LAKE MANAGEMENT PLAN
FOR
2011 MILLINGTON QUARRY RECLAMATION

PREPARED BY:
OMNI ENVIRONMENTAL LLC
PRINCETON, NJ

PREPARED FOR:
MILLINGTON QUARRY, INC.
BERNARDS TOWNSHIP
SOMERSET COUNTY
NEW JERSEY

OCTOBER 13, 2011

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I. BACKGROUND

Millington Quarry is located within Bernards Township in Somerset County, New Jersey (Figure 1). The quarry has been in operation since 1895 and is used to extract and process trap rock, a major source of road construction stone, and red rock. Millington Quarry is licensed under Section 4-9 of Bernards Township's Ordinance. The quarry owner (Millington Quarry, Inc.) is currently developing a Reclamation Plan in accordance with Bernards Township Ordinance § 4-9.5 to restore the quarry property for productive use after quarrying activities cease. A prominent lake feature will form in the quarry when dewatering activities cease. As a result, this Lake Management Plan was developed by Omni Environmental LLC (Omni) on behalf of Millington Quarry, Inc. in support of its 2011 Quarry Reclamation Plan, which was prepared by Page Engineering Consultants, PC (PEC). This Lake Management Plan specifically addresses Bernards Township's Resolution #080308 paragraph #23, which was issued in response to a previous Quarry Reclamation Plan application.

The quarry property consists of almost 180 acres east of Stonehouse Road, south and southwest of the New Jersey Transit Railroad right of way, west of Pond Hill Road, and north of the subdivisions along Haas Road, namely Keats Road, Overlook Avenue, Hunter's Lane, and Deer Creek Drive (Figure 2). Topographically, the quarry property has been excavated over the years such that it forms its own self contained watershed with no natural drainage out of the quarry. The low point in the quarry is to the northeast, adjacent to the shear wall beneath the railroad track, where a 4 to 5 acre pond exists currently. The water level is maintained well below its natural levels through a pump that discharges through a pipeline that runs up the wall to the Passaic River east of the quarry property. Omni delineated the drainage basin of the quarry based on detailed topography as well as information regarding the drainage patterns of nearby residential subdivisions. For instance, the residential subdivision to the west of Stonehouse Road does not drain to the quarry, while a portion of the residential cul-de-sac east of Stonehouse Road (northwest of the quarry) does in fact drain to the quarry. A minor portion of the quarry property drains outside the quarry to the Passaic River; conversely, a minor portion of the quarry drainage basin consists of residential areas outside the quarry property. The drainage area of the quarry and its current topography is shown in Figure 2.

FIGURE 1
LOCATION OF
MILLINGTON QUARRY

Lake Management Plan for
Millington Quarry Reclamation

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Millington Quarry Location
Bernards Township Boundary
Municipal Boundary
Somerset County Boundary

NJDEP GIS

0 3 6
Miles

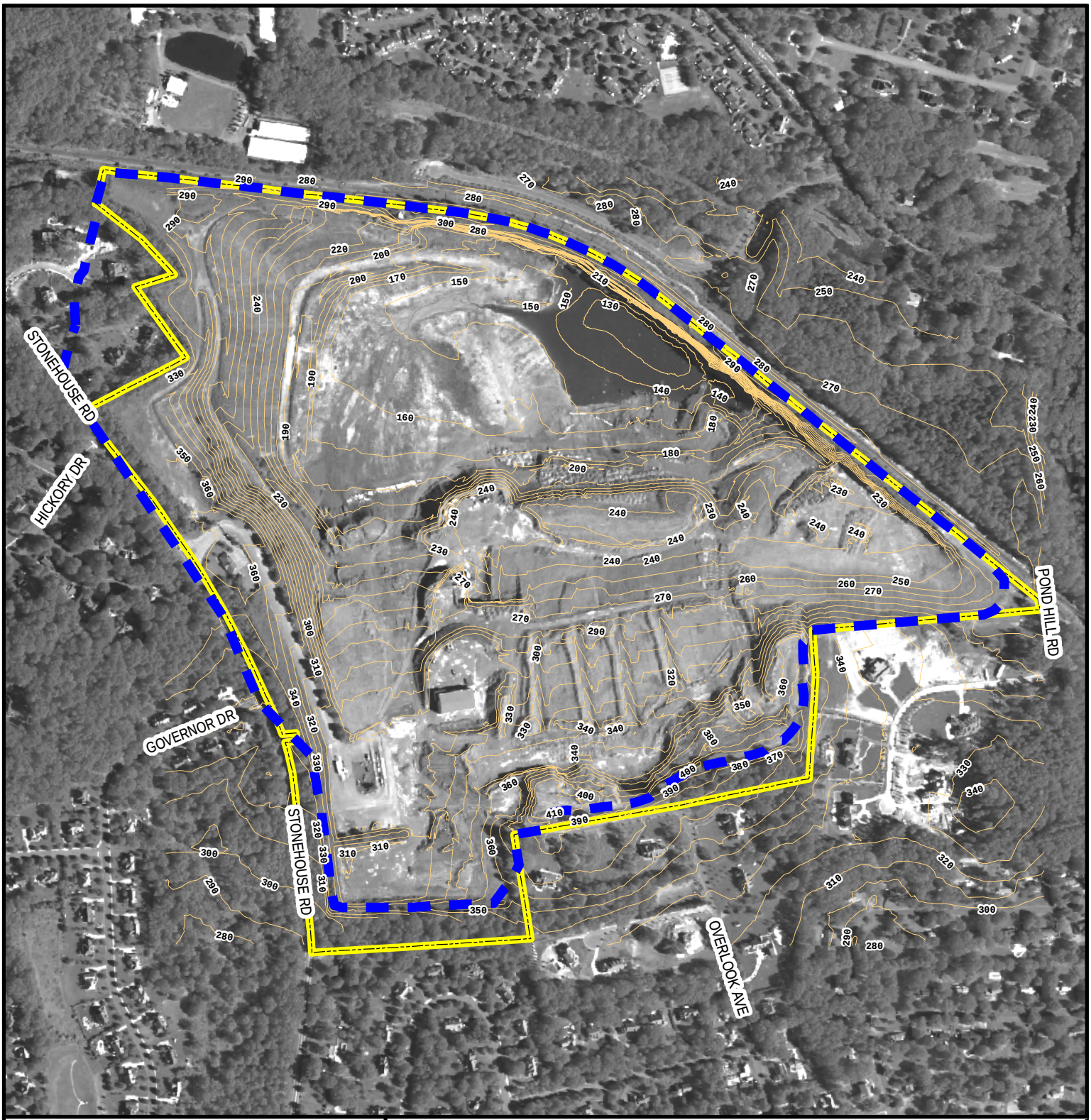

FIGURE 2 - PROPERTY BOUNDARY & WATERSHED OF MILLINGTON QUARRY

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Property Boundary
Watershed Boundary
Contour (10 feet)

Aerial Photography - 2010 NAIP
Topography - Page Engineering Consultants, PC 2011

0 300 600
Feet

The purpose of the lake management plan is to describe how the lake will be constructed and maintained in such a way as to ensure that the resulting lake feature will support future uses of the site. Many uses, such as a residential subdivision, would benefit from having a beautiful and healthy lake within the site. The lake feature that will form as a result of the reclamation of Millington Quarry will be aesthetically attractive, clean, and supportive of a healthy aquatic life community.

II. LAKE CONSTRUCTION PLAN

Hydrologic and geologic studies[1] performed previously by Leggette, Brashears & Graham, Inc. (LBG) demonstrate that after pumping ceases, the water level in the quarry will increase to an elevation of approximately 220 feet above mean sea level (msl), resulting in a prominent lake feature on the property. Figure 3[2] shows the proposed grading plan prepared by PEC for the quarry reclamation, which will result in the formation of a 50-acre lake with a maximum depth of approximately 100 feet and an average depth of 51 feet. Earth-moving and grading activity associated with quarry reclamation is expected to occur over a two to three year period, during which time 450,000 cubic yards of overburden will be imported to the quarry. During the construction phase of reclamation, the water level will be reduced through pumping from its current elevation of 157 feet above msl to approximately 140 feet above msl, which is assumed to be the baseline elevation of the lake prior to filling.

The bottom of the quarry is bedrock basalt, with compacted fill and deposited sediment in the deepest basins. The reclamation plan calls for lining the entire bottom and fill slope from 140 feet above msl up to an elevation of 225 feet with riprap (basalt). This configuration addresses Resolution #080308 paragraph #30 by eliminating the need for lining the lake with soil material. A stone bottom will minimize the introduction of nutrients into the lake and also provide fish habitat. Large boulders will also be emplaced at various elevations to provide additional fish habitat. While fish stocking is not contemplated at this time, the lake feature that develops will certainly support a high quality reproducing fishery (this addresses Resolution #080308 paragraphs #37-38). A fish stocking program should be considered as part of a development application in the future.

[1] Leggette, Brashears & Graham, Inc. "Hydrologic Impacts Assessment Summary Update for the Millington Quarry." January, 2005.

Karen Benson and Frank Getchell, P.G. "Update of Hydrologic Impacts Assessment for the Proposed Millington Quarry Reclamation Project." Leggette, Brashears & Graham, Inc. January 24, 2008.

[2] For more detailed full size grading plan, see 2011 Millington Quarry Reclamation plan sheet entitled "Grading Plan Drawing #3," prepared by Page Engineering, Inc., dated October 13, 2011.

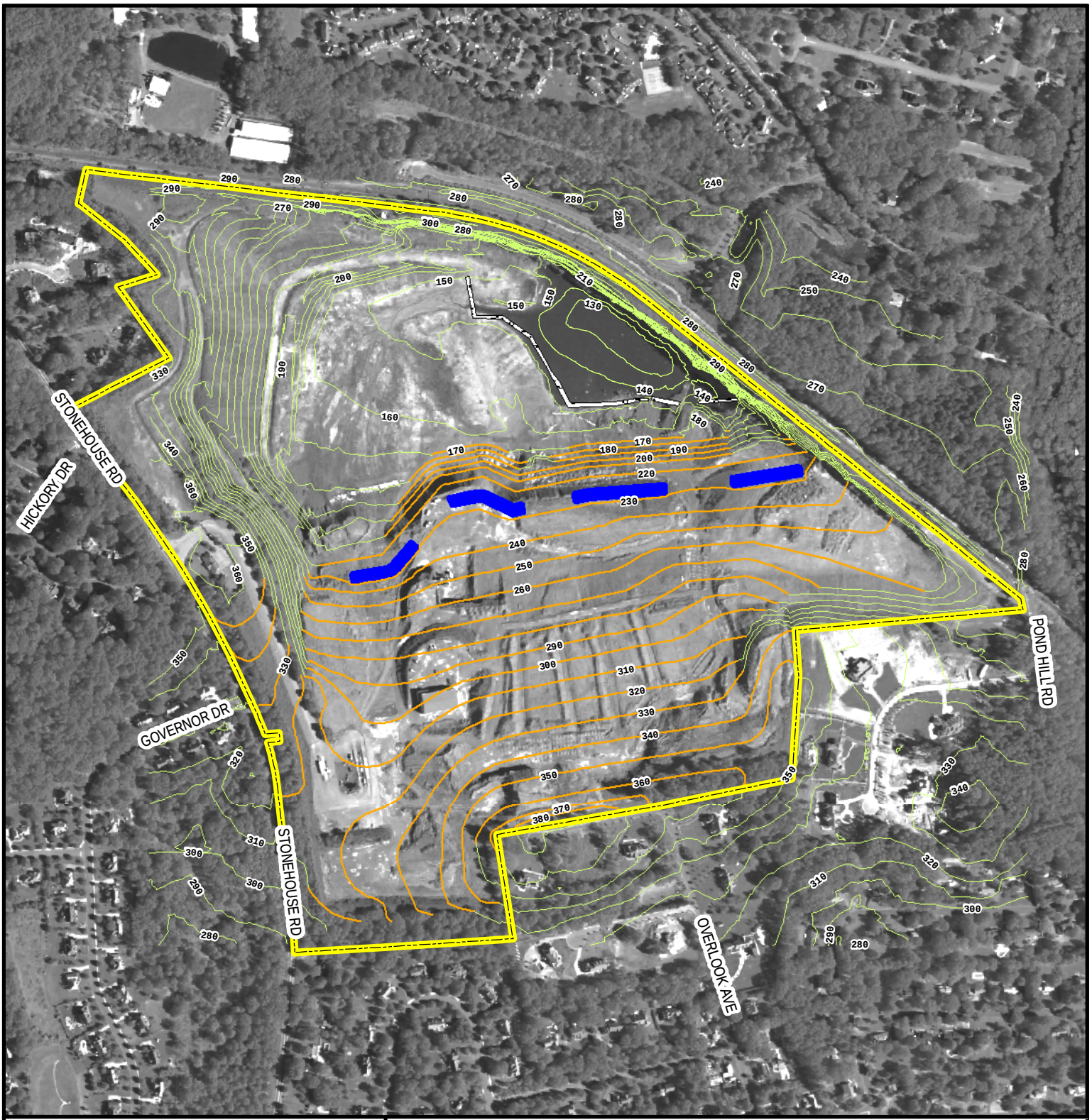

FIGURE 3
RECLAMATION GRADING PLAN

Lake Management Plan for
Millington Quarry Reclamation

October 13, 2011

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- Property Boundary
- 10 Foot Contour
- Existing Topography
- Proposed Grading
- Stone Filter
- Water Quality Forebay

Aerial Photography - 2010 NAIP
Topography - Page Engineering Consultants, PC 2011

0 300 600
Feet

A. Stormwater Management

While the quarry is a self-contained watershed with no off-site stormwater discharge, stormwater is still relevant within the quarry due to the potential for stormwater to erode soils and negatively affect water quality in the lake. Several stormwater features are incorporated into the reclamation site design, and serve to satisfy Resolution #080308 paragraphs #20, 32 and 33. The lake banks from 140 up to 225 feet above msl will be covered with riprap. Riprap provides stabilization and erosion control as well as stormwater filtration. In addition, riprap provides a deterrent for resident geese populations, since geese cannot easily walk on riprap and do not prefer it. During reclamation construction, a stone sediment filter at approximately 148 feet above msl will be used to detain and filter stormwater before it enters the existing quarry settling pond (Figure 3). Sediment is expected to accumulate upslope of these stone filters, and may be removed to avoid movement of sediment into the pond during storm events. This stormwater feature will protect the pond during construction before it begins to fill into a lake feature, and will be left for additional fish habitat within the future lake.

Finally, a series of water quality forebays will be constructed just upslope of the riparian buffer surrounding the lake to the south (Figure 3). These forebays will contain riprap on the bottom during the reclamation construction phase. They are designed to retain and infiltrate the runoff volume associated with the water quality storm, and are also designed to store at least one year of sediment (in addition to the volume of the water quality storm) that might accumulate during reclamation construction. Storms in excess of the water quality storm will be discharged through riprap swales into the lake. As needed (expected to be needed no more than once per year), excessive silt will be removed from the forebays during construction to maintain their function. Forebay sizing calculations and riprap swale calculations are provided in Appendix A. The forebays collect runoff from all but approximately 16 acres[3] to the northwest of the future quarry lake. After the upland areas to the south are stabilized, as part of a future development plan, the forebays can be converted

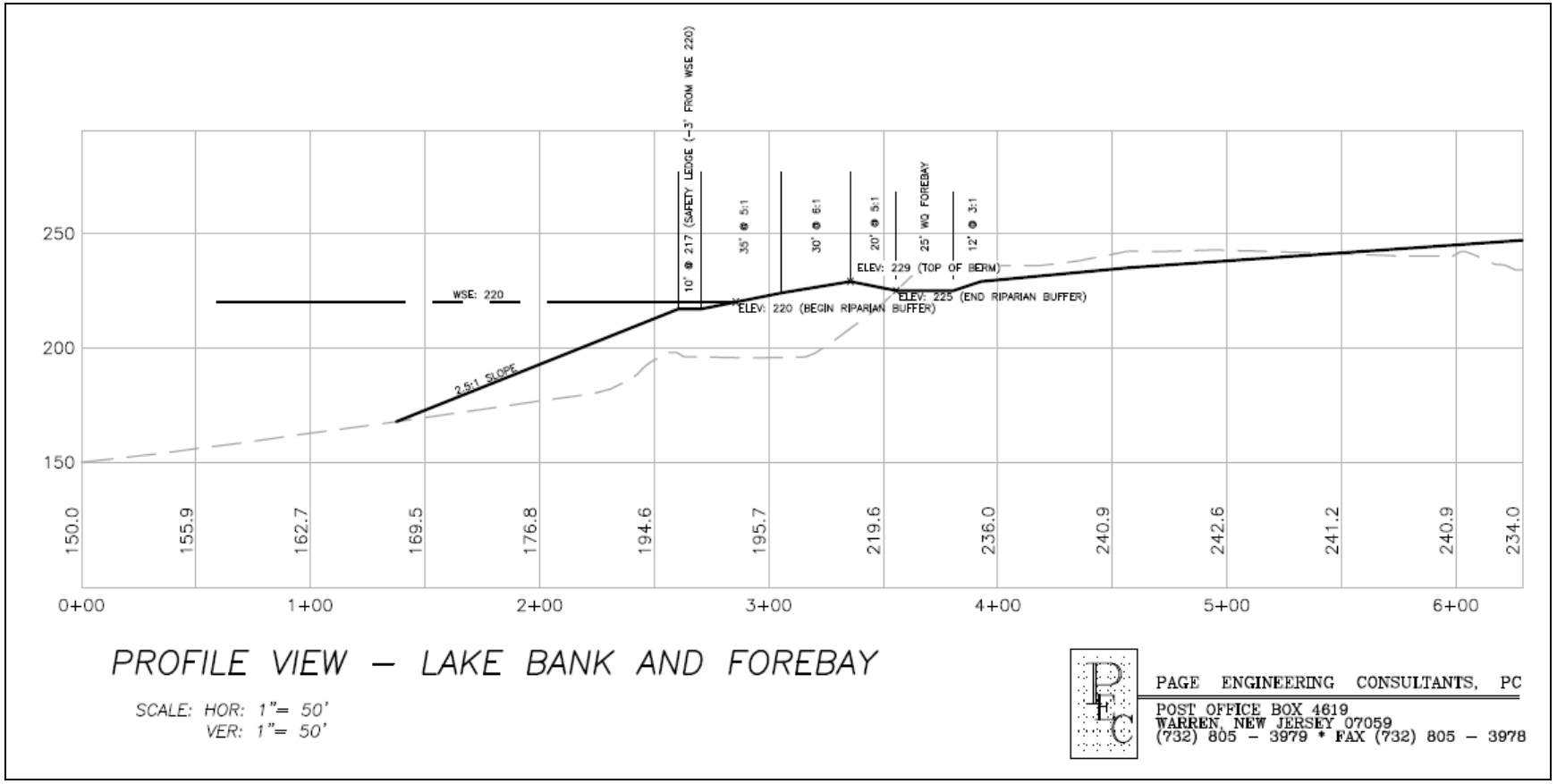
[3] The area to the northwest of the future lake is currently stabilized with meadow vegetation and drains to the lake. This area is subject to NJDEP regulation due to the nature of the fill, and will be managed in accordance with a Memorandum of Agreement (MOA) that is currently under development; hence it is referred to as the MOA Area.

to bioretention basins. These stormwater BMPs, both during reclamation construction and after, not only address water quality but also provide geothermal temperature moderation through infiltration and subsurface drainage.

B. Safety Features

A number of safety features are incorporated into the reclamation design in order to minimize potential risks to health and safety (Ordinance § 4-9.5.a.13). In order to protect people who might accidentally fall into the lake, a safety ledge is incorporated into the bank slope such that protection is provided for a final lake elevation of 220 feet (Figure 4). Two safety features are proposed in order to protect against falling rocks from the wall beneath the railroad (Ordinance § 4-9.5.a.14). A rock fall catchment ditch will be used where the wall is adjacent to the land, to prevent risk from falling rocks bouncing off the land and injuring people or damaging property. In the lake, a row of buoys will be installed 50 feet away from the wall in order to keep watercraft away from the range of falling rocks. The top of the wall is already essentially inaccessible because of the railroad corridor and the existing chain link fence. However, a thorny vegetated area (approximately 10 feet wide) will be installed on top of the wall to further prevent people from accessing the precipice. Also, additional chain link fence will be installed perpendicular to the existing fence on each end to prevent access from the sides.

Figure 4: Cross Section of Basin Showing Berm, Safety Ledge, and Riparian Buffer



III. HYDROLOGIC BUDGET

An annual hydrologic budget was prepared to satisfy Ordinance § 4-9.5.a.10. The budget is based on geologic and hydrogeologic analyses performed by LBG, the proposed grading plan for the reclamation plan prepared by PEC, and the quarry watershed delineated by Omni (Figure 2). Once the reclamation construction is completed and pumping ceases, both groundwater and surface water will accumulate within the former quarry and form a lake. Based on the analyses performed by LBG, regional groundwater can be ignored as a source (and sink) term because the rock formation yields very little groundwater due to its low permeability and fracturing. Filling of the lake will result from precipitation that falls within the quarry watershed and enters the lake through one of three pathways: 1) precipitation that falls directly on the lake surface will contribute directly to the lake volume; 2) a portion of precipitation within the quarry watershed will generate runoff and drain to the lake; and 3) a portion of precipitation within the quarry watershed will enter the subsurface through infiltration and reach the lake indirectly as recharge. Because of the forebays upslope of the berm around the lake (Figure 3), much of the water from the contributing land areas will enter the lake as recharge rather than runoff. Losses of water include evaporation from the lake surface and evapotranspiration from contributing land areas. LBG estimated the following components that were utilized for the hydrologic budget: 47 inches/year precipitation; 23 inches/year combined recharge and runoff rate from contributing land area; and 32.5 inches/year evaporation rate from the lake surface. These values are reasonable approximations based on the information available.

Based on the assumptions described above, a simple hydrologic budget is provided in Table 1 for the period during which the lake will fill with water. The lake is expected to reach elevation 168 feet above msl, the bottom of the constructed bank (see Figure 3), in the first 16 months and rise to its expected final elevation of 220 feet above msl in 7.9 years. In order to bound this estimate, Omni performed the analysis using a low inflow (recharge plus runoff into lake) rate value of 40% of precipitation (19 inches/year) and a high inflow rate of 75% of precipitation (35 inches/year). These boundary estimates indicate that the lake will fill between 5.4 and 9.3 years after pumping ceases, assuming a starting lake elevation of 140 feet above msl and final lake elevation of 220 feet above msl. There is a possibility that material may be mined from the near bottom of the quarry to be used to comply with NJDEP requirements for the MOA

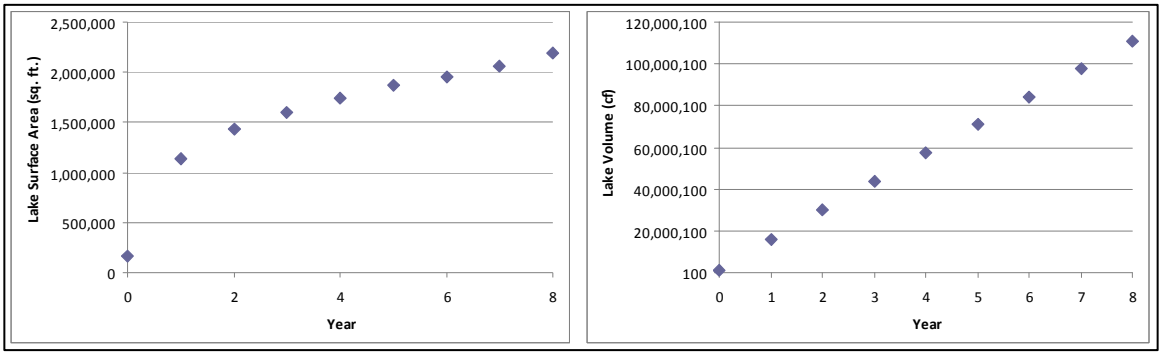
area. Such excavation, if required, would have only a minor impact on the filling rate for the lake, on the order of a few months.

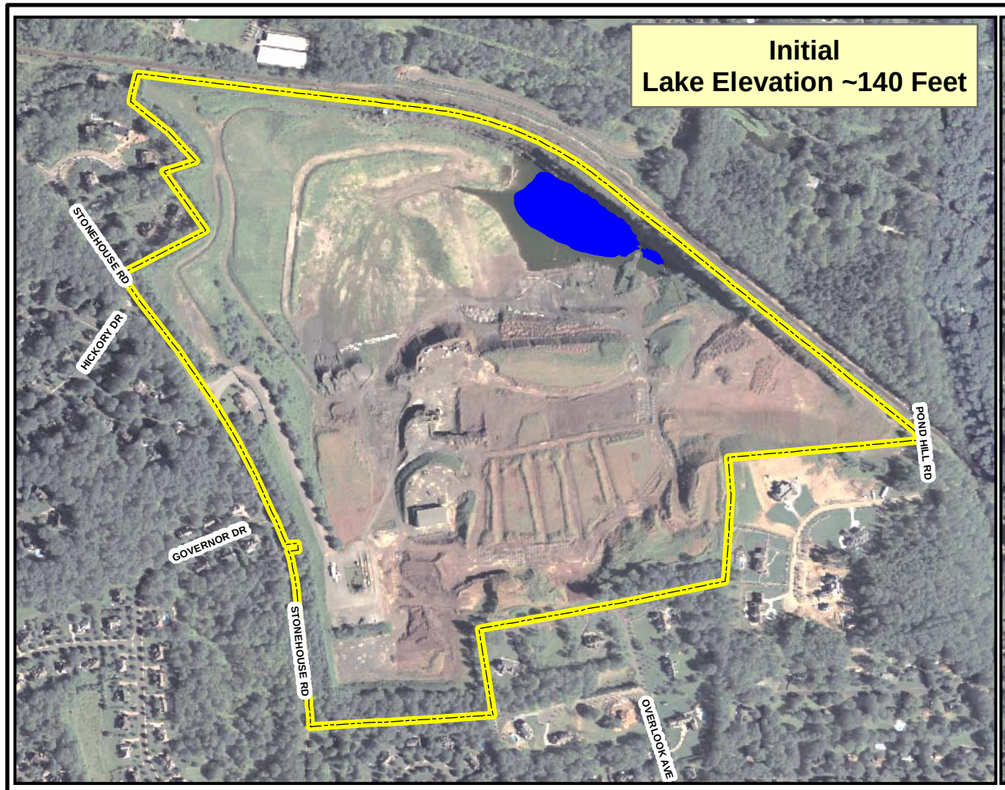
Table 1: Annual Hydrologic Budget for Lake During Filling Period

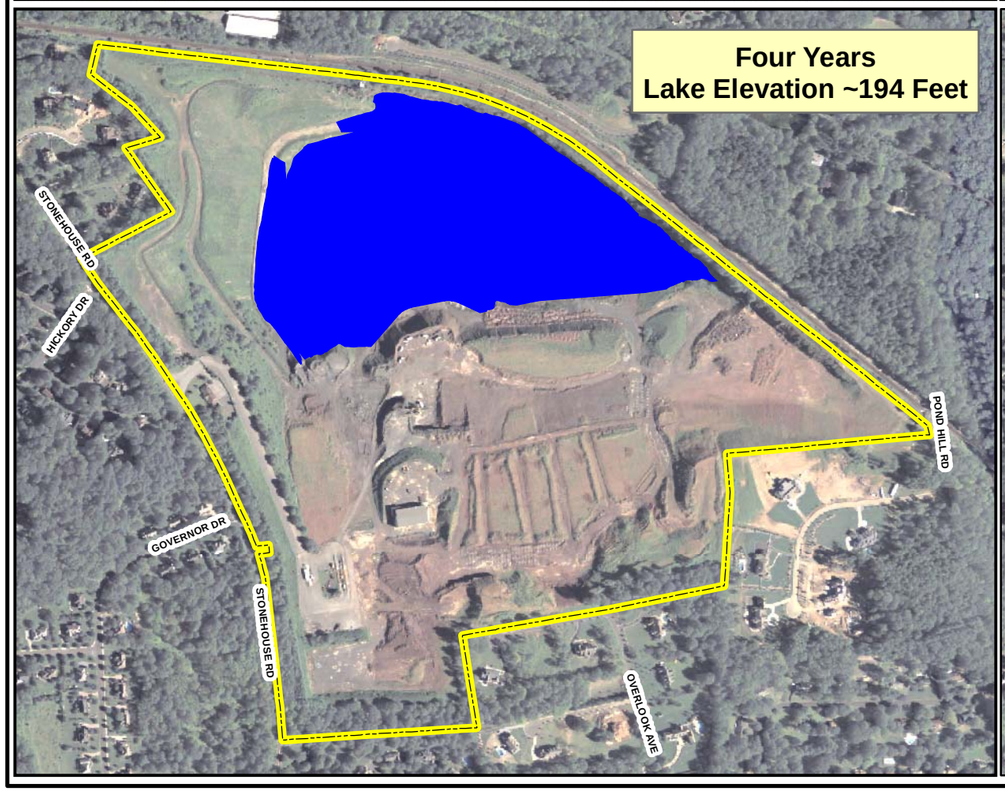
Year	Contributing Land Area (ft^2)	Lake Area (ft^2)	Recharge and Runoff into Lake (ft^3)	Direct Precipitation onto Lake (ft^3)	Lake Evaporation (ft^3)
0	7,530,578	168,022	14,433,608	658,086	455,060
1	6,559,939	1,138,661	12,573,217	4,459,755	3,083,873
2	6,265,541	1,433,059	12,008,953	5,612,815	3,881,202
3	6,096,753	1,601,847	11,685,442	6,273,902	4,338,337
4	5,954,660	1,743,940	11,413,098	6,830,432	4,723,171
5	5,831,705	1,866,895	11,177,435	7,312,004	5,056,173
6	5,738,943	1,959,657	10,999,642	7,675,322	5,307,403
7	5,639,972	2,058,628	10,809,946	8,062,961	5,575,452
7.9+	5,519,242	2,179,358	10,578,547	8,535,819	5,902,428

During the filling period, approximately 50% of the final surface area will be reached in the first year, after which surface area will increase nearly linearly until the final lake elevation is achieved. Lake volume increases nearly linearly throughout the filling period. Figure 5 shows the expected increase in lake surface area and volume during the filling period. Figure 6 shows the area of the lake at elevations corresponding to the assumed level before filling, 16 months after filling begins, 4 years after filling begins, and the assumed final lake elevation of 220 feet above msl.

Figure 5: Lake Surface Area and Volume Changes During Filling Period







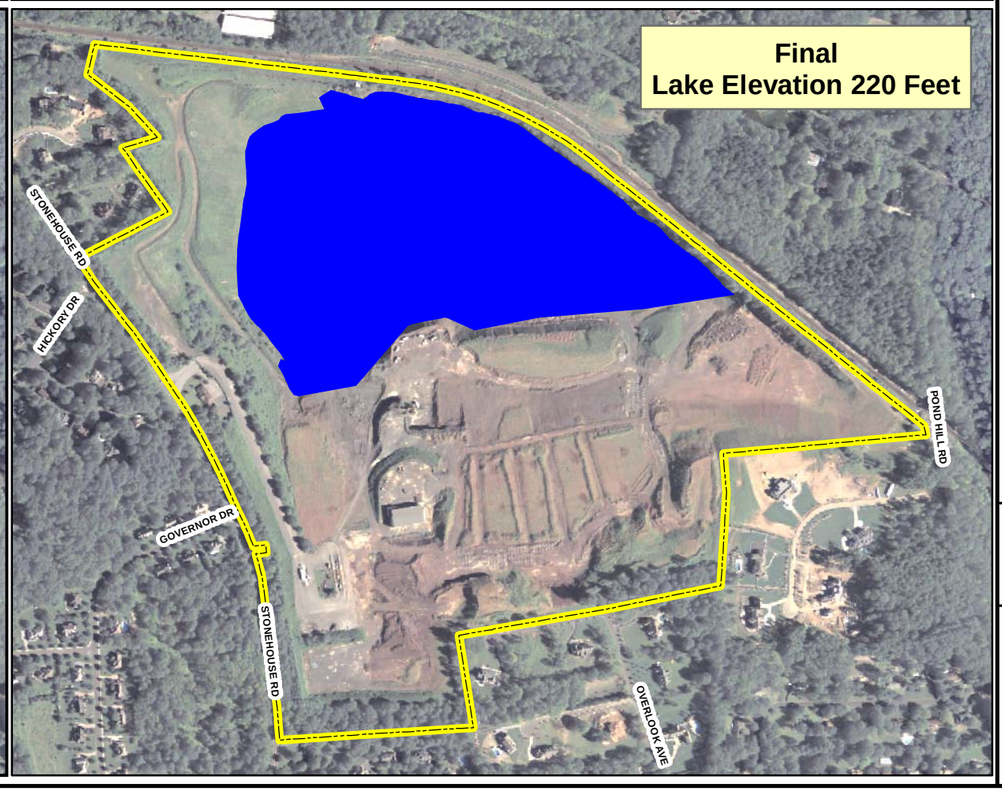


FIGURE 6
Area of Lake During Filling
(Initial, 16 months, 4 years, Final)

Lake Management Plan for
Millington Quarry Reclamation

Property Boundary

Approximate Lake Area

Aerial Photography - 2010 NAIP

October 13, 2011

0 400 800

Feet

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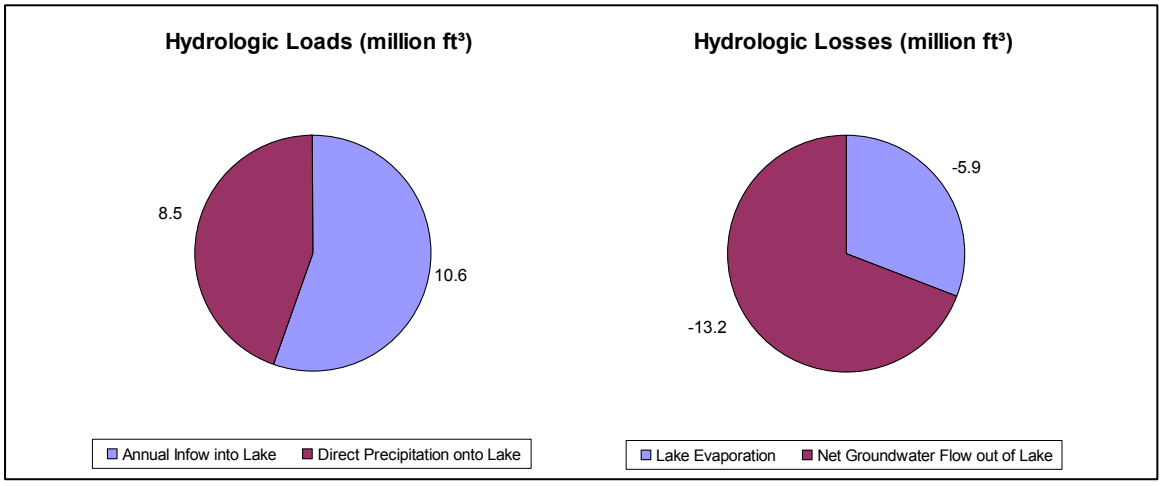
During lake filling, the difference between hydrologic loads (recharge, runoff and direct precipitation) and hydrologic losses (evaporation) will be added to the lake volume as incremental storage. According to LBG, when the lake level reaches approximately 220 feet above msl, the rock strata becomes much more permeable, allowing the lake level to equilibrate with the regional water table. As a result, the difference between hydrologic loads and losses will flow out of the lake as a net groundwater loss (Figure 7). This outflow from the lake represents additional recharge to the regional groundwater system, which will help maintain well levels and stream baseflow in the area.

Figure 7: Annual Hydrologic Budget of Lake (Post-Filling)



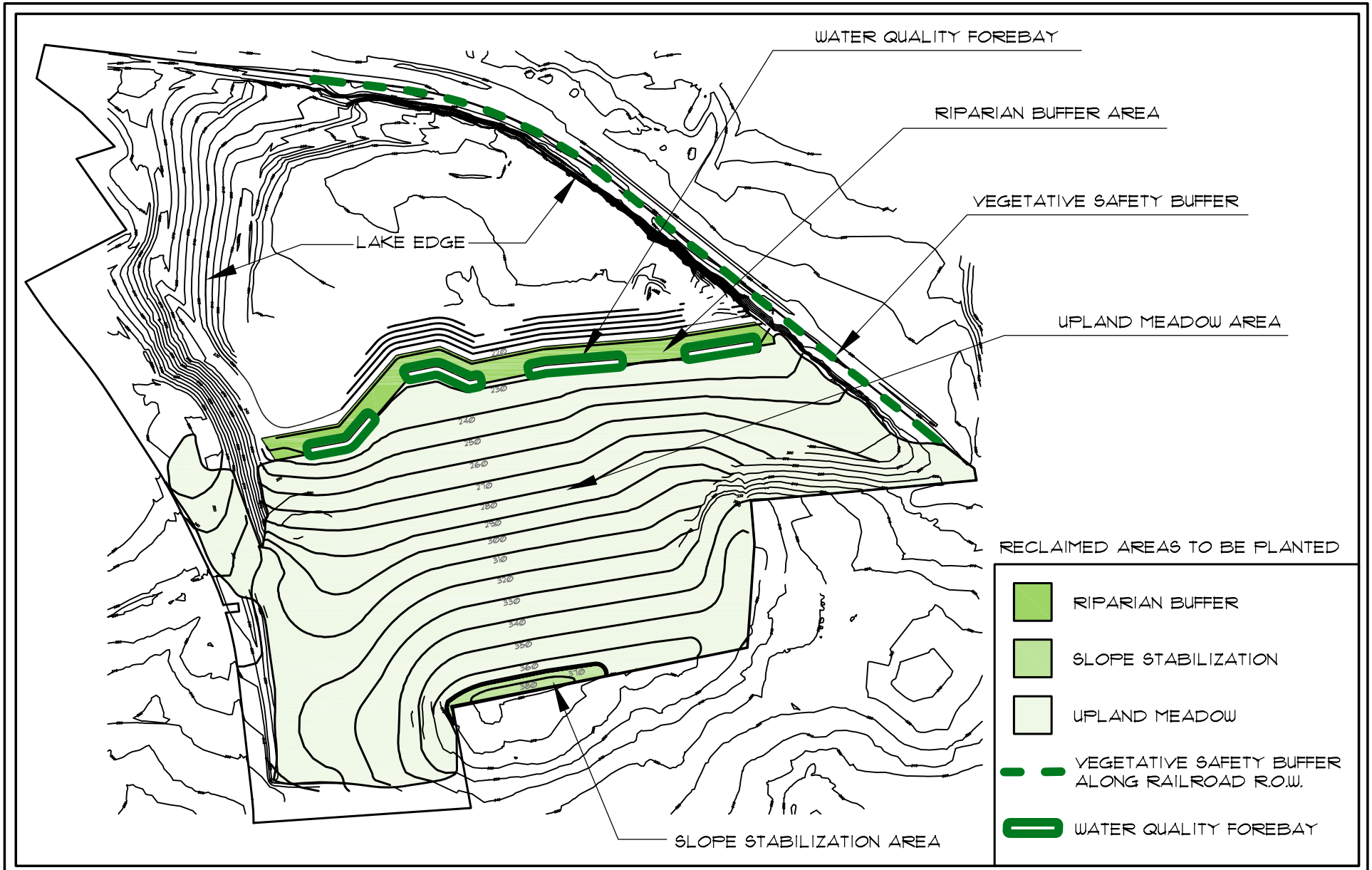
IV. VEGETATION PLAN

A Vegetation Plan was developed by Davies Associates Landscape Architects, LLC (Davies) in support of the Quarry Reclamation Plan. The top two feet of all overburden soil shall be native material from site, suitable to support vegetation, free from hard clods, stiff clay, cement, concrete, or any other undesirable material. The Vegetation Plan provides native plant lists and seed mixes for the four vegetation planning areas on the site, shown in Figure 8 and described below. The actual landscape plans for the four vegetation planning areas are provided in Appendix B. Plant lists for each of the vegetation planning areas are also provided on the landscape plans in Appendix B.

A. Riparian Buffer

As shown in Figure 8, a vegetated riparian buffer is proposed along the entire berm on the south side of the lake. This is a significant riparian buffer that will stabilize the berm, attract wildlife, and provide aesthetic beauty to the lake landscape. Figure 4 shows a profile view of the riparian buffer, which will begin at elevation 220 feet above msl and extend a minimum of 70 feet over the berm to the bottom of the forebays. The vegetated riparian buffer is 105 feet wide in some places (between the forebays), resulting in an average riparian buffer width of over 80 feet. Native plants that are adapted to a variety of moisture conditions will be used to stabilize the lake berm. These plants will establish themselves rapidly, and will provide food and nesting areas for wildlife, including small mammals, reptiles, and birds. Plants with a range of seasonal color and texture will be selected to improve the aesthetics of the site. Species of wet site tolerant trees, shrubs, perennial grasses, sedges, flowers and groundcovers will be introduced to the site.

Because the berm with the riparian buffer will be installed approximately eight years before the lake reaches its final elevation, the elements of the riparian buffer will be installed in phases. Some of the more water-dependent species within the riparian buffer will be installed only when the lake reaches near its final elevation. Initially, the entire riparian buffer will be stabilized immediately with a meadow seed mix (see Upper Meadow section below). Subsequent elements will be installed when conditions are appropriate.



MILLINGTON QUARRY

FIGURE 8-VEGETATION PLANNING AREAS

DATE: 10/13/2011
DRAWN BY: JEF

SCALE: NTS

Davies Associates
Landscape Architects, LLC

B. Safety Buffer

A vegetated safety buffer is proposed along the railroad right of way on top of the precipice that forms the boundary to the northeast. This safety buffer will be supplemental to the existing fence; plantings will comprise a dense thicket of thorny or bushy shrubs to discourage people from crossing the right of way between the top of the embankment and the railroad tracks. This safety buffer will only be located at the top of the precipice. Native hawthorns and roses, which have sharp thorns, and native hollies, which have sharp prickly leaves, can be used as deterrents to people who may try to access the top of the cliff.

C. Upper Meadow

The upper meadow area encompasses the majority of the site, including all of the fields and open areas. Meadow grasses, sedges, groundcovers and wildflowers will be planted to begin the restoration of native flora on the site. Infiltration will occur as the runoff passes through the top layers of soils, and seeps into the ground. Water will quickly infiltrate the broken rock underlying the surface. The plants and the soil on the site will act to filter out sediment and pollutants from the runoff. All disturbed areas will be seeded. Diversity in seed mixes increases the odds of finding successful species that will thrive, and through competition, will reduce invasive species invasion.

D. Slope Stabilization

A slope stabilization mix will be used to stabilize the steeper areas (2-2.5 to 1 slopes) proposed for the southern border of the property. Plants that have strong root structures will be used to prevent soil erosion, including plants with spreading roots, like *Xanthorhiza simplicissima*, native yellowroot, or some of the viburnums, spireas, or *Itea virginica* (sweetspire).

V. LAKE CHARACTERIZATION

A. Preliminary Sampling Results

An initial sampling event was performed on September 27, 2011. The purpose of this initial event was to provide data to assist in the development of a Lake Characterization Plan and to serve as the fall sampling for a lake characterization event. Sampling was performed on both the existing pond at the bottom of Millington Quarry as well as the more mature quarry lake that formed in the nearby Bernardsville Quarry. As quarrying activities ceased approximately 20 years ago, and as described in the subsequent section, the lake in Bernardsville Quarry provides a meaningful baseline as to the water quality that would be expected in the lake that will form in Millington Quarry. The location and geologic setting of Bernardsville Quarry relative to Millington Quarry is shown in Figure 9.

Nutrients and sediments are the principal causes of impairments to many lakes and ponds, because they can stimulate excessive algae growth and cause lakes to fill in prematurely. Therefore, the initial sampling event and assessment was focused on the trophic state of the quarry ponds and the degree to which aesthetic and aquatic life uses are supported. In addition, a complete priority pollutant scan (including volatiles, semi-volatiles, pesticides, metals, and PCBs) was performed to provide a baseline in each lake regarding toxics and metals. A Quality Assurance Sampling Plan for the monitoring performed as well as the future monitoring proposed is provided in Appendix C.

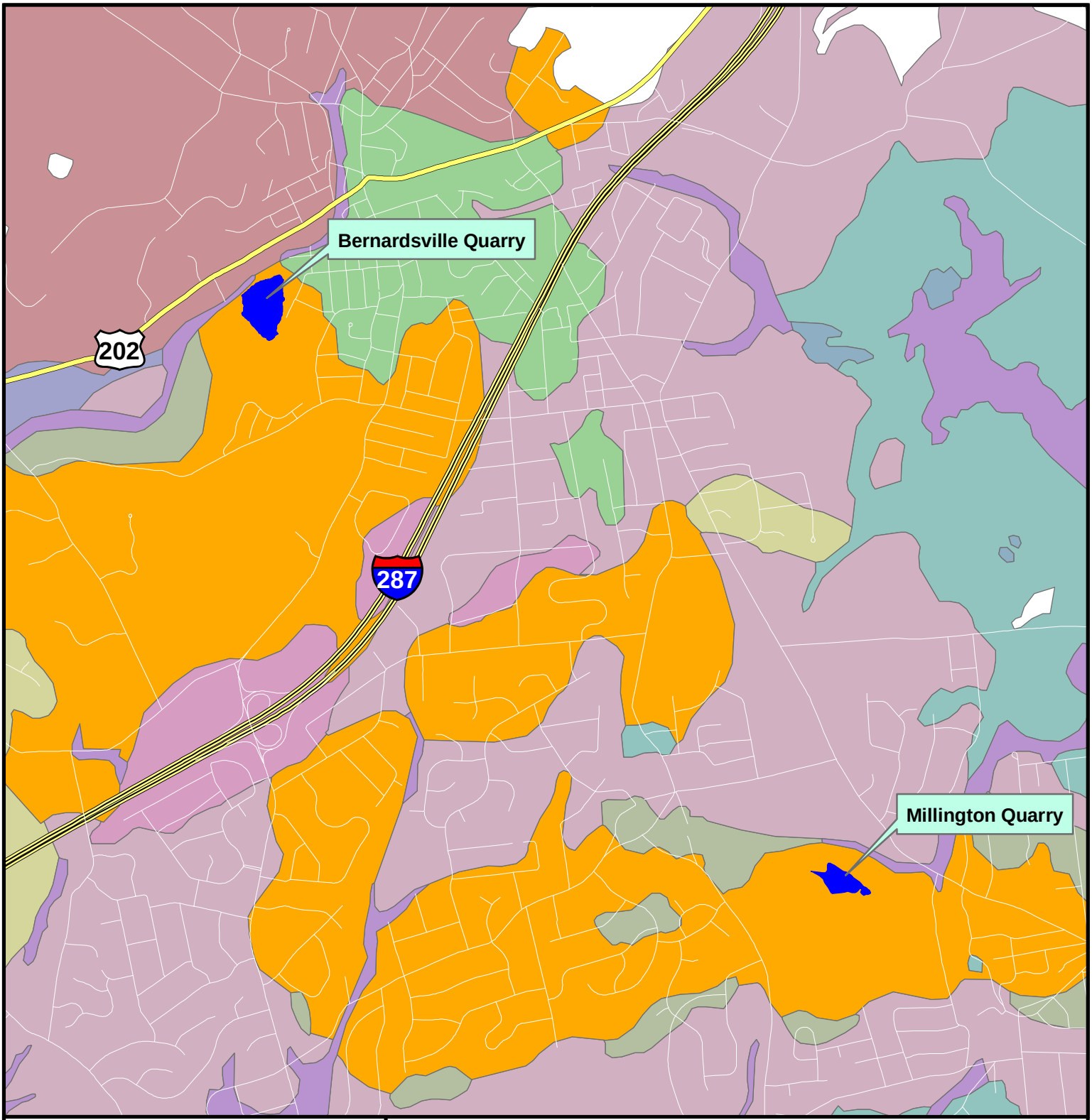


FIGURE 9 - LOCATION OF MILLINGTON QUARRY & BERNARDSVILLE QUARRY

Lake Management Plan for
Millington Quarry Reclamation

October 13, 2011

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Bedrock Geology

- ALLUVIUM
- BASALT COLLUVIUM
- LATE WISCONSINAN GLACIAL LAKE-BOTTOM DEPOSITS
- PRE-ILLINOIAN GLACIOLACUSTRINE SAND AND GRAVEL DEPOSITS
- PRE-ILLINOIAN TILL
- SHALE, MUDSTONE, AND SANDSTONE COLLUVIUM
- SWAMP AND MARSH DEPOSITS
- UPPER STREAM TERRACE DEPOSITS
- WEATHERED BASALT
- WEATHERED GNEISS
- WEATHERED SHALE, MUDSTONE, AND SANDSTONE

NJ Geologic Survey

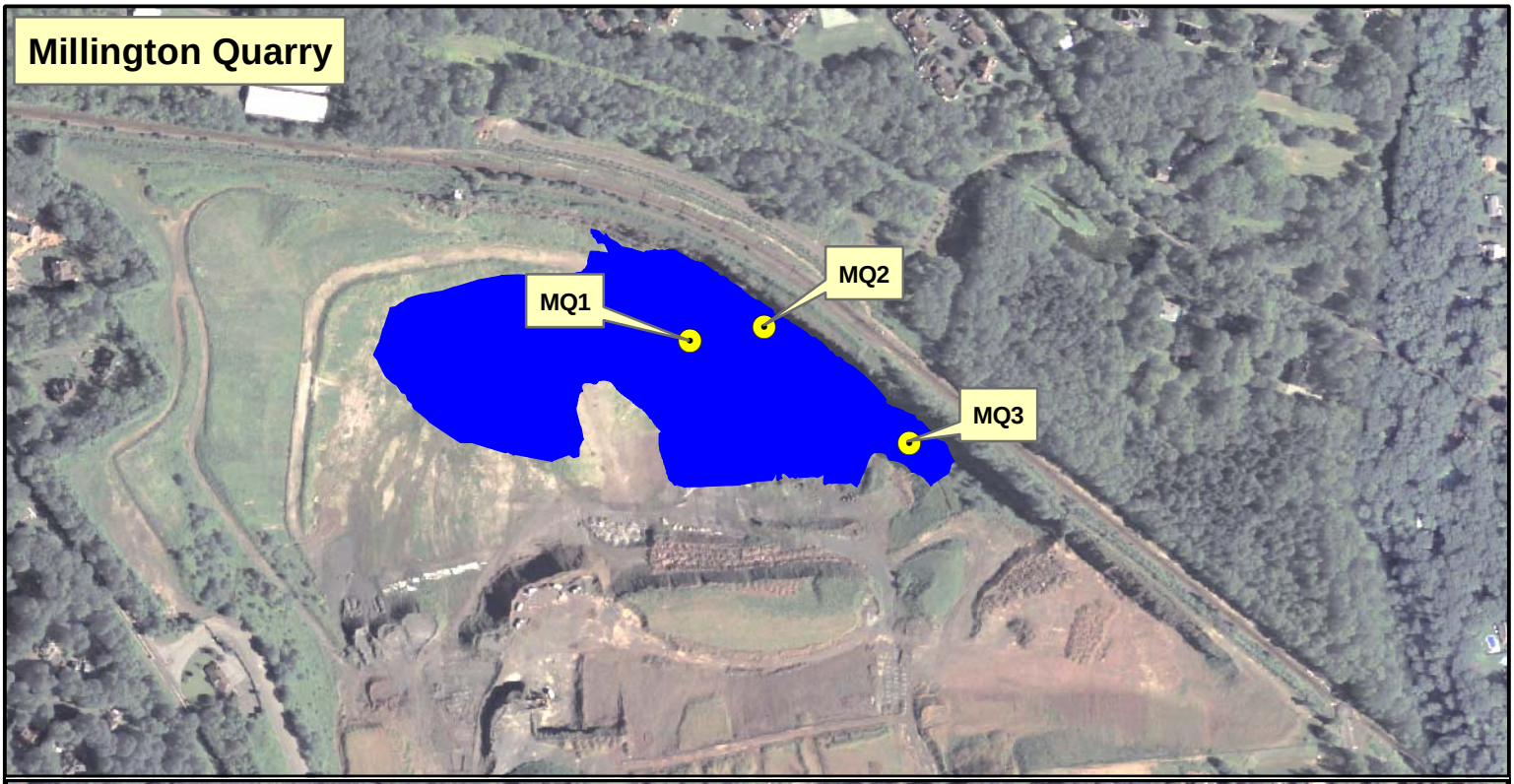
0 1,000 2,000
Feet

1. Description of Sampling

Sampling and assessment closely mirrors the protocol used by the New Jersey Department of Environmental Protection (NJDEP) for its Ambient Lake Monitoring Network; the main differences are the addition of a priority pollutant scan and analysis of phytoplankton cell count and composition.

Three mid-lake sampling locations were identified within each lake (Figure 10). Note that "mid-lake" in this context does not mean the middle of the lake. Rather it means the main body of the lake that best characterize the lake as a whole. In Millington Quarry, the sampling stations were therefore closer to the cliff where the deeper areas are located; also, the shallow portion on the western side was excluded because it had only recently been inundated with stormwater runoff when the lake level rose above its normal level maintained during quarrying. At each lake monitoring location, *in-situ* analyses of dissolved oxygen, pH, temperature, and conductivity were performed as a depth profile throughout the water column. In addition, transparency was measured at each location using a Secchi disc. Two discrete samples at each station (a near-surface sample and a sample near the bottom) were collected and analyzed at a certified laboratory for the following parameters: alkalinity, hardness, total phosphorus, dissolved orthophosphorus, total Kjehldahl nitrogen, ammonia as N, nitrate as N, total suspended solids, and turbidity. Surface samples were also analyzed for chlorophyll-a to characterize phytoplankton concentration in the photic zone. At the most central location in each lake (MQ2 and BQ2 in Figure 10), the bottom sample[4] was analyzed for a complete priority pollutant scan, including volatiles, semi-volatiles, pesticides, metals, and PCBs. Also at MQ2 and BQ2, a depth-integrated surface sample was collected in each lake and analyzed for phytoplankton cell count and composition.

[4] Bottom sample was selected for the priority pollutant scan as a screening tool because the hypolimnion tends to exhibit lower water quality (higher pollutant concentrations) than the epilimnion.



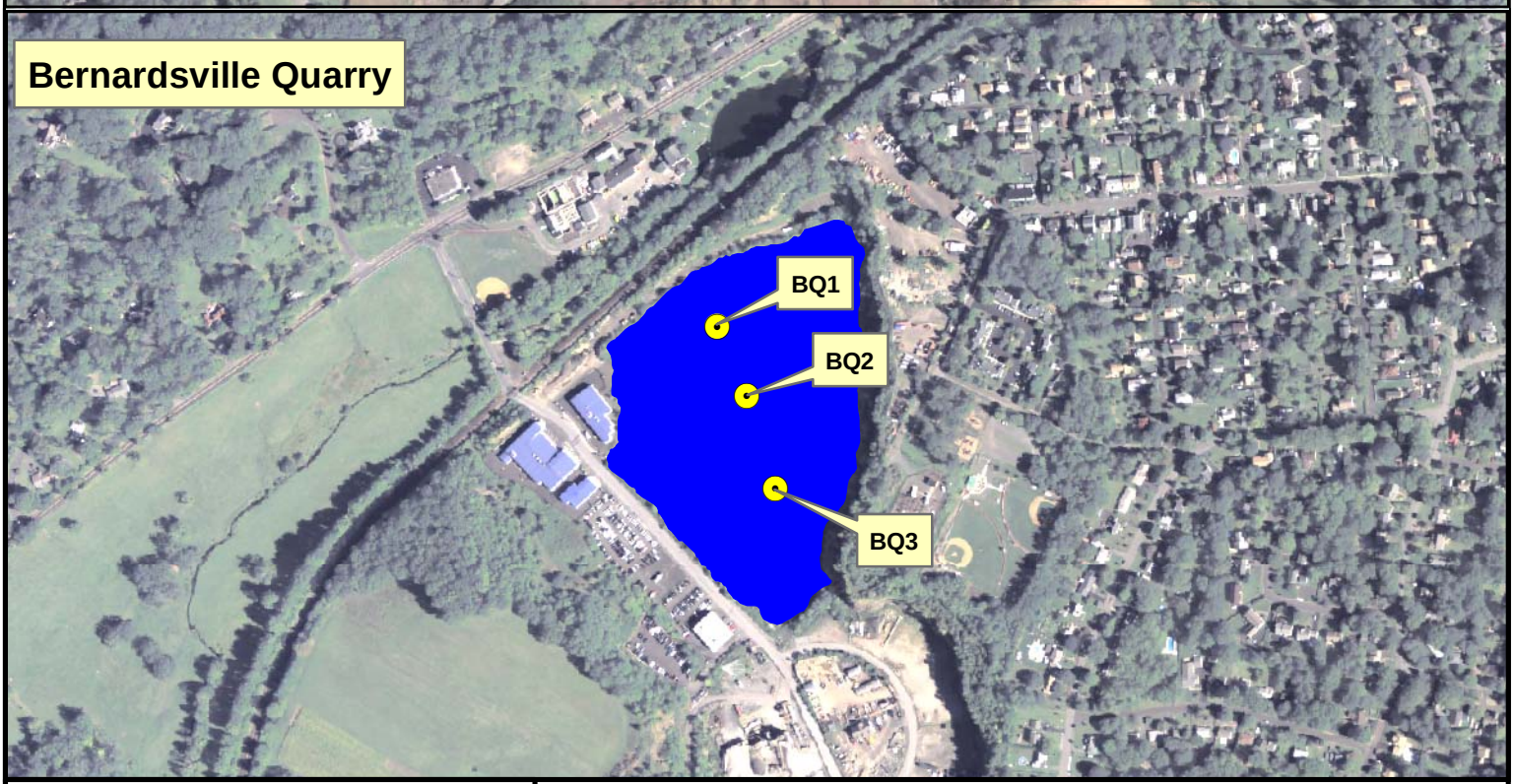


FIGURE 10
QUARRY LAKE
SAMPLING STATIONS

Lake Management Plan for
Millington Quarry Reclamation

October 13, 2011

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Water Quality Sampling Location

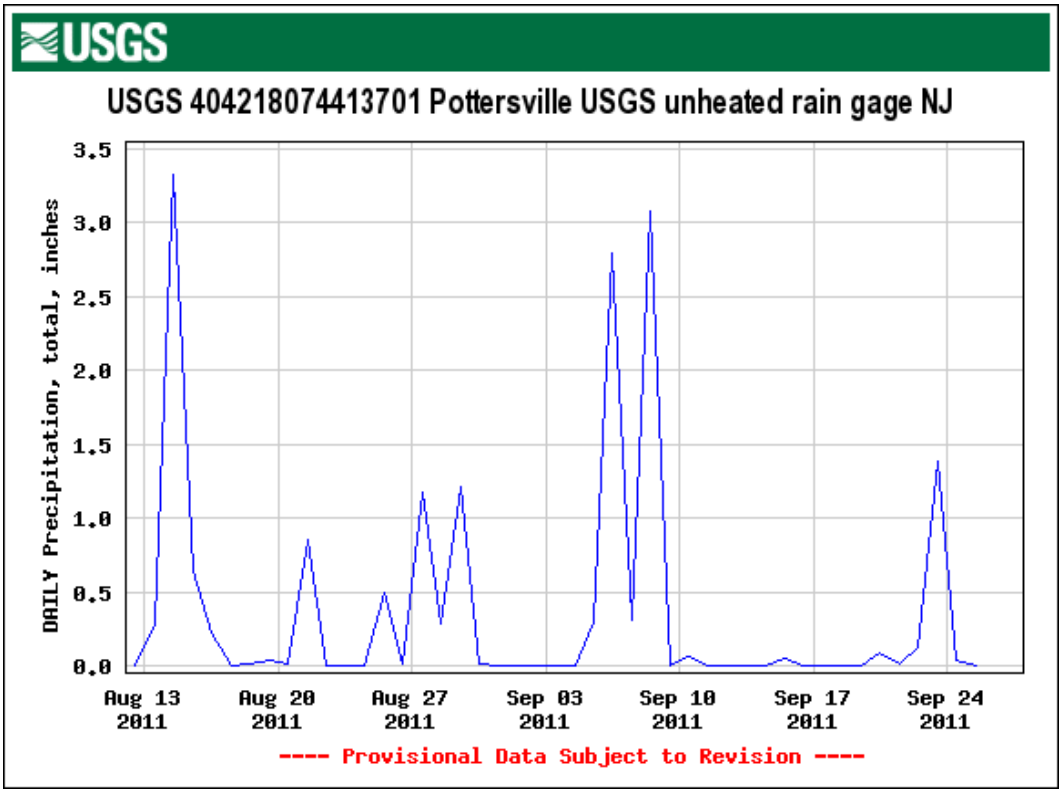
0 300 600
Feet

Aquatic vegetation was assessed qualitatively in each lake in terms of percent cover, extent, and principal species. The lake perimeters were observed for inlets, outlets, and stormwater discharge locations; digital photos were taken to provide a visual record. Finally, a bathymetric survey was performed in the pond at the bottom of Millington Quarry. Existing topographic data in the quarry extend down to an elevation of 142 feet; the bathymetric survey was used to develop topographic information from 142 feet to the bottom of the quarry.

2. Initial Sampling Results

While it had not rained in the three days prior to the fall sampling event, it is helpful to understand that the six week period leading up to the fall sampling event was characterized by multiple large precipitation events (Figure 11) totaling 17 inches of rain (August 12 to September 27). Assuming approximately half of the inflow to the lake is from runoff (as opposed to recharge), this amount of rain translates into over 2.3 million cubic feet of runoff (approximately 15% of the lake volume at the time of sampling). Since the site is an active quarry, there is ongoing earth-moving activity resulting in erodible areas. Under existing conditions, the pond at the bottom of Millington Quarry basically functions like a sedimentation basin for the site. Therefore, it would be expected that this amount of relatively uncontrolled runoff, combined with a small lake volume, would negatively affect water quality in the existing lake.

Figure 11: Precipitation in the Six Weeks Prior to Fall Sampling Event



The *in-situ* chemical profiles (see graphs and data tables in Appendix D) indicate that the lakes in both Millington and Bernardsville quarries were stratified at the time of sampling. Stratification means that the lake exhibits three vertical layers: a warmer surface layer (epilimnion), a colder bottom layer (hypolimnion), and a transition area (metalimnion or thermocline). This is certainly to be expected in the lake in Bernardsville Quarry, since the depth is approximately 120 feet (36.5 meters). Stratification was much less pronounced in the pond at the bottom of Millington Quarry, which is expected since the observed depths were much less and ranged from 20 to 41 feet (6 to 12.5 meters). Temperature and dissolved oxygen in both bodies of water indicate that they would be supportive of warmwater, coolwater, and coldwater fishery communities. However, the portion of the pond depth in Millington Quarry that would potentially support a fishery was relatively small (approximately 9 feet). Typical of stratified lakes, the hypolimnion was anoxic in both bodies of water. pH in both bodies of water is slightly alkaline and well within the acceptable range supportive of aquatic

life. Specific conductivity increased with depth in both bodies of water; however, specific conductivity increased to much higher levels in the pond at the bottom of Millington Quarry. *In-situ* profiles at all three stations were similar in each lake, indicating that both bodies of water are fairly well-mixed laterally. One exception was pH in the lake in Bernardsville Quarry at BQ3, which appeared to be affected by the nearby stormwater inlet that was discharging at the time of sampling.

A summary of the chemical data are provided in Tables 2 and 3 below. The full laboratory reports containing all the analyzed parameters can be found in Appendix E. The lake at Bernardsville Quarry was generally of much higher water quality than the pond at the bottom of Millington Quarry. Clarity was certainly much better, as the Secchi depth (a measurement of light penetration) at Bernardsville Quarry was nearly 4.5 meters compared to only 1 meter in Millington Quarry (see *in-situ* data in Appendix D). The difference in clarity can be attributed to the high chlorophyll-a (average 320 µg/l) in the pond in Millington Quarry, indicative of an algal bloom. By comparison, the average chlorophyll-a observed in the lake in Bernardsville Quarry was 12.3 µg/l.

Table 2: Conventional Water Chemistry Data

Sampling Location			Sampling Date	Sampling Time	Sampling Depth (m)	Alkalinity (mg/L)	Ammonia, as N (mg/L)	Chlorophyll-a (aqueous) (mg/m^3)	Nitrate (mg/L)	Total Kjeldahl Nitrogren (mg/L)	Orthophosphate, Dissolved (mg/L)	Phosphorus, Total (mg/L)	Total Hardness (mg/L)	Total Suspended Solids (mg/L)	Turbidity (NTU)
Field Blank			09/27/11	11:00	NA	< 2.5	< 0.1	< 1	< 0.5	< 0.2	0.018	0.041	< 10	< 2.5	0.45
Millington Quarry	MQ1	Surface	09/27/11	14:00	1.0	123	< 0.1	267	< 0.5	5.45	< 0.01	0.069	92	4.0	2.7
		Bottom	09/27/11	14:15	5.0	155	0.12		< 0.5	1.25	0.01	0.057	130	< 2.5	2.7
	MQ2	Surface	09/27/11	11:30	1.0	119	< 0.1	214	< 0.5	1.43	< 0.01	0.067	96	4.0	2.6
		Bottom	09/27/11	12:00	11.0	243	0.45		< 0.5	1.21	0.04	0.092	170	3.5	4.6
	MQ3	Surface	09/27/11	14:30	1.0	118	< 0.1	481	< 0.5	1.73	< 0.01	0.063	96	3.5	4.6
		Bottom	09/27/11	14:45	5.5	144	< 0.1		0.88	1.39	0.01	0.044	120	< 2.5	1.6
Bernardsville Quarry	BQ1	Surface	09/27/11	16:15	1.0	127	< 0.1	11.8	< 0.5	1.13	< 0.01	0.021	130	< 2.5	1.1
		Bottom	09/27/11	16:30	30.0	189	1.1		< 0.5	3.45	0.21	0.270	170	3.0	2.2
	BQ2	Surface	09/27/11	17:00	1.0	126	< 0.1	11.2	< 0.5	1.58	0.02	0.030	140	< 2.5	0.8
		Bottom	09/27/11	17:30	30.0	185	1.4		< 0.5	3.50	0.32	0.320	180	< 2.5	24.0
	BQ3	Surface	09/27/11	18:00	1.0	128	< 0.1	14	< 0.5	0.93	0.01	0.029	130	< 2.5	0.7
		Bottom	09/27/11	18:30	30.0	178	1.5		< 0.5	2.80	0.21	0.250	170	< 2.5	2.8

Table 3: Priority Pollutant Scan – Detected Values

Sampling Location			Sampling Date	Sampling Time	Sampling Depth (m)	Arsenic (ug/L)	Chromium (ug/L)	Copper (ug/L)	Lead (ug/L)	Nickel (ug/L)	Selenium (ug/L)
Field Blank			09/27/11	11:00	NA	< 0.5	2.51	< 0.5	< 0.5	< 0.5	< 0.5
Millington Quarry	MQ2	Bottom	09/27/11	12:00	11.0	8	2.33	3.18	1.4	3.45	0.5
Bernardsville Quarry	BQ2	Bottom	09/27/11	17:30	30.0	1.4	1.96	0.513	< 0.5	2.02	< 0.5

Other conventional chemical data were fairly unremarkable except for total phosphorus (TP), a key nutrient and trophic status indicator in lakes. TP is fairly low in the epilimnion of the lake in Bernardsville Quarry, indicative of a healthy lake. However, the TP concentration in the lake in Millington Quarry is about three times higher than desirable to maintain healthy aesthetically pleasing conditions. Similar to chlorophyll-a and Secchi depth, the high TP is directly attributable to the algal bloom observed at the time of sampling. The conventional chemistry results reflect a relatively high quality lake in Bernardsville Quarry and a much lower quality pond at the bottom of Millington Quarry.

As expected, the priority pollutant scans did not detect any volatiles, semi-volatiles, pesticides, or PCBs in either lake. A few of the metals (Total Arsenic, Chromium, Copper, Lead, Nickel, and Selenium) were detected in each lake, as expected since they are naturally occurring in soils. Total chromium was also detected in the field blank, which may have originated from the sampling apparatus. With the exception of total arsenic, all of the metal concentrations were below the most restrictive criteria for all freshwater uses in NJDEP's Surface Water Quality Standards (N.J.A.C. 7:9B). The arsenic criterion associated with human health is extremely low (0.017 µg/l), based on an increased cancer risk associated with drinking two liters per day for 70 years. This criterion is usually violated due to natural conditions, and the concentrations encountered in both lakes are consistent with what might be expected due to natural conditions. According to NJDEP, 19% of wells in the Piedmont Area (in which both lakes are located) exceed the drinking water Maximum Contaminant Level[5] of 5 µg/l. Note also that the most restrictive arsenic criterion to protect aquatic life is 150 µg/l. The health risk associate with arsenic is from ingestion over long periods of time; there is no risk associated with recreational contact with concentrations of arsenic in the range that was observed.

Results of the phytoplankton cell count and composition analyses, which are being performed to provide a baseline bioassessment of each lake, were not yet available

[5] The drinking water MCL of 5 µg/l is much higher than the criteria for surface water (0.017 µg/l) because the MCLs account for factors other than health risk, such as treatment cost.

at the time this Plan was published. Aquatic plants were insignificant in both lakes, as is common for quarry ponds that tend to have steep banks with limited shallow areas and often rock substrate. No aquatic plants were observed in Millington Quarry; however, a few terrestrial plants that had been flooded recently were observed. Two aquatic plant species were observed in Bernardsville Quarry. The most dominant species was *Potamogeton foliosus*, or common name of leafy pondweed. The second and less dominant species observed was *Potamogeton crispus*, or common name of curly-leaf pondweed. All plants of both species were found in small dense patches. Total observed coverage of combined plant species was approximately 1%. All plants were submerged below the water surface level at the time of observation.

No inlets were observed around the perimeter of the pond at the bottom of Millington Quarry. An area of subsurface discharge was observed visually and by its sound; this is expected given the wet time period that preceded the fall sampling event. One inlet was observed flowing into in Bernardsville Quarry, which appeared to be draining the residential subdivision located on top of the rock face on the east side of the lake. The bathymetric survey performed in Millington Quarry allowed Omni to establish the topography of the bottom of the quarry below 142 feet above msl, which was the extent of the topography data previously available. The bathymetric survey results are shown in Figure 12.

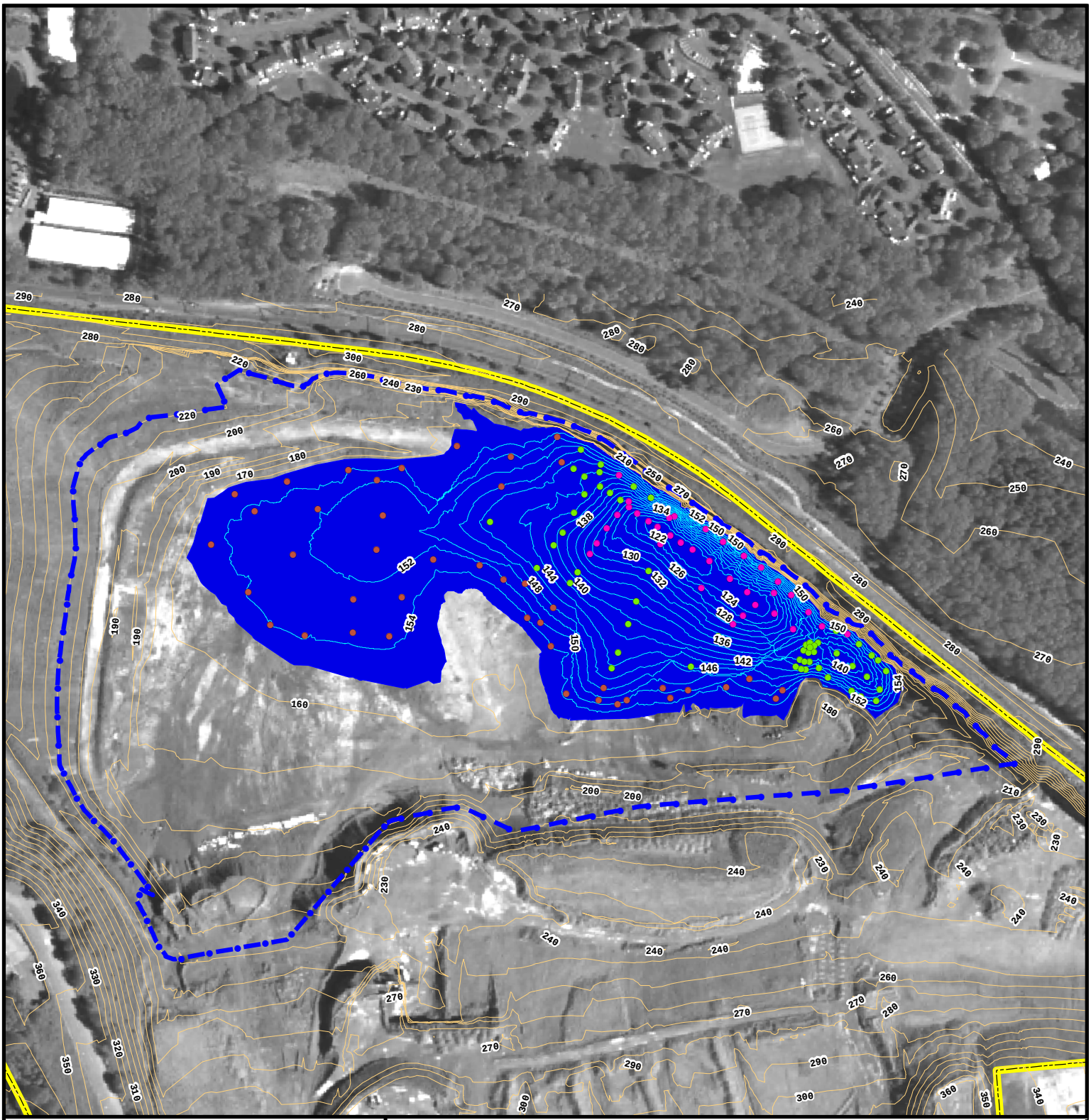


FIGURE 12 - BATHYMETRIC SURVEY OF THE BOTTOM OF MILLINGTON QUARRY

Lake Management Plan for
Millington Quarry Reclamation

October 13, 2011

OMNI ENVIRONMENTAL LLC
321 Wall Street
Princeton, NJ 08540
Tel: 609-924-8821
Fax: 609-924-8831
www.Omni-Env.com

- Property Boundary
- Contour (10 feet)
- Approximate Extent of Existing Lake
- Bathymetric Contour (2 Feet)

Bathymetry Points (Feet)

- 3.3 - 10.1
- 10.2 - 23.1
- 23.2 - 42.4

- Lake Extent After Filling

Aerial Photography - 2010 NAIP
Topography - Page Engineering Consultants, PC 2011
Bathymetry - Omni Environmental 2011

0 150 300
Feet

B. Expected Lake Quality

The lake in Bernardsville Quarry was sampled to provide a baseline comparison with the quality that might be expected in the lake that will form in Millington Quarry after quarry reclamation. The quarries bear many similarities. As shown in Figure 9, the quarries are near one another and within a similar geologic formation. Both quarries operated for a long period of time (since late 19th century) extracting and processing traprock from basalt formations; Millington Quarry continues operation to this day, while Bernardsville Quarry ceased operations approximately 20 years ago. The lake that forms in Millington Quarry will be similar in depth to the lake in Bernardsville Quarry, but will be about 3 times larger in surface area. The differences between the lake in Bernardsville Quarry and the lake that will form in Millington Quarry are also important to consider. The land use around much of Bernardsville Quarry is compacted gravel associated with new car storage lots, a concrete manufacturing plant, and an asphalt manufacturing plant. There is no vegetated buffer, and most of the lake borders compacted gravel roads. These industrial areas drain directly to the quarry lake without any stormwater quality infrastructure. In addition, a 49-home residential subdivision on top of the rock wall to the east of the quarry drains to the quarry. By comparison, the lake that forms in Millington Quarry after reclamation will have a significant vegetated buffer, advanced stormwater quality management, and almost no drainage from developed areas. The Bernardsville Quarry represents a useful comparison in that it provides a "worst-case" scenario in terms of the expected water quality in the lake that will form in Millington Quarry.

Nutrients and sediments are the principal causes of impairments to many lakes and ponds, because they can stimulate excessive algae growth and cause lakes to fill in prematurely. For this reason, the assessment will focus on the trophic state of the quarry ponds and the degree to which aesthetic and aquatic life uses are supported. Given the typical depth of quarry ponds, aquatic plants would only be expected around the perimeter of the pond. The growth of algal blooms is likely to be more important, in terms of potential nuisance conditions, than the growth of aquatic weeds.

The degree of eutrophication in each lake was assessed by calculating Carlson's Trophic State Index (TSI) values based on Secchi depth, chlorophyll-a concentration, and total phosphorus concentration. The three surface values for each lake were averaged together to calculate one TSI value for each parameter in each lake. The TSI values are shown in Table 4, and the calculations are provided in Appendix F. It is important to consider that this assessment is extremely preliminary as it is based on a single sampling event. Most lakes in New Jersey are either eutrophic or hypereutrophic, according to NJDEP's Lakes Monitoring Network. Based on this preliminary information, it appears that the lake in Bernardsville Quarry is of high quality compared to most lakes in the state of New Jersey. The clarity as measured by Secchi depth in Bernardsville Quarry is especially high, an attribute shared by relatively few lakes in the State.

Table 4: Trophic State Index Values

Quarry Lake	TSI Values			Trophic Assessment on September 27, 2011
	Secchi	Chl-a	TP	
Millington Quarry	60.0	87.2	64.7	Eutrophy to Hypereutrophy
Bernardsville Quarry	38.5	55.2	51.5	Mesotrophy to Eutrophy

There is every reason to expect the lake that forms in Millington Quarry to be at least as high quality as the lake in Bernardsville Quarry. At this time, there is no basis to plan for any in-lake treatment in Millington Quarry, such as aeration or algae control (Resolution #080308 paragraphs #35, 36, 37, 38). This will of course be revisited as additional data become available.

C. Lake Characterization Plan

The following Lake Sampling Plan is proposed to characterize existing water quality (as per Resolution #080308 paragraph #8) as well as future water quality of the lake that will form in Millington Quarry. As described previously, the characterization of existing lake quality will also be performed in the lake in Bernardsville Quarry. The Quality Assurance Sampling Plan is provided in Appendix C.

1. Sampling Locations

- Three mid-lake sampling locations as shown in Figure 10, and as described below.
    - MQ1, MQ2, MQ3 in Millington Quarry Lake.
    - BQ1, BQ2, BQ3 in Bernardsville Quarry Lake.

2. Sampling Frequency

- Each characterization survey will consist of three sampling events performed one each in spring (March through May), summer (June through August), and fall seasons (September through November).
- The sampling event performed on September 27, 2011 will be followed up by events in spring and summer of 2012 to complete the initial baseline characterization survey.
- Another characterization survey will be performed after the reclamation construction is completed (at the beginning of the filling period) and every three years thereafter until the lake is filled.
- Ongoing characterization surveys will be performed every five years after the lake is formed.

3. In-Situ Monitoring

- DO, pH, temperature, and conductivity will be measured as depth profile at each sampling location.
- Secchi depths will be observed at each sampling location.
- A qualitative survey of aquatic vegetation will be performed (percent cover, extent, thickness, and dominant type)
- Each lake perimeter will be observed with photo-documentation.

4. Discrete Chemical Sampling

- Discrete surface samples (S) and bottom samples (B) will be collected at each location (e.g. MQ1S, MQ1B, etc.).

- Surface means mid-depth in epilimnion or approximately 1m from surface.
- Bottom means mid-depth in hypolimnion, at least 1m from bottom, and not more than 100 feet deep (length of cable).
- All samples will be sent to a certified laboratory and analyzed for alkalinity, hardness, total phosphorus, dissolved orthophosporus, total Kjehldahl nitrogen, ammonia nitrogen, nitrate nitrogen, total suspended solids, and turbidity.
- All surface (S) samples will also be analyzed at a certified laboratory for chlorophyll-a.
- Bottom sample at station 2 (MQ2B) will also be analyzed for the metals detected in the initial scan: arsenic, chromium, copper, lead, nickel, and selenium in total recoverable forms.
- One additional sample integrated throughout photic zone (defined as 2x the secchi depth but not deeper than epilimnion) will be collected (MQ2P) and analyzed for phytoplankton cell count and composition. Phytoplankton data will be presented as cell densities (cells/mL) and biomass (ug/L) according to genus, ecologically significant groupings within algal divisions (e.g., flagellated greens, filamentous blue-greens), algal division (e.g., blue-greens, greens, diatoms), and as a grand total.

VI. LAKE MAINTENANCE AND MONITORING PLAN

Given the relatively high quality lake that is expected to form in Millington Quarry, the lake is not expected to require a high degree of maintenance. The following measures are proposed:

- A characterization survey as described previously (three monitoring events over the course of a year) is recommended to be performed every 5 years (Resolution #080308 paragraph #9). This is consistent with the sampling frequency utilized by NJDEP for its Ambient Lakes Monitoring Network.
- Quarterly inspections of riparian buffer area should be performed. Dead plants should be replaced as needed.
- Excessive silt and sediment should be removed from water quality forebays as needed.
- Vegetated areas should be inspected quarterly to ensure 80% coverage is maintained after the first year. Overseeding should be performed as needed.
- Any future development proposed for the upper meadow should incorporate a Soil Erosion and Sediment Control Plan to minimize the movement of sediment into the lake.

APPENDIX A

FOREBAY SIZING CALCULATIONS AND RIPRAP SWALE CALCULATIONS

WATER QUALITY & SEDIMENT VOLUME CALCULATION

Project: Millington Quarry
Location: Bernards

Computed By: CAM
Date: 10/13/11
Rev:

Proposed Storage Volume: Sediment Storage + Water Quality Storm Runoff Volume

WATER QUALITY FOREBAY A

Sediment Storage

Drainage Area= 29.86 ac

Stabilized:	0	1.0 ton/ac/yr
To be Disturbed:	29.86	50.0 ton/ac/yr
Average:		50.0 ton/ac/yr

DA= 29.9 ac = 0.05 sq miles
DR= 25% (Predominately Sandy, Curve 26-2)
TE= 70%
Density= 90 lbs/cf (sand, dry-Table 26-1))

V= (DA)(A)(DR)(TE)(1/Density)(2000lb/ton)(1/43560)
= 0.1333 Ac-Ft/yr
= 5806.1 CF/yr

Water Quality Storm Runoff Volume: 0.127 ac-ft
= 5,532 cf

Total Volume for Sediment & Water Quality Storm Storage: 0.26 ac-ft
= 11,338 cf
Water Quality Forebay Elevation = 226.16

WATER QUALITY FOREBAY B

Sediment Storage

Drainage Area= 16.54 ac

Stabilized:	0	1.0 ton/ac/yr
To be Disturbed:	16.54	50.0 ton/ac/yr
Average:		50.0 ton/ac/yr

DA= 16.5 ac = 0.03 sq miles
DR= 30% (Predominately Sandy, Curve 26-2)
TE= 70%
Density= 90 lbs/cf (sand, dry-Table 26-1))

V= (DA)(A)(DR)(TE)(1/Density)(2000lb/ton)(1/43560)
= 0.0886 Ac-Ft/yr
= 3859.3 CF/yr

Water Quality Storm Runoff Volume: 0.07 ac-ft
= 3,049 cf

Total Volume for Sediment & Water Quality Storm Storage: 0.16 ac-ft
= 6,909 cf
Water Quality Forebay Elevation = 225.76

WATER QUALITY & SEDIMENT VOLUME CALCULATION

Project: Millington Quarry
Location: Bernards

Computed By: CAM
Date: 10/13/11
Rev:

WATER QUALITY FOREBAY C

Sediment Storage

Drainage Area=	21.76 ac	Stabilized:	0	1.0	ton/ac/yr
		To be Disturbed:	21.7	50.0	ton/ac/yr
		Average:		49.9	ton/ac/yr

DA= 21.8 ac = 0.03 sq miles
DR= 31% (Predominately Sandy, Curve 26-2)
TE= 70%
Density= 90 lbs/cf (sand, dry-Table 26-1))

V= (DA)(A)(DR)(TE)(1/Density)(2000lb/ton)(1/43560)
= 0.1201 Ac-Ft/yr
= 5232.1 CF/yr

Water Quality Storm Runoff Volume: 0.093 ac-ft
= 4,051 cf

Total Volume for Sediment & Water Quality Storm Storage: 0.21 ac-ft
= 9,283 cf
Water Quality Forebay Elevation = 225.82

WATER QUALITY FOREBAY D

Sediment Storage

Drainage Area=	16.67 ac	Stabilized:	7.59	1.0	ton/ac/yr
		To be Disturbed:	9.08	50.0	ton/ac/yr
		Average:		27.7	ton/ac/yr

DA= 16.7 ac = 0.03 sq miles
DR= 31% (Predominately Sandy, Curve 26-2)
TE= 70%
Density= 90 lbs/cf (sand, dry-Table 26-1))

V= (DA)(A)(DR)(TE)(1/Density)(2000lb/ton)(1/43560)
= 0.0511 Ac-Ft/yr
= 2225.9 CF/yr

Water Quality Storm Runoff Volume: 0.086 ac-ft
= 3,746 cf

Total Volume for Sediment & Water Quality Storm Storage: 0.14 ac-ft
= 5,972 cf
Water Quality Forebay Elevation = 225.74

EMERGENCY SPILLWAY RIP RAP CALCULATIONS

Project: Millington Quarry Computed By: CAM
Location: Bernards Date: 10/13/11

WATER QUALITY FOREBAY A

25' Wide Emergency Spillway @ Elev 227.0
WSE During 100-Yr Storm (0cfs Exfiltration) = 228.63

Q = 137.42 cfs
b/d = 25 / 0.57 = 44
Sb = 0.14
z = 3
Curve 23-2 P/R = 54
R/P = 0.0185
D(50) = 12(118 Q Sb^(13/6) R/P)^2/5
= 21 in

WATER QUALITY FOREBAY B

20' Wide Emergency Spillway @ Elev 226.0
WSE During 100-Yr Storm (0cfs Exfiltration) = 227.27

Q = 75.78 cfs
b/d = 20 / 0.47 = 43
Sb = 0.12
z = 3
Curve 23-2 P/R = 54
R/P = 0.0185
D(50) = 12(118 Q Sb^(13/6) R/P)^2/5
= 15 in

WATER QUALITY FOREBAY C

20' Wide Emergency Spillway @ Elev 226.0
WSE During 100-Yr Storm (0cfs Exfiltration) = 227.52

Q = 98.26 cfs
b/d = 20 / 0.55 = 36
Sb = 0.12
z = 3
Curve 23-2 P/R = 45
R/P = 0.0222
D(50) = 12(118 Q Sb^(13/6) R/P)^2/5
= 18 in

WATER QUALITY FOREBAY D

20' Wide Emergency Spillway @ Elev 226.0
WSE During 100-Yr Storm (0cfs Exfiltration) = 227.31

Q = 78.88 cfs
b/d = 20 / 0.49 = 41
Sb = 0.12
z = 3
Curve 23-2 P/R = 50
R/P = 0.02
D(50) = 12(118 Q Sb^(13/6) R/P)^2/5
= 15 in

APPENDIX B

LANDSCAPE PLANS

Millington Quarry
Plant Schedule

Riparian/Settling Basin

Davies Associates
Landscape Architects, LLC
10-13-2011

Key	Latin Name	Common Name	Size	Comments
Trees:				
AR	Alcer rubrum	Red maple	#2 Container or tublings	Native/ FAC
NS	Nyssa sylvatica	Blackgum	#2 Container or tublings	Native/ FAC
QB	Quercus bicolor	Swamp White Oak	#2 Container or tublings	Native/ FACW+, OBL
Shrubs:				
AS	Alnus serrulata	Smooth alder	# 1 Container	Native/ OBL
CA	Clethra alnifolia	Sweet Pepperbush	# 1 Container	Native/ FAC+
CN	Cornus amomum	Silky Dogwood	Live Stake	Native/ FACW
CSF	Cornus stolonifera (sericea)	Red-Osier Dogwood	Live Stake	Native/ FACW
IVW	Ilex verticillata	Winterberry	# 1 Container	Native/ FACW+
PO	Physocarpus opulifiolius	Common Ninebark	# 1 Container	Native/ FACW -
RV	Rosa Virginiana	Swamp Rose	# 1 Container	Native/ FAC
SD	Salix discolor	Pussy Willow	Live Stake	Native/ FACW
VD	Viburnum dentatum	Arrowwood	Live Stake	Native/ FAC
VL	Viburnum lentago	Nannyberry Viburnum	Live Stake	Native/ FAC
Perennials (Forbs):				
ASNA	Aster novae-angliae	New England Aster	2 in. plug	Native/ FACW
EPE	Eupatorium perfoliatum	Boneset	2 in. plug	Native/FACW+
EPU	Eupatorium purpureum	Boneset	2 in. plug	Native/ FAC
LC	Lobelia cardinalis	Cardinal Flower	2 in. plug	Native/ FACW+
LS	Lobelia siphilitica	Blue Lobelia	2 in. plug	Native/ FACW+
RL	Rudbeckia laciniata	Cutleaf Coneflower	2 in. plug	Native/ FACW
SN	Solidago nemoralis	Gray Goldenrod	2 in. plug	Native/ FAC
VH	Verbena Hastata	Blue vervain	2 in. plug	Native/ FACW+
VN	Vernonia noveboracensis	New York Ironweed	2 in. plug	Native/ FACW+

Millington Quarry
Plant Schedule

Riparian/Settling Basin

Davies Associates
Landscape Architects, LLC
10-13-2011

Key	Latin Name	Common Name	Size	Comments
Riparian Seed Mix:				
ERNMX-183 by Ernst Conservation Seeds 22 lb per acre, or 1/2 lb per 1,000 sq ft				
	Panicum clandestinum, 'Tioga'	Deertongue, 'Tioga'	47%	
	Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype	25%	
	Carex vulpinoidea, PA Ecotype	Fox Sedge, PA Ecotype	20%	
	Agrostis perennans, PA Ecotype	Autumn Bentgrass, PA Ecotype	5%	
	Agrostis scabra, PA Ecotype	Ticklegrass (Rough Bentgrass)	2%	
	Juncus tenuis, PA Ecotype	Path Rush, PA Ecotype	1%	

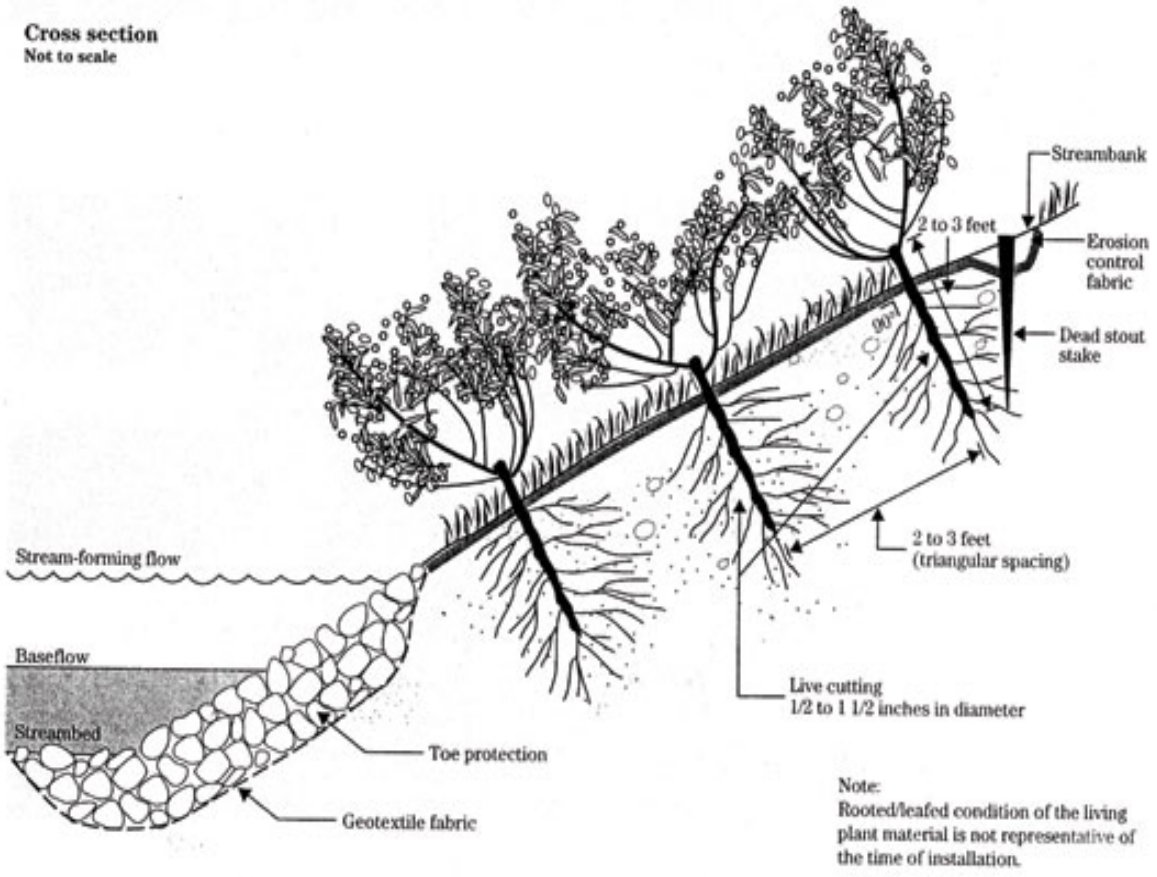
Millington Quarry
Plant Schedule

Riparian/Settling Basin

Davies Associates
Landscape Architects, LLC
10-13-2011

Notes:

1) Shrubs and Perennials (Forbs) specified for the riparian area shall be installed only when the elevation of the lake stabilizes or achieves a surface elevation of 215.00
2) Seeding and erosion control fabric to be implemented after finish grades are established - preferably mid-May to Mid July.
3) Live stakes - Plant during dormant season, November 1st through April 30th in moist to wet soil.
4) Plant Live Stakes through erosion control fabric (See Live Stake Detail below)



Detail from Ernst Conservation Seeds

Millington Quarry
Plant Schedule

Vegetated Safety Buffer

Davies Associates
Landscape Architects, LLC
10-13-2011

Key	Latin Name	Common Name	Size	Comments
Shade Trees:				
AS	Acer saccharum	Sugar Maple	#2 Container or Tubelings	Native/FACU-
FGR	Fagus grandifolia	American Beech	Tubelings	Native/FACU
CEL	Celtis occidentalis	Hackberry	#2 Container or Tubelings	Native/FACU/Tolerant of dr
JV	Juniperus virginiana	Eastern Redcedar	#1 Container or Tubelings	Native/FACU
LT	Liriodendron tulipifiera	Tulip Poplar	#2 Container or Tubelings	Native/FACU
PS	Pinus strobus	White Pine	#2 Container or Tubelings	Native/FACU
QCS	Quercus coccinea	Scarlet Oak	#2 Container or Tubelings	Native/UPL/Dry, sandy, rock
QPR	Quercus prinus	Chestnut Oak	#2 Container or Tubelings	Native/UPL/ Sandy, rocky sit
QR	Quercus rubra	Red Oak	#2 Container or Tubelings	Native/FACU-
QV	Quercus velutina	Black Oak	#2 Container or Tubelings	Native/UPL
SAS	Sassafras albidum	Sassafras	#2 Container or Tubelings	Native/FACU-
Understory Trees:				
CC	Cercis canadensis	Eastern Redbud	#2 Container	Native/UPL, FACU
OV	Ostraya Virginiana	Hop Hornbeam	#2 Container	Native/FACU-, FACU+
Shrubs:				
CR	Cornus racemosa	Grey Dogwood	#1 Container	Native/UPL/Forms colonies
HV	Hamamelis virginiana	Common Witchhazel	#1 Container or Tubelings	Native/UPL
RHA	Rhus aromatica	Fragrant Sumac	#1 Container or Tubelings	Native/UPL/Forms colonies,
VAN	Viburnum acerfolium	Mapleleaf Viburnum	#1 Container or Tubelings	Native/UPL

Millington Quarry
Plant Schedule

Vegetated Safety Buffer

Davies Associates
Landscape Architects, LLC
10-13-2011

Key	Latin Name	Common Name	Size	Comments
Upland Seed Mix:				
ERNMX-123 by Ernst Conservation Seeds		22 lb per acre, or 1/2 lb per 1,000 sq ft		
	Panicum virgatum 'Cave-In-Rock'	20% Switchgrass 'Cave-In-Rock'	20%	
	Schizachrium scoparium 'Camper'	20% Little Bluestem 'Camper'	20%	
	Sorghastrum nutans 'Southlow'-MI Ecotype	17% Indiangrass, 'Southlow'-MI Ecotype	17%	
	Elymus virginicus, PA Ecotype	15% Virginia Wildrye, PA Ecotype	15%	
	Andropogon gerardii 'Niagara'	10% Big Bluestem 'Niagra'	10%	
	Chamaecrista fasciculata, PA Ecotype	6% Partridge Pea, PA Ecotype	6%	
	Panicum amarum 'Atlantic' VA Ecotype	5% Coastal Panicgrass 'Atlantic' VA Ecotype	5%	
	Rudbeckia hirta, Coastal Plain NC Ecotype	3% Blackeyed Susan, Coastal Plain NC Ecotype	3%	
	Poa palustris	3% Fowl Bluegrass	3%	
	Coreopsis tinctoria	1% Plains Coreopsis	1%	

Millington Quarry
Plant Schedule

Upland Meadow

Davies Associates
Landscape Architects, LLC
10-13-2011

Key	Qty	Latin Name	Common Name	Size
Upland Seed Mix:				
ERNMX-123 by Ernst Conservation Seeds 22 lb per acre, or 1/2 lb per 1,000 sq ft				
	20%	Panicum virgatum 'Cave-In-Rock'	Switchgrass 'Cave-In-Rock'	20%
	20%	Schizachrium scoparium 'Camper'	Little Bluestem 'Camper'	20%
	17%	Sorghastrum nutans 'Southlow'-MI Ecotype	Indiangrass, 'Southlow'-MI Ecotype	17%
	15%	Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype	15%
	10%	Andropogon gerardii 'Niagara'	Big Bluestem 'Niagra'	10%
	6%	Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	6%
	5%	Panicum amarum 'Atlantic' VA Ecotype	Coastal Panicgrass 'Atlantic' VA Ecotype	5%
	3%	Rudbeckia hirta, Coastal Plain NC Ecotype	Blackeyed Susan, Coastal Plain NC Ecotype	3%
	3%	Poa palustris	Fowl Bluegrass	3%
	1%	Coreopsis tinctoria	Plains Coreopsis	1%

Upland Meadow Notes:

Habitat:
Upland and meadow sites are generally in full sun for at least half of the day and have good air circulation.

Fertility:
Natural fertility on these sites is generally adequate. No fertilizer or lime is needed. Check your soil pH and select species adapted to that pH.

Seeding Method:
Hand seed, broadcast, hydroseed, or drill seed.

Millington Quarry
Plant Schedule

Upland Meadow

Davies Associates
Landscape Architects, LLC
10-13-2011

Upland Meadow Notes:

Site Preparation:
Eradicate existing vegetation by having a licensed spray technician apply an approved herbicide; i.e., glyphosate (Roundup®), or tilling the weeds into the soil. Good pre-seeding weed control may require repeated tilling or spraying two applications of glyphosate (at least two weeks apart). Close mowing two weeks prior to spraying is recommended to stimulate weed growth. Glyphosate must be applied to vegetative growth in order to kill undesirable plants and their roots. The second application is needed only if the first application is insufficient. If excess dead plant material remains on the surface, burning or tilling may be necessary to achieve good seed-to-soil contact and sunlight penetration.

First Year Maintenance:
Observation of the desired species' growth and weed competition is essential when making maintenance decisions. When undesirable vegetation reaches 12"-18" tall, mow to NO LESS THAN 6" HIGH (with a mower or weed eater) to prevent the weeds from developing seed. Generally, native plants will grow more extensive root systems than tops in the first year; therefore, mowing to 6"-8" high will not cause harm. This practice allows sunlight to reach desired species. DO NOT MOW WITH A LAWN MOWER, as mowing too close encourages weedy grass species.

Second Year Maintenance:
Mow once, close to the ground, in early spring. This allows young native plants to emerge and rapid warming of the soil. If you postpone mowing until early spring, birds and other wildlife can enjoy your native site during the winter.

General Maintenance:
Grassy weeds or persistent perennials can re-establish in this soil type. Monitoring and controlling weeds is essential in the first and second years. Burning (by experienced professionals) about every three years in early spring can prevent shrub invasion.

Millington Quarry
Plant Schedule

Slope Stabilization

Davies Associates
Landscape Architects, LLC
10-13-2011

Key	Latin Name	Common Name	Size	Comments
Shade Trees:				
QCS	Quercus coccinea	Scarlet Oak	# 2 Container or Tubelings	Native/UPL/Rocky, dry sandy sites
QPR	Quercus prinus	Chestnut Oak	# 2 Container or Tubelings	Native/UPL/Rocky, dry sandy sites
Shrubs:				
RHA	Rhus aromatica	Fragrant Sumac	#1 Container or Tubelings	Native/UPL/Erosion control
Native Steep Slope Seed Mix:				
ERNMX-181 by Ernst Conservation Seeds 30 lb per acre, or 1 lb per 1,000 sq ft				
	Sorghastrum nutans 'Southlow'-MI Ecotype	Indiangrass, 'Southlow'-MI Ecotype	26%	
	Lolium multiflorum	Annual Ryegrass	20%	
	Schizachrium scoparium 'Camper'	Little Bluestem 'Camper'	15%	
	Elymus canadensis	Canada Wildrye	12%	
	Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype	8%	
	Panicum virgatum 'Cave in Rock'	Switchgrass 'Cave in Rock'	4%	
	Tridens flavus	Purpletop	3%	
	Echinacea purpurea	Purple Coneflower	3%	
	Agrostis perennans - NY Ecotype	Autumn Bentgrass, Albany Pine Bush-NY Ecotype	2%	
	Rudbeckia hirta	Blackeyed Susan	2%	
	Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	2%	
	Agrostis scabra, PA Ecotype	Ticklegrass (Rough Bentgrass) PA Ecotype	2%	
	Liatris Spicata, PA Ecotype	Blazing Star (Spiked Gayfeather) PA Ecotype	1%	
Erosion Control Product:				
EC/SC2 by Pinelands Nursery or approved equal. For all upland slopes 3:1 or steeper.				

Millington Quarry
Plant Schedule

Slope Stabilization

Davies Associates
Landscape Architects, LLC
10-13-2011

Steep Slope Stabilization Notes:

Habitat:
Soil consists of various clay, sand, and rock outcropping without topsoil.

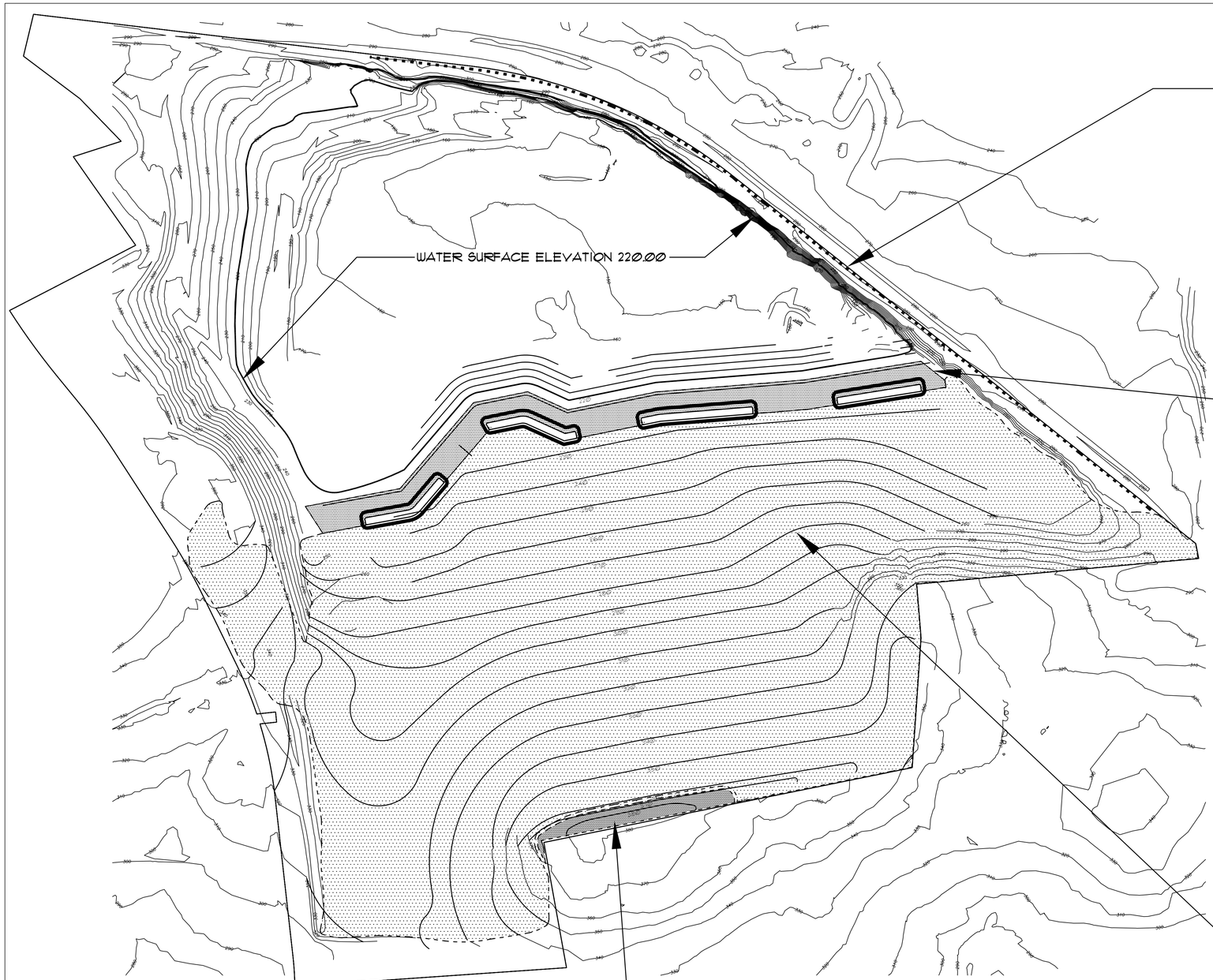
Fertility:
These sites are generally low in fertility; therefore, adding topsoil or organic matter (compost) can be very beneficial. Check your soil pH and select species adapted to that pH. Add lime and fertilizer as recommended by soil analysis. Incorporate any amendments into the soil. All incorporating activities should be done in a manner that will leave the soil rough, which will minimize soil erosion and rapid run-off.

Seeding Method:
Hand seed, broadcast, hydroseed, or drill seed. Once the seed has been broadcast, dragging with a light harrow to cover the seed (approx. 1/4"-1/2" deep), tracking, or mulching with straw, hydromulch, or straw/coconut fiber mats is recommended to protect the seed from drying out or washing away. With adequate temperature and moisture, the seed should begin to germinate within approximately three weeks.

First Year Maintenance:
Observation of the desired species' growth and weed competition is essential when making maintenance decisions. Minimum mowing (4"-6" high) to top off aggressive weeds is recommended to give desirable plants an opportunity to develop roots. Most of the competition the first year will be annual weeds. Mowing too close encourages weedy grass species.

Second Year Maintenance:
Monitor and control undesirable vegetation with spot spraying or mowing. Mowing the entire area (4"-6" high) during the dormant season can enhance the appearance without jeopardizing wildlife habitat and erosion protection.

Vegetation allowed to grow without mowing provides more protection for wildlife and aids in erosion control.



SAFETY BUFFER PLANT LIST

Key	Latin Name	Common Name	Size	Comments
Shade Trees:				
AS	Acer saccharum	Sugar Maple	#2 Container or Tubelings	Native/FACU-
FGR	Fagus grandifolia	American Beech	Tubelings	Native/FACU
CEL	Celtis occidentals	Hackberry	#2 Container or Tubelings	Native/FACU/Tolerant of dry windy conditions
JV	Juniperus virginiana	Eastern Redcedar	#1 Container or Tubelings	Native/FACU
LT	Liriodendron tulipifera	Tulip Poplar	#2 Container or Tubelings	Native/FACU
PS	Pinus strobus	White Pine	#2 Container or Tubelings	Native/FACU
QCS	Quercus coccinea	Scarlet Oak	#2 Container or Tubelings	Native/UPL/Dry, sands, rocky sites
QPR	Quercus primus	Chestnut Oak	#2 Container or Tubelings	Native/UPL/ Sandy, rocky sites
QR	Quercus rubra	Red Oak	#2 Container or Tubelings	Native/FACU-
QV	Quercus velutina	Black Oak	#2 Container or Tubelings	Native/UPL
SAS	Sassafras albidum	Sassafras	#2 Container or Tubelings	Native/FACU-
Understory Trees:				
CC	Cercis canadensis	Eastern Redbud	#2 Container	Native/UPL, FACU
OV	Ostrya Virginiana	Hop Hornbeam	#2 Container	Native/FACU-, FACU+
Shrubs:				
CR	Cornus racemosa	Gree Dogwood	#1 Container	Native/UPL/ Forms colonies
HV	Hamamelis virginiana	Common Witchhazel	#1 Container or Tubelings	Native/UPL
RHA	Rhus aromatica	Fragrant Sumac	#1 Container or Tubelings	Native/UPL/Forms colonies, erosion control
VANG	Viburnum acerifolium	Mapleleaf Viburnum	#1 Container or Tubelings	Native/UPL
Upland Seed Mix:				
ERNMX-123 by Ernst Conservation Seeds		22 lb per acre, or 1/2 lb per 1,000 sq ft		
	Panicum virgatum 'Cave-In-Rock'	20% Switchgrass 'Cave-In-Rock'	20%	
	Schizachirium scoparium 'Camper'	20% Little Bluestem 'Camper'	20%	
	Sorghastrum nutans 'Southlow'-MI Ecotype	17% Indiangrass, 'Southlow'-MI Ecotype	17%	
	Elymus virginicus, PA Ecotype	15% Virginia Wildrie, PA Ecotype	15%	
	Andropogon gerardii 'Niagara'	10% Big Bluestem 'Niagra'	10%	
	Chamaecrista fasciculata, PA Ecotype	6% Partridge Pea, PA Ecotype	6%	
	Panicum amarum 'Atlantic' VA Ecotype	5% Coastal Panicgrass 'Atlantic' VA Ecotype	5%	
	Rudbeckia hirta, Coastal Plain NC Ecotype	3% Blackeyed Susan, Coastal Plain NC Ecotype	3%	
	Poa palustris	3% Fowl Bluegrass	3%	
	Coreopsis tinctoria	1% Plains Coreopsis	1%	

RIPARIAN BUFFER

Key	Latin Name	Common Name	Size	Comments
Trees:				
AR	Alnr rubrum	Red maple	#2 Container or tublings	Native/ FAC
NS	Nyssa sylvatia	Blackgum	#2 Container or tublings	Native/ FAC
QB	Quercus bimlor	Swamp White Oak	#2 Container or tublings	Native/ FACW+, OBL
Shrubs:				
AS	Alnus semulata	Smooth alder	# 1 Container	Native/ OBL
CA	Clethra alnifolia	Sweet Pepperbush	# 1 Container	Native/ FAC+
CN	Cornus amomoum	Silky Dogwood	Live Stake	Native/ FACW
CSF	Cornus sistoniflera (sertzea)	Red-Osier Dogwood	Live Stake	Native/ FACW
IVW	Ilex verticillata	Winterberry	# 1 Container	Native/ FACW+
PO	Physocarpus opulifolius	Common Ninebark	# 1 Container	Native/ FACW +
RV	Rosa Virginiana	Swamp Rose	# 1 Container	Native/ FAC
SD	Salix diuxiior	Pussy Willow	Live Stake	Native/ FACW
VD	Viburnum dentatum	Arrowwood	Live Stake	Native/ FAC
VL	Viburnum lentago	Nannyberry Viburnum	Live Stake	Native/ FAC
Perennials (Forbs):				
ASNA	Aster novae-angliae	New England Aster	2 in. plug	Native/ FACW
EPE	Eupatorium perfoliatum	Boneset	2 in. plug	Native/FACW+
EPU	Eupatorium purpureum	Boneset	2 in. plug	Native/ FAC
LC	Lobelia cardinalis	Cardinal Flower	2 in. plug	Native/ FACW+
LS	Lobelia siphilitica	Blue Lobelia	2 in. plug	Native/ FACW+
RL	Rudbeckia laciniata	Curlesf Coneflower	2 in. plug	Native/ FACW
SN	Solidago nemoralis	Gray Goldenrod	2 in. plug	Native/ FAC
VH	Verbena Hastata	Blue vervain	2 in. plug	Native/ FACW +
VN	Vernonia noveboracensis	New York Ironweed	2 in. plug	Native/ FACW +
Riparian Seed Mix:				
Seeds	22 lb per acre, or 1/2 lb per 1,000 sq ft			
	Panicum clandestinum, 'Tioga'	Deertongue, 'Tioga'	47%	
	Elymus virginicus, PA Ecotype	Virginia Wildrie, PA Ecotype	25%	
	Caex vulpinoidea, PA Ecotype	Fox Sedge, PA Ecotype	20%	
	Agrostis perennans, PA Ecotype	Autumn Bentgrass, PA Ecotype	5%	
	Agrostis scabra, PA Ecotype	Tickingrass (Rough Bentgrass)	2%	
	Juncus tenuis, PA Ecotype	Path Rush, PA Ecotype	1%	

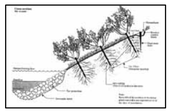
Notes:

1) Shrubs and perennials (Forbs) specified for the riparian area shall be installed only when the elevation of the lake stabilizes of achieves a surface elevation of 215.00.

2) Seeding and erosion control fabric to be implemented after finish grades are established - preferably in min-May to mid-July of the year of planting.

3) Live stakes - Plant during dormant season, November 1st through April 30th in moist to wet soil.

4) Plant Live Stakes through erosion control fabric as shown in this detail:



RECLAIMED AREAS TO BE PLANTED

- SLOPE STABILIZATION
- RIPARIAN BUFFER
- UPLAND MEADOW
- SAFETY BUFFER ALONG RAILROAD R.O.W.
- WATER QUALITY FOREBAY

0 100 200 400 600 800

N W E S

SLOPE STABILIZATION PLANT LIST

Key	Latin Name	Common Name	Size	Comments
Shade Trees:				
QCS	Quercus coxinea	Scarlet Oak	# 2 Container or Tubelings.	Native/UPL/Rocky, dry sandy sites
QPR	Quercus primus	Chestnut Oak	# 2 Container or Tubelings.	Native/UPL/Rocky, dry sandy sites
Shrubs:				
RHA	Rhus aromatica	Fragrant Sumac	#1 Container or Tubelings.	Native/UPL/Erosion control
Native Steep Slope Seed Mix:				
ERNMX-181 by Ernst Conservation Seeds	30 lb per acre, or 1 lb per 1,000 sq ft			
	Sorghastrum nutans 'Southlow'-MI Ecotype	Indiangrass, 'Southlow'-MI Ecotype	26%	
	Lolium multiflorum	Annual Ryegrass	20%	
	Schizachirium scoparium 'Camper'	Little Bluestem 'Camper'	15%	
	Elymus canadensis	Canada Wildrie	12%	
	Elymus virginicus, PA Ecotype	Virginia Wildrie, PA Ecotype	8%	
	Panicum virgatum 'Cave in Rock'	Switchgrass 'Cave in Rock'	4%	
	Tridens flavus	Purpletop	3%	
	Echinacea purpurea	Purple Coneflower	3%	
	Agrostis perennans - NY Ecotype	Autumn Bentgrass, Albany Pine Bush-NY Ecotype	2%	
	Rudbeckia hirta	Blackeyed Susan	2%	
	Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	2%	
	Agrostis scabra, PA Ecotype	Tickingrass (Rough Bentgrass) PA Ecotype	2%	
	Liatris Spiata, PA Ecotype	Blazing Star (Spiked Gayfeather) PA Ecotype	1%	
Erosion Control Product:				
EC/SC2 by Pinelands Nursery or approved equal.	For all upland slopes 3:1 or steeper.			

Steep Slope Stabilization Notes:

Habitat:
Soil consists of various clay, sand, and rock outcropping without topsoil.

Fertility:
These sites are generally low in fertility; therefore, adding topsoil or organic matter (compost) can be very beneficial. Check your soil pH and select species adapted to that pH. Add lime and fertilizer as recommended by soil analysis. Incorporate any amendments into the soil. All incorporating activities should be done in a manner that will leave the soil rough, which will minimize soil erosion and rapid run-off.

Seeding Method:
Hand seed, broadcast, hydroseed, or drill seed. Once the seed has been broadcast, dragging with a light harrow to cover the seed (approx. 1/4"-1/2" deep), tracking, or mulching with straw, hydromulch, or straw/coconut fiber mats is recommended to protect the seed from drying out or washing away. With adequate temperature and moisture, the seed should begin to germinate within approximately three weeks.

First Year Maintenance:
Observation of the desired species' growth and weed competition is essential when making maintenance decisions. Minimum mowing (4"-6" high) to top off aggressive weeds is recommended to give desirable plants an opportunity to develop roots. Most of the competition the first year will be annual weeds. Mowing too close encourages weedy grass species.

Second Year Maintenance:
Monitor and control undesirable vegetation with spot spraying or mowing. Mowing the entire area (4"-6" high) during the dormant season can enhance the appearance without jeopardizing wildlife habitat and erosion protection.

Vegetation allowed to grow without mowing provides more protection for wildlife and aids in erosion control.

UPLAND MEADOW PLANT LIST

Key	Qty	Latin Name	Common Name	Size
Upland Seed Mix:				
ERNMX-123 by Ernst Conservation Seeds		22 lb per acre, or 1/2 lb per 1,000 sq ft		
	20%	Panicum virgatum 'Cave-In-Rock'	Switchgrass 'Cave-In-Rock'	20%
	20%	Schizachirium scoparium 'Camper'	Little Bluestem 'Camper'	20%
	17%	Sorghastrum nutans 'Southlow'-MI Ecotype	Indiangrass, 'Southlow'-MI Ecotype	17%
	15%	Elymus virginicus, PA Ecotype	Virginia Wildrye, PA Ecotype	15%
	10%	Andropogon gerardii 'Niagara'	Big Bluestem 'Niagra'	10%
	6%	Chamaecrista fasciculata, PA Ecotype	Partridge Pea, PA Ecotype	6%
	5%	Panicum amarum 'Atlantic' VA Ecotype	Coastal Panicgrass 'Atlantic' VA Ecotype	5%
	3%	Rudbeckia hirta, Coastal Plain NC Ecotype	Blackeyed Susan, Coastal Plain NC Ecotype	3%
	3%	Poa palustris	Fowl Bluegrass	3%
	1%	Coreopsis tinctoria	Plains Coreopsis	1%

Upland Meadow Notes:

Habitat:
Upland and meadow sites are generally in full sun for at least half of the day and have good air circulation.

Fertility:
Natural fertility on these sites is generally adequate. No fertilizer or lime is needed. Check your soil pH and select species adapted to that pH.

Seeding Method:
Hand seed, broadcast, hydroseed, or drill seed.

Site Preparation:
Eradicate existing vegetation by having a licensed spray technician apply an approved herbicide; i.e., glyphosate (Roundup®), or tilling the weeds into the soil. Good pre-seeding weed control may require repeated tilling or spraying two applications of glyphosate (at least two weeks apart). Close mowing two weeks prior to spraying is recommended to stimulate weed growth. Glyphosate must be applied to vegetative growth in order to kill undesirable plants and their roots. The second application is needed only if the first application is insufficient. If excess dead plant material remains on the surface, burning or tilling may be necessary to achieve good seed-to-soil contact and sunlight penetration.

First Year Maintenance:
Observation of the desired species' growth and weed competition is essential when making maintenance decisions. When undesirable vegetation reaches 12"-18" tall, mow to NO LESS THAN 6" HIGH (with a mower or weed eater) to prevent the weeds from developing seed. Generally, native plants will grow more extensive root systems than tops in the first year; therefore, mowing to 6"-8" high will not cause harm. This practice allows sunlight to reach desired species. DO NOT MOW WITH A LAWN MOWER, as mowing too close encourages weedy grass species.

Second Year Maintenance:
Mow once, close to the ground, in early spring. This allows young native plants to emerge and rapid warming of the soil. If you postpone mowing until early spring, birds and other wildlife can enjoy your native site during the winter.

General Maintenance:
Grassy weeds or persistent perennials can re-establish in this soil type. Monitoring and controlling weeds is essential in the first and second years. Burning (by experienced professionals) about every three years in early spring can prevent shrub invasion.

Bruce John Davies ASLA, PP

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NJ Licensed Landscape Architect #AS00075
New Jersey Professional Planner #LI 105404
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Landscape Architecture Site Planning Urban Design

Revisions:

No.	Note:	Date:
1	REVISED PLANT LEGEND	05-16-11

Vegetation Planning Areas

Millington Quarry

Block 6001 Lot 6
Township of Bernards
Somerset County, New Jersey

BJD File Number: 11-016
Comp. File Name: Millington Quarry
Drawn By: JEF
Checked By: BJD
Date: 10/13/11
Scale: 1" = 200'

Drawing Number:
L-1

APPENDIX C

QUALITY ASSURANCE SAMPLING PLAN

1. Quality Assurance Sampling Plan Description:

This Quality Assurance Sampling Plan (QASP) describes the sampling and analyses that will be performed in accordance with the 2011 Millington Quarry Reclamation Lake Management Plan. The QASP outlines in detail the sampling steps and provides a detailed description of the quality assurance requirements.

A. Monitoring Network Design and Rationale

Monitoring Locations:

During each sampling event, three mid-lake sampling locations are to be established based upon the current elevation of the lake. Figure 10 of the Lake Management Plan provides a detailed map showing the sampling locations during the initial sampling event. During subsequent sampling events, the sampling locations should be chosen to best represent the lake water quality conditions and should mimic the sampling locations shown in Figure 10.

Temporal Aspects:

Samples will be collected three (3) times per each lake characterization survey. For frequency of lake characterization surveys, see the Lake Characterization Plan section. As outlined in the Lake Characterization Plan section, each lake characterization survey will consists of samples collected during the spring (March through May), summer (June through August) and fall (September through November). To ensure samples are not contaminated by runoff due to large precipitation events, sampling will be conducted at a minimum of three days (72 hours) after a rain event exceeding 0.5 inches of precipitation in twenty-four hours. The real-time USGS precipitation gage in Pottersville, NJ (USGS #404218074413701) will be used to ensure the precipitation requirement is met.

Spatial Aspects:

At each sampling location, a total depth (i.e. depth to bottom) should be established using a tape measure. The secchi depth should be established using a secchi disk and tape measure. Temperature, pH, dissolved oxygen, and conductivity should be measured every one (1) meter along the full depth at each location up to a maximum of 100 feet. At each location, surface and bottom samples will be collected and analyzed for each of the chemical monitoring parameters listed in the Lake Characterization Plan section. The surface and bottom samples should be collected with a Kemmerer Sampler. Surface samples (MQ1-S, etc.) shall be collected at a depth of 1 meter and the bottom samples (MQ1-B, etc.) shall be collected near the bottom (approximately 1 meter from the bottom of the lake or as deep as the equipment will allow).

In addition to the discrete samples, one composite sample (at the middle of the

three sampling locations) should be collected and analyzed for phytoplankton identification and enumeration. This sample shall be a composite sample of two-times (2x) the secchi depth (an estimate of the photic zone), not to exceed the depth of the thermocline (if there is one). The thermocline can be established from the temperature readings of the in-situ depth profile. Discrete samples are to be collected using a Kemmerer vertical water sampler unit at the upper, mid-point and lower end of the photic zone and then composited together for analysis. All phytoplankton samples shall be preserved in the field using Lugol's Solution for future analysis by a qualified aquatic biologist/phycologist.

After sufficient settling, phytoplankton samples will be examined using a microscope equipped with a Palmer-Maloney style counting chamber. Counts of algal cells will be made along complete transects across the slide; these transects are called strips. All phytoplankton data will be presented as cell densities (cells/mL) and biomass (ug/L) according to genus, ecologically significant groupings within algal divisions (e.g., flagellated greens, filamentous blue-greens), algal division (e.g., blue-greens, greens, diatoms), and as a grand total.

Prior to each sampling event, the sampler will be decontaminated according to the following procedure: (1) distilled/deionized water rinse, (2) non-phosphate detergent wash, (3) distilled/deionized water rinse, (4) air dry, and (5) distilled/de-ionized water rinse. Prior to the collection of the first sample, a distilled/deionized water blank will be collected from the sampler following the decontamination procedure (i.e., a field rinsate blank). This blank will be analyzed for each chemical parameter listed in the Lake Characterization Plan. Composite sampling will be conducted in accordance with methods specified in the NJDEP Field Sampling Procedures Manual (2005).

B. Monitoring Parameters

In-Situ Parameters
Depth to Bottom
Secchi Depth
pH
Temperature
Dissolved Oxygen
Conductivity

Chemical Parameters

Hardness, Total as $CaCO_3$
Alkalinity
Turbidity
Total Suspended Solids (TSS)
Nitrate Nitrogen, as N (NO_3-N)
Ammonia Nitrogen, as N (NH_3-N)
Total Kjeldahl Nitrogen (TKN)
Total Phosphorus (TP)
Dissolved Orthophosphate, D-OPO_4
Arsenic, Total Recoverable[a]
Chromium, Total Recoverable[a]
Copper, Total Recoverable[a]
Lead, Total Recoverable[a]
Nickel, Total Recoverable[a]
Selenium, Total Recoverable[a]

C. Parameter Table

Measurements of the sampled parameters will be performed in accordance with Table 1B (40 CFR Part 136). Also, preservation techniques and holding times will be in accordance with Table 2.3 of the Field Sampling Procedures Manual (NJDEP, 2005). A temperature blank will be used to verify preservation requirements. Any deviations from the test procedures and/or preservation methods and holding times will be noted in the final report. The following tables outline the parameters, the approved analysis method, sampling holding times, sampling containers and/or preservation.

[a] All metals will be analyzed on the middle bottom sample (MQ2-B, etc.) only.

Table C1: Parameter Methods, Quantitation Limits, Sample Container, Preservation and Maximum Holding Times

Parameter	Sample Type	Analytical Test Method	Method Detection Limit	Quantitation Limit	Sample Container	Sample Preservation	Maximum Holding Time
Arsenic, Total Recoverable (µg/l)	Grab	EPA 200.8	0.48	0.5	Plastic	HNO_3 to pH < 2	6 months
Chromium, Total Recoverable (µg/l)	Grab	EPA 200.8	0.08	0.5	Plastic	HNO_3 to pH < 2	6 months
Copper, Total Recoverable (µg/l)	Grab	EPA 200.8	0.02	0.5	Plastic	HNO3 to pH < 2	6 months
Lead, Total Recoverable (µg/l)	Grab	EPA 200.8	0.04	0.5	Plastic	HNO3 to pH < 2	6 months
Nickel, Total Recoverable (µg/l)	Grab	EPA 200.8	0.03	0.5	Plastic	HNO3 to pH < 2	6 months
Selenium, Total Recoverable (µg/l)	Grab	EPA 200.8	0.10	0.5	Plastic	HNO3 to pH < 2	6 months
Ammonia, as Nitrogen (mg/l)	Grab	SM 4500-NH3 B+D	0.03	0.05	Plastic	Cool 4°C, H2SO4 to pH < 2	28 Days
Total Phosphorus (mg/l)	Grab	SM 4500-P B5+E	0.01	0.02	Plastic	Cool 4°C, H2SO4 to pH < 2	28 Days
Alkalinity (mg/l)	Grab	SM 2320 B	1.14	2.5	Plastic	Cool 4°C	14 Days
Total Suspended Solids (mg/l)	Grab	SM 2540 D	2.5	2.5	Plastic	Cool 4°C	7 Days
Nitrate, as Nitrogen (mg/l)	Grab	EPA 300.0	0.02	0.25	Plastic	Cool 4°C	48 Hours
Hardness, Total as $CaCO_3$ (mg/l)	Grab	SM 2340 C	4.75	10	Plastic	HNO3 to pH < 2	6 Months
Total Kjeldahl Nitrogen (mg/l)	Grab	SM 4500-N OrgB	0.199	0.2	Plastic	Cool 4°C, H2SO4 to pH < 2	28 Days
Dissolved Orthophosphate (mg/l)	Grab	EPA 365.3	0.0024	0.01	Plastic	Cool 4°C	48 Hours
Turbidity (NTU)	Grab	EPA 180.1	NA	0.2	Plastic	Cool 4°C	48 Hours
Chlorophyll-a (aqueous) (mg/l)	Grab	SM 10200-H (1+2)	NA	1.0	Glass	Cool 4°C	NA
pH (S.U.)	Grab	SM 4500 H+B	0.1	0.1	NA	NA	Analyze Immediately
Temperature (°C)	Grab	SM 2550 B	0.1	0.1	NA	NA	Analyze Immediately
Dissolved Oxygen (mg/l)	Grab	SM 4500-OG	0.1	0.1	NA	NA	Analyze Immediately
Conductivity (µs/cm)	Grab	SM 2510 B	0.1	0.1	NA	NA	Analyze Immediately

2. Chain of Custody Procedures:

Chain of custody procedures will be followed for all samples collected for this study. Sample Chain of Custody Forms are provided.

A sample is in someone's "custody" if:

a) It is in one's actual physical possession;

b) It is in one's view, after being in one's physical possession;

c) It is in one's physical possession and then locked up so that no one can tamper with it; and

d) It is kept in a secured area, restricted to authorized personnel only.

3. Calibration Procedures and Preventive Maintenance:

Calibration and preventive maintenance of laboratory equipment will be in accordance with N.J.A.C. 7:18-1.1 et seq. and 40 CFR Part 136.

4. Documentation, Data Reduction, and Reporting:

Laboratories will supply all QA/QC data with the summary of results. All data will be kept on file by the applicant for a minimum of five years, and all data will be included in reports to the NJDEP.

5. Quality Assurance and Quality Control:

N.J.A.C. 7:18-1.1 et seq. and 40 CFR Part 136 will be followed for all quality assurance and quality control (QA/QC) practices, including detection limits, quantitation limits, precision, and accuracy. Tables of parameter detection limits, quantitation limits, accuracy, and precision applicable to this study are provided in Appendix D.

6. Performance and Systems Audits:

All NJDEP certified laboratories participate in the Office of Quality Assurance (OQA) Performance Testing Program (PTP), in accordance with NJAC 7:18-2.13, for each category of certification. Laboratories are required to pass the PTP studies in order to maintain certification. The NJDEP Office of Quality Assurance conducts performance audits of each certified laboratory. The NJDEP Office of Quality Assurance periodically conducts on-site Technical Systems Audits of each certified laboratory. The findings of these audits, together with the PTP results, are used to update each laboratory's certification status.

7. Data Validation:

Data validation shall be performed by the laboratory doing the analyses and shall include the following:

a) Method Blank: The method blank cannot show the presence of the parameter of interest above the reported detection limit. Analysis of the batch should not continue until the source of the problem has been corrected.

b) Laboratory Fortified Blank (LFB): Where appropriate, must fall within the QC control limits. If the LFB is outside the limits, the following corrective actions should be taken:

i. Check data and recovery calculations.

ii. Check reference QC standard.

iii. Reanalyze sample batch.

c) QC Matrix Spike: Should fall within the QC control limits established for each methodology. The corrective actions should be as follows:

i. Check data and recovery calculations.

ii. Check if LFB and reference standard are acceptable.

iii. If only matrix spike is not within control limits, check other analytes present for possible sample matrix interference as detailed in the specific method. If sample matrix is identified as the problem, this may be footnoted. If the matrix spike is consistently outside for a particular parameter, another methodology may have to be suggested for sample analysis.

iv. Check reference QC standard if one was performed in that batch.

v. If matrix spike is not within control limits, check for presence of that analyte at a high value, which may be greater than the spike amount, causing invalid spike recovery.

d) Precision evaluated by:

Precision of method evaluated by control charts, continuously maintained and updated at each quarterly interval. Matrix Spike Duplicates (MSD) must have a relative percent difference (RPD) equal to or lower than the calculated maximum RPD. If reproducibility cannot be achieved, and sample matrix interferences are not apparent, batch reanalysis should occur. Calculations, dilutions, etc., should be checked prior to reanalysis.

e) Accuracy evaluated by:

i. Initial and continuing calibration standards within acceptance criteria.

ii. LFB acceptance by control limits to be continuously maintained and updated. LFB result must fall within control limits.

iii. Recovery control charts continuously maintained and updated. All parameters will have upper and lower warning limits (UWL/LWL) set at two standard deviation (SD) units and upper and lower control limits (UCL/LCL) set at three SD units. Matrix spikes must fall within control limits unless sample value (raw) is four or more times concentration of spike level.

Accuracy and Precision values have been calculated in accordance with the EPA Handbook for Analytical Control in Water and Wastewater Laboratories, Sections 6 and 7 (June 1972).

8. Corrective Action:

All NJDEP certified laboratories must have a written corrective action procedure that they adhere to in the event that calibration standards, performance evaluation results, blanks, duplicates, spikes, etc. are out of the acceptable range or control limits. If the acceptable results cannot be obtained for the above-mentioned QA/QC samples during any given day, sample analysis must be repeated for that day with the acceptable QA/QC results.

Chain of Custody Forms

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No.	
Project: Millington Quarry	Sample Technician (Print/Sign):		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
				Aqueous	1	500mL Plastic	HNO_3	Total Recoverable Arsenic, Chromium, Copper, Lead, Nickel, Selenium Total Hardness	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate as N, TSS, D-OPO4, Alkalinity, Turbidity	
				Aqueous	1	Liter Plastic	H_2SO_4	Ammonia as N, Total Phosphorus, TKN	
				Aqueous	1	Liter Glass	H_2SO_4	Chlorophyll-a (aqueous)	

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories	Phone: 609-737-3477	Method of Shipment
1580 Reed Road Suite A1	Fax: 609-737-3052	
Pennington, New Jersey 08534		

All bottles received for Laboratory (NJAL) by: (Signature)

Field Data Sheets

Lake/Reservoir Field Data Sheet

Study: _____ **Performed by:** _____
Station ID: _____ **Date:** _____ **Time:** _____
Station Description: _____
Lake/Res. Elevation: _____ (ft) **Z_{max}:** _____ (ft) or (m)
Station Sketch:

Sample Collection:

	Sampling Depth(s)	Parameters
Chemical WQ		
In-situ WQ		
Chlorophyll-a		n/a
Phytoplankton		n/a
Zooplankton*		n/a
Bacteria		
Other		

(*) Mesh Size _____ Net Dia. _____ Tow Length _____ No. of Tows _____

Air Temperature: _____ (^{O}C) **Secchi Disc Depth:** _____ (m)
Photic Zone: SDD X _____ = _____ (m)

Conditions:

Observations: _____

Cloud Cover: (1) 0% (2) 25% (3) 50% (4) 75% (5) 100% _____

Wind: (1) Calm (2) Light (3) Moderate (4) Gusty (5) Stormy _____

Precip: (1) None (2) Drizzle (3) Light (4) Moderate (5) Heavy _____

Rained within last 48 hours? Yes / No / Unsure _____

Surface: (1) Calm (2) (3) Choppy (4) (5) Capping _____

Meter Calibration:

DO Meter: (1) Elevation _____ (ft) = _____ (mm Hg) (2) Temp _____ ^{o}C/^{o}F
(3) Record "% DO" _____ (4) Record "DO conc." _____ mg/l

Cond Meter: Conc. of Calibration Solution _____ µS/cm / mS/cm @ Temp 25.0 ^{o}C/^{o}F
Reading _____ µS/cm / mS/cm

pH Meter: Calibration Solution 7.00 s.u. Reading _____ s.u.
Calibration Solution 4.01 s.u. Reading _____ s.u.
Calibration Solution 10.01 s.u. Reading _____ s.u.

ORP Meter: Calibration Solution _____ mV Reading _____ mV @ Temp _____ ^{o}C/^{o}F

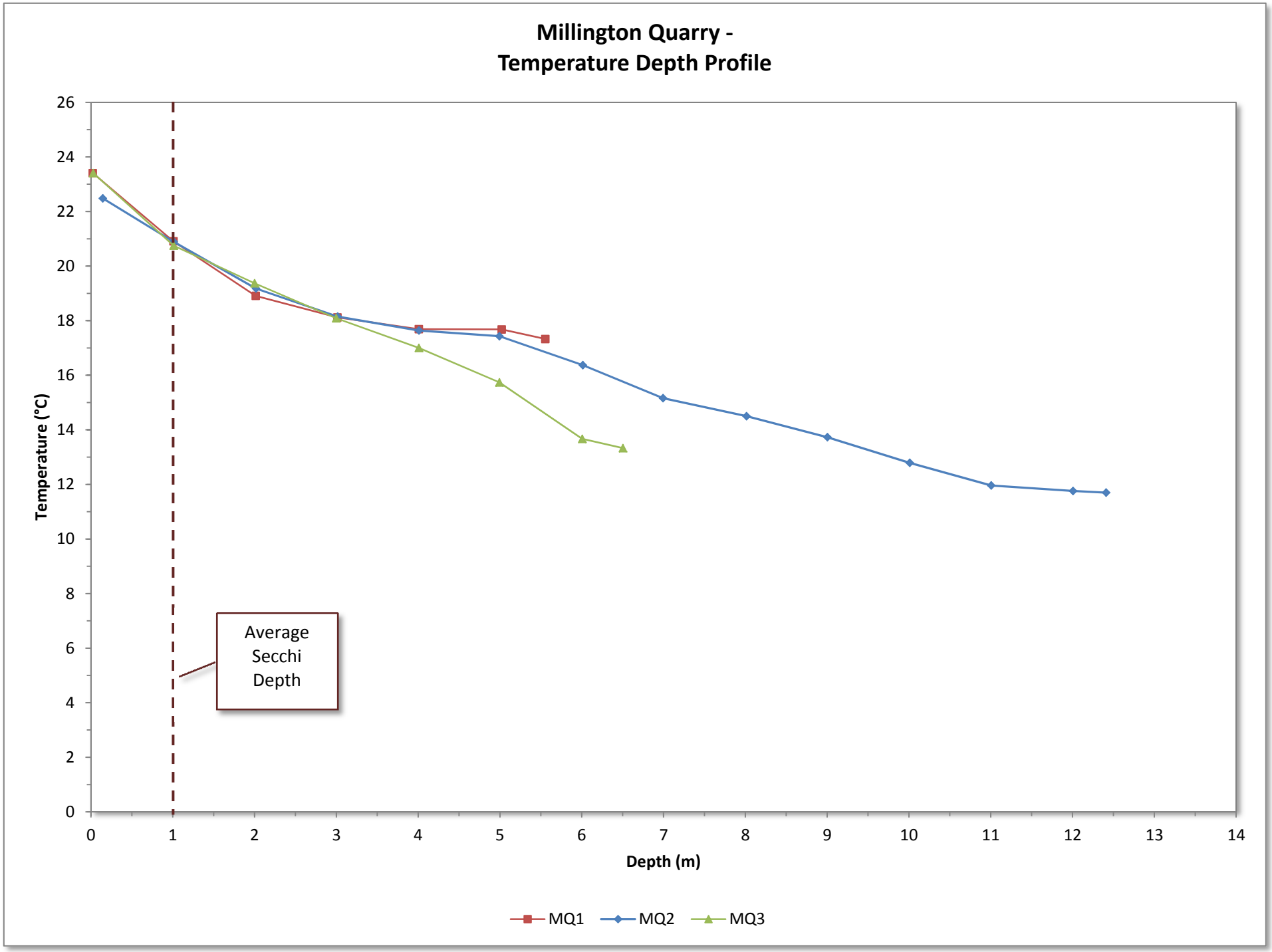
Profile Data:

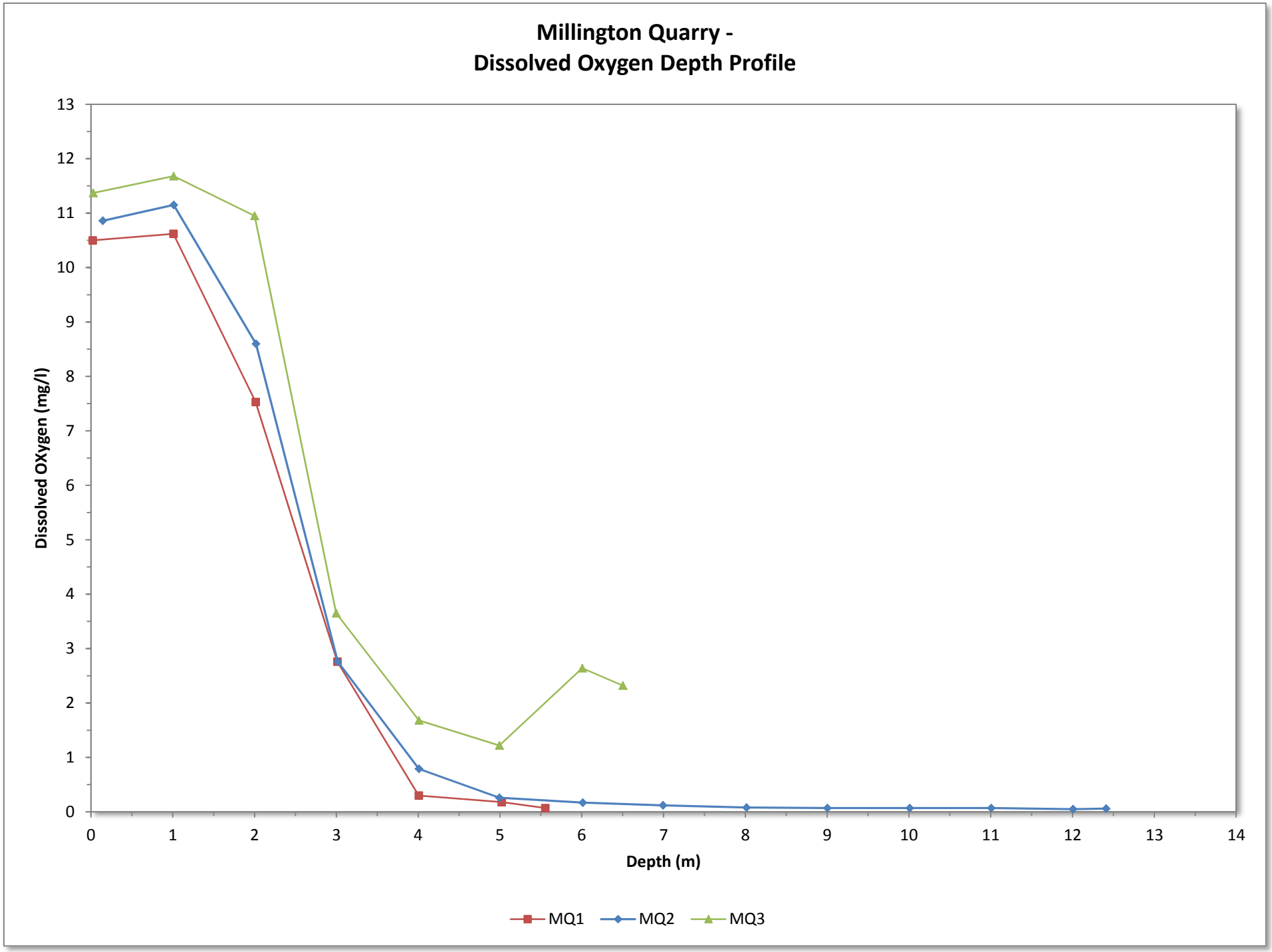
Depth m	Temp °C	DO %	DO mg/l	Cond µS / mS	Sp. Cond µS / mS	pH s.u.	ORP mV	TDS g/l	Salinity ppt

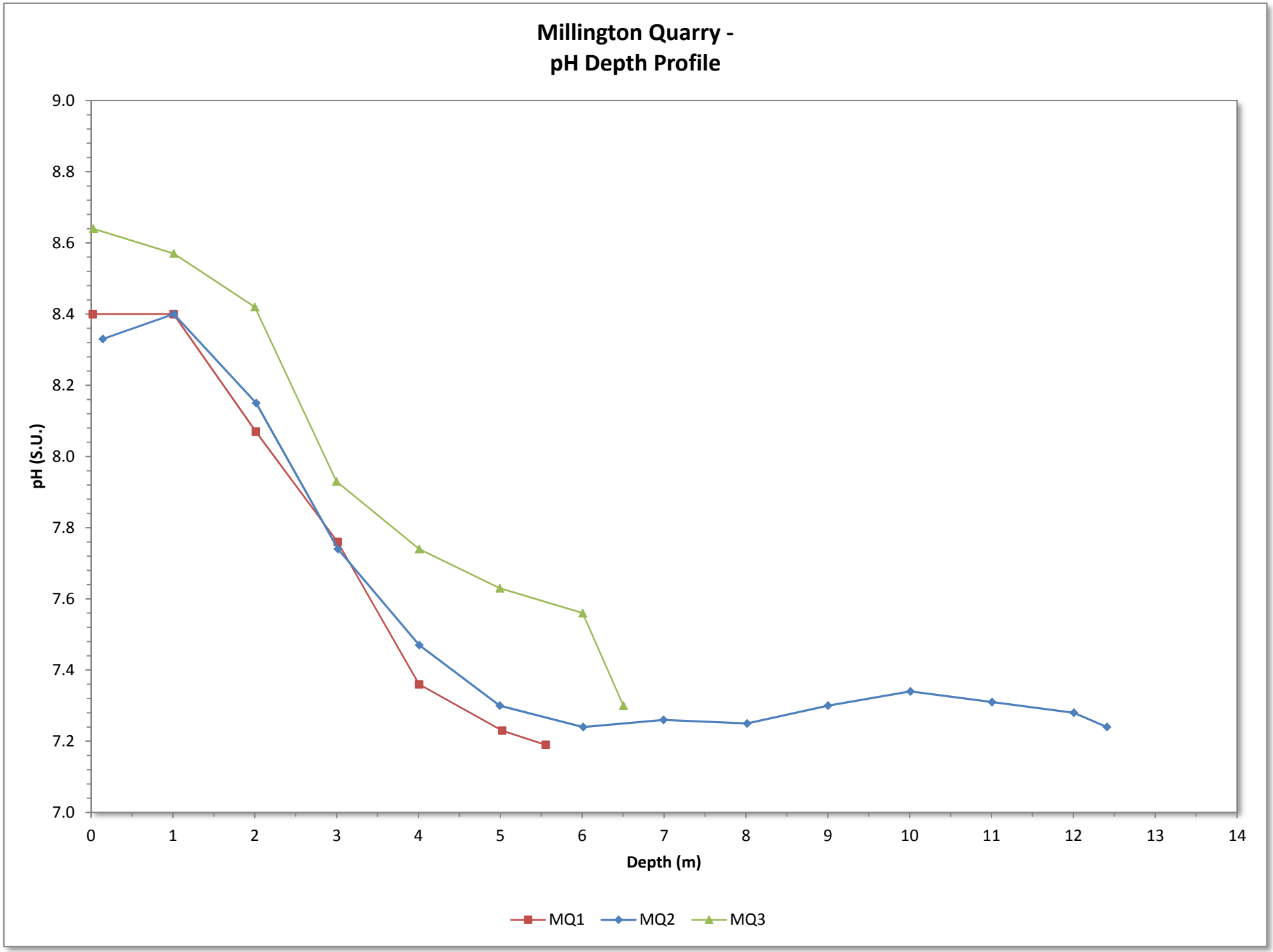
APPENDIX D

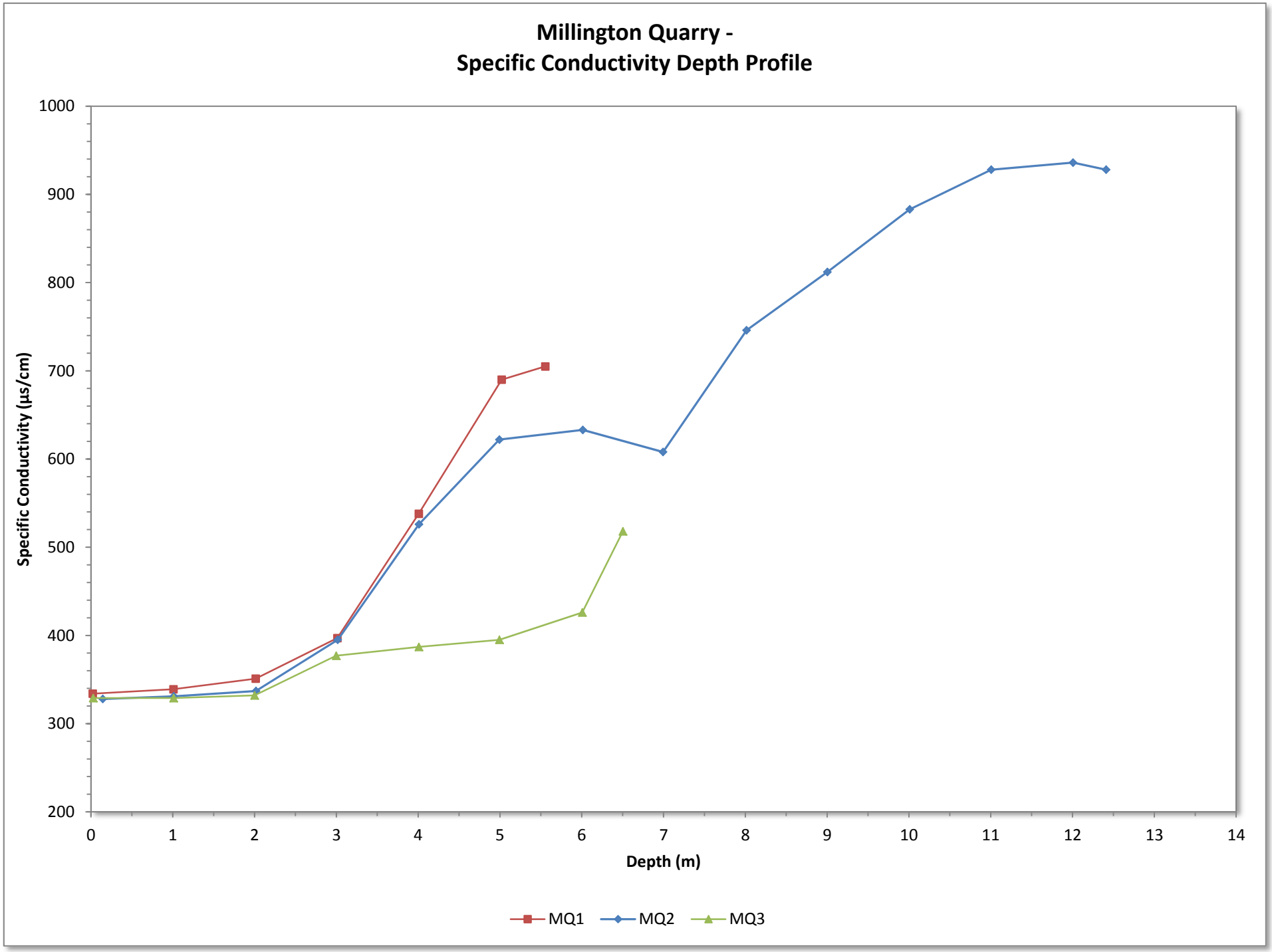
IN-SITU SAMPLING RESULTS

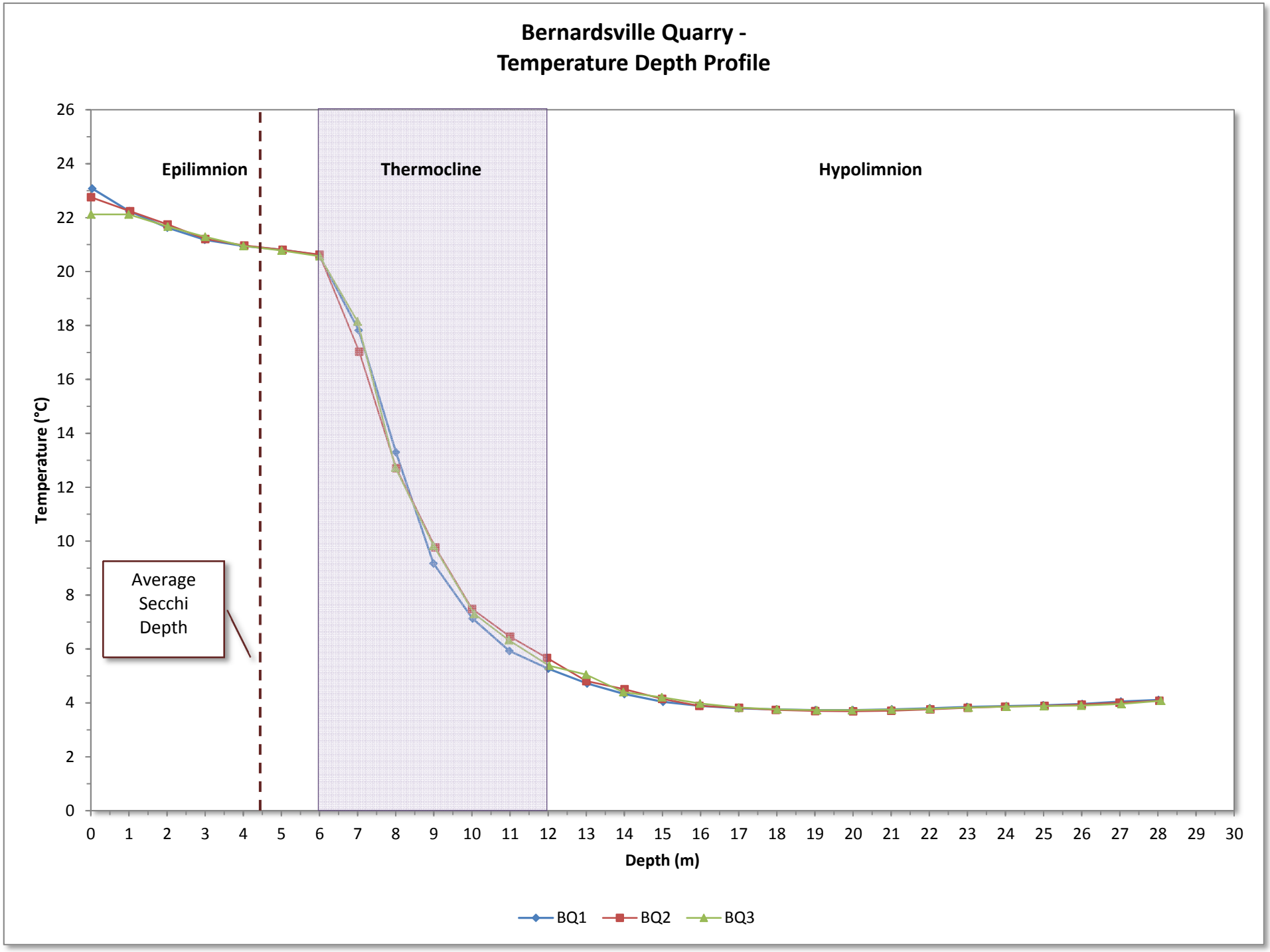
SEPTEMBER 27, 2011 SAMPLING EVENT

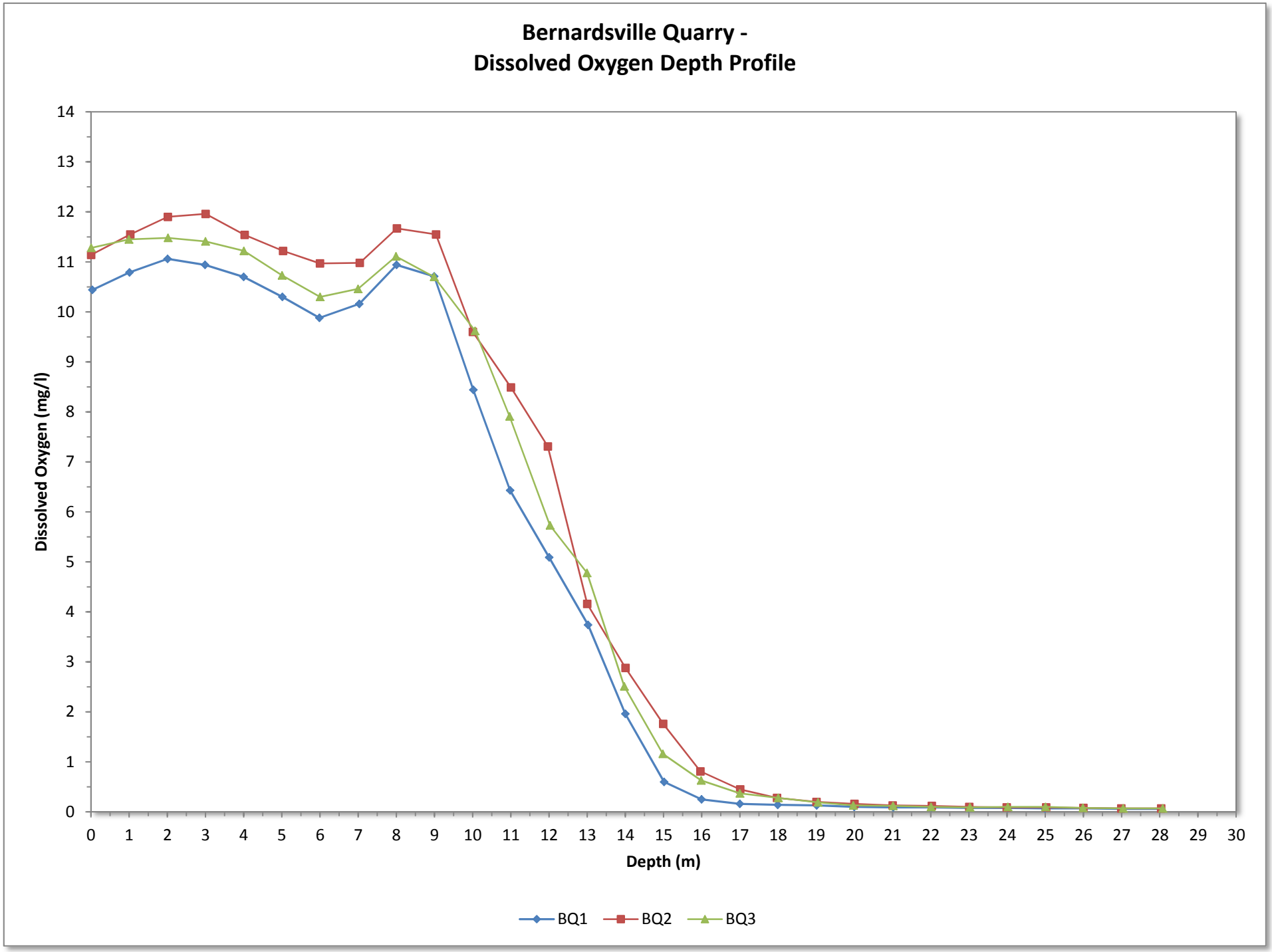

Millington Quarry -
Temperature Depth Profile
Temperature (°C)
Depth (m)
Average Secchi Depth
MQ1
MQ2
MQ3

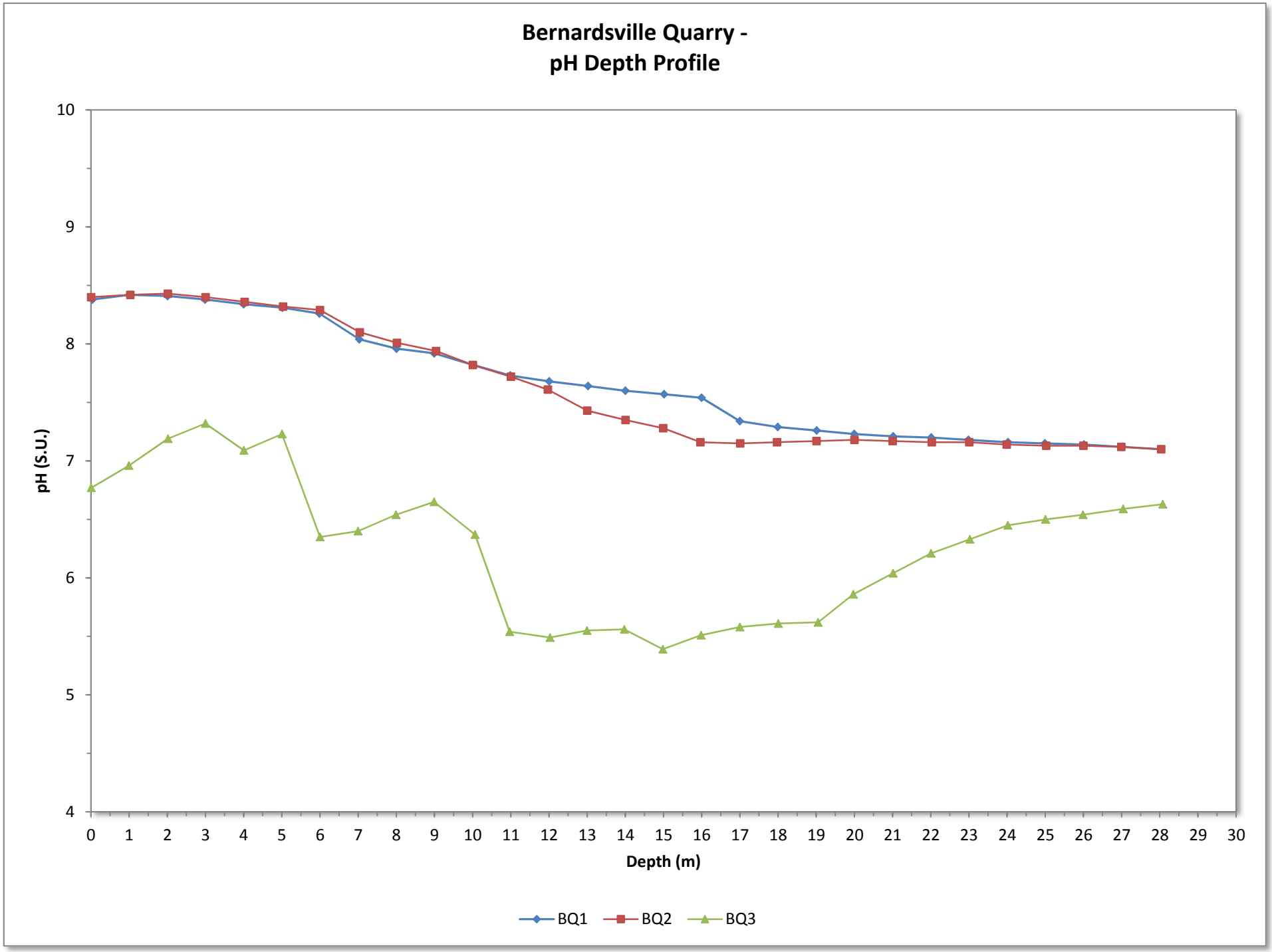

Millington Quarry -
Dissolved Oxygen Depth Profile
Dissolved OXygen (mg/l)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
Depth (m)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
MQ1
MQ2
MQ3

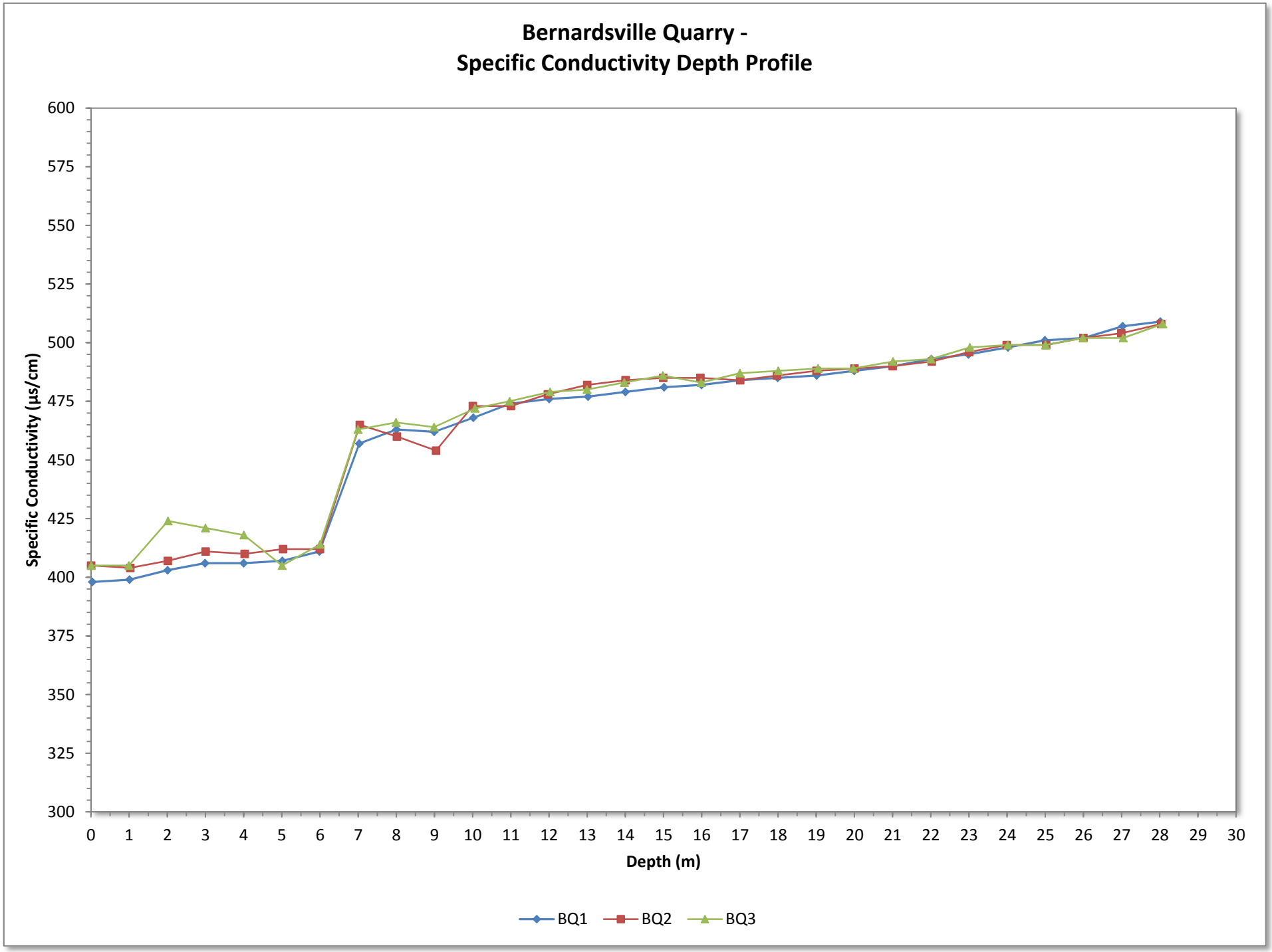

Millington Quarry -
pH Depth Profile
9.0
8.8
8.6
8.4
8.2
8.0
7.8
7.6
7.4
7.2
7.0
pH (S.U.)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Depth (m)
MQ1
MQ2
MQ3


Millington Quarry -
Specific Conductivity Depth Profile
Specific Conductivity (µs/cm)
1000
900
800
700
600
500
400
300
200
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Depth (m)
MQ1
MQ2
MQ3


Bernardsville Quarry -
Temperature Depth Profile
Epilimnion
Thermocline
Hypolimnion
Average Secchi Depth
Temperature (°C)
Depth (m)
BQ1
BQ2
BQ3


Bernardsville Quarry -
Dissolved Oxygen Depth Profile
Dissolved Oxygen (mg/l)
Depth (m)
BQ1
BQ2
BQ3


Bernardsville Quarry -
pH Depth Profile
pH (S.U.)
10
9
8
7
6
5
4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Depth (m)
BQ1
BQ2
BQ3


Bernardsville Quarry -
Specific Conductivity Depth Profile
Specific Conductivity (µs/cm)
600
575
550
525
500
475
450
425
400
375
350
325
300
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Depth (m)
BQ1
BQ2
BQ3

Site	Date	Time	Depth	Temp	Dissolved Oxygen Saturation	Dissolved Oxygen Concentration	Specific Conductivity	pH
			(m)	(°C)	(%)	(mg/L)	(µS/cm)	(S.U.)
MQ1	9/27/2011	12:11:49	0.02	23.41	123.50	10.50	334	8.40
MQ1	9/27/2011	12:12:39	1.01	20.91	119.10	10.62	339	8.40
MQ1	9/27/2011	12:13:21	2.01	18.91	81.10	7.53	351	8.07
MQ1	9/27/2011	12:13:59	3.01	18.12	29.30	2.76	397	7.76
MQ1	9/27/2011	12:15:21	4.01	17.69	3.20	0.30	538	7.36
MQ1	9/27/2011	12:15:54	5.02	17.68	1.90	0.18	690	7.23
MQ1	9/27/2011	12:18:36	5.55	17.33	0.80	0.07	705	7.19

Site	Date	Time	Depth	Temp	Dissolved Oxygen Saturation	Dissolved Oxygen Concentration	Specific Conductivity	pH
			(m)	(°C)	(%)	(mg/L)	(µS/cm)	(S.U.)
MQ2	9/27/2011	9:58:25	0.15	22.48	125.50	10.86	328	8.33
MQ2	9/27/2011	9:59:28	1.01	20.89	124.90	11.15	331	8.40
MQ2	9/27/2011	10:00:24	2.02	19.18	93.20	8.60	337	8.15
MQ2	9/27/2011	10:01:11	3.02	18.15	29.30	2.76	395	7.74
MQ2	9/27/2011	10:01:43	4.01	17.64	8.30	0.79	526	7.47
MQ2	9/27/2011	10:02:27	4.99	17.43	2.70	0.26	622	7.30
MQ2	9/27/2011	10:03:36	6.01	16.37	1.70	0.17	633	7.24
MQ2	9/27/2011	10:04:20	6.99	15.16	1.20	0.12	608	7.26
MQ2	9/27/2011	10:05:15	8.02	14.50	0.80	0.08	746	7.25
MQ2	9/27/2011	10:05:59	9.00	13.73	0.70	0.07	812	7.30
MQ2	9/27/2011	10:06:40	10.01	12.79	0.60	0.07	883	7.34
MQ2	9/27/2011	10:07:33	11.01	11.96	0.60	0.07	928	7.31
MQ2	9/27/2011	10:08:13	12.01	11.76	0.50	0.05	936	7.28
MQ2	9/27/2011	10:09:04	12.41	11.70	0.50	0.06	928	7.24

Site	Date	Time	Depth	Temp	Dissolved Oxygen Saturation	Dissolved Oxygen Concentration	Specific Conductivity	pH
			(m)	(°C)	(%)	(mg/L)	(µS/cm)	(S.U.)
MQ3	9/27/2011	12:46:47	0.03	23.41	133.70	11.37	329	8.64
MQ3	9/27/2011	12:47:24	1.01	20.75	130.50	11.68	329	8.57
MQ3	9/27/2011	12:47:51	2.00	19.37	119.10	10.95	332	8.42
MQ3	9/27/2011	12:48:34	3.00	18.09	38.70	3.65	377	7.93
MQ3	9/27/2011	12:49:06	4.01	17.00	17.40	1.68	387	7.74
MQ3	9/27/2011	12:49:43	4.99	15.74	12.30	1.22	395	7.63
MQ3	9/27/2011	12:50:25	6.01	13.67	25.50	2.64	426	7.56
MQ3	9/27/2011	12:51:00	6.50	13.33	22.20	2.32	518	7.30

Site	Date	Time	Depth	Temp	Dissolved Oxygen Saturation	Dissolved Oxygen Concentration	Specific Conductivity	pH
			(m)	(°C)	(%)	(mg/L)	(µS/cm)	(S.U.)
BQ1	09/27/11	14:34:30	0.04	23.08	122.00	10.44	398	8.38
BQ1	09/27/11	14:35:15	1.01	22.24	124.10	10.79	399	8.42
BQ1	09/27/11	14:36:11	2.01	21.63	125.70	11.06	403	8.41
BQ1	09/27/11	14:36:55	2.99	21.18	123.30	10.94	406	8.38
BQ1	09/27/11	14:37:29	4.00	20.95	120.00	10.70	406	8.34
BQ1	09/27/11	14:38:03	5.02	20.81	115.20	10.30	407	8.31
BQ1	09/27/11	14:38:51	5.99	20.61	110.10	9.88	411	8.26
BQ1	09/27/11	14:39:30	7.03	17.82	107.00	10.16	457	8.04
BQ1	09/27/11	14:40:21	8.01	13.30	104.70	10.94	463	7.96
BQ1	09/27/11	14:40:58	8.99	9.17	93.10	10.71	462	7.92
BQ1	09/27/11	14:41:38	10.02	7.13	69.80	8.44	468	7.82
BQ1	09/27/11	14:42:18	10.98	5.93	51.60	6.43	474	7.73
BQ1	09/27/11	14:42:50	12.00	5.27	40.20	5.09	476	7.68
BQ1	09/27/11	14:43:18	13.02	4.72	29.20	3.74	477	7.64
BQ1	09/27/11	14:43:51	14.00	4.33	15.10	1.96	479	7.60
BQ1	09/27/11	14:44:45	15.01	4.04	4.60	0.60	481	7.57
BQ1	09/27/11	14:45:35	16.00	3.89	1.90	0.25	482	7.54
BQ1	09/27/11	14:46:26	17.00	3.80	1.20	0.16	484	7.34
BQ1	09/27/11	14:46:52	17.99	3.76	1.10	0.14	485	7.29
BQ1	09/27/11	14:47:16	19.01	3.73	1.00	0.13	486	7.26
BQ1	09/27/11	14:47:56	19.99	3.73	0.80	0.10	488	7.23
BQ1	09/27/11	14:48:23	21.02	3.76	0.70	0.09	490	7.21
BQ1	09/27/11	14:49:06	22.01	3.80	0.70	0.09	493	7.20
BQ1	09/27/11	14:49:38	22.99	3.85	0.60	0.08	495	7.18
BQ1	09/27/11	14:50:12	24.02	3.88	0.60	0.08	498	7.16
BQ1	09/27/11	14:51:16	24.99	3.91	0.60	0.07	501	7.15
BQ1	09/27/11	14:52:19	26.01	3.96	0.50	0.07	502	7.14
BQ1	09/27/11	14:52:52	27.03	4.05	0.50	0.06	507	7.12
BQ1	09/27/11	14:53:07	28.01	4.11	0.40	0.06	509	7.10

Site	Date	Time	Depth	Temp	Dissolved Oxygen Saturation	Dissolved Oxygen Concentration	Specific Conductivity	pH
			(m)	(°C)	(%)	(mg/L)	(µS/cm)	(S.U.)
BQ2	09/27/11	15:22:26	0.00	22.76	129.50	11.14	405	8.40
BQ2	09/27/11	15:23:03	1.03	22.24	132.90	11.55	404	8.42
BQ2	09/27/11	15:23:29	2.01	21.75	135.60	11.90	407	8.43
BQ2	09/27/11	15:23:57	3.00	21.21	134.90	11.96	411	8.40
BQ2	09/27/11	15:24:31	4.03	20.97	129.50	11.54	410	8.36
BQ2	09/27/11	15:24:59	5.03	20.81	125.50	11.22	412	8.32
BQ2	09/27/11	15:25:22	6.00	20.63	122.30	10.97	412	8.29
BQ2	09/27/11	15:25:50	7.04	17.03	113.80	10.98	465	8.10
BQ2	09/27/11	15:26:21	8.01	12.71	110.20	11.67	460	8.01
BQ2	09/27/11	15:26:50	9.04	9.77	101.90	11.55	454	7.94
BQ2	09/27/11	15:27:29	10.00	7.49	80.20	9.60	473	7.82
BQ2	09/27/11	15:27:56	11.00	6.46	69.10	8.49	473	7.72
BQ2	09/27/11	15:28:15	11.97	5.67	58.30	7.31	478	7.61
BQ2	09/27/11	15:29:04	13.00	4.81	32.40	4.16	482	7.43
BQ2	09/27/11	15:29:24	14.00	4.51	22.30	2.88	484	7.35
BQ2	09/27/11	15:29:45	14.99	4.15	13.50	1.76	485	7.28
BQ2	09/27/11	15:30:18	15.97	3.89	6.10	0.81	485	7.16
BQ2	09/27/11	15:30:46	17.01	3.82	3.40	0.45	484	7.15
BQ2	09/27/11	15:31:16	17.97	3.74	2.20	0.28	486	7.16
BQ2	09/27/11	15:31:42	19.01	3.70	1.50	0.20	488	7.17
BQ2	09/27/11	15:32:09	20.00	3.69	1.20	0.16	489	7.18
BQ2	09/27/11	15:32:38	21.00	3.71	1.00	0.13	490	7.17
BQ2	09/27/11	15:33:11	22.03	3.76	0.90	0.12	492	7.16
BQ2	09/27/11	15:33:41	23.01	3.82	0.80	0.10	496	7.16
BQ2	09/27/11	15:34:07	23.99	3.86	0.70	0.09	499	7.14
BQ2	09/27/11	15:34:34	25.02	3.89	0.70	0.09	499	7.13
BQ2	09/27/11	15:35:04	26.00	3.94	0.60	0.08	502	7.13
BQ2	09/27/11	15:35:34	26.99	4.01	0.50	0.07	504	7.12
BQ2	09/27/11	15:36:02	28.04	4.08	0.50	0.07	508	7.10

Site	Date	Time	Depth	Temp	Dissolved Oxygen Saturation	Dissolved Oxygen Concentration	Specific Conductivity	pH
			(m)	(°C)	(%)	(mg/L)	(µS/cm)	(S.U.)
BQ3	09/27/11	16:16:50	0.01	22.12	129.40	11.28	405	6.77
BQ3	09/27/11	16:17:45	0.99	22.12	131.30	11.45	405	6.96
BQ3	09/27/11	16:18:24	2.02	21.67	130.60	11.48	424	7.19
BQ3	09/27/11	16:18:56	3.00	21.29	128.90	11.41	421	7.32
BQ3	09/27/11	16:19:26	4.01	20.95	125.90	11.22	418	7.09
BQ3	09/27/11	16:20:04	5.01	20.78	119.90	10.73	405	7.23
BQ3	09/27/11	16:21:35	6.00	20.57	114.70	10.30	414	6.35
BQ3	09/27/11	16:22:04	7.00	18.15	111.00	10.46	463	6.40
BQ3	09/27/11	16:22:35	7.99	12.73	104.90	11.11	466	6.54
BQ3	09/27/11	16:23:26	8.99	9.83	94.50	10.70	464	6.65
BQ3	09/27/11	16:23:55	10.06	7.30	79.90	9.62	472	6.37
BQ3	09/27/11	16:24:23	10.97	6.33	64.10	7.91	475	5.54
BQ3	09/27/11	16:24:59	12.03	5.38	45.40	5.73	479	5.49
BQ3	09/27/11	16:25:16	13.00	5.05	37.60	4.78	480	5.55
BQ3	09/27/11	16:25:47	13.97	4.40	19.40	2.51	483	5.56
BQ3	09/27/11	16:26:19	14.98	4.21	8.90	1.16	486	5.39
BQ3	09/27/11	16:26:48	15.98	3.98	4.80	0.63	483	5.51
BQ3	09/27/11	16:27:15	17.00	3.83	2.80	0.37	487	5.58
BQ3	09/27/11	16:27:37	18.01	3.76	2.10	0.28	488	5.61
BQ3	09/27/11	16:28:05	19.05	3.73	1.50	0.19	489	5.62
BQ3	09/27/11	16:28:44	19.97	3.73	1.00	0.13	489	5.86
BQ3	09/27/11	16:29:10	21.01	3.75	0.90	0.12	492	6.04
BQ3	09/27/11	16:29:55	22.01	3.78	0.70	0.10	493	6.21
BQ3	09/27/11	16:30:42	23.03	3.83	0.70	0.09	498	6.33
BQ3	09/27/11	16:31:42	24.02	3.86	0.80	0.10	499	6.45
BQ3	09/27/11	16:32:19	25.01	3.88	0.70	0.10	499	6.50
BQ3	09/27/11	16:32:55	25.99	3.90	0.60	0.08	502	6.54
BQ3	09/27/11	16:33:40	27.04	3.96	0.50	0.07	502	6.59
BQ3	09/27/11	16:34:50	28.08	4.08	0.60	0.07	508	6.63

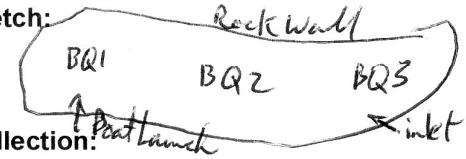
Site	Date	Time	Total Depth	Secchi Depth
			(m)	(m)
MQ1	9/27/2011	12:00:00	5.8	1.0
MQ2	9/27/2011	13:45:00	12.5	1.0
MQ3	9/27/2011	14:30:00	6.8	1.0
BQ1	9/27/2011	16:30:00	36.5	4.4
BQ2	9/27/2011	17:30:00	36.0	4.7
BQ3	9/27/2011	18:30:00	35.1	4.2

Aqua Link, Inc.

Sampling Locations on JJ's GPS

Lake/Reservoir Field Data Sheet

Study: Bernardsville Quarry
Station ID: BQ 1-3
Performed by: Andy Link / JJ Schwarz
Date: 9/27/11 Tues. **Time:** BQ1 - 16:30 / BQ2 - 17:30 / BQ3 - 18:30
Station Description:
Lake/Res. Elevation: _____ (ft)
Station Sketch:



BQ1 Z_{max}: 120 (ft) or (m)
BQ2 Z_{max} 118
BQ3 Z_{max} 115

BQ1B depth = 30m
BQ2B depth = 30m
BQ3B depth = 30m

Plants found 1.) Pe foliosis
2.) P. crispus

Sample Collection:

	Sampling Depth(s)	Parameters
Chemical WQ	S + B	Omni
In-situ WQ	WC Incremental	Aqua Link
Chlorophyll-a		n/a Omni
Phytoplankton		n/a Aqua Link (3 samples composited - Surface, 3.5m, 7.0m) based on edge of thermocline
Zooplankton*	N/A	n/a
Bacteria		
Other		

(*) Mesh Size N/A Net Dia. _____ Tow Length _____ No. of Tows _____

Air Temperature: 20.94 (°C)

Secchi Disc Depth: BQ1 = 14.5' BQ2 15.5' BQ3 13.8 (m)

Photic Zone: SDD X 2 = ~~31'~~ (■) / BQ1 ~~29.0~~ 29.0' *
Photic Zone. BQ2 = 31' *
BQ3 = 27.6'

Conditions:

Observations: Clear - light greenish tint / Moderate HS smell in bottom waters

Cloud Cover: (1) 0% (2) 25% (3) 50% (4) 75% (5) 100%

Wind: (1) Calm (2) Light (3) Moderate (4) Gusty (5) Stormy

Precip: (1) None (2) Drizzle (3) Light (4) Moderate (5) Heavy

Rained within last 48 hours? Yes / No / Unsure

Surface: (1) Calm (2) Choppy (3) Capping (4) (5)

Meter Calibration: YSI 600XL Sonde w/Data Logger

9/27/11 16:15 — DO Meter: (1) Elevation N/A (ft) = 753.0 (mm Hg) (2) Temp 27.92 °C/°F
(3) Record "% DO" 99.1 (4) Record "DO conc." 7.77 mg/l

9/27/11 0630 EWM — Cond Meter: Conc. of Calibration Solution 447 µS/cm / mS/cm @ Temp 25.0 °C/°F
Reading 447 µS/cm / mS/cm

pH Meter: Calibration Solution 7.00 s.u. Reading 7.00 s.u.
Calibration Solution 4.01 s.u. Reading 3.99 s.u.
Calibration Solution ~~10.01~~ 10.00 EWM s.u. Reading 10.00 s.u.

ORP Meter: Calibration Solution N/A mV Reading _____ mV @ Temp _____ °C/°F

* BQ2 thermocline ~21 ft. (bottom sample of BQ2P)

Aqua Link, Inc.

Sampling Locations on JJ's GPS

Lake/Reservoir Field Data Sheet

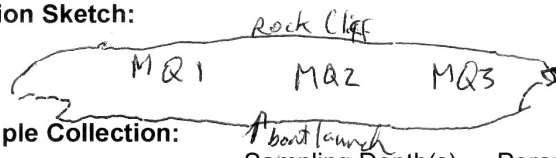
Study: Millington Quarry
Station ID: MQ1-3
Station Description:
Lake/Res. Elevation: _____ (ft)

Performed by: Andy Link / JJ Schumacher
Date: 9/27/11 Tues **Time:** 12:00 MQ2 / 13:48 MQ1 / 14:30 MQ3

MQ1 Z_{max}: 19.0' (ft) or (m)
MQ2 Zmax 41'
MQ3 Zmax 22.7'

MQ1B - 5.0m
MQ2B - 11.0m
MQ3B - 5.5m
} Sample depths

Station Sketch:



Sample Collection: ⚠ No Aquatic Plants Seen

	Sampling Depth(s)	Parameters
Chemical WQ	S + B	Omni
In-situ WQ	WC, Incrementals	Aqua Link
Chlorophyll-a	S	n/a Omni
Phytoplankton	PS	n/a Aqua Link (2 samples composited - surface + photic) x6.5'
Zooplankton*	N/A	n/a
Bacteria		
Other		

(*) Mesh Size N/A Net Dia. _____ Tow Length _____ No. of Tows _____

Air Temperature: 23.50 (°C)

Secchi Disc Depth: MQ1=3.2' MQ2=3.4' MQ3=3.2' (m)

Photic Zone: SDD X _____ = _____ (m) MQ1 6.4' MQ2 6.8' MQ3 6.4'

Conditions:

Observations: Greenish color - phytoplankton / Moderate to Strong H_2S smell in bottom waters

Cloud Cover: (1) 0% (2) 25% (3) 50% (4) 75% **(5) 100%**

Wind: **(1) Calm** (2) Light (3) Moderate (4) Gusty (5) Stormy

Precip: **(1) None** (2) Drizzle (3) Light (4) Moderate (5) Heavy

Rained within last 48 hours? Yes **No** Unsure

Surface: **(1) Calm** (2) Choppy (3) (4) (5) Capping

Meter Calibration: YSI 600XL Sonde w/ Data Logger

9/27/11 11:30AM ARL

DO Meter: (1) Elevation N/A (ft) = 759.5 (mm Hg) (2) Temp 29.19 **(°C)** °F
(3) Record "% DO" ~~99.9~~ (4) Record "DO conc." 7.67 mg/l

9/27/11 0630 EMM

Cond Meter: Conc. of Calibration Solution 447 **(µS/cm)** / mS/cm @ Temp 25.0 °C/°F
Reading 447 **(µS/cm)** / mS/cm

pH Meter: Calibration Solution 7.00 s.u. Reading 7.00 s.u.
Calibration Solution 4.01 s.u. Reading 3.99 s.u.
Calibration Solution ~~10.01~~ 10.00 s.u. Reading 10.00 s.u. EMM

ORP Meter: Calibration Solution N/A mV Reading _____ mV @ Temp _____ °C/°F

APPENDIX E

WATER QUALITY LABORATORY REPORT

New Jersey Analytical Laboratories
NJAL

1580 Reed Road
Pennington, NJ 08534
609-737-3477 (p) 609-737-3052 (f)
www.njal.com

CERTIFICATE OF ANALYSIS

NJDEP Certified Lab 11005

Project Name:	Millington Quarry	Workorder:	0001729

J. Schwarz
Omni Environmental LLC
321 Wall Street
Princeton, NJ 08540

Project Name and Number: **Millington Quarry**

October 05, 2011

Dear J. Schwarz,

This report relates only to the sample(s) as received by the laboratory. Laboratory reports may not be reproduced, except in full, without the written approval of the laboratory.

The issuance of the final Certificate of Analysis takes precedence over any previous Preliminary Report. Caution is advised for the utilization of preliminary data included in reports labeled as "Preliminary Report" and should not be used for regulatory purposes. A laboratory signature is provided on final reports only.

If you have any questions in reference to this laboratory report, please contact your NJAL project coordinator or laboratory manager listed at the bottom of this report at (609) 737-3477.

Note: This coverpage is included as part of the Analytical Report and must be retained as a permanment record thereof.

Laboratory Manager

New Jersey Analytical Laboratories
NJAL

1580 Reed Road
Pennington, NJ 08534
609-737-3477 (p) 609-737-3052 (f)
www.njal.com

Omni Environmental LLC
321 Wall Street
Princeton , NJ 08540

Millington Quarry

J. Schwarz

EPA 624 Volatile Organic Compounds via GCMS

NJAL received the samples associated with this batch in compliance with NJDEP guidelines. The requested analysis was conducted via EPA 624 Volatile Organic Compounds (VOC) using GCMS. All samples were analyzed in method allowed holding times and all method-batch QA/QC criteria, unless otherwise noted in the comments section or if applicable the NJDEP reduced deliverable package.

EPA 624

Section	Topic
2.1	Tunes
2.2	Method blanks
2.3	Calibration/LCS
2.4	Surrogate summary
2.5	MS/MSD recovery
2.6	Internal standards

Comments:

None-AT

EPA 625 Semivolatile Compounds via GCMS

The requested analysis as shown in the results section is Semivolatile compounds via EPA625 TCL, BN and or BNA. All samples were extracted in accordance to NJAL SOP's and NJDEP guidlines. All samples were analyzed in method prescribed criteria, unless otherwise noted in the full deliverable section detail as listed below in the comments section.

Section	Topic
3.1	Tunes
3.2	Blanks
3.3	Calibration
3.4	Surrogates
3.5	MS/MSD

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

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3.6 Internal Standards

Comments:
The reported analytes require re-analysis, the reported values are expected to not change as a result of the re-analysis. The report will be updated on completion.

EPA 200.8 ICPMS Metals

NJAL received the samples associated with this batch in NJDEP compliance standards for the analytical methods requested. EPA 200.8 was used to determine the metals listed under this section header in the following data summaries. Specific details associated with the analysis are listed in the final report for the NJDEP reduced deliverable data package.

EPA 200.8 - NJDEP Reduced Deliverable Format

Run Log
Tune Specifications
Calibration Curve
Calibration Check Standard
Laboratory Control Standard
Method Blanks
Laboratory Blanks
Laboratory Fortified Blanks

Subcontracted Parameters:

Some analytes were subcontracted to ALS, Dogwood, PA as indicated.

All method required quality control parameters were acceptable for the results included in this report. Please review the sub-contract lab's attached report for more detail.

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

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Pennington, NJ 08534
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Lab ID: 0001729-01 **Date Collected:** 09/27/11 16:15 **Matrix:** Water

Sample ID: BQ1S **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Chlorophyll	11.8		mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 18:39	09/28/11	1
Orthophosphate, Dissolved	ND	U	mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Total Hardness	130		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Phosphorus-Total	0.021		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Turbidity	1.1		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Alkalinity	127		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

New Jersey Analytical Laboratories
NJAL

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Lab ID: 0001729-02 **Date Collected:** 09/27/11 16:30 **Matrix:** Water

Sample ID: BQ1B **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Alkalinity	189		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Turbidity	2.2		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	3.0		mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Phosphorus-Total	0.27		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Total Hardness	170		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Orthophosphate, Dissolved	0.21		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 18:54	09/28/11	1
Ammonia as N	1.1		mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

New Jersey Analytical Laboratories
NJAL

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Lab ID: 0001729-03 **Date Collected:** 09/27/11 17:00 **Matrix:** Water

Sample ID: BQ2S **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Orthophosphate, Dissolved	0.015		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Phosphorus-Total	0.030		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Total Hardness	140		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Chlorophyll	11.2		mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Turbidity	0.81		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Alkalinity	126		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 19:09	09/28/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

New Jersey Analytical Laboratories
NJAL

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Lab ID: 0001729-04 **Date Collected:** 09/27/11 17:30 **Matrix:** Water

Sample ID: BQ2B **Date Received:** 09/28/11 14:20

Volatile Organic Compounds by EPA Method 624

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Acetone	ND	U	ug/L	3.80	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Acrolein	ND	U	ug/L	2.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Acrylonitrile	ND	U	ug/L	2.20	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Allyl chloride	ND	U	ug/L	0.800	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Benzene	ND	U	ug/L	0.200	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromobenzene	ND	U	ug/L	0.420	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromochloromethane	ND	U	ug/L	0.490	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromodichloromethane	ND	U	ug/L	0.240	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromoform	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromomethane	ND	U	ug/L	0.600	1.00	EPA 624	10/05/11 15:35	10/05/11	1
sec-Butyl Benzene	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
n-Butylbenzene	ND	U	ug/L	0.360	1.00	EPA 624	10/05/11 15:35	10/05/11	1
tert-Butylbenzene	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Carbon disulfide	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Carbon Tetrachloride	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chlorobenzene	ND	U	ug/L	0.270	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloroethane	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Chloroethylvinyl ether	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloroform	ND	U	ug/L	0.270	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloromethane	ND	U	ug/L	0.590	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloromethyl vinyl ether	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Chlorotoluene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
4-Chlorotoluene	ND	U	ug/L	0.490	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Cyclohexane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dibromo-3-chloropropane	ND	U	ug/L	1.50	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Dibromochloromethane	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dibromoethane	ND	U	ug/L	0.290	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Dibromomethane	ND	U	ug/L	0.580	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,4-Dichloro-2-butene	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,4-Dichlorobenzene	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3-Dichlorobenzene	ND	U	ug/L	0.190	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichlorobenzene	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Dichlorodifluoromethane	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichloroethane	ND	U	ug/L	0.350	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloroethane	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
cis-1,2-Dichloroethene	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,2-Dichloroethene	ND	U	ug/L	0.350	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloroethene	ND	U	ug/L	0.380	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichloropropane	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3-Dichloropropane	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2,2-Dichloropropane	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
cis-1,3-Dichloropropene	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,3-Dichloropropene	ND	U	ug/L	0.420	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloropropene	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,4-Dioxane	ND	U	ug/L	1.70	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Acetate	ND	U	ug/L	2.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Benzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Ether	ND	U	ug/L	0.260	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Methacrylate	ND	U	ug/L	0.500	5.00	EPA 624	10/05/11 15:35	10/05/11	1

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Lab ID: 0001729-04 **Date Collected:** 09/27/11 17:30 **Matrix:** Water

Sample ID: BQ2B **Date Received:** 09/28/11 14:20

Volatile Organic Compounds by EPA Method 624

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Hexachlorobutadiene	ND	U	ug/L	0.610	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Hexanone	ND	U	ug/L	0.800	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Isopropyl Benzene	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
p-Isopropyltoluene	ND	U	ug/L	0.260	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methacrylonitrile	ND	U	ug/L	0.800	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Acetate	ND	U	ug/L	1.20	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl tert-Butyl Ether (MTBE)	ND	U	ug/L	0.440	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Cyclohexane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methylene Chloride	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Ethyl Ketone	ND	U	ug/L	3.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Iodide	ND	U	ug/L	1.00	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Methacrylate	ND	U	ug/L	0.700	5.00	EPA 624	10/05/11 15:35	10/05/11	1
MIBK	ND	U	ug/L	1.10	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Naphthalene	ND	U	ug/L	0.460	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Nitropropane	ND	U	ug/L	0.600	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Pentachloroethane	ND	U	ug/L	0.600	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Propionitrile	ND	U	ug/L	3.40	5.00	EPA 624	10/05/11 15:35	10/05/11	1
n-Propyl Benzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Styrene	ND	U	ug/L	0.320	1.00	EPA 624	10/05/11 15:35	10/05/11	1
t-Butyl alcohol	ND	U	ug/L	0.800	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,1,2-Tetrachloroethane	ND	U	ug/L	0.300	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2,2-Tetrachloroethane	ND	U	ug/L	0.430	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Tetrachloroethene	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
THF	ND	U	ug/L	3.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Toluene	ND	U	ug/L	0.130	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,4-Trichlorobenzene	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,3-Trichlorobenzene	ND	U	ug/L	0.450	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2-Trichloroethane	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,1-Trichloroethane	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Trichloroethene	ND	U	ug/L	0.370	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Trichlorofluoromethane	ND	U	ug/L	0.290	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,3-Trichloropropane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3,5- Trimethylbenzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,4-Trimethylbenzene	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Vinyl acetate	ND	U	ug/L	3.30	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Vinyl chloride	ND	U	ug/L	0.370	1.00	EPA 624	10/05/11 15:35	10/05/11	1
o-Xylene	ND	U	ug/L	0.180	1.00	EPA 624	10/05/11 15:35	10/05/11	1
m,p-Xylene	ND	U	ug/L	0.190	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Surrogate: 4-Bromofluorobenzene	*103 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: Dibromofluoromethane	*101 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: 1,2-Dichloroethane-d4	*106 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: Toluene-d8	*100 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Acenaphthene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Acenaphthylene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
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Lab ID: 0001729-04 **Date Collected:** 09/27/11 17:30 **Matrix:** Water

Sample ID: BQ2B **Date Received:** 09/28/11 14:20

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Aniline	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Anthracene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzidine	ND	U	ug/L	3.10	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzo(a)anthracene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzo[a]pyrene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzo(b)fluoranthene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzo(ghi)perylene	ND	U	ug/L	1.80	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzo[k]fluoranthene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Benzyl alcohol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4-Bromophenyl phenyl ether	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Butyl benzyl phthalate	ND	U	ug/L	1.20	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Carbazole	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4-Chloro-3-methylphenol	ND	U	ug/L	0.500	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4-Chloroaniline	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Bis(2-chloroethoxy)methane	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Bis(2-chloroethyl)ether	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Bis(2-chloroisopropyl)ether	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1-Chloronaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2-Chloronaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2-Chlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4-Chlorophenyl phenyl ether	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Chrysene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Dibenzo(a,h)anthracene	ND	U	ug/L	0.200	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Dibenzofuran	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Di-n-butylphthalate	ND	U	ug/L	0.520	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1,3-Dichlorobenzene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1,4-Dichlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1,2-Dichlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
3,3'-Dichlorobenzidine	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
N-Nitrosodiethylamine	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,4-Dichlorophenol	ND	U	ug/L	0.400	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Acetophenone	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
N-Nitroso-di-n-butylamine	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,6-Dichlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Diethyl phthalate	ND	U	ug/L	0.260	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,4-Dimethylphenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Dimethylphthalate	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4,6-Dinitro-2-methylphenol	ND	U	ug/L	5.00	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,4-Dinitrophenol	ND	U	ug/L	5.00	10.0	EPA 625	10/04/11 16:07	09/29/11	1
2,4-Dinitrotoluene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,6-Dinitrotoluene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Di-n-octyl phthalate	ND	U	ug/L	1.30	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1,2-Diphenhydrazine	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Diphenylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Bis(2-ethylhexyl)phthalate	ND	U	ug/L	1.50	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Fluoranthene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Fluorene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Hexachlorobenzene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Hexachlorobutadiene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1

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Lab ID: 0001729-04 **Date Collected:** 09/27/11 17:30 **Matrix:** Water

Sample ID: BQ2B **Date Received:** 09/28/11 14:20

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Hexachlorocyclopentadiene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Hexachloroethane	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Indeno(1,2,3-cd)pyrene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Isophorone	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1-Methylnaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2-Methylnaphthalene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2-Methylphenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
3/4-Methylphenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Naphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2-Nitroaniline	ND	U	ug/L	0.400	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4-Nitroaniline	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
3-Nitroaniline	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Nitrobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
4-Nitrophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2-Nitrophenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
N-Nitrosodimethylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
N-Nitrosodiphenylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
N-Nitrosodi-n-propylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
N-Nitrosopyrrolidine	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Pentachlorobenzene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Pentachlorophenol	ND	U	ug/L	5.00	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Phenanthrene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Phenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Pyrene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Pyridine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1,2,4,5-Tetrachlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,3,5,6-Tetrachlorophenol	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,3,4,6-Tetrachlorophenol	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 16:07	09/29/11	1
o-Toluidine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
1,2,4-Trichlorobenzene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,4,5-Trichlorophenol	ND	U	ug/L	1.60	5.00	EPA 625	10/04/11 16:07	09/29/11	1
2,4,6-Trichlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 16:07	09/29/11	1
Surrogate: 2-Fluorobiphenyl	*116 %*		*Limit 31-147*			*EPA 625*	*10/04/11 16:07*	09/29/11	1
Surrogate: 2-Fluorophenol	*55.0 %*		*Limit 33-151*			*EPA 625*	*10/04/11 16:07*	09/29/11	1
Surrogate: Nitrobenzene-d5	*101 %*		*Limit 20-134*			*EPA 625*	*10/04/11 16:07*	09/29/11	1
Surrogate: Phenol-d5	*38.7 %*		*Limit 20-170*			*EPA 625*	*10/04/11 16:07*	09/29/11	1
Surrogate: p-Terphenyl-d14	*135 %*		*Limit 11-137*			*EPA 625*	*10/04/11 16:07*	09/29/11	1
Surrogate: 2,4,6-Tribromophenol	*58.5 %*		*Limit 16-149*			*EPA 625*	*10/04/11 16:07*	09/29/11	1

Total Metals by EPA 200.8

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Antimony	ND	U	ug/L	0.0400	1.00	EPA 200.8	10/03/11 15:20	09/30/11	1
Selenium	ND	U	ug/L	0.1	0.5	EPA 200.8	10/03/11 15:20	09/30/11	1
Copper	0.513		ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:20	09/30/11	1
Silver	ND	U	ug/L	0.0500	1.00	EPA 200.8	10/03/11 15:20	09/30/11	1
Nickel	2.02		ug/L	0.0300	0.500	EPA 200.8	10/03/11 15:20	09/30/11	1
Lead	ND	U	ug/L	0.040	0.50	EPA 200.8	10/03/11 15:20	09/30/11	1
Chromium	1.96		ug/L	0.0800	0.500	EPA 200.8	10/03/11 15:20	09/30/11	1

New Jersey Analytical Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

1580 Reed Road
Pennington, NJ 08534
609-737-3477 (p) 609-737-3052 (f)
www.njal.com

Lab ID: 0001729-04 **Date Collected:** 09/27/11 17:30 **Matrix:** Water

Sample ID: BQ2B **Date Received:** 09/28/11 14:20

Total Metals by EPA 200.8

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Cadmium	ND	U	ug/L	0.0400	0.500	EPA 200.8	10/03/11 15:20	09/30/11	1
Beryllium	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:20	09/30/11	1
Arsenic	1.4		ug/L	0.48	0.50	EPA 200.8	10/03/11 15:20	09/30/11	1
Zinc	ND	U	ug/L	0.120	10.0	EPA 200.8	10/03/11 15:20	09/30/11	1
Thallium	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:20	09/30/11	1

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Phosphorus-Total	0.32	D	mg/L	0.0034	0.040	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	2
Turbidity	24		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Orthophosphate, Dissolved	0.32		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 19:23	09/28/11	1
Alkalinity	185		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Total Hardness	180		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Ammonia as N	1.4		mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS

Workorder: 9929429 0001729

Lab ID: **9929429001** Date Collected: 9/27/2011 17:30 Matrix: Waste Water

Sample ID: **0001729-04** Date Received: 9/29/2011 19:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Pesticides and PCBs										
Aldrin	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
alpha-BHC	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
beta-BHC	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
delta-BHC	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
gamma-BHC	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Chlordane	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
4,4'-DDD	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
4,4'-DDE	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
4,4'-DDT	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Dieldrin	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Endosulfan I	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Endosulfan II	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Endosulfan Sulfate	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Endrin	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Endrin Aldehyde	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Heptachlor	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Heptachlor Epoxide	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Mirex	ND		ug/L	0.026	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Toxaphene	ND		ug/L	1.0	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1016	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1221	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1232	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1242	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1248	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1254	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Aroclor-1260	ND		ug/L	0.52	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyl (S)	72		%	30-150	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
Tetrachloro-m-xylene (S)	62.8		%	36-112	EPA 608	9/30/11	SMD	10/4/11 14:58	KJH	A1
METALS										
Mercury, Total	ND		mg/L	0.00050	EPA 245.1	10/3/11	MNP	10/3/11 11:43	MNP	B1

Sample Comments:

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Lab ID: 0001729-05 **Date Collected:** 09/27/11 18:00 **Matrix:** Water

Sample ID: BQ3S **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 19:38	09/28/11	1
Alkalinity	128		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Turbidity	0.68		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Phosphorus-Total	0.029		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Orthophosphate, Dissolved	0.014		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Chlorophyll	14.0		mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Total Hardness	130		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

Allen Thomas For George Latham, Lab Manager

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Lab ID: 0001729-06 **Date Collected:** 09/27/11 18:30 **Matrix:** Water

Sample ID: BQ3B **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Total Hardness	170		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Phosphorus-Total	0.25		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 19:52	09/28/11	1
Turbidity	2.8		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Alkalinity	178		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Orthophosphate, Dissolved	0.21		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Ammonia as N	1.5		mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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Lab ID: 0001729-07 **Date Collected:** 09/27/11 11:00 **Matrix:** Water

Sample ID: MQ-FB **Date Received:** 09/28/11 14:20

Volatile Organic Compounds by EPA Method 624

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Acetone	ND	U	ug/L	3.80	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Acrolein	ND	U	ug/L	2.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Acrylonitrile	ND	U	ug/L	2.20	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Allyl chloride	ND	U	ug/L	0.800	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Benzene	ND	U	ug/L	0.200	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromobenzene	ND	U	ug/L	0.420	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromochloromethane	ND	U	ug/L	0.490	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromodichloromethane	ND	U	ug/L	0.240	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromoform	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromomethane	ND	U	ug/L	0.600	1.00	EPA 624	10/05/11 15:35	10/05/11	1
sec-Butyl Benzene	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
n-Butylbenzene	ND	U	ug/L	0.360	1.00	EPA 624	10/05/11 15:35	10/05/11	1
tert-Butylbenzene	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Carbon disulfide	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Carbon Tetrachloride	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chlorobenzene	ND	U	ug/L	0.270	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloroethane	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Chloroethylvinyl ether	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloroform	ND	U	ug/L	0.270	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloromethane	ND	U	ug/L	0.590	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloromethyl vinyl ether	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Chlorotoluene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
4-Chlorotoluene	ND	U	ug/L	0.490	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Cyclohexane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dibromo-3-chloropropane	ND	U	ug/L	1.50	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Dibromochloromethane	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dibromoethane	ND	U	ug/L	0.290	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Dibromomethane	ND	U	ug/L	0.580	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,4-Dichloro-2-butene	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,4-Dichlorobenzene	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3-Dichlorobenzene	ND	U	ug/L	0.190	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichlorobenzene	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Dichlorodifluoromethane	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichloroethane	ND	U	ug/L	0.350	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloroethane	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
cis-1,2-Dichloroethene	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,2-Dichloroethene	ND	U	ug/L	0.350	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloroethene	ND	U	ug/L	0.380	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichloropropane	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3-Dichloropropane	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2,2-Dichloropropane	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
cis-1,3-Dichloropropene	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,3-Dichloropropene	ND	U	ug/L	0.420	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloropropene	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,4-Dioxane	ND	U	ug/L	1.70	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Acetate	ND	U	ug/L	2.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Benzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Ether	ND	U	ug/L	0.260	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Methacrylate	ND	U	ug/L	0.500	5.00	EPA 624	10/05/11 15:35	10/05/11	1

Allen Thomas For George Latham, Lab Manager

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Lab ID: 0001729-07 **Date Collected:** 09/27/11 11:00 **Matrix:** Water

Sample ID: MQ-FB **Date Received:** 09/28/11 14:20

Volatile Organic Compounds by EPA Method 624

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Hexachlorobutadiene	ND	U	ug/L	0.610	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Hexanone	ND	U	ug/L	0.800	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Isopropyl Benzene	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
p-Isopropyltoluene	ND	U	ug/L	0.260	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methacrylonitrile	ND	U	ug/L	0.800	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Acetate	ND	U	ug/L	1.20	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl tert-Butyl Ether (MTBE)	ND	U	ug/L	0.440	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Cyclohexane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methylene Chloride	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Ethyl Ketone	ND	U	ug/L	3.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Iodide	ND	U	ug/L	1.00	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Methacrylate	ND	U	ug/L	0.700	5.00	EPA 624	10/05/11 15:35	10/05/11	1
MIBK	ND	U	ug/L	1.10	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Naphthalene	ND	U	ug/L	0.460	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Nitropropane	ND	U	ug/L	0.600	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Pentachloroethane	ND	U	ug/L	0.600	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Propionitrile	ND	U	ug/L	3.40	5.00	EPA 624	10/05/11 15:35	10/05/11	1
n-Propyl Benzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Styrene	ND	U	ug/L	0.320	1.00	EPA 624	10/05/11 15:35	10/05/11	1
t-Butyl alcohol	ND	U	ug/L	0.800	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,1,2-Tetrachloroethane	ND	U	ug/L	0.300	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2,2-Tetrachloroethane	ND	U	ug/L	0.430	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Tetrachloroethene	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
THF	ND	U	ug/L	3.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Toluene	ND	U	ug/L	0.130	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,4-Trichlorobenzene	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,3-Trichlorobenzene	ND	U	ug/L	0.450	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2-Trichloroethane	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,1-Trichloroethane	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Trichloroethene	ND	U	ug/L	0.370	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Trichlorofluoromethane	ND	U	ug/L	0.290	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,3-Trichloropropane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3,5- Trimethylbenzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,4-Trimethylbenzene	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Vinyl acetate	ND	U	ug/L	3.30	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Vinyl chloride	ND	U	ug/L	0.370	1.00	EPA 624	10/05/11 15:35	10/05/11	1
o-Xylene	ND	U	ug/L	0.180	1.00	EPA 624	10/05/11 15:35	10/05/11	1
m,p-Xylene	ND	U	ug/L	0.190	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Surrogate: 4-Bromofluorobenzene	*98.6 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: Dibromofluoromethane	*99.9 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: 1,2-Dichloroethane-d4	*103 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: Toluene-d8	*102 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Acenaphthene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Acenaphthylene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1

New Jersey Analytical Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

1580 Reed Road
Pennington, NJ 08534
609-737-3477 (p) 609-737-3052 (f)
www.njal.com

Lab ID: 0001729-07 **Date Collected:** 09/27/11 11:00 **Matrix:** Water

Sample ID: MQ-FB **Date Received:** 09/28/11 14:20

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Aniline	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Anthracene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzidine	ND	U	ug/L	3.10	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzo(a)anthracene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzo[a]pyrene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzo(b)fluoranthene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzo(ghi)perylene	ND	U	ug/L	1.80	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzo[k]fluoranthene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Benzyl alcohol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4-Bromophenyl phenyl ether	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Butyl benzyl phthalate	ND	U	ug/L	1.20	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Carbazole	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4-Chloro-3-methylphenol	ND	U	ug/L	0.500	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4-Chloroaniline	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Bis(2-chloroethoxy)methane	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Bis(2-chloroethyl)ether	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Bis(2-chloroisopropyl)ether	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1-Chloronaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2-Chloronaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2-Chlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4-Chlorophenyl phenyl ether	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Chrysene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Dibenzo(a,h)anthracene	ND	U	ug/L	0.200	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Dibenzofuran	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Di-n-butylphthalate	ND	U	ug/L	0.520	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1,3-Dichlorobenzene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1,4-Dichlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1,2-Dichlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
3,3'-Dichlorobenzidine	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
N-Nitrosodiethylamine	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,4-Dichlorophenol	ND	U	ug/L	0.400	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Acetophenone	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
N-Nitroso-di-n-butylamine	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,6-Dichlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Diethyl phthalate	ND	U	ug/L	0.260	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,4-Dimethylphenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Dimethylphthalate	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4,6-Dinitro-2-methylphenol	ND	U	ug/L	5.00	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,4-Dinitrophenol	ND	U	ug/L	5.00	10.0	EPA 625	10/04/11 17:00	09/29/11	1
2,4-Dinitrotoluene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,6-Dinitrotoluene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Di-n-octyl phthalate	ND	U	ug/L	1.30	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1,2-Diphenhydrazine	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Diphenylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Bis(2-ethylhexyl)phthalate	ND	U	ug/L	1.50	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Fluoranthene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Fluorene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Hexachlorobenzene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Hexachlorobutadiene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1

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Lab ID: 0001729-07 **Date Collected:** 09/27/11 11:00 **Matrix:** Water

Sample ID: MQ-FB **Date Received:** 09/28/11 14:20

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Hexachlorocyclopentadiene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Hexachloroethane	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Indeno(1,2,3-cd)pyrene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Isophorone	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1-Methylnaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2-Methylnaphthalene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2-Methylphenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
3/4-Methylphenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Naphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2-Nitroaniline	ND	U	ug/L	0.400	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4-Nitroaniline	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
3-Nitroaniline	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Nitrobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
4-Nitrophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2-Nitrophenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
N-Nitrosodimethylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
N-Nitrosodiphenylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
N-Nitrosodi-n-propylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
N-Nitrosopyrrolidine	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Pentachlorobenzene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Pentachlorophenol	ND	U	ug/L	5.00	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Phenanthrene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Phenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Pyrene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Pyridine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1,2,4,5-Tetrachlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,3,5,6-Tetrachlorophenol	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,3,4,6-Tetrachlorophenol	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:00	09/29/11	1
o-Toluidine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
1,2,4-Trichlorobenzene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,4,5-Trichlorophenol	ND	U	ug/L	1.60	5.00	EPA 625	10/04/11 17:00	09/29/11	1
2,4,6-Trichlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:00	09/29/11	1
Surrogate: 2-Fluorobiphenyl	*113 %*		*Limit 31-147*			*EPA 625*	*10/04/11 17:00*	09/29/11	1
Surrogate: 2-Fluorophenol	*51.4 %*		*Limit 33-151*			*EPA 625*	*10/04/11 17:00*	09/29/11	1
Surrogate: Nitrobenzene-d5	*88.2 %*		*Limit 20-134*			*EPA 625*	*10/04/11 17:00*	09/29/11	1
Surrogate: Phenol-d5	*53.2 %*		*Limit 20-170*			*EPA 625*	*10/04/11 17:00*	09/29/11	1
Surrogate: p-Terphenyl-d14	*142 %*		*Limit 11-137*			*EPA 625*	*10/04/11 17:00*	09/29/11	1
Surrogate: 2,4,6-Tribromophenol	*56.7 %*		*Limit 16-149*			*EPA 625*	*10/04/11 17:00*	09/29/11	1

Total Metals by EPA 200.8

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Cadmium	ND	U	ug/L	0.0400	0.500	EPA 200.8	10/03/11 15:24	09/30/11	1
Thallium	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:24	09/30/11	1
Silver	ND	U	ug/L	0.0500	1.00	EPA 200.8	10/03/11 15:24	09/30/11	1
Selenium	ND	U	ug/L	0.1	0.5	EPA 200.8	10/03/11 15:24	09/30/11	1
Nickel	ND	U	ug/L	0.0300	0.500	EPA 200.8	10/03/11 15:24	09/30/11	1
Lead	ND	U	ug/L	0.040	0.50	EPA 200.8	10/03/11 15:24	09/30/11	1
Copper	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:24	09/30/11	1

New Jersey Analytical Laboratories

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Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

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www.njal.com

Lab ID: 0001729-07 **Date Collected:** 09/27/11 11:00 **Matrix:** Water

Sample ID: MQ-FB **Date Received:** 09/28/11 14:20

Total Metals by EPA 200.8

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Zinc	ND	U	ug/L	0.120	10.0	EPA 200.8	10/03/11 15:24	09/30/11	1
Chromium	2.51		ug/L	0.0800	0.500	EPA 200.8	10/03/11 15:24	09/30/11	1
Beryllium	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:24	09/30/11	1
Arsenic	ND	U	ug/L	0.48	0.50	EPA 200.8	10/03/11 15:24	09/30/11	1
Antimony	ND	U	ug/L	0.0400	1.00	EPA 200.8	10/03/11 15:24	09/30/11	1

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Alkalinity	ND	U	mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Turbidity	0.45		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Total Hardness	ND	U	mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Orthophosphate, Dissolved	0.018		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 20:36	09/28/11	1
Chlorophyll	ND	U	mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Phosphorus-Total	0.041		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

ALS Environmental

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State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS

Workorder: 9929429 0001729

Lab ID: **9929429002** Date Collected: 9/27/2011 11:00 Matrix: Waste Water

Sample ID: **0001729-07** Date Received: 9/29/2011 19:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Pesticides and PCBs										
Aldrin	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
alpha-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
beta-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
delta-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
gamma-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Chlordane	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
4,4'-DDD	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
4,4'-DDE	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
4,4'-DDT	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Dieldrin	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Endosulfan I	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Endosulfan II	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Endosulfan Sulfate	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Endrin	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Endrin Aldehyde	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Heptachlor	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Heptachlor Epoxide	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Mirex	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Toxaphene	ND		ug/L	1.1	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1016	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1221	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1232	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1242	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1248	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1254	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Aroclor-1260	ND		ug/L	0.53	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyl (S)	56.3		%	30-150	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
Tetrachloro-m-xylene (S)	66		%	36-112	EPA 608	9/30/11	SMD	10/4/11 03:00	KJH	A1
METALS										
Mercury, Total	0.00072		mg/L	0.00050	EPA 245.1	10/3/11	MNP	10/3/11 11:44	MNP	B1

Sample Comments:

New Jersey Analytical Laboratories
NJAL

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Lab ID: 0001729-08 **Date Collected:** 09/27/11 14:00 **Matrix:** Water

Sample ID: MQ-1S **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Phosphorus-Total	0.069		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 20:51	09/28/11	1
Turbidity	2.7		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	4.0		mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Alkalinity	123		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Chlorophyll	267		mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Total Hardness	92		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Orthophosphate, Dissolved	ND	U	mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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Lab ID: 0001729-09 **Date Collected:** 09/27/11 14:15 **Matrix:** Water

Sample ID: MQ-1B **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Orthophosphate, Dissolved	0.010	U	mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Turbidity	2.7		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Total Hardness	130		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 21:05	09/28/11	1
Alkalinity	155		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Phosphorus-Total	0.057		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Ammonia as N	0.12		mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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Lab ID: 0001729-10 **Date Collected:** 09/27/11 11:30 **Matrix:** Water

Sample ID: MQ-2S **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Alkalinity	119		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Total Hardness	96		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Turbidity	2.6		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	4.0		mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Phosphorus-Total	0.067		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 21:20	09/28/11	1
Orthophosphate, Dissolved	ND	U	mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Chlorophyll	214		mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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Lab ID: 0001729-11 **Date Collected:** 09/27/11 12:00 **Matrix:** Water

Sample ID: MQ-2B **Date Received:** 09/28/11 14:20

Volatile Organic Compounds by EPA Method 624

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Acetone	ND	U	ug/L	3.80	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Acrolein	ND	U	ug/L	2.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Acrylonitrile	ND	U	ug/L	2.20	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Allyl chloride	ND	U	ug/L	0.800	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Benzene	ND	U	ug/L	0.200	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromobenzene	ND	U	ug/L	0.420	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromochloromethane	ND	U	ug/L	0.490	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromodichloromethane	ND	U	ug/L	0.240	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromoform	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Bromomethane	ND	U	ug/L	0.600	1.00	EPA 624	10/05/11 15:35	10/05/11	1
sec-Butyl Benzene	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
n-Butylbenzene	ND	U	ug/L	0.360	1.00	EPA 624	10/05/11 15:35	10/05/11	1
tert-Butylbenzene	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Carbon disulfide	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Carbon Tetrachloride	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chlorobenzene	ND	U	ug/L	0.270	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloroethane	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Chloroethylvinyl ether	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloroform	ND	U	ug/L	0.270	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloromethane	ND	U	ug/L	0.590	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Chloromethyl vinyl ether	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Chlorotoluene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
4-Chlorotoluene	ND	U	ug/L	0.490	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Cyclohexane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dibromo-3-chloropropane	ND	U	ug/L	1.50	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Dibromochloromethane	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dibromoethane	ND	U	ug/L	0.290	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Dibromomethane	ND	U	ug/L	0.580	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,4-Dichloro-2-butene	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,4-Dichlorobenzene	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3-Dichlorobenzene	ND	U	ug/L	0.190	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichlorobenzene	ND	U	ug/L	0.410	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Dichlorodifluoromethane	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichloroethane	ND	U	ug/L	0.350	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloroethane	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
cis-1,2-Dichloroethene	ND	U	ug/L	0.230	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,2-Dichloroethene	ND	U	ug/L	0.350	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloroethene	ND	U	ug/L	0.380	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2-Dichloropropane	ND	U	ug/L	0.170	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3-Dichloropropane	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2,2-Dichloropropane	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
cis-1,3-Dichloropropene	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
trans-1,3-Dichloropropene	ND	U	ug/L	0.420	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1-Dichloropropene	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,4-Dioxane	ND	U	ug/L	1.70	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Acetate	ND	U	ug/L	2.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Benzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Ether	ND	U	ug/L	0.260	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Ethyl Methacrylate	ND	U	ug/L	0.500	5.00	EPA 624	10/05/11 15:35	10/05/11	1

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Allen Thomas For George Latham, Lab Manager

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Lab ID: 0001729-11 **Date Collected:** 09/27/11 12:00 **Matrix:** Water

Sample ID: MQ-2B **Date Received:** 09/28/11 14:20

Volatile Organic Compounds by EPA Method 624

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Hexachlorobutadiene	ND	U	ug/L	0.610	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Hexanone	ND	U	ug/L	0.800	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Isopropyl Benzene	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
p-Isopropyltoluene	ND	U	ug/L	0.260	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methacrylonitrile	ND	U	ug/L	0.800	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Acetate	ND	U	ug/L	1.20	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl tert-Butyl Ether (MTBE)	ND	U	ug/L	0.440	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Cyclohexane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methylene Chloride	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Ethyl Ketone	ND	U	ug/L	3.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Iodide	ND	U	ug/L	1.00	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Methyl Methacrylate	ND	U	ug/L	0.700	5.00	EPA 624	10/05/11 15:35	10/05/11	1
MIBK	ND	U	ug/L	1.10	2.00	EPA 624	10/05/11 15:35	10/05/11	1
Naphthalene	ND	U	ug/L	0.460	1.00	EPA 624	10/05/11 15:35	10/05/11	1
2-Nitropropane	ND	U	ug/L	0.600	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Pentachloroethane	ND	U	ug/L	0.600	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Propionitrile	ND	U	ug/L	3.40	5.00	EPA 624	10/05/11 15:35	10/05/11	1
n-Propyl Benzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Styrene	ND	U	ug/L	0.320	1.00	EPA 624	10/05/11 15:35	10/05/11	1
t-Butyl alcohol	ND	U	ug/L	0.800	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,1,2-Tetrachloroethane	ND	U	ug/L	0.300	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2,2-Tetrachloroethane	ND	U	ug/L	0.430	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Tetrachloroethene	ND	U	ug/L	0.390	1.00	EPA 624	10/05/11 15:35	10/05/11	1
THF	ND	U	ug/L	3.00	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Toluene	ND	U	ug/L	0.130	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,4-Trichlorobenzene	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,3-Trichlorobenzene	ND	U	ug/L	0.450	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2-Trichloroethane	ND	U	ug/L	0.310	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,1-Trichloroethane	ND	U	ug/L	0.340	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Trichloroethene	ND	U	ug/L	0.370	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Trichlorofluoromethane	ND	U	ug/L	0.290	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,3-Trichloropropane	ND	U	ug/L	0.500	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	U	ug/L	0.400	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,3,5- Trimethylbenzene	ND	U	ug/L	0.280	1.00	EPA 624	10/05/11 15:35	10/05/11	1
1,2,4-Trimethylbenzene	ND	U	ug/L	0.250	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Vinyl acetate	ND	U	ug/L	3.30	5.00	EPA 624	10/05/11 15:35	10/05/11	1
Vinyl chloride	ND	U	ug/L	0.370	1.00	EPA 624	10/05/11 15:35	10/05/11	1
o-Xylene	ND	U	ug/L	0.180	1.00	EPA 624	10/05/11 15:35	10/05/11	1
m,p-Xylene	ND	U	ug/L	0.190	1.00	EPA 624	10/05/11 15:35	10/05/11	1
Surrogate: 4-Bromofluorobenzene	*99.9 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: Dibromofluoromethane	*95.1 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: 1,2-Dichloroethane-d4	*99.2 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1
Surrogate: Toluene-d8	*98.1 %*		*Limit 80-120*			*EPA 624*	*10/05/11 15:35*	10/05/11	1

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Acenaphthene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Acenaphthylene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1

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Allen Thomas For George Latham, Lab Manager

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Lab ID: 0001729-11 **Date Collected:** 09/27/11 12:00 **Matrix:** Water

Sample ID: MQ-2B **Date Received:** 09/28/11 14:20

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Aniline	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Anthracene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzidine	ND	U	ug/L	3.10	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzo(a)anthracene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzo[a]pyrene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzo(b)fluoranthene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzo(ghi)perylene	ND	U	ug/L	1.80	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzo[k]fluoranthene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Benzyl alcohol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4-Bromophenyl phenyl ether	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Butyl benzyl phthalate	ND	U	ug/L	1.20	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Carbazole	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4-Chloro-3-methylphenol	ND	U	ug/L	0.500	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4-Chloroaniline	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Bis(2-chloroethoxy)methane	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Bis(2-chloroethyl)ether	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Bis(2-chloroisopropyl)ether	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1-Chloronaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2-Chloronaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2-Chlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4-Chlorophenyl phenyl ether	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Chrysene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Dibenzo(a,h)anthracene	ND	U	ug/L	0.200	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Dibenzofuran	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Di-n-butylphthalate	ND	U	ug/L	0.520	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1,3-Dichlorobenzene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1,4-Dichlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1,2-Dichlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
3,3'-Dichlorobenzidine	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
N-Nitrosodiethylamine	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,4-Dichlorophenol	ND	U	ug/L	0.400	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Acetophenone	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
N-Nitroso-di-n-butylamine	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,6-Dichlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Diethyl phthalate	ND	U	ug/L	0.260	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,4-Dimethylphenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Dimethylphthalate	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4,6-Dinitro-2-methylphenol	ND	U	ug/L	5.00	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,4-Dinitrophenol	ND	U	ug/L	5.00	10.0	EPA 625	10/04/11 17:52	09/29/11	1
2,4-Dinitrotoluene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,6-Dinitrotoluene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Di-n-octyl phthalate	ND	U	ug/L	1.30	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1,2-Diphenhydrazine	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Diphenylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Bis(2-ethylhexyl)phthalate	ND	U	ug/L	1.50	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Fluoranthene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Fluorene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Hexachlorobenzene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Hexachlorobutadiene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1

New Jersey Analytical Laboratories

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

1580 Reed Road
Pennington, NJ 08534
609-737-3477 (p) 609-737-3052 (f)
www.njal.com

Lab ID: 0001729-11 **Date Collected:** 09/27/11 12:00 **Matrix:** Water

Sample ID: MQ-2B **Date Received:** 09/28/11 14:20

Semivolatile Organic Compounds by EPA Method 625

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Hexachlorocyclopentadiene	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Hexachloroethane	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Indeno(1,2,3-cd)pyrene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Isophorone	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1-Methylnaphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2-Methylnaphthalene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2-Methylphenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
3/4-Methylphenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Naphthalene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2-Nitroaniline	ND	U	ug/L	0.400	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4-Nitroaniline	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
3-Nitroaniline	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Nitrobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
4-Nitrophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2-Nitrophenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
N-Nitrosodimethylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
N-Nitrosodiphenylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
N-Nitrosodi-n-propylamine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
N-Nitrosopyrrolidine	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Pentachlorobenzene	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Pentachlorophenol	ND	U	ug/L	5.00	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Phenanthrene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Phenol	ND	U	ug/L	0.600	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Pyrene	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Pyridine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1,2,4,5-Tetrachlorobenzene	ND	U	ug/L	0.800	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,3,5,6-Tetrachlorophenol	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,3,4,6-Tetrachlorophenol	ND	U	ug/L	1.00	5.00	EPA 625	10/04/11 17:52	09/29/11	1
o-Toluidine	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
1,2,4-Trichlorobenzene	ND	U	ug/L	0.900	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,4,5-Trichlorophenol	ND	U	ug/L	1.60	5.00	EPA 625	10/04/11 17:52	09/29/11	1
2,4,6-Trichlorophenol	ND	U	ug/L	0.700	5.00	EPA 625	10/04/11 17:52	09/29/11	1
Surrogate: 2-Fluorobiphenyl	*128 %*		*Limit 31-147*			*EPA 625*	*10/04/11 17:52*	09/29/11	1
Surrogate: 2-Fluorophenol	*54.8 %*		*Limit 33-151*			*EPA 625*	*10/04/11 17:52*	09/29/11	1
Surrogate: Nitrobenzene-d5	*91.1 %*		*Limit 20-134*			*EPA 625*	*10/04/11 17:52*	09/29/11	1
Surrogate: Phenol-d5	*37.3 %*		*Limit 20-170*			*EPA 625*	*10/04/11 17:52*	09/29/11	1
Surrogate: p-Terphenyl-d14	*130 %*		*Limit 11-137*			*EPA 625*	*10/04/11 17:52*	09/29/11	1
Surrogate: 2,4,6-Tribromophenol	*67.0 %*		*Limit 16-149*			*EPA 625*	*10/04/11 17:52*	09/29/11	1

Total Metals by EPA 200.8

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Chromium	2.33		ug/L	0.0800	0.500	EPA 200.8	10/03/11 15:27	09/30/11	1
Thallium	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:27	09/30/11	1
Silver	ND	U	ug/L	0.0500	1.00	EPA 200.8	10/03/11 15:27	09/30/11	1
Selenium	0.5		ug/L	0.1	0.5	EPA 200.8	10/03/11 15:27	09/30/11	1
Nickel	3.45		ug/L	0.0300	0.500	EPA 200.8	10/03/11 15:27	09/30/11	1
Copper	3.18		ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:27	09/30/11	1
Zinc	ND	U	ug/L	0.120	10.0	EPA 200.8	10/03/11 15:27	09/30/11	1

New Jersey Analytical Laboratories

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Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories
NJAL

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Pennington, NJ 08534
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www.njal.com

Lab ID: 0001729-11 **Date Collected:** 09/27/11 12:00 **Matrix:** Water

Sample ID: MQ-2B **Date Received:** 09/28/11 14:20

Total Metals by EPA 200.8

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Beryllium	ND	U	ug/L	0.0200	0.500	EPA 200.8	10/03/11 15:27	09/30/11	1
Arsenic	8.0		ug/L	0.48	0.50	EPA 200.8	10/03/11 15:27	09/30/11	1
Lead	1.4		ug/L	0.040	0.50	EPA 200.8	10/03/11 15:27	09/30/11	1
Cadmium	ND	U	ug/L	0.0400	0.500	EPA 200.8	10/03/11 15:27	09/30/11	1
Antimony	ND	U	ug/L	0.0400	1.00	EPA 200.8	10/03/11 15:27	09/30/11	1

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Total Hardness	170		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Turbidity	4.6		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Phosphorus-Total	0.092		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Alkalinity	243		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Orthophosphate, Dissolved	0.037		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 21:34	09/28/11	1
Total Suspended Solids	3.5		mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Ammonia as N	0.45		mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

ALS Environmental

34 Dogwood Lane ▪ Middletown, PA 17057 ▪ Phone: 717-944-5541 ▪ Fax: 717-944-1430 ▪ www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: A2LA 0818.01
State Certifications: CT PH-0224 , DE ID 11 , GA 914 , MA PA0102 , MD 128 , LA 04162 , VA 421 , WY EPA Region 8 , WV 343

ANALYTICAL RESULTS

Workorder: 9929429 0001729

Lab ID: **9929429003** Date Collected: 9/27/2011 12:00 Matrix: Waste Water

Sample ID: **0001729-11** Date Received: 9/29/2011 19:30

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Pesticides and PCBs										
Aldrin	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
alpha-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
beta-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
delta-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
gamma-BHC	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Chlordane	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
4,4'-DDD	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
4,4'-DDE	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
4,4'-DDT	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Dieldrin	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Endosulfan I	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Endosulfan II	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Endosulfan Sulfate	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Endrin	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Endrin Aldehyde	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Heptachlor	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Heptachlor Epoxide	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Mirex	ND		ug/L	0.027	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Toxaphene	ND		ug/L	1.1	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1016	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1221	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1232	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1242	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1248	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1254	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Aroclor-1260	ND		ug/L	0.54	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Surrogate Recoveries	*Results*	*Flag*	*Units*	*Limits*	*Method*	*Prepared*	*By*	*Analyzed*	*By*	*Cntr*
Decachlorobiphenyl (S)	78.6		%	30-150	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
Tetrachloro-m-xylene (S)	64.6		%	36-112	EPA 608	9/30/11	SMD	10/4/11 15:28	KJH	A1
METALS										
Mercury, Total	ND		mg/L	0.00050	EPA 245.1	10/3/11	MNP	10/3/11 11:45	MNP	B1

Sample Comments:

New Jersey Analytical Laboratories
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Lab ID: 0001729-12 **Date Collected:** 09/27/11 14:30 **Matrix:** Water

Sample ID: MQ-3S **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Total Hardness	96		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Turbidity	4.6		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Total Suspended Solids	3.5		mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Phosphorus-Total	0.063		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Orthophosphate, Dissolved	ND	U	mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Chlorophyll	481		mg/m3		1.00	SM 10200H 1+2	10/03/11 13:00	09/29/11	1
Alkalinity	118		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Nitrate	ND	U	mg/L	0.00	0.500	EPA 300.0	09/28/11 21:49	09/28/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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NJAL

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Lab ID: 0001729-13 **Date Collected:** 09/27/11 14:45 **Matrix:** Water

Sample ID: MQ3B **Date Received:** 09/28/11 14:20

General Chemistry Parameters

Analyte	Results	Flag	Units	MDL	RDL	Method	Analyzed	Prepared	Dilution
Turbidity	1.6		NTU		0.20	EPA 180.1	09/28/11 16:10	09/28/11	1
Alkalinity	144		mg/L	1.25	2.50	SM 2320 B	09/30/11 09:00	09/30/11	1
Nitrate	0.880		mg/L	0.00	0.500	EPA 300.0	09/28/11 22:03	09/28/11	1
Orthophosphate, Dissolved	0.012		mg/L	0.0024	0.010	EPA 365.3	09/29/11 08:30	09/29/11	1
Total Hardness	120		mg/L	4.8	10	SM 2340 C	09/29/11 12:30	09/29/11	1
Phosphorus-Total	0.044		mg/L	0.0017	0.020	SM 4500-P B5 + E	10/03/11 08:30	10/03/11	1
Total Suspended Solids	ND	U	mg/L	2.5	2.5	SM 2540 D	09/30/11 09:55	09/30/11	1
Ammonia as N	ND	U	mg/L	0.010	0.10	SM 4500-NH3 B+D	09/29/11 15:45	09/29/11	1

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Notes and Definitions

U	Compound not detected
D	Diluted sample
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the Reporting Detection Limit (RDL)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
<	Less than reporting limit
≤	Less than or equal to reporting limit
>	Greater than reporting limit
≥	Greater than or equal to reporting limit
MDL	Method Detection Limit
RDL	Reporting Detection Limit
MCL/AL	Maxium Contaminant Level/Action Level
mg/kg wet	Results reported as wet weight
TTLC	Total Threshold Limit Concentration
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leachate Procedure

Allen Thomas For George Latham, Lab Manager

New Jersey Analytical Laboratories

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Allen Thomas For George Latham, Lab Manager

0001729-1

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental
Project: Millington Quarry
Phone: (609) 924-8821
Sample Technician (Print/Sign): Joseph Schwarz [signature]
Sampling Method: GRAB
Project No. 6282A
Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
01	BQ15	9/27/11	1615	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
↓				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP OPO4	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:
[signature]	9/28/11	1415			

New Jersey Analytical Laboratories
1580 Reed Road Suite A1
Pennington, New Jersey 08534
Phone: 609-737-3477
Fax: 609-737-3052

Method of Shipment: 32°C

All bottles received for Laboratory (NJAL) by: (Signature) Will [signature] 9/28/11 1420

120P unpres

✓

0001729-2

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwartz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
02	BG1B	9/27/11	1630	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	EXTRA	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories 1580 Reed Road Suite A1 Pennington, New Jersey 08534	Phone: 609-737-3477 Fax: 609-737-3052	Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollenbach 9/28/11 1420

120p UNPRES.

0001729-3

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to. Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
03	BQ2S	9/27/11	1700	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories	Phone: 609-737-3477	Method of Shipment	All bottles received for Laboratory (NJAL) by: (Signature)
1580 Reed Road Suite A1	Fax: 609-737-3052		Will Hollett 9/28/11 1420
Pennington, New Jersey 08534			

120p UNPRES.

✓

000 1729-4

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB	Project No. 6282A
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
04	BQ 2B	9/27/11	1730	Aqueous	3	40ml	HCL	PP +40 (Volatiles, Semi-Volatiles, Pesticides, and Metals)	
				Aqueous	2	Liter Glass	Unpreserved		
				Aqueous	2	250mL Plastic	HNO3		
				Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	EXTRA	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories 1580 Reed Road Suite A1 Pennington, New Jersey 08534	Phone: 609-737-3477 Fax: 609-737-3052	Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollett 9/28/11 1420

120p UNPRES.

PCBs

0001729-5

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
05	BQ3S	9/27/11	1800	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories 1580 Reed Road Suite A1 Pennington, New Jersey 08534	Phone: 609-737-3477 Fax: 609-737-3052	Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollister 9/28/11 1420

120p UNPRES.

✓

0001729-6

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental | Phone: (609) 924-8821 | Sampling Method: GRAB | Project No. 6282A

Project: Millington Quarry | Sample Technician (Print/Sign): Joseph Schwarz

Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
06	BQ3B	9/27/11	1830	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	filled w/ surface H2O
				Aqueous	1	Liter Glass	Unpreserved	EXTRA	use EXTRA SAMPLE
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:
	9/28/11	1415			
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories
1580 Reed Road Suite A1
Pennington, New Jersey 08534

Phone: 609-737-3477
Fax: 609-737-3052

Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)

Will Hollant 9/28/11 1420

1 L 250 p UNPRES.

000 1729 -7

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
07	MQ-FB (Field Blank)	9/27/11	1100	Aqueous	3	40ml	HCL	PP +40 (Volatiles, Semi-Volatiles, Pesticides, and Metals)	
				Aqueous	2	Liter Glass	Unpreserved		
				Aqueous	2	250mL Plastic	HNO3		
				Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories
1580 Reed Road Suite A1
Pennington, New Jersey 08534

Phone: 609-737-3477
Fax: 609-737-3052

Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollenst 9/28/11 1420

120p UNPRES.

MS Pests/PCBs, Hg cvom

0001729-8

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
06	MQ1S	9/27/11	1400	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories 1580 Reed Road Suite A1 Pennington, New Jersey 08534	Phone: 609-737-3477 Fax: 609-737-3052	Method of Shipment	All bottles received for Laboratory (NJAL) by: (Signature) Will Hollenbeck 9/28/11 1420

120 p UNPRES

0001729-9

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
09	MGIB	9/27/11	1415	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	EXTRA	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories
1580 Reed Road Suite A1
Pennington, New Jersey 08534

Phone: 609-737-3477
Fax: 609-737-3052

Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollister 9/28/11 1420

120p UNPRES.

0001729-10

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB Project No. 6282A	
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
10	MG25	9/27/11	1130	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories 1580 Reed Road Suite A1 Pennington, New Jersey 08534	Phone: 609-737-3477 Fax: 609-737-3052	Method of Shipment	All bottles received for Laboratory (NJAL) by: (Signature) Will Patterson 9/28/11 1420

120p UNPRES.

✓

0001729-11

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB	Project No. 6282A
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
11	MW2B	9/27/11	1200	Aqueous	3	40ml	HCL	PP +40 (Volatiles, Semi-Volatiles, Pesticides, and Metals)	
				Aqueous	2	Liter Glass	Unpreserved		
				Aqueous	2	250mL Plastic	HNO3		
				Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	EXTRA	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories
1580 Reed Road Suite A1
Pennington, New Jersey 08534

Phone: 609-737-3477
Fax: 609-737-3052

Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollenst 9/28/11 1420

120p UNPRES.

Diu Pest/PCBs/Herbicides

0001729-12

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB	Project No. 6282A
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
12	MQ35	9/27/11	1430	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	Chl-a (aqueous)	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date: / Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date: / Time:

New Jersey Analytical Laboratories
1580 Reed Road Suite A1
Pennington, New Jersey 08534

Phone: 609-737-3477
Fax: 609-737-3052

Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollerst 9/28/11 1420

120 p UNPRES

✓

0001729-13

OMNI ENVIRONMENTAL & NEW JERSEY ANALYTICAL LABORATORY

Client: Omni Environmental	Phone: (609) 924-8821	Sampling Method: GRAB	Project No. 6282A
Project: Millington Quarry	Sample Technician (Print/Sign): Joseph Schwarz		Report and Invoice to: Joseph Schwarz, Omni Environmental

Laboratory ID No.	Sample ID/Location	Date	Time	Sample Matrix	Number Bottles	Volume Bottles	Preservative	ANALYSIS	Comments
13	MW3B	9/27/11	1445	Aqueous	1	250mL Plastic	HNO_3	Total Hardness	
				Aqueous	1	Liter Glass	Unpreserved	EXTRA	
				Aqueous	1	Liter Plastic	Unpreserved	Nitrate, TSS, Alkalinity, Turbidity, SRP	
				Aqueous	1	500ml Plastic	H_2SO_4	Ammonia, Total Phosphorus	

Relinquished by: (signature)	Date: 9/28/11	Time: 1415	Received by: (signature)	Date:	Time:
Relinquished by: (signature)	Date:	Time:	Received by: (signature)	Date:	Time:

New Jersey Analytical Laboratories 1580 Reed Road Suite A1 Pennington, New Jersey 08534	Phone: 609-737-3477 Fax: 609-737-3052	Method of Shipment

All bottles received for Laboratory (NJAL) by: (Signature)
Will Hollerst 9/28/11 1420

120p UNPRES.

New Jersey Analytical Laboratories

1580 Reed Road
Suite A1
Pennington, NJ 08534

Tel: (609) 737-3477
Fax: (609) 737-3052
www.njal.com

Sample Information

Lab ID: NJAL # 0001729	**Omni Environmental, LLC**	**Date Sampled: 09/27/11**
	Millington Quarry	**Sampled by: JS/Omni**
	Project No. 6282A	**Date Received: 09/28/11**
	Grab Samples	

NJAL Sample ID	*Client ID*	*Total Kjeldahl Nitrogen*	*Reporting Limit*	*Dilution Factor*	*Units*
00001729-01	BQ1S, 09/27/11, 1615 hrs.	1.13	0.20	1	mg/L
00001729-02	BQ1B, 09/27/11, 1630 hrs.	3.45	0.20	1	mg/L
00001729-03	BQ2S, 09/27/11, 1700 hrs.	1.58	0.20	1	mg/L
00001729-04	BQ2B, 09/27/11, 1730 hrs.	3.50	0.20	1	mg/L
00001729-05	BQ3S, 09/27/11, 1800 hrs.	0.93	0.20	1	mg/L
00001729-06	BQ3B, 09/27/11, 1830 hrs.	2.80	0.20	1	mg/L
00001729-07	MQ-FB, 09/27/11, 1100 hrs.	ND	0.20	1	mg/L
00001729-08	MQ1S, 09/27/11, 1400 hrs.	5.45	0.20	1	mg/L
00001729-09	MQ1B, 09/27/11, 1415 hrs.	1.25	0.20	1	mg/L
00001729-10	MQ2S, 09/27/11, 1130 hrs.	1.43	0.20	1	mg/L
00001729-11	MQ2B, 09/27/11, 1200 hrs.	1.21	0.20	1	mg/L
00001729-12	MQ3S, 09/27/11, 1430 hrs.	1.73	0.20	1	mg/L
00001729-13	MQ3B, 09/27/11, 1445 hrs.	1.39	0.20	1	mg/L

ND: Not Detected above Reporting Limit.
mg/L: milligrams per liter (parts per million)
TKN analyzed by Method SM 4500-N Org B

NJDEP Laboratory ID # 11005

Laboratory Manager/Designee

10-11-11
Date

Sample collection was performed by the individual(s) indicated on the Chain of Custody.
NJAL cannot validate sampling protocol conformance.

Precision testing for a cleaner environment.

APPENDIX F

TROPHIC STATE INDEX CALCULATIONS

Millington Quarry **Mean Values for All Stations** **Prepared by Aqua Link, Inc.**

ALI Project No. 1291-01

Carlson's Trophic State Index - Eplimnion

Station	Date	Secchi (meters)	Chl-a* (ug/l)	TP* (mg/l as P)	TSI Values Secchi	Chl-a	TP
MQ	9/27/2011	1.00	320.7	0.0663	60.0	87.2	64.7

Note(s):

****

Bernardsville Quarry **Mean Values for All Stations** **Prepared by Aqua Link, Inc.**

ALI Project No. 1291-01

Carlson's Trophic State Index - Eplimnion

Station	Date	Secchi (meters)	Chl-a* (ug/l)	TP* (mg/l as P)	TSI Values Secchi	Chl-a	TP
BQ	9/27/2011	4.45	12.3	0.0267	38.5	55.2	51.5

Note(s):