4	10-10-18-28	28	**f.m.c. SAND**, little f.c. gravel, little silt, brown, m. compact, moist **(FILL)**			
S-3	2	1.2	14-12-15-25	27	**f.m. SAND**, trace f.c. gravel, trace c. sand, trace silt, trace organic material, brown, m. compact, moist **(FILL)**	730		
S-4	2	1.3	11-12-16-17	28	**f.m.c. SAND**, little f.c. gravel, little silt, trace organic material, dark gray, m. compact, moist **(FILL)**			
S-5	0.8	0.4	10-50/.3	R	**f.m.c. SAND**, little silt, trace f. gravel, dark gray, v. compact, moist **(FILL)**	725		
S-6	0.8	0.6	52-50/.3	R	**f.c. GRAVEL**, Some f.m.c. sand, trace silt, brown, v.compact, moist **(FILL)**	720		
S-7	0	0	50/0	R	No recovery End of Boring at 17.5 ft	715	Auger and spoon refusal @ 17.5 interpreted as bedrock.	
						710		

DEPTH (Feet): 5, 10, 15, 20, 25

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-27

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: A. Belmar

START DATE and TIME: 3/1/2005 9:00:00 AM

FINISH DATE and TIME: 3/1/2005 1:10:00 PM

SURFACE ELEV: 730.67 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 15' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	3-1-05	1:10 PM	During Drilling	None	15	15
	3-23-05	12:00 AM	Static	None	15	15

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	0.9	31-20-10-12	30				**f.m.c. SAND**, Some f.c. Gravel, trace silt, trace coal, dark gray, m. compact, moist **(FILL)**	730	Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	1	15-20-8-6	28				**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, gray, m. compact, moist **(FILL)**			
S-3	2	0.9	5-4-4-4	8		5		becomes loose **(FILL)**	725		
S-4	2	0.1	28-6-10-11	16				**c. GRAVEL**, trace f.m.c. sand, trace silt, gray, m. compact, moist **(FILL)**		Sandstone rock fragment in end of spoon.	
S-5	2	1	11-8-24-16	32				**f.c. GRAVEL**, little f.m.c. sand, little silt, dark gray, compact, moist **(FILL)**			
S-6	2	0.9	8-12-16-24	28		10		becomes m. compact **(FILL)**	720		
S-7	2	1	7-6-7-6	13				**f.c. GRAVEL**, little f.m.c. sand, little silt, gray, m. compact, moist **(COMPLETELY WEATHERED SHALE)**			
						15		**SHALE**, gray, m. hard, highly weathered, v. close fracture spacing, very poor RQD	715	Auger refusal @ 15'. Core sample contains sand and silt between fractures.	
R-1	5.5	1.2		0%						Void in rock between 18.5' and 19'.	
						20		gray, m. hard, highly weathered, v. close fracture spacing, very poor RQD	710		
R-2	5.5	1.5		0%							
						25		**SHALE**, becomes slightly weathered.	705		
								End of Boring at 26 ft			

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-28

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/24/2005 7:45:00 AM

FINISH DATE and TIME: 2/24/2005 8:35:00 AM

SURFACE ELEV: 726.30 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	2-24-05	8:35 AM	During Drilling	None	11	11

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
						ASPHALT		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1	7-9-10-10	19		f.c. GRAVEL, Some f.m.c. Sand, trace silt, , trace coal ash, dark gray, m. compact, moist **(FILL)**	725		
S-2	2	1.2	20-16-21-21	37		becomes compact **(FILL)**			
S-3	2	1.1	5-9-23-40	32	5	f.c. GRAVEL, little f.m.c. sand, trace silt, dark gray, compact, moist **(FILL)**			
S-4	2	0.5	9-4-5-6	9		f.c. GRAVEL, little f.m.c. sand, trace silt, dark gray, loose, moist **(COMPLETELY WEATHERED SHALE)**	720		
S-5	2	1.2	8-13-28-1.	41		becomes compact **(COMPLETELY WEATHERED SHALE)**			
S-6	0	0	50/0	R	10	No Recovery		Auger grinds hard @ 10.5'. Auger and spoon refusal @ 11' in bedrock.	
						End of Boring at 11 ft	715		
					15		710		
					20		705		
					25		700		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-29

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/22/2005 7:45:00 AM

FINISH DATE and TIME: 2/22/2005 8:25:00 AM

SURFACE ELEV: 718.21 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	8:25 AM	During Drilling	None	13.6	13.6

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	0.5	11-14-25-27	39		**f.m.c. SAND** Some f.c. Gravel, dark gray, compact, moist **(FILL)**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	1	29-13-17-18	30		**f.m.c. SAND** little f.c. gravel, little silt, dark gray, m. compact, moist **(FILL)**	715		
S-3	2	0.4	21-17-8-8	25	5	**f.m.c. SAND** Some Silt, trace c. gravel, dark gray, m. compact, moist **(FILL)**		Rock fragment lodged in shoe.	
S-4	2	0.8	3-3-4-4	7		**f.m.c. SAND** little f.c. gravel, little silt, dark gray, loose, moist **(FILL)**			
S-5	2	0.5	4-12-23-28	35	10	**f.m.c. SAND** little f.c. gravel, trace silt, dark gray, compact, moist **(FILL)**	710		
S-6	0.1	0.1	50/.1	R		**f.m.c. SAND** trace silt, dark gray, v. compact, moist **(FILL)**	705	Auger grinds hard @ 12.5'.	
					15	End of Boring at 13.6 ft		Auger and spoon refusal @ 13.6' on what is interpreted as bedrock.	
							700		
					20				
							695		
					25				

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-30

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/21/2005 2:45:00 PM

FINISH DATE and TIME: 2/21/2005 3:30:00 PM

SURFACE ELEV: 715.78 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	2-21-05	3:30 PM	During Drilling	None	11	11

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT	715	Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	1	0.4	9-36					f.m.c. SAND little f.c. gravel, trace silt, dark gray, v. compact, moist **(FILL)**		Advanced auger from 0' to 1'.	
S-2	0.3	0.2	50/.3	R				Similar Soil **(FILL)**		Split spoon bounced with hammer blows.	
S-3	0.3	0.3	50/.3	R		5		f.m.c. SAND trace silt, light brown, v. compact, moist **(HIGHLY WEATHERED SANDSTONE)**	710	Split spoon bounced with hammer blows.	
S-4	0.3	0.3	85/.3	R				becomes gray/light brown **(HIGHLY WEATHERED SANDSTONE)**		Split spoon bounced with hammer blows.	
S-5	0.5	0.5	100/.5	R		10		f.m.c. SAND Some f.c. Gravel, light brown/gray, v. compact, moist **(HIGHLY WEATHERED SANDSTONE)**	705	Slow/difficult drilling from 9' to end.	
								End of Boring at 11 ft		Auger refusal @ 11' in bedrock.	
						15			700		
						20			695		
						25			690		

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-31

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/21/2005 3:45:00 PM

FINISH DATE and TIME: 2/21/2005 4:05:00 PM

SURFACE ELEV: 716.08 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-21-05	4:05 PM	During Drilling	None	6	6

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	0.4	5-8-11-14	19				f.c. GRAVEL, little f.m.c. sand, gray, m. compact, moist **(FILL)**	715	Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	0.8	0.3	26-50/.3	R				f.c. GRAVEL, Some f.m.c. Sand, light brown, v. compact, moist **(FILL)**			
S-3	0.3	0.3	50/.3	R		5		f.m.c. SAND, Some f.c. Gravel, light brown, v. compact, moist **(HIGHLY WEATHERED SANDSTONE)** No Recovery		Auger grinds hard @ 5'.	
S-4	0	0	50/0	R				End of Boring at 6 ft	710	Auger and spoon refusal @ 6' in bedrock.	
						10			705		
						15			700		
						20			695		
						25			690		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-32

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/23/2005 3:30:00 PM

FINISH DATE and TIME: 2/23/2005 3:55:00 PM

SURFACE ELEV: 721.34 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	2-23-05	3:55 PM	During Drilling	None	10.9	10.9

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	0.8	0.5	6-50/.3	R				**ASPHALT** **f.c. GRAVEL**, Some f.m.c. Sand, red/black, v. compact, moist **(FILL)**	720	Water Level observation based on soil moisture content and may not represent static conditions. Advanced auger from 0' to 0.2'. Soft white material in S-2 and S-3 interpretted as being plaster. No odor noted. S-2 Lab Results: % Gravel = 20 % Sand = 69 % Fines = 11 Moisture Content = 50.4%	
S-2	2	1.2	11-11-7-8	18				**f.m.c. SAND** little silt, little f.c. gravel, gray/white, m. compact, moist **(FILL)** becomes loose **(FILL)**			
S-3	2	2	3-3-3-3	6		5					
S-4	2	1.5	10-11-6-6	17				**f.m.c. SAND** trace f.c. gravel, m. brown, m. compact, moist **(FILL)**	715		
S-5	1.8	1	5-12-28-50/.3	40		10		**f.m.c. SAND and f.c. GRAVEL** little silt, dark gray, compact, wet **(SM)**		S-5 Lab Results: % Gravel = 54 % Sand = 31 % Fines = 15 Moisture Content = 10.5%	
								End of Boring at 10.9 ft	710	Auger refusal @ 10.9' on what is interpreted as bedrock.	
						15			705		
						20			700		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-33

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/24/2005 8:45:00 AM

FINISH DATE and TIME: 2/24/2005 10:10:00 AM

SURFACE ELEV: 727.38 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	2-24-05	10:10 AM	During Drilling	None	24	24.3

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	0.8	0.8	25-50/.3	R				f.c. GRAVEL, Some f.m.c. Sand, red/black, v. compact, moist (FILL)		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	0.8	0.6	28-50/.3	R				f.m.c. SAND, Some f.c. Gravel, trace silt, brown, v. compact, moist (HIGHLY/COMPLETELY WEATHERED SANDSTONE)	725		
S-3	0.8	0.8	55-50/.3	R		5		f.m.c. SAND, little f.c. gravel, brown, v. compact, moist (HIGHLY/COMPLETELY WEATHERED SANDSTONE)			
S-4	0.8	0.8	42-50/.3	R				f.c. GRAVEL, Some f.m.c. Sand, brown, v. compact, moist (HIGHLY/COMPLETELY WEATHERED SANDSTONE)			
S-5	0.3	0.3	50/.3	R		10		f.m.c. SAND, Some f.c. Gravel, brown, v. compact, moist (HIGHLY/COMPLETELY WEATHERED SANDSTONE)	720		
								f.m.c. SAND, little f.c. gravel, gray, v. compact, moist (HIGHLY/COMPLETELY WEATHERED SANDSTONE)		Auger cuttings become a fine gray powder.	
S-6	0.5	0.5	70/.5	R		15		f.c. GRAVEL, little f.m.c. sand, little silt, dark gray, v. compact, moist (HIGHLY WEATHERED SHALE)	715		
S-7	0.3	0.3	50/.3	R		20		Similar Soil (HIGHLY WEATHERED SHALE)	710		
S-8	0.3	0.3	50/.3	R		25		Similar Soil (HIGHLY WEATHERED SHALE)	705		
								End of Boring at 24.3 ft			

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-34

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 2:00:00 PM

FINISH DATE and TIME: 2/28/2005 2:15:00 PM

SURFACE ELEV: 730.60 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	2-28-05	2:15 PM	During Drilling	None	13.5	13.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	0.8	19-13-17-15	30				**f.c. GRAVEL**, little f.m.c. sand, red/gray, m. compact, moist **(FILL)**	730	Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	1	12-20-14-15	34				**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, dark gray, compact, moist **(FILL)**			
S-3	2	0.8	3-3-4-4	7		5		**f.m.c. SAND**, Some Silt, Some f.c. Gravel, dark gray, loose, moist **(FILL)**	725	S-3 Lab Results: % Gravel = 22 % Sand = 49 % Fines = 29 Moisture Content = 13.7%	
S-4	2	1.8	4-4-4-4	8				**Similar Soil (FILL)**			
S-5	1.3	1.3	10-22-50/.3	R		10		**f. SAND**, little silt, trace clay, trace m.c. sand, brown, loose, moist **(SM)** **f.m.c. SAND**, Some Silt, little f.c. gravel, dark gray, v. compact, moist **(SM)**	720	Sandstone rock fragment lodged in shoe. S-5 Lab Results: % Gravel = 10 % Sand = 59 % Fines = 31 Moisture Content = 12.7% Auger grinds hard @ 9.5'. Interpreted to be completely weathered sandstone.	
S-6	0.1	0	50/.1	R		15		NO RECOVERY End of Boring at 13.5 ft	715	Spoon bounced with hammer blows. Auger and spoon refusal @ 13.5' in what is interpreted as sandstone bedrock.	
						20			710		
						25			705		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-35

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 1:00:00 PM

FINISH DATE and TIME: 2/28/2005 1:45:00 PM

SURFACE ELEV: 734.64 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	1:45 PM	During Drilling	None	12.5	12.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	1	6-25-22-21	47				**f.c. GRAVEL**, Some f.m.c. Sand, red/gray, v. compact, moist **(FILL)**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	1.2	30-27-22-13	49				**f.c. GRAVEL**, Some f.m.c. Sand, brown/gray, v. compact, moist **(FILL)**			
S-3	2	1	19-26-20-22	46		5		**f.m.c. SAND** trace f.c. gravel, trace silt, brown, v. compact, moist **(SP)**	730		
S-4	2	1.8	7-8-11-16	19				**f.m.c. SAND** little f.c. gravel, trace silt, brown, m. compact, moist **(SP)**			
S-5	1.8	1.2	25-36-45-50/.3	81		10		**f.c. GRAVEL**, Some f.m.c. Sand, trace silt, brown/gray, v. compact, moist **(GP)**	725	Auger grinds hard @ 10'.	
S-6	0	0	50/0	R				No Recovery End of Boring at 12.5 ft		Auger and spoon refusal @ 12.5' on what is interpreted as being bedrock.	
						15			720		
						20			715		
						25			710		

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-36

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/22/2005 7:55:00 AM

FINISH DATE and TIME: 2/22/2005 9:27:00 AM

SURFACE ELEV: 728.43 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	9:27 AM	During Drilling	None	16.5	16.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.4	9-19-20-12	39				**Silty CLAY**, Some f.m. Sand, brown, hard, moist **(SOLID WASTE)**			
								f.m. SAND, little silt, little wood, trace plastic, trace glass, trace c. gravel, black, compact, moist **(SOLID WASTE)**			
S-2	2	0.5	9-7-5-4	12				**f.m. SAND**, Some Glass, trace wood, trace plastic, trace c. sand, trace silty clay, black, m. compact, moist **(SOLID WASTE)**	725		
								Silty CLAY, Some f. Sand, little wood, trace glass, trace plastic, trace fabric, compact, moist **(SOLID WASTE)**			
S-3	2	0.7	5-16-23-15	39		5					
								Silty CLAY, Some f.m. Sand, trace f.c. gravel, trace wood, trace glass, trace plastic, black, compact, moist **(SOLID WASTE)**			
S-4	2	1.2	9-16-32-33	48				**f.c. GRAVEL**, gray, compact, moist **(SOLID WASTE)**			
								PLASTIC, trace wood, gray, compact, moist **(SOLID WASTE)**	720		
S-5	2	0.4	23-21-13-12	34							
						10		**Silty CLAY**, Some f.m. Sand, trace wood, trace plastic, trace c. gravel, black, compact, moist **(SOLID WASTE)**			
S-6	2	0.4	18-18-21-22	39							
									715		
						15		**f.m. SAND**, little c. sand, little f.c. gravel, trace silt, brownish black, v. compact, moist **(SP)**			
S-7	1.5	1	20-18-50/.5	R				End of Boring at 16.5 ft		Auger and spoon refusal @ 16.5' on what is interpreted as bedrock.	
									710		
						20					
									705		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-37

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/23/2005 9:00:00 AM

FINISH DATE and TIME: 2/23/2005 10:25:00 AM

SURFACE ELEV: 722.35 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	10:25 AM	During Drilling	None	19	19

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
					0	**TOPSOIL**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.7	7-4-10-12	14		**COAL ASH** black, m. compact, moist **(SOLID WASTE)**			
S-2	2	1.6	5-7-11-16	18		**Silty CLAY**, Some f.m. Sand, little brick, trace c. sand, trace f.c. gravel, trace glass, black, m. compact, moist **(SOLID WASTE)**	720		
S-3	2	1.4	11-12-30-38	42	5	**f.m. SAND**, little silt, little f.c. gravel, trace wood, trace plastic, trace brick, black, compact, moist **(SOLID WASTE)**			
S-4	2	0.8	21-17-8-5	25		becomes m. compact **(SOLID WASTE)**	715	Strong methane odor from 6' to 10'.	
S-5	2	0	7-8-8-3	16		NO RECOVERY			
S-6	2	1.5	7-7-7-9	14	10	**f.m. SAND**, little silt, trace wood, trace plastic, trace c. gravel, brown/black/gray, m. compact, moist **(SOLID WASTE)**	710	Harder drilling @ 14'.	
S-7	2	1.5	30-32-40-46	72	15	**f.m. SAND**, little silt, little c. sand, trace coal ash, trace f. gravel, v. compact, moist **(SOLID WASTE)**	705	Very hard drilling @ 18'.	
S-8	0	0	50/0	R		No Recovery End of Boring at 19 ft		Auger and spoon refusal @ 19' on what is interpreted as bedrock.	
					20		700		
					25				

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-38

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/22/2005 4:00:00 PM

FINISH DATE and TIME: 2/23/2005 8:45:00 AM

SURFACE ELEV: 719.76 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	8:45 AM	During Drilling	None	15.5	15.5
	3-23-05	11:30 AM	Static	5.1	15.5	15.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.5	4-10-19-16	29				**COAL ASH** black, m. compact, moist **(SOLID WASTE)**			
S-2	2	0.8	8-9-11-20	20				**f.c. GRAVEL**, Some f.m.c. Sand, trace glass, black, m. compact, moist **(SOLID WASTE)**			
S-3	1.8	0.6	25-25-25-50/.3	50		5		**f.m.c. SAND**, little f. gravel, trace silt, dark gray, v. compact, wet **(SOLID WASTE)**	715		
S-4	1.3	0.3	8-10-50/.3	R				**Similar Soil (SOLID WASTE)**		Sample has a strong odor.	
S-5	2	0.7	10-21-37-32	58				**f.m.c. SAND**, trace f. gravel, trace metal, brown/dark gray, v. compact, wet **(SOLID WASTE)**	710		
S-6	0.4	0	50/.4	R		10		NO RECOVERY			
										Hard drilling from 13' to 15' interpreted as completely weathered bedrock.	
S-7	0.4	0.1	50/.4	R		15		**c. GRAVEL**, gray, v. compact, wet **(HIGHLY WEATHERED BEDROCK)**	705	Auger refusal @ 15.5' in what is interpreted as bedrock.	
								End of Boring at 15.5 ft			
						20			700		
						25			695		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-39

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/23/2005 1:00:00 PM

FINISH DATE and TIME: 2/23/2005 1:50:00 PM

SURFACE ELEV: 728.14 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 15' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	1:50 PM	During Drilling	None	15	19

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	2	6-6-10-10	16				**COAL ASH** black, m. compact, moist **(SOLID WASTE)**			
S-2	2	1	6-6-7-3	13				**f.m. SAND**, little silty clay, little coal ash, little c. sand, trace f.c. gravel, trace brick, black, m. compact, moist/wet **(SOLID WASTE)**	725		
S-3	2	0.2	6-4-3-1	7		5		**f.m. SAND**, little c. sand, trace plastic, trace paper, trace brick, black, loose, moist **(SOLID WASTE)**			
S-4	2	0.1	50/.4	R				INSUFFICIENT RECOVERY		Spoon bounced on rubber or plastic	
S-5	2	1.2	22-18-24-23	42				**f.m. SAND**, little silt, little f.c. gravel, trace coal ash, brown, compact, moist **(SOLID WASTE)**	720		
						10		**f.c. GRAVEL**, gray, compact, moist **(SOLID WASTE)**			
S-6	2	1.7	14-23-22-25	45				**f.m. SAND**, little f. gravel, trace c. gravel, trace coal ash, brown, compact, moist **(SOLID WASTE)**			
									715	Very hard drilling from 12.5' to 15' interpreted to be completely weathered sandstone.	
						15		**SANDSTONE** gray, moderately/highly weathered, v. close fracture spacing, v. poor RQD		Auger and spoon refusal @ 15'. Iron staining between fractures.	
R-1	5	5		0%					710		
						20		End of Boring at 19 ft			
									705		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-40

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/23/2005 10:40:00 AM

FINISH DATE and TIME: 2/23/2005 11:42:00 AM

SURFACE ELEV: 726.84 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-23-05	11:42 AM	During Drilling	None	16	16

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	2	6-13-10-10	23				**COAL ASH** black, m. compact, moist **(SOLID WASTE)**	725		
S-2	2	1.5	10-9-9-5	18				**COAL ASH** trace brick, black, m. compact, moist **(SOLID WASTE)**			
S-3	2	1.3	3-4-4-4	8		5		**f.m. SAND**, little coal ash, trace wood, trace glass, trace c. sand, black/brown, loose, moist **(SOLID WASTE)**			
S-4	2	0.2	10-8-5-4	13				becomes m. compact **(SOLID WASTE)**	720		
S-5	2	0	2-3-3-2	6				NO RECOVERY			
S-6	1.4	1.4	21-23-50/.4	R		10		**f.c. GRAVEL**, little f.m. sand, trace silt, brown/black, v. compact, moist **(COMPLETELY WEATHERED SANDSTONE)**	715	Hard Augering from 11.5' to end.	
S-7	0.7	0.5	38-50/.2	R		15		**f.c. GRAVEL**, gray, v. compact, moist **(COMPLETELY WEATHERED SANDSTONE)**		Auger refusal @ 16'.	
								End of Boring at 16 ft	710		
						20			705		
						25					

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-41

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/22/2005 10:48:00 AM

FINISH DATE and TIME: 2/22/2005 3:30:00 PM

SURFACE ELEV: 720.52 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 12' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	3:30 PM	During Drilling	None	12	12

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	1.3	11-13-13-10	26				**f.c. GRAVEL**, Some f.m.c. Sand, little silt, brown/gray, m. compact, moist **(SOLID WASTE)**	720	Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	0.6	9-3-3-13	6				**f.m.c. SAND**, Some f.c. Gravel, little silt, black, loose, moist **(SOLID WASTE)**			
S-3	2	0.4	42-31-8-9	39		5		becomes compact **(SOLID WASTE)**	715		
S-4	2	0.3	7-5-3-2	8				**Silty CLAY**, Some f.m. Sand, little c. sand, trace fabric, brown, loose, moist/wet **(SOLID WASTE)**		Auger cuttings contain fabric.	
S-5	2	0.3	7-2-3-8	5				**Silty CLAY**, Some f.m. Sand, little c. sand, trace f. gravel, brown, loose, moist/wet **(SOLID WASTE)**			
S-6	2	0.2	21-13-7-9	20		10		**FABRIC**, little f.m. sand, trace silt, trace c. gravel, brown/black/red, m. compact, moist **(SOLID WASTE)**	710		
R-1	5	4.6		0%		15		**SANDSTONE**, gray, highly weathered, close fracture spacing, v. poor RQD	705	Auger refusal @ 12'. Core contains 3" of silt/sand @ approximately 13' Iron staining throughout core.	
								End of Boring at 17 ft			
						20			700		
						25			695		

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-42

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/24/2005 4:00:00 PM

FINISH DATE and TIME: 2/24/2005 4:45:00 PM

SURFACE ELEV: 718.66 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-24-05	4:45 PM	During Drilling	None	10.2	10.2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	2	3-7-15-15	22				**COAL ASH** Some f.m. Sand, little f. gravel, trace silt, black, m. compact, moist **(SOLID WASTE)**			
S-2	2	1.5	12-14-25-41	39				**COAL ASH** Some f.m. Sand, little f. gravel, trace silt, trace brick, compact, mosit **(SOLID WASTE)**			
									715		
S-3	2	0.7	8-9-6-12	15		5		**f.m. SAND**, Some Coal Ash, little silt, trace glass, m. compact, moist **(SOLID WASTE)**		S-3 Lab Results: % Gravel = 24 % Sand = 56 % Fines = 20 Moisture Content = 11.9%	
S-4	2	0.7	10-8-8-16	16				**f.m. SAND**, little coal ash, trace silt, black, m. compact, moist **(SOLID WASTE)**			
S-5	0.4	0.2	50/0.4	R				becomes v. compact **(SOLID WASTE)**	710		
S-6	0.2	0.1	50/0.2	R		10		**Insufficient Recovery** End of Boring at 10.2 ft		Auger and spoon refusal @ 10.2' interpreted as bedrock.	
									705		
						15					
									700		
						20					
									695		
						25					

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-43

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 2:20:00 PM

FINISH DATE and TIME: 2/28/2005 2:30:00 PM

SURFACE ELEV: 719.91 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	2:30 PM	Completion	None	0.5	0.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	0	0	50/0	R				**TOPSOIL** End of Boring at 0.5 ft		Auger and spoon refusal @ 0.5' on what is interpreted as bedrock. Bedrock exposed in area surrounding B-43.	
						5			715		
						10			710		
						15			705		
						20			700		
						25			695		

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-44

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/21/2005 4:15:00 PM

FINISH DATE and TIME: 2/21/2005 5:05:00 PM

SURFACE ELEV: 719.28 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-21-05	5:05 PM	During Drilling	None	23	23.4

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	1.2	7-12-16-21	28				f.c. GRAVEL, Some f.m.c. Sand, red/light brown, m. compact, moist **(FILL)**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-2	2	0.5	21-27-18-20	45				f.c. GRAVEL, Some f.m.c. Sand, dark brown, compact, moist **(FILL)**			
S-3	2	1.2	9-6-9-10	15		5		f.m.c. SAND, Some f.c. Gravel, little silt, dark brown, m. compact, moist **(FILL)**	715		
S-4	2	1.5	4-4-5-5	9				f.m.c. SAND, little f.c. gravel, little silt, dark brown, loose, moist **(FILL)**			
S-5	2	0.9	9-9-18-12	27				f.c. GRAVEL, little f.m.c. sand, little silt, dark brown, m. compact, moist **(FILL)**			
						10		f.c. GRAVEL, little f.m.c. sand, light brown, m. compact, moist **(GP)**	710		
S-6	1.9	1.2	21-44-44-50/.4	88		15		f.m.c. SAND, little f.c. gravel, light brown/dark brown, v. compact, moist **(COMPLETELY WEATHERED SANDSTONE)**	705		
S-7	0.4	0.2	50/.4	R		20		f.m.c. SAND, little f.c. gravel, dark brown, v. compact, moist **(COMPLETELY WEATHERED SANDSTONE)**	700		
S-8	0.4	0.4	50/.4	R				Similar Soil **(COMPLETELY WEATHERED SANDSTONE)**		Auger and spoon refusal at 23.4' in completely weathered sandstone.	
						25		End of Boring at 23.4 ft	695		

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-45

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/22/2005 9:33:00 AM

FINISH DATE and TIME: 2/22/2005 10:37:00 AM

SURFACE ELEV: 706.55 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-22-05	10:37 AM	During Drilling	None	15	15.2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	0.5	8-16-15-17	31				f.m. SAND, Some f.c. Gravel, trace silt, black, compact, moist **(SOLID WASTE)**	705		
S-2	2	1.1	6-6-7-4	13				f.m. SAND, little c. sand. little f.c. gravel, little glass, trace wood, black, m. compact, moist **(SOLID WASTE)**			
S-3	2	1.2	3-3-6-4	9		5		f.m. SAND, Some Silty Clay, little plastic, little paper, trace wood, trace glass, black, loose, moist **(SOLID WASTE)**			
S-4	2	0.4	2-1-1-25	2				becomes v. loose **(SOLID WASTE)**	700		
S-5	0.4	0.4	50/.4	R				f.m. SAND, little f. gravel, trace silt, brown, v. compact, moist **(COMPLETELY WEATHERED BEDROCK)**		Rock fragment lodged in end of sampler.	
S-6	0.8	0.5	50-50/.3	R		10		f.m.c. SAND, little f.c. gravel, trace silt, light brown, v. compact, moist **(COMPLETELY WEATHERED BEDROCK)**		Bedrock broken up in spoon. Hard/slow drilling to end.	
									695		
S-7	0.2	0.1	50/.2	R		15		f. GRAVEL, brown, v. compact, moist **(COMPLETELY WEATHERED BEDROCK)**		Spoon refusal @ 15.2' in completely weathered bedrock.	
								End of Boring at 15.2 ft	690		
						20			685		
						25					

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-46

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/25/2005 8:35:00 AM

FINISH DATE and TIME: 2/25/2005 9:40:00 AM

SURFACE ELEV: 704.68 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-25-05	9:40 AM	During Drilling	4	4	6

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								TOPSOIL		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	2	10-9-16-14	25				**COAL ASH** black, m. compact, moist **(FILL)**			
S-2	2	1.4	9-8-6-3	14				**COAL ASH** Some f.c. Gravel, little f.m.sand, black, m. compact, moist **(FILL)**			
S-3	2	0.3	9-6-9-6	15		5		**FABRIC**, little coal ash, black/red, m. compact, wet **(FILL)**	700		
S-4	2	0.1	12-7-6-6	13				INSUFFICIENT RECOVERY **(FILL)**			
S-5	2	0.2	32-5-29-5	34		10		**WOOD**, Some Metal, brown, compact, wet **(FILL)**	695	Sandstone fragment lodged in shoe.	
S-6	2	0	17-18-16-4	34				NO RECOVERY		Sample has methane odor.	
S-7	0.1	0.1	50/.1	R		15		**f.m.c. SAND** gray, v. compact, moist **(COMPLETELY WEATHERED SANDSTONE)**	690	Hard drilling from 14.5' to termination interpreted as completely weathered bedrock. Auger refusal @ 15.1' in what is interpreted as bedrock.	
								End of Boring at 15.1 ft			
						20			685		
						25			680		

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-47

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: B. Wayne | INSPECTOR: K. Defayette

START DATE and TIME: 2/25/2005 9:50:00 AM

FINISH DATE and TIME: 2/25/2005 10:40:00 AM

SURFACE ELEV: 716.15 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-25-05	10:40 AM	During Drilling	None	15	17

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
					0	**TOPSOIL**		Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	2	16-25-17-15	42		**COAL ASH** trace wood, black, compact, moist **(SOLID WASTE)**	715		
S-2	2	1.5	7-8-7-6	15		**f.m. SAND**, Some Coal Ash, little c. sand, little f.c. gravel, black/brown, m. compact, moist **(SOLID WASTE)**			
						becomes compact **(SOLID WASTE)**			
S-3	2	1.7	11-16-15-14	31	5				
						f.m. SAND, Some Coal Ash, little brick, little f.c. gravel, black/red, m. compact, moist **(SOLID WASTE)**	710		
S-4	2	0.6	9-8-13-5	21					
						f.c. GRAVEL, Some f.m.c. Sand, trace silt, gray, compact, moist **(SOLID WASTE)**			
S-5	2	0.5	35-24-17-7	41					
					10	**f.m.c. SAND**, Some Coal Ash, trace c. gravel, black, v. loose, moist **(SOLID WASTE)**		Easy drilling from 10' to boring termination.	
S-6	2	0.4	4-3-1-1	4			705		
					15	**f.m.c. SAND**, Some Coal Ash, little c. gravel, black, m. compact, moist **(SOLID WASTE)**			
S-7	2	0.7	7-8-12-8	20			700		
						End of Boring at 15 ft		Boring terminated @ 17' in solid waste.	
					20		695		
					25		690		

SUBSURFACE LOG 13989L-1.GPJ UPDATEDCHA.GDT 5/27/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.1007.1502

Pocono Downs Casino
SUBSURFACE LOG
HOLE NUMBER B-48

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way Environmental

DRILLER: M. Saeli | INSPECTOR: A. Belmar

START DATE and TIME: 2/28/2005 2:45:00 PM

FINISH DATE and TIME: 2/28/2005 3:45:00 PM

SURFACE ELEV: 720.83 (ft; Surveyed) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	2-28-05	3:45 PM	During Drilling	None	13	14.9

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
					TOPSOIL	720	Water Level observation based on soil moisture content and may not represent static conditions.	
S-1	2	1.6	16-5-20-38	25	**f.c. GRAVEL**, Some f.m.c. Sand, black, m. compact, moist **(SOLID WASTE)**			
S-2	2	1	18-23-20-20	43	**f.c. GRAVEL**, Some f.m.c. Sand, trace fabric, trace glass, trace coal black, compact, moist **(SOLID WASTE)**			
S-3	2	0.3	10-11-12-12	23	**WOOD**, little plastic, little tin, brown, m. compact, moist **(SOLID WASTE)**	715		
S-4	2	1.5	6-8-34-45	42	**WOOD**, little styrofoam, little plastic, brown, compact, moist **(SOLID WASTE)**			
S-5	2	1.6	34-34-23-29	57	**f.c. GRAVEL**, Some f.m.c. Sand, black, compact, moist **(SOLID WASTE)**	710		
S-6	1.9	0.8	22-14-9-50/.4	23	**f.c. GRAVEL**, little f.m.c. sand, little coal ash, little paper/glass/styrofoam, dark gray, v. compact, moist **(SOLID WASTE)**			
					PLASTIC, Some Wood/Paper/Fabric, little f.c. gravel, little f.m.c. sand, brown/black/white, m. compact, moist **(SOLID WASTE)**	705		
					End of Boring at 14.9 ft		Boring terminated @ 14.9' in solid waste.	
						700		
						695		

DEPTH (Feet): 5, 10, 15, 20, 25

SUBSURFACE LOG 13989L~1.GPJ UPDATEDCHA.GDT 5/27/05

APPENDIX C

Laboratory Test Results

ATLANTIC TESTING LABORATORIES, Limited

Albany
22 Corporate Drive
Clifton Park, NY 12065
518/383-9144 (T)
518/383-9166 (F)

April 7, 2005

Clough, Harbour & Associates LLP
III Winners Circle
P.O. Box 5269
Albany, New York 12205

Attn: Mr. Dave Foley

Re: Laboratory Test Results
CHA Project #13989.1007.1502
Pocono Downs
ATL Report No. AT098SL-593-03-05
through
AT098SL-602-03-05

Ladies/Gentlemen:

On March 31, 2005, you delivered ten jar samples of soil to our Clifton Park, New York facility for testing. A Moisture Content determination in accordance with ASTM D 2216 and a Particle Size Analysis (without hydrometer) in accordance with ASTM D 422 was performed on each of the samples. A pH, Chloride, and Sulfate test was performed on five of the samples (B-11: S5, B-20: S5, B-32: S2, B-34: S5 and B-42: S3). The results of these tests follow:

Moisture Content
ASTM D 2216

ATL Sample Number	Location	Moisture Content (%)
AT098S593	B-2: S-3	8.0
AT098S594	B-6: S-2	9.5
AT098S595	B-11: S-5	7.6
AT098S596	B-18: S-5	1.6
AT098S597	B-20: S-5	12.2
AT098S598	B-32: S-2	50.4
AT098S599	B-32: S-5	10.5
AT098S600	B-34: S-3	13.7
AT098S601	B-34: S-5	12.7
AT098S602	B-42 S-3	11.9

The results of the Particle Size Analyses, pH, Chloride, and Sulfate testing are enclosed.

Please contact our office should you have any questions or if we may be of further service.

Respectfully,
Atlantic Testing Laboratories, Limited

Justin W. Rathman

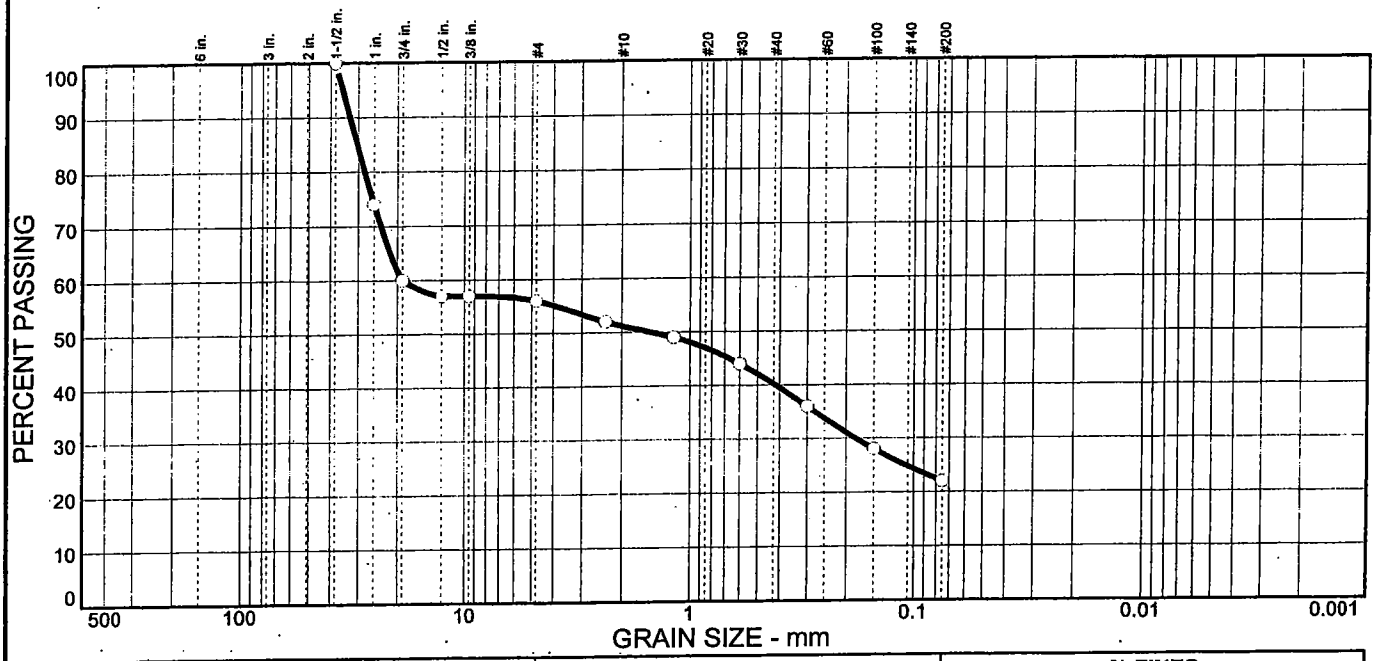
JWR/jr

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-593-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/4/05

Sample No: AT098S593 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-2: S-3 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	40	4	5	11	18	22	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1.5 in.	100		
1 in.	74		
.75 in.	60		
.5 in.	57		
.375 in.	57		
#4	56		
#8	52		
#16	49		
#30	44		
#50	36		
#100	28		
#200	22		

Soil Description

Grey c+mf- GRAVEL, some c-mf+ SAND, some SILT/CLAY

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 30.3 D_{60}= 19.0 D_{50}= 1.48
D_{30}= 0.181 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Date: 4/7/05

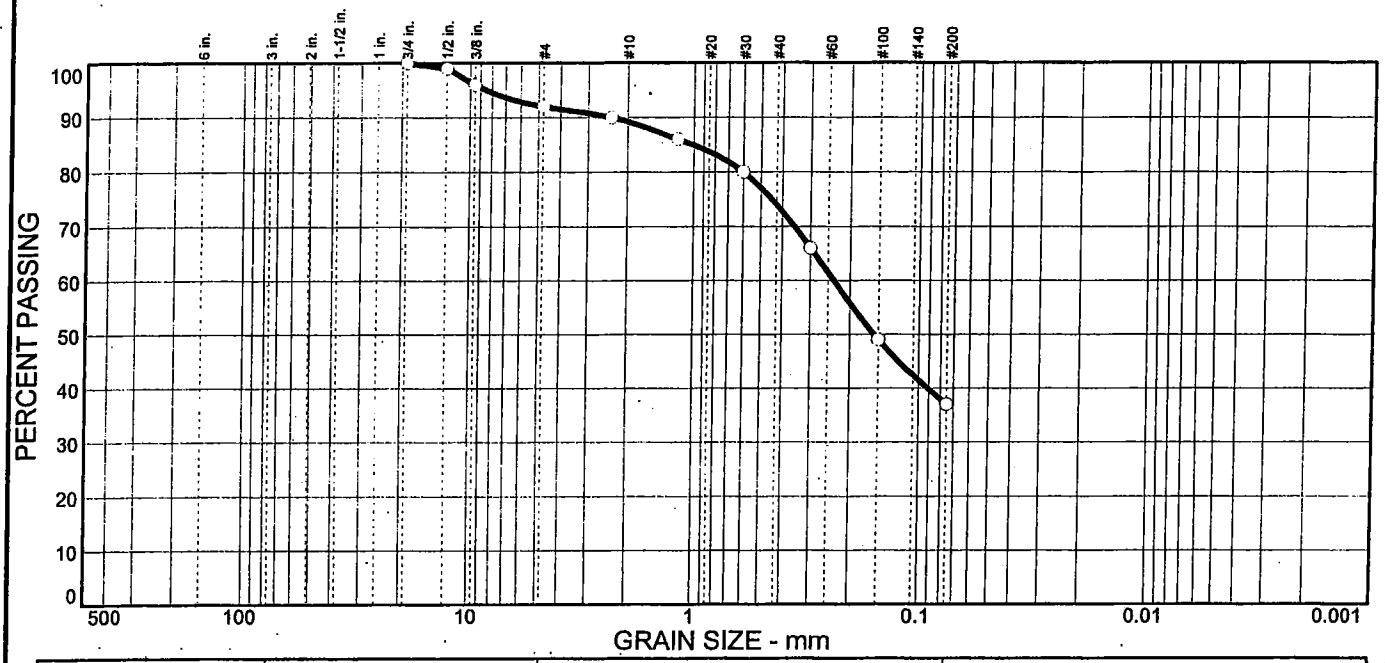
ATLANTIC TESTING LABORATORIES, Limited

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-598-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/3/05

Sample No: AT098S594 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-6: S-2 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	8	3	15	37	37	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
.75 in.	100		
.5 in.	99		
.375 in.	96		
#4	92		
#8	90		
#16	86		
#30	80		
#50	66		
#100	49		
#200	37		

Soil Description

Grey c-mf+ SAND, and SILT/CLAY, trace fine GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 1.01 D_{60}= 0.237 D_{50}= 0.157
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

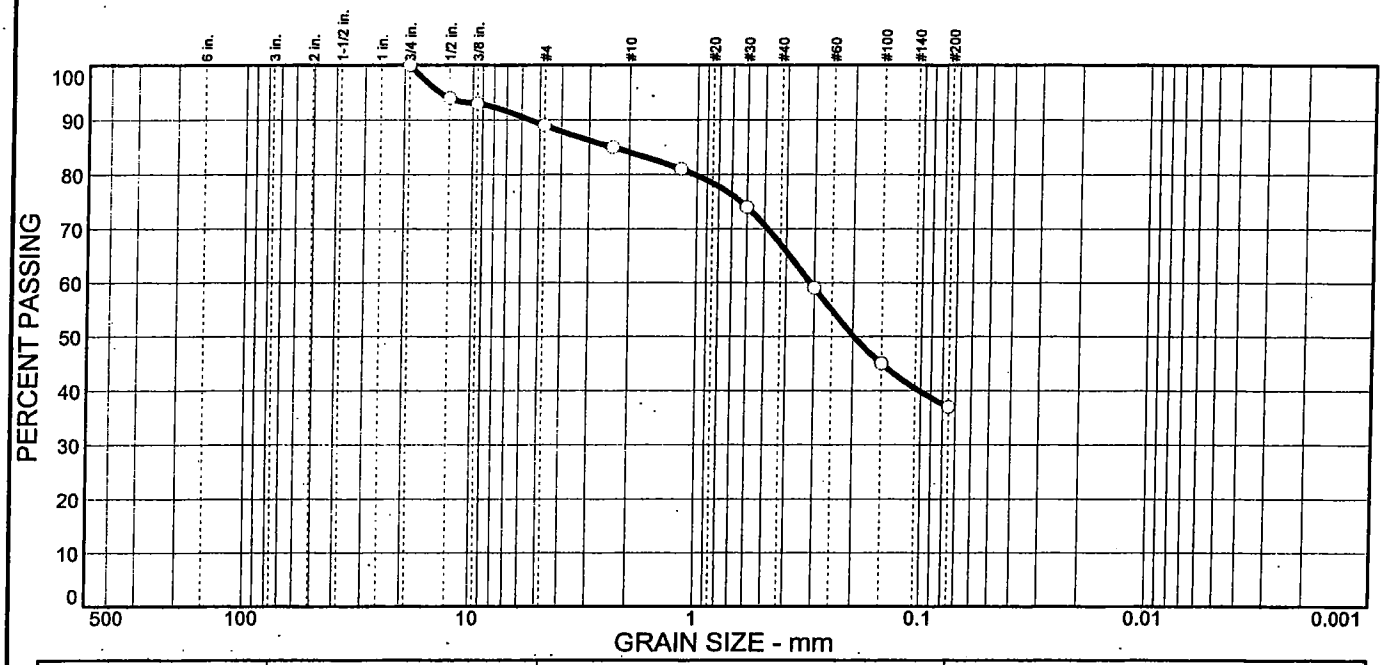
Reviewed by: Date: 4/7/05

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-595-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/5/05

Sample No: AT098S595 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-11: S-5 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	11	5	17	30	37	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
.75 in.	100		
.5 in.	94		
.375 in.	93		
#4	89		
#8	85		
#16	81		
#30	74		
#50	59		
#100	45		
#200	37		

Soil Description

Grey c-mf+ SAND, and SILT/CLAY, little fine GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 2.36 D_{60}= 0.313 D_{50}= 0.199
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

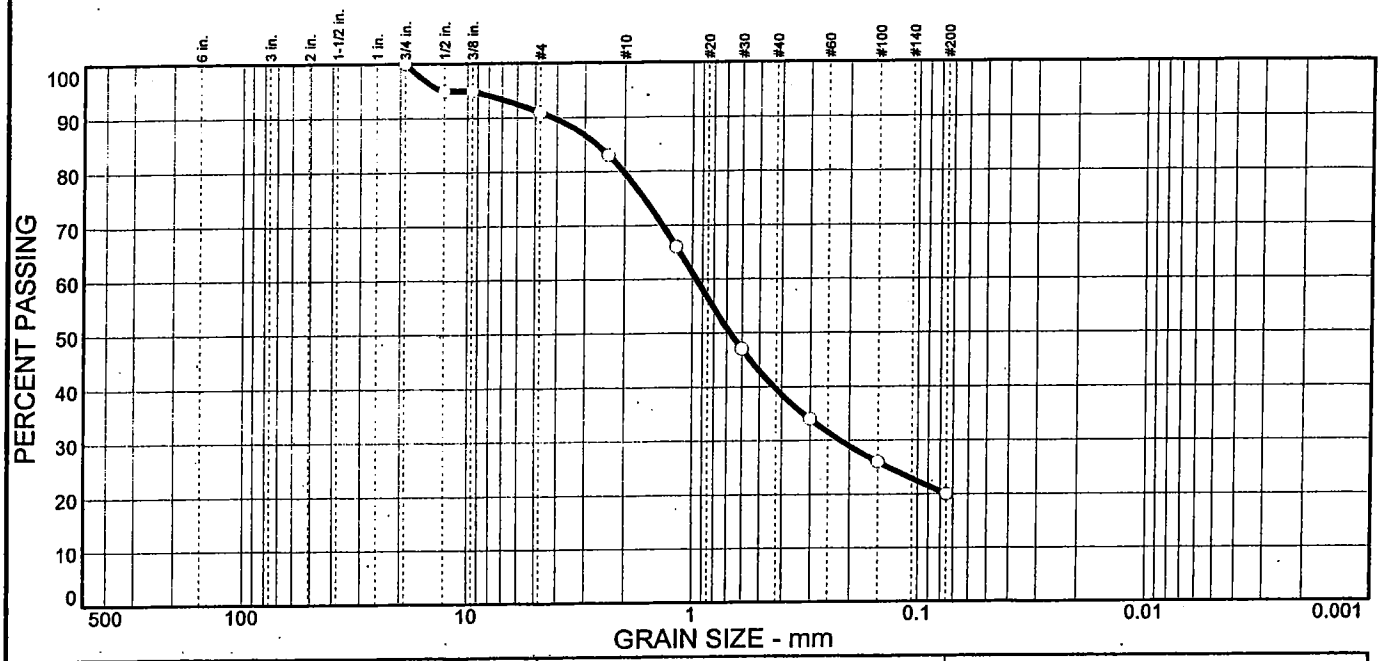
Reviewed by: _____ Date: 4/7/05

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-596-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/4/05

Sample No: AT098S596 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-18: S-5 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	9	11	40	20	20	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
.75 in.	100		
.5 in.	95		
.375 in.	95		
#4	91		
#8	83		
#16	66		
#30	47		
#50	34		
#100	26		
#200	20		

Soil Description

Grey cm+f SAND, little SILT/CLAY, trace fine GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 2.66 D_{60}= 0.961 D_{50}= 0.675
D_{30}= 0.220 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: _____ Date: 4/7/05

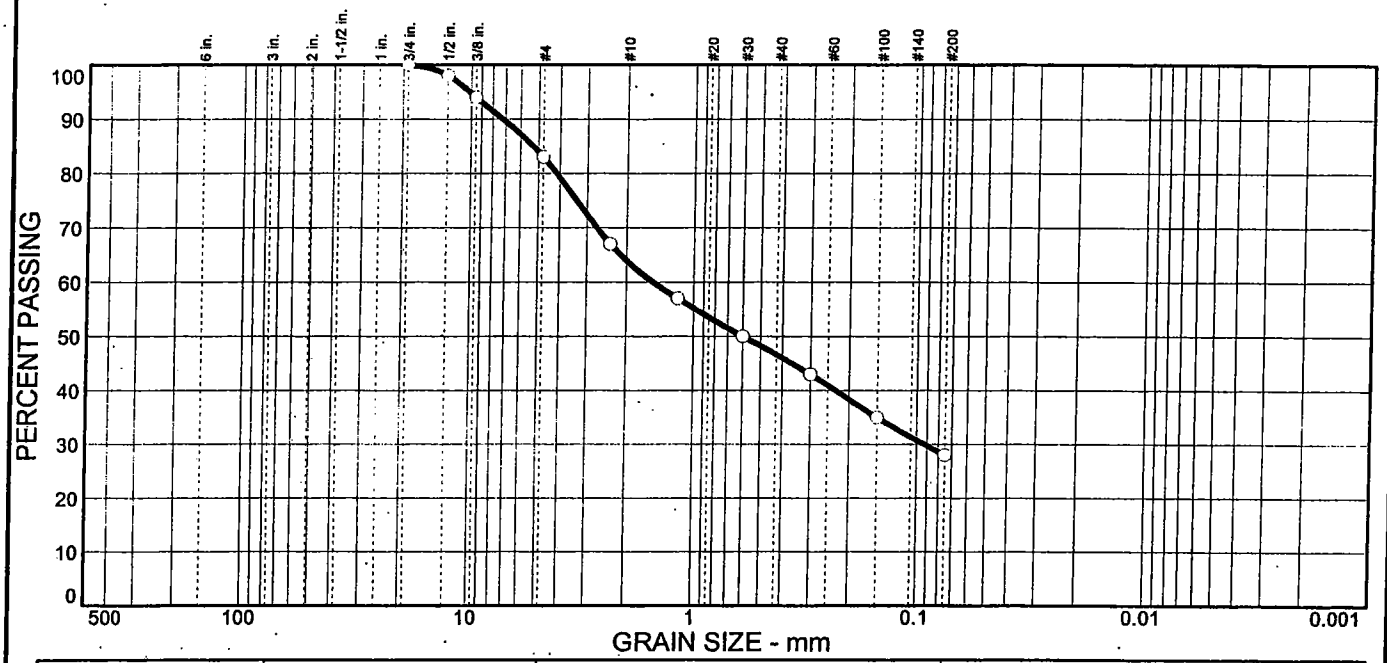
ATLANTIC TESTING LABORATORIES, Limited

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-597-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/4/05

Sample No: AT098S597 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-20: S-5 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	17	19	17	19	28	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
.75 in.	100		
.5 in.	98		
.375 in.	94		
#4	83		
#8	67		
#16	57		
#30	50		
#50	43		
#100	35		
#200	28		

Soil Description

Grey cmf SAND, some SILT/CLAY, little fine GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 5.28 D_{60}= 1.52 D_{50}= 0.600
D_{30}= 0.0923 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

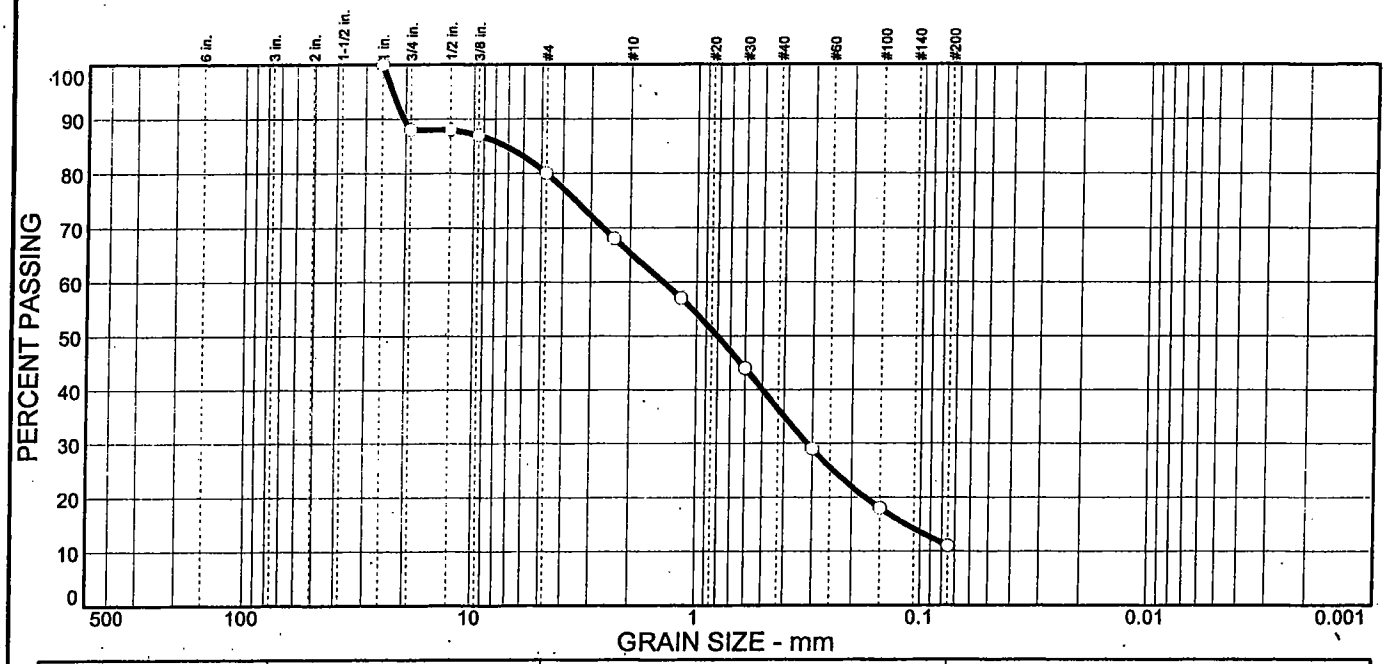
Reviewed by: Date: 4/7/05

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-598-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/5/05

Sample No: AT098S598 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-32: S-2 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	12	8	15	29	25	11	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1 in.	100		
.75 in.	88		
.5 in.	88		
.375 in.	87		
#4	80		
#8	68		
#16	57		
#30	44		
#50	29		
#100	18		
#200	11		

Soil Description

Grey & White c-mf SAND, little cmf GRAVEL, little SILT/ CLAY

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 7.18 D_{60}= 1.42 D_{50}= 0.803
D_{30}= 0.315 D_{15}= 0.115 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Date: 4/7/05

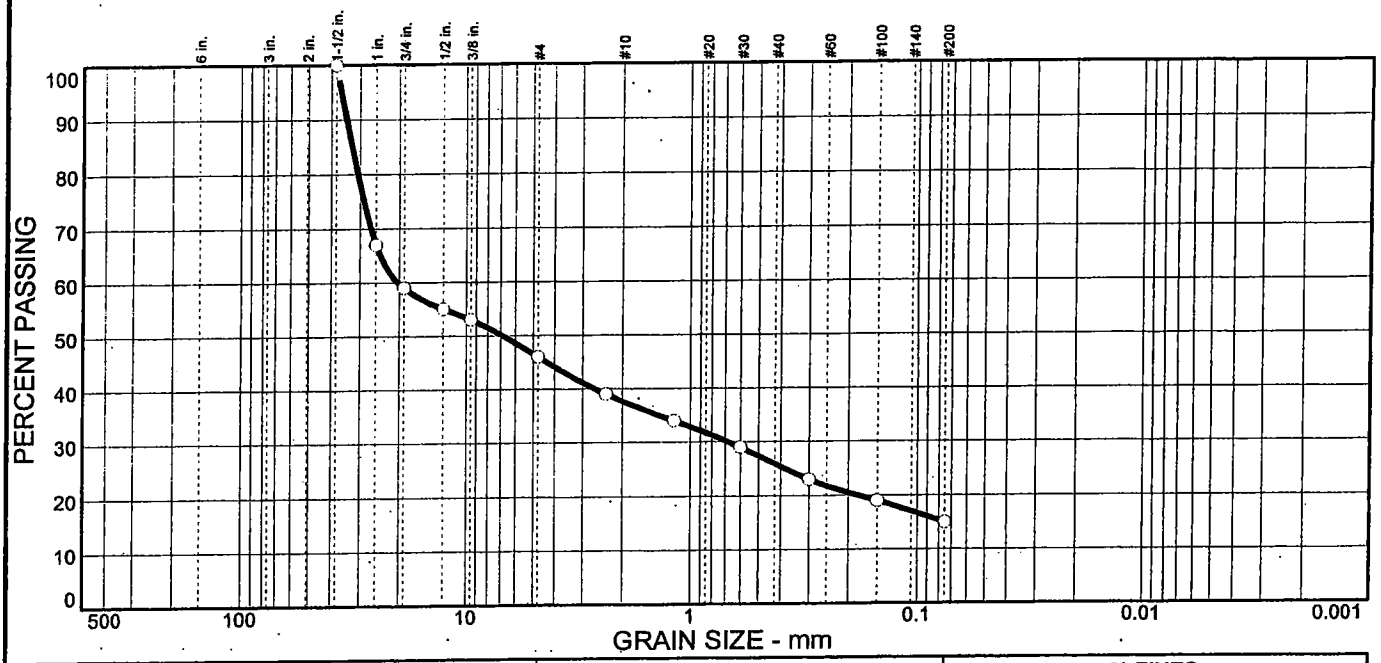
ATLANTIC TESTING LABORATORIES, Limited

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-599-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/4/05

Sample No: AT098S599 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-32: S-5 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	41	13	8	12	11	15	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1.5 in.	100		
1 in.	67		
.75 in.	59		
.5 in.	55		
.375 in.	53		
#4	46		
#8	39		
#16	34		
#30	29		
#50	23		
#100	19		
#200	15		

* (no specification provided)

Soil Description

Grey c+mf GRAVEL, some cmf SANd, little SILT/CLAY

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 32.5 D_{60}= 20.3 D_{50}= 6.86
D_{30}= 0.677 D_{15}= 0.0750 D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Date: 4/7/05

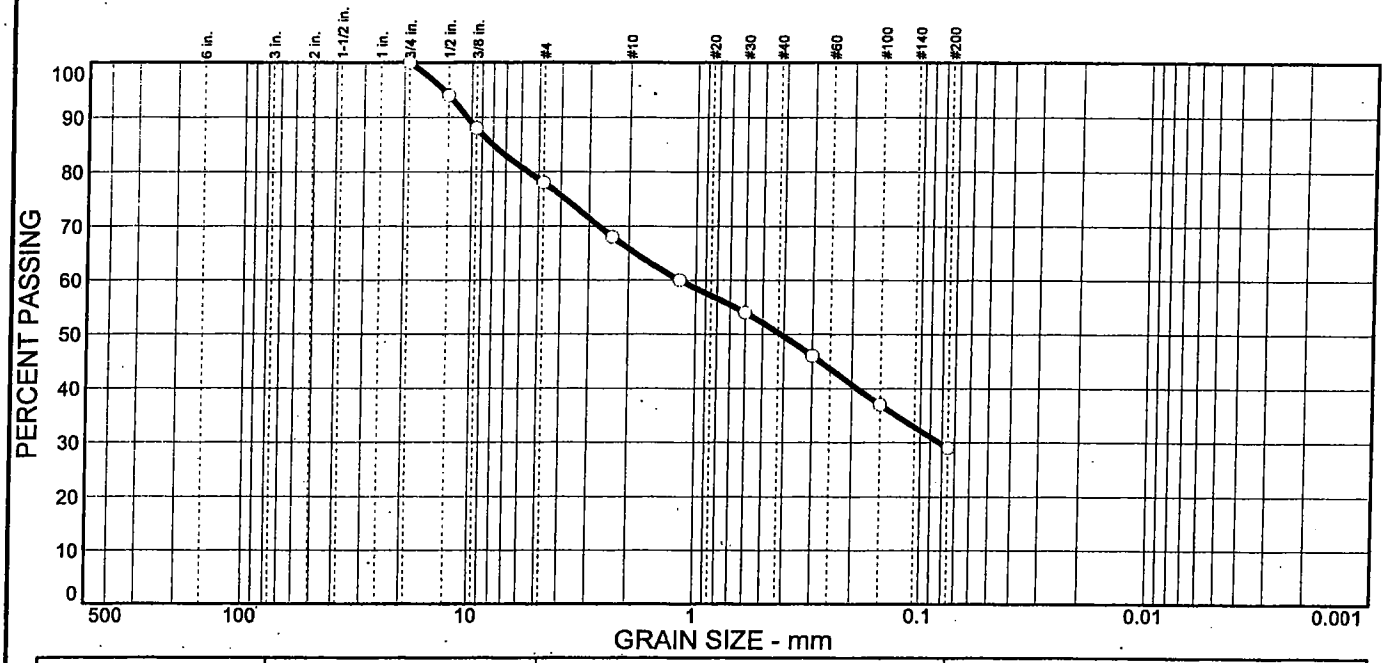
ATLANTIC TESTING LABORATORIES, Limited

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-600-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/5/05

Sample No: AT098S600 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-34: S-3 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	22	12	16	21	29	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
.75 in.	100		
.5 in.	94		
.375 in.	88		
#4	78		
#8	68		
#16	60		
#30	54		
#50	46		
#100	37		
#200	29		

Soil Description

Grey cmf+ SAND, some SILT/CLAY, some fine GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 8.04 D_{60}= 1.18 D_{50}= 0.415
D_{30}= 0.0821 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: Date: 4/7/05

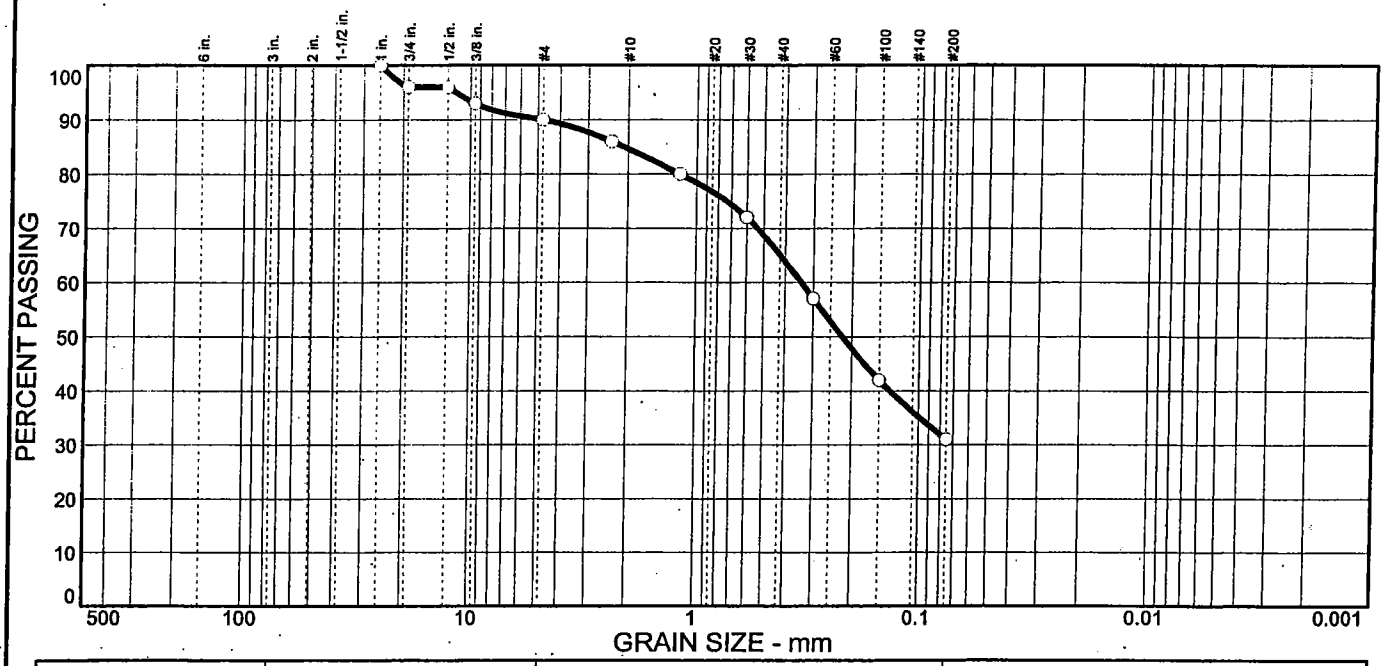
ATLANTIC TESTING LABORATORIES, Limited

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-601-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/3/05

Sample No: AT098S601 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-34: S-5 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	4	6	5	20	34	31	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
1 in.	100		
.75 in.	96		
.5 in.	96		
.375 in.	93		
#4	90		
#8	86		
#16	80		
#30	72		
#50	57		
#100	42		
#200	31		

Soil Description

Grey c-mf+ SAND, some SILT/CLAY, trace cmf GRAVEL

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 2.08 D_{60}= 0.341 D_{50}= 0.221
D_{30}= D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

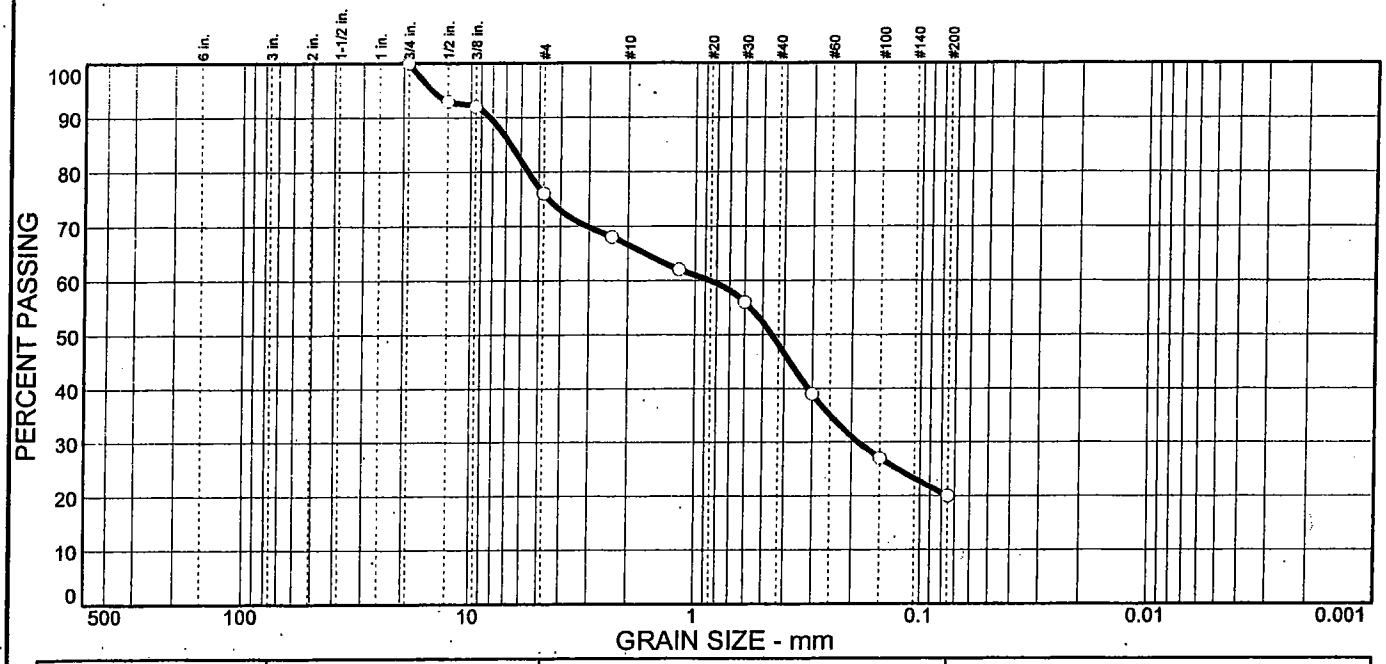
Reviewed by: Date: 4/7/05

Particle Size Distribution Report

Project: Laboratory Analysis **Report No.:** AT098SL-602-03-05

Client: Clough, Harbour & Associates LLP **Date:** 4/4/05

Sample No: AT098S602 **Source of Sample:** Pocono Downs (#13989.1007.1502)
Location: B-42: S-3 **Elev./Depth:**



% COBBLES	% GRAVEL		% SAND			% FINES	
	CRS.	FINE	CRS.	MEDIUM	FINE	SILT	CLAY
0	0	24	9	18	29	20	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	OUT OF SPEC. (X)
.75 in.	100		
.5 in.	93		
.375 in.	92		
#4	76		
#8	68		
#16	62		
#30	56		
#50	39		
#100	27		
#200	20		

Soil Description

Grey c-mf+ SAND, some fine GRAVEL, little SILT/CLAY

Atterberg Limits

PL= -- LL= -- PI= --

Coefficients

D_{85}= 6.68 D_{60}= 0.855 D_{50}= 0.457
D_{30}= 0.187 D_{15}= D_{10}=
C_u= C_c=

Classification

USCS= AASHTO=

Remarks

Sample delivered by client on 3/31/05
ASTM D 422 Particle Size Analysis (without hydrometer)

* (no specification provided)

ATLANTIC TESTING LABORATORIES, LIMITED

Reviewed by: _____ Date: 4/7/05

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-8033, FAX (315) 458-0249, (800) 842-4667

Laboratory Analysis Report

ATLANTIC TESTING LABORATORIES
22 Corporate Drive

Clifton Park, NY 12065
ATTN: Mr. Justin W. Rathman

PROJECT #: 213553
RECEIVED: 04/01/2005 @ 11:00

Site Address:
CHA
POCONO DOWNS

CLIENT JOB NUMBER: AT098

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 393878 **CLIENT SAMPLE ID:** S-595				**DATE/TIME SAMPLED:** 03/31/05 @	
CHLORIDE	1910	MG/KG DRY WT.	04/06/05	EPA 325.2	CRI
HYDROGEN ION PH (SOLID)	7.34		04/01/05 @ 1328	EPA 9040B/9045C	BDR
SOLIDS, TOTAL	93	PERCENT	04/06/05	SM18 2540B	CRI
SULFATE	3630	MG/KG DRY WT.	04/06/05	EPA 375.2	CRI
SAMPLE #: 393879 **CLIENT SAMPLE ID:** S-597				**DATE/TIME SAMPLED:** 03/31/05 @	
CHLORIDE	603	MG/KG DRY WT.	04/06/05	EPA 325.2	CRI
HYDROGEN ION PH (SOLID)	5.34		04/01/05 @ 1333	EPA 9040B/9045C	BDR
SOLIDS, TOTAL	90	PERCENT	04/06/05	SM18 2540B	CRI
SULFATE	1600	MG/KG DRY WT.	04/06/05	EPA 375.2	CRI
SAMPLE #: 393880 **CLIENT SAMPLE ID:** S-598				**DATE/TIME SAMPLED:** 03/31/05 @	
CHLORIDE	59.2	MG/KG DRY WT	04/06/05	EPA 325.2	CRI
HYDROGEN ION PH (SOLID)	12.16		04/01/05 @ 1337	EPA 9040B/9045C	BDR
SOLIDS, TOTAL	72	PERCENT	04/06/05	SM18 2540B	CRI
SULFATE	164	MG/KG DRY WT.	04/06/05	EPA 375.2	CRI
SAMPLE #: 393881 **CLIENT SAMPLE ID:** S-601				**DATE/TIME SAMPLED:** 03/31/05 @	
CHLORIDE	2990	MG/KG DRY WT.	04/06/05	EPA 325.2	CRI
HYDROGEN ION PH (SOLID)	6.01		04/01/05 @ 1340	EPA 9040B/9045C	BDR
SOLIDS, TOTAL	87	PERCENT	04/06/05	SM18 2540B	CRI
SULFATE	6340	MG/KG DRY WT	04/06/05	EPA 375.2	CRI
SAMPLE #: 393882 **CLIENT SAMPLE ID:** S-602				**DATE/TIME SAMPLED:** 03/31/05 @	
CHLORIDE	147	MG/KG DRY WT	04/06/05	EPA 325.2	CRI

ATLANTIC TESTING LABORATORIES
22 Corporate Drive

Clifton Park, NY 12065
ATTN: Mr. Justin W. Rathman

PROJECT #: 213553
RECEIVED: 04/01/2005 @ 11:00

Site Address:
CHA
POCONO DOWNS

CLIENT JOB NUMBER: AT098

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 393882 **CLIENT SAMPLE ID:** S-602				**DATE/TIME SAMPLED:** 03/31/05 @	
CHLORIDE	147	MG/KG DRY WT.	04/06/05	EPA 325.2	CRI
HYDROGEN ION PH (SOLID)	4.53		04/01/05 @ 1343	EPA 9040B/9045C	BDR
SOLIDS, TOTAL	89	PERCENT	04/06/05	SM18 2540B	CRI
SULFATE	475	MG/KG DRY WT.	04/06/05	EPA 375.2	CRI

The acceptable sample receipt temperature range is just above freezing to 6 degrees C. Samples delivered to the lab immediately following their collection are considered acceptable if they arrive on ice

Sample Receipt Temperature 20 Degrees C

Wendy J. Umberger
Laboratory Director

04/07/2005
Print Date

All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated.
Report relates only to the samples as received by the laboratory and shall not be reproduced except in full, without written approval from Environmental Laboratory Services.

Environmental
LABORATORY SERVICES

GEOTECHNICAL ENGINEERING REPORT

POCONO DOWNS EXPEDITED CASINO BUILDING
PLAINS TOWNSHIP, PENNSYLVANIA

July, 2005

Prepared for:

Jeter Cook & Jepson Architects, Inc.

450 Church Street

Hartford, Connecticut 06103

Prepared by:

CLOUGH HARBOUR & ASSOCIATES LLP

Scranton Life Building Suite 700
538 Spruce Street
Scranton, PA 18503-1820

CHA Project No. 13989.1013.1502

This report has been prepared and reviewed by the following qualified engineers employed by Clough Harbour & Associates LLP (CHA).

Report Prepared By:

Kate Defayette

Geotechnical Engineer

Report Reviewed By:

Warren A. Harris IV, P.E.

Senior Geotechnical Engineer

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SECTION **PAGE NUMBER**

TABLES

APPENDICES

1.0 INTRODUCTION

This report summarizes the results of a geotechnical investigation performed by Clough Harbour & Associates LLP (CHA) for Jeter Cook & Jepson Architects, Inc., to evaluate a site adjacent to the Pocono Downs Racetrack Grand Stands in the Plains Township, Pennsylvania for the construction of a gaming facility. The project site is shown on the Site Location Map (Figure 1) included in Appendix A.

The primary objectives of the investigation were to evaluate subsurface conditions at the project site and provide geotechnical design parameters and recommendations for the proposed facility.

2.0 PROJECT AND SITE DESCRIPTION

The Mohegan Tribal Gaming Authority plans to construct an expedited casino facility at the Pocono Downs Racetrack located in the Plains Township, Pennsylvania. The Pocono Downs Racetrack is located two miles northeast of Wilkes-Barre, on route 315. The eastern portion of the property contains the existing racetrack and grandstands. The northern portion of the grandstands and a new building addition will house the expedited casino. A garage/storage shed that is attached to the grandstands, and a detached pizza shop building to the north currently occupy this area where the proposed building addition will be located. These two existing buildings are proposed to be demolished.

We understand that the proposed expedited casino building addition will be a two-story pre-engineered metal building with a footprint of approximately 10,000 square feet. The proposed expedited casino will be attached to the north side of the grandstands. Based on preliminary information available for the project, the finished floor elevations for the expedited casino building addition is reported to be approximately elevation 690 feet.

3.0 SUBSURFACE INVESTIGATION

CHA conducted a subsurface investigation consisting of five soil borings designated as B-1, B-2, B-2A, B-3 and B-4. The investigation began on June 7, 2005 and was completed on June 8, 2005. The soil borings were located in the field by CHA during the subsurface investigation by measuring from existing site features. The soil boring locations are shown on the Boring Location Plan (Figure 2) in Appendix A.

Nature's Way Environmental Consultants & Contractors, Inc. of Crittenden, New York was retained by CHA to advance the soil borings. The field investigation was performed under the observation of a CHA geotechnical engineer who ensured proper drilling and sampling methods were utilized. The CHA geotechnical engineer also inspected and classified samples, and prepared field logs documenting subsurface conditions.

The soil borings were advanced with a truck-mounted drill rig. Hollow stem augers (HSA) with inside diameters of 4.25 inches were used to advance the boreholes. Typically, split spoon samples were obtained continuously to 12 feet below grade and at standard 5-foot intervals thereafter, in general accordance with American Society for Testing and Materials guidelines (ASTM D 1586). The split spoon samples were advanced by a 140 (±) pound hammer free falling 30 (±) inches. "Blow counts" are recorded on the soil boring logs, and indicate the penetration resistance for a 6-inch advancement of the split spoon. Initially, the spoon is driven six inches to seat the sampler in undisturbed material. The number of blows required to drive the sampler the next 12 inches is taken as the standard penetration resistance or "N" value. This value is indicative of the soil's in-place compactness or consistency. The final six inch increment that the spoon is driven is not included in the determination of "N". Refusal is defined as a resistance of greater than 50 blows per six inches of penetration.

An HQ size core barrel (2.5" core dia.) was used to obtain rock core samples. The Rock Quality Designation (RQD) values were then determined for the core samples. RQD is defined as the sum of the length of core pieces 4 inches and longer, divided by the length of the core run,

expressed as a percentage. The RQD values provide an indication of the relative degree of jointing or fracturing of the bedrock.

4.0 SITE GEOLOGY

4.1 Regional Geology

Based upon review of the *Surficial Materials of Pennsylvania (Berg, T.M. (1980))*, the site is located in a region of sandy soils. The bedrock at the site is mapped as fine to coarse sandstone, siltstone and shale along with conglomerates of numerous anthracite coals in repetitive sequence according to the *Geologic Map of Pennsylvania - Map 64 (Sevon, W.D. (1989))*.

A review of maps obtained from the Pennsylvania Office of Surface Mining & Enforcement (OSM&E) indicates that coal mining in the bedrock within the proposed project site limits was completed in the past. The maps reviewed indicate the following coal veins in the vicinity of the project site in increasing depth order: Five Foot, Cooper, Bennett, Checker, Top Ross, Ross, Three Foot, Top Red Ash, and Red Ash. It appears that all veins were deep mined, and select veins were strip mined.

4.2 Subsurface Stratigraphy

Subsurface conditions encountered in individual soil borings are detailed and described on the subsurface logs included in Appendix B of this report.

Asphalt – A layer of asphalt was encountered in soil borings B-1, B-3 and B-4. The asphalt layer was about 0.5 feet thick in the locations investigated.

Topsoil – A layer of topsoil was encountered in soil boring B-2. The topsoil layer was about 0.1 feet thick.

Fill – Sand fill with varying amounts of silt and fine to coarse gravel was encountered below the asphalt layer or ground surface in all of the soil borings. The fill was encountered to a depth ranging from 1.3 feet to 13 feet below the ground surface. Based on standard penetration test

resistance values the fill was very loose to very compact. The water content of the fill was visually classified as moist. Coal ash, roots and asphalt was noted in the fill samples obtained from borings B-1 and B-2.

Sand – Fine to coarse sand with varying amounts of silt and fine to coarse gravel was encountered below the fill in soil boring B-1. Based on standard penetration test resistance value the sand was very compact. The water content of the sand was visually classified as moist.

Completely Weathered Shale– Completely weathered shale, characterized by fine to coarse gravel with varying amounts of silt and fine to coarse sand was encountered below the sand or fill at a depth ranging from about 10 to 13 feet. Based on standard penetration test resistance values the material was medium compact to very compact. The water content of the material was visually classified as moist.

Shale Bedrock – Competent shale bedrock was encountered below the completely weathered shale in borings B-1 and B-4 at depths ranging from 17.5 feet to 19.5 feet below the ground surface, respectively. The bedrock was generally gray in color and varied from being slightly weathered to moderately weathered. Rock Quality Designation (RQD) values of the rock core samples ranged from being good to fair. Auger and spoon refusal in borings B-2A and B-3 was also interpreted as top of bedrock at depths of 26 and 23.3 feet, respectively.

4.3 Groundwater Conditions

Groundwater was not detected during drilling in the soil borings. A temporary piezometer was installed in soil boring B-1. The piezometer was read on June 20, 2005. Groundwater was measured in B-1 at a depth of 14.0 feet below the ground surface or at approximately elevation 690 feet. Groundwater levels are recorded on the subsurface logs included in Appendix B. For design, groundwater should be considered to be at elevation 692 feet.

Note that groundwater levels at the site at any given time may differ from those shown on the subsurface logs and described in this report due to seasonal factors that effect groundwater such as temperature and precipitation.

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1 Foundations

As stated in Section *2.0 Project and Site Description*, the proposed finished floor elevation for the lower level of the casino is planned to be at approximately elevation 690 feet. Upon review of the preliminary site plan for the project and information obtained during the subsurface investigation, a shallow foundation system for the casino building addition would bear on uncontrolled fill and completely weathered rock. Because of the uncertainty regarding placement of the existing fill, these fill soils are not deemed suitable for support of the proposed building.

Since completely weathered rock within the footprint of the proposed casino is relatively shallow below the fill soils, excavation of fill soils and lowering spread footings to the deeper completely weathered rock will be the most cost effective and practically feasible foundation solution. As an alternative of lowering the footings to completely weathered rock, the fill may be over-excavated and backfilled with structural fill or flowable fill to within four feet of finished grade.

Alternatively, a portion of the casino could be constructed on a deep foundation system such as piles or drilled shafts through the fill soils. Although drilled shafts through the existing fill soils is an option, we believe that installation of drilled shafts would not be cost effective considering the existing subsurface conditions (cohesionless soils containing boulders and cobbles).

Subsequently, spread footings founded on the completely weathered rock, structural fill or flowable fill should be designed using an allowable bearing pressure of 3 tons per square foot (tsf). All excavations for foundation construction should be backfilled with structural fill in accordance with the placement and compaction procedures included in *Section 5.5 Structural Fill*. Carefully compacted backfill will provide uniform slab support and prevent differential slab movement.

A detailed settlement analysis was beyond the scope of this study. However, based on the information obtained during this study and the recommendations outlined in this report, we anticipate that total settlement of proposed footings will be less than 1 inch, with differential settlements across individual column lines of about ½ inch or less. These estimates are based on the assumption that proper site preparation and construction monitoring is performed and that foundations are constructed on undisturbed completely weathered bedrock or controlled structural fill as recommended in this report. Longer term total settlement during the service life of the building addition is expected to be less than ¼ inch.

5.2 Floor Slabs

The fill soils at the site are uncontrolled and will provide varying support characteristics for the casino addition floor slabs, therefore, floor slabs should not be founded directly on the existing fill soils. The following features are recommended as part of the floor slab construction.

- To minimize differential settlement of floor slabs the, subgrade beneath the floor slabs, including fill and completely weathered rock, should be over excavated a minimum of 12 inches and replaced with structural fill.

- Subgrade soil within structure footprints after the over excavation is performed should be proof rolled using a smooth drum roller with a gross weight of at least 10 tons. The roller should operate in its vibratory mode, and complete at least 6 passes at a speed not exceeding 3 feet per second. Areas that tend to "pump" or "weave" under the passing roller should be additionally undercut by at least 12 inches and backfilled with structural fill. If the vibratory roller tends to "bring up" moisture, the subgrade should be proof rolled with the roller operating in the static mode.

- Any deleterious or organic material found below the floor slab areas should be removed and replaced with compacted structural fill.

- A subgrade modulus of 100 pounds per cubic inch should be used for design of concrete floor slabs on compacted structural fill.

- A minimum of 6 inches of clean, compacted crushed stone should be placed beneath floor slabs to enhance support and provide a working base above the soil sub-grade. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The actual thickness of the stone layer should be based on design requirements. The stone should be underlain by a 6 ounce per square yard or heavier, non-woven geotextile with an apparent opening size (AOS) equal to or smaller than the U.S. Standard sieve size of 70 such as a Mirafi 160N or a geotextile of similar qualities. This will provide separation between the stone and underlying weathered rock or structural fill soils.

- The crushed stone should be kept moist, but not wet, immediately prior to floor slab concrete placement.

- A polyethylene vapor retarder should be used between the crushed stone and concrete slabs in areas where slabs will be covered with floor tile, carpeting, or other material which may be adversely affected by moisture.

- If a polyethylene vapor retarder is used, adequate curing procedures should be specified to prevent slab curling due to excessive moisture loss in the slab surface.

- A geotechnical engineer should be retained to observe proof rolling of the subgrade and review subgrade conditions prior to slab construction and make recommendations for any unsuitable conditions encountered.

5.3 Retaining/Basement Walls

Walls that retain earth and are not restrained against lateral movement should be designed to resist "active" earth pressures. Walls that retain earth and are restrained against lateral movement

should be designed to resist "at rest" earth pressures. Weep holes and/or other drainage features should be provided to limit the potential for development of hydrostatic pressure behind the walls. We recommend that a 12-inch layer of drainage stone be placed immediately behind retaining/basement walls.

Structural fill should extend a distance behind each wall at least half the wall height. The structural fill should be capped with a layer of relatively impervious material to minimize percolation of surface water behind retaining/basement walls. Walls can then be designed based on the engineering properties of the structural fill (as defined in Table 1) as follows:

- Total unit weight: 125 pcf
- Buoyant unit weight: 65 pcf
- Angle of internal friction: 32 degrees
- Coefficient of active earth pressure (level backfill) (Ka): 0.31
- Coefficient of at-rest earth pressure (Ko): 0.47
- Friction factor, concrete footing on structural fill soils 0.45

5.4 Site Preparation

The area within the expedited casino building addition should be stripped of vegetation, topsoil, and asphalt. The site should then be excavated/graded to required elevations. The existing fill soils and completely weathered bedrock within the footprint of the casino structure should be excavated where necessary to achieve the required elevations for foundations and floor slabs as described in *Section 5.1 Foundations and 5.2 Floor Slabs.* Any areas that contain organic material or deleterious material at the excavation grade should be over excavated and backfilled with structural fill.

Care should be taken when excavating adjacent to the existing grandstand structure to prevent undermining of the existing foundations. It has been reported that the grandstands are supported on a combination of shallow footings and deep foundations. It is likely that shallow footings for

the existing grandstands bear on the completely weathered bedrock at approximately the same elevation that the casino addition footing will bear, therefore, undermining should not be a concern. However, it is not clear where the transition from shallow to deep foundations exists for the existing grandstands, therefore, underpinning to provide support for portions of the existing grandstands foundation and floor slabs may be required when excavating the fill soils adjacent to the grandstands structure.

Subsequent to stripping the site and excavating to proposed grades, the exposed site soils should be proof rolled using a smooth drum roller with a gross weight of at least 10 tons. The roller should operate in its vibratory mode, and complete at least six passes at a speed not exceeding 3 feet per second (fps). Any areas which pump or weave during proof rolling should be undercut by a minimum of 12 inches and backfilled with structural fill. If the vibratory roller tends to "bring up" moisture, the site soils should be proof rolled with the roller operating in the static mode.

The site should be brought to grade using structural fill beneath the structure footprint. Structural fill should meet the gradation requirements and be compacted as indicated in *Section 5.5 Structural Fill.* The natural and fill soils at the site do not meet the requirements for structural fill, particularly the fines content requirements. Therefore, these soils should not be used as backfill within structure footprint, however, these soils may be used as fill in landscape areas provided that strict care is taken with regard to moisture control during placement and compaction of these soils. In addition, asphalt that is excavated from the site may be milled and used as fill outside structure footprints.

Any landscaping that is proposed to abut the exterior walls of the structure shall be provided with an underdrain to allow water to freely drain away from the walls. Removing excess water from the landscaped areas adjacent to the structure will prevent water from wicking into the interior slab. Water that wicks into the interior slab could cause environmental conditions or water damage to interior elements. Landscape areas between the building perimeter and sidewalks should always have internal drainage otherwise these areas become reservoirs of water that seep

towards sidewalks, landings and parking areas. This additional water contributes to daily icing of paved surfaces.

5.5 Structural Fill

Structural fill should be used for backfilling footing excavations, backfilling undercuts, and raising grades within the structure footprint. Material suitable for structural fill should consist of sound, durable, non-plastic sand and gravel, free of stumps, roots, other organics and any frozen or deleterious materials meeting the following requirements:

TABLE 1
Gradation Requirements for Structural Fill

Sieve Size	Percent Passing by Weight
4 inch	100
No. 40	0 to 70
No. 200	0 to 10

The natural and fill soils at the site should be restricted for use as structural fill as previously described in *Section 5.4 Site Preparation.*

Structural fill should be placed in loose lifts not exceeding 8 inches in thickness and should be compacted to at least 95 percent of the maximum laboratory dry density as determined by the modified Proctor test (ASTM D-1557). Structural fill around footings should be thoroughly compacted to provide uniform slab support.

5.6 Seismic Site Classification and Design Parameters

Based upon the information available from the subsurface investigation, the preliminary finished floor elevation for the proposed casino addition, the foundation recommendations included

herein, and in accordance with Section 1615, Earthquake Loads – Site Ground Motion, of the 2000 International Building Code (IBC), the site class for the subject property is defined as C. In addition the following seismic design, site coefficients were determined:

- Maximum Spectra Response Acceleration at Short Periods (S_s) 0.24g
- Maximum Spectra Response Acceleration at 1 Second Period (S_1) 0.07g
- Site Coefficient F_a 1.2
- Site Coefficient F_v 1.7

5.7 Control of Water

Based on the groundwater levels observed at the site during the geotechnical investigation, groundwater may be encountered during site work and foundation construction. Project specifications should require that groundwater be maintained at a minimum depth of 2 feet below excavation bottom at all times to maintain stable conditions. It should be the responsibility of the contractor to maintain dry conditions so that all construction may be completed in the dry. Dewatering methods suitable for this site include the use of well points, sumps, diversion and drainage ditches, toe drains and other similar methods. Pumps should be of sufficient capacity to control the groundwater, and operated in a manner which will limit the withdrawal of fines from the soil. It is recommended that pumps be installed in sumps lined with a geotextile and crushed stone. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The geotextile should be a 6 ounce per square yard or heavier, non-woven geotextile with an apparent opening size (AOS) equal to or smaller than the U.S. Standard sieve size of 70 such as a Mirafi 160N or a geotextile of similar qualities.

The subgrade soils beneath floor slabs and backfill adjacent to foundations should be maintained in a drained condition at all times since water build-up could result in wet slabs, cracking, and heaving. We recommend that drain tile with crushed stone or gravel backfill be placed adjacent to exterior footings at a depth of four feet below the final ground surface. The crushed stone or gravel backfill should extend a minimum of 12 inches around the drain tile. The upper one foot

of backfill adjacent to the foundation should be relatively impervious and the ground surface should be graded so that surface water runoff is directed away from the building. Drain tile should also be placed beneath the floor slab within the crushed stone or gravel subbase. All drain tiles should be connected to a storm sewer, daylighted at a lower elevation, or piped to a sump equipped with duplex pumps.

Surface runoff should be diverted away from excavations during construction.

5.8 Frost Heave

The on site soils contain significant amounts of fines (soil particles passing the No. 200 sieve). Soils that contain significant amounts of fine grained particles (i.e. silts and clays) are frost susceptible and may contribute to upward ground movement below exterior pavements and concrete flatwork such as slabs or sidewalks when in the presence of water and exposed to freezing temperatures. The fine grained soils will typically retain a higher content of water than coarser grained soils, and cause upheaval as the ground freezes. Ground heave below concrete flatwork will be more prevalent at transitional elements with varying depths and sections such as curb lines and building entrances. Therefore, we recommend that underdrains be provided to a depth of four feet at these transitions to allow water to freely drain from the subsurface soils to minimize frost action upon concrete flatwork.

5.9 Chemical Analysis

A pH, sulfate, and chloride analysis of soil sample S-4 from test boring B-4 was performed to determine if the on-site fill soils are corrosive. The laboratory test results are included in Appendix C. The samples were tested by Atlantic Testing Laboratories, Limited of Clifton Park, New York

The measured pH, chloride, and sulfate contents in sample S-4 were 8.83, 387 mg/kg, and 442 mg/kg, respectively. The fill soils at the location of the building addition should therefore be considered aggressive to steel and considered to have a moderate effect on concrete.

We therefore recommend that appropriate measures be implemented in the project design to provide sufficient protection of foundation concrete and reinforcing steel from chemical attack.

5.10 Mining Analysis

An assessment of past mining activities in the area of the project site was completed to evaluate the potential impact of these activities on the proposed project. The analysis consisted of reviewing maps obtained from the Pennsylvania Office of Surface Mining & Enforcement (OSM&E) and a hydrogeologic investigation report prepared by Meiser & Earl, Inc. for the East Side Landfill which is part of the project site.

A review of the available information indicates that coal mining in the bedrock within the proposed project limits was completed in the past. Both the information from the OSM&E and the East Side Landfill report indicate the following coal veins in the vicinity of the project site in increasing depth order: Five Foot, Cooper, Bennett, Checker, Top Ross, Ross, Three Foot, Top Red Ash, and Red Ash. It appears that all veins were deep mined, and select veins were strip mined.

The upper most or Five Foot coal vein on average is about 55 to 65 feet above the next deepest or Cooper coal vein. Based on available elevation data, the Five Foot vein ranges about 50 to 80 feet below the preliminary finished floor elevation (elev. 690') in the area of the proposed casino addition.

Information obtained from the OSM&E indicates that there have been no emergency subsidence control problems in the vicinity of the project site. Management at the Pocono Downs facility has also confirmed that subsidence has not been an issue at the current facilities. Since a

considerable thickness of overburden and bedrock exists between the proposed construction and the most shallow mined coal vein, and no previous subsidence problems have been noted in the vicinity, it does not appear that a high degree of risk exists with regard to the impact of subsidence on the proposed construction.

6.0 EXCAVATIONS

In general, all excavations should be performed in accordance with the Occupational Safety and Health Administration (OSHA) standards and other applicable local, State, and Federal regulations. In areas where sufficient sloping of excavation cuts is not possible, excavations should be shored, sheeted and braced.

7.0 OBSERVATION DURING CONSTRUCTION

A qualified geotechnical engineer should carefully observe all aspects of the earthwork including grubbing, topsoil stripping, excavation, proof rolling, undercuts, filling, and drain installation to insure that proper subgrade support is achieved. The geotechnical engineer should carefully inspect the final bearing surface for foundations and floor slabs to ensure that adequate foundation support is provided. The inspection of the bearing surface should include probing at select locations to verify the bearing capacity of the supporting soils and identify where load bearing soils may have been disturbed.

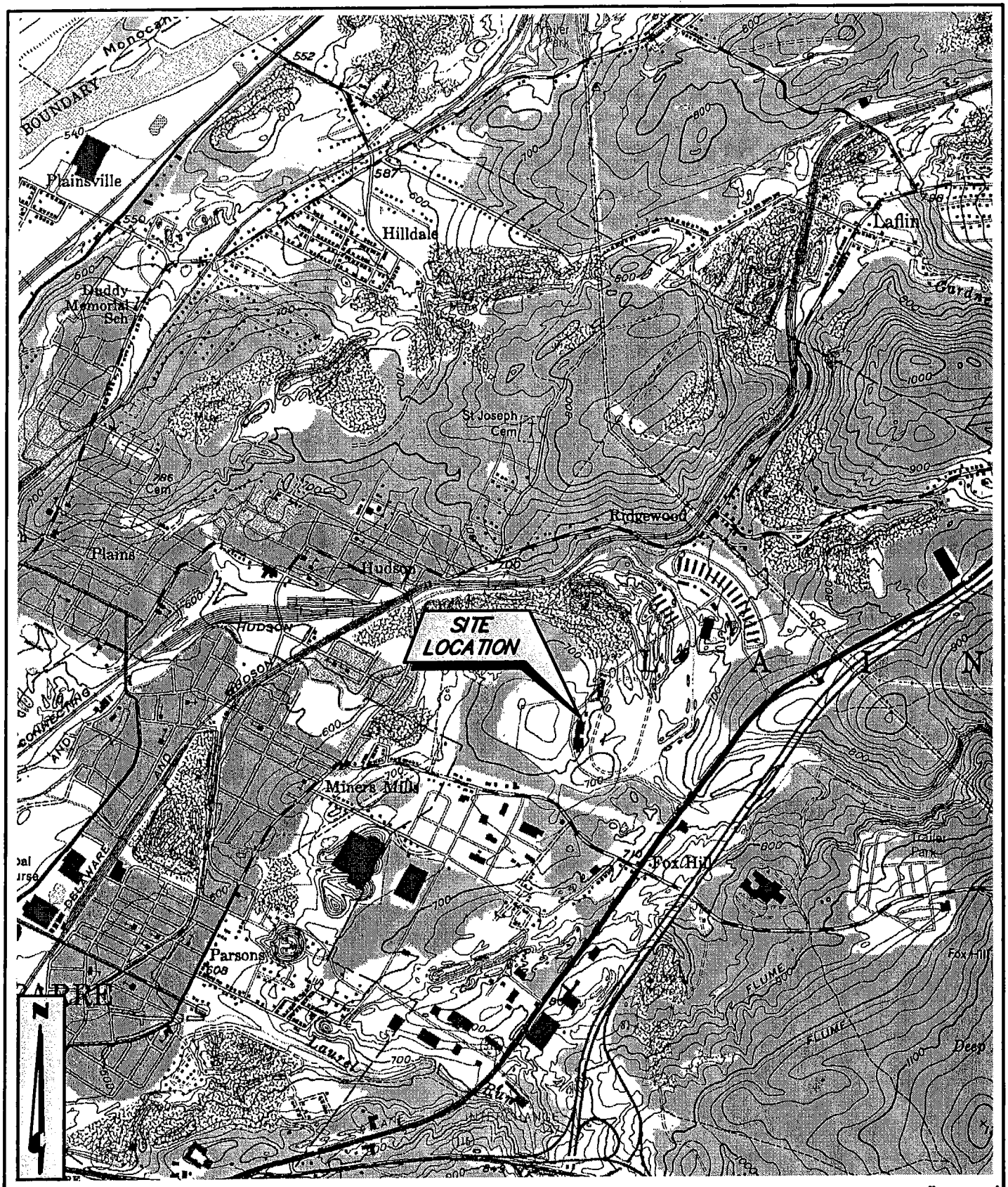
The on-site or off-site materials used as fill to raise grades, backfill undercuts and footing excavations, and beneath footings, floor slabs, and pavement should be tested by a qualified soils laboratory to verify they meet the specified gradations, and to determine their maximum dry density for compaction. In-place density tests should be performed on all fill soils to verify that compaction methods and equipment achieve the required densities.

8.0 CLOSURE

The geotechnical recommendations presented in this report are based, in part, on project and subsurface information available at the time this report was prepared and in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made. Some variation of subsurface conditions may occur between locations explored that may not become evident until construction. Depending on the nature and extent of the variations, it may be necessary to re-evaluate the recommendations presented in this report.

APPENDIX A

Figures



SOURCE: U.S.G.S. 7.5' Topographic
QUADRANGLE: PITTSTON, PA

SCALE: 1"=2000'

CHA

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Main: (518) 453-4500 · www.cloughharbour.com

13989.1007.1502 | DATE: 03-15-2005

FIGURE 1

SITE LOCATION MAP
POCONO CASINO
PLAINS
PENNSYLVANIA

File: \\Cha12\geodata\13989\ACAD\siteloc-map.dwg User: 330 3/14/2005 02:37 PM

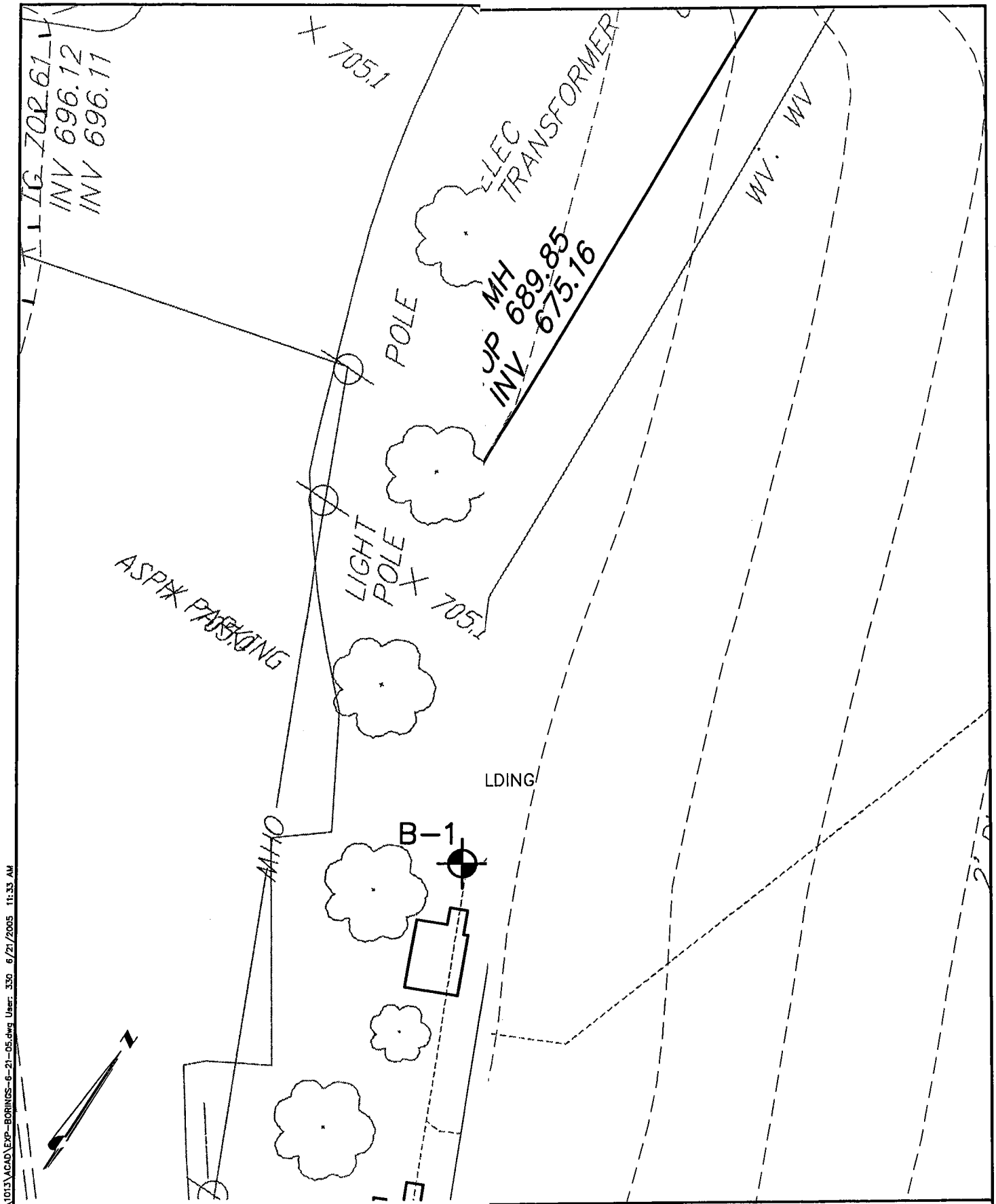

FIGURE 2

BORING LOCATION PLAN

POCONO DOWNS
EXPEDITED CASINO BUILDING

Wilkes Barre, Pennsylvania

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APPENDIX B

Test Boring Logs

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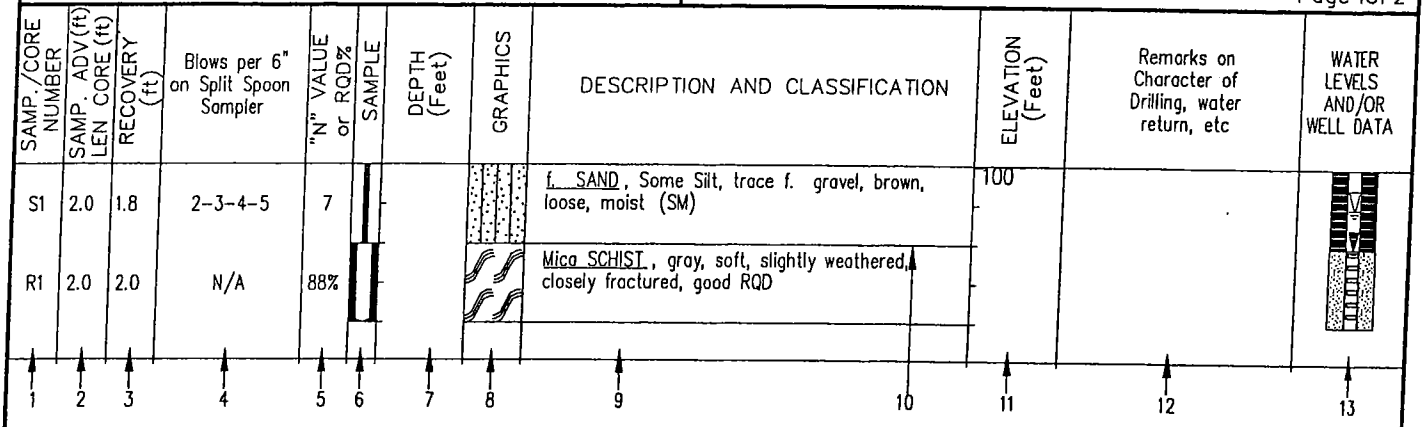
LEGEND TO SUBSURFACE LOGS



Subsurface Logs present material classifications, test data, and observations from subsurface investigations at the subject site as reported by the inspecting geologist or engineer. In some cases, the classifications may be made based on laboratory test data when available. It should be noted that the investigation procedures only recover a small portion of the subsurface materials at the site. Therefore, actual conditions between borings and sampled intervals may differ from those presented on the Subsurface Logs. The information presented on the logs provide a basis for an evaluation of the subsurface conditions and may indicate the need for additional exploration. Any evaluation of the conditions reported on the logs must be performed by Professional Engineers or Geologists.

1. SAMP./CORE NUMBER – Samples are numbered for identification on containers, laboratory reports or in text reports.

2. SAMP.ADV/LEN.CORE – Length of sampler advance or length of coring run measured in feet.

3. RECOVERY – Amount of sample actually recovered after withdrawing sampler or core barrel from bore hole measured in feet.

4. SAMPLE BLOWS/6" – Unless otherwise noted, blow counts represent values obtained by driving a 2.0" (O.D.), 1-3/8" (I.D.) split spoon sampler into the subsurface strata with a 140 pound weight falling 30" as per ASTM D 1586. After an initial penetration of 6" to seat the sampler into undisturbed material, the sampler is then driven an additional 2 or 3 six inch increments.

5. "N" Value or RQD % – "N" VALUE – The sum of the second and third sample blow increments is generally termed the Standard Penetration Test (SPT) "N" value. CORE RQD – Core Rock Quality Designation, RQD, is defined as the summed length of all pieces of core equal to or longer than 4 inches divided by the total length of the coring run. Fresh, irregular breaks distinguishable as being caused by drilling or recovery operations are ignored and the pieces are counted as intact lengths. RQD values are valid only for cores obtained with NX size core barrels.

6. SAMPLE – Graphical presentation of sample type and advance or core run length. See Table 1.

7. DEPTH – Depth as measured from the ground surface in feet.

8. GRAPHICS – Graphical presentation of subsurface materials. See Table 4. Dual soil classification and rock graphics may vary and are not shown on Table 4.

9. DESCRIPTION AND CLASSIFICATION – SOIL – Recovered samples are visually classified in the field by the supervising geologist or engineer unless otherwise noted. Particle size and plasticity classification is based on field observations, and using the Unified Soil Classification System (USCS). See Table 4. USCS symbols are presented in parentheses following the soil description. Where necessary, dual symbols may be used for combinations of soil types. Relative proportions, by weight and/or plasticity, are described in general accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Publication 479, 6-1970. See Table 2. Soil density or consistency description is based on the penetration resistance. See Table 3. Soil moisture description is based on the observed wetness of the soil recovered being dry, moist, wet, or saturated. Water introduced into the boring during drilling may affect the moisture content of the materials. Other geologic terms may also be used to further describe the subsurface materials. ROCK – Rock core descriptions are based on the inspector's observations and may be examined and described in greater detail by the project engineer or geologist. Terms used in the description of rock core are presented in Table 5.

10. DIVISION LINES – Division lines between deposits are based on field observations and changes in recovered material. Solid lines depict contacts between two deposits of different geologic depositional environment of known elevation. Dashed lines represent estimated elevation of contacts between two deposits of different geologic depositional environment. Dotted lines depict transitions of deposits within the same depositional environment, such as grain size or density.

11. ELEVATION – Elevation of strata changes in feet.

12. REMARKS – Miscellaneous observations.

13. WATER LEVELS & WELL DATA – Hollow water level symbol, if present, represents level at which first saturated sample or water level was encountered. Solid water level symbol, if present, depicts the most probable static water elevation at the time of drilling or as measured in an installed observation well at a later date. Subsurface water conditions are influenced by factors such as precipitation, stratigraphic composition, and drilling/coring methods. Conditions at other times may differ from those described on the logs. For graphical presentation of observation/monitoring well construction, see Table 6. Elevations of changes in construction are noted at the bottom of each section.

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LEGEND TO SUBSURFACE LOGS

TABLE 1
TYPICAL SAMPLE TYPES

- SPLIT SPOON (1 3/8" I.D.)
- NX SIZE ROCK CORE
- SHELBY TUBE "UNDISTURBED"
- AUGER SAMPLE

TABLE 2
SAMPLE MATERIAL PROPORTIONS

ADJECTIVE	PERCENTAGE OF SAMPLE
"and"	35% – 50%
"some"	20% – 35%
"little"	10% – 20%
"trace"	< 10%

Standard split spoon samples may not recover particles with any dimension larger than 1 3/8". Therefore, reported gravel percentages may not reflect actual conditions.

TABLE 3
DENSITY/CONSISTENCY

GRANULAR SOILS		COHESIVE SOILS	
Blows/ft.	Density	Blows/ft.	Consistency
< 5	Very Loose	< 2	Very Soft
5–10	Loose	2–4	Soft
11–30	Med. Compact	5–8	Med. Stiff
31–50	Compact	9–15	Stiff
> 50	Very Compact	16–30	Very Stiff
		> 30	Hard

TABLE 4
USCS CLASSIFICATION, PARTICLE SIZE, & GRAPHICS

	MAJOR PARTICLE SIZE DIVISION	USCS SYMBOL	GRAPHIC SYMBOL	GENERAL DESCRIPTION
COARSE GRAINED SOILS	GRAVEL Coarse: 3"–3/4" Fine: 3/4"–#4 Classification based on > 50% being gravel	GW		Well graded gravels, gravel & sand mix.
		GP		Poorly graded gravels, gravel & sand mix.
		GM		Gravel, sand and silt mix.
		GC		Gravel, sand and clay mix.
	SAND Coarse: #4–#10 Med.: #10–#40 Fine: #40–#200 Classification based on > 50% being sand	SW		Well graded sand, sand & gravel mix.
		SP		Poorly graded sand, sand & gravel mix.
		SM		Sand and silt mix.
		SC		Sand and clay mix.
FINE GRAINED SOILS	SILT & CLAY Classification based on > 50% passing #200 sieve.	ML		Inorganic silt, low plasticity.
		CL		Inorganic clay, low plasticity.
		OL		Organic silt/clay, low plasticity.
		MH		Inorganic silt, high plasticity.
		CH		Inorganic clay, high plasticity.
		OH		Organic silt/clay, high plasticity.
ORGANIC SOILS		Pt		Peat and other highly organic soils.
FILL		Fill		Miscellaneous fill materials.

TABLE 5
ROCK CLASSIFICATION TERMS

HARDNESS:

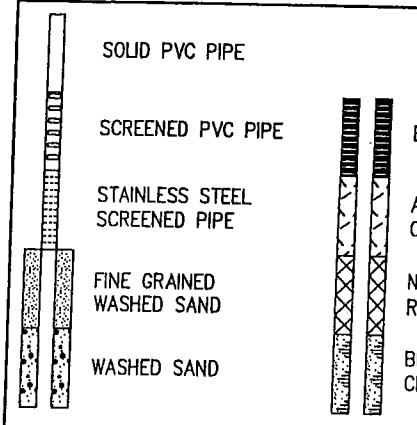
Very Soft	Carves
Soft	Grooves with knife
Med. Hard	Scratched easily with knife
Hard	Scatched with difficulty
Very Hard	Cannot be scratched with knife

WEATHERING:

Fresh	Slight or no staining of fractures, little or no discoloration, few fractures.
Slightly	Fractures stained, discoloration may extend into rock 1", some soil in fractures.
Moderately	Significant portions of rock stained and discolored, soil in fractures, loss of strength.
Highly	Entire rock discolored and dull except quartz grains, severe loss of strength.
Complete	Weathered to a residual soil.

BEDDING:		FRACTURE SPACING:		RQD:	
Massive	> 40"	Massive/V. Wide	> 6'	Excellent	> 90%
Thick	12' – 40"	Thick/Wide	2' – 6'	Good	76% – 90%
Medium	4" – 12"	Med./Med.	8" – 24"	Fair	51% – 75%
Thin	< 4"	Thin/Close	2 1/2" – 8"	Poor	25% – 50%
		V. Thin/V. Close	< 2 1/2"	V. Poor	< 25%

TABLE 6
WELL CONSTRUCTION



- SOLID PVC PIPE
- SCREENED PVC PIPE
- STAINLESS STEEL SCREENED PIPE
- FINE GRAINED WASHED SAND
- WASHED SAND
- BENTONITE PLUG
- AIR ENTRAINED CEMENT
- NATURAL SOIL/ ROCK FILL
- BENTONITE/ CEMENT GROUT

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Pocono Downs Expidited Casino Building
SUBSURFACE LOG
HOLE NUMBER B-1

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way

DRILLER: J. Nixon | INSPECTOR: K. Defayette

START DATE and TIME: 6/8/2005 1:14:00 PM

FINISH DATE and TIME: 6/8/2005 4:30:00 PM

SURFACE ELEV: 704.00 (ft; Estimated) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 17.4' | DRILLING METHOD: 4.25" HSA

	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
WATER LEVEL OBSERVATIONS DURING DRILLING	6-20-05	3:30 PM	Static	14	21	21

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Auger through asphalt.	
S-1	1.5	1	2-2-1	3				**f.m.c. SAND**, Some Asphalt, little f.c. gravel, trace silt, brown/black, very loose, moist **(FILL)**		Cobbles and Boulders throughout boring.	
S-2	2	0.3	3-8-9-7	17				becomes medium compact **(FILL)**	700		
S-3	2	2	9-10-11-18	21		5		**f.m. SAND**, trace silt, trace f. gravel, black medium compact, moist **(FILL)**			
S-4	2	1.2	4-4-3-3	7				becomes trace roots, loose **(FILL)**			
S-5	2	1.6	6-4-3-12	7				**f.m.c. SAND**, little f.c. gravel, little silt, trace roots, brown, loose, moist **(FILL)**	695		
S-6	0.7	0.4	23-50/0.2	R		10		**f.m.c. SAND**, little f.c. gravel, little silt, brown/black, very compact, moist **(SM)**			
S-7	0.1	0.1	50/0.1	R		15		**f.c. GRAVEL**, gray, very compact, moist **(Completely Weathered Shale)**	690		
								SHALE, gray, soft, slightly weathered close fracture spacing, good RQD		Hard augering, auger refusal at 17.4 feet.	
R-1	4	3.8		76%		20			685	Lost water at 18.4 feet, no return.	
								End of Boring at 21.4 ft	680		
						25					

SUBSURFACE LOG POCONO.GPJ UPDATEDCHA.GDT 7/5/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Expidited Casino Building
SUBSURFACE LOG
HOLE NUMBER B-2

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way

DRILLER: J. Nixon | INSPECTOR: K. Defayette

START DATE and TIME: 6/7/2005 12:41:00 PM

FINISH DATE and TIME: 6/7/2005 3:30:00 PM

SURFACE ELEV: 704.00 (ft; Estimated) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 2.6' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	6-7-05	3:30 PM	During Drilling	None	7.9	9.9

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DEPTH (Feet)	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
S-1	2	2	2-12-14-22	26		**TOPSOIL** **f.m.c. SAND**, Some Silt, little f. gravel, trace coal, brown, medium compact, moist **(FILL)**			
S-2	0.3	0.2	50/0.3	R		**Similar Soil (FILL)** **Boulder**	700	Groundwater level observations based on visual observation of the soil sample moisture content and may not represent static conditions. Cobbles and Boulders throughout boring.	
R-1	5.3	0.9			5			Auger refusal at 5 feet. Many voids throughout core, indicates soil layer, not bedrock.	
S-3	2	0.8	10-20-21-11	41		**Clayey SILT**, Some f.m. Sand, little f.c. gravel, brown, compact, moist **(ML-TILL)**	695		
					10	End of Boring at 9.9 ft		Refusal on boulder or cobble, moved boring approximately 5 feet Northwest. See boring B-2A.	
					15		690		
					20		685		
					25		680		

SUBSURFACE LOG POCONO.GPJ UPDATEDCHA.GDT 7/5/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Expidited Casino Building
SUBSURFACE LOG
HOLE NUMBER B-2A

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way

DRILLER: J. Nixon | INSPECTOR: K. Defayette

START DATE and TIME: 6/8/2005 4:45:00 PM

FINISH DATE and TIME: 6/8/2005 6:10:00 PM

SURFACE ELEV: 704.00 (ft; Estimated) | CHECKED BY: W. Harris

DRILL FLUID: None | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	6-8-05	6:10 PM	During Drilling	None	24	26

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
										Boring B-2A was offset from the location of B-2.	
										Hard drilling to 6 feet.	
										Groundwater level observations based on visual observation of the soil sample moisture content and may not represent static conditions.	
									700		
	10					5				Cobbles and Boulders throughout boring.	
										Easy drilling to 22.5 feet.	
									695		
						10				Augered to 10 feet and resumed sampling.	
S-1	2	1	8-11-7-13	18				f.c. GRAVEL Some f.m.c. Sand, trace silt, brown, medium compact, moist **(Completely Weathered Sandstone)**			
									690		
S-2	2	8	3-9-9-11	18		15		Similar Soil **(Completely Weathered Sandstone)**			
									685		
S-3	2	0.3	5-18.-11-7	29		20		Similar Soil **(Completely Weathered Sandstone)**			
										Easy drilling, from 23 to 24 feet.	
									680		
S-4	1.6	0.2	23-10-41-50/0.1	51		25		SANDSTONE Some f.c. Gravel, brown, very compact, moist **(Completely Weathered Sandstone)**			
								End of Boring at 26 ft		Auger refusal at 26 feet, interpreted as competent bedrock.	

SUBSURFACE LOG POCONO.GPJ UPDATEDCHA.GDT 7/5/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Expidited Casino Building
SUBSURFACE LOG
HOLE NUMBER B-3

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way

DRILLER: J. Nixon | INSPECTOR: K. Defayette

START DATE and TIME: 6/7/2005 3:50:00 PM

FINISH DATE and TIME: 6/8/2005 8:30:00 AM

SURFACE ELEV: 693.00 (ft; Estimated) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 5.7' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	6-8-05	8:30 AM	During Drilling	None	23	23.5

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Auger through asphalt.	
S-1	1.5	1.1	3-10-13	23				**f.m.c. SAND**, Some Silt, Some f.c. Gravel, brown, medium compact, moist **(FILL)**		Groundwater level observations based on visual observation of the soil sample moisture content and may not represent static conditions. Cobbles and Boulders throughout boring. Broken gravel in shoe.	
								Similar Soil (FILL)			
S-2	2	2	8-11-15-11	26					690		
S-3	1.3	0.9	10-18-50/0.3	R		5		**f.m.c. SAND**, Some Silt, Some f.c. Gravel, brown, very compact, moist **(FILL)**			
R-1	1.3	0.8						**Boulder**			
								c. GRAVEL, Some f.m. Sand, Some Silt, brown/gray, loose, saturated **(FILL)**	685		
S-4	2	0.1	7-4-4-4	8							
								Clayey SILT, Some f.m. Sand, little f.c. gravel, brown/gray, stiff, saturated **(FILL)**			
S-5	2	0.2	5-4-7-3	11		10					
									680		
S-6	0.9	0.9	23-50/0.4	R		15		**f.c. GRAVEL**, Some f. Sand and Silt, gray/brown, very compact, moist **(Completely Weathered Shale)**			
								(Slightly Weathered Shale)	675		
R-2	1	0.7									
S-7	0.9	0.5	11-50/0.4	R		20		**f.c. GRAVEL**, gray, very compact, saturated **(Completely Weathered Shale)**			
								f.c. GRAVEL, Some f.m.c. Sand, Some Clayey Silt, gray, very compact, saturated **(Completely Weathered Shale)**	670		
S-8	0.3	0.2	50/0.3	R				End of Boring at 23.3 ft		Auger refusal at 23.3 feet, interpreted as competent bedrock.	
						25					

SUBSURFACE LOG POCONO.GPJ UPDATEDCHA.GDT 7/5/05

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Expidited Casino Building
SUBSURFACE LOG
HOLE NUMBER B-4

PROJECT NUMBER: 13989.1007.1502

LOCATION: Wilkes-Barre, PA

CLIENT: Jeter, Cook, Jepson Architects

CONTRACTOR: Nature's Way

DRILLER: J. Nixon | INSPECTOR: K. Defayette

START DATE and TIME: 6/8/2005 8:38:00 AM

FINISH DATE and TIME: 6/8/2005 12:30:00 PM

SURFACE ELEV: 693.00 (ft; Estimated) | CHECKED BY: W. Harris

DRILL FLUID: Water @ 19.5' | DRILLING METHOD: 4.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	6-8-05	12:30 PM	During Drilling	None	19.5	21.4

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
					ASPHALT			
					BRICK			
S-1	1.5	0.7	8-9-9	18	f.m.c. SAND, Some f.c. Gravel, little silt, brown, medium compact, moist **(FILL)**		Groundwater level observations based on visual observation of the soil sample moisture content and may not represent static conditions. Cobbles and Boulders throughout boring.	
					Similar Soil **(FILL)**			
S-2	2	1	7-11-9-8	20		690		
					f.c. GRAVEL, Some f.m.c. Sand, little silt, trace mica, brown/gray/orange, compact, moist **(FILL)**			
S-3	2	2	8-14-20-18	34				
					f.m.c. SAND, Some f.c. Gravel, little silt, brown, medium compact, moist **(FILL)**			
S-4	2	2	6-7-5-9	12				
					becomes loose **(FILL)**	685		
S-5	2	2	5-5-5-6	10				
					becomes compact **(FILL)**			
S-6	2	1.4	8-10-11-8	21				
						680		
S-7	0.2	0.1	50/0.2	R	Insufficient Recovery		Gravel in shoe.	
						675		
S-8	0.3	0.2	50/0.3	R	f.c. GRAVEL, gray, very compact, moist **(Completely Weathered Shale)**		Auger refusal at 19.5 feet. Silty Clay seams at 22.5 and 23.5 feet.	
R-1	4	3.8		56%	SHALE, gray, soft, moderately weathered close fracture spacing, fair RQD		Vertical fractures.	
						670		
					End of Boring at 23.5 ft			

SUBSURFACE LOG POCONO.GPJ UPDATEDCHA.GDT 7/5/05

APPENDIX C

Laboratory Test Results

Environmental
LABORATORY SERVICES

7280 Caswell Street, Hancock Air Park, North Syracuse, NY 13212
(315) 458-6033, FAX (315) 458-0249, (800) 842-4667

Certified In:
- Connecticut
- Delaware
- Maryland
- [illegible]

Laboratory Analysis Report

ATLANTIC TESTING LABORATORIES
22 Corporate Drive

Clifton Park, NY 12065
ATTN: Mr. Justin Rathman

PO#: 50406

PROJECT #: 214628
RECEIVED: 06/21/2005 @ 10:10

Site Address:
POCONO DOWNS
CLOUGH, HARBOUR, & ASSOC.

CLIENT JOB NUMBER: AT096

TEST PERFORMED	RESULTS	UNITS	DATE/TIME PERFORMED	METHOD NUMBER	PERFORMED BY
SAMPLE #: 400844 CLIENT SAMPLE ID:	B-4:54			**DATE/TIME SAMPLED: 06/20/05 @ 12:00**	
CHLORIDE	387	MG/KG DRY WT.	06/23/05	EPA 325.2	CRI
HYDROGEN ION (PH)	8.63		06/21/05 @ 17:30	EPA 9040B/9045C	BDR
SOLIDS, TOTAL	93	PERCENT	06/22/05	SM18 2540B	CRI
SULFATE	422	MG/KG DRY WT.	06/24/05	EPA 375.2	CRI

Sample Receipt Temperature: 25 Degrees C

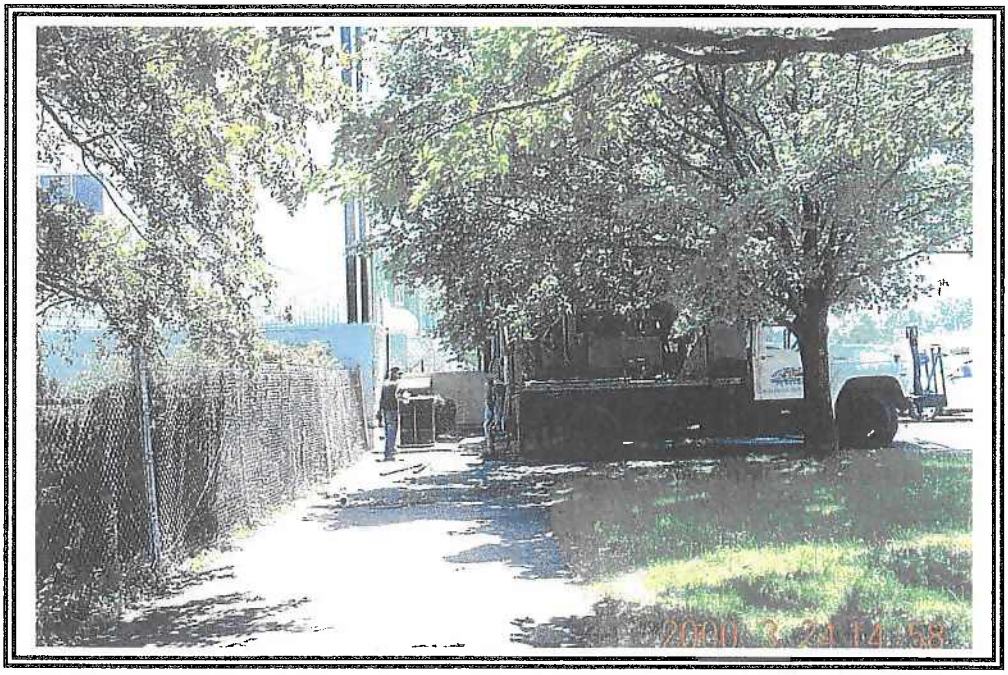
David R. Hill
Laboratory Director

06/24/2005
Print Date

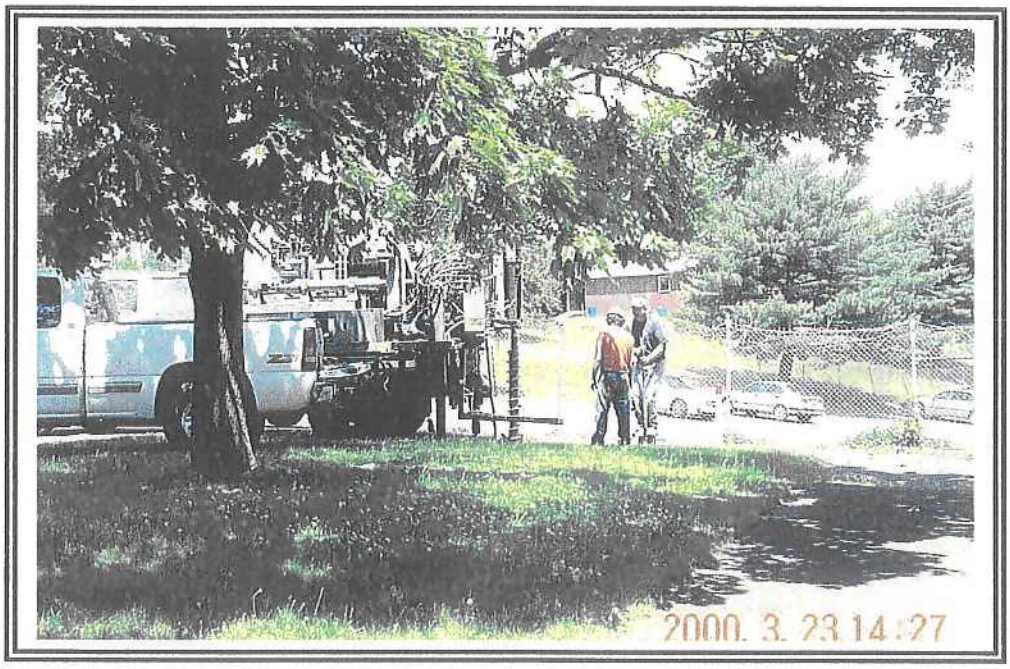
All tests performed under NYS ELAP Laboratory Certification # 11375 unless otherwise stated. Report relates only to the samples as received by the laboratory and shall not be reproduced except in full, without written approval from Environmental Laboratory Services.

APPENDIX D

Photographs

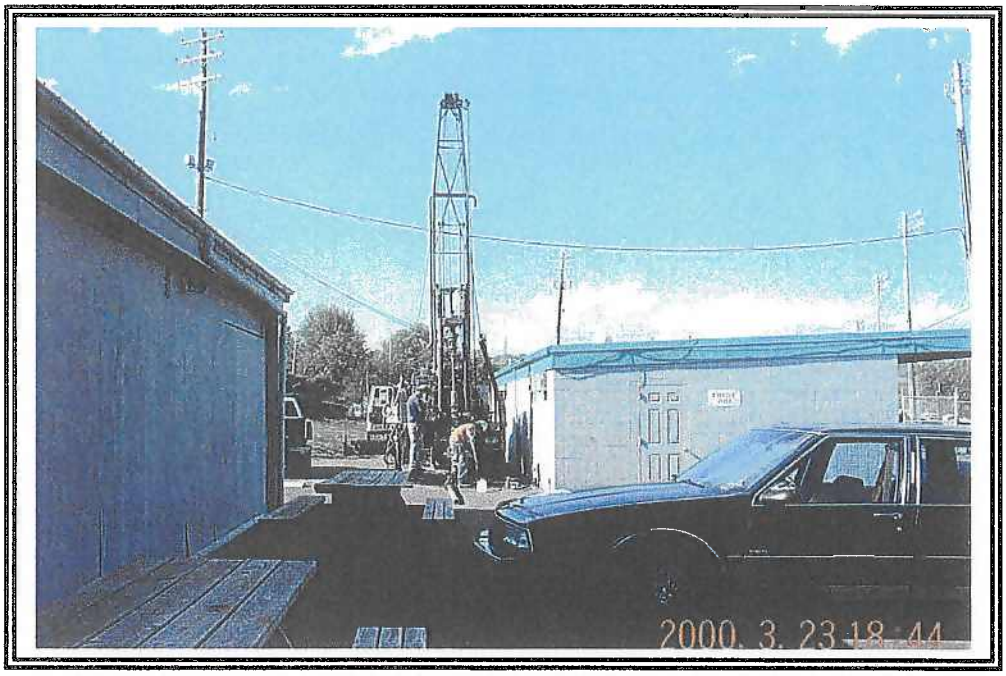


Looking towards boring B-1 and the existing grandstands.



Looking north onto boring B-2.

CLOUGH HARBOUR & ASSOCIATES LLP	**Pocono Downs Expedited Casino Building** **Wilkes-Barre, Pennsylvania**
CHA # 13989.1013.1502	JUNE 2005



Looking to the north onto boring B-3.

Looking onto the existing grandstands and boring B-4.

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs Expedited Casino Building

Wilkes-Barre, Pennsylvania

CHA # 13989.1013.1502

JUNE 2005

GEOTECHNICAL ENGINEERING REPORT

POCONO DOWNS EXPEDITED CASINO ENTRY BUILDING
PLAINS TOWNSHIP, PENNSYLVANIA

October, 2005

Prepared for:

Jeter Cook & Jepson Architects, Inc.

450 Church Street

Hartford, Connecticut 06103

Prepared by:

CLOUGH HARBOUR & ASSOCIATES LLP

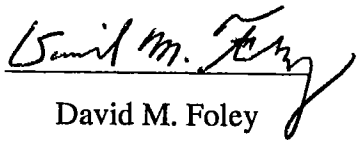
Scranton Life Building Suite 700
538 Spruce Street
Scranton, PA 18503-1820

CHA Project No. 13989.2003.1502

Copy to Bob Becker 10/25/05

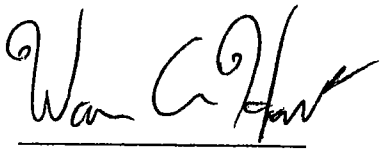
This report has been prepared and reviewed by the following qualified engineers employed by Clough Harbour & Associates LLP (CHA).

Report Prepared By:



David M. Foley
Geotechnical Engineer

Report Reviewed By:



Warren A. Harris IV, P.E.
Senior Geotechnical Engineer

TABLE OF CONTENTS

SECTION **PAGE NUMBER**

TABLES

APPENDICES

1.0 INTRODUCTION

This report summarizes the results of a geotechnical investigation performed by Clough Harbour & Associates LLP (CHA) for Jeter Cook & Jepson Architects, Inc., to evaluate a site located between the Grand Stands and Clubhouse at the Pocono Downs Racetrack in the Plains Township, Pennsylvania for the construction of an entry building. The project site is shown on the Site Location Map (Figure 1) included in Appendix A.

The primary objectives of the investigation were to evaluate subsurface conditions at the project site and provide geotechnical design parameters and recommendations for the proposed structure.

2.0 PROJECT AND SITE DESCRIPTION

The Mohegan Tribal Gaming Authority plans to construct an expedited casino facility at the Pocono Downs Racetrack located in the Plains Township, Pennsylvania. The Pocono Downs Racetrack is located two miles northeast of Wilkes-Barre, on route 315. The eastern portion of the property contains the existing racetrack and grandstands. The northern portion of the grandstands and a new building addition will house the expedited casino. Construction of a new entry building for the expedited casino is proposed between the grandstands and clubhouse, and will replace the existing entry structure at this location.

Existing grade on the west side of the existing (and Proposed) entry building location is relatively flat, with an average elevation of 705 feet based on the topographic site plan. A retaining wall with an average height of 12 feet is located on the east side of the existing entry building, that retains site soils at an average elevation of approximately 700 feet on the east side of the building. The site elevation east of the retaining wall (at the base of the wall) is approximately 686 feet.

We understand that the proposed expedited casino entry building will be a one-story structure with a footprint of approximately 4,600 square feet. The proposed expedited casino entry building will be attached to the south side of the grandstands and north side of the clubhouse. Based on preliminary information available for the project, the finished floor elevations for the expedited casino entry building is reported to be approximately elevation 705 feet, which is consistent with the existing site elevations on the west side of the existing (and proposed) building.

We understand that it is planned to support the proposed entry building on shallow spread footings on suitable bearing strata if encountered within approximately six feet of the ground surface, and on deep foundations where suitable bearing strata is encountered at greater depths. We understand that the location of the shallow and deep foundations will be determined based on the conditions encountered during construction.

3.0 SUBSURFACE INVESTIGATION

CHA conducted a subsurface investigation consisting of three soil borings designated as B-1, B-2 and B-3. The investigation began on September 20, 2005 and was completed on September 21, 2005. The soil borings were located in the field by CHA during the subsurface investigation by measuring from existing site features. The soil boring locations are shown on the Boring Location Plan (Figure 2) in Appendix A.

Nature's Way Environmental Consultants & Contractors, Inc. of Crittenden, New York was retained by CHA to advance the soil borings. The field investigation was performed under the observation of a CHA geotechnical engineer who ensured proper drilling and sampling methods were utilized. The CHA geotechnical engineer also inspected and classified samples, and prepared field logs documenting subsurface conditions.

The soil borings were advanced with a truck-mounted drill rig. Hollow stem augers (HSA) with inside diameters of 2.25 inches were used to advance the boreholes. Typically, split spoon samples were obtained continuously within the top 12 feet below grade and at standard 5-foot intervals thereafter, in general accordance with American Society for Testing and Materials guidelines (ASTM D 1586). The split spoon samples were advanced by a 140 (±) pound hammer free falling 30 (±) inches. "Blow counts" are recorded on the soil boring logs, and indicate the penetration resistance for a 6-inch advancement of the split spoon. Initially, the spoon is driven six inches to seat the sampler in undisturbed material. The number of blows required to drive the sampler the next 12 inches is taken as the standard penetration resistance or "N" value. This value is indicative of the soil's in-place compactness or consistency. The final six inch increment that the spoon is driven is not included in the determination of "N". Refusal is defined as a resistance of greater than 50 blows per six inches of penetration.

A BX size core barrel (1.5" core dia.) was used to obtain rock core samples. The Rock Quality Designation (RQD) values were then determined for the core samples. RQD is defined as the sum of the length of core pieces 4 inches and longer, divided by the length of the core run,

expressed as a percentage. The RQD values provide an indication of the relative degree of jointing or fracturing of the bedrock.

4.0 SITE GEOLOGY

4.1 Regional Geology

Based upon review of the *Surficial Materials of Pennsylvania (Berg, T.M. (1980))*, the site is located in a region of sandy soils. The bedrock at the site is mapped as fine to coarse sandstone, siltstone and shale along with conglomerates of numerous anthracite coals in repetitive sequence according to the *Geologic Map of Pennsylvania - Map 64 (Sevon, W.D. (1989)).*

A review of maps obtained from the Pennsylvania Office of Surface Mining & Enforcement (OSM&E) indicates that coal mining in the bedrock within the proposed project site limits was completed in the past. The maps reviewed indicate the following coal veins in the vicinity of the project site in increasing depth order: Five Foot, Cooper, Bennett, Checker, Top Ross, Ross, Three Foot, Top Red Ash, and Red Ash. It appears that all veins were deep mined, and select veins were strip mined.

4.2 Subsurface Stratigraphy

Subsurface conditions encountered in individual soil borings are detailed and described on the subsurface logs included in Appendix B of this report.

Asphalt – A layer of asphalt was encountered in each of the soil borings (B-1 through B-3). The asphalt layer was about 0.5 feet thick in the locations investigated.

Fill – Sand fill with varying amounts of silt and fine to coarse gravel was encountered below the asphalt layer in all of the soil borings. The fill was encountered to a depth ranging from 0.5 feet to approximately 6 feet below the ground surface in borings B-1 and B-2 on the west side of the proposed building, and to a depth of about four feet in boring B-3 on the east side. Based on standard penetration test resistance values the fill was medium compact to very compact. The

water content of the fill was visually classified as moist. Trace amounts of coal ash and brick fragments were noted in select fill samples obtained from borings B-1 and B-3.

Completely Weathered Bedrock– Completely weathered sandstone, characterized by fine to coarse sand and gravel with varying amounts of silt was encountered below the fill at a depth ranging from about 1.5 to 6 feet below the ground surface in borings B-1 and B-2 on the west side of the proposed building, and at a depth of four feet in boring B-3 on the east side. Based on standard penetration test resistance values the material was medium compact to very compact. The water content of the material was visually classified as moist.

Sandstone Bedrock – Competent sandstone bedrock was encountered below the completely weathered sandstone in the borings at depths ranging from approximately 11.5 feet to 12.5 feet below the ground surface in borings B-1 and B-2 on the west side of the proposed building, and at a depth of eight feet in boring B-3 on the east side. The bedrock was generally gray in color and was slightly weathered to highly weathered. Rock Quality Designation (RQD) values of the rock core samples ranged from poor to fair.

Table 1 provides a summary of the surface elevations, the completely weathered bedrock elevations, and the competent bedrock elevations encountered west of the proposed entry building at the locations of borings B-1 and B-2, and east of the existing retaining wall (east of the proposed building) at the location of boring B-1. The boring locations are shown on Figure 2 – Boring Location Plan, included in Appendix A.

Table 1

Stratigraphy Elevation Summary

Surface Description	B-1 Location (West of Building)	B-2 Location (West of Building)	B-3 Location (East of Building)
Ground Surface	**Elevation 705' ±**	**Elevation 705' ±**	**Elevation 686' ±**
Completely Weathered Bedrock	**Elevation 699' ±**	**Elevation 703.5' ±**	**Elevation 682' ±**
Competent Bedrock	**Elevation 693.5' ±**	**Elevation 692.5' ±**	**Elevation 678' ±**

4.3 Groundwater Conditions

Groundwater was not detected in the soil borings during drilling. Groundwater observations during drilling may not represent static conditions.

Note that groundwater conditions at the site at any given time may differ from those shown on the subsurface logs and described in this report due to seasonal factors that effect groundwater such as temperature and precipitation.

5.0 GEOTECHNICAL RECOMMENDATIONS

5.1 Foundations

As stated in Section *2.0 Project and Site Description*, the proposed finished floor elevation for the expedited casino entry building is planned to be approximately elevation 705 feet. We understand that it is planned to support the proposed entry building on shallow spread footings on suitable bearing strata if encountered within approximately six feet of the ground surface, and on deep foundations where suitable bearing strata is encountered at greater depths. We understand that the location of the shallow and deep foundations will be determined based on the conditions encountered during construction.

Upon review of the preliminary site plan for the project and information obtained during the subsurface investigation, the subsurface materials within the footprint of the casino entry building consist of uncontrolled fill, completely weathered bedrock, and competent bedrock. Because of the uncertainty regarding placement of the existing fill, and the potential for settlement, both total and differential, the fill soils are not deemed suitable for support of the proposed building foundations.

In order to maintain settlement to within the required tolerances (less than one inch total and one half inch differential) for the proposed structure, the foundations should bear on the underlying completely weathered or competent sandstone bedrock.

5.1.1 Shallow Foundations

Shallow spread footings founded on the undisturbed completely weathered bedrock or competent bedrock should be designed using an allowable bearing pressure of 3.0 tons per square foot (tsf). Shallow foundations should be founded a minimum of four feet below final grade to provide frost protection. The foundations should be constructed as soon as possible after excavation or to minimize the risk of disturbance of the bearing surface by exposure to precipitation or other

adverse conditions. Any disturbed, frozen or softened sub-grade soil should be removed and replaced with structural fill or the bottom of the foundations should be lowered as required. Structural fill shall conform to the requirements of *Section 5.5 Structural Fill.*

Visual classification of samples collected during the subsurface investigation show that the site soils, including completely weathered bedrock, contain a significant amounts of fines which may result in moisture sensitivity. These materials may become soft or unstable when saturated or disturbed; therefore, the last one foot of foundation excavation should be made immediately prior to constructing foundations in order to protect the deeper materials that will support the foundations. Final excavation of excess materials should be performed with a smooth-blade bucket or with a flat plate attached to the bucket teeth to minimize disturbance to the sub-grade.

We note that foot traffic for placing forms and reinforcement may create soft unstable areas in moisture sensitive materials. Softened or disturbed materials should be removed prior to constructing foundations to minimize detrimental impacts to foundation performance. If it is anticipated that foundation subgrades will be exposed for some time or if wet weather conditions are anticipated, we recommend that a mud mat comprised of 2 to 3 inches of concrete be placed on bearing grades immediately after exposure. The mud mat will provide a firm and stable working platform during foundation construction and will protect the sensitive materials. Use of a mud mat will also aid in keeping foundation reinforcement clean.

An alternate method of protecting the subgrade would be to place a geotextile fabric on the exposed bearing grade and placing at least 6 inches of crushed stone on the geotextile. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The geotextile should be a 6 ounce per square yard or heavier, non-woven filter fabric with an apparent opening size (AOS) equal to or smaller than the U.S. Standard sieve size of 70, such as Mirafi 160N or equal. This alternative to the mud mat will provide a stable and firm working platform and will allow free drainage of groundwater to temporary sumps and pumps (if used).

Foundation excavations should be backfilled with structural fill. Structural fill around foundation excavations should be placed in loose lifts not exceeding 8 inches and compacted to 95 percent of the maximum laboratory dry density as determined by ASTM D-1557 (modified Proctor). Carefully compacted backfill will provide uniform support of overlying materials.

5.1.2 Deep Foundations

Drilled shafts are recommended as the deep foundation system for support of the proposed structure, rather than piles, as vibrations from driving piles could cause damage to the adjacent grandstands and clubhouse, and short piles do not provide adequate capacity. Because bedrock is relatively shallow below the proposed structure, we recommend that the drilled shafts be extended to the competent bedrock to eliminate the potential for settlement.

Because of the uncertainty of the depth of fill below the proposed entry building, it is recommended that the drilled shafts be designed as purely end-bearing units, neglecting side friction. Subsequently, we recommend the shafts be designed using an allowable end bearing capacity of 5 tons per square foot.

As part of the design process, the structural engineer should perform a lateral load-deflection analysis when proportioning the shaft and determining the steel reinforcement requirements to ensure that horizontal deformations are within acceptable tolerances.

The shaft excavation should be inspected to confirm the assumed subsurface conditions before placing concrete for the drilled shaft. The concrete for the shaft should be placed immediately after the drilling and inspection takes place. Inspection of the drilled shaft should include recording the top and bottom elevations and a visual examination for plumbness, alignment, and diameter.

The soils encountered at the site could create problems in maintaining a stable shaft excavation. It is the contractor's responsibility to use drilling methods that will maintain a stable excavation. If

groundwater is encountered during excavation, the contractor shall take measures to minimize potential basal heave due to unbalanced fluid up-lift.

Additional design and construction considerations regarding the shaft installation are as follows:

- The concrete for the drilled shafts should have a design slump of at least 7 inches in order to insure concrete workability and plastic flow around the reinforcing cage, avoid arching of the concrete upon withdrawal of temporary casing (if used), and promote uniform slurry displacement (if used) as the concrete is poured.

- A positive head of concrete should be maintained above groundwater, if encountered, during the withdrawal of temporary casing, (if used).

- The rebar cage for the shaft should be adequately sized to permit concrete to flow around the cage. Clear spacing between all bars should be greater than five times the diameter of the largest coarse aggregate.

- The water/cement ratio should be no greater than 0.45 to improve strength and durability. Low range water reducers should be used.

- Concrete should be placed rapidly and continuously.

- Concrete used to construct shafts in the wet should be placed using tremie methods to minimize concrete segregation. The contractor must maintain the tremie pipe discharge below the concrete level to minimize void development and avoid encapsulating drilling slurry in the plastic concrete mass.

5.2 Floor Slab

The fill soils at the site are uncontrolled and will provide varying support characteristics for the casino entry building floor slab, therefore, the floor slab should not be founded directly on the existing fill soils. The following features are recommended as part of the floor slab construction.

- To minimize differential settlement of the floor slab, the subgrade beneath the floor slab, including fill and completely weathered rock, should be over excavated a minimum of 12 inches below the crushed stone subbase and replaced with structural fill.

- Subgrade soil within the structure footprint after the over excavation is performed should be proof rolled using a smooth drum roller with a gross weight of at least 10 tons. The roller should operate in its static mode due to the close proximity to the existing grandstands and clubhouse, and complete at least 6 passes at a speed not exceeding 3 feet per second. Areas that tend to "pump" or "weave" under the passing roller should be additionally undercut by at least 12 inches and backfilled with structural fill.

- Any deleterious or organic material found below the floor slab areas should be removed and replaced with compacted structural fill.

- A subgrade modulus of 100 pounds per cubic inch should be used for design of the concrete floor slab on compacted structural fill.

- A minimum of 6 inches of clean, compacted crushed stone should be placed beneath the floor slab to enhance support and provide a working base above the soil sub-grade. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The actual thickness of the stone layer should be based on design requirements. The stone should be underlain by a 6 ounce per square yard or heavier, non-woven geotextile with an apparent opening size (AOS) equal to or smaller than the U.S.

Standard sieve size of 70 such as a Mirafi 160N or a geotextile of similar qualities. This will provide separation between the stone and underlying weathered rock or structural fill soils.

- The crushed stone should be kept moist, but not wet, immediately prior to floor slab concrete placement.

- A polyethylene vapor retarder should be used between the crushed stone and the concrete slab in areas where the slab will be covered with floor tile, carpeting, or other material which may be adversely affected by moisture.

- If a polyethylene vapor retarder is used, adequate curing procedures should be specified to prevent slab curling due to excessive moisture loss in the slab surface.

- A geotechnical engineer should be retained to observe proof rolling of the subgrade and review subgrade conditions prior to slab construction and make recommendations for any unsuitable conditions encountered.

5.3 Site Preparation

The area within the expedited casino entry building should be stripped of vegetation, topsoil, asphalt and miscellaneous debris. The site should then be excavated/graded to required elevations. The existing fill soils and completely weathered bedrock within the footprint of the casino entry building should be excavated where necessary to achieve the required elevations for the foundations and floor slab as described in *Section 5.1 Foundations and 5.2 Floor Slab.* Any areas that contain organic material or deleterious material at the excavation grade should be over excavated and backfilled with structural fill. Care should be taken when excavating adjacent to the existing grandstand and clubhouse structures to prevent potential undermining of the existing foundations.

Subsequent to stripping the site and excavating to proposed grades, the exposed site soils should be proof rolled using a smooth drum roller with a gross weight of at least 10 tons. The roller should operate in its static mode due to the close proximity to the existing grandstand and clubhouse, and complete at least six passes at a speed not exceeding 3 feet per second (fps). Any areas which pump or weave during proof rolling should be undercut by a minimum of 12 inches and backfilled with structural fill.

The site should be brought to grade using structural fill beneath the structure footprint. Structural fill should meet the gradation requirements and be compacted as indicated in *Section 5.4 Structural Fill.* The natural and fill soils at the site do not meet the requirements for structural fill, particularly the fines content requirements. Therefore, these soils should not be used as backfill within the structure footprint; however, these soils may be used as fill in landscape areas provided that strict care is taken with regard to moisture control during placement and compaction of these soils.

Any landscaping that is proposed to abut the exterior walls of the structure shall be provided with an underdrain to allow water to freely drain away from the walls. Removing excess water from the landscaped areas adjacent to the structure will prevent water from wicking into the interior floor slab. Water that wicks into the interior slab could contribute to environmental conditions or water damage to interior elements. Landscape areas between the building perimeter and sidewalks should always have internal drainage, otherwise, these areas may become reservoirs of water that seep towards sidewalks, landings and parking areas. This additional water may contribute to daily icing of paved surfaces.

5.4 Structural Fill

Structural fill should be used for backfilling undercuts, and raising grades within the structure footprint. Material suitable for structural fill should consist of sound, durable, non-plastic sand and gravel, free of stumps, roots, other organics, frozen, and deleterious materials meeting the following requirements:

Table 2
Gradation Requirements for Structural Fill

Sieve Size	Percent Passing by Weight
4 inch	100
No. 40	0 to 70
No. 200	0 to 10

The natural and fill soils at the site should be restricted for use as structural fill as previously described in *Section 5.3 Site Preparation.*

Structural fill should be placed in loose lifts not exceeding 8 inches in thickness and should be compacted to at least 95 percent of the maximum laboratory dry density as determined by the modified Proctor test (ASTM D-1557). Structural fill should be thoroughly compacted to provide uniform slab support.

5.5 Seismic Site Classification and Design Parameters

Based upon the information available from the subsurface investigation, the preliminary finished floor elevation for the proposed casino entry building, the foundation recommendations included herein, and in accordance with Section 1615, Earthquake Loads – Site Ground Motion, of the 2000 International Building Code (IBC), the site class for the project site is defined as C. In addition the following seismic design site coefficients were determined:

- Maximum Spectra Response Acceleration at Short Periods (S_s) 0.24g
- Maximum Spectra Response Acceleration at 1 Second Period (S_1) 0.07g
- Site Coefficient F_a 1.2
- Site Coefficient F_v 1.7

5.6 Control of Water

Based on the groundwater observations at the site during the geotechnical investigation, it is not likely that groundwater will be encountered during site work and foundation construction. Nevertheless, project specifications should require that groundwater be maintained at a minimum depth of 2 feet below standard excavation bottom, and at drilled shaft excavation bottoms at all times to maintain stable conditions. It should be the responsibility of the contractor to maintain dry conditions so that all construction may be completed in the dry. Dewatering methods suitable for this site include the use of sumps, diversion and drainage ditches, toe drains and other similar methods. Pumps should be of sufficient capacity to control the groundwater, and operated in a manner which will limit the withdrawal of fines from the soil. It is recommended that pumps be installed in sumps lined with a geotextile and crushed stone. The crushed stone should be an open graded, free draining, crushed aggregate such as AASHTO No. 57 or No. 67 stone. The geotextile should be a 6 ounce per square yard or heavier, non-woven geotextile with an apparent opening size (AOS) equal to or smaller than the U.S. Standard sieve size of 70 such as a Mirafi 160N or a geotextile of similar qualities.

Surface runoff should be diverted away from excavations during construction.

5.7 Frost Heave

The on site soils contain significant amounts of fines (soil particles passing the No. 200 sieve). Soils that contain significant amounts of fine grained particles (i.e. silts and clays) are frost susceptible and may contribute to upward ground movement below exterior pavements and concrete flatwork such as slabs or sidewalks when in the presence of water and exposed to freezing temperatures. The fine grained soils will typically retain a higher content of water than coarser grained soils, and cause upheaval as the ground freezes. Ground heave below concrete flatwork will be more prevalent at transitional elements with varying depths and sections such as curb lines and building entrances. Therefore, we recommend that underdrains be provided to a

depth of four feet at these transitions to allow water to freely drain from the subsurface soils to minimize frost action upon concrete flatwork.

5.8 Chemical Analysis

A pH, sulfate, and chloride analysis of soil sample S-3 from test boring B-1 was performed to determine if the on-site fill soils are corrosive. The laboratory test results are included in Appendix C. The samples were tested by Atlantic Testing Laboratories, Limited of Clifton Park, New York.

The measured pH, chloride, and sulfate contents in sample S-3 were 5.59, 1700 mg/kg, and 1980 mg/kg, respectively. The fill soils at the location of the entry building should therefore be considered aggressive to steel and considered to have a severe effect on concrete.

We therefore recommend that appropriate measures be implemented in the project design to provide sufficient protection of foundation concrete and reinforcing steel from chemical attack.

5.9 Mining Analysis

An assessment of past mining activities in the area of the project site was completed to evaluate the potential impact of these activities on the proposed project. The analysis consisted of reviewing maps obtained from the Pennsylvania Office of Surface Mining & Enforcement (OSM&E) and reviewing a hydrogeologic investigation report prepared by Meiser & Earl, Inc. for the East Side Landfill which is adjacent to the project site.

A review of the available information indicates that coal mining in the bedrock within the proposed project limits was completed in the past. Both the information from the OSM&E and from the East Side Landfill report indicate the presence of the following coal veins in the vicinity of the project site in increasing depth order: Five Foot, Cooper, Bennett, Checker, Top Ross,

Ross, Three Foot, Top Red Ash, and Red Ash. It appears that all veins were deep mined, and select veins were strip mined.

The upper most or Five Foot coal vein is on average, about 55 to 65 feet above the next deepest or Cooper coal vein. Based on available elevation data in the area of the proposed casino entry building, the Five Foot vein ranges about 80 to 85 feet below the proposed finished floor elevation (elev. 705') of the proposed building.

Information obtained from the OSM&E indicates that there have been no emergency subsidence control problems in the vicinity of the project site. Management at the Pocono Downs facility has also confirmed that subsidence has not been an issue at the current facilities. Since a considerable thickness of overburden and bedrock exists between the proposed construction and the most shallow mined coal vein, and no previous subsidence problems have been noted in the vicinity, it does not appear that a high degree of risk exists with regard to the impact of subsidence on the proposed construction.

6.0 EXCAVATIONS

In general, all excavations should be performed in accordance with the Occupational Safety and Health Administration (OSHA) standards and other applicable local, State, and Federal regulations. In areas where sufficient sloping of excavation cuts is not possible, excavations should be shored, sheeted and braced.

7.0 OBSERVATION DURING CONSTRUCTION

A qualified geotechnical engineer should carefully observe all aspects of the earthwork including grubbing, topsoil stripping, excavation, proof rolling, undercuts, filling, and drain installation to insure that proper building support is achieved. The drilled shaft construction should be observed by a qualified individual to ascertain that the shafts are properly cleaned and constructed. The geotechnical engineer should carefully inspect the final bearing surface for shallow foundations and the floor slab to ensure that adequate support is provided. The inspection of the bearing surface should include probing at select locations to verify the bearing capacity of the supporting materials and to identify where load bearing soils may have been disturbed.

The on-site or off-site materials used to raise grades and backfill undercuts, and used beneath foundations, the floor slab, and pavement should be tested by a qualified soils laboratory to verify that they meet the specified gradations, and to determine their maximum dry density for compaction testing. In-place density tests should be performed on all fill soils to verify that compaction methods and equipment achieve the required results.

8.0 CLOSURE

The geotechnical recommendations presented in this report are based, in part, on project and subsurface information available at the time this report was prepared and in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made. Some variation of subsurface conditions may occur between locations explored that may not become evident until construction. Depending on the nature and extent of the variations, it may be necessary to re-evaluate the recommendations presented in this report.

APPENDIX A

Figures

SOURCE: U.S.G.S. 7.5' Topographic
QUADRANGLE: PITTSTON, PA

SCALE: 1"=2000'

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Main: (518) 453-4500 · www.cloughharbour.com

SITE LOCATION MAP

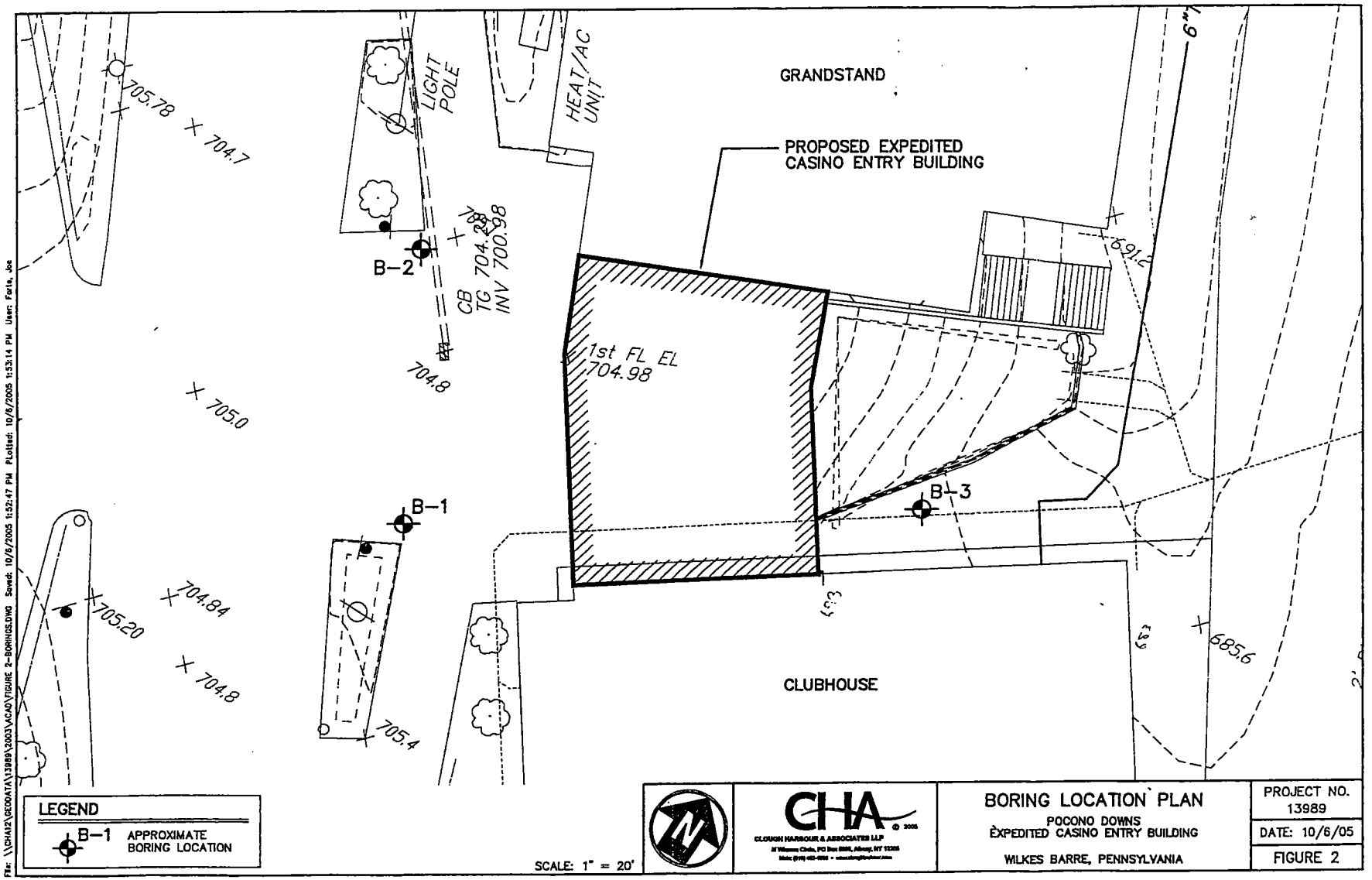
POCONO DOWNS
EXPEDITED CASINO ENTRY BUILDING
WILKES BARRE
PENNSYLVANIA

PROJECT NO. 13989

DATE: 10/6/05

FIGURE 1

File: \\CHA1\...\13989\2003\ACAD\FIGURE 1-SITELOC.DWG Saved: 10/6/2005 2:19:23 PM User: Forte, Joe


GRANDSTAND
PROPOSED EXPEDITED
CASINO ENTRY BUILDING
LIGHT POLE
HEAT/AC UNIT
CB
TG 704.28
INV 700.98
1st FL EL
704.98
B-1
B-2
B-3
705.78
704.7
705.0
704.8
705.20
704.84
704.8
705.4
691.2
685.6
CLUBHOUSE
6"
LEGEND
B-1 APPROXIMATE BORING LOCATION
SCALE: 1" = 20'
CHA
CLOUGH HARBOUR & ASSOCIATES LLP
BORING LOCATION PLAN
POCONO DOWNS
EXPEDITED CASINO ENTRY BUILDING
WILKES BARRE, PENNSYLVANIA
PROJECT NO. 13989
DATE: 10/6/05
FIGURE 2

APPENDIX B

Test Boring Logs

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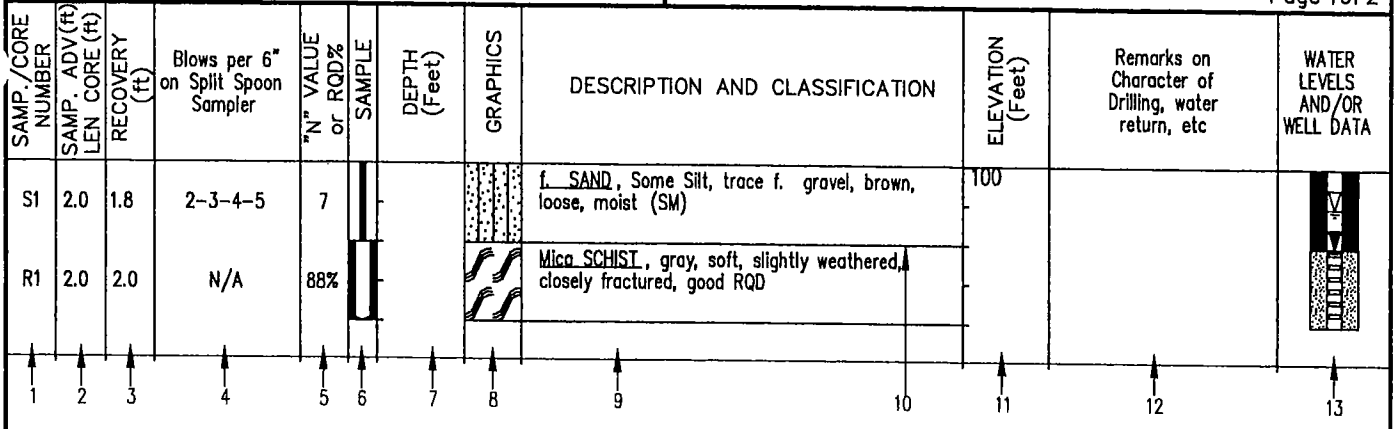
LEGEND TO SUBSURFACE LOGS



Subsurface Logs present material classifications, test data, and observations from subsurface investigations at the subject site as reported by the inspecting geologist or engineer. In some cases, the classifications may be made based on laboratory test data when available. It should be noted that the investigation procedures only recover a small portion of the subsurface materials at the site. Therefore, actual conditions between borings and sampled intervals may differ from those presented on the Subsurface Logs. The information presented on the logs provide a basis for an evaluation of the subsurface conditions and may indicate the need for additional exploration. Any evaluation of the conditions reported on the logs must be performed by Professional Engineers or Geologists.

1. SAMP./CORE NUMBER – Samples are numbered for identification on containers, laboratory reports or in text reports.

2. SAMP.ADV/LEN.CORE – Length of sampler advance or length of coring run measured in feet.

3. RECOVERY – Amount of sample actually recovered after withdrawing sampler or core barrel from bore hole measured in feet.

4. SAMPLE BLOWS/6" – Unless otherwise noted, blow counts represent values obtained by driving a 2.0" (O.D.), 1-3/8" (I.D.) split spoon sampler into the subsurface strata with a 140 pound weight falling 30" as per ASTM D 1586. After an initial penetration of 6" to seat the sampler into undisturbed material, the sampler is then driven an additional 2 or 3 six inch increments.

5. "N" Value or RQD % – "N" VALUE – The sum of the second and third sample blow increments is generally termed the Standard Penetration Test (SPT) "N" value. CORE RQD – Core Rock Quality Designation, RQD, is defined as the summed length of all pieces of core equal to or longer than 4 inches divided by the total length of the coring run. Fresh, irregular breaks distinguishable as being caused by drilling or recovery operations are ignored and the pieces are counted as intact lengths. RQD values are valid only for cores obtained with NX size core barrels.

6. SAMPLE – Graphical presentation of sample type and advance or core run length. See Table 1.

7. DEPTH – Depth as measured from the ground surface in feet.

8. GRAPHICS – Graphical presentation of subsurface materials. See Table 4. Dual soil classification and rock graphics may vary and are not shown on Table 4.

9. DESCRIPTION AND CLASSIFICATION – SOIL – Recovered samples are visually classified in the field by the supervising geologist or engineer unless otherwise noted. Particle size and plasticity classification is based on field observations, and using the Unified Soil Classification System (USCS). See Table 4. USCS symbols are presented in parentheses following the soil description. Where necessary, dual symbols may be used for combinations of soil types. Relative proportions, by weight and/or plasticity, are described in general accordance with "Suggested Methods of Test for Identification of Soils" by D.M. Burmister, ASTM Special Publication 479, 6-1970. See Table 2. Soil density or consistency description is based on the penetration resistance. See Table 3. Soil moisture description is based on the observed wetness of the soil recovered being dry, moist, wet, or saturated. Water introduced into the boring during drilling may affect the moisture content of the materials. Other geologic terms may also be used to further describe the subsurface materials. ROCK – Rock core descriptions are based on the inspector's observations and may be examined and described in greater detail by the project engineer or geologist. Terms used in the description of rock core are presented in Table 5.

10. DIVISION LINES – Division lines between deposits are based on field observations and changes in recovered material. Solid lines depict contacts between two deposits of different geologic depositional environment of known elevation. Dashed lines represent estimated elevation of contacts between two deposits of different geologic depositional environment. Dotted lines depict transitions of deposits within the same depositional environment, such as grain size or density.

11. ELEVATION – Elevation of strata changes in feet.

12. REMARKS – Miscellaneous observations.

13. WATER LEVELS & WELL DATA – Hollow water level symbol, if present, represents level at which first saturated sample or water level was encountered. Solid water level symbol, if present, depicts the most probable static water elevation at the time of drilling or as measured in an installed observation well at a later date. Subsurface water conditions are influenced by factors such as precipitation, stratigraphic composition, and drilling/coring methods. Conditions at other times may differ from those described on the logs. For graphical presentation of observation/monitoring well construction, see Table 6. Elevations of changes in construction are noted at the bottom of each section.

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LEGEND TO SUBSURFACE LOGS

TABLE 1
TYPICAL SAMPLE TYPES

SPLIT SPOON (1 3/8" I.D.)

NX SIZE ROCK CORE

SHELBY TUBE "UNDISTURBED"

AUGER SAMPLE

TABLE 2
SAMPLE MATERIAL PROPORTIONS

ADJECTIVE	PERCENTAGE OF SAMPLE
"and"	35% – 50%
"some"	20% – 35%
"little"	10% – 20%
"trace"	< 10%

Standard split spoon samples may not recover particles with any dimension larger than 1 3/8". Therefore, reported gravel percentages may not reflect actual conditions.

TABLE 3
DENSITY/CONSISTENCY

GRANULAR SOILS		COHESIVE SOILS	
Blows/ft.	Density	Blows/ft.	Consistency
< 5	Very Loose	< 2	Very Soft
5–10	Loose	2–4	Soft
11–30	Med. Compact	5–8	Med. Stiff
31–50	Compact	9–15	Stiff
> 50	Very Compact	16–30	Very Stiff
		> 30	Hard

TABLE 4
USCS CLASSIFICATION, PARTICLE SIZE, & GRAPHICS

	MAJOR PARTICLE SIZE DIVISION	USCS SYMBOL	GRAPHIC SYMBOL	GENERAL DESCRIPTION
COARSE GRAINED SOILS	GRAVEL Coarse: 3"–3/4" Fine: 3/4"–#4 Classification based on > 50% being gravel	GW		Well graded gravels, gravel & sand mix.
		GP		Poorly graded gravels, gravel & sand mix.
		GM		Gravel, sand and silt mix.
		GC		Gravel, sand and clay mix.
	SAND Coarse: #4–#10 Med.: #10–#40 Fine: #40–#200 Classification based on > 50% being sand	SW		Well graded sand, sand & gravel mix.
		SP		Poorly graded sand, sand & gravel mix.
		SM		Sand and silt mix.
		SC		Sand and clay mix.
FINE GRAINED SOILS	SILT & CLAY Classification based on > 50% passing #200 sieve.	ML		Inorganic silt, low plasticity.
		CL		Inorganic clay, low plasticity.
		OL		Organic silt/clay, low plasticity.
		MH		Inorganic silt, high plasticity.
		CH		Inorganic clay, high plasticity.
		OH		Organic silt/clay, high plasticity.
	ORGANIC SOILS	Pt		Peat and other highly organic soils.
	FILL	Fill		Miscellaneous fill materials.

TABLE 5
ROCK CLASSIFICATION TERMS

HARDNESS:

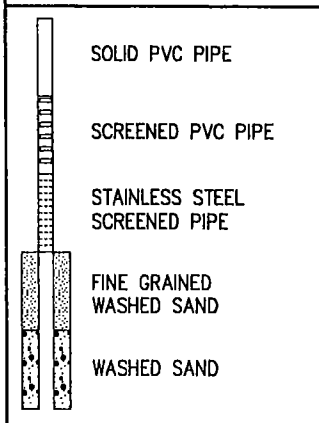
Very Soft	Carves
Soft	Grooves with knife
Med. Hard	Scratched easily with knife
Hard	Scatched with difficulty
Very Hard	Cannot be scratched with knife

WEATHERING:

Fresh	Slight or no staining of fractures, little or no discoloration, few fractures.
Slightly	Fractures stained, discoloration may extend into rock 1", some soil in fractures.
Moderately	Significant portions of rock stained and discolored, soil in fractures, loss of strength.
Highly	Entire rock discolored and dull except quartz grains, severe loss of strength.
Complete	Weathered to a residual soil.

BEDDING:		FRACTURE SPACING:		RQD:	
Massive	> 40"	Massive/V. Wide	> 6'	Excellent	> 90%
Thick	12' – 40"	Thick/Wide	2' – 6'	Good	76% – 90%
Medium	4" – 12"	Med./Med.	8" – 24"	Fair	51% – 75%
Thin	< 4"	Thin/Close	2 1/2" – 8"	Poor	25% – 50%
		V. Thin/V. Close	< 2 1/2"	V. Poor	< 25%

TABLE 6
WELL CONSTRUCTION



SOLID PVC PIPE

SCREENED PVC PIPE

STAINLESS STEEL SCREENED PIPE

FINE GRAINED WASHED SAND

WASHED SAND

BENTONITE PLUG

AIR ENTRAINED CEMENT

NATURAL SOIL/ ROCK FILL

BENTONITE/ CEMENT GROUT

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Pocono Downs
Expedited Casino Entry Building
SUBSURFACE LOG
HOLE NUMBER B-1

PROJECT NUMBER: 13989.2003.1502 9/22/05

LOCATION: Wilkes Barre, Pennsylvania

CLIENT: Jeter, Cook & Jepson Architects, Inc.

CONTRACTOR: Nature's Way

DRILLER: M. Saeli INSPECTOR: M. Bianchino

START DATE and TIME: 9/20/2005 2:10:00 PM

FINISH DATE and TIME: 9/20/2005 3:30:00 PM

SURFACE ELEV: 705.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 11.5' DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	9-20-05	3:00 PM	During Drilling	None	10	10

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Augered through asphalt.	
S-1	1.5	1.3	9-13-15	28				f.m.c. SAND little silt, little f.c. gravel, trace brick, brown/gray/red/black, medium compact, moist **(FILL)**	704	Groundwater observations during drilling may not represent static conditions.	
						2					
S-2	2	1.6	11-15-18-20	33				f.m.c. SAND little silt, trace f.c. gravel, trace ash/coal, brown/gray/black, compact, moist **(FILL)**	702		
						4					
S-3	1.7	1.7	22-23-37-50/0.2	60				becomes very compact **(FILL)**	700	S-3 Lab Results: Chlor. Cont.: 1700 mg/kg Sulft. Cont.: 1980 mg/kg pH: 5.59	
						6					
S-4	0.9	0.9	45-50/0.4	R				f.m.c. SAND little silt, brown/reddish brown/gray, very compact, moist **(Completely Weathered Sandstone)**	698	Rock fragments in sampler.	
						8					
S-5	0.4	0.4	50/0.4	R				f.c. GRAVEL and f.m.c. SAND brown/gray, very compact, moist **(Completely Weathered Sandstone)**	696		
S-6	0	0	50/0.0	R		10		No Recovery	694	Split spoon sampler bouncing, augered to 11.5' through what is interpreted as completely weathered sandstone.	
						12		SANDSTONE gray, medium hard, slightly weathered, thin fracture spacing, fair RQD	692	Auger refusal at 11.5' below ground surface.	
C-1	5	5		60%		14			690		
						16					
								End of Boring at 16.5 ft	688		
						18			686		

CLOUGH HARBOUR & ASSOCIATES LLP

Pocono Downs
Expedited Casino Entry Building
SUBSURFACE LOG
HOLE NUMBER B-2

PROJECT NUMBER: 13989.2003.1502 9/22/05

LOCATION: Wilkes Barre, Pennsylvania

CLIENT: Jeter, Cook & Jepson Architects, Inc.

CONTRACTOR: Nature's Way

DRILLER: M. Saeli INSPECTOR: M. Bianchino

START DATE and TIME: 9/21/2005 8:00:00 AM

FINISH DATE and TIME: 9/21/2005 9:30:00 AM

SURFACE ELEV: 705.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 12.4' DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	9-21-05	9:00 AM	During Drilling	None	10	10.1

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Augered through asphalt.	
S-1	1.5	1.2	8-45-35	80				f.m.c. SAND Some f.c. Gravel, little silt, gray/brown, very compact, moist **(FILL)**	704		
S-2	0.6	0.1	65-50/0.1	R		2		f.m.c. SAND little silt, little f.c. gravel, brown/gray, very compact, moist **(Completely Weathered Sandstone)** Similar Soil **(Completely Weathered Sandstone)**	702	Groundwater observations during drilling may not represent static conditions. Rock fragments in spoon.	
S-3	0.3	0.1	50/0.3	R		4		f.c. GRAVEL, gray/brown, very compact, moist **(Completely Weathered Sandstone)**	700		
S-4	2	1.4	20-20-28-40	48		6		f.m.c. SAND little silt, little f.c. gravel, gray/brown, compact, moist **(Completely Weathered Sandstone)**	698		
S-5	0.6	0.2	60-50/0.1	R		8		f.c. GRAVEL and f.m.c. SAND gray, very compact, moist **(Completely Weathered Sandstone)**	696	Rock fragments in spoon.	
S-6	0.1	0.1	50/0.1	R		10		Similar Soil **(Completely Weathered Sandstone)**	694	Split spoon sampler bouncing.	
						12					
C-1	5	4.7		64%		14		SANDSTONE gray, medium hard, slightly weathered, thin fracture spacing, fair RQD	692	Auger refusal at 12.4' below ground surface.	
						16			690		
						18		End of Boring at 17.4 ft	688		
									686		

SUBSURFACE LOG 13989.2003.LOGS.GPJ UPDATEDCHA.GDT 10/10/05

CLOUGH HARBOUR & ASSOCIATES LLP

PROJECT NUMBER: 13989.2003.1502 9/22/05

Pocono Downs
Expedited Casino Entry Building
SUBSURFACE LOG
HOLE NUMBER B-3

LOCATION: Wilkes Barre, Pennsylvania

CLIENT: Jeter, Cook & Jepson Architects, Inc.

CONTRACTOR: Nature's Way

DRILLER: M. Saeli INSPECTOR: M. Bianchino

START DATE and TIME: 9/20/2005 12:00:00 PM

FINISH DATE and TIME: 9/20/2005 1:15:00 PM

SURFACE ELEV: 686.00 (ft; Estimated) CHECKED BY: W. Harris

DRILL FLUID: Water @ 7.8' DRILLING METHOD: 2.25" HSA

WATER LEVEL OBSERVATIONS DURING DRILLING	DATE	TIME	READING TYPE	WATER DEPTH (ft)	CASING BOTTOM (ft)	HOLE BOTTOM (ft)
	9-20-05	12:50 PM	During Drilling	None	6	6.2

SAMP./CORE NUMBER	SAMP. ADV. (ft) LEN. CORE (ft)	RECOVERY (ft)	Blows Per on Split Spoon Sampler	"N" Value or RQD%	SAMPLE	DEPTH (Feet)	GRAPHICS	DESCRIPTION AND CLASSIFICATION	ELEVATION (Feet)	Remarks on Character of Drilling, Water Return, etc.	WATER LEVELS AND/OR WELL DATA
								ASPHALT		Augered through asphalt.	
S-1	1.5	1.3	12-11-21	32		2		f.m.c. SAND little silt, little f.c. gravel, trace brick, brown/black/gray/red, compact, moist **(FILL)**	684	Groundwater observations during drilling may not represent static conditions.	
S-2	1.8	1.2	14-14-25-50/0.3	39				f.m.c. SAND little silt, trace f. gravel, brown/gray/black, very compact, moist **(FILL)**			
S-3	0.3	0	50/0.3	R		4		No Recovery	682	Split spoon sampler bouncing, augered to 6' through what is interpreted as completely weathered bedrock.	
S-4	0.2	0	50/0.2	R		6		No Recovery	680	Split spoon sampler bouncing, augered to 7.8' through what is interpreted as completely weathered bedrock.	
						8		SHALE, gray, soft, highly weathered, very thin fracture spacing, very poor RQD	678	Auger refusal at 7.8' below ground surface.	
C-1	5	3.2		0%		10			676		
						12			674		
								End of Boring at 12.8 ft			
						14			672		
						16			670		
						18			668		

APPENDIX C

Laboratory Test Results

ATLANTIC TESTING LABORATORIES, Limited

Albany
22 Corporate Drive
Clifton Park, NY 12065
518/383-9144 (T)
518/383-9166 (F)

September 27, 2005

Clough, Harbour & Associates LLP
III Winners Circle
P.O. Box 5269
Albany, New York 12205

Attn: Mr. Micheal Bianchino

Re: Laboratory Test Results
CHA Project Number 13989.1013.1502
Pocono Downs
ATL Report No. AT098SL-609-09-05

Laboratory Analysis Report
(Sample B-1, S-3, 4-5.7 ft.)

Tests Performed	Results	Method Number
Chloride	1700 MG/KG Dry wt.	EPA 325.2
Sulfate	1980 MG/KG Dry wt.	EPA 375.2
pH	5.59	SW486 9045C

Please contact our office should you have any questions or if we may be of further service.

Respectfully,
Atlantic Testing Laboratories, Limited

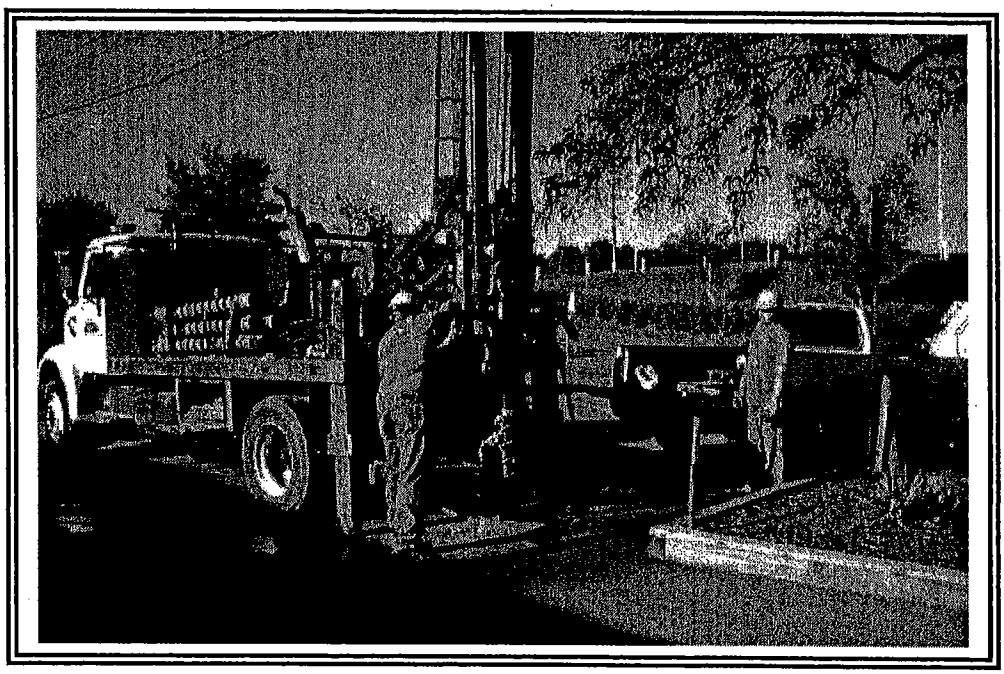
Robert Field
Laboratory Supervisor

RF/sm

APPENDIX D

Photographs

Looking towards boring B-1 and the existing grandstands.



Looking south onto boring B-2.

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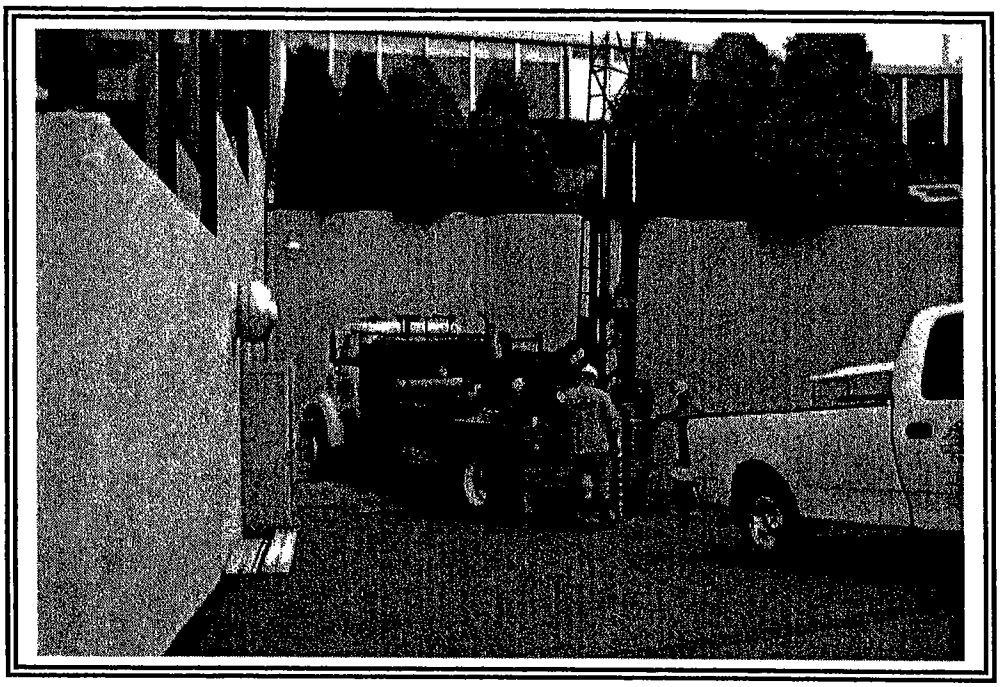
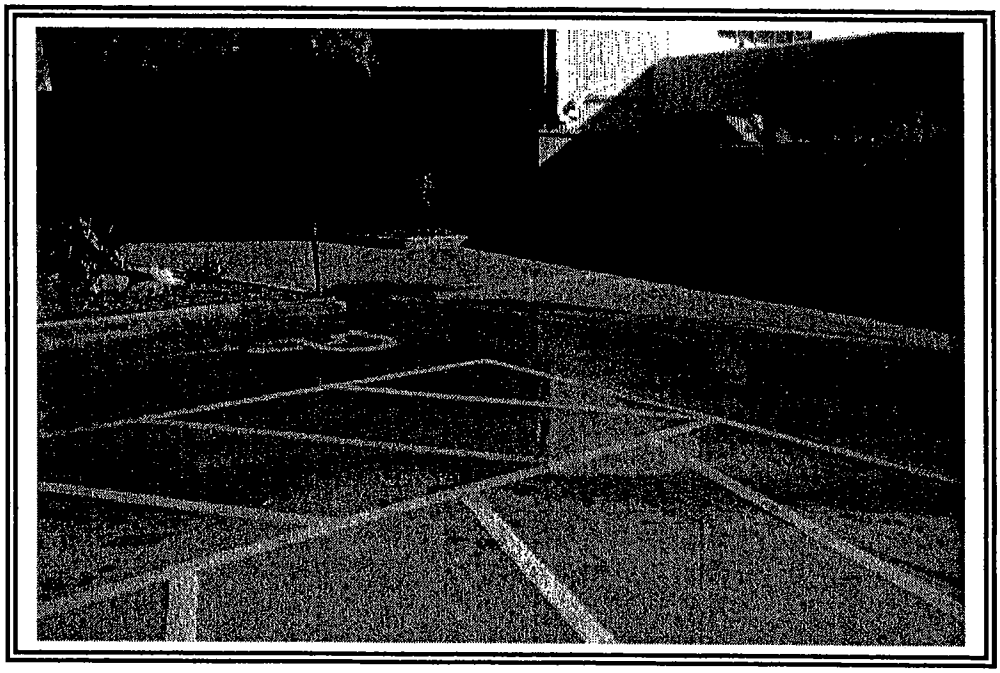
CHA # 13989.2003.1502	OCTOBER 2005



Looking west onto boring B-3.



Site clean-up after completion of boring B-2.

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