Tighe&Bond

TechCity Properties, Inc.
Building 202

Kingston, NY

Additional Investigations
SWMU AE

Prepared For:

TechCity Properties, Inc.
300 Enterprise Drive
Kingston, NY 12401

August 2007

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Tighe&Bond

FIGURES

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APPENDICES

Tighe & Bond, Inc. (Tighe & Bond) has conducted this investigation to further define the solid waste management unit (SWMU) AE located in Building 202 at the former IBM-Kingston facility. SWMU AE was identified by International Business Machines Corporation (IBM) and reported to the New York State Department of Environmental Conservation (NYSDEC) on July 29, 1996. A loss of hydraulic fluid from Elevator No. 2 in Building 202 was first discovered in May of 1996. Subsequent environmental investigations have detected hydraulic fluid and polychlorinated biphenyls (PCBs) in a downgradient well. The presence of PCBs in the groundwater warranted the identification of the SWMU.

The former IBM-Kingston facility, now owned by TechCity Properties, Inc., is located at 300 Enterprise Drive in Kingston, New York (Figure 1). Building 202 is located to the west of Enterprise Drive (Figure 2). Building 202 is one of three interconnected office buildings located on the west side of Enterprise Drive. The building is currently occupied by the Bank of America Corporation (BOA).

The scope of this report has been defined, in large part, through multiple conversations between James Olsen of Tighe & Bond and Gary Casper and Wayne Mizerak of NYSDEC. The NYSDEC has requested further definition of the SWMU. The data in this report will support the conclusion that no further action (NFA) is required for this SWMU.

The information presented in this report is organized in four sections:

- Historic information compilation presents a description of the elevator construction, chronology of events related to the release of hydraulic fluid, and summary of analytical data
- Hydrogeologic evaluation
- Depth-discrete groundwater sampling presents data from the most recent sampling of monitoring well 202-IR/S in additional to historic data. The section details the methodology, results, and conclusions from the sampling event
- Conclusion and results

SECTION 2 BACKGROUND INFORMATION CONCERNING ELEVATOR NO. 2

Tighe&Bond

2.1 ELEVATOR CONSTRUCTION

Figure 3 provides a diagram of the major components of the Elevator No. 2 at Building 202 which is used as a passenger elevator. An as-built diagram was not available for this report. Specific construction details were obtained from previous environmental reports and communications with Dick Coller, Chief Engineer, of TechCity. Two other elevators are adjacent to the Elevator Number 2 including an additional passenger elevator (No. 1) and a freight elevator (No. 3).

IBM reported in the July 29, 1996 SWMU notification letter that the elevator is over 30 years old (building built in 1970). The hydraulic jacks for all three building elevators are located within a recessed pit approximately four feet below the first floor elevation of the building. The dimensions of the pit are approximately 10 feet wide and 15 feet long. The 1996 IBM report states that the elevator is constructed with a single, non-telescoping, hydraulic piston. The hydraulic jack for Elevator No. 2 extends nearly 64 feet below the pit floor into the subsurface and is approximately 10 inches in diameter. The thickness of overburden is approximately 17 feet at this location. To accommodate the hydraulic jack, a 22-inch diameter steel casing was installed through the overburden and seated several feet into competent bedrock. An open borehole continues approximately 47 feet into the shale bedrock. According to the IBM report, sand was placed within the annular space of the casing and the jack.

Dick Coller was interviewed on December 7, 2006 and provided additional information about the elevator construction. To his knowledge, no secondary containment surrounds the hydraulic cylinder. Newer hydraulic elevators are fitted with a cylinder sleeve that protects the cylinder from corrosive elements and protects against releases to the environment. Dick Coller confirmed that the hydraulic cylinder extends into bedrock by means of an open borehole. The location of the elevator drawings were not known by Dick Coller.

According to a report prepared by C.T. Male Associates, P.C. (C.T. Male), dated March 29, 2002, titled," Summary of Findings Elevator Hydraulic Lift Cylinder Assessments" the hydraulic cylinder for Elevator No. 2 was replaced in 1997. The report states that after the replacement of the hydraulic cylinder, the annular space between the jack and shaft was not entirely refilled with sand. The depth to the sand pack in Elevator No. 2 was approximately 48 feet below the finished floor of the elevator pit after replacement. C.T. Male conducted groundwater measurements on December 5, 2001. During that investigation, the depth to water within the annular space was approximately 9.5 feet below the floor elevation of the elevator pit. Higher water levels have been observed by site personnel in the past, reportedly due to a leaking water main located below the site building.

The above-ground components of the elevator shaft were observed by Tighe & Bond on October 30, 2006. A photograph of these components is provided in Figure 3. The photograph shows the top of the hydraulic jack and flange where it is secured to the floor of the pit by means of I-beams and brackets. The piston travels inside the jack and is likely sealed near the top with o-rings or other types of seals. If hydraulic fluid leaks from the seals it accumulates inside the recessed area of the flange. As required by building code, this recessed area of the pipe flange is piped to a spill containment vessel (5 gallon bucket) to capture any fluid which leaks from the seal or packing. The bucket is periodically emptied back into the fluid reservoir tank within the elevator mechanical room. A 3-inch hydraulic line provides the hydraulic fluid to the hydraulic cylinder.

No mortar or grout cap was observed between the cement floor and hydraulic cylinders. Grout caps are commonly used to prevent the migration of fluids from the leaks that are not contained by the bucket to the subsurface. The absence of the cap suggests that spilled fluids from the elevator could use the casing as a conduit for fluids to enter the subsurface.

Two conceptual site models have been developed to describe the release of hydraulic fluid to the environment. The first conceptual model, supported by Tighe & Bond, suggests the hydraulic oil observed in monitoring well 202-1R/S has migrated from the elevator pit. A loss of hydraulic fluid occurring at the top of the shaft at the flange would likely migrate down into the casing and along the outside of the casing into the subsurface. The lack of a grout cap would have allowed oil to migrate in this manner. Once the oil encountered the water table outside of the casing, it migrated in groundwater to the area of monitoring well 202-1 R/S.

The second conceptual model, suggested by NYSDEC, theorizes the oil was released within the casing. Hydraulic fluid in excess of fully saturating the sand pack would accumulate on the top of the water surface within the shaft. As the fluid accumulated, it would depress the groundwater table to below the casing and the fluid would be released directly to the bedrock media.

Both of these conceptual site models are discussed in Section 5 and considered with the data and observations generated during this investigation.

2.2 CHRONOLOGY OF EVENTS

Table 1 provides a brief chronological table of events. The following text provides more description of the major events related to the investigation of SWMU AE. In May 1996, Schindler Elevator (Schindler) personnel reported to IBM that the Building 202 Number 2 elevator had required the addition of 15 gallons of hydraulic fluid since January 1996. IBM hired Groundwater Sciences Corporation (GSC) to determine if a

release had occurred. Schindler accessed the annular space between the piston cylinder and the casing and noted that oily sand was present. Using hand augers, GSC removed sand from inside the casing to a depth of approximately 10 feet below the elevator pit floor and encountered sand containing hydraulic fluid. Sand samples were submitted to EnviroTest Laboratories for analysis. No base neutral compounds (BNCs), aromatic volatile organic compounds (VOCs), or polychlorinated biphenyls (PCBs) were detected in these sand samples. The hydraulic fluid from the reservoir in the mechanical room was analyzed for PCBs. None were detected in 1996. Based on these sampling results, this situation was considered to be related only to non-hazardous petroleum constituents. These results were discussed with Gary Casper of the NYDEC by Michele West of IBM on June 21, 1996. At that time, NYSDEC and IBM concurred that the elevator shaft did not represent a SWMU as no hazardous constituents had been identified. No floating oil was detected in the shaft at that time.

To investigate whether hydraulic fluid had migrated beyond the elevator shaft, monitoring well 202-1R/S was installed as close as practical in a downgradient (northwest) direction from Elevator No. 2. Figure 4 provides the monitoring well log for 202 1R/S. The monitoring well is in the mechanical room adjacent to the elevator shaft and is approximately 10 feet to the northwest of the elevator shaft.

In June and July 1996, soil and groundwater samples were collected from 202-1R/S. Total petroleum hydrocarbons (TPH) and PCBs were detected in both mediums. Soil sampling indicated the presence of TPH at concentrations ranging from 663 milligrams per kilogram (mg/kg) to 9,260 mg/kg. In the deepest soil sample, 18-20 feet, PCBs were detected at a concentration of 0.029 mg/kg. Results from the groundwater collected from monitoring well 202-1R/S indicated TPH concentrations at 0.8 mg/L and PCBs at a concentration of 2 μg/L.

Two additional monitoring wells (202-2S and 202-3S) were installed in downgradient locations with respect to Elevator No. 2. Both wells are exterior to Building 202. TPH was detected at relatively low concentrations in the soil and groundwater of both exterior wells. The groundwater from monitoring wells 202-2S and 202-3S were analyzed for PCBs with no detections above the reporting limits.

On July 10, 1996 confirmation samples were collected from monitoring well 202-IR/S that confirmed the presence of PCB Aroclor-1254 at concentrations ranging from 2 to 10.2 μg/L.

In 1997, the jack assembly from Elevator No. 2 was replaced. The investigation was completed and the findings were reported to NYSDEC and the spill No. 9708084 was issued a "closed" status on February 26, 1998.

On October 4, 2000, the elevator maintenance contractor (Schindler) reported to C.B. Richard Ellis that the hydraulic cylinder for the Elevator No. 1, a freight elevator, was leaking. Elevator No. 1 is located adjacent to Elevator Number 2 within the same recessed pit. Richard Ellis was the maintenance contractor for Fleet Bank, the former lessee of Building 202. The leak was identified as a result of Schindler having to add 20 gallons of hydraulic fluid to the reservoir tank following an eight- month time period of not having to add fluid to the system. Based on this observation, the NYSDEC assigned a new spill No. 0009072.

C.T. Male performed additional environmental investigations as a result of the spill. They included Elevator No. 2 within their investigations. On December 12, 2001, a sample of the Elevator No. 2 hydraulic fluid collected from the reservoir was tested for PCBs. The laboratory reports indicated the presence of Arochlor 1254 at a concentration of 29 mg/Kg in the hydraulic fluid.

On January 4th, 2002, CT Male removed approximately three inches of hydraulic fluid within the elevator No. 2 casing along with approximately two feet of water. On January 5th, no hydraulic fluid was visible, however, an additional two feet of water within the casing was removed. Water samples were collected from the elevator boring on January 5th and analyzed. The results indicated no PCBs detected above the method detection limits nor were there any diesel range organics detected in the water sample. On January 18th and February 28, 2002, a clear bottom loading bailer was used to assess the water surface for free product; none was observed on either date. On January 22, 2004, the NYDEC issued a letter stating no further action was required to investigate spill No. 009072.

On September 13, 2006, Tighe & Bond collected groundwater samples from monitoring wells 202-1R/S, 202-2S, and 202-3S. Monitoring well 202-1R/S contained the PCB Arochlor 1254 in the sample and duplicate sample at concentrations of 4.8 and 13 μg/L, respectively. These detections exceed the NYSDEC limit for PCBs in groundwater established at 0.1 μg/L. GSC collected split samples which had nearly identical results. No other arochlors were detected above the minimum reporting limit. No detections of PCBs were reported in either of the two exterior wells, 202-2S or 202-3S, above the minimum reporting limit of 0.061 μg/L.

Two additional analytical tests were performed on the samples collected from 202 1R/S. The first analysis consisted of a laboratory filter of the sample by Severn Trent Laboratories using a 0.45-micron filter. Upon re-analysis, using Method EPA Method 8082, no detections of PCBs were reported above the minimum reporting limit of 0.061 μg/L. The second test, EPA Method 8015B, employed gas chromatography to identify diesel and gasoline range organics present in the sample. The results yielded a chromatograph consistent with hydraulic oil. Additional co-mingled petroleum

products were not identified in the test. The quantity of hydraulic oil was detected at 45 mg/L in the unfiltered sample.

On October 30, 2006, Tighe & Bond conducted an additional investigation of the groundwater contained in monitoring well 202-1R/S. A description of the sampling and results is provided in Section 4 of this report.

2.3 HISTORIC GROUNDWATER ANALYTICAL DATA

Table 2 provides the historic groundwater data collected downgradient of Elevator No. 2. Table 5 includes the most recent analytical data collected October 30, 2006. The sampling and analysis for this data is discussed in more detail in Section 4.

Monitoring well 202-1R/S has been sampled four times between July 1996 and October 2006. PCB concentrations have ranged from non-detect to 13 μg/L, on October 30, 2006 and September 13, 2006, respectively. It should be noted that the non-detect concentration was collected using lower stress pumping method as opposed to the elevated concentration collected using high stress bailer method. Historically, no PCBs have been detected in either downgradient wells 202-2S or 202-3S.

Monitoring well 202-1R/S was sampled once in July 1996 for total petroleum hydrocarbons and contained 0.8 mg/L by EPA Method 418.1. The two additional downgradient wells, 202-2S and 202-3S, contained similar concentrations. It should also be noted that the equipment blank contained a similar TPH. In September 2006, monitoring well 202-1R/S was sampled for petroleum hydrocarbons using EPA Method 8015 to identify the hydrocarbon range. The sample was identified as hydraulic fluid at a concentration of 45 mg/L. One month later, low stress sampling resulted in dramatically lower concentrations 2.1 and 1.1 mg/L. It should be noted that a slight petroleum odor and sheen were detected in the purge water from both of the 2006 sampling events.

On October 31, 2006 Tighe & Bond measured water levels from overburden and bedrock wells located near Building 202. The monitoring wells used for measurement were selected from conversations between James Olsen of Tighe & Bond and Gary Casper of NYDEC. GSC was on-site to assist in locating and gaining access to the wells. Static water level measurements were conducted using a Solinst© electronic water level indicator capable of measuring the depth to water to within 0.01 feet. The water level measurement data for the site are summarized in Table 3. No LNAPL was observed or measured in any of the wells. Previously recorded survey data were used in conjunction with the water level data to calculate groundwater elevations.

Figure 5 provides the bedrock groundwater piezometric surface contours in the area of building 202. Four wells screened entirely in the bedrock were measured: MW-1R, MW-324R, MW-4R, and MW-816R. MW-202 1R/S is screened five feet in the overburden and fifteen feet into bedrock. MW-103-R was scheduled to be measured; however, the well was submerged by surface water at the time of sampling (photograph provided in Appendix A). The bedrock groundwater map indicates an approximate bedrock flow in a northwesterly direction from building 202 toward Esopus Creek.

Figure 6 provides the overburden groundwater contour map. Groundwater elevations were collected from eighteen overburden wells in the area of building 202. Table 4 provides the groundwater elevations and surveyed elevations referenced from well boring logs. Overburden groundwater flows in a westerly to northwesterly direction towards Esopus Creek. Groundwater appears to discharge to the wetlands located west of the former wastewater treatment plant.

A cross section parallel to groundwater flow and through building 202 and the elevator shaft is provided as Figure 7. As indicated in the cross section, the bedrock surface dips significantly to the west under building 202. The bedrock surface is further illustrated in Figure 8. A bedrock high is centered just east of building 202 under Enterprise Drive. The bedrock surface west of Enterprise Drive dips to the west and southwest towards Esopus Creek. The configuration of the bedrock surface appears to be the controlling factor in bedrock groundwater flow. It is unlikely that bedrock directly discharges to Esopus Creek based on the confining layer of silt/clay overlying the bedrock in the most of the west area of Parcel 1 as depicted on Figure 7.

SECTION 4 DISCRETE SAMPLING OF MONITORING WELL 202 1R/S

On October 30, 2006 Tighe & Bond personnel mobilized to the site. Gary Casper of NYSDEC was on site to observe the sampling activities. Monitoring well 202-1R/S was sampled using low stress pumping methodology. The purging and sampling technique was in accordance with conversations between Gary Casper of the NYSDEC and James Olsen of Tighe & Bond. The purpose of the sampling was to obtain groundwater samples at discrete depths within the well that were representative of bedrock and overburden groundwater quality. Table 4 provides the field sampling data recorded during sampling activities and Table 5 provides the analytical data.

4.1 GROUNDWATER LEVEL MEASUREMENTS

Tighe & Bond measured water levels and for the presence of light non-aqueous phase liquid (LNAPL) at monitoring well 202-1R/S prior to well purging. Static water level measurements were conducted using a Solinst© water level indicator capable of measuring the depth to water to within 0.01 feet. The water level measurement data for the site are summarized in Table 3. No LNAPL was observed in the well.

4.2 WELL PURGING

Well 202-1 R/S was purged of stagnant water by evacuating over 11 gallons of purge water using a peristaltic pump. Purging was accomplished by lowering ¼-inch single-use tubing to approximately 1 foot below the water column. The purge rate was reduced to minimize water column drawdown. Prior to drum containment, the purge water entered through a flow through cell and water quality parameters were recorded. Table 4 provides the drawdown levels and water quality parameters measured during purging activities. The purging method was designed to purge the well efficiently while also removing any stagnant water above the screen interval. These procedures should also have served to reduce the vertical mixing between overburden and bedrock groundwaters.

4.3 WELL SAMPLING

Monitoring well 202-1R/S was sampled at discrete depth intervals since it is screened in both the overburden and bedrock. A separate sampling line (separate from the purge line) was used to collect the discrete samples using a peristaltic pump. After sample collection, the sampling line was purged with two liters of groundwater from the next interval to be sampled. Discrete samples were collected from 32, 25, 18, and 16 feet below ground surface. The samples were collected in order of the deepest interval, starting at 32 feet, to the shallowest interval, 16 feet below ground surface. The intervals were chosen to straddle the overburden/bedrock interphase identified at

approximately 19 feet below grade. A photograph of the sampling setup is provided in Appendix A.

4.4 RESULTS

The low stress methodology employed during this sampling event resulted in low turbidity samples. Turbidity levels ranged from 1 to 2 FNU - Formazin Nephelometric Unit (FNU). This is in contrast with observations from the previous September 2006 sampling event which noted very turbid samples during bailer sampling. This is the result, in part, to differences in purging rates. The purge volumes and drawdowns were similar between the two sampling events; however, the September event took 20 minutes as compared to five hours of purging during the October event. A slight petroleum sheen and odor were noted during both sampling events. Table 4 provides the water quality parameters which indicate a stabilization of parameters occurred prior to sample collection.

Table 5 provides the results of the groundwater analysis. Appendix B provides the laboratory analytical reports. None of the discrete sampling intervals contained any detectable concentrations of PCBs. The shallowest (16 feet) and deepest (32 feet) discrete samples were analyzed for diesel and gasoline range organics using EPA Method 8015B. The diesel and gasoline range organics concentration for the sample collected at the 16 foot depth was 2.2 mg/L and for the 32 foot sample was 1.1 mg/L.

Hydraulic fluids can contain a wide range of various chemical compounds; oils, butanol, esters, polyalkylene glycols, phosphate esters, silicones, alkylated aromatic hydrocarbons, polyalphaolefins, corrosion inhibitors, etc. The diesel and gasoline range organics analysis (EPA Method 8015B) uses gas chromatography to identify petroleum hydrocarbon compounds corresponding to an alkane range from the beginning of n-decane (C10) to the beginning of n-pentacosane (C26). The gas chromatograph generated from the sample is than compared to STL's hydrocarbon products library. Peaks generated by the individual alkane ranges are compared to the library standard to determine if a fit exists. This test will not identify any volatile or semi-volatile organic compounds.

The purpose of performing the diesel and gasoline range organic test was to confirm the nature and extent of the oil contained within the groundwater sample. The September 2006 sampling event, which employed bailer sampling, detected hydraulic fluid at 45 mg/L. The results provided on Table 5, collected in October 2006, yielded a chromatograph inconsistent with any common petroleum product. The lab director at STL-Westfield stated that at low concentrations, the peaks are not as pronounced and "background noise" interfered with product identification.

Only PCBs and diesel and gasoline range organic analysis were performed on the samples. This is consistent with data quality objectives of the investigation which was

to determine the vertical extent of hydraulic fluid and/or PCB contamination in well 202-1R/S screened across the overburden and bedrock media. Extensive groundwater monitoring performed on site has delineated a VOC plume to the east of Building 202 east of Enterprise Drive. No records were obtained for VOC monitoring of monitoring well 202-1R/S. However, two exterior wells, presumably upgradient of Building 202, have been sampled multiple times between 1988 and 2005. MW-4R, a well screened in the bedrock, was tested six times using EPA Method 8260 with no detections of VOCs. An adjacent well screened in the overburden, MW-10S, was analyzed seven times with no detections of VOCs. In addition, subsequent air sampling performed within building 202 conducted in 2007 did not detect vertical migration of VOC vapors from beneath the building sub slab. Therefore, analysis for VOCs was not thought to be warranted.

Previous environmental investigations have documented the release of hydraulic fluid to the groundwater below building 202. Two conceptual site models have been developed to describe the release mechanism of hydraulic fluid to the environment.

The first model suggests a loss of hydraulic fluid occurring at the top of the shaft at the flange that migrated down into the casing and along the outside of the casing into the subsurface. This model would suggest hydraulic fluid has not migrated into the bedrock as observations made since 1996 do not indicate accumulations more than a few inches inside the elevator shaft casing. Also, the reported volume of fluid released and the construction of the elevator shaft do not support a model where fluid flows out of the bottom of the elevator shaft casing. The release mechanism for the first model was supported by C.T. Male Associates in their 2002 report,"[The source of fluid in Elevator 2] is likely related to either residual fluid within the shaft at the time the jack assembly was replaced, or from a seal leak at the top of the jack which was not contained within the containment bucket." Small quantities of fluid were observed around the surface seal at the time of sampling in 2006. However, according to TechCity personal, there has been no need to add fluid to the reservoirs since TechCity's ownership of the site. The concentrations detected in the groundwater are consistent with relatively low quantities (less than 20 gallons) of fluid released over time.

The second model presented by NYSDEC suggests the oil was released from the bottom of the casing. NYSDEC based this theory on observations made during the monitoring well installation of 202 1R/S. The monitoring well log notes that petrochemical odors were noted between 15.5 and 17.5 feet. There were no notations of oil or odor present above this zone or at the apparent water table of approximately 12 feet (depth of water in 202 1R/S). .However, the well is screened in both the overburden and bedrock and consequently the apparent water table of approximately 12 feet is not the true water table which may be closer to 15.5 to 17.5 feet. Furthermore, the model is not supported by the following additional observations and evaluations:

- Groundwater samples collected from 202 1R/S did exhibit a slight sheen but not the significant non-aqueous phase liquid (LNAPL) quantities required by this model.

- C.T. Male reported in 1996 when the spill occurred that the groundwater level was much higher under Elevator 2 than is observed today. They report,"Apparently, a 6-inch water main beneath the site building had been leaking and had artificially raised the water table to within approximately two feet from the bottom of the elevator pit floor." Taking into consideration this elevated water table, it is not possible for fluid to accumulate in sufficient quantities in the two feet of casing to exert enough pressure to depress the

water table 17 feet below the bottom of the casing (casing is assumed to be seated two feet into bedrock).

- The reported quantity of fluid released of 20 gallons is not sufficient to depress the water table at the current level of approximately 12 feet to below the bottom of the casing.

For the above stated reasons, we do not believe that the hydraulic fluid was released through the bottom of the casing but rather along the outside of the casing.

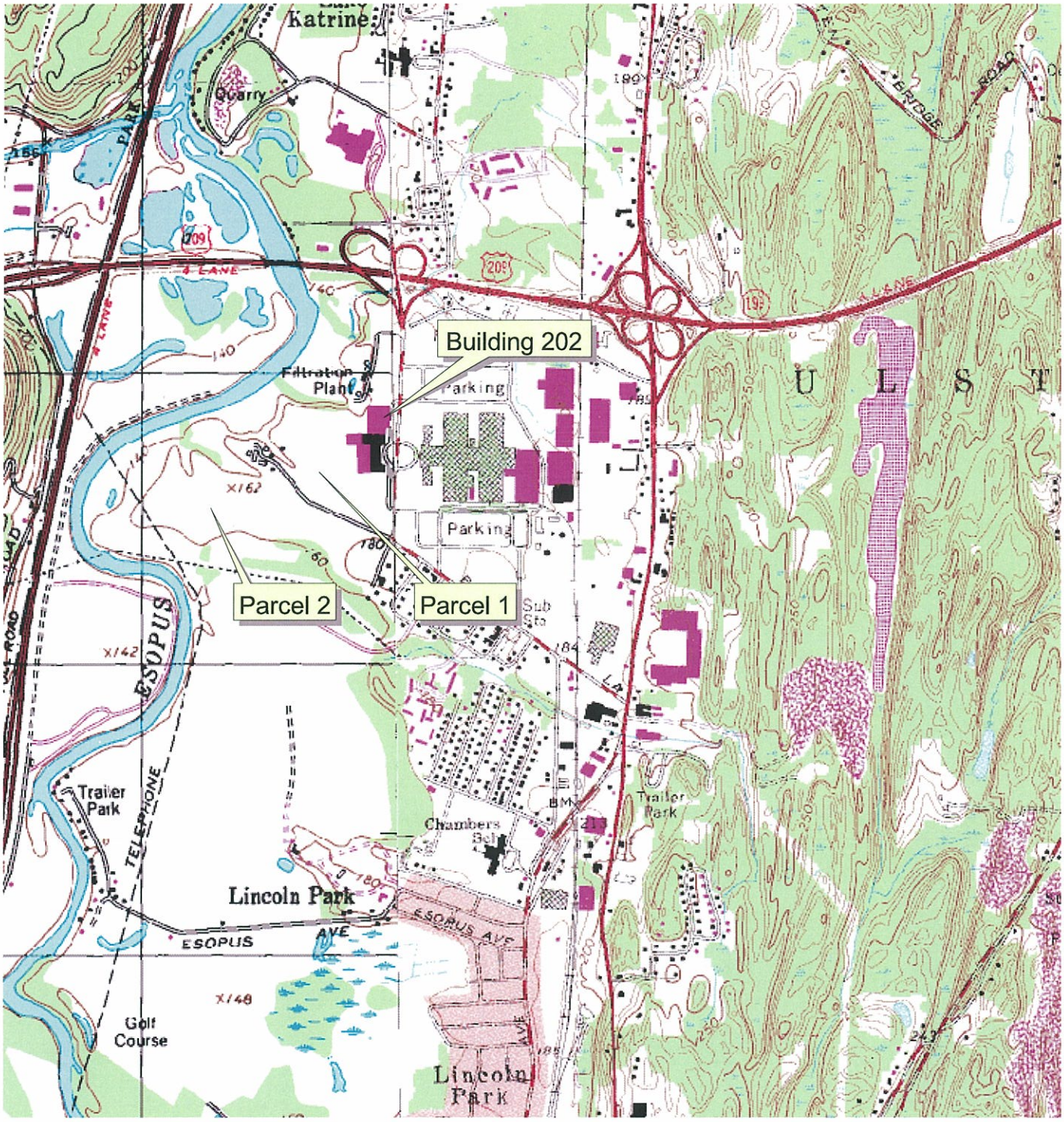
The historic groundwater data from multiple environmental studies were gathered to provide a holistic interpretation of the data. Low dissolved concentrations of hydraulic oil continue to be present in the samples collected from monitoring well 202-1R/S. However, the concentrations were significantly less during the low stress purging and sampling.

Well 202-1 R/S was sampled with low flow pump methodology which is a lower stress approach than the previous sampling with a bailer. Bailer sampling causes more turbidity in the well and can entrain silt particles from the surrounding soil. The soil surrounding the well contains PCBs as determined from previous sampling. The bailer sampling likely artificially entrained silt particles containing PCBs from the surrounding soils into the water and is not reflective of actual concentrations migrating through the aquifer. This conclusion is supported by the October 2006 analytical data that reported detectable concentrations of PCBs were removed from the sample when filtered through a 0.45-micron filter.

The most recent groundwater sampling data, in concert with historic data, suggests that the PCBs are not dissolved in groundwater but are entrained from the surrounding formation during high stress sampling procedures. PCBs were previously detected in soil beneath building 202 during the installation of well 202-1 R/S. Previous sampling data has concluded that no evidence of migration of PCBs to exterior downgradient well locations. Based on the observations and findings of the work in this report, a no further action (NFA) is appropriate for this SWMU.

Well 202-1R/S will be properly plugged and abandoned to prevent continued migration of overburden groundwater into the bedrock. A licensed contractor will provide to the NYSDEC a copy of the plugging plan including a copy of form OG11, as required by Title 6, Part 555 of Environmental Conservation Law (ECL) along with a schedule of planned operations. The Contractor will inform the NYSDEC prior to making changes to the plugging plan as a result of conditions differing from those originally presumed. Upon completion of plugging activities, the contractor will prepare and submit a plugging report to NYSDEC on form OG13 in accordance with ECL Part 555.5(d) within 30 days after the completion of plugging operations.

NYSDEC and NYSDOH have indicated that institutional controls, specifically involving soil excavation and groundwater use restrictions, would be applied to SMWU AE. It is premature to provide institutional controls for this particular SWMU since additional areas on site are likely to require institutional controls. These institutional controls should be created and issued in tandem. Although the final details and extent of these restrictions are not yet available, such institutional controls would serve to reduce the likelihood that this area would be disturbed in the future.



0 0.5 1 1.5 Miles

0 2000 4000 6000 Feet

Base map is a portion of the following U.S.G.S. Quadrangles: Kingston East 1980

N W E S

Site Location Map

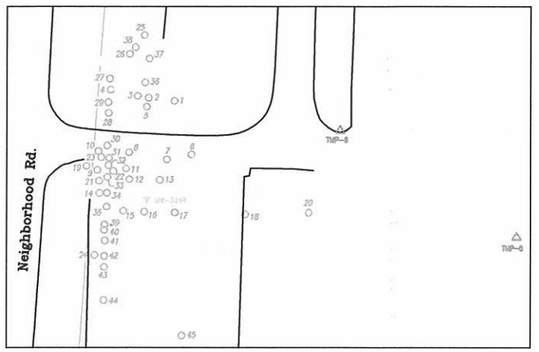
TechCity
Parcel1 and 2
300 Enterprise Drive
Kingston, New York

Tighe&Bond, Inc.
Consulting Engineers
213 Court Street, Suite 900 - Middletown, CT 06457

Job No.	Drawn By:	Date:
126252	BCC	Sept. 2006

File: 126223/Figures/Figure 1

Figure 1



Detail (4X)

Former B058 Detail (Scale 3X)

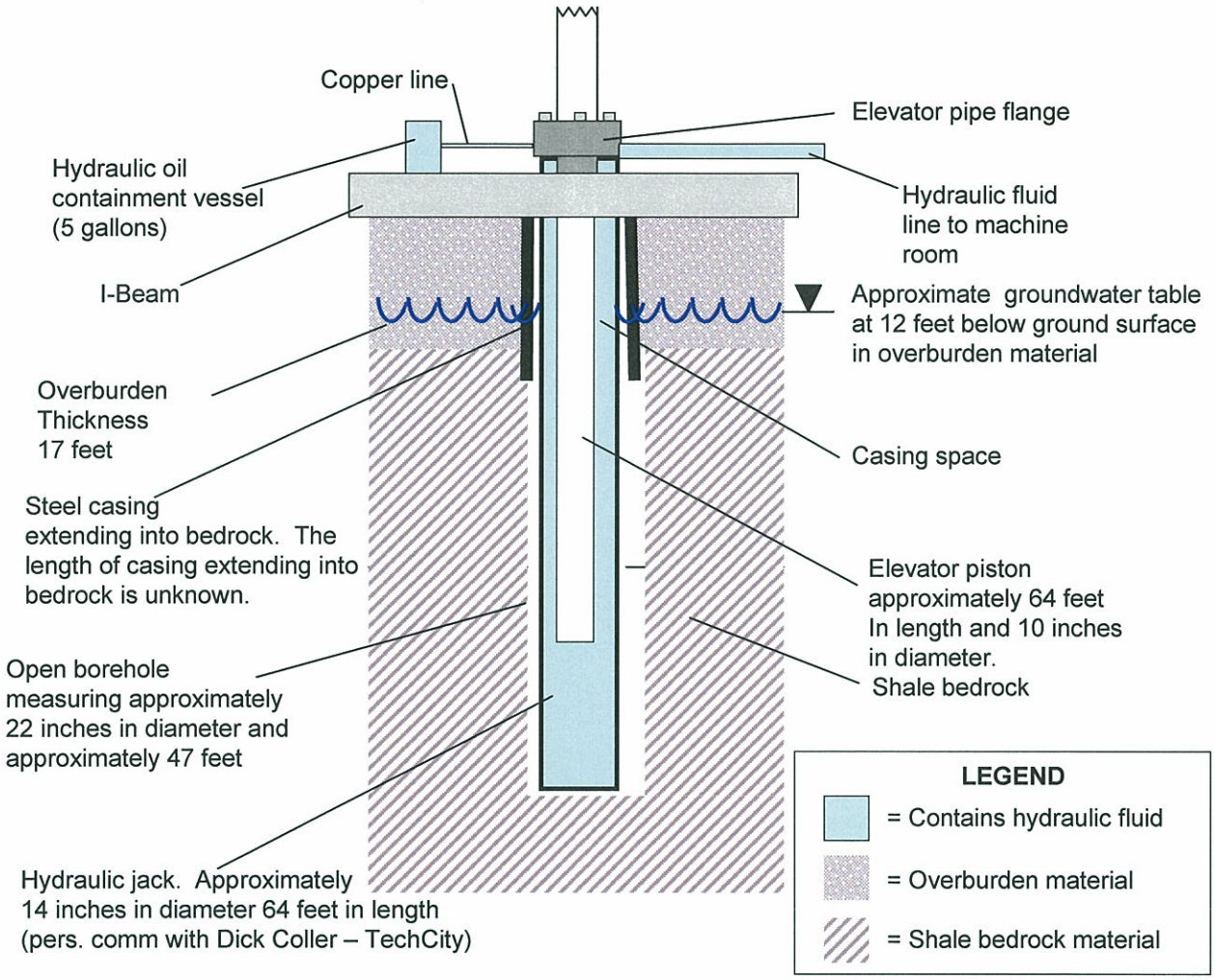
- Monitoring Well Location (installed in soil)
- Temporary Monitoring Point
- Monitoring Well Location (installed in bedrock)
- Production Well Location (Layne)
- Railroad
- Property Line
- Former Structure
- Abandoned Monitoring Well Location (installed in soil)
- Abandoned Temporary Monitoring Point
- Abandoned Monitoring Well Location (installed in bedrock)
- Abandoned Production Well Location (Layne)
- Soil Boring or Test Pit Location
- Groundwater Collection System (GWCS)
- GWCS Trench Extension

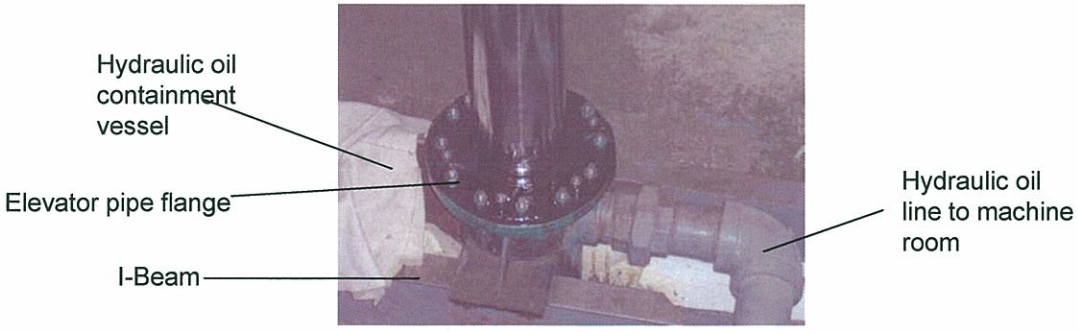
Base map provided by Groundwater Sciences Corporation.

Tighe&Bond Tighe & Bond – Consulting Engineers
213 Court Street – Suite 900 Middletown, Connecticut 06457 Ph:860-704-4760

TechCity
Site Layout
Kingston, NY

Job.No.	Designed By:	Checked By:
12-6252	BCC	JTO
Cad File: 12-6252/figures/site drawing.dwg	Drawn By: BCC	Date: 12/7/06





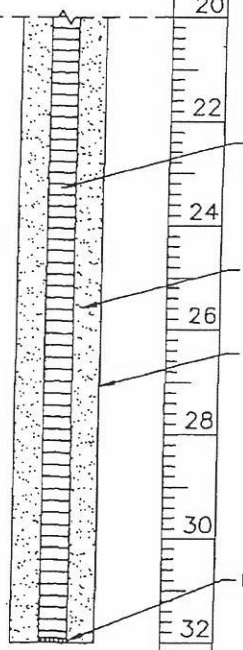
Photograph taken on October 30, 2006

Tighe&Bond	Solid Waste Management Unit AE **Elevator Number 2** TechCity, Kingston, New York	NOT TO SCALE December 2006 FIGURE 3

Soil Augering Log
Client: IBM Hudson Valley, Kingston Site
Project No. 93002.07

Boring No. 202-1R/S
Location B202, approx. 10' south of Column E6
TOC Elev. 176.43'

Depth Feet	Blow Counts	PID (ppm)	Sample Number	Recovery	Overburden/Lithologic Description	USCS
20						
22	HWG Double-tube Core	2'/2' (100%)			SHALE BEDROCK.	
24	HWG Double-tube Core	5'/5' (100%)				
26						
28	HWG Double-tube Core	5'/5' (100%)				
30						
32					Total Depth: 32.0'.	
34						
36						
38						
40						



Well Construction Details

- 2" Sch 40 10-slot PVC screen (12.0'-32.0')
- No. 1 sand
- 4" core hole
- Bottom end cap

GROUNDWATER SCIENCES CORPORATION

Geologic Log: 202-1R/S

LEGEND

- ▾ – Monitoring Well Location (installed in bedrock)
- ▴ – Monitoring Well Location (installed in soil)
- — Property Line
- / – Groundwater Contour
- ↖ – Approximate direction of bedrock grounwater flow

Base map provided by Groundwater Sciences Co., titled "Well, Boring and Test Pit Location Map," dated 9/8/02

Note: Groundwater elevation measurements were taken on 10/31/2006.
All elevations are relative to mean sea level.

MW-103 could not be measured. It was submerged by surface water on 10/31/06.

MW-816R
152.43 ft. depth to water
114 ft. top of bedrock
110-90 ft. open borehole
161.40 ft. Surface Elevation

MW-324R
164.97 ft. depth to water
164ft. top of bedrock
164-144 ft. open borehole
175.00 ft. Surface Elevation

MW-1R
144.95 ft. to water
111 ft. top of bedrock
111-59 ft. open borehole
150.93 ft. Surface Elevation

Elevator No. 2

Elevator Piston

MW-4R
168.23 ft. depth to water
168 ft. depth to bedrock
168-144 ft. open borehole
176.08 ft. Surface Elevation

202-1R/S
164.09 ft. depth to water
158 ft. top of bedrock
164-142 ft. screened interval in overburden and bedrock
176.43 ft. Surface Elevation

B036 B202 B203 B201

Enterprise Drive

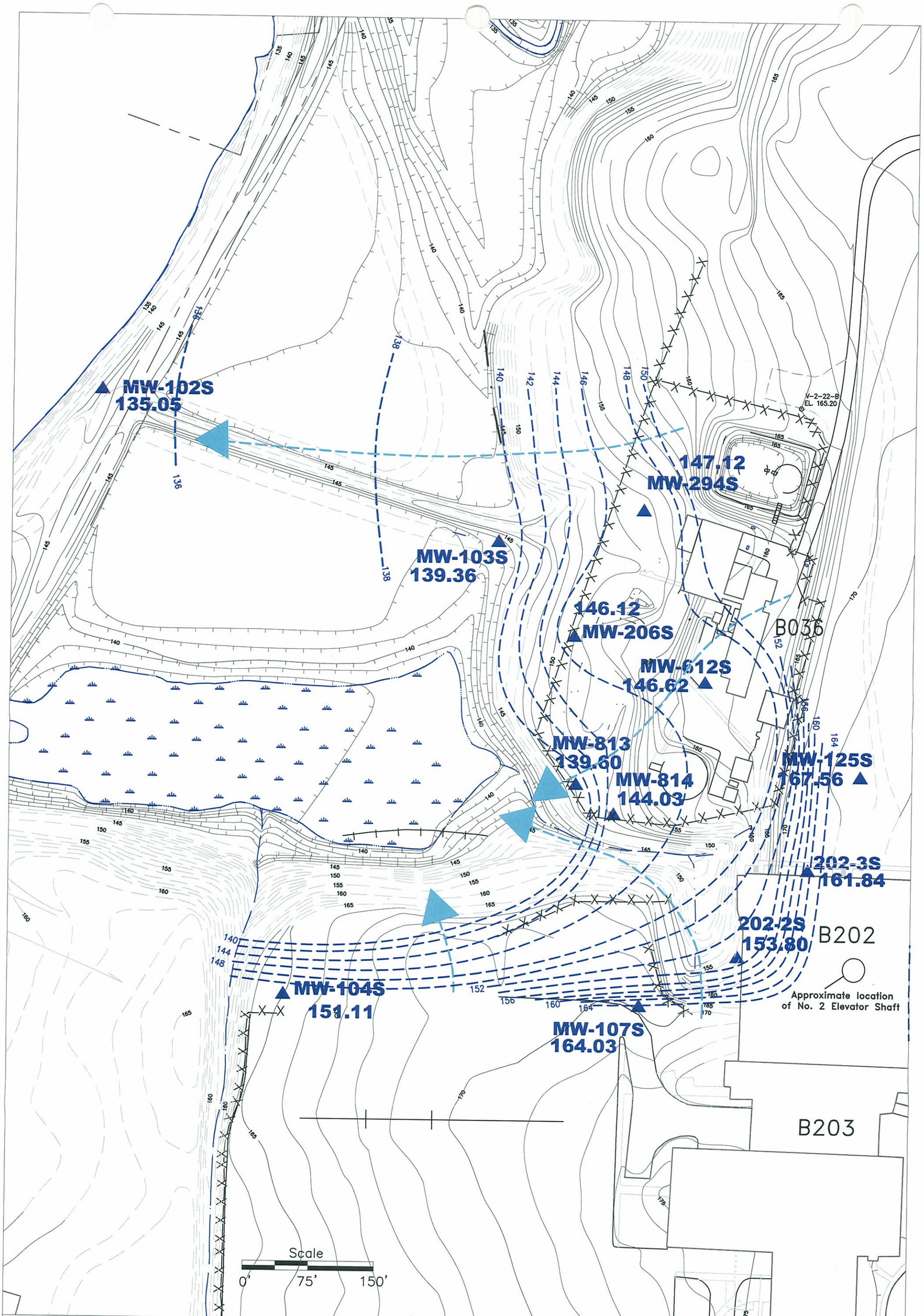
Scale
0' 150' 300'

Tighe&Bond Tighe & Bond – Consulting Engineers
213 Court Street – Suite 900 Middletown, Connecticut 06457 Ph: 860-704-4760

No.	By:	Date:

TechCity
Bedrock Groundwater Piezometric Surface
(Adjacent to Building 202)
Kingston, NY

Job.No. 12-6252	Designed By: GB	Checked By: JTO	
Cad File: 12-6252/figures/Figure 5.dwg	Drawn By: GB	Date: December 2006	Figure 5



LEGEND

– Approximate Groundwater Flow

Note: Groundwater elevation measurements were taken on 10/31/06.

▼ – Monitoring Well Location (installed in bedrock)

▲ – Monitoring Well Location (installed in soil)

/ – Groundwater Contours

Base map provided by Groundwater Sciences, Co., titled "Well, Boring and Test Pit Location Map," Dated 9/8/02.

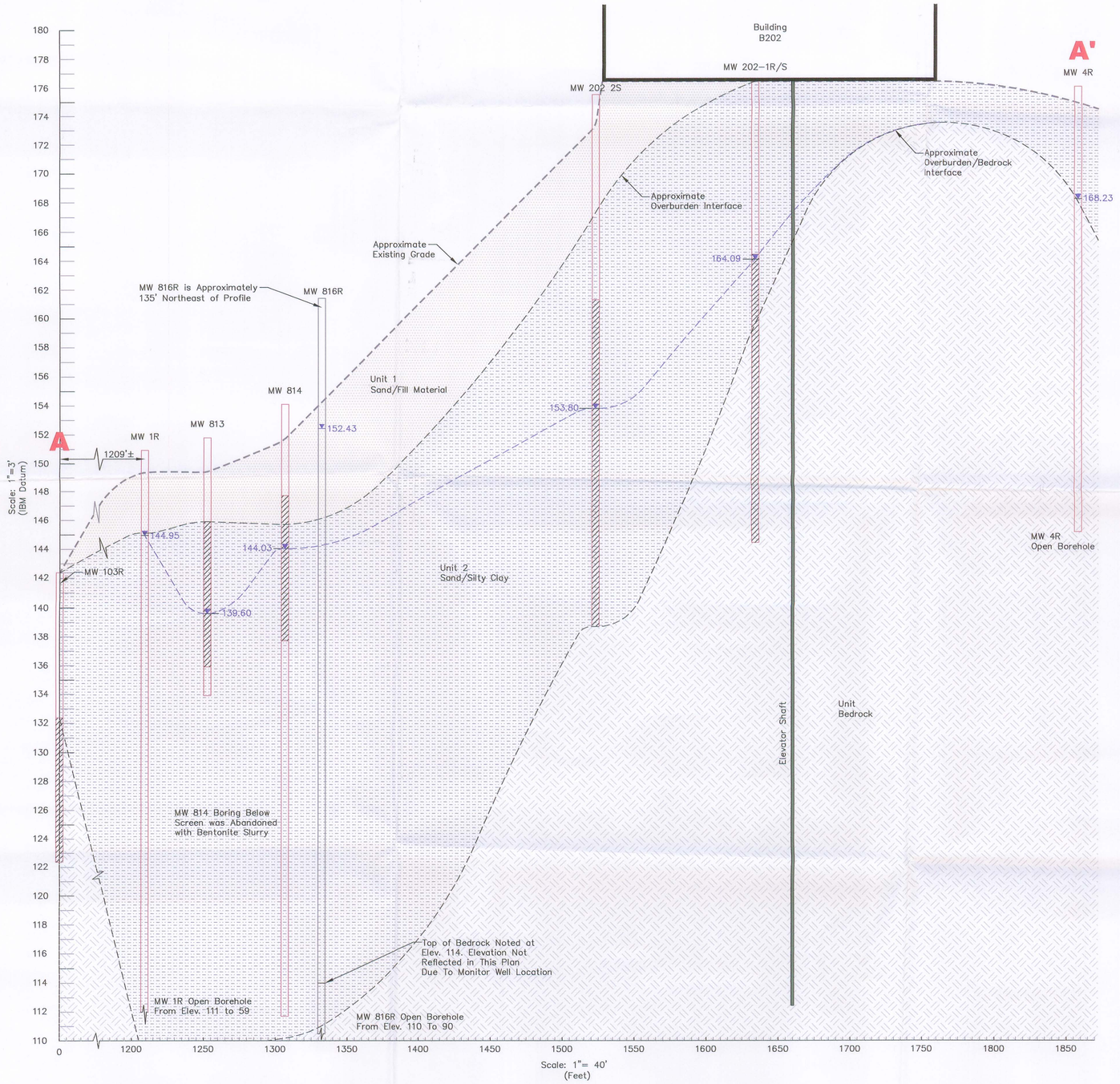
Tighe&Bond Tighe & Bond – Consulting Engineers
213 Court Street – Suite 900 Middletown, Connecticut 06457 Ph: 860-704-4760

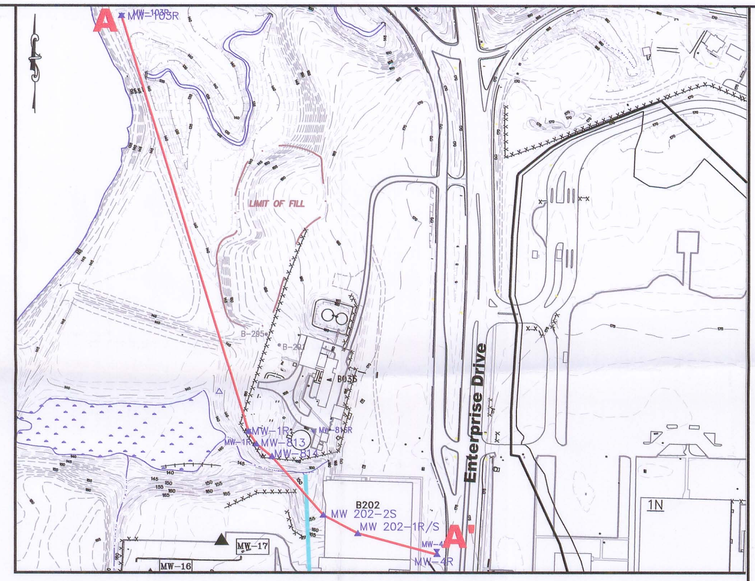
TechCity
Overburden Groundwater Contour Map
(Adjacent to Building 202)
Kingston, NY

No.	By:	Date:

Job.No.	Designed By:	Checked By:
12-6252	GB	JTO
Cad File: 12-6252/figures/site drawing.dwg	Drawn By: GB	Date: December 2006

Figure 6





Location Map
Scale: 1"=200'

LEGEND

- Monitoring Well Location
- Screen
- Unit 1 Sand/Fill Material
- Unit 2 Sand/Silty Clay
- Unit Bedrock
- A—A' – Transect Line
- ▲ – Monitoring Well Location
- ▼ – Watertable
- 164.00 – Groundwater Elevations Collected on 10/31/06

Base map provided by Groundwater Sciences Co., titled "Well, Boring and Test Pit Location Map," dated 9/8/02.

Tighe&Bond
Consulting Engineers
213 Court Street
Middletown, Connecticut
(860) 704-4760
www.tighebond.com

Tech City

Geological Cross Section (Adjacent to Building 202)

Kingston, New York

August, 2007

Mark	Date	Description

PROJECT NO:	12-6252
FILE:	Geological Cross Sections III.dwg
DRAWN BY:	RAS
CHECKED:	GB
APPROVED BY:	JTO

Cross Section A-A'

SCALE: As Noted

Figure 7

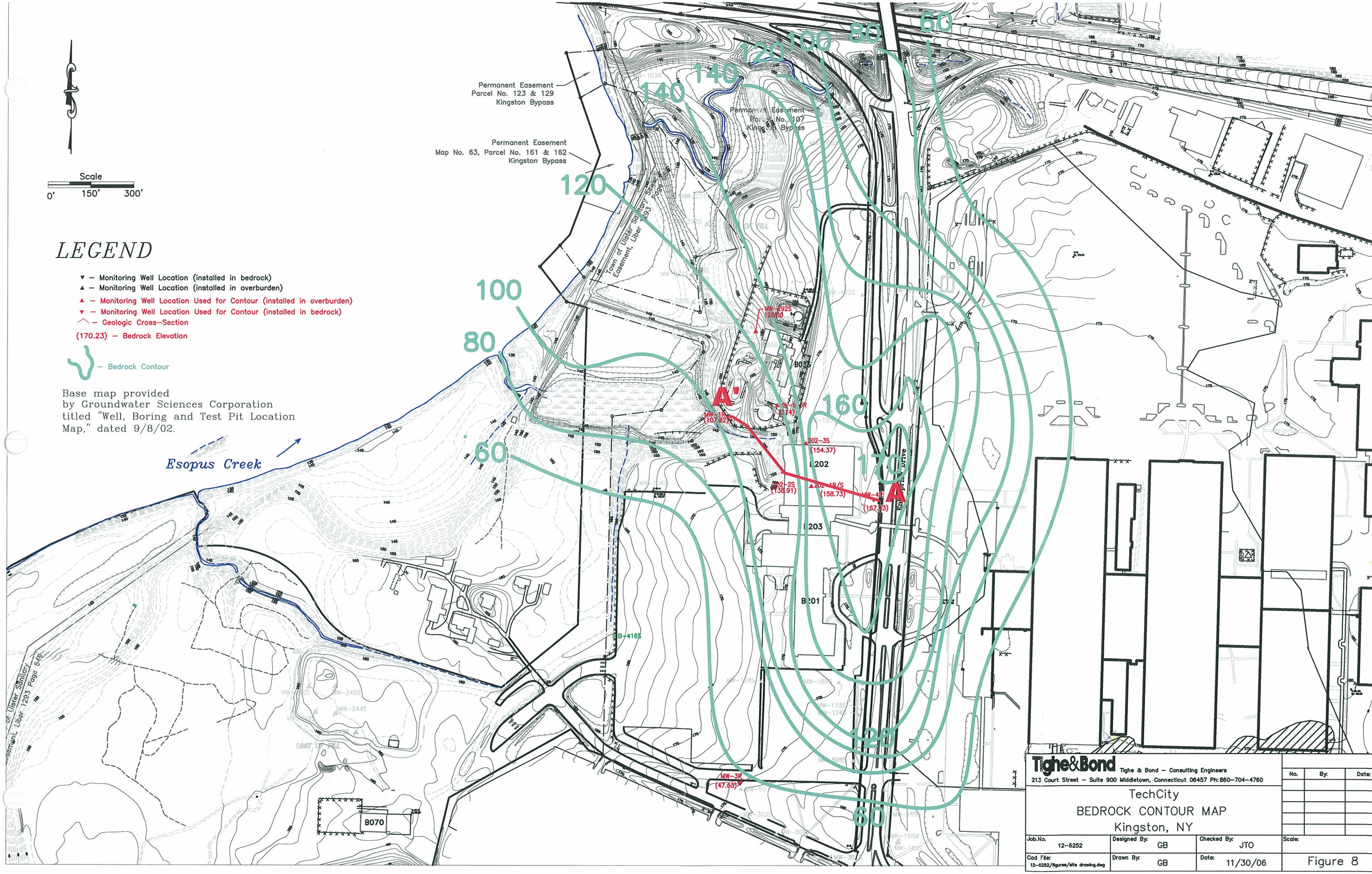

Scale
0'
150'
300'
LEGEND
▼ – Monitoring Well Location (installed in bedrock)
▲ – Monitoring Well Location (installed in overburden)
▲ – Monitoring Well Location Used for Contour (installed in overburden)
▼ – Monitoring Well Location Used for Contour (installed in bedrock)
– Geologic Cross–Section
(170.23) – Bedrock Elevation
– Bedrock Contour
Base map provided by Groundwater Sciences Corporation titled "Well, Boring and Test Pit Location Map," dated 9/8/02.
Esopus Creek
Permanent Easement Parcel No. 123 & 129 Kingston Bypass
Permanent Easement Map No. 63, Parcel No. 161 & 162 Kingston Bypass
Permanent Easement Parcel No. 107 Kingston Bypass
Town of Ulster Sanitary Sewer Easement, Liber 1293 Page
A
A'
60
80
100
120
140
160
170
B202
B203
B201
B070
MW-3R
(47.63)
202-3S
(154.37)
(158.73)
(138.91)
(167.13)
(107.82)
Tighe&Bond
Tighe & Bond – Consulting Engineers
213 Court Street – Suite 900 Middletown, Connecticut 06457 Ph:860-704-4760
TechCity
BEDROCK CONTOUR MAP
Kingston, NY
Job.No. 12-6252
Designed By: GB
Checked By: JTO
Scale:
Cad File: 12-6252/figures/site drawing.dwg
Drawn By: GB
Date: 11/30/06
Figure 8
No.
By:
Date:

Table 1
Summary of Chronological Events
SWMU AE Building 202
TechCity Properties, Inc.
Kingston, New York

Date	Description
May-96	Schindler Elevator personnel reported the the No. 2 Elevator required the addition of 15 gallons of hydraulic fluid since January 1996. IBM hires Groundwater Sciences Corporation (GSC) to determine if a release had occurred. The sand from the annular space and hydraulic fluid were analyzed for PCBs.
June-96	Results from GSC study suggests no PCBs have been released. Results discussed with New York Department of Environmental Control (NYDEC) and incident not considered a SWMU.
June-July- 96	GSC further investigates downgradient soil and groundwater quality. Total petroleum hydrocarbons (TPH) and PCBs found in downgradient interior well (202 1R/S), No evidence of migration in two downgradient exterior wells 202-2S and 202-3S.
1997	Elevator No. 2 jack assembly was replaced.
October-00	Elevator maintenance contractor (Schindler) reported to C.B. Richard Ellis that the hydraulic cylinder for the Elevator No. 1 was leaking. Schindler added 20 gallons of hydraulic fluid to the reservoir tank following an eight month period of time. Based on this observation the NYSDEC assigned spill No. 0009072.
December-01	C.T. Male was hired to perform environmental investigations of Elevator No. 1 and 2. A sample from the No. 2 hydraulic reservoir indicates presence of PCBs.
December-02	C.T. Male removed hydraulic fluid from the Elevator No. 2 reservoir. Fluid was tested with no evidence of PCBs.
January-February 02	C.T. Male tests for free product in Elevator No. 2 casing. None observed.
January-04	NYDEC reviews C.T. Male Assessment report and concludes no further action is required for spill No. 0009072.
September-06	Tighe & Bond collects samples from interior well 202 1R/S and two exterior downgradient wells 202-2S and 202-3S. PCBs detected in 202 1R/S with no detection in two exterior wells. Sample from 202-2S was laboratory filtered which removed detectable concentrations of PCBs.
October-06	Tighe & Bond sampled interior monitoring well 202 1R/S at discrete intervals using low flow sampling techniques. No PCBs were detected in the samples. Low concentrations of TPH detected.

Table 2
Summary of Historical Groundwater Analytical Data
SWMU AE Building 202
TechCity Properties, Inc.
Kingston, New York

Date	Monitoring Well	Consultant	Sampling Method	PCBs Method 8080	PCBs Method 8082	TPH Method 418.1	Notes
7/2/1996	2021R/S	GSC	Bailer	2 µg/L		0.8 mg/L	
7/10/1996	202 1R/S	GSC	Bailer	3.5/2.6/10.2 µg/L		NT	Sample was split and sent to three different laboratories
	202-2S	GSC	Bailer	ND<1 µg/L		0.9 mg/L	
	202-3S	GSC	Bailer	ND<1 µg/L		0.9 mg/L	
9/13/2006	202 1R/S	Tighe & Bond	Bailer		4.8/13 µg/L	45 mg/L	
	202 1R/S (filtered)	Tighe & Bond	Bailer		ND<0.061 µg/L		Duplicate sample collected
	202-2S	Tighe & Bond	Bailer		ND<0.061 µg/L		Sample filtered in laboratory using 0.45 um filter
	202-3S	Tighe & Bond	Bailer		ND<0.061 µg/L		
	202 1R/S	GSC	Bailer		4.8/12 µg/L		Duplicate sample collected. Samples split from Tighe & Bond sampling effort
	202-2S	GSC	Bailer		ND		Samples split from Tighe & Bond sampling effort
	202-3S	GSC	Bailer		ND		Samples split from Tighe & Bond sampling effort
10/30/2006	202 1R/S 16	Tighe & Bond	Peristaltic Pump	ND <0.34 ug/L		2.2 mg/L	Sample collected 16 feet below top of casing
	202 1R/S 18	Tighe & Bond	Peristaltic Pump	ND <0.35 ug/L		NT	Sample collected 18 feet below top of casing
	202 1R/S 25	Tighe & Bond	Peristaltic Pump	ND <0.36 ug/L		NT	Sample collected 25 feet below top of casing
	202 1R/S 32	Tighe & Bond	Peristaltic Pump	ND <0.37 ug/L		1.1 mg/L	Sample collected 32 feet below top of casing

Notes:

Bordered text indicate exceedence of NYDEC PCB standard established at 0.1µg/L.
NYSDEC - New York State Department of Environmental Conservation
ND - Not Detected to the indicated limit.
µg/L - micrograms per liter
NT - Not Tested

Table 3
Summary of Groundwater Elevations
SWMU AE Building 202 - MW 202 1R/S
TechCity Properties, Inc.
Kingston, New York

	Depth to Water (ft. MSL)*	Elevation (ft. MSL) **	Ground Water Elevation (ft. MSL)
Bedrock Wells			
MW-1R	5.98	150.93	144.95
MW-324R	10.03	175.00	164.97
202-1R/S	12.34	176.43	164.09
MW-4R	7.85	176.08	168.23
MW-103R	Submerged ***	-	-
MW-816R	8.97	161.40	152.43
Overburden Wells			
MW-103S	4.31	132.91	128.60
MW-294S	8.70	155.82	147.12
MW-206S	6.30	152.42	146.12
MW-612S	9.60	156.22	146.62
MW-813	9.80	149.40	139.60
MW-125S	6.32	173.88	167.56
MW-814	7.67	151.70	144.03
202-3S	13.58	175.42	161.84
MW-104S	16.90	168.01	151.11
MW-107S	9.50	173.53	164.03
202-2S	19.49	173.29	153.80
MW-10S	2.60	176.94	174.34
MW-610S	9.70	181.16	171.46
MW-108S	5.01	177.26	172.25
MW-189S	8.64	175.52	166.88
MW-173S	9.41	179.83	170.42
MW-174S	9.34	179.89	170.55
MW-102S	11.93	146.98	135.05

Note:
* Groundwater measurements were collected on 10/31/06.
** Elevations referenced from benchmark on casing.
*** Monitoring well MW-103 R was submerged by surface water. Photo provided in Appendix A.

Table 4
Summary of Groundwater Stabilization Data
SWMU AE Building 202 - MW 202 1R/S
TechCity Properties, Inc.
Kingston, New York

Time	Water Level (ft. below grade)	Dissolved Oxygen (µg/L)	Temperature (°F)	pH (S.U.)	Oxidation Reduction Potential (mV)	Conductivity (µg/L)	Turbidity (FNU)
10:55	12.34	3568	74.97	7.48	-200	2696	1.14
11:40	13.23	3359	75.11	7.49	-223	3071	1.07
13:10	13.35	3132	75.12	7.5	-231	3071	2.05
13:21	13.86	3005	75.21	7.48	-216	3112	1.78
13:28	13.94	3212	75.74	7.47	-225	3121	1.77
13:42	14.20	3145	75.23	7.48	-224	3114	1.76
14:07	14.50	3211	75.26	7.48	-226	3211	1.7
14:45	14.89	3014	75.26	7.47	-228	3213	1.8
14:53	15.27	3125	75.27	7.45	-227	3215	1.65
15:16	16.00	3125	75.28	7.45	-227	3142	1.72
15:35	16.27	3125	75.26	7.45	-227	3141	1.77
15:55	16.50	3124	75.26	7.46	-228	3141	1.68
16:10	16.50				First Sample Collected		

Note:
All data collected on 10/30/06.
°F - Degrees Farenheit
S.U. - Standard Units
mV - millivolts
FNU - Formazin Nephelometric Unit
µg/L - micrograms per liter

Table 5
Summary of Groundwater Analytical Data
SWMU AE Building 202
TechCity Properties, Inc.
Kingston, New York

Parameter	NYDEC Standard	202 1R/S 16 feet	202 1R/S 18 feet	202 1R/S 25 feet	202 1R/S 32 feet
Polychlorinate Biphenyls (PCBs)(µg/L)					
PCB -1254	0.1	ND <0.34	ND <0.31	ND <0.31	ND <0.31
Hydrocarbon Product Identification (mg/L)					
Creosote	NS	ND<0.1	NT	NT	ND<0.1
Hydraulic Fluid	NS	ND<0.1	NT	NT	ND<0.1
Jet Fuel	NS	ND<0.1	NT	NT	ND<0.1
Mineral Spirits	NS	ND<0.1	NT	NT	ND<0.1
Motor Oil	NS	ND<0.1	NT	NT	ND<0.1
Unmatched Hydrocarbons	NS	2.2	NT	NT	1.1
MODF (C14-C28)	NS	ND<0.1	NT	NT	ND<0.1
#4 Fuel (C9-C36)	NS	ND<0.1	NT	NT	ND<0.1
#6 Fuel (C9-C36)	NS	ND<0.1	NT	NT	ND<0.1

Notes:
Only detected Constituents of Concern (COC) are included in the table.
NYSDEC - New York State Department of Environmental Conservation
ND - Not Detected to the indicated limit.
µg/L - micrograms per liter
NT - Not Tested
NS - No standard established by NYSDEC

Picture above: Monitoring well 103R submerged on 10/31/06.

Picture below: Low-stress sampling set up completed on 10/30/06.

SEVERN TRENT STL

ANALYTICAL REPORT

Job Number: 360-6809-1

Job Description: 126252

For:
Tighe & Bond
213 Court Street
Middletown, CT 06457

Attention: Jim Olsen

Joseph A. Chimi Jr.

Joe Chimi
Report Production Representative
jchimi@stl-inc.com
11/09/2006

Project Manager: Becky Mason

The test results in this report meet all NELAP requirements for accredited parameters. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced except in full, and with written approval from the laboratory. STL Westfield Certifications and Approvals: MADEP MA014, RIDOH57, CTDPH 0494, VT DECWSD, NH DES 253903-A, NELAP FL E87912 TOX, NELAP NJ MA008 TOX, NELAP NY 10843, NY DOH 10843.

ACCREDITED IN ACCORDANCE WITH nelac

Client: Tighe & Bond
Date: 11/09/2006

Semi-Volatile GC Analysis

Other Deficiency

For method 8015B_ID, the results are reported as Unmatched Hydrocarbons. The carbon range is from C12 exceeding beyond C36.

Affected Items

360-6809-B-1-A

Batch: 360-12684
Method: 360-8015B_id

360-6809-A-4-B

Batch: 360-12684
Method: 360-8015B_id

METHOD SUMMARY

Client: Tighe & Bond

Job Number: 360-6809-1

Description	Lab Location	Method	Preparation Method
Matrix: Water			
Hydrocarbon Product Identification	STL WFD	SW846 8015B	
Separatory Funnel Liquid-Liquid Extraction	STL WFD		SW846 3510C
Polychlorinated Biphenyls (PCBs) by Gas Chromatography	STL WFD	SW846 8082	
Separatory Funnel Liquid-Liquid Extraction	STL WFD		SW846 3510C

LAB REFERENCES:

STL WFD = STL Westfield

METHOD REFERENCES:

SW846 - "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

METHOD / ANALYST SUMMARY

Client: Tighe & Bond

Job Number: 360-6809-1

Method	Analyst	Analyst ID
SW846 8015B	Pham, Tam	TP
SW846 8082	Sullivan, Pat	PS

SAMPLE SUMMARY

Client: Tighe & Bond

Job Number: 360-6809-1

Lab Sample ID	Client Sample ID	Client Matrix	Date/Time Sampled	Date/Time Received
360-6809-1	202 IR/S 16'	Water	10/30/2006 1600	11/02/2006 1530
360-6809-2	202 IR/S 18'	Water	10/30/2006 1630	11/02/2006 1530
360-6809-3	202 IR/S 25'	Water	10/30/2006 1620	11/02/2006 1530
360-6809-4	202 IR/S 32'	Water	10/30/2006 1530	11/02/2006 1530

SAMPLE RESULTS

Client: Tighe & Bond

Job Number: 360-6809-1

Client Sample ID: **202 IR/S 16'**

Lab Sample ID: 360-6809-1
Client Matrix: Water

Date Sampled: 10/30/2006 1600
Date Received: 11/02/2006 1530

8015B Hydrocarbon Product Identification

Method: 8015B
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 11/07/2006 1823
Date Prepared: 11/06/2006 1143

Analysis Batch: 360-12684
Prep Batch: 360-12550

Instrument ID: HP 5890II GC w/ FID
Lab File ID: C4628.D
Initial Weight/Volume: 990 mL
Final Weight/Volume: 1.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL	RL
Creosote	ND		0.10	0.10
Hydraulic Fluid	ND		0.10	0.10
Jet fuel	ND		0.10	0.10
Mineral Spirits	ND		0.10	0.10
Motor Oil	ND		0.10	0.10
Unmatched Hydrocarbons	2.2		0.10	0.10
MODF (C14-C28)	ND		0.10	0.10
#4 Fuel, C9-C36	ND		0.10	0.10
C9-C36 (#6 Fuel)	ND		0.10	0.10
Fuel Oil #2	ND		0.10	0.10

Surrogate	%Rec	Acceptance Limits
o-Terphenyl	70	40 - 140

Client: Tighe & Bond

Job Number: 360-6809-1

Client Sample ID: **202 IR/S 32'**

Lab Sample ID: 360-6809-4
Client Matrix: Water

Date Sampled: 10/30/2006 1530
Date Received: 11/02/2006 1530

8015B Hydrocarbon Product Identification

Method: 8015B
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 11/07/2006 1906
Date Prepared: 11/06/2006 1143

Analysis Batch: 360-12684
Prep Batch: 360-12550

Instrument ID: HP 5890II GC w/ FID
Lab File ID: C4629.D
Initial Weight/Volume: 990 mL
Final Weight/Volume: 1.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (mg/L)	Qualifier	RL	RL
Creosote	ND		0.10	0.10
Hydraulic Fluid	ND		0.10	0.10
Jet fuel	ND		0.10	0.10
Mineral Spirits	ND		0.10	0.10
Motor Oil	ND		0.10	0.10
Unmatched Hydrocarbons	1.1		0.10	0.10
MODF (C14-C28)	ND		0.10	0.10
#4 Fuel, C9-C36	ND		0.10	0.10
C9-C36 (#6 Fuel)	ND		0.10	0.10
Fuel Oil #2	ND		0.10	0.10

Surrogate	%Rec	Acceptance Limits
o-Terphenyl	72	40 - 140

Client: Tighe & Bond

Job Number: 360-6809-1

Client Sample ID: **202 IR/S 16'**

Lab Sample ID: 360-6809-1
Client Matrix: Water

Date Sampled: 10/30/2006 1600
Date Received: 11/02/2006 1530

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 11/06/2006 2006
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1056.D
Initial Weight/Volume: 880 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.34	0.34
PCB-1221	ND		0.34	0.34
PCB-1232	ND		0.34	0.34
PCB-1242	ND		0.34	0.34
PCB-1248	ND		0.34	0.34
PCB-1254	ND		0.34	0.34
PCB-1260	ND		0.18	0.34
PCB-1262	ND		0.34	0.34
PCB-1268	ND		0.34	0.34

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	41	30 - 150
Tetrachloro-m-xylene	49	30 - 150

Client: Tighe & Bond

Job Number: 360-6809-1

Client Sample ID: **202 IR/S 18'**

Lab Sample ID: 360-6809-2
Client Matrix: Water

Date Sampled: 10/30/2006 1630
Date Received: 11/02/2006 1530

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 11/06/2006 2027
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1057.D
Initial Weight/Volume: 975 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.31	0.31
PCB-1221	ND		0.31	0.31
PCB-1232	ND		0.31	0.31
PCB-1242	ND		0.31	0.31
PCB-1248	ND		0.31	0.31
PCB-1254	ND		0.31	0.31
PCB-1260	ND		0.16	0.31
PCB-1262	ND		0.31	0.31
PCB-1268	ND		0.31	0.31

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	39	30 - 150
Tetrachloro-m-xylene	49	30 - 150

Client: Tighe & Bond

Job Number: 360-6809-1

Client Sample ID: **202 IR/S 25'**

Lab Sample ID: 360-6809-3
Client Matrix: Water

Date Sampled: 10/30/2006 1620
Date Received: 11/02/2006 1530

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 11/06/2006 2048
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1058.D
Initial Weight/Volume: 990 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.30	0.30
PCB-1221	ND		0.30	0.30
PCB-1232	ND		0.30	0.30
PCB-1242	ND		0.30	0.30
PCB-1248	ND		0.30	0.30
PCB-1254	ND		0.30	0.30
PCB-1260	ND		0.16	0.30
PCB-1262	ND		0.30	0.30
PCB-1268	ND		0.30	0.30

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	33	30 - 150
Tetrachloro-m-xylene	47	30 - 150

Client: Tighe & Bond

Job Number: 360-6809-1

Client Sample ID: **202 IR/S 32'**

Lab Sample ID: 360-6809-4
Client Matrix: Water

Date Sampled: 10/30/2006 1530
Date Received: 11/02/2006 1530

8082 Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Method: 8082
Preparation: 3510C
Dilution: 1.0
Date Analyzed: 11/06/2006 2108
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1059.D
Initial Weight/Volume: 990 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result (ug/L)	Qualifier	MDL	RL
PCB-1016	ND		0.30	0.30
PCB-1221	ND		0.30	0.30
PCB-1232	ND		0.30	0.30
PCB-1242	ND		0.30	0.30
PCB-1248	ND		0.30	0.30
PCB-1254	ND		0.30	0.30
PCB-1260	ND		0.16	0.30
PCB-1262	ND		0.30	0.30
PCB-1268	ND		0.30	0.30

Surrogate	%Rec	Acceptance Limits
DCB Decachlorobiphenyl	37	30 - 150
Tetrachloro-m-xylene	53	30 - 150

QUALITY CONTROL RESULTS

Client: Tighe & Bond

Job Number: 360-6809-1

QC Association Summary

Lab Sample ID	Client Sample ID	Report Basis	Client Matrix	Method	Prep Batch
GC Semi VOA					
Prep Batch: 360-12509					
LCS 360-12509/2-A	Lab Control Spike	T	Water	3510C	
LCSD 360-12509/3-A	Lab Control Spike Duplicate	T	Water	3510C	
MB 360-12509/1-A	Method Blank	T	Water	3510C	
360-6809-1	202 IR/S 16'	T	Water	3510C	
360-6809-2	202 IR/S 18'	T	Water	3510C	
360-6809-3	202 IR/S 25'	T	Water	3510C	
360-6809-4	202 IR/S 32'	T	Water	3510C	
Prep Batch: 360-12550					
LCS 360-12550/2-A	Lab Control Spike	T	Water	3510C	
LCSD 360-12550/3-A	Lab Control Spike Duplicate	T	Water	3510C	
MB 360-12550/1-A	Method Blank	T	Water	3510C	
360-6809-1	202 IR/S 16'	T	Water	3510C	
360-6809-4	202 IR/S 32'	T	Water	3510C	
Analysis Batch:360-12613					
LCS 360-12509/2-A	Lab Control Spike	T	Water	8082	360-12509
LCSD 360-12509/3-A	Lab Control Spike Duplicate	T	Water	8082	360-12509
MB 360-12509/1-A	Method Blank	T	Water	8082	360-12509
360-6809-1	202 IR/S 16'	T	Water	8082	360-12509
360-6809-2	202 IR/S 18'	T	Water	8082	360-12509
360-6809-3	202 IR/S 25'	T	Water	8082	360-12509
360-6809-4	202 IR/S 32'	T	Water	8082	360-12509
Analysis Batch:360-12684					
LCS 360-12550/2-A	Lab Control Spike	T	Water	8015B	360-12550
LCSD 360-12550/3-A	Lab Control Spike Duplicate	T	Water	8015B	360-12550
MB 360-12550/1-A	Method Blank	T	Water	8015B	360-12550
360-6809-1	202 IR/S 16'	T	Water	8015B	360-12550
360-6809-4	202 IR/S 32'	T	Water	8015B	360-12550

Report Basis
T = Total

Client: Tighe & Bond

Job Number: 360-6809-1

Method Blank - Batch: 360-12550

Method: 8015B
Preparation: 3510C

Lab Sample ID: MB 360-12550/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/07/2006 1615
Date Prepared: 11/06/2006 1143

Analysis Batch: 360-12684
Prep Batch: 360-12550
Units: mg/L

Instrument ID: HP 5890II GC w/ FID
Lab File ID: C4625.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1.0 mL
Injection Volume:

Analyte	Result	Qual	RL	RL
Creosote	ND		0.10	0.10
Hydraulic Fluid	ND		0.10	0.10
Jet fuel	ND		0.10	0.10
Mineral Spirits	ND		0.10	0.10
Motor Oil	ND		0.10	0.10
Unmatched Hydrocarbons	ND		0.10	0.10
MODF (C14-C28)	ND		0.10	0.10
#4 Fuel, C9-C36	ND		0.10	0.10
C9-C36 (#6 Fuel)	ND		0.10	0.10
Fuel Oil #2	ND		0.10	0.10

Surrogate	% Rec	Acceptance Limits
o-Terphenyl	94	40 - 140

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Tighe & Bond

Job Number: 360-6809-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 360-12550

Method: 8015B
Preparation: 3510C

LCS Lab Sample ID: LCS 360-12550/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/07/2006 1658
Date Prepared: 11/06/2006 1143

Analysis Batch: 360-12684
Prep Batch: 360-12550
Units: mg/L

Instrument ID: HP 5890II GC w/ FID
Lab File ID: C4626.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1.0 mL
Injection Volume:

LCSD Lab Sample ID: LCSD 360-12550/3-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/07/2006 1741
Date Prepared: 11/06/2006 1143

Analysis Batch: 360-12684
Prep Batch: 360-12550
Units: mg/L

Instrument ID: HP 5890II GC w/ FID
Lab File ID: C4627.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 1.0 mL
Injection Volume:

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
#4 Fuel, C9-C36	74	78	60 - 140	6	50		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
o-Terphenyl	95	92	40 - 140

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Tighe & Bond

Job Number: 360-6809-1

Method Blank - Batch: 360-12509

Method: 8082
Preparation: 3510C

Lab Sample ID: MB 360-12509/1-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/06/2006 1742
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509
Units: ug/L

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1049.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	Result	Qual	MDL	RL
PCB-1016	ND		0.30	0.30
PCB-1221	ND		0.30	0.30
PCB-1232	ND		0.30	0.30
PCB-1242	ND		0.30	0.30
PCB-1248	ND		0.30	0.30
PCB-1254	ND		0.30	0.30
PCB-1260	ND		0.16	0.30
PCB-1262	ND		0.30	0.30
PCB-1268	ND		0.30	0.30

Surrogate	% Rec	Acceptance Limits
DCB Decachlorobiphenyl	51	30 - 150
Tetrachloro-m-xylene	64	30 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

Client: Tighe & Bond

Job Number: 360-6809-1

Lab Control Spike/
Lab Control Spike Duplicate Recovery Report - Batch: 360-12509

Method: 8082
Preparation: 3510C

LCS Lab Sample ID: LCS 360-12509/2-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/07/2006 0913
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509
Units: ug/L

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1067.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

LCSD Lab Sample ID: LCSD 360-12509/3-A
Client Matrix: Water
Dilution: 1.0
Date Analyzed: 11/07/2006 0934
Date Prepared: 11/03/2006 1734

Analysis Batch: 360-12613
Prep Batch: 360-12509
Units: ug/L

Instrument ID: 5890II GC w/ dual ECDs
Lab File ID: P1068.D
Initial Weight/Volume: 1000 mL
Final Weight/Volume: 5.0 mL
Injection Volume:
Column ID: PRIMARY

Analyte	% Rec. LCS	% Rec. LCSD	Limit	RPD	RPD Limit	LCS Qual	LCSD Qual
PCB-1016	64	61	40 - 140	5	20		
PCB-1260	65	62	40 - 140	4	20		

Surrogate	LCS % Rec	LCSD % Rec	Acceptance Limits
DCB Decachlorobiphenyl	52	43	30 - 150
Tetrachloro-m-xylene	73	67	30 - 150

Calculations are performed before rounding to avoid round-off errors in calculated results.

LOGIN SAMPLE RECEIPT CHECK LIST

Client: Tighe & Bond

Job Number: 360-6809-1

Login Number: 6809

Question	T/F/NA	Comment
Radioactivity either was not measured or, if measured, is at or below background	NA	
The cooler's custody seal, if present, is intact.	NA	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	3.8 C
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	NA	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	

Severn Trent Laboratories, Inc.
Chain of Custody Form

SEVERN TRENT STL

37676

•53 Southampton Road
Westfield, MA 01085
(P) 413-572-4000
(F) 413-572-3707
STL Westfield

•14[illegible]angeway Road
N. Billerica, MA 01862
(P) 978-667-1400
(F) 978-667-7871
STL Billerica / Service Center

Client: Tighe + Bond
Address: Middletown, CT
Phone: 860-[illegible]976 fax:

Project #: 126262
Project Manager: Steve Olsen
Work ID:
Contact: Brian Cole

Job# 360-6909 Quote# PO#

Requested Turnaround Time (PLEASE SPECIFY)
STANDARD √ RUSH _____ (Lab Approval Required)

Regulatory Classification
NPDES _____ Drinking Water _____
RCRA _____ MCP GW1/S1 _____
Other _____

Special Report Format
QA/QC Report _____
DQE (MCP) Rpt _____
DEP Form(s) _____

Shaded areas for office use

Analysis Requested
Check analysis and specify method and analytes in comments section.
For example:
500-series for drinking water
600-series for waste water, NPDES
6000-series for groundwater, soil, waste
8000-series for groundwater, soil, waste
Use comments section to further define.

Comments (Special Instructions)
Please print legibility. If the analytical requests are not clearly defined on the chain-of-custody, the turnaround time will begin after all questions have been satisfactorily answered.

Sample Type Codes
WW-Wastewater DW-Drinking water SW-Surface water
LW-Lab water GW-Groundwater A-Air
S-Solid / Soil SL-Sludge O-Oil Z-Other

Page 20 of 20	Sample ID	Sample Type	Sampler's Initials	Date Time Collected	Grab	Comp.	# Containers	Plastic(P) or Glass(G)	Preservative: NaHSO4/MeOH	HNO3 to pH <2	H2SO4 to pH <2	HCl to pH <2	NaOH to pH >12	Na2S2O3	None / 4° C	Volatiles 524 /624 /8260	Volatiles 601 /602 /8021	Semivoa 525 /625 /8270	PCB / Pest / Herbicide	EPH / VPH	DRO / GRO / ETPH	Metals 6010 / 200.7	Mercury 245.1 / 7470-71	General Chemistry	Bacteriological	Toxicity	Oil & Grease / TOC	Radchem / Other
	202 IR/S 16'		—	10-30-06 16:00			2	G							2				✓		✓						
	202 IR/S 18'		—	10-30-06 16:30			1	G							1				✓								
	202 IR/S 25'		—	10-30-06 16:20			2	G							2				✓								
	202 IR/S 32'		BCC	10-30-06 1530			1	G							2				✓		✓						
	~~202 IR/S 40'~~			~~10-30-06 1540~~			~~1~~	~~G~~							~~2~~						~~✓~~						
				11/01/06																							

Samples were received 10/31/06 via courier w/ no col. All info was taken from labels.
Label for 202 IR/S 33' has "Tech City" for proj name
No analysis specified.
* DRO Fingerprint
R'cvd 10/31/06 1935 from courier - Jerry Poch

Sampled by (print): Brian Cole
Signature: Brian Cole

Relinquished by: Brian Cole	Date: 11/2	Time: 15:30	Received by:	Date: 11/2/06	Time: 1530
Relinquished by:	Date:	Time:	Received by:	Date:	Time:
Relinquished by:	Date:	Time:	Received by:	Date:	Time:

Cooler? (Y) / N MADEP Requirement: Samples Iced? (Y) / N
Temp @ receipt: 3.8 °C
Preservation / pH checked? Y / N
By: Date:

STL WESTFIELD

Page 1 of 1

White = Lab file Yellow = Report copy Pink = Customer copy

STL-8245 (1000)