HYDROGEOLOGIC ANALYSIS OF THE PROPOSED EXPANSION OF THE HANSON AGGREGATES NEW YORK LLC HONEOYE FALLS QUARRY

Prepared for:

Hanson Aggregates New York LLC
4800 Jamesville Rd, PO Box 513
Jamesville, New York 13078

April 1, 2013

ALPHA GEOSCIENCE

ALPHA GEOSCIENCE

Geology

Hydrology

Remediation

Water Supply

HYDROGEOLOGIC ANALYSIS OF THE PROPOSED EXPANSION OF THE HANSON AGGREGATES NEW YORK LLC HONEOYE FALLS QUARRY

Prepared for:

Hanson Aggregates New York LLC
4800 Jamesville Rd, PO Box 513
Jamesville, New York 13078

Prepared by:

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

April 1, 2013

TABLE OF CONTENTS

TABLE

FIGURES

PLATE

APPENDICES

Appendix A: NYSDEC Well Completion Reports
Appendix B: Logs of Fractures in Core
Appendix C: Logs for Expansion Area Monitoring Wells
Appendix D: Piezometer P1 Well Construction and Geologic Logs

1.0 INTRODUCTION

This report was prepared by Alpha Geoscience (Alpha) and presents a hydrogeologic analysis of the proposed expansion area for the Honeoye Falls limestone aggregate rock quarry. The quarry is owned and operated by Hanson Aggregates New York LLC (Hanson) and is currently located in the Towns of Lima and Avon, Livingston County, and in the Towns of Honeoye Falls and Mendon, Monroe County (Figure 1). Hanson is considering expanding the existing mining operation westward from the existing western permitted life-of-mine boundary. The majority of the expansion area will be located within the Town of Rush, with a relatively small portion within the Town of Avon.

The objectives of the hydrogeologic evaluation were to provide information about the physical characteristics of the ground water system within and around the expansion area, describe the anticipated changes that will occur to that ground water system when the mine is at its currently proposed maximum extent, evaluate the potential impacts to neighboring residential wells and an adjacent wetland, and evaluate the adequacy of the present sump location to continue to serve the mine as expansion progresses.

2.0 METHODS

The evaluation objectives were met through a series of tasks that included:

- a literature review;
- site inspection;
- rock core and drill cuttings inspection;
- shallow piezometer installation;
- water level measurements; and
- hydrogeologic analysis.

2.1 Literature Review

Published and unpublished information was obtained and reviewed to assess the general conditions of the local and regional ground water systems in the context of the proposed mine expansion. A FOIL request was made to the NYSDEC for well completion reports filed since Alpha's last such FOIL request for the area in 2009. FOIL requests were also made to the Monroe County Department of Health and to Livingston County for available databases on well logs, well reports and water levels in the area of Hanson's Honeoye Falls quarry. The NYSDEC well completion reports for the residential wells are included in Appendix A. The FOIL requests to Monroe and Livingston Counties yielded no new information.

2.2 Site Inspection

The site was inspected by Mr. Steven Trader of Alpha on April 8, 2011. Mr. Trader observed the sump, the water handling system, and the occurrence of water in the floor and highwall of the existing quarry. Dr. Samuel Gowan of Alpha conducted a similar inspection of the mine in 2003.

Mr. Trader and Mr. Michael Lewis, Hanson's Environmental Manager, observed the measurement of water levels from the site wells, sump and local culverts by Mr. Larry Clark, Honeoye Falls mine Superintendent. Mr. Clark has been the Hanson representative primarily responsible for performing the water level measurements at the site since 2009.

2.3 Rock Core and Cuttings Inspection

Hanson, in 1998 and 2002, drilled the following bedrock core holes in the vicinity of the expansion area: DDH 4-98, DDH 5-98, DDH 1-02, DDH 2-02, and DDH 4-02. The depths of the core holes ranged from 123 ft to 139 ft. The uppermost bedrock formation encountered in each of the core holes was limestone of the Onondaga Formation (Fm). Each of the core holes were advanced through the Onondaga limestone and into the top of the Akron Fm, which is the upper member of the Bertie Group (Salina Group) and is not mined at the quarry. The locations of the core holes are shown on Figure 2.

Geologic characteristics of the rock cores were logged previously by others and are not presented herein. Alpha personnel inspected the rock core from four of these holes (all except DDH 2-02) on April 7 and 8, 2011 at the Honeoye Falls Quarry office. The rock cores were inspected by Alpha to specifically look at fractures. The depth and physical characteristics of all core breaks that appeared to represent natural, water-bearing fractures were recorded (Appendix B). Fractures created by the coring process were either indicated as such or were not recorded.

Hanson installed five monitoring wells in the vicinity of the expansion area during 2009 (09-001, 09-002, 09-003) and 2010 (10-001, 10-002). The driller filed well completion reports for the NYSDEC for the 2009 wells and provided drilling logs for all five wells. The 2009 logs also included observations and notes made by Hanson personnel. The logs for the expansion area wells are included in Appendix C. Hanson saved cuttings from the 2009 and 2010 wells at intervals of approximately 5 ft. The cuttings from the 2009 wells were inspected by Alpha to evaluate the presence of the Onondaga/Akron contact for stratigraphic control. Results of the cuttings inspection are included on the logs for the 2009 wells in Appendix C.

2.4 Shallow Piezometer Installation

A shallow piezometer was installed by Alpha within the delineated wetland on the southwest side of the expansion area at a location where no surface water was apparent on April 20, 2011 (Figure 2). The purpose of the piezometer (P-1) was to assist in the evaluation of the potential effect of the quarry expansion on the wetland. P-1 also allowed for measurement of water levels within the unconsolidated materials above bedrock, and to allow a comparison of those levels with the elevation of the bedrock potentiometric surface. P-1 was installed by hand using a power auger to drill a six-inch diameter hole to refusal at 32 inches below grade. Three additional holes were attempted in the vicinity off the final P-1 location and each met refusal at approximately 32 inches below grade; consequently, refusal was likely the top of bedrock. The well construction log and geologic log of P-1 are included in Appendix D. The elevation of P-1 was surveyed by Alpha relative to existing, previously surveyed, wells. The location of P-1 was measured via GPS.

2.5 Water Level Measurements

Water level data were analyzed to determine existing ground water flow patterns, assess the influence of quarry pump-out on the water table in the expansion area, and evaluate the potential impact to nearby residential wells and the nearby wetland. Data collected by Hanson include water levels from the sump, 15 wells in and around the quarry, three residential wells, wetland piezometer P1, and culverts in the intermittent stream, which drains the wetland on the southwest of the expansion area. Water level measurements in most of the wells have been recorded on an approximately weekly basis since August 20, 2009 (Plate 1). Prior to that time, water levels were recorded on an intermittent basis.

2.6 Hydrogeologic Analysis

All the data were analyzed to develop an understanding of the ground water and surface water systems and evaluate how they will be affected by mining in the proposed expansion area. A ground water contour map was constructed to represent the existing ground water elevations, flow directions, and local ground water divides during the seasonal low water level conditions. It is during seasonal low water level conditions when nearby residential wells potentially would be most vulnerable to water level decline due to quarry expansion and dewatering.

A structural contour map of the contact between the Onondaga Fm and the Akron Fm was constructed based on the geologic logs of the core holes penetrating the Akron Formation at the quarry provided by Hanson. The general mining plan by Hanson is to mine the Onondaga limestone down to approximately the top of the Akron Fm and maintain a downward slope to the south and east.

The ground water contours and the top-of-Akron structure contours were used to create three hydrogeologic cross sections for the expansion area. Knowledge of the aquifer system was combined with Hanson's proposed mining plan to represent future conditions on the hydrogeologic cross sections. The hydrogeologic cross sections illustrate the relative change in ground water levels between the existing and future conditions and show the extent of drawdown

laterally from the quarry edge when the mine is at its greatest depth and lateral extent. This allowed for an evaluation of the potential impact to the nearby residential wells.

The recharge area for the wetland southwest of the expansion area includes a portion of the area to be mined; consequently, an evaluation of the potential impact on the wetland southwest of the expansion area was performed. The evaluation was based on water level data, the composition of the surficial deposits, and a recharge basin analysis.

3.0 RESULTS

3.1 Geology

3.1.2 Bedrock

The limestone of the Onondaga Fm is the primary unit being mined at the quarry and is the bedrock formation exposed at the surface or subcropping beneath unconsolidated sediments. The Onondaga formation is underlain by the limestones and dolostones of the Bertie Group. The uppermost unit of the Bertie Group at the site is the Akron Fm. The Akron Fm is exposed in the base of the quarry sump on the east side of the quarry (Spectra, 2000) and is penetrated by numerous wells and core holes at the site.

Elevation contours for the top of the Akron Fm are provided on Figure 4. The depth to the top of Akron was obtained from the core logs of the core holes Hanson has drilled at the site, the cuttings inspection of the 2009 series wells, and from well completion reports filed with the NYSDEC for nearby residential wells. The elevation contours on Figure 4 indicate that the top of Akron Fm surface has a local high area north of the existing western extension of the active quarry. The top of Akron fm surface slopes to the west, south and east from this relative high spot.

The shale units of the Marcellus Fm subcrop south of the quarry, generally above a surface elevation of approximately 710 ft above mean sea level (amsl), but these are not present within

the subsurface in the expansion area. Regionally, the bedrock formations all dip less than 1˚ to the south (Rickard and Fisher, 1978).

3.1.2 Surficial Deposits

The unconsolidated sediments above the Onondaga Fm in the proposed expansion area are approximately 1.5 to 15 feet thick based on the core logs and drilling logs provided by Hanson. The surficial deposits thicken toward the southwest and are up to 21 ft thick at DDH 4-02, which is located approximately 1,000 feet southwest of the expansion area (Figure 2). The surficial geology (sediments) over most of the site has been mapped as primarily consisting of glacial till (Muller and Cadwell, 1986). This is consistent with the fact that much of the soil surrounding the existing quarry site is mapped as moderately well drained Honeoye silt loam, which is derived from drumlins and till plains (National Resource Conservation Service, Online Web Soil Surveys). The soil surveys for Monroe and Livingston Counties also indicate that there is an area of very poorly drained silt loam in a shallow depression southwest of the expansion area (Figure 3). These areas are represented on Figure 3 by the Lyons (Lo), Colwoon (C8), Canandaigua (Ca) and Toledo (Tb) silt loams. These soils are derived from glaciolacustrine deposits and can be clayey, or have clayey horizons. This is consistent with the cuttings from the installation of piezometer P1 (Appendix D). Clay and silt of medium plasticity were the primary constituents of the P1 cuttings to approximately 2.7 ft below grade.

3.2 Hydrogeology

The hydrogeology of the expansion area is comprised of shallow, perched ground water and the bedrock aquifer. The following two sections will describe each of these in turn.

3.2.1 Perched Ground Water

The surface water system in the vicinity of the proposed expansion area is primarily comprised of a wetland southwest of, and adjacent to, the expansion area. It also includes the streams and ditches that lead through the wetland, as well as the saturated soils above bedrock in that area. The clayey nature of these soils (discussed in the previous section) impedes downward

percolation to the bedrock aquifer; consequently, the shallow ground water within the unconsolidated sediments is perched and a wetland has developed in this low area. The wetland is generally present below an elevation of approximately 705 ft amsl.

Water is more able to percolate downward and infiltrate to the bedrock aquifer system outside of the wetland area and within the moderately well drained, till-derived soils. The elevation of the surface water system is distinctly higher than the bedrock aquifer (approximately 50 to 100 ft vertical separation; Plate 1) and is consistent with a perched ground water system. The one exception to this vertical separation is the water level at 10-002, which was at approximately the same elevation as at P1 for a portion of the time P1 had water. Water was encountered in bedrock at a depth of 15 ft during the drilling of well 10-002. Well 10-002 is located outside of the wetland area soils. The water level has fluctuated seasonally in 10-002 by up to 47 ft. It is possible that the northward flowing bedrock aquifer, south of the wetland, discharges seasonally to the wetland during spring high water conditions. This is not the case on the northern side of the wetland.

The water level elevations measured at shallow piezometer P1 were approximately three feet higher than the elevation of the wetland stream at the outlet. This difference is consistent with the shallow, perched, ground water flow discharging to the stream that runs through the wetland. The piezometer (P1) and the stream outlet at the culvert on Oak Openings Rd went dry at approximately the same time in late June 2011. The flow out of the wetland is ephemeral, despite elevated rainfall in the spring of 2011. The stream is likely a losing stream during the dry season, losing water along its course to the perched ground water system.

3.2.2 Bedrock Aquifer

Ground water within the bedrock in the region surrounding the quarry, apart from perched ground water, is contained within, and flows along, fractures, bedding plane partings, fault zones and dissolution-widened openings in the rock. The ground water intersected by the quarry occurs in the water table, which generally is in the top 150 feet of the rock.

Ground water flows from areas of high hydraulic head in the recharge areas toward the lower hydraulic head in the discharge zones. The rate that the ground water flows and the quantity of water contained within a unit volume of rock (storage) depends upon the width and number of fractures and dissolution-widened openings. Limestone bedrock, such as the Onondaga Fm, generally has greater fracture widths and, in many instances, can have dissolution-widened openings that can form significant ground water flow paths, especially in karst terrain. Wells installed in karst terrain are often susceptible to large fluctuations in water levels, especially during droughty periods. Karst features have been identified in the region surrounding the quarry; however, site inspections by Alpha personnel indicated that karst features identified in the region are not visible in the quarry. Ground water flows into the quarry via nearly vertical joints and horizontal bedding plane partings that are visible in the quarry face.

Knowledge of the bedrock aquifer in the immediate vicinity of the quarry and the expansion area comes from the driller's logs of the monitoring wells installed by Hanson, drillers' well completion reports that were filed with the NYSDEC for neighboring residential wells, core logs provided by Hanson, water levels measurements made at the site wells, site visits, and an inspection of rock core to specifically identify potential water-bearing fractures.

Drilling of the 2009 and 2010 series of wells provided information as to water occurrence in the bedrock. The only potential fractures or water producing zones noted by the driller were in the Onondaga Fm at wells 09-002, 09-003, 10-001 and 10-002 (Appendix C). No water was noted at the Onondaga/Akron contact at 09-001 and 09-002 (the other wells were not deep enough to reach the Akron Fm). The Onondaga/Akron contact is known to yield water to residential wells in the area. The well completion report for residential well LV874 (Kloesz) on Dalton Rd, which is adjacent to the quarry's east side, has a note by the driller that "most of the water comes in at 140′," which is also the depth given on the log as the Onondaga/Bertie (Akron) contact.

Alpha logged evidence of potential water bearing fractures in the rock core from four of the expansion area cores (Appendix B). These fractures exhibited mineralization or staining on the fracture surface, or they did not appear to represent fresh core breaks (caused by drilling). Some

of the potential water-bearing fractures were filled with silt, which may have occurred during the drilling process or may be indicative of prior deposition by water moving through the fractures.

Potential water-bearing fractures logged by Alpha in four of the rock cores from the expansion area are portrayed graphically on Figure 5. Potential fractures and water shows encountered during the drilling of the bedrock monitoring wells (Appendix C) also are shown on Figure 5. Some of the core logs provided by Hanson for the deep drill holes also had relevant information pertaining to ground water. Zones where circulation water was lost during the coring process were noted on the logs for the deep drill holes drilled in 1998. In rotary drilling, water is circulated down the drill string, out the drill bit, and up the annular space between the borehole wall and the drilling rods to remove the rock cuttings from the hole. Lost circulation zones are noted when the circulated water no longer returns the cuttings to the surface and are indicative of open fractures capable of moving ground water. The depths of the lost circulation zones were transferred to Figure 5. Figure 5 indicates that the vast majority of the features indicative of water movement, and potential water movement, are found within the Onondaga. These indications of water movement through fractures are found at various depths within the Onondaga.

Most of the residential wells in the area penetrate both the Onondaga Fm and Bertie Group, based on their total depth (Appendix A) and the top of Bertie (Akron) elevation contours (Figure 4). Many nearby residential wells, that originally were open only in the Onondaga Fm, have been deepened or replaced with deeper wells during the last ten years (Table 1). There is a network of fractures within the upper 45 ft of the Onondaga that initially supplied enough water for residential use in the area. This fracture zone is the source of cascading water heard in wells 09-002, 09-003, 10-002 and the Campier well (Plate 1). The water within the upper fracture zone is draining downward toward the lower fracture zone at the Onondaga/Bertie contact. Wells that only tap the upper fracture zone in the area have commonly run low on water during droughty periods. The deeper wells can take advantage of deeper water-bearing fractures in the Onondaga and the fractured zone at the Onondaga/Bertie contact. There is no evidence of significant water shows below the contact. It is likely that the portion of the wells open in the Akron Fm, below

the contact with the Onondaga, act as sumps for additional storage when needed during droughty conditions.

3.2.2.1 Water Level Data

Water level data collected by Hanson since 2009 are included as Plate 1. The locations of the wells are shown on Figure 2, along with selected residential wells in the vicinity of the quarry. Hydrographs of the water level data from the expansion area wells are provided on Figure 6. Quarry wells 18 and 20 were included in the hydrographs because they are the closest quarry wells to the expansion area. The Campier well is included because it is the closest residential well to the expansion area that also has water level data. The Campier well and Well 20 (Crusher Run Plant Well) were being used as water sources throughout the monitoring period. The remaining wells were unused.

The lowest ground water elevations subsequent to the installation of the 2010 wells occurred around August 23, 2010 (Plate 1; Figure 6). The highest ground water elevations occurred during March 2011. The amplitude of the water level fluctuation during the nearly two-year monitoring period ranged from 21.24 ft at Well 18 (Garage Well) to 52.9 ft at well 09-002. In general, water levels in the expansion area wells began to rise in December, 2010, continued to rise through sometime in March, and then gradually fell through the summer.

Wells 20, 09-002, and the Campier well each experienced a relatively sudden, apparent drop in water level during early April 2011 (Figure 6). It was reported by the homeowner at the time of the water level reading on April 8 that the washing machine in the house had been operating all morning; consequently, the water level reading that day was likely much lower than it may have otherwise been. Also, well 09-002, 09-003 and the Campier well are known to have seasonal, or occasional, cascading water that can make it extremely difficult to obtain an accurate depth to water measurement (Plate 1). The cascading from the upper fracture zone at approximately 24 ft (Figure 5) may have ceased or diminished as the upper zone drained in early April; consequently, this could have allowed for a more accurate (lower) reading of the water level in certain wells. This may have caused the apparent large drop in water level elevation in wells 09-002 and the

Campier well that occurred around the first week of April, 2011. Well 20 also exhibited the same pattern as 09-002 and the Campier well at that time; however, cascading has not been noted in this well. A shroud has been used on the water level probe when measuring water levels in cascading wells since early April 2011 to protect the probe from cascading water and improve accuracy.

3.2.2.2 Water Table Configuration

A ground water elevation contour map constructed from the seasonal low ground water elevations (Figure 7). It is during the natural, seasonal low water level conditions when nearby residential wells potentially would be most vulnerable to water level decline due to quarry expansion and dewatering. The map shows the elevation of the water table surface as measured in the wells on August 23, 2010. Ground water flows from the areas of high water elevations toward low water level elevations perpendicular to the ground water elevation contours. The regional flow is to the north, but the local flow pattern is radially outward from recharge areas and inward toward discharge areas such as the quarry sump where the water is pumped out on a year-round basis.

A local ground water divide trends northeast to southward through the expansion area. Ground water flows away from the divide and toward discharge areas represented by streams, wetlands, springs, wells and the quarry. The interpretation of this local divide is based on the fact that the water level in well 09-003 is consistently higher than at the Campier well, which is located approximately 475 ft to the west of well 09-003 (Figure 6 and Plate 1). The interpretation of the presence of this local divide is also based on an estimate of the August 23, 2010 water level elevation at the residential well located at 1919 Honeoye Falls No. 6 Rd (formerly Rosenbloom). The estimate was made based on data from the Monroe County Department of Health (DOH) and from the historical water levels measured by Hanson at the quarry. The Monroe County and Livingston County DOHs measured water levels at residential wells in the vicinity of the mine from 2000 to 2005. The Rosenbloom well was part of that monitoring program from August 7, 2002 through February 6, 2004. The lowest water level elevation at the Rosenbloom well during that time frame was 595.2 ft amsl and was recorded on November 8, 2002. This water level

elevation is based on the measured depth to water of 101.8 ft and an assumed surface elevation of 697 ft amsl (from the topographic map). The water level elevation recorded on November 11, 2002 at quarry well 18 (garage well), which was not in use, was 606.68 ft amsl (11.48 ft above the water level at the Rosenbloom well). The August 23, 2010 water level elevation at well 18 was 605.26 ft amsl; consequently, the estimated water level at the Rosenbloom well for that date is 593.78 ft amsl (11.48 ft below the water level at well 18).

3.3 Future Conditions of Water Table at end of Mining

Hydrogeologic cross sections A-A', B-B' and C-C' were constructed and are included as Figures 9, 10 and 11. The existing topography, top of rock surface and top of Bertie (Akron) surface are depicted on the cross sections. The seasonal low water table, represented by the August 23, 2010 ground water contours (Figure 7), is shown on each of the cross sections. Hanson's mine reclamation plan for the Honeoye Falls quarry, including the existing quarry and the expansion area, is included as Figure 11. Figure 11 shows the proposed quarry floor topography and the locations of the quarry faces and benches. The proposed quarry floor elevations were transferred to the hydrogeologic cross sections. The cross sections depict how the mine plan is to excavate the Onondaga Fm limestone down to, or almost down to, the Akron Fm. The mine plan was constructed by Hanson personnel and the top of the Bertie Group (Akron) elevation was interpreted by Alpha; consequently, there are subtle differences in the proposed quarry floor and the top of the Akron Fm surface as shown on the cross sections. It is Alpha's understanding that Hanson has no intention to mine below the Onondaga Fm.

The maximum water table gradients, sustained under existing conditions in the vicinity of the expansion area (Figure 7), were used as a guide to predict the drawdown gradients and extent of water table drawdown impacts outward from the seepage face on the quarry walls. No seepage face is predicted on cross section C-C' (Figure 10) for the northern quarry wall or on cross section A-A' (Figure 8) for the northern half of the western quarry wall (generally north of the wetland) during the seasonal low conditions. No seepage face is predicted in these areas during seasonal low water table conditions because the elevation of the seasonal low water table during existing conditions is already at, or below, the proposed quarry floor in those areas. The presence

of the quarry cannot lower the water table elevation when the water table is below the quarry floor; consequently, no changes to the water table are predicted for those areas during the dry season.

Residential wells north of the expansion area, along Honeoye Falls Rd. No. 6, will not be impacted during seasonal low water table conditions when the potential for impact to residential wells due to quarry expansion is the greatest. Likewise, residential wells located west of the northern portion of the expansion area, such as the Campier well and wells to the west of Oak Openings Road, will experience no impact from the quarry expansion during seasonal low water table conditions. The reason these residential wells will not be impacted is because the dry season water level elevation in these wells under existing conditions is already below the base of the proposed quarry floor.

Cross section B-B' and C-C' indicate that seepage faces are predicted for the southern portion of the proposed western quarry wall and on the proposed southern wall during seasonal low water table conditions. The seepage faces are anticipated to be approximately one-third the vertical distance between the mine floor (base of Onondaga Fm aquifer) and the elevation of the existing seasonal low water table. The impacts from water table (bedrock aquifer) drawdown west of the southern portion of the proposed mine expansion area are projected to extend approximately 625 ft westward from the quarry face when the water table is at its seasonal low (Figure 9). The projected impacts in that area are all within the Hanson property boundary and there are no residential wells within that area. The drawdown impacts south of the proposed southern quarry face are anticipated to extend approximately 500 ft south of the mine (Figure 10). The projected drawdown impacts south of the proposed expansion area also are still within the Hanson property only, and no residential wells are present in that area. The ground water divide that currently exists within the proposed expansion area during low water conditions will remain relatively unchanged because the water table will be at, or below, the quarry floor. The location of the divide will shift westward in the area west of the southern half of the proposed expansion area by less than 100 ft (Figure 9).

Seepage faces will exist along the northern, western and southern quarry walls during times when the water table is higher. There will be no quarry wall on the eastern side of the expansion area; the eastern side will be open to the rest of the existing, permitted mine all the way to the existing eastern quarry face (Figure 11). Seepage into the proposed expansion area will flow southward across the quarry floor to the southern wall, then flow eastward toward the sump at its current location (see Section 3.5). There is no reason to expect any changes in water quality in any of the residential wells since ground water flow from all directions is toward the mine.

3.4 Future Conditions of Wetland and Shallow Perched Ground Water

The proposed expansion area does not include any portion of the wetland. The excavation of the bedrock in the expansion area will have no impact on the presence of the wetland because the bedrock aquifer in the expansion area does not discharge to the wetland. The removal of the overburden in the expansion area will remove a relatively small portion of the recharge area for the wetland. The wetland is currently recharged via direct precipitation; influx of ditches and streams from the south; runoff from north, south and east; and from the perched ground water flow in the unconsolidated deposits above bedrock. The portion of recharge area that will be removed is approximately 31 acres as defined topographically. Areas outside the proposed expansion area perimeter berm that currently contribute runoff and shallow, perched ground water flow to the wetland will continue to do so at full build out of the expansion area. The removal of 31 acres of drainage area from the outlet stream is equivalent to removal of less than 2% of the 1,820-acre drainage basin for that stream (Figure 12). The stream that drains the wetland has been documented as ephemeral and goes dry sometime in June. The stream is anticipated to remain ephemeral after the proposed expansion area has reached full build out.

3.5 Adequacy of Present Sump to Serve Expansion Area

The existing sump should be able to serve the mine through full build out as it is shown on the existing mine reclamation plan (Figure 11). The existing mine reclamation plan indicates a quarry floor that extends below an elevation of 570 ft in the southwest corner of the mine at full build-out. Seepage from the quarry walls of the expansion area and direct precipitation will flow southward and southeastward across the floor of the quarry until it reaches the southwestern

corner of the quarry. The water will then pond against the southwestern wall until the elevation of the ponded water rises to approximately 576 ft amsl. The ponded water can then flow by gravity across the mine floor, eastward to the sump. This scenario assumes that the underlying Akron Fm is insufficiently fractured to convey water to the sump through the bedrock. A pump could be employed to transfer water from the ponded area to the sump if that area needed to be kept dry during quarrying operations. Alternatively, if the mine floor in the southwest corner was kept above 575 ft amsl, there would be no ponding. It would be necessary to continue maintaining the water level in the sump between approximately 565 ft and 570 ft amsl in order to maintain a dry floor throughout the quarry.

4.0 CONCLUSIONS

The hydrogeologic analysis of the proposed expansion of the Honeoye Falls quarry was conducted for Hanson Aggregates New York LLC. A detailed hydrogeologic evaluation was conducted principally by reviewing existing information from literature, Hanson's records, NYSDEC logs, and publically available water level data; conducting inspections of the site; rock core and drill cuttings; installing a wetland piezometer; and analyzing water level and related hydrogeologic data. The objectives of the investigation were to provide information about the physical characteristics of the ground water system within and around the expansion area, describe the anticipated changes that will occur to that system when the mine is at its maximum extent, evaluate the potential impacts to neighboring residential wells and an adjacent wetland, and evaluate the adequacy of the existing sump to serve the mine as expansion progresses. The following are the primary conclusions derived from the investigation:

- The site hydrology is comprised of a localized, shallow, perched ground water system and a water table aquifer. The perched system is primarily comprised of the wetland southwest of, and adjacent to, the expansion area. The water table aquifer occurs within the fractured limestone bedrock of the Onondaga Fm and extends down into the contact with the underlying Akron Fm of the Bertie Group.

- Regional ground water flow is northward, while local ground water flow is influenced by local ground water recharge and discharge areas. Ground water in the vicinity of the existing quarry flows toward the quarry from all directions.
- A local ground water divide exists within the expansion area. Water east of this divide flows toward the quarry, while water on the opposite side of the divide flows toward the north and west.
- Most of the residential wells in the vicinity of the active mine and the expansion area extend through the Onondaga Fm and into the underlying Bertie Group over a hundred feet below the surface.
- Water level data collected at the site wells and nearby residential wells since 2009 indicate that the seasonal low water table conditions, subsequent to installation of the 2010 monitoring wells, occurred on or about August 23, 2010. The water table generally rises from December through March, then falls throughout the summer.
- Quarry expansion and pump out will have the greatest potential for impacting nearby residential wells during seasonal low water table conditions.
- The seasonal low water table is already at or below the future quarry floor in the northern half of the expansion area; consequently, there will be no further drawdown of the water table beyond what normally occurs during the dry season.
- Residential wells along Honeoye Falls No. 6 Rd north and west of the quarry entrance will not be impacted during seasonal low water table conditions when the potential for impact is the greatest; likewise, the Campier well directly west of the expansion area will not be impacted at that time. These residences are all on the opposite side of the ground water divide that runs through the expansion area.
- Seepage faces are predicted for the quarry walls on the southern portion of the expansion area during the seasonal low water table conditions; consequently, there will be some drawdown of the water table south and southwest of the mine during that time. The drawdown impacts in these areas extend outward from the mine less than 700 feet and occur only within Hanson property, where there are no residential wells.
- The wetland to the southwest of the proposed expansion area will experience negligible impact from excavation of the expansion area. The wetland is perched above bedrock and does not receive recharge from the water table aquifer (bedrock) in the expansion area.

The removal of the unconsolidated material within the expansion area will remove approximately 2% of the drainage system that contributes to the stream flow at the wetland outlet. The stream presently is ephemeral and will remain so after quarry expansion.

- The present sump location can continue to serve the quarry throughout the excavation of the expansion area. Seepage and precipitation will flow southward across the quarry floor, form a small pond against the southern wall of the mine until an elevation of approximately 575 ft amsl is reached, after which the water will begin to drain eastward toward the present sump.

REFERENCES

Muller, E.H., and D.H. Cadwell, 1986; Surficial Geologic Map of New York – Finger Lakes Sheet; New York State Museum – Geological Survey.

Natural Resources Conservation Service, Web Soil Surveys for Livingston and Monroe Counties, National Cooperative Soil Survey.

Spectra Environmental Group, Inc., 2000, Sump Deepening Impact Assessment March 9-17, 2000, Pump Test & Long Term Monitoring Report; Unpublished Consulting Report for Hanson Aggregates East, 162 p.

Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\HYDROGEOLOGIC ANALYSIS - HANSON HF EXPANSION AREA.docx

TABLE

TABLE 1

Deepened or Replaced Wells in the Vicinity of Honeoye Falls Quarry

Hanson Aggregates New York, LLC

Alpha Project No. 11110

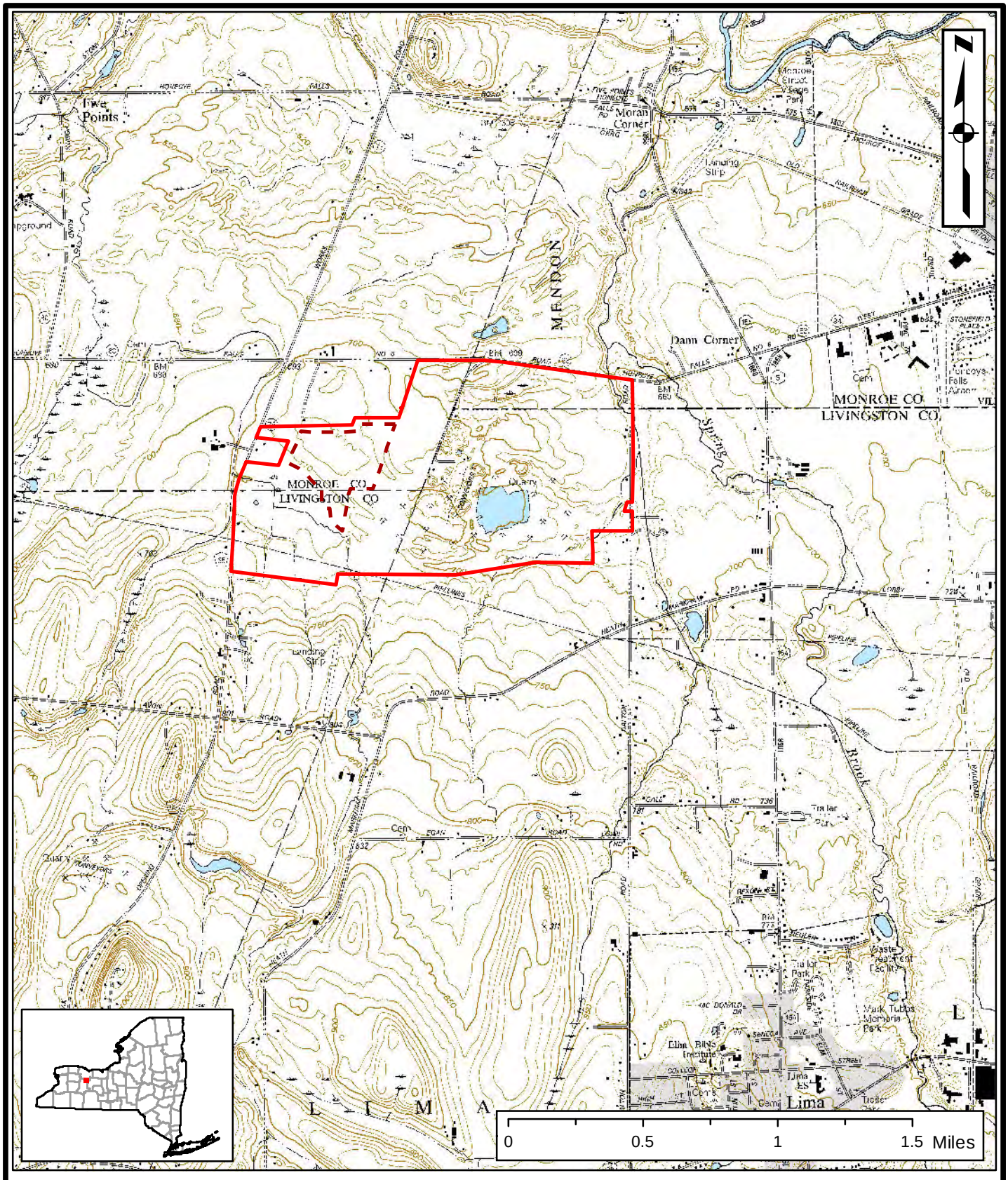
Address	NYSDEC WELL ID	Last Known Resident at Address	Action	Year	Elevation at Grade (approx)	Existing Well		Former Well		Notes
						Total Depth	Bedrock at Well Base	Total Depth	Bedrock at Well Base	
Dalton Rd, near county border	LV798	Koch	New Well	2002	661	150	Bertie	---	---	
1110 Dalton Rd	---	Clark	Replaced well	post-2004	678	113	Onondaga	54	Onondaga	
1149 Dalton Rd	LV743	Travers	Deepened well	2001	708	120	Onondaga	65	Onondaga	
1150 Dalton Rd	LV951	Farron	Replaced well	2005	678	150	Onon/Bertie Contact	61.5	Onondaga	
1168 Dalton Rd	LV874	Kloesz	Replaced well	2003	683	160	Bertie	67.85	Onondaga	Driller noted the Bertie/Onondaga contact was at 140 ft and that "most of the water comes in at 140 ft"
1600 Honeoye Falls No. 6 Rd.	---	Burnell	Deepened well	2009	684	155	Bertie	108	Onondaga (likely)	"encountered good volume of water at 135', continued to 155' to guarantee a good reservoir" - 10/19/2009 email from Tim Nothnagle (Nothnagle Drilling) to M. Lewis (Hanson)
1820 Honeoye Fall No. 6 Rd	MO1741	---	Deepened well	2009	663	180	Bertie	127	Bertie	pond well - on Pluta property
1820 Honeoye Fall No. 6 Rd	MO1742	Mrs. Pluta	Replaced well	2009	702.5	141	Bertie	120	Onondaga	"Broke up limestone" at 120 ft (Driller's Log)
1855 Honeoye Fall No. 6 Rd	MO1756	Knab	Deepened well	2009	721.5	180	Bertie	140	Bertie	Bedrock should be Bertie Fm - personal communication from R. Moravec (driller) to S. Trader (Alpha)
1919 Honeoye Falls No. 6 Rd	---	Rosenbloom	Deepened well	mid 1990s	697	120	Bertie	70	Onondaga	Info. from M. Lewis (Hanson) phone call with Ms. Rosenbloom on 8/18/2009; DOH records
525 Works Rd	MO1740	W. Pluta	Deepened well	2009	674	119	Bertie	89	Onondaga	
625 Works Rd	---	Altamura	Deepened well	2009	690	130	Bertie	115	Onondaga	NYSDEC - personal communication to M. Lewis (Hanson) re: well info obtained by NYSDEC on 9/23/2009
916 Works Rd	---	Campier	Deepened well	post-2003	705	147	Bertie	119	Onondaga	

Intrpretation of bedrock at base of well based on top of Akron elevation contours on Figure 4, with additional information in Notes column

Grade elevations are from driller's log or estimates from topo map

Sources of information include Monroe County Department of Health, Livingston County, NYSDEC Well completion Reports, and personel communication with residents and drillers

FIGURES



LEGEND

- Approximate excavation limit at end of mining (future)
- Approximate Hanson Property Boundary

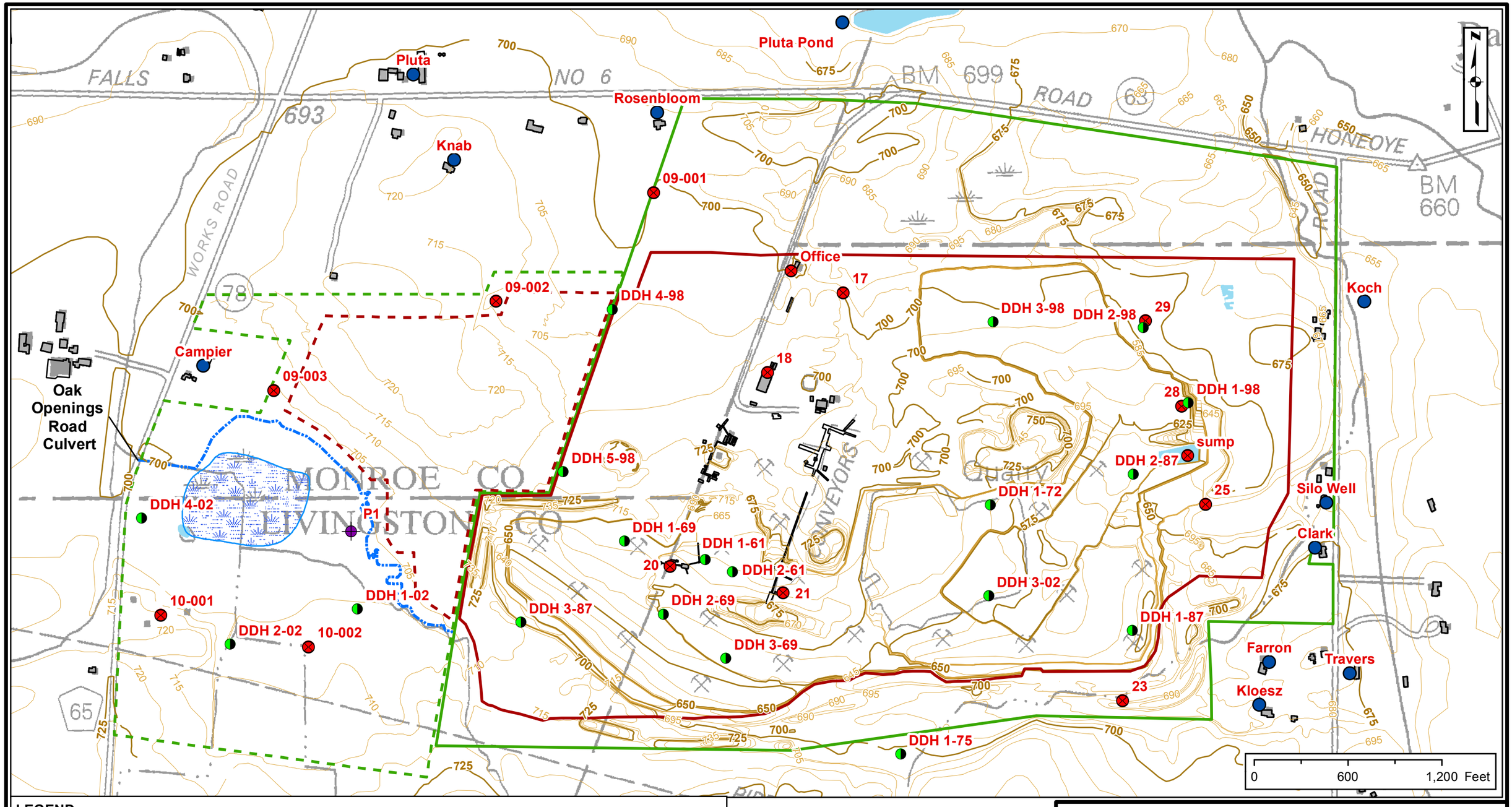
Source:
-NYSDOT 7.5-minute topographic map (Honeoye Falls and Rush quadrangles)
-Contour interval is 10 feet.

ALPHA GEOSCIENCE
Proj. No. 11110

FIGURE 1
Site Location

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC
Livingston and Monroe Counties, NY

Path: Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\GIS\Fig 1 - Site Location Map.mxd
Date Saved: 12/20/2011 3:13:46 PM



LEGEND

- Monitoring Well
- Deep Drill Hole
- Residential Well
- Piezometer
- Life of mine boundary (existing)
- Approximate Hanson Property Boundary
- Current excavation limit (existing)
- Approximate excavation limit at end of mining (future)
- Wetland Delineation
- Building
- Water
- Wet Area

Source: NYSDOT 7.5-minute topographic map (Honeoye Falls and Rush Quadrangles)

Note: -Elevations are shown in feet above mean sea level.
-Contour interval is 5 feet.

ALPHA GEOSCIENCE
Proj. No. 11110

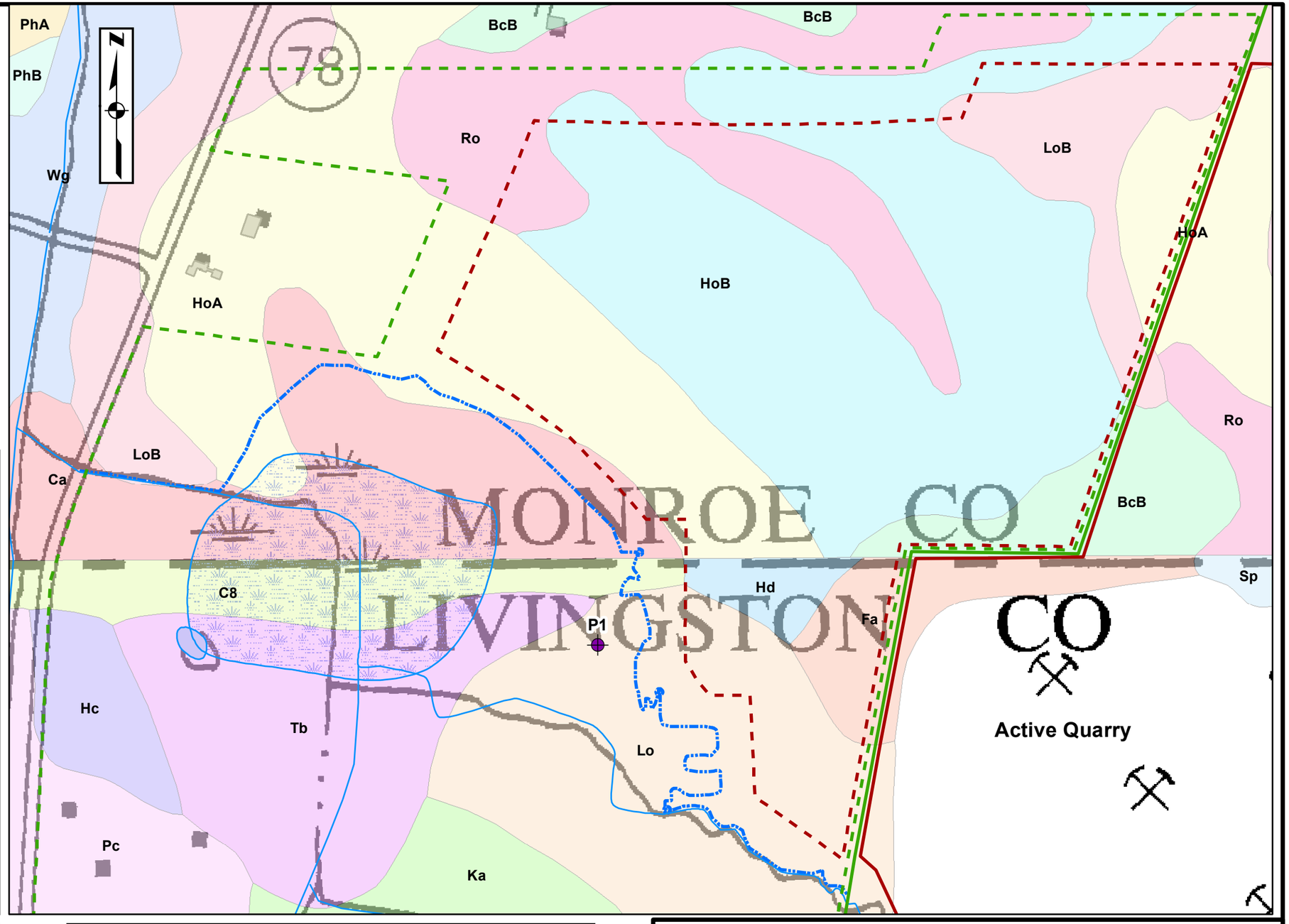
FIGURE 2

Well and Deep Drillhole Locations

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC

Livingston and Monroe Counties, NY

Path: Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\GIS\Fig 2 - Well Locations 11x17.mxd
Date Saved: 4/1/2013 2:56:28 PM



LEGEND

- Piezometer
- STREAM; WATER; WET_AREA
- Wetland Delineation
- Life of mine boundary (existing)
- Approximate Hanson Property Boundary
- Current excavation limit (existing)
- Approximate excavation limit at end of mining (future)

Site Soils

- BcB - Benson channery loam, 0 to 8 percent slopes
- C8 - Colwood silt loam *
- Ca - Canandaigua silt loam *
- Fa - Farmington loam, ledgy, gently sloping
- Hc - Fredon fine sandy loam
- Hd - Honeoye loam, gently sloping
- HoA - Honeoye silt loam, limestone substratum, 0 to 3 percent slopes
- HoB - Honeoye silt loam, limestone substratum, 3 to 8 percent slopes
- Ka - Kendaia silt loam
- Lo - Lyons silt loam *
- LoB - Lima and Cazenovia silt loams, limestone substratum, 0 to 6 percent slopes
- Pc - Palmyra gravelly loam, nearly level
- PhA - Phelps gravelly fine sandy loam, 0 to 3 percent slopes
- PhB - Phelps gravelly fine sandy loam, 3 to 8 percent slopes
- Ro - Rock land
- Sp - Steep ledgy land
- Tb - Toledo silt loam *
- Wg - Wayland silt loam

* Denotes poorly to very poorly drained soils derived from glaciolacustrine deposits that can be clayey or have clayey horizons

Source:
- Livingston and Monroe County SSURGO Data,
Natural Resources Conservation Service, USDA.

ALPHA GEOSCIENCE
Proj. No. 11110

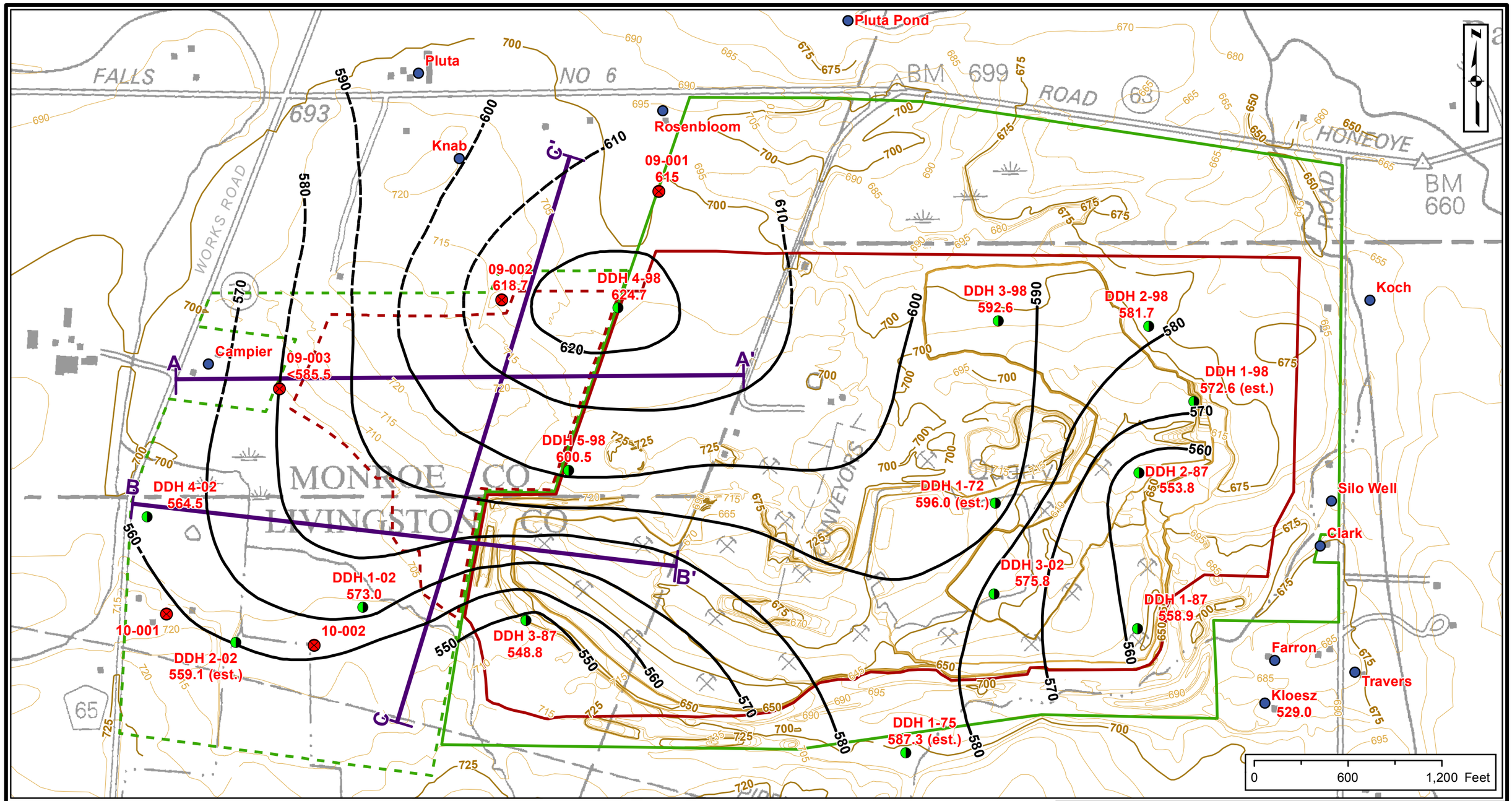
FIGURE 3

Expansion Area Soils

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC

Livingston and Monroe Counties, NY

Path: Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\GIS\Fig 3 - Soils_11X17.mxd
Date Saved: 4/1/2013 2:57:32 PM



Notes: estimated (est.) elevations interpolated using data from surrounding core holes.

LEGEND

- Monitoring Well
- Residential Well
- Deep Drill Hole
- Top of Bertie Contour (feet msl)

Topographic Contours (feet amsl)

- 25 feet interval
- 5 feet interval

- Life of mine boundary (existing)
- Approximate Hanson Property Boundary
- Current excavation limit (existing)
- Approximate excavation limit at end of mining (future)

ALPHA GEOSCIENCE
Proj. No. 11110

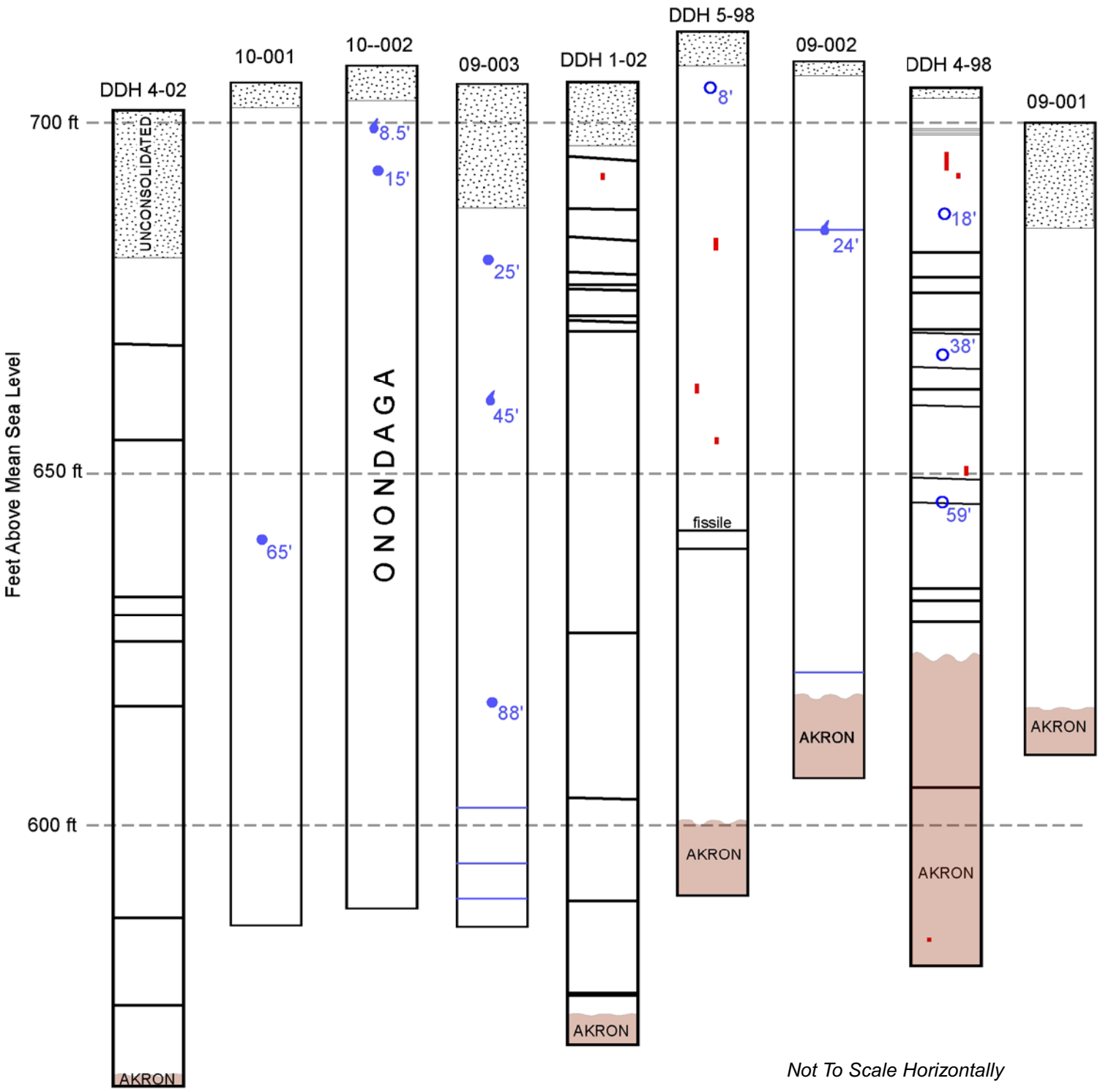
FIGURE 4

Top of Bertie Group (Akron Fm) Elevation

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC

Livingston and Monroe Counties, NY

Path: Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\GIS\Fig 4 - Structure_Top_Bertie_11X17.mxd
Date Saved: 4/1/2013 2:58:48 PM



Not To Scale Horizontally

LEGEND

- Potential water bearing fracture logged in core
- Potential fracture noted during drilling of monitoring wells
- Near vertical fracture logged in core
- 45' Depth to cascading water in well
- 65' Depth where water was encountered during drilling
- 59' Depth where loss of circulation water occurred during coring (fracture)

ALPHA GEOSCIENCE
Proj. No. 11110

FIGURE 5

Potential Water Yielding Features in Expansion Area Wells and Deep Drill Holes

Hanson Aggregates NY, LLC
Livingsoton and Monroe Counties, New York

Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\Fracture sketch 8x11.cvx

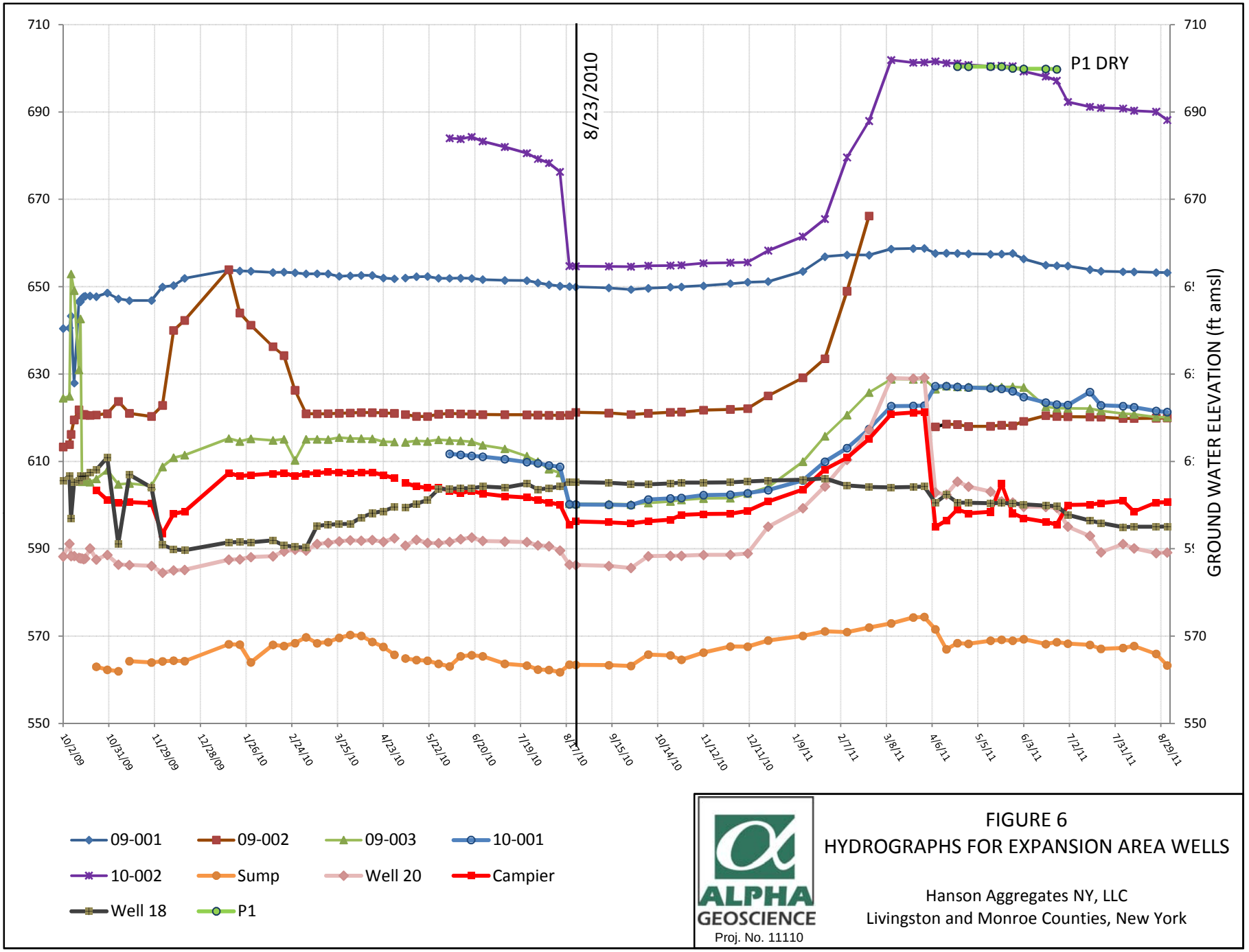
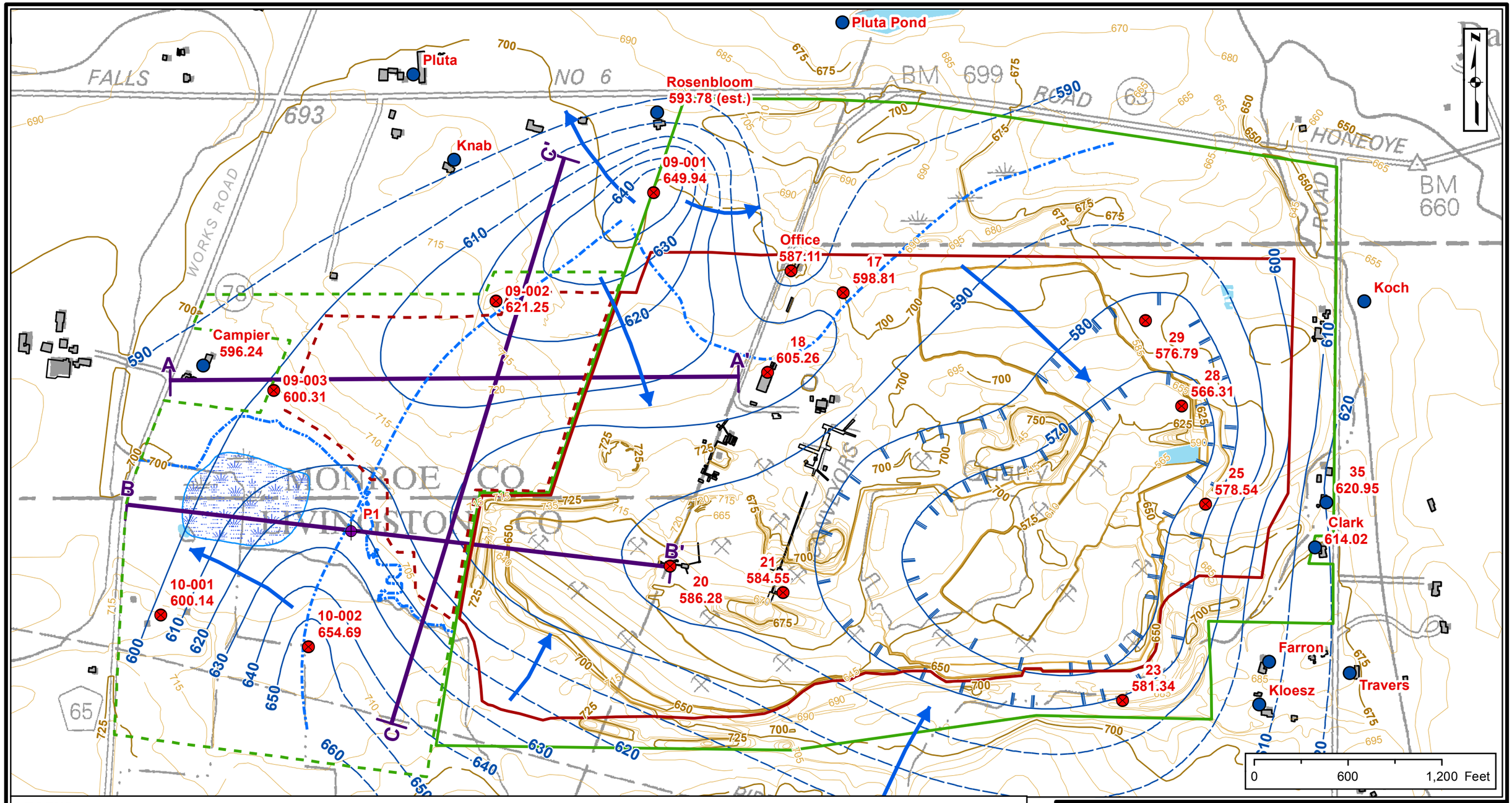


FIGURE 6
HYDROGRAPHS FOR EXPANSION AREA WELLS

Hanson Aggregates NY, LLC
Livingston and Monroe Counties, New York

ALPHA GEOSCIENCE
Proj. No. 11110

Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\Water Levels\Alpha Water Levels.xlsx\Western Wells



LEGEND

- Monitoring Well
- Deep Drill Hole
- Residential Well
- Piezometer
- Life of mine boundary (existing)
- Approximate Hanson Property Boundary
- Current excavation limit (existing)
- Approx. excavation limit at end of mining (future)
- Wetland Delineation
- Water Table Contour (feet msl) [Dashed where inferred]
- Ground Water Divide
- Ground Water Flow Direction
- Building
- Water
- Wet Area

Source: NYSDOT 7.5-minute topographic map (Honeoye Falls and Rush Quadrangles)

Note: -Elevations are shown in feet above mean sea level.
-Contour interval is 5 feet.

ALPHA GEOSCIENCE
Proj. No. 11110

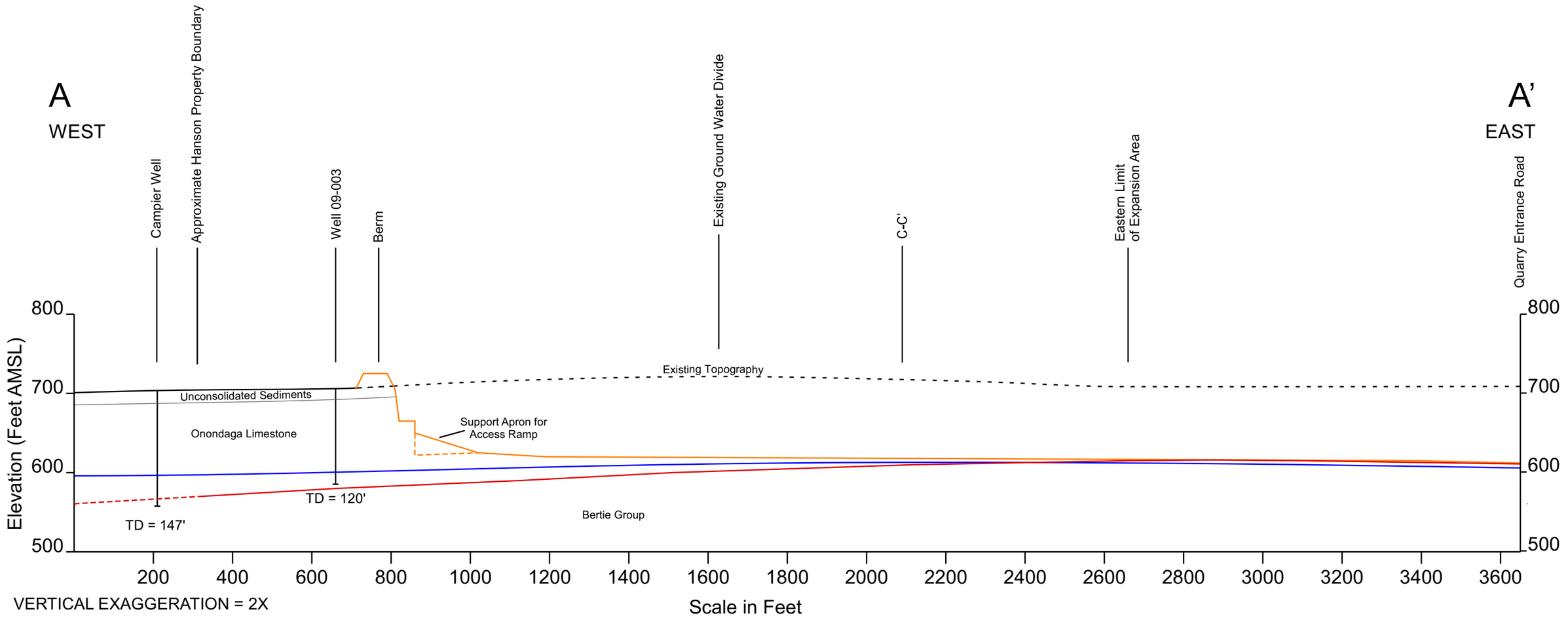
FIGURE 7

Ground Water Elevation Contours August 23, 2010

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC

Livingston and Monroe Counties, NY

Path: Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\GIS\Fig 7 - 2010-08-23_GW_Contours_11X17.mxd
Date Saved: 4/1/2013 3:00:53 PM



LEGEND

- Proposed Quarry Expansion
- Top of Bedrock Surface
- Existing and Future Water Table
- Top of Bertie Group (Akron Fm)

NOTES:

Well locations shown are extrapolated to the cross-section line (refer to Figure 7)
Water Table and Top of Akron surface are based on the contours in Figures 7 and 4, respectively.
Quarry profile based on contours in Figure 12.

11110\Cross Sections\A-A' E-W Cross-Section.cvx

ALPHA GEOSCIENCE
Project #11110

Figure 8
Hydrogeologic Cross-Section A-A'
Full Mine Expansion

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC
Livingston and Monroe Counties, NY

B

WEST

B’

EAST

Oak Openings Rd & Hanson Property Boundary

DDH 4-02

Western Edge of Wetland (undelineated)

Ephemeral Stream

Future Ground Water Divide

Existing Ground Water Divide

PZ-1

Eastern Edge of Wetland (delineated)

Proposed Western Limit of Expansion Area

Berm

C-C’

Proposed Eastern Limit of Expansion Area

Crusher Run Well (#20)

Elevation (Feet AMSL)

800

700

600

500

Unconsolidated Sediments

Onondaga Limestone

Existing Topography

Existing Water Table

Seepage Face

Bertie Group

TD = 147'

TD = 110'

200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400 3600

Scale in Feet

VERTICAL EXAGGERATION = 2X

LEGEND

- Proposed Quarry Expansion
- Top of Bedrock Surface
- Top of Bertie Group (Akron Fm)
- Water Table
- Future Water Table at End of Mining

NOTES:

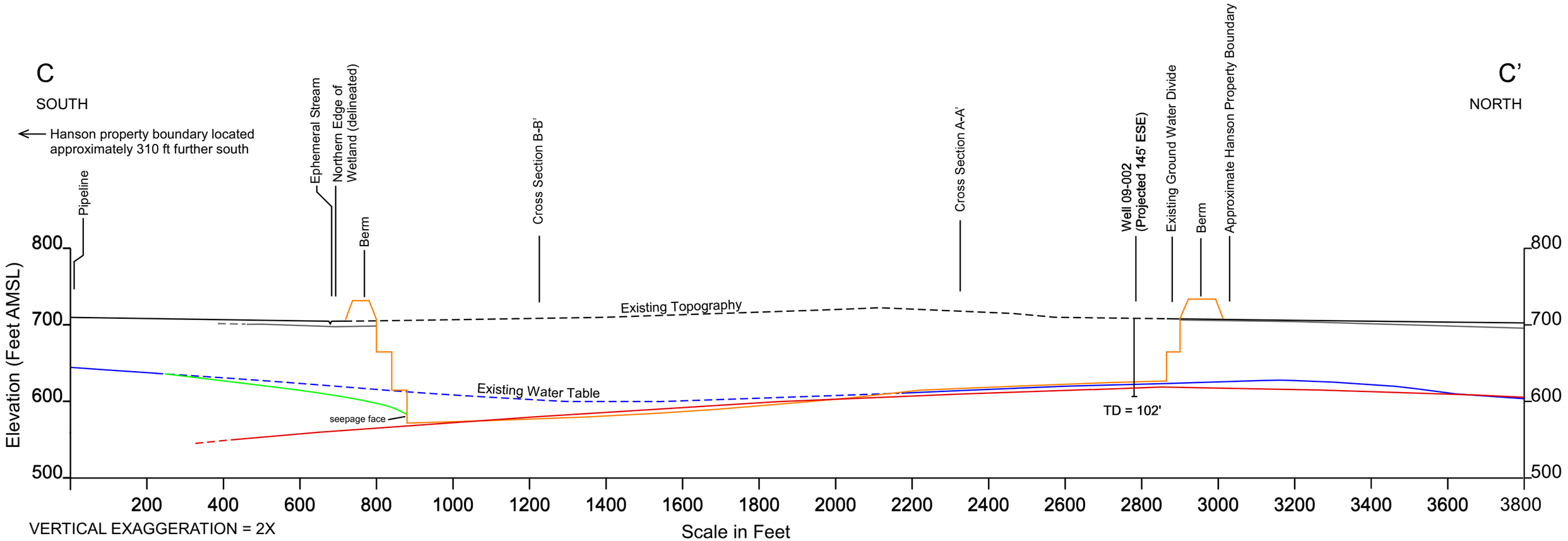
Well and deep drill hole locations locations shown are extrapolated to the cross-section line from Figures 7 & 4, respectively.
Water Table and Top of Akron surfaces shown are based on the contours in Figures 7 and 4, respectively.
Quarry profile based on contours in Figure 12.

11110\Cross Sections\B-B’ E-W Cross-Section.cvx

ALPHA GEOSCIENCE
Project #11110

Figure 9
Hydrogeologic Cross-Section B-B’ Full Mine Expansion

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC
Livingston and Monroe Counties, NY



LEGEND

- Proposed Quarry Expansion
- Top of Bedrock Surface
- Top of Bertie Group (Akron Fm)
- Water Table
- Future Water Table at End of Mining

NOTES:

Well location shown is extrapolated to the cross-section line (refer to Figure 7)
Water Table and Top of Akron surfaces shown are based on the contours in Figures 7 and 4, respectively.
Quarry profile based on contours in Figure 12.

11110\Cross Sections\C-C' E-W Cross-Section.cvx

ALPHA GEOSCIENCE
Project #11110

Figure 10
Hydrogeologic Cross-Section C-C'
Full Mine Expansion

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC
Livingston and Monroe Counties, NY

HONEOYE FALLS ROAD No6.

75'± From Centerline of Road

90'

100' Wide

OAK OPENINGS ROAD

DALTON ROAD

TOWN OF RUSH
TOWN OF MENDON

Lands of
Hanson Aggregates N.Y. LLC
(439± ac.)

Lands of
Hanson Aggregates NY LLC
(439± ac.)

Lands N/F of
L. LeFrois (Crawford)

TOWN OF MENDON
MONROE CO. (APPROXIMATE)
LIVINGSTON CO. (APPROXIMATE)

TOWN OF RUSH
MONROE CO. (APPROXIMATE)
LIVINGSTON CO. (APPROXIMATE)
TOWN OF AVON

Lands of A. Yorks
Under Lease to
Hanson Aggregates NY LLC
(155± ac.)

Lands of A. Yorks
Under Lease to
Hanson Aggregates N.Y. LLC
(155± ac.)

625
620
660
575
565

500 0 500 1000 1500
Scale in Feet

Map provided by Hanson Aggregates NY, LLC

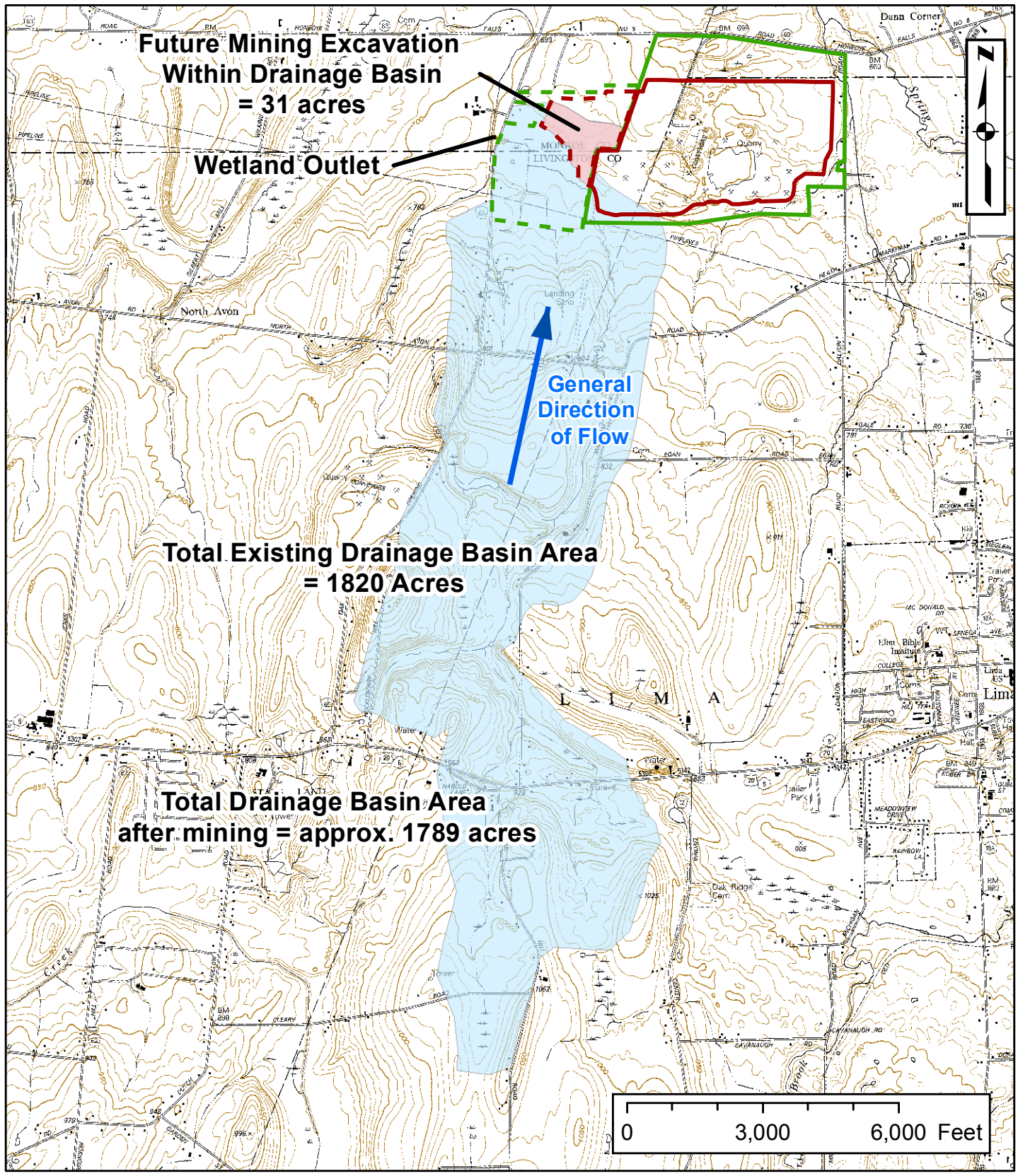
FIGURE 11

Mine Reclamation Plan

Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC
Livingston and Monroe Counties, New York

ALPHA GEOSCIENCE
Proj. No. 11110

Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\Maps\Reclamation Plan.cvx



LEGEND

- Drainage Basin
- Future Mine Excavation
- Life of Mine (existing)
- Approximate Hanson Property Bou
- Excavation Limit (existing)
- Excavation Limit (future)

ALPHA GEOSCIENCE
Proj. No. 11110

FIGURE 12
Wetland Outlet Drainage Basin
and Mine Expansion Area
Honeoye Falls Quarry Expansion
Hanson Aggregates NY, LLC
Livingston and Monroe Counties, NY

Path: Z:\projects\2011\11100-11120\11110 - Hanson Honeoye Expansion\GIS\Fig 12 - Drainage Basin Analysis.mxd
Date Saved: 12/20/2011 3:20:04 PM

PLATE

PLATE 1
GROUND WATER LEVELS
2009-2011
Hanson Aggregates New York LLC
Alpha Project No. 11110

	Well #17 (Wash Plant #2 Well - not in use)		Well #18 (Quarry Garage Well - not in use)		Well #20 (Crusher Run Plant Well - used for dust supression)		Office Well (water supply)		Well #21 (Primary Crusher Well - used for dust supression)		Well #23		Well #24	
Measuring Point Elev. (ft)	688.07		712.36		656.5		700.27		659.7		678.4		677.9	
Well Depth (ft. below grade)	125		120		110		111		110		131		145	
DATE	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation
9/2/2011	93.57	594.50	117.27	595.09	67.36	589.14	109.33	590.94	44.39	615.31	86.22	592.18	87.47	590.43
8/26/2011	93.11	594.96	117.31	595.05	67.49	589.01	110.41	589.86	44.55	615.15	85.57	592.83	86.32	591.58
8/12/2011	92.46	595.61	117.33	595.03	66.39	590.11	110.67	589.60	44.33	615.37	85.21	593.19	85.52	592.38
8/5/2011	92.41	595.66	117.4	594.96	65.41	591.09	110.55	589.72	44.86	614.84	84.17	594.23	85.41	592.49
7/22/2011	92.34	595.73	116.47	595.89	67.31	589.19	109.22	591.05	44.13	615.57	83.77	594.63	84.13	593.77
7/15/2011	89.67	598.40	115.91	596.45	63.55	592.95	107.21	593.06	43.71	615.99	82.56	595.84	83.54	594.36
7/1/2011	88.43	599.64	114.58	597.78	61.44	595.06	104.77	595.50	42.37	617.33	80.44	597.96	82.67	595.23
6/24/2011	87.24	600.83	112.61	599.75	57.11	599.39	101.51	598.76	39.41	620.29	79.13	599.27	81.54	596.36
6/17/2011	86.95	601.12	112.47	599.89	56.91	599.59	100.41	599.86	38.98	620.72	78.86	599.54	80.81	597.09
6/3/2011	86.74	601.33	112.21	600.15	56.88	599.62	99.94	600.33	38.71	620.99	78.22	600.18	79.87	598.03
5/27/2011	86.57	601.50	111.96	600.40	55.91	600.59	98.51	601.76	38.44	621.26	77.85	600.55	79.54	598.36
5/20/2011	86.47	601.60	111.9	600.46	55.66	600.84	98.41	601.86	38.27	621.43	77.74	600.66	79.22	598.68
5/13/2011	86.61	601.46	111.91	600.45	53.41	603.09	97.91	602.36	38.11	621.59	77.88	600.52	79.54	598.36
4/29/2011	86.57	601.50	111.84	600.52	52.26	604.24	97.91	602.36	37.51	622.19	77.92	600.48	79.22	598.68
4/22/2011	86.54	601.53	111.79	600.57	51.11	605.39	97.51	602.76	37.33	622.37	77.54	600.86	79.41	598.49
4/15/2011	86.21	601.86	109.96	602.40	54.11	602.39	97.46	602.81	37.49	622.21	78.91	599.49	80.57	597.33
4/8/2011	86.26	601.81	111.84	600.52	53.61	602.89	98.26	602.01	37.51	622.19	78.93	599.47	80.62	597.28
4/1/2011	82.77	605.30	108.11	604.25	27.33	629.17	95.13	605.14	31.44	628.26	70.44	607.96	77.37	600.53
3/25/2011	82.94	605.13	108.21	604.15	27.54	628.96	95.23	605.04	31.54	628.16	70.88	607.52	77.41	600.49
3/11/2011	82.91	605.16	108.31	604.05	27.41	629.09	95.17	605.10	31.47	628.23	70.92	607.48	77.82	600.08
2/25/2011	84.21	603.86	108.22	604.14	39.26	617.24	96.44	603.83	35.33	624.37	75.41	602.99	78.27	599.63
2/11/2011	85.51	602.56	107.87	604.49	46.12	610.38	102.13	598.14	41.11	618.59	80.37	598.03	84.41	593.49
1/28/2011	86.11	601.96	106.27	606.09	52.22	604.28	108.41	591.86	55.79	603.91	84.51	593.89	89.72	588.18
1/14/2011	88.23	599.84	106.55	605.81	57.21	599.29	109.57	590.70	66.43	593.27	91.11	587.29	93.66	584.24
12/23/2010	89.11	598.96	106.77	605.59	61.44	595.06	110.44	589.83	69.77	589.93	93.22	585.18	94.14	583.76
12/10/2010	89.21	598.86	106.97	605.39	67.57	588.93	112.33	587.94	74.33	585.37	95.92	582.48	95.77	582.13
11/29/2010	89.36	598.71	107.14	605.22	67.88	588.62	112.55	587.72	74.55	585.15	96.11	582.29	95.94	581.96
11/12/2010	89.41	598.66	107.19	605.17	67.91	588.59	112.59	587.68	74.61	585.09	96.21	582.19	96.13	581.77
10/29/2010	89.86	598.21	107.21	605.15	68.10	588.40	112.67	587.60	74.97	584.73	96.57	581.83	96.17	581.73
10/22/2010	90.11	597.96	107.43	604.93	68.11	588.39	112.81	587.46	75.11	584.59	96.85	581.55	96.27	581.63
10/8/2010	90.21	597.86	107.59	604.77	68.21	588.29	112.88	587.39	75.22	584.48	96.87	581.53	96.41	581.49
9/27/2010	89.67	598.40	107.55	604.81	70.89	585.61	113.60	586.67	75.49	584.21	97.22	581.18	96.81	581.09
9/13/2010	89.51	598.56	107.24	605.12	70.43	586.07	113.31	586.96	75.23	584.47	97.12	581.28	96.40	581.50
8/23/2010	89.26	598.81	107.10	605.26	70.22	586.28	113.16	587.11	75.15	584.55	97.06	581.34	96.20	581.70
8/19/2010	89.13	598.94	107.05	605.31	70.11	586.39	113.09	587.18	75.08	584.62	97.03	581.37	96.10	581.80
8/13/2010	89.11	598.96	108.13	604.23	66.89	589.61	109.80	590.47	69.43	590.27	86.28	592.12	93.17	584.73
8/6/2010	90.41	597.66	108.54	603.82	65.90	590.60	108.44	591.83	68.77	590.93	87.08	591.32	92.78	585.12
7/30/2010	91.22	596.85	108.79	603.57	65.72	590.78	107.91	592.36	68.16	591.54	87.77	590.63	92.55	585.35
7/23/2010	94.88	593.19	107.44	604.92	64.97	591.53	107.86	592.41	67.56	592.14	88.36	590.04	92.23	585.67
7/9/2010	95.11	592.96	108.37	603.99	64.85	591.65	107.34	592.93	66.98	592.72	88.65	589.75	92.08	585.82
6/25/2010	94.27	593.80	108.11	604.25	64.71	591.79	107.22	593.05	66.46	593.24	88.95	589.45	91.81	586.09
6/18/2010	99.31	588.76	108.52	603.84	63.92	592.58	106.91	593.36	66.77	592.93	89.11	589.29	91.22	586.68
6/11/2010	103.72	584.35	108.47	603.89	64.32	592.18	106.22	594.05	66.83	592.87	89.27	589.13	91.88	586.02
6/4/2010	104.11	583.96	108.69	603.67	64.91	591.59	105.62	594.65	66.51	593.19	89.31	589.09	92.23	585.67
5/28/2010	106.84	581.23	108.71	603.65	65.21	591.29	104.85	595.42	66.71	592.99	89.88	588.52	92.18	585.72
5/21/2010	104.71	583.36	111.22	601.14	65.17	591.33	104.88	595.39	66.11	593.59	88.77	589.63	91.84	586.06
5/14/2010	99.77	588.30	112.11	600.25	64.44	592.06	104.91	595.36	67.78	591.92	88.25	590.15	91.88	586.02
5/7/2010	96.43	591.64	112.85	599.51	65.77	590.73	105.22	595.05	67.71	591.99	87.44	590.96	91.54	586.36
4/30/2010	95.41	592.66	112.81	599.55	64.11	592.39	104.41	595.86	66.54	593.16	87.21	591.19	90.77	587.13
4/23/2010	92.86	595.21	113.77	598.59	64.88	591.62	105.66	594.61	66.41	593.29	85.77	592.63	90.41	587.49
4/16/2010	91.45	596.62	114.22	598.14	64.51	591.99	106.89	593.38	67.57	592.13	84.61	593.79	89.71	588.19
4/9/2010	87.91	600.16	115.21	597.15	64.67	591.83	107.42	592.85	67.66	592.04	84.65	593.75	89.73	588.17
4/2/2010	88.11	599.96	116.68	595.68	64.55	591.95	110.69	589.58	67.74	591.96	84.61	593.79	89.77	588.13
3/26/2010	88.17	599.90	116.71	595.65	64.78	591.72	110.73	589.54	67.91	591.79	84.58	593.82	90.11	587.79
3/19/2010	88.23	599.84	116.84	595.52	65.13	591.37	110.71	589.56	68.12	591.58	84.62	593.78	90.91	586.99
3/12/2010	88.11	599.96	117.11	595.25	65.41	591.09	110.91	589.36	68.33	591.37	84.71	593.69	91.77	586.13
3/5/2010	89.60	598.47	122.10	590.26	66.90	589.60	111.12	589.15	69.12	590.58	85.82	592.58	92.55	585.35
2/26/2010	91.44	596.63	121.94	590.42	66.72	589.78	111.94	588.33	69.42	590.28	86.91	591.49	92.71	585.19
2/19/2010	97.11	590.96	121.57	590.79	67.11	589.39	111.91	588.36	70.41	589.29	89.11	589.29	92.94	584.96
2/12/2010	98.87	589.20	120.42	591.94	68.21	588.29	112.77	587.50	71.13	588.57	91.18	587.22	93.55	584.35
1/29/2010	99.43	588.64	120.91	591.45	68.42	588.08	112.81	587.46	71.18	588.52	91.23	587.17	93.66	584.24
1/22/2010	101.41	586.66	120.85	591.51	68.91	587.59	112.86	587.41	71.23	588.47	91.81	586.59	93.79	584.11
1/15/2010	101.80	586.27	120.90	591.46	69.00	587.50	112.90	587.37	71.41	588.29	91.88	586.52	93.85	584.05
12/18/2009	103.47	584.60	122.72	589.64	71.33	585.17	114.21	586.06	72.69	587.01	95.37	583.03	96.11	581.79
12/11/2009	103.81	584.26	122.51	589.85	71.46	585.04	114.81	585.46	73.21	586.49	96.41	581.99	96.77	581.13
12/4/2009	103.60	584.47	121.45	590.91	72.00	584.50	115.83	584.44	73.57	586.13	97.45	580.95	97.11	580.79
11/27/2009	107.11	580.96	108.33	604.03	70.42	586.08	117.21	583.06	67.52	592.18	97.19	581.21	97.81	580.09
11/13/2009	103.21	584.86	105.41	606.95	70.23	586.27	113.96	586.31	67.48	592.22	97.22	581.18	97.34	580.56
11/6/2009	104.53	583.54	121.22	591.14	70.11	586.39	113.00	587.27	67.43	592.27	97.17	581.23	96.84	581.06
10/30/2009	92.11	595.96	101.48	610.88	67.91	588.59	101.96	598.31	66.52	593.18	97.29	581.11	97.72	580.18
10/23/2009	92.43	595.64	104.31	608.05	68.96	587.54	103.10	597.17	68.37	591.33	97.43	580.97	97.55	580.35
10/19/2009	93.41	594.66	104.92	607.44	66.43	590.07	103.91	596.36	NM	NM	NM	NM	NM	NM
10/16/2009	97.40	590.67	105.65	606.71	68.72	587.78	104.35	595.92	69.96	589.74	95.50	582.90	95.10	582.80
10/15/2009	92.11	595.96	105.72	606.64	68.88	587.62	104.45	595.82	NM	NM	NM	NM	NM	NM
10/14/2009	92.37	595.70	105.80	606.56	68.72	587.78	104.31	595.96	NM	NM	NM	NM	NM	NM
10/13/2009	97.37	590.70	105.67	606.69	68.69	587.81	101.00	599.27	NM	NM	NM	NM	NM	NM
10/12/2009	94.23	593.84	106.71	605.65	68.58	587.92	NM		NM	NM	NM	NM	NM	NM
10/9/2009	94.10	593.97	107.10	605.26	68.18	588.32	NM		72.41	587.29	94.96	583.44	94.62	583.28
10/7/2009	69.71	618.36	115.37	596.99	68.19	588.31	NM		NM	NM	NM	NM	NM	NM
10/6/2009	97.93	590.14	105.67	606.69	65.34	591.16	NM		68.11	591.59	NM	NM	NM	NM
10/2/2009	98.41	589.66	106.71	605.65	68.28	588.22	NM		69.41	590.29	94.87	583.53	94.66	583.24
9/23/2009	92.38	595.69	100+	NM	68.49	588.01	NM		70.96	588.74	94.58	583.82	94.38	583.52
9/18/2009	100+	NM	100+	NM	67.71	588.79	NM		67.88	591.82	94.28	584.12	94.11	583.79
8/27/2009	NM	NM	100+	NM	67.37	589.13	NM		67.58	592.12	93.54	584.86	93.52	584.38
8/20/2009	71.44	616.63	92.51	619.85	48.51	607.99	NM		47.77	611.93	87.82	590.58	88.71	589.19

	Well #25		Well #28		Well # 29		Well 09-001		Well 09-002		Well 09-003		Campier Well (916 Works Rd)	
Measuring Point Elev. (ft)	662.7		578.4		670.0		702.2		710.4		707.4		705.4	
Well Depth (ft. below grade)	105		30		100.0		90.0		102.0		120.0		147.0	
DATE	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation
9/2/2011	78.23	584.47	9.33	569.07	86.94	583.06	48.93	653.22	90.47	619.95	87.27	620.09	104.72	600.69
8/26/2011	78.19	584.51	9.78	568.62	87.17	582.83	48.89	653.26	90.52	619.90	87.21	620.15	104.84	600.57
8/12/2011	78.14	584.56	9.41	568.99	86.77	583.23	48.74	653.41	90.59	619.83	86.55	620.81	106.91	598.50
8/5/2011	77.21	585.49	8.79	569.61	86.79	583.21	48.72	653.43	90.57	619.85	86.41	620.95	104.41	601.00
7/22/2011	77.32	585.38	9.33	569.07	86.57	583.43	48.61	653.54	90.28	620.14	85.77	621.59	104.98	600.43
7/15/2011	76.94	585.76	9.77	568.63	86.21	583.79	48.24	653.91	90.24	620.18	85.24	622.12	105.27	600.14
7/1/2011	76.91	585.79	9.51	568.89	85.82	584.18	47.39	654.76	90.17	620.25	85.22	622.14	105.41	600.00
6/24/2011	76.17	586.53	9.21	569.19	85.77	584.23	47.33	654.82	90.14	620.28	85.17	622.19	109.88	595.53
6/17/2011	75.21	587.49	8.44	569.96	85.29	584.71	47.21	654.94	89.92	620.50	84.85	622.51	109.27	596.14
6/3/2011	74.93	587.77	8.41	569.99	85.27	584.73	45.79	656.36	91.23	619.19	80.41	626.95	108.41	597.00
5/27/2011	74.71	587.99	8.34	570.06	84.66	585.34	44.54	657.61	92.24	618.18	80.27	627.09	107.27	598.14
5/20/2011	74.11	588.59	7.88	570.52	84.51	585.49	44.68	657.47	92.11	618.31	80.31	627.05	100.54	604.87
5/13/2011	73.92	588.78	7.91	570.49	84.8	585.20	44.71	657.44	92.37	618.05	80.26	627.10	106.97	598.44
4/29/2011	73.77	588.93	8.72	569.68	83.56	586.44	44.62	657.53	92.41	618.01	80.31	627.05	107.32	598.09
4/22/2011	73.81	588.89	5.86	572.54	83.97	586.03	44.51	657.64	91.97	618.45	80.27	627.09	106.41	599.00
4/15/2011	74.51	588.19	5.11	573.29	83.23	586.77	44.47	657.68	91.88	618.54	80.11	627.25	108.97	596.44
4/8/2011	74.54	588.16	4.65	573.75	83.31	586.69	44.52	657.63	92.50	617.92	80.80	626.56	110.41	595.00
4/1/2011	72.68	590.02	2.24	576.16	76.31	593.69	43.37	658.78	26.27	False readings due to cascading	78.51	628.85	84.17	621.24
3/25/2011	72.88	589.82	2.11	576.29	76.37	593.63	43.41	658.74	26.33		78.57	628.79	84.21	621.20
3/11/2011	72.93	589.77	2.41	575.99	76.43	593.57	43.51	658.64	26.11		78.54	628.82	84.57	620.84
2/25/2011	75.27	587.43	4.73	573.67	77.23	592.77	44.91	657.24	44.21	666.21	81.58	625.78	90.23	615.18
2/11/2011	78.91	583.79	5.96	572.44	78.41	591.59	44.86	657.29	61.44	648.98	86.73	620.63	94.56	610.85
1/28/2011	80.44	582.26	7.41	570.99	81.17	588.83	45.27	656.88	76.91	633.51	91.58	615.78	97.23	608.18
1/14/2011	82.45	580.25	7.91	570.49	88.23	581.77	48.63	653.52	81.27	629.15	97.41	609.95	101.85	603.56
12/23/2010	83.14	579.56	10.88	567.52	91.77	578.23	50.97	651.18	85.41	625.01	103.27	604.09	104.61	600.80
12/10/2010	83.44	579.26	12.33	566.07	92.39	577.61	51.12	651.03	88.33	622.09	104.73	602.63	106.77	598.64
11/29/2010	83.91	578.79	12.42	565.98	92.44	577.56	51.44	650.71	88.51	621.91	105.77	601.59	107.39	598.02
11/12/2010	84.16	578.54	11.91	566.49	92.88	577.12	51.96	650.19	88.67	621.75	105.84	601.52	107.44	597.97
10/29/2010	84.27	578.43	12.11	566.29	93.13	576.87	52.19	649.96	89.11	621.31	106.17	601.19	107.67	597.74
10/22/2010	84.43	578.27	12.36	566.04	93.27	576.73	52.24	649.91	89.17	621.25	106.53	600.83	108.77	596.64
10/8/2010	84.51	578.19	12.41	565.99	93.41	576.59	52.51	649.64	89.41	621.01	106.88	600.48	109.11	596.30
9/27/2010	84.61	578.09	12.35	566.05	93.88	576.12	52.80	649.35	89.67	620.75	107.20	600.16	109.60	595.81
9/13/2010	84.31	578.39	12.18	566.22	93.43	576.57	52.42	649.73	89.34	621.08	107.10	600.26	109.34	596.07
8/23/2010	84.16	578.54	12.09	566.31	93.21	576.79	52.21	649.94	89.17	621.25	107.05	600.31	109.17	596.24
8/19/2010	84.09	578.61	12.03	566.37	93.10	576.90	52.11	650.04	89.80	620.62	107.00	600.36	109.80	595.61
8/13/2010	82.96	579.74	14.59	563.81	91.77	578.23	52.00	650.15	89.90	620.52	100.00	607.36	105.30	600.11
8/6/2010	82.85	579.85	14.21	564.19	90.11	579.89	51.69	650.46	89.85	620.57	99.12	608.24	104.81	600.60
7/30/2010	82.71	579.99	13.73	564.67	87.49	582.51	51.25	650.90	89.81	620.61	97.41	609.95	104.29	601.12
7/23/2010	82.61	580.09	13.11	565.29	86.48	583.52	50.74	651.41	89.75	620.67	96.15	611.21	103.69	601.72
7/9/2010	82.53	580.17	12.81	565.59	84.13	585.87	50.69	651.46	89.71	620.71	94.47	612.89	103.37	602.04
6/25/2010	82.23	580.47	11.73	566.67	83.13	586.87	50.51	651.64	89.69	620.73	93.65	613.71	102.78	602.63
6/18/2010	82.12	580.58	10.41	567.99	82.12	587.88	50.24	651.91	89.60	620.82	92.86	614.50	102.15	603.26
6/11/2010	82.41	580.29	10.98	567.42	85.41	584.59	50.19	651.96	89.52	620.90	92.64	614.72	102.68	602.73
6/4/2010	82.55	580.15	11.53	566.87	86.12	583.88	50.23	651.92	89.44	620.98	92.57	614.79	102.13	603.28
5/28/2010	82.68	580.02	11.71	566.69	87.81	582.19	50.21	651.94	89.61	620.81	92.41	614.95	101.37	604.04
5/21/2010	82.55	580.15	10.86	567.54	87.37	582.63	49.81	652.34	90.13	620.29	92.77	614.59	101.44	603.97
5/14/2010	82.71	579.99	10.54	567.86	87.17	582.83	49.86	652.29	90.11	620.31	92.65	614.71	101.17	604.24
5/7/2010	82.44	580.26	9.79	568.61	87.23	582.77	50.14	652.01	89.67	620.75	92.97	614.39	100.37	605.04
4/30/2010	82.57	580.13	8.44	569.96	88.77	581.23	50.33	651.82	89.41	621.01	92.91	614.45	99.23	606.18
4/23/2010	82.71	579.99	7.19	571.21	88.79	581.21	50.16	651.99	89.33	621.09	92.86	614.50	98.55	606.86
4/16/2010	83.17	579.53	6.77	571.63	88.81	581.19	49.57	652.58	89.24	621.18	92.17	615.19	97.89	607.52
4/9/2010	83.11	579.59	7.44	570.96	89.55	580.45	49.55	652.60	89.22	621.20	92.14	615.22	97.93	607.48
4/2/2010	83.79	578.91	7.98	570.42	89.79	580.21	49.64	652.51	89.33	621.09	92.11	615.25	98.13	607.28
3/26/2010	84.12	578.58	8.14	570.26	90.61	579.39	49.77	652.38	89.41	621.01	91.89	615.47	97.91	607.50
3/19/2010	84.81	577.89	8.21	570.19	90.77	579.23	49.21	652.94	89.47	620.95	92.33	615.03	97.84	607.57
3/12/2010	84.85	577.85	8.11	570.29	91.21	578.79	49.17	652.98	89.52	620.90	92.27	615.09	98.11	607.30
3/5/2010	85.82	576.88	8.15	570.25	91.45	578.55	49.20	652.95	89.50	620.92	92.30	615.06	98.20	607.21
2/26/2010	84.36	578.34	8.54	569.86	90.92	579.08	48.95	653.20	84.11	626.31	97.11	610.25	98.76	606.65
2/19/2010	83.77	578.93	8.77	569.63	90.13	579.87	48.81	653.34	76.18	634.24	92.27	615.09	98.11	607.30
2/12/2010	83.55	579.15	8.99	569.41	89.77	580.23	48.88	653.27	74.13	636.29	92.54	614.82	98.21	607.20
1/29/2010	82.63	580.07	9.12	569.28	89.23	580.77	48.61	653.54	69.21	641.21	92.17	615.19	98.54	606.87
1/22/2010	82.77	579.93	9.15	569.25	88.71	581.29	48.54	653.61	66.41	644.01	92.77	614.59	98.77	606.64
1/15/2010	81.61	581.09	9.13	569.27	88.49	581.51	48.35	653.80	56.50	653.92	92.11	615.25	98.11	607.30
12/18/2009	81.94	580.76	10.22	568.18	93.23	576.77	50.23	651.92	68.12	642.30	95.91	611.45	106.92	598.49
12/11/2009	82.44	580.26	10.91	567.49	95.57	574.43	51.88	650.27	70.41	640.01	96.51	610.85	107.41	598.00
12/4/2009	83.68	579.02	11.81	566.59	98.41	571.59	52.20	649.95	87.60	622.82	98.60	608.76	112.00	593.41
11/27/2009	85.33	577.37	10.55	567.85	97.53	572.47	55.31	646.84	90.11	620.31	102.91	604.45	104.96	600.45
11/13/2009	84.91	577.79	10.41	567.99	97.21	572.79	55.33	646.82	89.41	621.01	102.41	604.95	104.71	600.70
11/6/2009	84.83	577.87	11.96	566.44	96.57	573.43	54.92	647.23	86.68	623.74	102.61	604.75	104.81	600.60
10/30/2009	86.21	576.49	12.11	566.29	97.11	572.89	53.58	648.57	89.49	620.93	99.38	607.98	104.21	601.20
10/23/2009	86.71	575.99	11.23	567.17	96.41	573.59	54.42	647.73	89.78	620.64	101.36	606.00	101.96	603.45
10/19/2009	NM	NM	NM	NM	NM	NM	54.26	647.89	89.89	620.53	102.11	605.25		
10/16/2009	85.02	577.68	10.85	567.55	93.30	576.70	54.31	647.84	89.80	620.62	101.58	605.78		
10/15/2009	NM	NM	NM	NM	NM	NM	54.41	647.74	89.63	620.79	101.92	605.44		
10/14/2009	NM	NM	NM	NM	NM	NM	54.79	647.36	89.69	620.73	102.00	605.36		
10/13/2009	NM	NM	NM	NM	NM	NM	55.57	646.58	89.73	620.69	64.71	642.65		
10/12/2009	NM	NM	NM	NM	NM	NM	55.57	646.58	88.61	621.81	76.41	630.95		
10/9/2009	84.13	578.57	9.62	568.78	93.40	576.60	74.21	627.94	90.91	619.51	58.24	649.12		
10/7/2009	NM	NM	NM	NM	NM	NM	58.86	643.29	94.22	616.20	54.44	652.92		
10/6/2009	NM	NM	NM	NM	NM	NM	61.58	640.57	96.56	613.86	82.44	624.92		
10/2/2009	84.22	578.48	12.21	566.19	94.72	575.28	61.71	640.44	97.11	613.31	82.88	624.48		
9/23/2009	85.56	577.14	11.28	567.12	93.17	576.83								
9/18/2009	85.57	577.13	12.77	565.63	93.41	576.59								
8/27/2009	85.16	577.54	12.85	565.55	93.17	576.83								
8/20/2009	74.22	588.48	11.80	566.60	76.51	593.49								

	Clark Residence Well (1110 Dalton Rd		Well #35 (Dalton Rd. Silo Well)		Well 10-001		Well 10-002		Wetland Piezometer P-1		Oak Openings Rd Culvert		Sump	
Measuring Point Elev. (ft)	678.1		665.1		707.19		709.72		703.11		699.91		610.5	
Well Depth (ft. below grade)	113.0		110		125		120		2.7		--		--	
DATE	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation	Depth to Water	Water Level Elevation
9/2/2011	50.55	627.53	33.42	631.68	85.88	621.31	21.56	688.16	DRY	---	DRY	---	47.21	563.29
8/26/2011	50.41	627.67	32.78	632.32	85.62	621.57	19.66	690.06	DRY	---	DRY	---	44.56	565.94
8/12/2011	49.47	628.61	32.22	632.88	84.79	622.40	19.41	690.31	DRY	---	DRY	---	42.77	567.73
8/5/2011	48.98	629.10	31.77	633.33	84.54	622.65	18.91	690.81	DRY	---	DRY	---	43.21	567.29
7/22/2011	48.67	629.41	30.55	634.55	84.35	622.84	18.77	690.95	DRY	---	DRY	---	43.41	567.09
7/15/2011	48.51	629.57	30.14	634.96	81.31	625.88	18.52	691.20	DRY	---	DRY	---	42.51	567.99
7/1/2011	48.44	629.64	28.21	636.89	84.27	622.92	17.41	692.31	DRY	---	DRY	---	42.23	568.27
6/24/2011	46.74	631.34	27.43	637.67	84.16	623.03	12.55	697.17	3.34	699.77	DRY	---	41.88	568.62
6/17/2011	46.21	631.87	26.21	638.89	83.71	623.48	11.56	698.16	3.24	699.87	0.17	696.99	42.33	568.17
6/3/2011	44.67	633.41	25.53	639.57	82.45	624.74	10.41	699.31	3.23	699.88	0.25	697.08	41.21	569.29
5/27/2011	43.54	634.54	24.61	640.49	81.13	626.06	9.23	700.49	3.11	700.00	0.50	697.33	41.54	568.96
5/20/2011	42.77	635.31	24.55	640.55	80.57	626.62	9.11	700.61	2.71	700.40	0.50	697.33	41.33	569.17
5/13/2011	41.77	636.31	24.54	640.56	80.44	626.75	9.22	700.50	2.71	700.40	0.50	697.33	41.54	568.96
4/29/2011	42.93	635.15	24.22	640.88	80.27	626.92	8.91	700.81	2.73	700.38	0.38	697.20	42.27	568.23
4/22/2011	41.59	636.49	24.17	640.93	80.13	627.06	8.57	701.15	2.71	700.40	0.50	697.33	42.11	568.39
4/15/2011	40.97	637.11	24.11	640.99	79.94	627.25	8.52	701.20	Installed 04/20/11		0.42	697.24	43.51	566.99
4/8/2011	41.05	637.03	24.15	640.95	79.97	627.22	8.11	701.61			0.58	697.41	38.95	571.55
4/1/2011	37.51	640.57	20.33	644.77	84.41	622.78	8.37	701.35					36.11	574.39
3/25/2011	37.57	640.51	20.44	644.66	84.48	622.71	8.41	701.31					36.23	574.27
3/11/2011	37.61	640.47	20.72	644.38	84.52	622.67	7.81	701.91					37.58	572.92
2/25/2011	44.13	633.95	25.11	639.99	89.77	617.42	21.77	687.95					38.54	571.96
2/11/2011	48.27	629.81	28.27	636.83	94.13	613.06	30.11	679.61					39.57	570.93
1/28/2011	51.17	626.91	35.19	629.91	97.27	609.92	44.23	665.49					39.41	571.09
1/14/2011	59.23	618.85	39.12	625.98	101.54	605.65	48.22	661.50					40.44	570.06
12/23/2010	61.47	616.61	42.77	622.33	103.77	603.42	51.44	658.28					41.50	569.00
12/10/2010	63.24	614.84	43.21	621.89	104.47	602.72	54.13	655.59					42.92	567.58
11/29/2010	63.50	614.58	43.22	621.88	104.81	602.38	54.21	655.51					42.88	567.62
11/12/2010	63.71	614.37	43.51	621.59	104.91	602.28	54.33	655.39					44.26	566.24
10/29/2010	63.85	614.23	43.67	621.43	105.55	601.64	54.77	654.95					45.91	564.59
10/22/2010	64.13	613.95	43.89	621.21	105.67	601.52	54.86	654.86					44.91	565.59
10/8/2010	64.41	613.67	44.11	620.99	105.91	601.28	54.91	654.81					44.72	565.78
9/27/2010	64.21	613.87	44.56	620.54	107.20	599.99	55.11	654.61					47.33	563.17
9/13/2010	64.11	613.97	44.29	620.81	107.10	600.09	55.06	654.66					47.16	563.34
8/23/2010	64.06	614.02	44.15	620.95	107.05	600.14	55.03	654.69					47.09	563.41
8/19/2010	64.03	614.05	44.04	621.06	107.00	600.19	55.00	654.72					47.03	563.47
8/13/2010	59.61	618.47	46.44	618.66	98.43	608.76	33.41	676.31					48.77	561.73
8/6/2010	57.81	620.27	45.51	619.59	98.12	609.07	31.41	678.31					48.25	562.25
7/30/2010	56.21	621.87	45.15	619.95	97.63	609.56	30.46	679.26					48.16	562.34
7/23/2010	55.41	622.67	44.23	620.87	97.34	609.85	29.14	680.58					47.25	563.25
7/9/2010	53.61	624.47	43.71	621.39	96.68	610.51	27.71	682.01					46.85	563.65
6/25/2010	52.46	625.62	42.44	622.66	96.12	611.07	26.41	683.31					45.11	565.39
6/18/2010	51.52	626.56	41.41	623.69	95.92	611.27	25.42	684.30					44.86	565.64
6/11/2010	57.86	620.22	43.21	621.89	95.68	611.51	25.89	683.83					45.11	565.39
6/4/2010	58.21	619.87	46.74	618.36	95.47	611.72	25.71	684.01					47.45	563.05
5/28/2010	59.51	618.57	48.23	616.87									46.85	563.65
5/21/2010	58.79	619.29	48.51	616.59									46.13	564.37
5/14/2010	58.44	619.64	48.37	616.73									45.97	564.53
5/7/2010	57.92	620.16	48.21	616.89									45.61	564.89
4/30/2010	57.77	620.31	48.44	616.66									44.78	565.72
4/23/2010	57.23	620.85	49.67	615.43									42.96	567.54
4/16/2010	58.41	619.67	49.73	615.37									41.83	568.67
4/9/2010	51.22	626.86	50.23	614.87									40.44	570.06
4/2/2010	57.88	620.20	50.71	614.39									40.23	570.27
3/26/2010	57.79	620.29	50.88	614.22									40.91	569.59
3/19/2010	57.86	620.22	51.13	613.97									41.88	568.62
3/12/2010	58.41	619.67	51.44	613.66									42.13	568.37
3/5/2010	60.31	617.77	52.11	612.99									40.77	569.73
2/26/2010	61.77	616.31	51.88	613.22									42.11	568.39
2/19/2010	62.41	615.67	50.77	614.33									42.77	567.73
2/12/2010	65.23	612.85	49.67	615.43									42.49	568.01
1/29/2010	65.87	612.21	49.54	615.56									46.51	563.99
1/22/2010	65.91	612.17	49.13	615.97									42.44	568.06
1/15/2010	64.85	613.23	48.71	616.39									42.36	568.14
12/18/2009	65.82	612.26	50.55	614.55									46.22	564.28
12/11/2009	66.21	611.87	51.43	613.67									46.11	564.39
12/4/2009	66.88	611.20	52.88	612.22									46.27	564.23
11/27/2009	66.54	611.54	47.29	617.81									46.54	563.96
11/13/2009	66.77	611.31	47.33	617.77									46.23	564.27
11/6/2009	64.21	613.87	46.54	618.56									48.53	561.97
10/30/2009	64.37	613.71	47.31	617.79									48.21	562.29
10/23/2009	64.92	613.16	48.13	616.97									47.51	562.99
10/19/2009	NM	NM	NM	NM									NM	NM
10/16/2009	63.71	614.37	44.53	620.57									44.78	565.72
10/15/2009	NM	NM	NM	NM									NM	NM
10/14/2009	NM	NM	NM	NM									NM	NM
10/13/2009	NM	NM	NM	NM									NM	NM
10/12/2009	NM	NM	NM	NM									NM	NM
10/9/2009	65.34	612.74	38.31	626.79									44.33	566.17
10/7/2009	NM	NM	NM	NM									NM	NM
10/6/2009	NM	NM	NM	NM									NM	NM
10/2/2009	64.71	613.37	44.63	620.47									NM	NM
9/23/2009			47.81	617.29										
9/18/2009			45.81	619.29										
8/27/2009			47.62	617.48										
8/20/2009			44.72	620.38										

[yellow] = Seasonal low water levels.

[light green] = Audible cascading in well

APPENDIX A

NYSDEC Well Completion Reports

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) County Livingston

(2) Township Lima

(3) DEC Well Number LV 743

WELL COMPLETION REPORT

(4) OWNER
Craig & Therese Travers

(5) ADDRESS
1149 Dalton Rd, Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse)
Show Lat/Long if available and method used: 042°56'6.66"N 077°37'18.11"W (1149 Dalton Rd)
☐ GPS ☐ DEC Website ☒ Map Interpolation

LOG *
Ground Surface EL. 708 ft. above sea level
Top Of Casing is located _____ ft.above (+) or below (-) ground surface

(7) DEPTH OF WELL BELOW LAND SURFACE (Feet)	(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (Feet)	DATE MEASURED
120'		

CASINGS

(9) DIAMETER	6 in.	in.	in.	in.
(10) LENGTH	ft.	ft.	ft.	in.

(11) GROUT TYPE / SEALING

(12) GROUT / SEALING INTERVAL (Feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER	in.	in.	in.	in.
(16) LENGTH	ft.	ft.	ft.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 12/13/01

(19) DURATION OF TEST 30 min

(20) LIFT METHOD ☐ Pump ☒ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM) 50+

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during test discharged away from immediate area? Yes ___ No ___

PUMP INSTALLATION

(26) PUMP INSTALLED?	(27) DATE	(28) PUMP INSTALLER
YES ___ NO ___		
(29) TYPE	(30) MAKE	(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other Cleanout Deepened

(35) USE OF WATER (see instructions for choices) Domestic

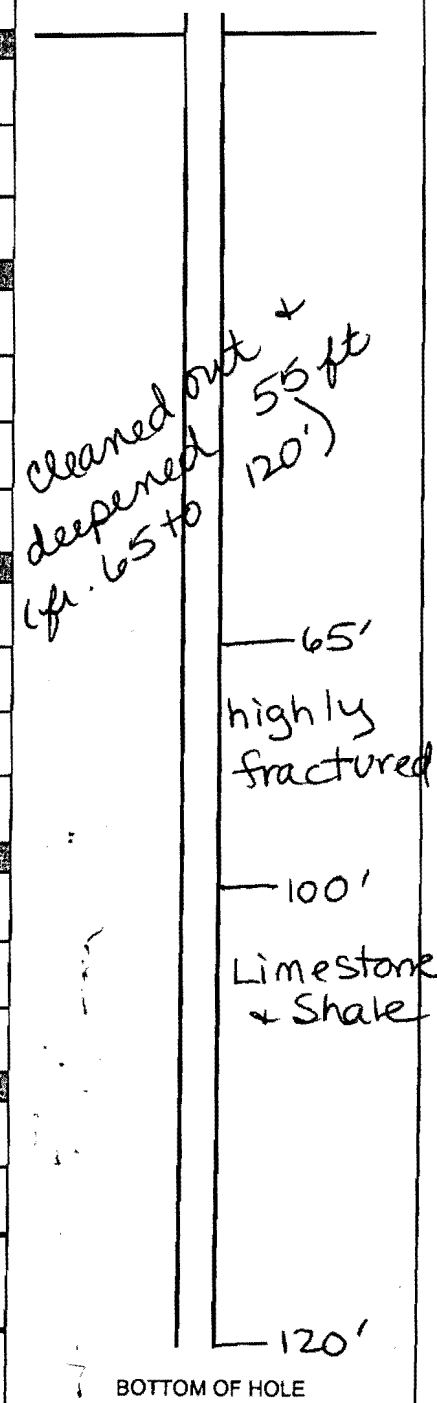
(36) DATE DRILLING WORK STARTED 12/13/01

(37) DATE DRILLING WORK COMPLETED 12/13/01

(38) DATE REPORT FILED	(39) DRILLER & COMPANY	(40) DEC REGISTRATION NO.
12/26/01	John K. Moravec Barney Moravec Inc	10024

* Show log of geologic materials encountered with depth below ground surface, water bearing beds and water levels in each; casings; screens; pump; additional pumping tests and other matters of interest, e.g., water quality (sulphur, salt, methane). Describe repair work. Attach separate sheet if necessary.

See further instructions titled "Instructions for New York State Well Completion Report".



NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) County Livingston

(2) Township Lima

(3) DEC Well Number LV798

WELL COMPLETION REPORT

(4) OWNER
Scott + Amy Koch

(5) ADDRESS
199 Viking Way, Brockport NY 14420

(6) LOCATION OF WELL (See Instructions On Reverse)
Show Lat/Long if available and method used: Dalton Rd. 042°56'35.59"N 077°37'16.65"W
☐ GPS ☐ DEC Website ☒ Map Interpolation

LOG *

Ground Surface EL. 661 ft. above sea level

Top Of Casing is located _____ ft. above (+) or below (-) ground surface

(7) DEPTH OF WELL BELOW LAND SURFACE (Feet)	(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (Feet)	DATE MEASURED
150'		

CASINGS

(9) DIAMETER	6 in.	In.	In.	In.
(10) LENGTH	42'6" ft.	ft.	ft.	in.

(11) GROUT TYPE / SEALING	(12) GROUT / SEALING INTERVAL (Feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL			
(14) OPENINGS			
(15) DIAMETER	in.	in.	In.	In.
(16) LENGTH	ft.	ft.	ft.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

WELL TEST

(18) DATE 8/2/02	(19) DURATION OF TEST 30 min
(20) LIFT METHOD ☐ Pump ☒ Air Lift ☐ Bail	(21) STABILIZED DISCHARGE (GPM) 75
(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)	(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)
(24) RECOVERY (Time in hours/minutes)	(25) Was the water produced during test discharged away from immediate area? Yes ___ No ___

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ___ NO ___	(27) DATE	(28) PUMP INSTALLER
(29) TYPE	(30) MAKE	(31) MODEL
(32) MAXIMUM CAPACITY (GPM)	(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)	

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other _____	(35) USE OF WATER (see instructions for choices) Domestic
(36) DATE DRILLING WORK STARTED 8/1/02	(37) DATE DRILLING WORK COMPLETED 8/2/02

(38) DATE REPORT FILED 8/14/02	(39) DRILLER & COMPANY John K. Moravec Barney Moravec Inc	(40) DEC REGISTRATION NO. 10024

TOP OF WELL

clay
3'
Wet sand
9'
Compact clay
29'
Gravely till
39'
Limestone
150'

BOTTOM OF HOLE

* Show log of geologic materials encountered with depth below ground surface, water bearing beds and water levels in each; casings; screens; pump; additional pumping tests and other matters of interest, e.g., water quality (sulphur, salt, methane). Describe repair work. Attach separate sheet if necessary.

See further instructions titled "Instructions for New York State Well Completion Report"

NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) County Livingston

(2) Township Lima

(3) DEC Well Number LV874

WELL COMPLETION REPORT

(4) OWNER
Lori Kloesz

(5) ADDRESS
1168 Dalton Rd, Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) Show Lat/Long if available and method used: 1168 Dalton Rd, 042°56'21.46"N 077°37'21.98"W
☐ GPS ☐ DEC Website ☒ Map Interpolation

(7) DEPTH OF WELL BELOW LAND SURFACE (Feet) 160'

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (Feet) DATE MEASURED

CASING

(9) DIAMETER: 6 in. | in. | in. | in.

(10) LENGTH: 78 ft. | ft. | ft. | in.

(11) GROUT TYPE / SEALING: bentonite hole plug

(12) GROUT / SEALING INTERVAL (Feet) FROM GL TO 30'

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER: in. | in. | in. | in.

(16) LENGTH: ft. | ft. | ft. | in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE: 6/16/03

(19) DURATION OF TEST: 30 min

(20) LIFT METHOD ☐ Pump ☒ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM): 100+

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during test discharged away from immediate area? Yes ___ No ___

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ___ NO ___

(27) DATE

(28) PUMP INSTALLER

(29) TYPE

(30) MAKE

(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other ___

(35) USE OF WATER (see instructions for choices) Domestic

(36) DATE DRILLING WORK STARTED 6/16/03

(37) DATE DRILLING WORK COMPLETED 6/16/03

(38) DATE REPORT FILED 7/25/03

(39) DRILLER & COMPANY John K. Moravec Barney Moravec Inc

(40) DEC REGISTRATION NO. 10024

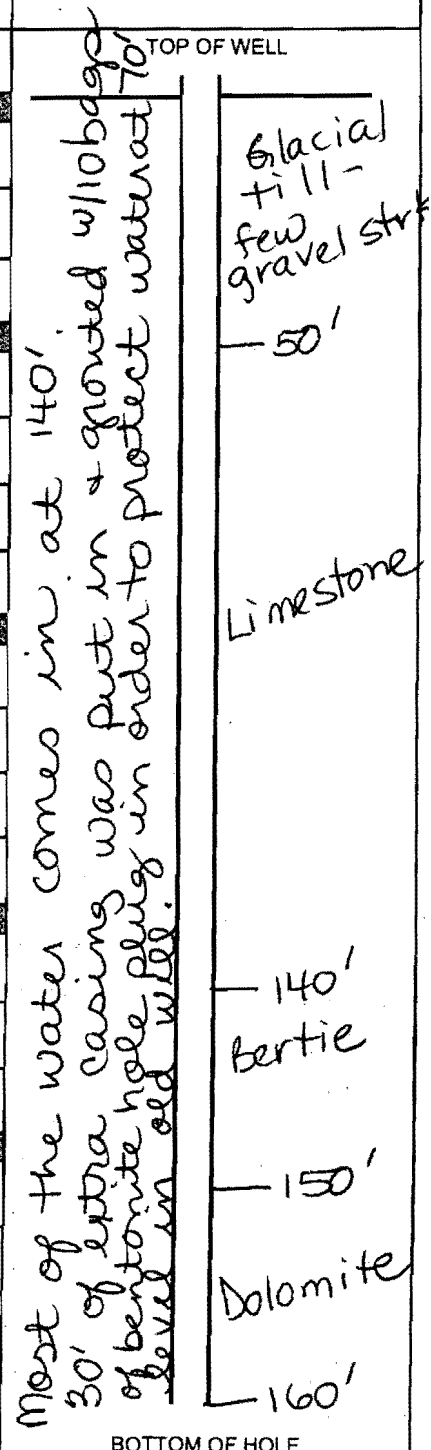
* Show log of geologic materials encountered with depth below ground surface, water bearing beds and water levels in each; casings; screens; pump; additional pumping tests and other matters of interest, e.g., water quality (sulphur, salt, methane). Describe repair work. Attach separate sheet if necessary.

See further instructions titled "Instructions for New York State Well Completion Report".

LOG *

Ground Surface EL. 669 ft. above sea level

Top Of Casing is located ___ ft. above (+) or below (-) ground surface



NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) County Livingston

(2) Town Lima

(3) DEC Well Number LV951

WELL COMPLETION REPORT

(4) OWNER David Farron

(5) ADDRESS 1150 Dalton Rd Honeoye Falls 14472

(6) LOCATION OF WELL (See Instructions On Reverse)
Show Lat/Long if available and method used:
☐ GPS ☐ DEC Website ☑ Map Interpolation 1150 Dalton Rd Honeoye Falls

LOG *

Ground Surface EL. _____ ft. above sea level

Top Of Casing is located +/- 1/2' ft. above (+) or below (-) ground surface. APPROX

(7) DEPTH OF WELL BELOW LAND SURFACE (Feet) 150'

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (Feet) DATE MEASURED

CASINGS

(9) DIAMETER	6 in.	in.	in.	in.
(10) LENGTH	20 ft.	ft.	ft.	In.

(11) GROUT TYPE / SEALING

(12) GROUT / SEALING INTERVAL (Feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER	in.	in.	in.	In.
(16) LENGTH	ft.	ft.	ft.	In.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE

(19) DURATION OF TEST

(20) LIFT METHOD ☐ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM)

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ___ NO ✓

(27) DATE

(28) PUMP INSTALLER

(29) TYPE

(30) MAKE

(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☑ Rotary ☐ Cable Tool ☐ Other _____

(35) USE OF WATER (see instructions for choices) domestic

(36) DATE DRILLING WORK STARTED 5-4-04

(37) DATE DRILLING WORK COMPLETED 5-4-04

(38) DATE REPORT FILED 5-17-04

(39) DRILLER & COMPANY Updike Water Well Drillers, Inc Methone Updike CWD

(40) DEC REGISTRATION NO. NYRD 10070

TOP OF WELL

0'-1' Brown Clay

20' of Casing

1'-150' Gray Dolamite

150'

BOTTOM OF HOLE

* Show log of geologic materials encountered with depth below ground surface, water bearing beds and water levels in each; casings; screens; pump; additional pumping tests and other matters of interest, e.g., water quality (sulphur, salt, methane). Describe repair work. Attach separate sheet if necessary.

NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Monroe
(2) TOWN Rush

(3) DEC Well Number
M01740

WATER WELL COMPLETION REPORT

(4) OWNER
Wayne Pluta

(5) ADDRESS
525 Works Rd Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) (Check here ☐ if same as address above, also provide Lat / Long below)
Show Lat/Long if available and method used: 525 Works Rd
☐ GPS ☒ Map Interpolation 42° 57' 3.84" N 77° 38' 41.96" W

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 119'
(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) DATE MEASURED

CASINGS

(9) DIAMETER	(10) LENGTH
6 in.	ft.
in.	ft.
in.	ft.
in.	in.

(11) GROUT TYPE / SEALING
(12) GROUT / SEALING INTERVAL (feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL
(14) OPENINGS

(15) DIAMETER	(16) LENGTH
in.	ft.
in.	ft.
in.	ft.
in.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 9/23/09
(19) DURATION OF TEST 90min
(20) LIFT METHOD ☐ Pump ☒ Air Lift ☐ Bail
(21) STABILIZED DISCHARGE (GPM) 30+
(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)
(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)
(24) RECOVERY (Time in hours/minutes)
(25) Was the water produced during the test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ____ NO ____
(27) DATE
(28) PUMP INSTALLER
(29) TYPE
(30) MAKE
(31) MODEL
(32) MAXIMUM CAPACITY (GPM)
(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other Cleanout + Deepening
(35) USE OF WATER (See instructions for choices) Domestic
(36) DATE DRILLING WORK STARTED 9/23/09
(37) DATE DRILLING WORK COMPLETED 9/23/09
(38) DATE REPORT FILED 9/29/09
(39) REGISTERED COMPANY Barney Moravec Inc
(40) DEC REGISTRATION NO. NYRD 10024
(41) CERTIFIED DRILLER (Print name) David S. Moravec
(42) CERTIFIED DRILLER SIGNATURE * [signature]

* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a class A Misdemeanor under Penal Law §210.45

(43) LOG

Depth to Bedrock _____ (ft. below ground surface)
Ground Elev. 674 (ft. above S.L.)
Top of Casing _____ (ft., above (+) or below (-) ground surface)

TOP OF WELL

Cleaned out + deepened 30 ft from 89 to 119'

BOTTOM OF HOLE

NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Monroe

(2) TOWN Rush

(3) DEC Well Number M01741

WATER WELL COMPLETION REPORT

(4) OWNER
Wayne Pluta

(5) ADDRESS
525 Works Rd Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) (Check here ☐ if same as address above, also provide Lat / Long below)
Show Lat/Long if available and method used: Honeoye Falls #6 Rd.
☐ GPS ☒ Map Interpolation 42° 56' 53.61" N 77° 38' 1.26" W

(7) DEPTH OF WELL BELOW LAND SURFACE (feet)	(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet)	DATE MEASURED
180'		

CASINGS

(9) DIAMETER	6 in.	in.	in.	in.
(10) LENGTH	ft.	ft.	ft.	in.

(11) GROUT TYPE / SEALING

(12) GROUT / SEALING INTERVAL (feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER	in.	in.	in.	in.
(16) LENGTH	ft.	ft.	ft.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 9/24/09

(19) DURATION OF TEST 2hrs.

(20) LIFT METHOD ☐ Pump ☒ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM) 100

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during the test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ____ NO ____

(27) DATE

(28) PUMP INSTALLER

(29) TYPE

(30) MAKE

(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other Cleanout Deepening

(35) USE OF WATER (See instructions for choices) Pond

(36) DATE DRILLING WORK STARTED 9/24/09

(37) DATE DRILLING WORK COMPLETED 9/24/09

(38) DATE REPORT FILED 9/29/09

(39) REGISTERED COMPANY Barney Moravec Inc.

(40) DEC REGISTRATION NO. NYRD 10024

(41) CERTIFIED DRILLER (Print name) David S. Moravec

(42) CERTIFIED DRILLER SIGNATURE *

* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a class A Misdemeanor under Penal Law §210.45.

8/2007

(43) LOG

Depth to Bedrock _____ (ft. below ground surface)

Ground Elev. 663 (ft. above S.L.)

Top of Casing _____ (ft., above (+) or below (-) ground surface)

TOP OF WELL

cleaned out + deepened 53 ft
fr. 127 to 180'

BOTTOM OF HOLE

NYSDEC COPY

#12

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Monroe

(2) TOWN Rush

(3) DEC Well Number M01742

WATER WELL COMPLETION REPORT

(4) OWNER Wayne Pluta

(5) ADDRESS 525 Works Rd Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) (Check here ☐ if same as address above, also provide Lat / Long below)
Show Lat/Long if available and method used: 1820 Honeoye Falls #6 Rd.
☐ GPS ☒ Map Interpolation 42° 56' 49.64" N 77° 38' 40.69" W

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 140'

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) DATE MEASURED

CASINGS

(9) DIAMETER	6 in.	in.	in.	in.
(10) LENGTH	40 ft.	ft.	ft.	in.

(11) GROUT TYPE / SEALING: Bentonite

(12) GROUT / SEALING INTERVAL (feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER	in.	in.	in.	in.
(16) LENGTH	ft.	ft.	ft.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 9/23/09

(19) DURATION OF TEST 2 hrs

(20) LIFT METHOD ☒ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM) 15+

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during the test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ____ NO ____

(27) DATE

(28) PUMP INSTALLER

(29) TYPE

(30) MAKE

(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other _____

(35) USE OF WATER (See instructions for choices) Domestic

(36) DATE DRILLING WORK STARTED 9/23/09

(37) DATE DRILLING WORK COMPLETED 9/23/09

(38) DATE REPORT FILED 9/29/09

(39) REGISTERED COMPANY Barrey Moravec Inc

(40) DEC REGISTRATION NO. NYRD 10024

(41) CERTIFIED DRILLER (Print name) David S. Moravec

(42) CERTIFIED DRILLER SIGNATURE* [signature]

* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a class A Misdemeanor under Penal Law §210.45.

8/2007

(43) LOG

Depth to Bedrock _____ (ft. below ground surface)

Ground Elev. 707 (ft. above S.L.)

Top of Casing _____ (ft., above (+) or below (-) ground surface)

TOP OF WELL

Pumped w/pump at 15 gpm - No drawdown Probably makes lots of water.

Clay

5'

Limestone

120' Broke up Limestone

BOTTOM OF HOLE

NYSDEC COPY

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Monroe

(2) TOWN Rush

(3) DEC Well Number: M01756

WATER WELL COMPLETION REPORT

(4) OWNER: Don Knab

(5) ADDRESS: 1855 Honeoye Falls #6 Rd Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) Show Lat/Long if available and method used: (Check here ☒ if same as address above, also provide Lat / Long below)

☐ GPS ☒ Map Interpolation 42° 56' 49.58" N 77° 38' 29.53" W

(7) DEPTH OF WELL BELOW LAND SURFACE (feet): 180

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet): DATE MEASURED:

CASINGS

(9) DIAMETER: 6 in | in | in | in

(10) LENGTH: ft | ft | ft | in

(11) GROUT TYPE / SEALING:

(12) GROUT SEALING INTERVAL (feet) FROM _____ TO _____

SCREENS

(13) MAKE & MATERIAL:

(14) OPENINGS:

(15) DIAMETER: in | in | in | in

(16) LENGTH: ft | ft | ft | in

(17) DEPTH TO TOP OF SCREEN FROM TOP OF CASING (Feet):

YIELD TEST

(18) DATE: 12/16/09

(19) DURATION OF TEST: 60 min

(20) JET METHOD ☐ Pump ☒ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM): 25

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing):

(23) MAXIMUM DRAWDOWN (Stabilized) (ft/inches below top of casing):

(24) RECOVERY (Time in hours/minutes):

(25) Was the water produced during the test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES X NO ____

(27) DATE: 12/16/09

(28) PUMP INSTALLER: J. Moravec

(29) TYPE: Subm.

(30) MAKE: Goulds

(31) MODEL: 7GS07422C

(32) MAXIMUM CAPACITY (GPM): 7

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet): 175

(34) METHOD OF DRILLING: ☒ Rotary ☐ Cable Tool ☐ Other: Cleanout/deepening

(35) USE OF WATER (Select all that apply): Domestic

(36) DATE DRILLING WORK STARTED: 12/16/09

(37) DATE DRILLING WORK COMPLETED: 12/16/09

(38) DATE RECEIVED: 1/8/10

(39) RESPONSIBLE COMPANY: Burney Moravec, Inc.

(40) DEC REGISTRATION NO: NYRD 10024

(41) CERTIFIED DRILLER (Print name): John K. Moravec

(42) CERTIFIED DRILLER SIGNATURE:

By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as required by Environmental Conservation Law §15-1502, (2) this water well was constructed in accordance with all water well standards promulgated by the New York State Department of Health, (3) under the penalty of perjury the information provided in this Well Completion Report is true, correct, accurate and complete, and I understand that any false statement made herein is punishable as a Class A misdemeanor pursuant to §210.45.

(43) LOG

Depth to Bedrock _____ (ft. below ground surface)

Ground Elev _____ (ft. above S.L.)

Top of Casing _____ (ft. above (+) or below (-) ground surface)

TOP OF WELL

Pulled pump. Deepened 40 ft. fr. 140 to 180.

BOTTOM OF HOLE

NYSDEC COPY

APPENDIX B

Logs of Fractures in Core
by Alpha Geoscience

Alpha Geoscience 679 Plank Road ALPHA GEOSCIENCE Clifton Park, New York 12065	**FRACTURE LOG**	**Boring ID: DDH 1-02** Page 1 of 2

Project Number/Name: 11110/ Hanson Honeoye Falls — Location: Honeoye Falls, NY

Drilling Contractor/Personnel: NA

Geologist/Inspector: Steve Trader (Fracture log only) — Start/ 6-26-02 (coring); Finish Date: 6-26-02

Drilling Equip/Method: NA — Core Diameter: 1 7/8"

Sampling Method: Coring — Well Installed? No

Elevation/Ground Surface: 705.8

Depth to Ground Water from Ground Surface (Date): Not Measured

REMARKS: Log of potential water-bearing fractures only - Geology logged separately in 2002 by Brent Leclerc (Hanson). Stylolitic fractures/breaks are common; staining not present on fracture surfaces unless noted

Depth (Ft)	DESCRIPTION
	0-9': unconsolidated overburden
	Box 1 (9' - 18.8') Broken core (generally <2" length pieces) from 9-11' - angular fracture 10.6' - 11.3' with no staining - 0.1' thick metabentonite at 11.3 - 11.4', with core spin at 11.4' - near vertical fracture 13.0' - 14.0' (depths not certain due to poor recovery in 9'-17' run #1) - 18.0 to 18.2' angular fracture
	Box 2 (18.8' - 28.3') Most breaks appear drilling related, except: 22' angular fracture 27' angular fracture at end of run; secondary mineralization on fracture surface with potential iron staining.
	Box 3 (28.3' - 37.8') 28.9' - near horizontal fracture along chert nodule; with potential brownish staining. 29.4' - angular facture, weathered appearance and apparently silt-filled. 30.4' - small vug 33.3' - horizontal fracture/break with grooved appearance to fracture surface with potential iron staining. 33.9' - angular fracture with potential iron staining; with angular stylolitic fracture below (core not broken). 35.5' - near horizontal break with weathered fracture surface and apparent clay-filling (dried now); missing core fragments at edges.
	Box 4 (37.8' - 47.0') 43.7' core spin 47.0' core spin
	Box 5 (47.0' - 57.2') 49.3' core spin 57.0' core spin at end of run; 0.1' of dried clay and rock fragments.
	Box 6 (57.2' - 67.0') No apparent natural fractures.
	Box 7 (67.0' - 76.8') No apparent natural fractures.
	Box 8 (76.8' - 86.3') 78.5' Potential natural break along thin packstone stylolitic interval; appears to be minor amount of core missing as pieces do not fit well, and also some dried clay/mud is present on fracture surface.
	Box 9 (86.3' - 96.0') Becoming a bit more vuggy below 89.5' 94.2' - 94.8' near-vertical, healed, fracture.
	Box 10 (96.0' - 104.7') Becoming more coarsely crystalline and less vuggy. 101.8' - 102.1' several core breaks in this interval are uneven likely due to abrasion during drilling, possibly natural fractures but no staining.

ALPHA GEOSCIENCE
Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

FRACTURE LOG

Boring ID. DDH 1-02

Project Number/Name: 11110/Honeoye Falls

Location: Honeoye Falls, NY

Depth (Ft)	DESCRIPTION
	Box 11 (104.7' - 114.5') 108.4' Core abrasion along fracture surface, but not core spin; no staining. 111.6' Core abrasion along fracture surface, but not core spin; no staining . Box 12 (114.5' - 123.9') Core is a bit jumbled in the first few feet of this box. 116.6' - horizontal fracture, rough surface; with apparent reddish brown staining; core on either side of fracture does not fit perfectly well, but as if there was some separation. Box 13 (123.9' - 130.5') 129.0' - 129.15' interval with dried mud and rock fragments (not at the end or beginning of the run) 129.7' - 130.0' (approx) - broken interval with chunks <1" diameter Box 14 (130.5' - 137.0' TD) No natural water bearing fractures

Alpha Geoscience 679 Plank Road ALPHA GEOSCIENCE Clifton Park, New York 12065	**FRACTURE LOG**	**Boring ID: DDH 4-02** Page 1 of 1

Project Number/Name: 11110/ Hanson Honeoye Falls — Location: Honeoye Falls, NY

Drilling Contractor/Personnel: NA

Geologist/Inspector: Steve Trader (Fracture log only) — Start/ 6-29-02 (coring); Finish Date: 6-29-02

Drilling Equip/Method: NA — Core Diameter: 1 7/8"

Sampling Method: Coring — Well Installed? No

Elevation/Ground Surface: 701.8

Depth to Ground Water from Ground Surface (Date): Not Measured

REMARKS: Log of potential water-bearing fractures only - Geology logged separately in 2002 by Brent Leclerc (Hanson). Stylolitic fractures/breaks are common; staining not present on fracture surfaces unless noted

Depth (Ft)	DESCRIPTION
	0-21': unconsolidated overburden
	Box 1 (21' - 30.5') No apparent natural fractures; core spin at very top of core at 21'.
	Box 2 (30.5' - 40') 33.2' angular fracture; abraded surface
	Box 3 (40' - 50') 47' core spin; abraded surfaces; horizontal
	Box 4 (50' - 60') No apparent natural fracture
	Box 5 (60' - 70') 69.3' possible silt seam (dried); contact is slighted abraded, though pieces fit well, definitely not a fresh break; dried silt is not in place and is crumbled in box.
	Box 6 (70' - 79.2') 0.1' thick, dried mud seam at 71.9' - 72.0'; also 1/2" thick, silt seam at 75.7'
	Box 7 (79.2' - 89') 82.9' core spin 84.9' abraded core break with dried mud and rock chips
	Box 8 (89' - 99') No apparent natural fracture; some vugs
	Box 9 (99' - 109') No apparent natural fracture; small vugs
	Box 10 (109' - 119') Apparent dried mud seam (0.1' thick) at 115' and at 115.25' (very thin)
	Box 11 (119' - 129') 127.4' Core spin; break is abraded, with apparent dried mud seam.
	Box 12 (129' - 139') Edgecliff/Akron contact at ~137.3' is abraded; Akron has distinct petroliferous odor near vertical fracture (healed) from top of Akron (137.3') to 139'

Alpha Geoscience 679 Plank Road Clifton Park, New York 12065	**FRACTURE LOG**	**Boring ID: DDH 4-98** Page 1 of 2

Project Number/Name: 11110/ Hanson Honeoye Falls — Location: Honeoye Falls, NY

Drilling Contractor/Personnel: NA

Geologist/Inspector: Steve Trader (Fracture log only) — Start/ Finish Date: 1998

Drilling Equip/Method: NA — Core Diameter: 1 7/8"

Sampling Method: Coring — Well Installed? No

Elevation/Ground Surface: 705'

Depth to Ground Water from Ground Surface (Date): Not Measured

REMARKS: Log of potential water-bearing fractures only - Geology logged separately in 1998 by P. Griggs (Marshall). Stylolitic fractures/breaks are common; staining not present on fracture surfaces unless noted

Depth (Ft)	DESCRIPTION
	0 - 1.5': unconsolidated overburden 1.5' - 5.0': no recovery Box 1 (5' - 25') 5.7' core spin 5.85' calcite mineralization along core break; horizontal; yellowish brown staining 5.85' - 6.1' vugs 6.1' - 6.4', and 6.7' near horizontal breaks with abraded surfaces (weathered appearances) 7.5' core spin 9.25' core spin 9.25' - 11.9' near vertical fracture with apparent iron staining on surface 12.2' - 13' undulatory, near vertical fracture; minor iron-staining 14.5' core spin 15.8' core spin 19.8' and 19.9' core spin 23.5' angular fracture, iron staining (yellowed brown); missing core at this break (?) Box 2 (25' - 44') 27' core break at thin (<1") zone of fissile limey shale; apparent iron staining 29.2' angular fracture with iron staining and missing core (?) 34.4' core spin with abraded surfaces; possible iron staining 34.8' angular fracture; slightly weathered surface 39.7' angular fracture; slightly weathered surface; missing piece of core here (?) 43' horizontal fracture; with apparent dried mud on fracture surface; possible iron staining 43.5' and 43.7' angular fractures; natural (?) Box 3 (44' - 63.5') 45.2' angular fracture with apparent iron staining and some dried mud/clay (1/8") 51.3', 52.0', 52.4', 53.0', 53.6' irregular core breaks along styloltic surfaces; surfaces don't appear to be weathered but there is some loss of material along the edges 53.9' - 55.3' irregular, near vertical fracture; some yellowish brown, apparent iron staining on fracture surfaces; fracture is crossed by several irregular stylolitic fractures, some of which have apparent staining 55.5' angular fracture; iron staining and possible dried mud still in place 59' horizontal break along abraded surface with dried mud (1/8" thick)

Alpha Geoscience 679 Plank Road Clifton Park, New York 12065	**FRACTURE LOG**	**Boring ID. DDH 4-98** Page 2 of 2

Project Number/Name: 11110/Honeoye Falls Location: Honeoye Falls, NY

Depth (Ft)	DESCRIPTION
	Box 4 (63.5' - 83') 64.1' - 1" section of a vertical fracture; iron stained 71' - 71.7' - multiple breaks along chert and stylolites, with iron staining 73.0' - 1/8" mud seam along irregular horizontal fracture 76.1' - 0.1' thick, dried mud seam with rock fragments
	Box 5 (83' - 102.5') 99.6' irregular, horizontal fracture with dried mud seam
	Box 6 (102.5' - 122') 115.1' - 115.4' angular fracture; no staining 116.3' angular fracture; no staining 117.4' angular fracture; no staining 120' - 121' rock is fractured, but core is jumbled; flat surfaces 115-121': flat surfaces; these angular fractures are not along stylolites and appear similar to what is seen in high wall western part of quarry. 121' - 121.6' vertical fracture with minor staining and mineralization on surface - possibly a broken, healed fracture (missing other side)
	Box 7 (122' - 125') many angular fractures; fresh appearing; very flat surfaces

Alpha Geoscience 679 Plank Road Clifton Park, New York 12065	**FRACTURE LOG**	**Boring ID: DDH 5-98** Page 1 of 1

Project Number/Name: 11110/ Hanson Honeoye Falls — Location: Honeoye Falls, NY

Drilling Contractor/Personnel: NA

Geologist/Inspector: Steve Trader (Fracture log only) — Start/ Finish Date: 1998

Drilling Equip/Method: NA — Core Diameter: 1 7/8"

Sampling Method: Coring — Well Installed? No

Elevation/Ground Surface: 713'

Depth to Ground Water from Ground Surface (Date): Not Measured

REMARKS: Log of potential water-bearing fractures only - Geology logged separately in 1998 by P Griggs (Marshall).
Stylolitic fractures/breaks are common; staining not present on fracture surfaces unless noted

Depth (Ft)	DESCRIPTION
	0-5': unconsolidated overburden Box 1 (not logged) Box 2 (25.5' - 45') 29.4' - 31.2' irregular vertical fracture; with apparent reddish brown staining. [rest of box has many stylolite breaks, but no staining or dried mud] Box 3 (45' - 64.5') 49.2' core spin 50.2' - 51.6' irregular, near vertical fracture; minor staining on some of the fracture surface; end of fracture extends into solid core, but is healed with calcite 57.8' - 58.8' same type of fracture as 50.2' - 51.6' Box 4 (64.5' - 84') 71' - core break along fissile limey shale 73.6' irregular, horizontal fracture with iron staining; lower piece doesn't fit,well with upper piece 86.6' - 86.9' angular fractures, flat surfaces, no apparent staining 94.3' - 94.5' angular fractures, flat surfaces, no apparent staining 94.8' - 95.1' angular fractures, flat surfaces, no apparent staining 101.4' core spin Box 5 (84' - 123') No apparent fractures - did not log the Akron (below 112.5')

APPENDIX C

Logs for Expansion Area Monitoring Wells

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CON.

09-001

(1) COUNTY Monroe

(2) TOWN Honeoye Falls

WATER WELL COMPLETION REPORT

MO1746

(4) OWNER
HANSEN Aggregates

(5) ADDRESS
P.O Box 151, Honeoye Falls NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) (Check here ☐ if same as address above, also provide Lat / Long below)
Show Lat/Long if available and method used
☒ GPS ☐ Map Interpolation N 42° 56.721' W 077° 38.295'

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 90

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) N.A. DATE MEASURED

CASINGS

(9) DIAMETER: 6 in | in | in. | in

(10) LENGTH: 20 ft | ft | ft | in

(11) GROUT TYPE / SEALING: Bentonite

(12) GROUT / SEALING INTERVAL (feet) FROM 0 TO 18'

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER: in. | in | in. | in

(16) LENGTH: ft. | ft. | ft. | in.

(17) DEPTH TO TOP OF SCREEN FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE: 10-1-09

(19) DURATION OF TEST

(20) LIFT METHOD ☐ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM): 0

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during the test discharged away from immediate area Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ____ NO ✓

(27) DATE

(28) PUMP INSTALLER

(29) TYPE

(30) MAKE

(31) MODEL

(32) MAXIMUM CAPACITY (GPM)

(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)

(34) METHOD OF DRILLING ☑ Rotary ☐ Cable Tool ☐ Other ____

(35) USE OF WATER (See instructions for choices) Observation Well

(36) DATE DRILLING WORK STARTED: 10-1-09

(37) DATE DRILLING WORK COMPLETED: 10-1-09

(38) DATE REPORT FILED: 10-2-09

(39) REGISTERED COMPANY: Nothnagle Drilling Inc

(40) DEC REGISTRATION NO: NYRD 10072

(41) CERTIFIED DRILLER (Print name): Timothy Nothnagle

(42) CERTIFIED DRILLER SIGNATURE * Timothy M Nothnagle

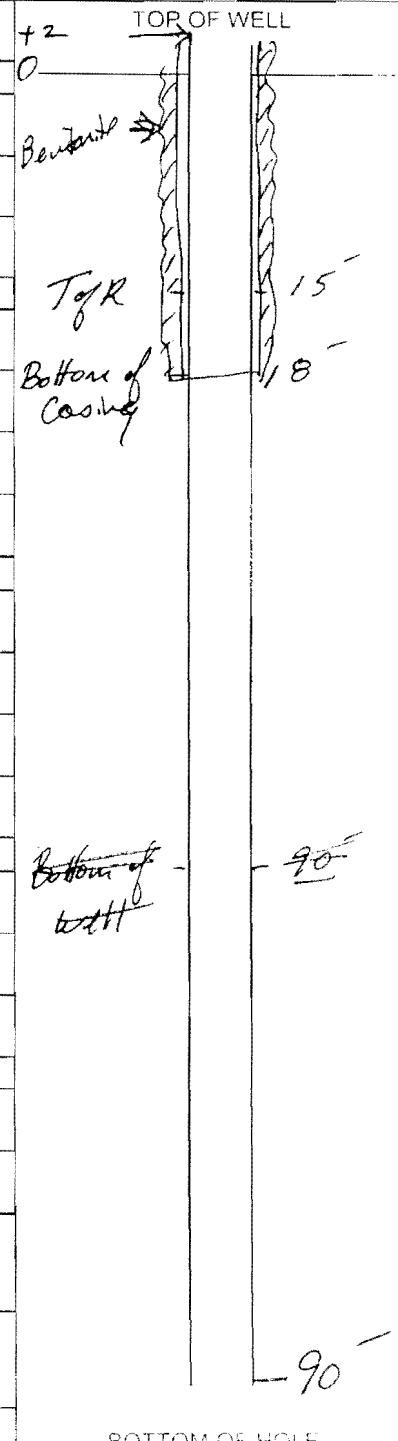
* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of

(43) LOG

Depth to Bedrock 15 (ft. below ground surface)

Ground Elev. ____ (ft. above S.L.)

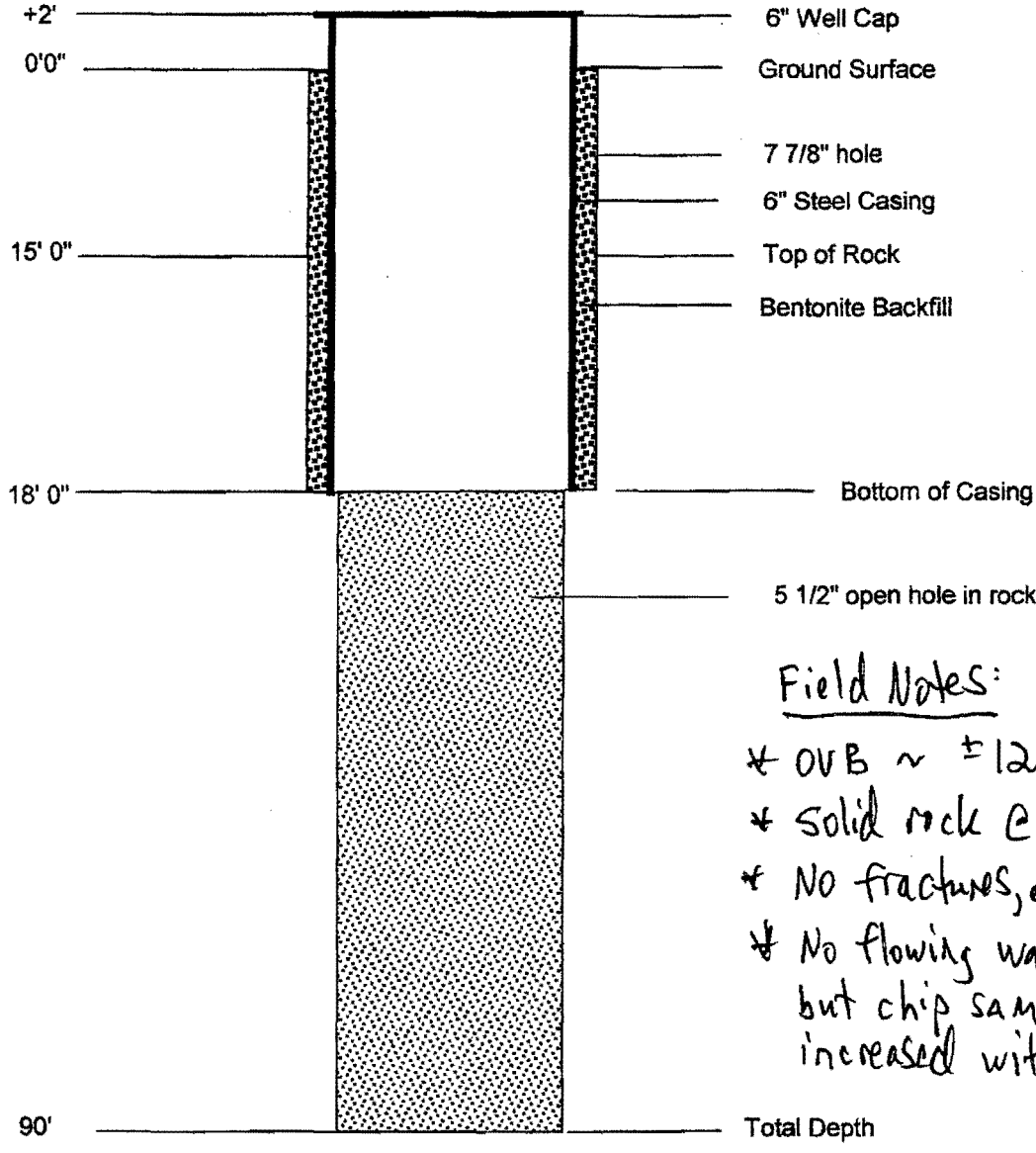
Top of Casing 2 (ft., above (+) or below (-) ground surface)



Hansen, Honeoye Falls
Observation Well
Monroe County, NY

ND Job #3312-09

09-001



Field Notes: (MCL)

* OVB ~ ±12'
* Solid rock @ 15'
* No fractures, etc.
* No flowing water @ 80'-90' but chip sample moisture increased with depth.

Note: Drawing Not To Scale

1. Drilled 7 7/8" hole to 18' BGS
2. Set 20' of 6" BIP
3. Poured Bentonite chips around casing
4. Drilled 5 1/2" hole in shale rock to 90' BGS

Note: Grab samples of rock cuttings were taken by Hansen Representative. Well drilled dry.

Inspection of drill cuttings indicates Onondaga/ Bertie (Akron) contact at approximately 85'
Alpha Geoscience, 2011

09-002

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

(1) COUNTY Monroe

(2) TOWN Honeoye Falls

(3) DEC Well Number
MO 1747

WATER WELL COMPLETION REPORT

(4) OWNER
Hansen Aggregates.

(5) ADDRESS
P.O. Box 157 Honeoye Falls, NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) (Check here ☐ if same as address above, also provide Lat / Long below)
Show Lat/Long if available and method used

☒ GPS ☐ Map Interpolation N42° 56.604' W 077° 38.522'

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 102'

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) NONE DATE MEASURED

CASINGS

(9) DIAMETER	(10) LENGTH
6 in.	20 ft.
in.	ft.
in.	ft.
in.	in.

(11) GROUT TYPE / SEALING: Bentonite

(12) GROUT / SEALING INTERVAL (feet) FROM 0 TO 18

SCREENS

(13) MAKE & MATERIAL

(14) OPENINGS

(15) DIAMETER	(16) LENGTH
in.	ft.
in.	ft.
in.	ft.
in.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 10-1-09

(19) DURATION OF TEST N-A

(20) LIFT METHOD ☐ Pump ☐ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM)

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during the test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED?	(27) DATE	(28) PUMP INSTALLER
YES ____ NO ✓		
(29) TYPE	(30) MAKE	(31) MODEL
(32) MAXIMUM CAPACITY (GPM)	(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)	

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other ____

(35) USE OF WATER (See instructions for choices) OBSERVATION WELL

(36) DATE DRILLING WORK STARTED 10-1-09

(37) DATE DRILLING WORK COMPLETED 10-1-09

(38) DATE REPORT FILED 10-2-09

(39) REGISTERED COMPANY Nothnagle Drilling Inc

(40) DEC REGISTRATION NO NYRD 10072

(41) CERTIFIED DRILLER (Print name) Timothy M Nothnagle

(42) CERTIFIED DRILLER SIGNATURE * Timothy M Nothnagle

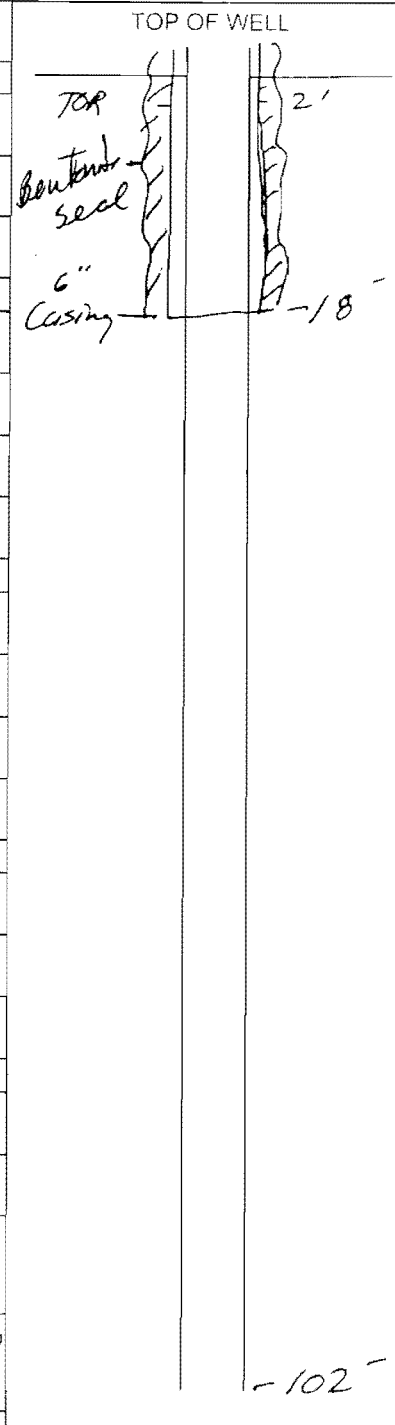
* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a class A Misdemeanor under Penal Law

(43) LOG

Depth to Bedrock 2 (ft. below ground surface)

Ground Elev. _____ (ft. above S.L.)

Top of Casing 2 (ft., above (+) or below (-) ground surface)

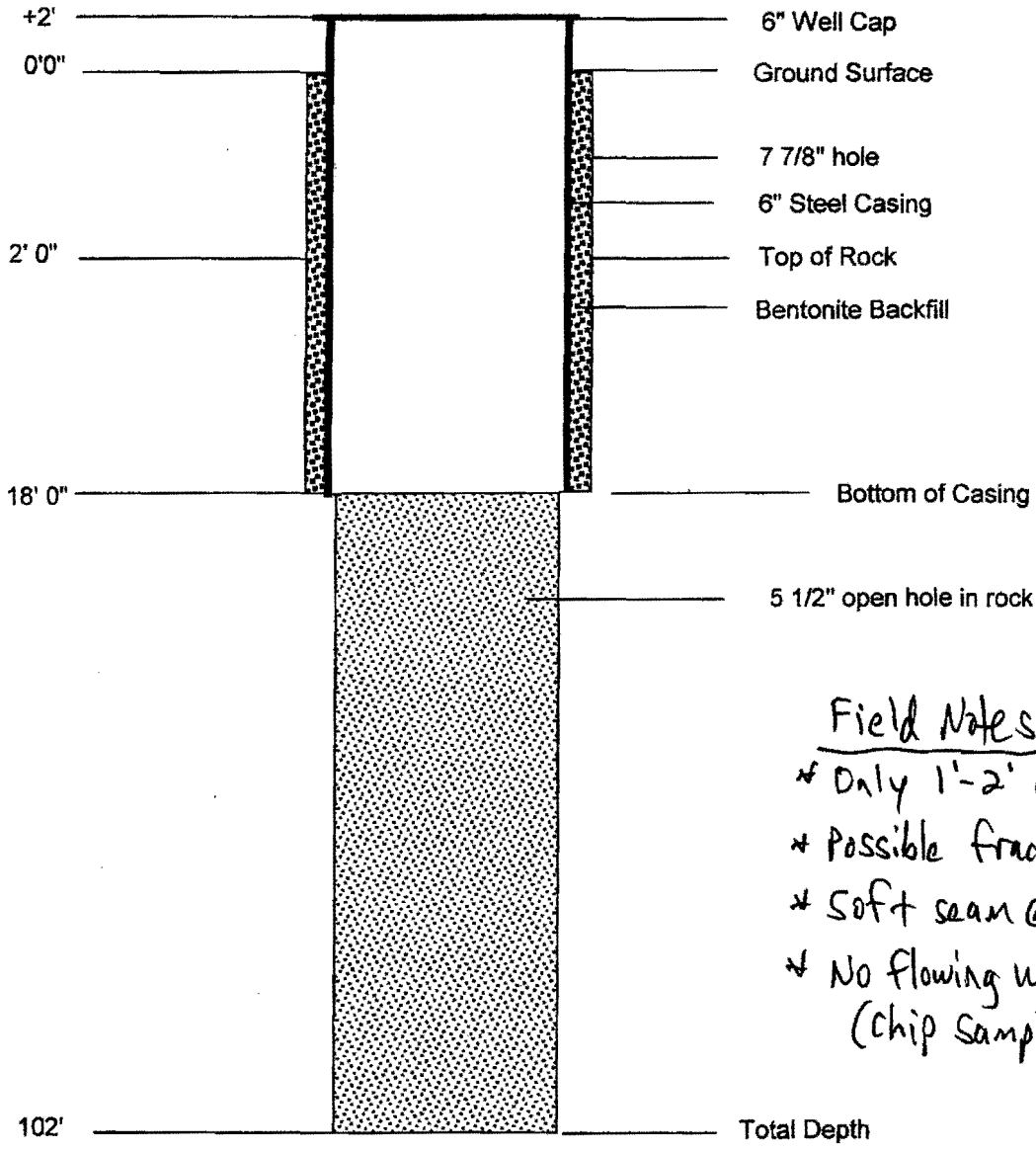


NYSDEC COPY

Hansen, Honeoye Falls
Observation Well
Monroe County, NY

ND Job #3312-09

09-002



Field Notes: (mcl)
- Only 1'-2' OVB
- Possible fracture @ ± 24'
- Soft seam @ ± 87'
- No flowing water @ 102' (chip samples were moist.)

Note: Drawing Not To Scale

1. Drilled 7 7/8" hole to 18' BGS
2. Set 20' of 6" BIP
3. Poured Bentonite chips around casing
4. Drilled 5 1/2" hole in shale rock to ~~120'~~ 102' BGS

Note: Grab samples of rock cuttings were taken by Hansen Representative.
Well drilled dry

Inspection of drill cuttings indicates Onondaga/Bertie (Akron) contact at approximately 90'
Alpha Geoscience, 2011

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION 09-003

(1) COUNTY Monroe

(2) TOWN Honeoye Falls

(3) DEC Well Number MO 1748

WATER WELL COMPLETION REPORT

(4) OWNER Hansen Aggregates.

(5) ADDRESS PO Box 151 Honeoye Falls, NY 14472

(6) LOCATION OF WELL (See Instructions On Reverse) Show Lat/Long if available and method used (Check here ☐ if same as address above, also provide Lat / Long below)

☒ GPS ☐ Map Interpolation N 42° 56.513' W 077 38.842'

(7) DEPTH OF WELL BELOW LAND SURFACE (feet) 120

(8) DEPTH TO GROUNDWATER BELOW LAND SURFACE (feet) 25' DATE MEASURED

CASINGS

(9) DIAMETER	6 in.	in.	in.	in.
(10) LENGTH	20 ft.	ft.	ft.	in.

(11) GROUT TYPE / SEALING Bentonite

(12) GROUT / SEALING INTERVAL (feet) FROM 0 TO 18

SCREENS

(13) MAKE & MATERIAL		(14) OPENINGS		
(15) DIAMETER	in.	in.	in.	in.
(16) LENGTH	ft.	ft.	ft.	in.

(17) DEPTH TO TOP OF SCREEN, FROM TOP OF CASING (Feet)

YIELD TEST

(18) DATE 10-2-09

(19) DURATION OF TEST 30 Min

(20) LIFT METHOD ☐ Pump ☒ Air Lift ☐ Bail

(21) STABILIZED DISCHARGE (GPM) 2

(22) STATIC LEVEL PRIOR TO TEST (feet/inches below top of casing)

(23) MAXIMUM DRAWDOWN (Stabilized) (feet/inches below top of casing)

(24) RECOVERY (Time in hours/minutes)

(25) Was the water produced during the test discharged away from immediate area? Yes ____ No ____

PUMP INSTALLATION

(26) PUMP INSTALLED? YES ____ NO ✓	(27) DATE	(28) PUMP INSTALLER
(29) TYPE	(30) MAKE	(31) MODEL
(32) MAXIMUM CAPACITY (GPM)	(33) PUMP INSTALLATION LEVEL FROM TOP OF CASING (Feet)	

(34) METHOD OF DRILLING ☒ Rotary ☐ Cable Tool ☐ Other ____

(35) USE OF WATER (See instructions for choices) Observation Well

(36) DATE DRILLING WORK STARTED 10-1-09

(37) DATE DRILLING WORK COMPLETED 10-1-09

(38) DATE REPORT FILED 10-2-09

(39) REGISTERED COMPANY Nothnagle Drilling Inc

(40) DEC REGISTRATION NO NYRD 10072

(41) CERTIFIED DRILLER (Print name) Timothy M Nothnagle

(42) CERTIFIED DRILLER SIGNATURE * Timothy M Nothnagle

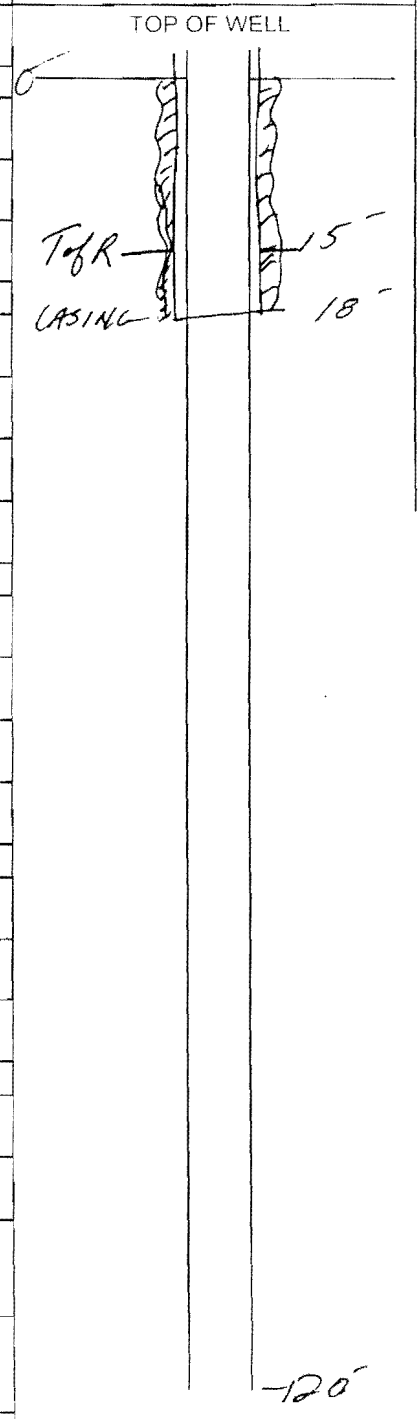
* By signing this document I hereby affirm that: (1) I am certified to supervise water well drilling activities as defined by Environmental Conservation Law §15-1502; (2) this water well was constructed in accordance with water well standards promulgated by the New York State Department of Health; (3) under the penalty of perjury the information provided in this Well Completion Report is true, accurate and complete, and I understand that any false statement made herein is punishable as a Class A Misdemeanor under Penal Law §210.45

(43) LOG

Depth to Bedrock 15 (ft. below ground surface)

Ground Elev. ____ (ft. above S.L.)

Top of Casing 2 (ft., above (+) or below (-) ground surface)

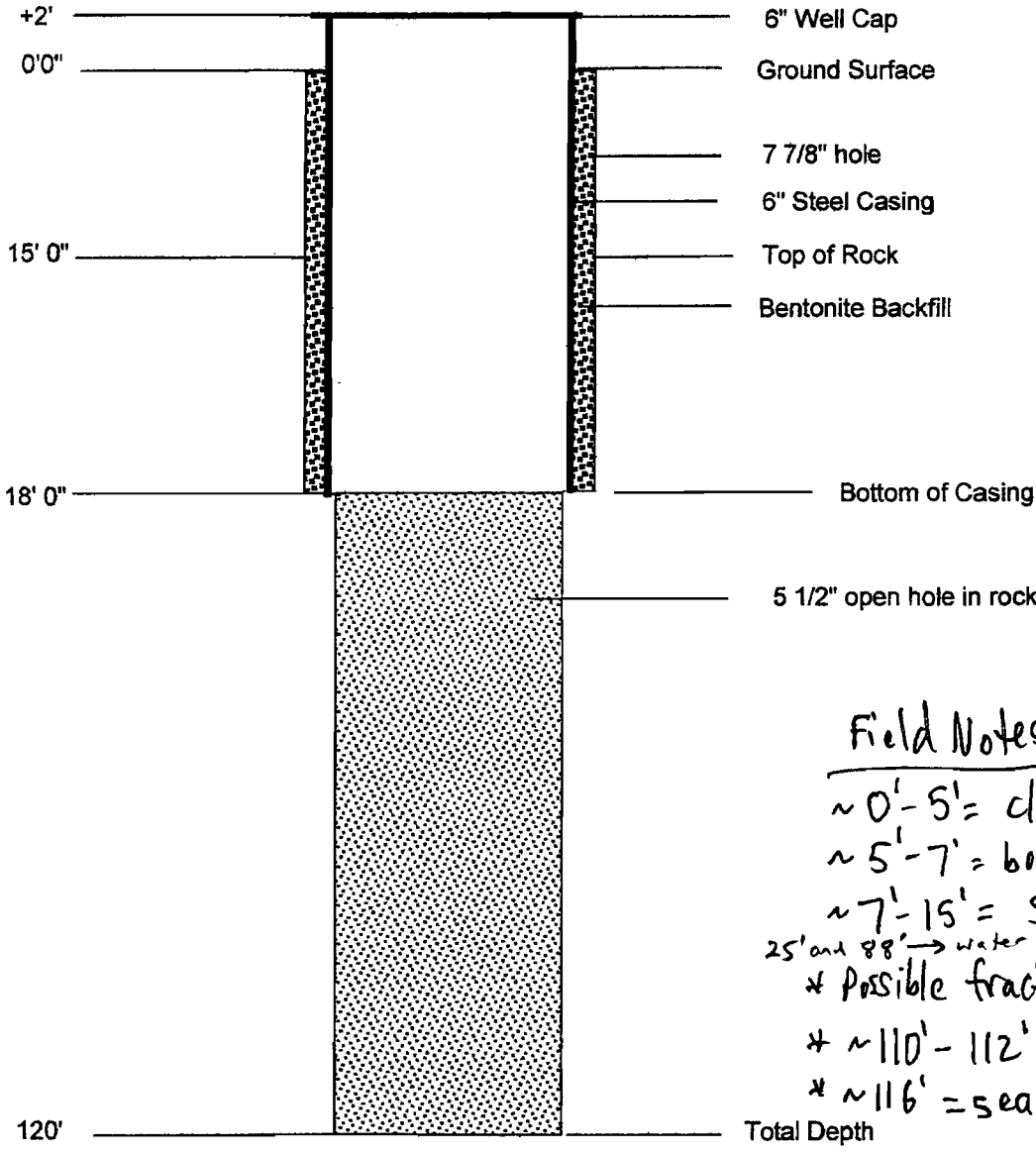


NYSDEC COPY

Hansen, Honeoye Falls
Observation Well
Monroe County, NY

ND Job #3312-09

09-003



Field Notes: (MCL)
~ 0'-5' = clay till
~ 5'-7' = boulder
~ 7'-15' = S & G
25' and 88' → water encountered
* Possible fracture @ ± 103'
* ~110'-112' = soft seam
* ~116' = seam

Note: Drawing Not To Scale

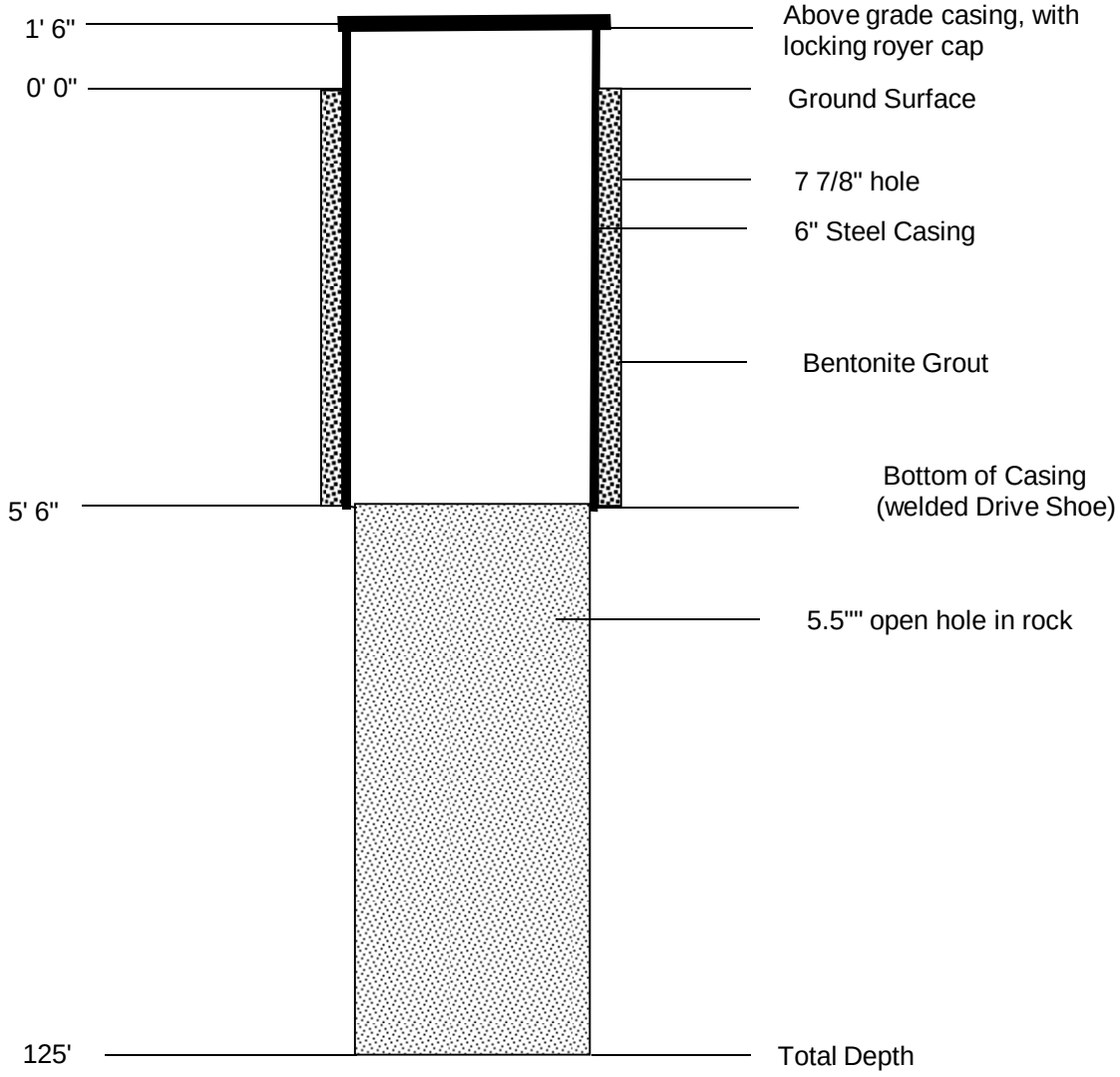
1. Drilled 7 7/8" hole to 18' BGS
2. Set 20' of 6" BIP
3. Poured Bentonite chips around casing
4. Drilled 5 1/2" hole in shale rock to 120' BGS

Note: Grab samples of rock cuttings were taken by Hansen Representative.
✓ Encountered water at 25' & 88' BGS, approximately 2 GPM in total.

Inspection of drill cuttings indicates all Onondaga. No Bertie (Akron) encountered. Alpha Geoscience, 2011

Test Well 10-001
Honeoye Falls
Plant

Hanson Aggregates
PO Box 151
Honeoye Falls, Ny
ND Job # 3415-10
5-5-10

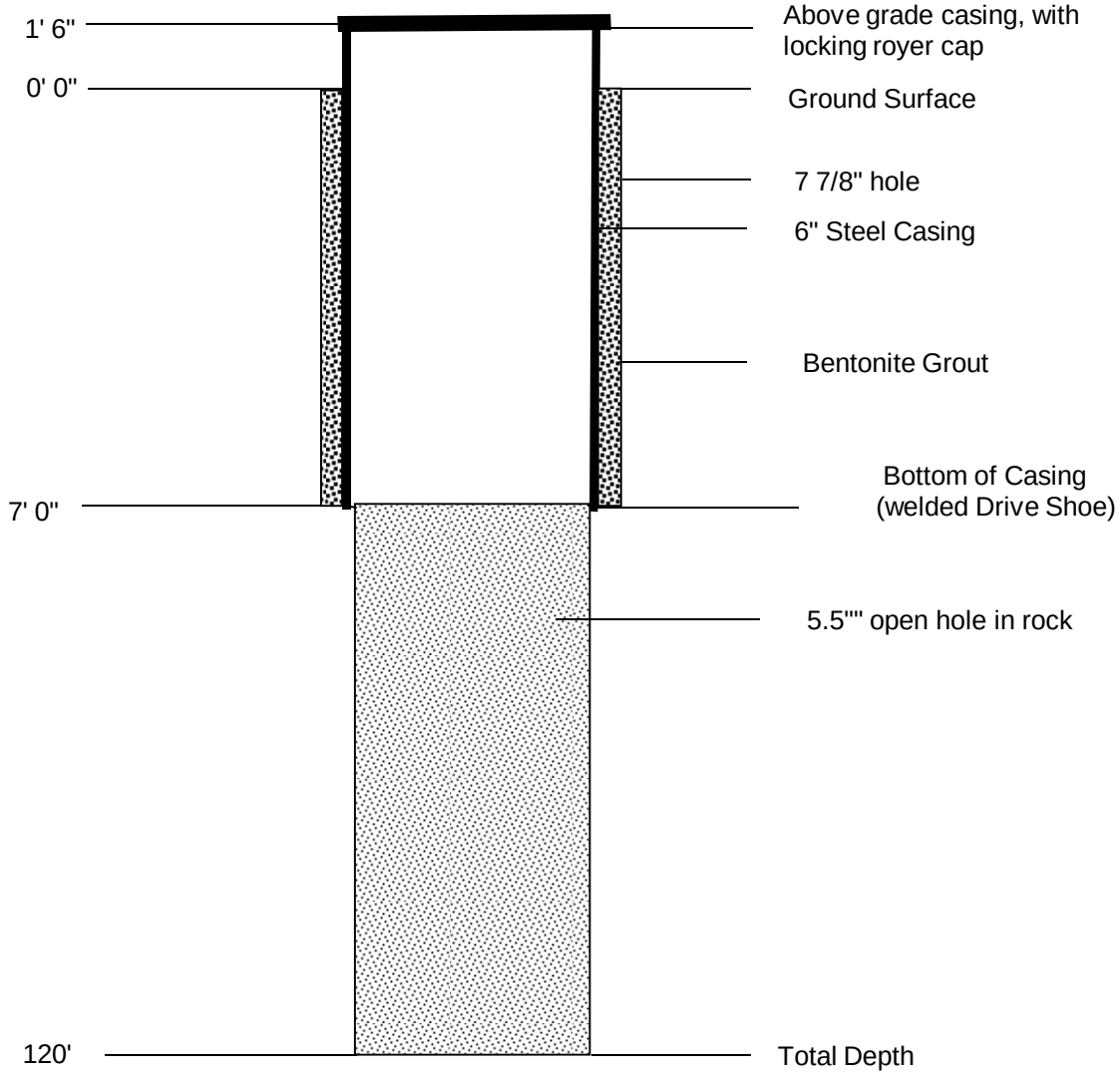


Note: Drawing Not To Scale

NOTE: 1. Encountered water zone at 65' BGS
2. Took grab sample of cuttings, every 5' from 100' to 125' BGS

Test Well 10-002
Honeoye Falls
Plant

Hanson Aggregates
PO Box 151
Honeoye Falls, Ny
ND Job # 3415-10
5-5-10



Note: Drawing Not To Scale

NOTE: 1. Encountered water zone at 15' BGS
2. Took grab sample of cuttings, every 5' from 95' to 120' BGS

APPENDIX D

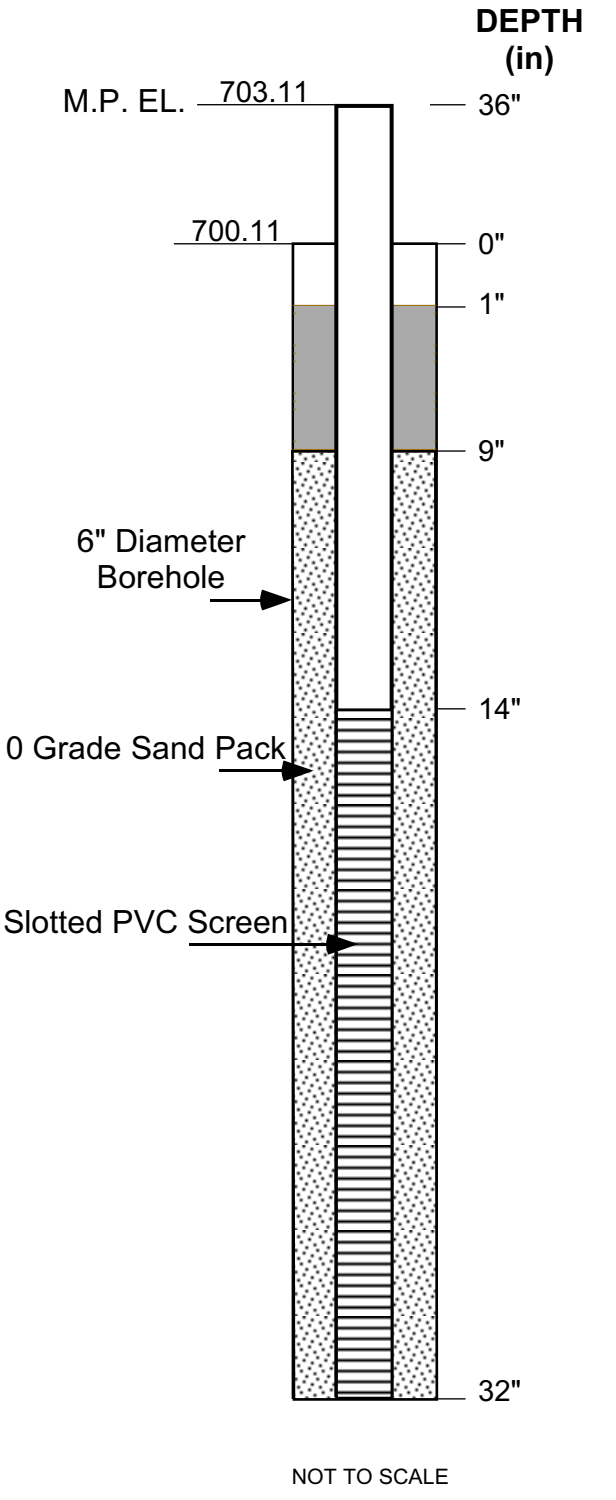
Piezometer P1 Well Construction and Geologic Logs

MONITORING WELL COMPLETION LOG

ALPHA GEOSCIENCE
679 Plank Road
Clifton Park, New York
(518) 348-6995

Well P1
Project Hanson-Honeoye Falls
Project No. 11110
Client Hanson
Date Drilled 4/20/11
Date Developed 4/20/11

WELL CONSTRUCTION DETAILS



NOT TO SCALE

INSPECTION NOTES

Geologist Matt Dupee
Drilling Contractor
Type of Well Piezometer
Static Water Level Date
Measuring Point Top PVC
Total Well Depth 68" (32" below grade)

Riser Pipe
Material PVC Diameter 1"
Length 50" Joint Type Threaded

Screen
Material PVC Diameter 1"
Slot Size .002 in Length 18"
Stratigraphic Unit Screened Silt & Clay

Packing
Sand 0 Gravel Natural
Amount 0.4 ft^3 Interval 9"-32"

Seal
Type Bentonite Chips Interval 1"-9"

Locking Case: Yes [ ] No [X]
Diameter

Notes:

Alpha Geoscience
679 Plank Road
Clifton Park, New York 12065

GEOLOGIC LOG

Boring ID: P1

Project Number/Name: 11110 - Hanson Honeoye Falls Expansion Location: Honeoye Falls, NY

Drilling Contractor/Personnel: Hanson / Larry Clark

Geologist/Hydrogeologist: Matt Dupee Start/ Finish Date: 4/20/2011

Drilling Equip/Method: Power Auger Size/Type of Bit: 6" Auger

Sampling Method: Drilling Cuttings Well Installed? Yes

Elevation/Ground Surface: 703.11

Depth to Ground Water from Ground Surface (Date):

REMARKS:

Depth (in)	Sample No.	DESCRIPTION	REMARKS
		Dark Brown Clay & Silt, trace organics, medium plasticity, moist, medium soft	
6		5"	
12		Light Brown Clay & Silt to Silt & Clay, occasional limestone cobbles up to 6", medium plasticity, moist, medium soft.	
18			
24			
		28"	~28" - Significant water inflow
30		Light Brown Silt & Clay, occasional limestone cobbles up to 6", medium to low plasticity, wet, medium soft. 32"	32"- Refusal
		Bottom of Boring	

Proportions Used: Trace=0-10% Little=10-20% Some=20-35% And-35-50%