Remedy Review Report
Airco Properties, Inc.
Airco Parcel, Site No. 932001
Niagara Falls, New York

Prepared for

The BOC Group, Inc.
575 Mountain Avenue
Murray Hill, New Jersey 07974

Prepared by

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September 2006
Revision: 1
Project No.: 150C265.1005

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12 September 2006

Charles E. McLeod, Jr., P.E. — Date
President

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EXECUTIVE SUMMARY

The remedy for the Airco Parcel in Niagara Falls, New York included the construction of a modified Title 6 New York Codes of Rules and Regulations (NYCRR) Part 360 landfill cap which covers 24 of the 25 acres parcel, and a collection and treatment system for groundwater which was recharging to surface in the southwest corner of the site. The remedy was constructed in two phases. Phase I included construction of the cap to eliminate the exposure pathways to the waste, and to eliminate infiltrating water into the waste which contributed to leachate production. Phase I was completed on October 2000. Phase II, which included installation of a collection and treatment system was implemented in June 2003. Operation, maintenance, and system modifications have occurred since that time.

Has the remedy been operating as designed?

The assessment of the remedy found that the remedy was constructed in accordance with the requirements of the Interim Remedial Measure (IRM). The remedy is functioning as designed and the threats at the site have been eliminated through capping of the waste and prevention of releases of untreated groundwater.

Have there been reductions/improvements in Constituents of Concern since remedy implementation?

Since the site is an unlined landfill, concentrations of Constituents of Concern **(**COCs) in shallow groundwater in contact with waste may remain above certain parts of the water quality standards. However, the Remedial Action Objectives (RAOs) for the site do not include restoring the groundwater to drinking water standards. The remedy was designed to prevent exposure pathways, and to prevent the release of untreated groundwater. In that regard, the remedy has significantly reduced the exposure pathways through capping and impacted groundwater control. Reductions and improvements in concentrations of the predominant COC in groundwater and surface water, Cr^{+6}, were noted during the last five years. The Cr^{+6} concentrations were all but eliminated in the surface water samples collected, and a reducing trend was noted in MW-7B. In the remaining MW's, a slight increasing trend was noted in MW-2B, with the other 6 MW's having consistent concentrations throughout the last five years.

What, if any, issues have been raised, and what modification are recommended?

The Groundwater Collection and Treatment System (GCTS) has no redundancy in critical pumping systems, and is unable to process impacted groundwater while process tanks are cleaned or during power failures, which can result in the release of untreated groundwater.

This remedy review found that the current GCTS requires some modifications to increase the system efficiency, and provide redundancy and fail safe systems to prevent such discharges in the future during system power failures or maintenance. Some of the modifications recommended herein have been implemented prior to issuance of this report as they were deemed immediately necessary to improve the system performance and reliability.

1. INTRODUCTION

Greenstar Engineering, P.C. (Greenstar) has been retained by The BOC Group, Inc. to provide environmental consulting services at the Airco Parcel located in Niagara Falls, New York. The scope of services contracted to Greenstar includes the preparation of this Remedy Review Report. The purpose of this review is to determine whether the remedy at the Airco Parcel (Figure 1), is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in this report. The report also identifies recommendations to address them.

The remedy review for the Airco Parcel is being completed at the request of the New York State Department of Environmental Conservation (NYSDEC), and under 6 NYCRR Part 375-1.10 which indicates that the remedial program not be inconsistent with the National Contingency Plan. This remedy review would constitute a similar review pursuant to the Comprehensive Environmental Response Compensation and Liability Act §121 and the National Contingency Plan.

2. BACKGROUND

2.1   Space Physical Characteristics

The Airco Parcel is a part of the Vanadium Corporation of America Site (Figure 2), which has been placed on the New York State Department of Environmental Conservation (NYSDEC) New York State Registry of Inactive Hazardous Waste Sites. The Vanadium Site includes three Operable Units, which are aligned in a roughly west to east fashion, and are shown on Figure 2.

1. OU-1, a 37-acre parcel owned by SKW Alloys, Inc. (SKW Parcel).

2. OU-2, a 25-acre parcel owned by Airco Properties, Inc. (Airco Parcel).

3. OU-3, a 53-acre parcel owned by Niagara Mohawk Power Corporation/New York Power Authority (NMPC/NYPA Parcel).

The Vanadium Site is currently listed as a Class 2 site in the New York State Registry of Inactive Hazardous Waste Sites (Site No. 932001). This classification indicates a significant threat to public health or the environment, and requires remedial action.

This report addresses the Airco Parcel, although information from the other parcels is used when necessary to develop a complete understanding of the issues at the Airco Parcel.

2.2   Land and Resource Use

The current land use for the surrounding area is light industrial and commercial, with residential areas approximately 0.75 miles to the south. The Airco Parcel itself is currently fenced with a locked gate. A 24-acre modified 6 NYCRR Part 360 cap has been constructed over the former disposal area.

There are no current users of groundwater at the Vanadium Site. Regionally, groundwater yields from overburden deposits are too low for domestic or industrial purposes. The bedrock has the capability to produce high yields; however, the bedrock groundwater is typically highly mineralized and is not used as a drinking water source in the area.

2.3   Basis of Actions

In 1985, the NYSDEC first listed the Vanadium Site as a Class 2a site in the Registry of Inactive Hazardous Waste Disposal Sites in New York (the Registry). Class 2a is a temporary classification assigned to a site that has inadequate and/or insufficient data for inclusion in any of the other classifications. In 1995, the NYSDEC listed the Vanadium Site as a Class 2 site in the Registry of Inactive Hazardous Waste Disposal Sites in New York. A Class 2 site is a site where the NYSDEC has determined hazardous waste presents a significant threat to the public health or the environment and action is required.

2.4   Basis for Taking Action at The Airco Parcel

The Airco Parcel was historically used to dispose of a wide variety of waste materials stemming from the metallurgic industry. Prior to commencement of remedial activities at the Airco Parcel, approximately 80 percent of the site was largely exposed waste, and significant flows of groundwater discharging to surface water in the eastern and southwest portions of the site were evident. The groundwater contained elevated levels of calcium, chromium and hexavalent chromium, and exhibited an elevated pH.

Remedial measures include operation and maintenance of the cap to prevent exposure to waste materials, and operation and maintenance of the GCTS to prevent the release of untreated groundwater. Exposure pathways are controlled since public water is available adjacent to and in the vicinity of the site. Potential exposure pathways at the Airco Parcel are being addressed through the capping of the landfill, the installation of the fence, and operation and maintenance of the GCTS.

As noted in the Proposed Remedial Action Plan (PRAP) and Record of Decision (ROD) developed for the Vanadium Site (NYSDEC 2006), the IRM for the Airco Parcel has accomplished the remedial action objectives provided that they continue to be operated and maintained in a manner consistent with the design and approved Operation, Maintenance and Monitoring Plans.

3. REMEDIAL ACTIONS

3.1 Remedy Selected

The original IRM selected for the Airco Parcel included installation of a landfill cap to limit infiltration of water into the waste material thereby reducing the amount of impacted groundwater or surface water. Since the Airco Parcel had been permitted as a 6 NYCRR Part 360 landfill, the remedy was required to conform to the provisions of 6 NYCRR Part 360, Solid Waste Management Facilities (NYSDEC 1998), including applicable subparts.

The cap design, which was prepared to meet the requirements set forth in 6 NYCRR Part 360, needed to address the following capping components:

- A gas venting layer (12-in. minimum)
- A low permeability layer (18-in. 1×10^{-7} cm/sec clay layer or a 40-mil geomembrane)
- A barrier protection layer (24-in. minimum)
- A topsoil layer (6-in. minimum).

The Closure Plan (EA 2000) included variance to the requirements and was approved by NYSDEC in May 2000. The variances modified the cap profile to include the following:

- Bedding layer (6-in.)
- Low permeability layer (40-mil VFPE geomembrane)
- Drainage layer (geocomposite drainage net)
- Barrier protection layer (12 in.)
- Topsoil (6 in.).

The original IRM was augmented in 2003 with the incorporation of the GCTS. The system was designed to prevent the uncontrolled discharge of impacted groundwater from the Airco Parcel. The design incorporated carbon dioxide (CO_2) aeration for pH adjustment, settling for precipitate removal, oxidation-reduction via zero valence iron, and final clarification via an engineered wetland. The GCTS design was based on a 15 gpm average flow rate and maximum flow rate of 25 gpm.

3.2 Remedy Implementation

3.2.1 Landfill Cap

The remedial design was completed May 23, 2000 when written approval from NYSDEC personnel was received. During construction approximately 80,000 yd^3 of waste was relocated and graded to achieve the design grades.

The cap construction entailed the placement of a 6-in. bedding layer, geosynthetic liner, geonet-geotextile composite drainage layer, final cover soil, top soil, and vegetative cover. Storm water management systems for the cap consisted of the construction of perimeter rip-rap drainage channels. A fence was also constructed around the perimeter of the landfill property to restrict access to the landfill.

Following the completion of the landfill cap, construction-disturbed areas outside the landfill property and within the temporary construction easements obtained to implement the remedy were seeded. The site achieved construction completion status when the IRM Report (EA 2001) was submitted to NYSDEC on January 31, 2001.

3.2.2 Groundwater Collection and Treatment System

During construction of the capping system a relief pipe system was installed to allow perched water to exit from under the cap without causing slope instability. Flow monitoring and quarterly sampling were initiated as part of post-closure operations and facility maintenance. Site data indicated that the leachate was actually shallow groundwater recharging to surface water, and the recharge of groundwater at the site would continue to flow seasonally. The data further indicated that elevated hexavalent chromium (Cr^{6+}) concentrations and pH in groundwater, upon mixing with surface water, remained in excess of the NYSDEC Ambient Water Quality Standards (AWQS) for a Class D surface water.

The GCTS was designed and implemented in 2003 as an additional remedial action, which was deemed necessary to meet the RAOs. The main portion of the GCTS is located on the northwest corner of the site and contains the main control panel, carbon dioxide storage tank, carbon dioxide aeration tank, two sediment ponds, zero valence iron reaction tanks, engineered wetland, and an effluent pump station. At the southwest corner of the site there is a pump station which conveys water collected in the collection trench to the treatment system.

3.3 System Operations/Operations and Maintenance

Airco Properties, Inc. has the responsibility for conducting operation and maintenance activities at the Airco Parcel. These activities are being conducted in accordance with the Post-Closure Monitoring and Facility Maintenance Plan (EA 2004).

The following are required as part of post-closure monitoring and facility maintenance.

- All drainage structures and ditches must be maintained to prevent ponding of water and erosion of the final landfill soil cap.

- Routine inspections of sediment ponds and the engineered wetland to assess the presence of mosquito larva.

- Soil cover integrity, slopes, cover vegetation, drainage structures, and the perimeter road must be maintained during the post-closure monitoring and maintenance period.

- Environmental monitoring points must be maintained and sampled during the post-closure period. Bi-annual summary reports must be submitted to the New York State Department of Environmental Conservation Division of Solid and Hazardous Materials, Region 9, the State of New York Department of Health in Albany, New York; and to the document repository located at the Town of Niagara Town Clerk's Office.

- A vegetative cover must be maintained on all exposed final cover material, and adequate measures must be taken to ensure the integrity of the final vegetated cover, topsoil layer, and underlying barrier protection layer.

- The GCTS must be operated and maintained to effectively mitigate the release of groundwater recharging to surface water in the southwest corner of the Airco Parcel.

- Records must be maintained of all sampling and analysis results.

The primary remedial activity at the Airco Parcel involved the construction of a 6 NYCRR Part 360 cap. The landfill cap was designed to eliminate the flow of water through the landfill by providing an impermeable layer which prevents precipitation from infiltrating into the landfill thereby producing leachate. The cap, therefore, effectively removes a major source of the on-going groundwater contamination by reducing leachate generation. Current activities have been focused on operation and maintenance of the treatment system, monitoring groundwater at the site perimeter monitoring wells, and inspections and maintenance of the cap and fence around the site.

4. REVIEW OF SITE ACTIVITIES

This report reviews the first five years since the IRM at the Airco Parcel was completed. The following is a brief synopsis of the activities completed since the Order on Consent (NYSDEC 2000) was implemented relative to the Airco Parcel.

- August 1999 a site meeting between the NYDEC and representatives of the BOC Group, Inc., and their consultant and attorneys occurred. During the meeting an agreement was reached for a path forward. This included the investigation, design and construction of the remedy.

- Under NYSDEC supervision a pre-design investigation was performed from October to December 1999.

- NYSDEC personnel, working with The BOC Group, Inc. consultant, completed the design and public review and comment period in May 2000. NYSDEC issued a letter of approval for the Final Closure Plan (EA 2000) after the comment period ended.

- The landfill cap was constructed between May 23, 2000 and October 23 2000.

- Hydrostatic pressure under the cap was identified as not appearing to be subsiding. A flow monitoring pilot study was performed from April to May 2002.

- Under NYSDEC guidance, a Focused Ground-Water Feasibility Study (EA 2003) was prepared. The study recommended groundwater collection and treatment to eliminate the exposure pathway to groundwater, impacted with high pH and Cr^{6+}, discharging to surface water in the southwest corner of the site.

- The original cap remedy was altered in 2003 to include the GCTS which was installed in June 2003.

- During the period June 2003 through December 2005, the GCTS has been successful at controlling the release of high pH groundwater with elevated concentrations of Cr^{6+} through routine operations and maintenance activities.

- Leading up to the remedy review, NYSDEC personnel provided comments on the previous three years of operations. Comments from NYSDEC personnel have been incorporated into plans to upgrade the GCTS to address long-term operational and maintenance issues. Some of the system upgrades were performed during the preparation of this report to improve system operations.

5. DOCUMENT REVIEW

Document review consisted of relevant documents including the Final Closure Plan (EA 2000), Post-Closure Monitoring and Facility Maintenance Plan (EA 2004), Operations and Maintenance records, and monitoring data (EA 2001 – 2005, Greenstar 2005 – 2006).

5.1 Data Review

5.1.1 Groundwater Contours

Groundwater flow patterns have been similar during the last five years. In general, groundwater elevations are highest near MW-1B and flow radially away towards the property boundary. No significant seasonal trends have been noted. The groundwater elevations inside the capped landfill are not monitored directly, although elevations are believed to have been reduced due to placement of the impermeable cap. Based on groundwater data collected at the site monitoring wells a groundwater divide appears to be located within the landfill extending between MW-1B and MW-5B. This is consistent with surface topography and appears to be a stable long-term hydrogeologic feature.

5.1.2 Groundwater Monitoring

The approved Post-Closure Monitoring and Facility Maintenance Plan (EA 2004) specify that the sampling results are compared to NYSDEC Ambient Water Quality Standards (AWQS) (NYSDEC 1999) and guidance values for Class GA waters. Class GA groundwater is used as a source of drinking water and is considered to be highly conservative for this area which has no groundwater users nearby. Surface water samples were compared to NYSDEC AWQS for Class D surface waters. Class D waters are used for fishing but are not conducive to fish propagation. If no Class D standards were applicable for a particular compound, analytical results were compared to the more stringent Class C standards. Class C waters are suitable for fishing and fish propagation.

Groundwater monitoring has been conducted in accordance with the post-closure monitoring and facility maintenance plan since December 2000. Data prior to that had been collected from the existing monitoring wells quarterly for approximately 20 years. The data evaluation for this remedy review is limited to evaluating the last five years of data from the eight monitoring wells, surface water samples (Figure 3), and GCTS discharge as the data generated from these monitoring locations most accurately reflect current groundwater and surface water conditions since the remedy was completed. The following is a synopsis of notable trends identified for analytes of interest for the monitoring locations.

- MW-1B—This monitoring well is located along the northern property boundary, and is considered an upgradient monitoring well which monitors groundwater quality entering the site. This upgradient well exhibits consistent levels of iron, manganese, magnesium, and sodium above comparison AWQS. Concentrations of these analytes is likely due to natural conditions which occur outside the Airco Parcel. As noted in the groundwater contour maps provided in Appendix A, groundwater flow tends to flow from the northwest to the southeast, with a groundwater divide located near the middle of the site. Analytical results for groundwater, surface water, groundwater collection and treatment system effluent sampling for the last five years is summarized in Appendix B and monitoring well trend charts in Appendix C. The data suggests that there are no significant concentrations of hexavalent chromium in groundwater upgradient of the site. During two sampling events (March 2001 and December 2002), total chromium concentrations were above comparison AWQS at this upgradient monitoring well. Concentrations of iron, lead, magnesium, manganese, sodium, thallium and zinc have been consistent with time, neither showing increasing or decreasing trends. The water quality at this location is considered background quality for purposes of evaluating data from other monitoring wells.

- MW-2B—This monitoring well has consistently had the highest concentrations of Cr^{6+} during the review period. The total chromium and Cr^{6+} concentrations at this monitoring well show a slightly increasing trend over the last five years. Other analytes sampled at this location show consistent concentrations.

- MW-3B—Groundwater data from this monitoring well shows a similar trend as noted in MW-1B. The data over the last five years has shown little change, suggesting that groundwater entering the site in the vicinity of MW-1B, flows along the groundwater divide without being impacted by the waste in the landfill mass.

- MW-4B—This monitoring well has had levels consistently above comparison AWQS for total and hexavalent chromium. Similar to MW-2B the total and hexavalent chromium concentrations have shown a slightly increasing trend during the last five years. In addition, sodium, lead, and selenium concentrations, although not consistently detected, have been on an increasing trend.

- MW-5B—Groundwater data at MW-5B is consistent to concentrations noted at MW-1B, with the exception of chromium. No levels of chromium were above comparable AWQS during the last five years. The data over the last five years has shown little change, suggesting that groundwater entering the site in the vicinity of MW-1B, flows along the groundwater divide without contacting waste materials.

- MW-6B—Similar to MW-3B and MW-5B, the data is consistent to that of MW-1B, with the exception of chromium. No exceedences of GA standards for chromium were observed during the five-year period. The data over the last five years has shown little change, suggesting that groundwater entering the site in the vicinity of MW-1B, flows along the groundwater divide without being impacted by the waste in the landfill mass.

- MW-7B—The trend charts indicate a decreasing trend in the concentrations of total and hexavalent chromium, manganese and iron. The sodium concentration has been fairly consistent and generally does not indicate an increasing or decreasing trend. The data indicates that the elimination of infiltration due to the placement of the cap has resulted in decreased concentrations in groundwater of inorganic analytes. The data suggests that groundwater flowing toward MW-7B is not in direct contact with the landfill mass. The concentration of Cr^{6+} has decreased from 0.256 mg/l to below the GA standard of 0.05 mg/l in 7 of the last 8 sampling events which suggest that the Cr^{6+} was derived from leachate generated from infiltration.

- MW-8B—In general, the data shows fairly consistent concentrations of total and hexavalent chromium in groundwater. Cadmium, magnesium, manganese, selenium and thallium have shown decreasing trends over the last five year period, with cadmium and thallium not detected in the last four sampling event of the review period. The one exception being sodium, which has increased since commencement of post-closure monitoring activities. The data also suggests that the elimination of infiltration due to the placement of the cap has resulted in the decrease of some concentrations of inorganic analytes in groundwater due to reduced influx of precipitation.

5.1.3 Surface Water Monitoring

Monitoring of the surface water in the southwest corner has been ongoing since post-closure activities initiated in December 2000. The following provides a synopsis of the trends for the surface water:

- Surface Water—Surface water is sampled in the southwest corner, if present during sampling, to evaluate the effectiveness of the remedy, and to monitor for uncontrolled discharges of impacted water. Since 2000 when post-closure monitoring commenced, three analytes have been detected above their respective comparison AWQS, including Iron, Selenium, and Hexavalent Chromium. In 2003 when the collection system was activated the selenium concentrations were reduced to below the comparison AWQS of 0.0047 mg/l. Iron, which had been a noted concern of NYSDEC personnel, has dropped from a high of 21.8 mg/l to a concentration less than 1 mg/l. The Cr^{6+} concentration has ranged between 0.4 mg/l and non-detect, with the Cr^{6+} concentrations contingent upon operational status of the GCTS at the time of sampling. During periods when the GCTS system is fully operational, concentrations of Cr^{6+} in the surface water are below the comparison AWQS. Recommendations for ensuring the system is consistently operational are provided in Section 7.

5.1.4 Groundwater Collection and Treatment System

Monitoring of the GCTS has been ongoing since the system was installed. Performance sampling was initiated in November 2003. Analytical results are summarized in Appendix B with groundwater collection and treatment system effluent trend charts presented in Appendix D. The following provides a synopsis of the trends for the GCTS effluent.

- GCTS—Appendix D provides a summary of the trends of parameters monitored as part of the State Pollutant Discharge Elimination System discharge guidelines for the GCTS. During the last five years, Iron and Total Suspended Solids have been consistently above the discharge guidelines for the GCTS. Since 2003 when the GCTS was activated, hexavalent chromium exceeded the 0.011 mg/l guidance value during one sampling event. In order to lower the iron, total suspended solids (TSS), and total dissolved solids (TDS) to acceptable concentrations, modifications to the system are recommended within this report to address this identified issue. With the exception of the iron issue, and the resultant elevated TSS and TDS caused by the elevated iron, the treatment system has been very successful at reducing the hexavalent chromium and total chromium concentrations.

5.2 Site Inspection

Inspections at the Airco Parcel have been conducted quarterly since the landfill was capped in October 2000. The cap vegetation is in excellent condition with no signs of significant bare spots or areas of erosion. Excessive growth of vegetation, some rooted, was noted in the rip-rap lined drainage swales along the perimeter of the landfill. During the inspection it was noted that the security fence was intact and undamaged.

6. TECHNICAL ASSESSMENT SUMMARY

According to the data reviewed and the site inspection, the original remedy, the cap, is functioning as intended by the IRM for the Airco Parcel. The capping of the landfill achieved the RAOs to minimize the migration of contaminants to groundwater and to eliminate environmental and human exposure. There have been no changes in the physical conditions of the site that would affect the protectiveness of the remedy. Operation and maintenance of the cap and drainage structures has generally been effective. The cap and surrounding area were undisturbed, and the fence around the site is intact and in good repair.

The GCTS is functioning as designed. Issues have been raised about the long-term protectiveness of the system. Modifications to the GCTS are recommended and are detailed in Section 7 of this document to ensure the remedy continues to function as intended.

7. ISSUES, RECOMMENDATIONS, AND FOLLOW UP ACTIONS

7.1 Issues Identified during the Remedy Review

This remedy review identified issues primarily associated with the long-term protectiveness of the GCTS to prevent discharges of untreated groundwater recharging to surface water from migrating off of the site. Specifically, the review found the following:

1) Discharge of untreated groundwater may occur during power failures and could occur during scheduled downtime for maintenance if engineering controls are not implemented.

2) No redundancy of pumps in the southwest pump station can result in the uncontrolled discharge of untreated groundwater if the pump fails to operate.

3) The treatment system has inadequate capacity for complete settling of carbonate precipitates.

4) Elevated concentrations of iron in the wetland effluent discharge.

5) Stained soils and sediments in the southwest corner need to be removed and new clean stone installed.

6) Rooted vegetation is present at the cap perimeter.

7.2 Recommendations and Follow-up Actions

The identified GCTS issues are scheduled be resolved in two Phases during 2006. The following improvements have been completed as part of the Phase I modifications and addresses Item No. 2 listed above.

- Installation of a second pump and controls to provide redundancy of the pumping system in the SW wetwell to increase system reliability.

- Removal of the sump in the SW corner which was used as a sediment trap to eliminate this migratory pathway.

- Excavation and relocation of the Sediment Pond A influent line to discharge directly into the deep end of Pond A, to maximize retention time and reduce short circuiting of water during treatment.

- Installation of new 480V submersible pumps in the shallow ends of Pond A & B, and in T4 (The iron discharge collection sump) with new pressure transducers and programming to allow real time monitoring and alarm condition status.

- Installation of an 8x10 heated, insulated office shed to house the SCADA system.

- Relocation of the VFD from the control panel to the new 8x10 office shed to eliminate interference with the level controls.

- Installation of the solar panel high speed internet connection and PC running Iconics SCADA software to facilitate system management from remote locations.

- Phase II improvements are scheduled to be performed in late 2006, pending completion of the design and approval from the Town of Niagara and the NYSDEC. Proposed improvements which are depicted in Appendix E, are expected to include the following:

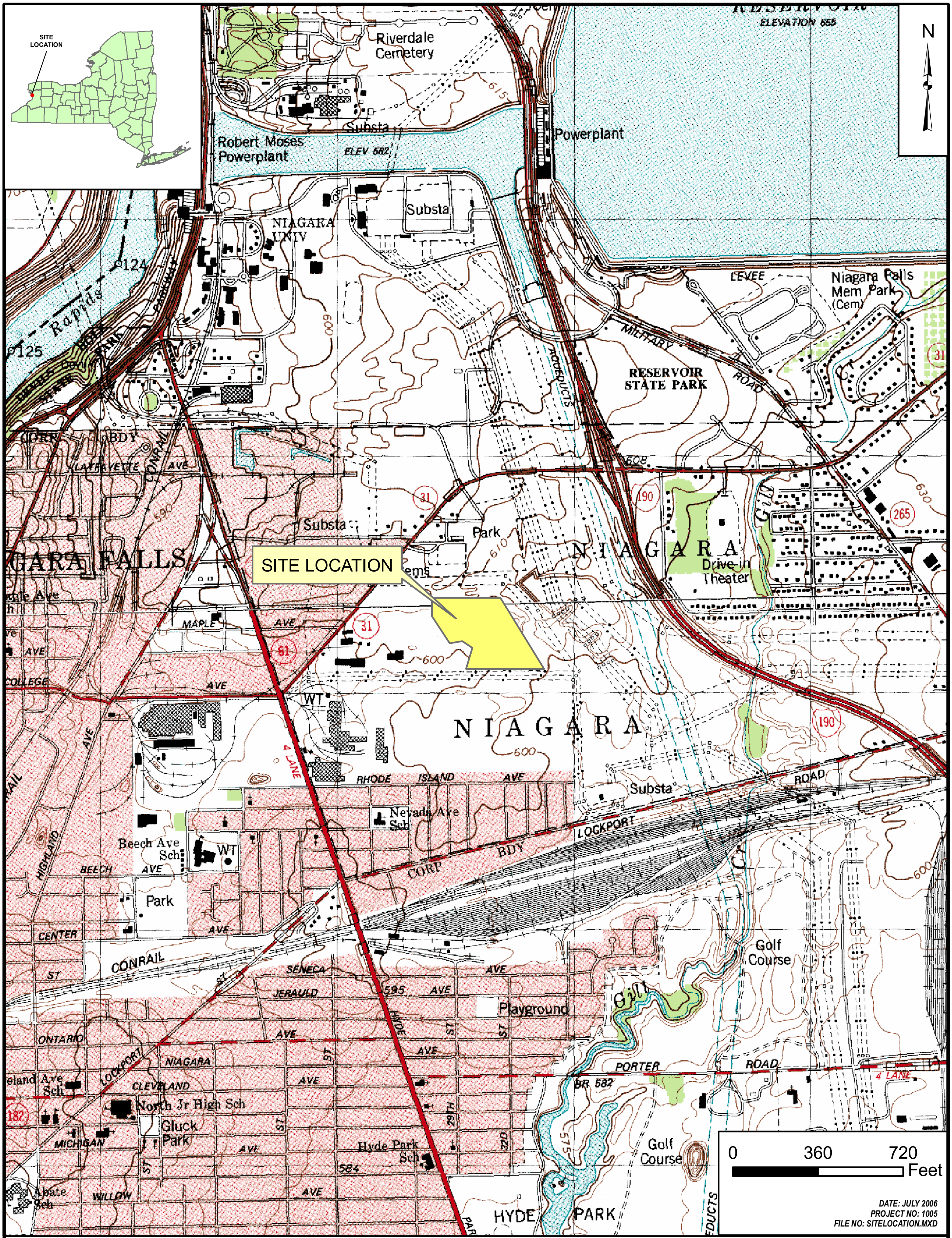
  Installation a series of concrete tanks which will house the relocated CO_2 aeration (removed from Sediment Pond A) and will provide adequate retention time to allow for complete settling of carbonate precipitates, and will be designed with multiple treatment trains to allow for maintenance and cleaning of the tanks, while maintaining the system operational.

  Modify the existing wetland discharge to eliminate the existing pump station and incorporate the 1,100 foot long drainage swale. The new discharge would sheet flow into the existing drainage swale which will now be incorporated into the GCTS to increase effluent quality by increasing settling time to decrease iron, TDS and TSS.

  Installation of a standby generator capable of supplying sufficient power to operate the entire collection and treatment system. The installation will include a propane tank of sufficient size to allow continuous operation under full load for a 1 week period in the event of an extended power outage where refueling the propane supply may be impeded by poor weather conditions.

  Removal of sediments and stained soils and rocks from the southwest corner of the site and placement of new stone in the drainage structures.

The drawing contained in Appendix E provides a conceptual layout of the new tank locations, standby generator and additional gravel to convey the sheet flow under the existing access road. A more detailed plan will be prepared, and bench scale testing for retention times and potential polymer additives will be performed in support of the final sizing of the new concrete reaction and settling tanks. These improvements will address the issues identified as part of the remedy review. The rooted vegetation will be removed during the cap mowing after October 1, 2006 as per the post-closure requirements.



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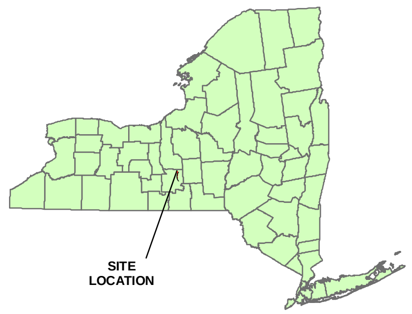
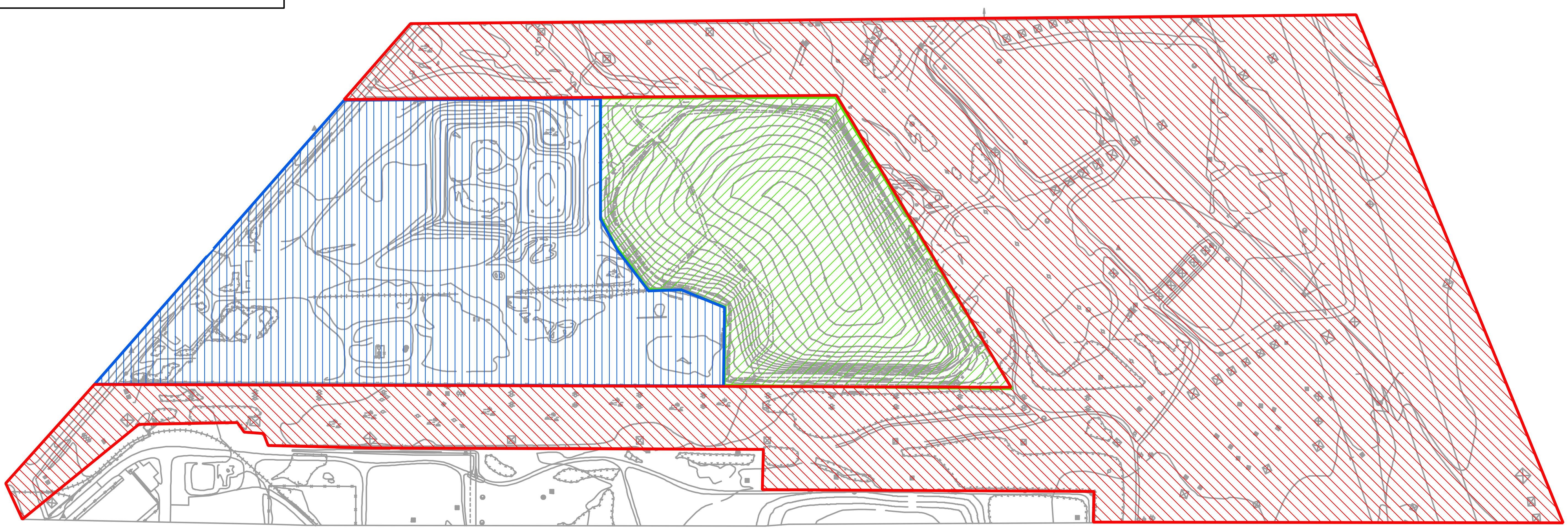
AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 1
SITE LOCATION





Legend

Operable Unit Areas

- Airco Parcel
- NMPC/NYPA Parcel
- SKW Parcel

0 80 160 Feet

DATE: JULY 2006
PROJECT NO: 1005
FILE NO: OUAREAS.MXD

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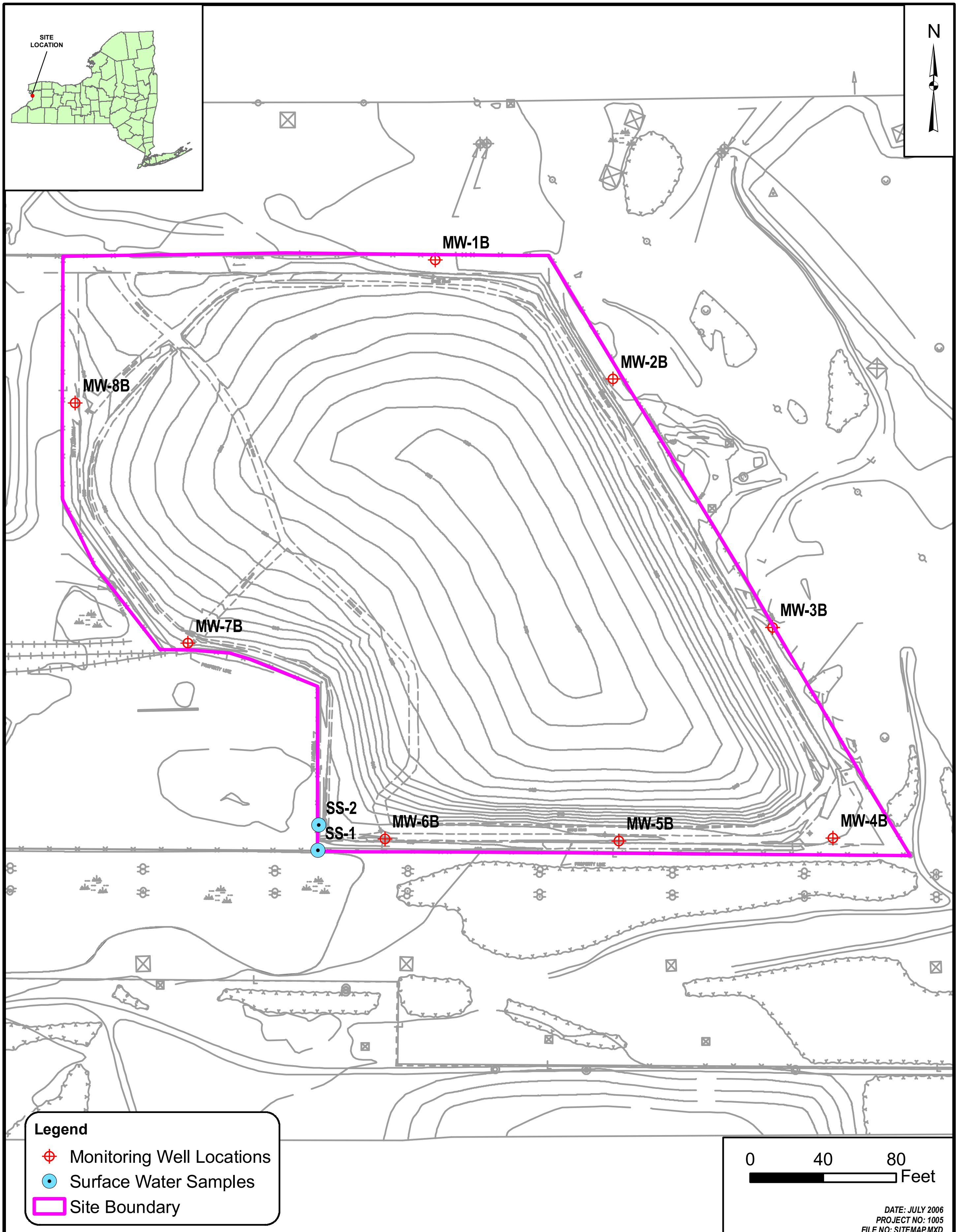
VANADIUM CORPORATION OF AMERICA SITE
AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 2
OPERABLE UNIT AREAS



DATE: JULY 2006
PROJECT NO: 1005
FILE NO: SITEMAP.MXD

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AIRCO PARCEL
NIAGARA FALLS, NEW YORK

FIGURE 3
SITE MAP

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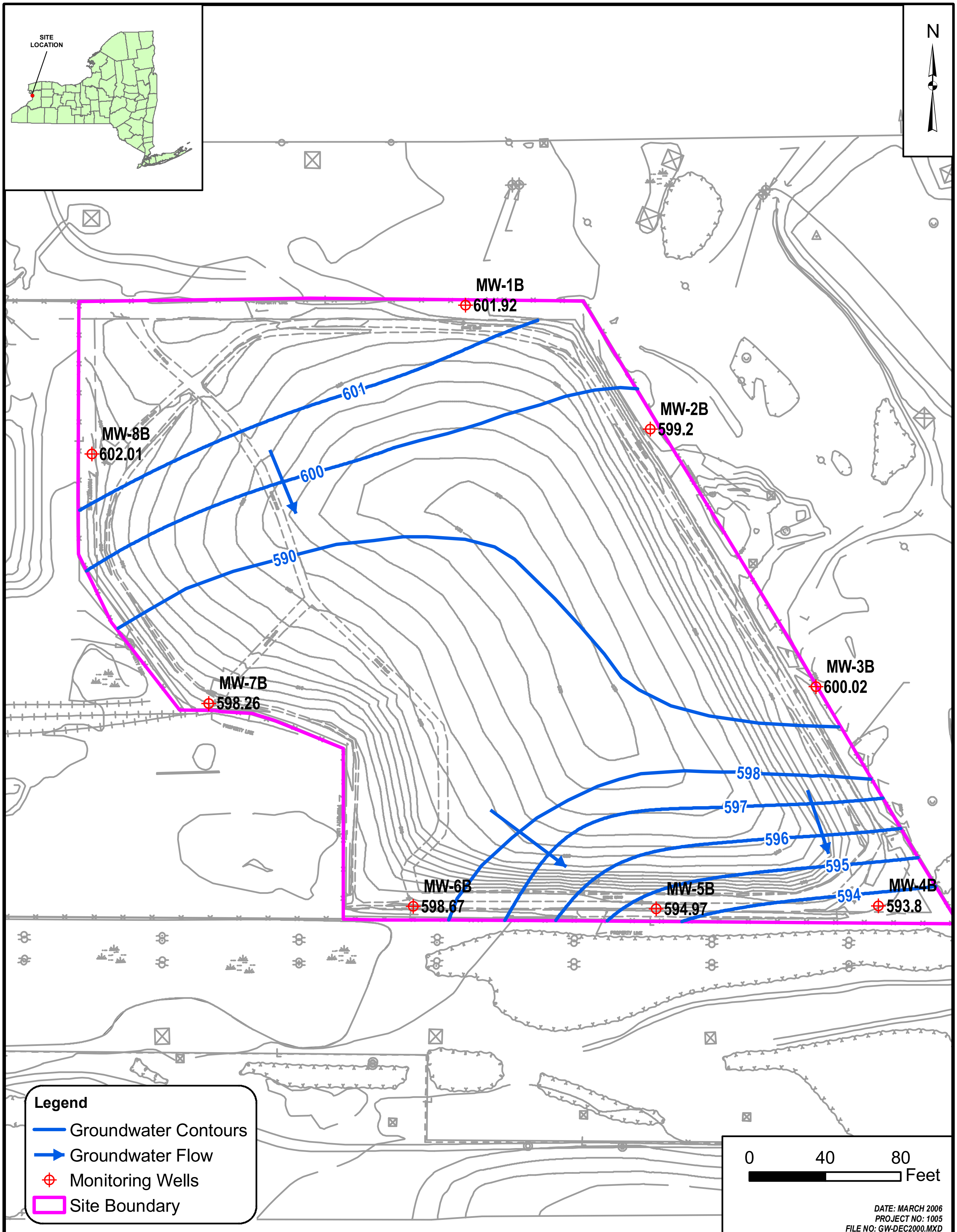
Appendix A

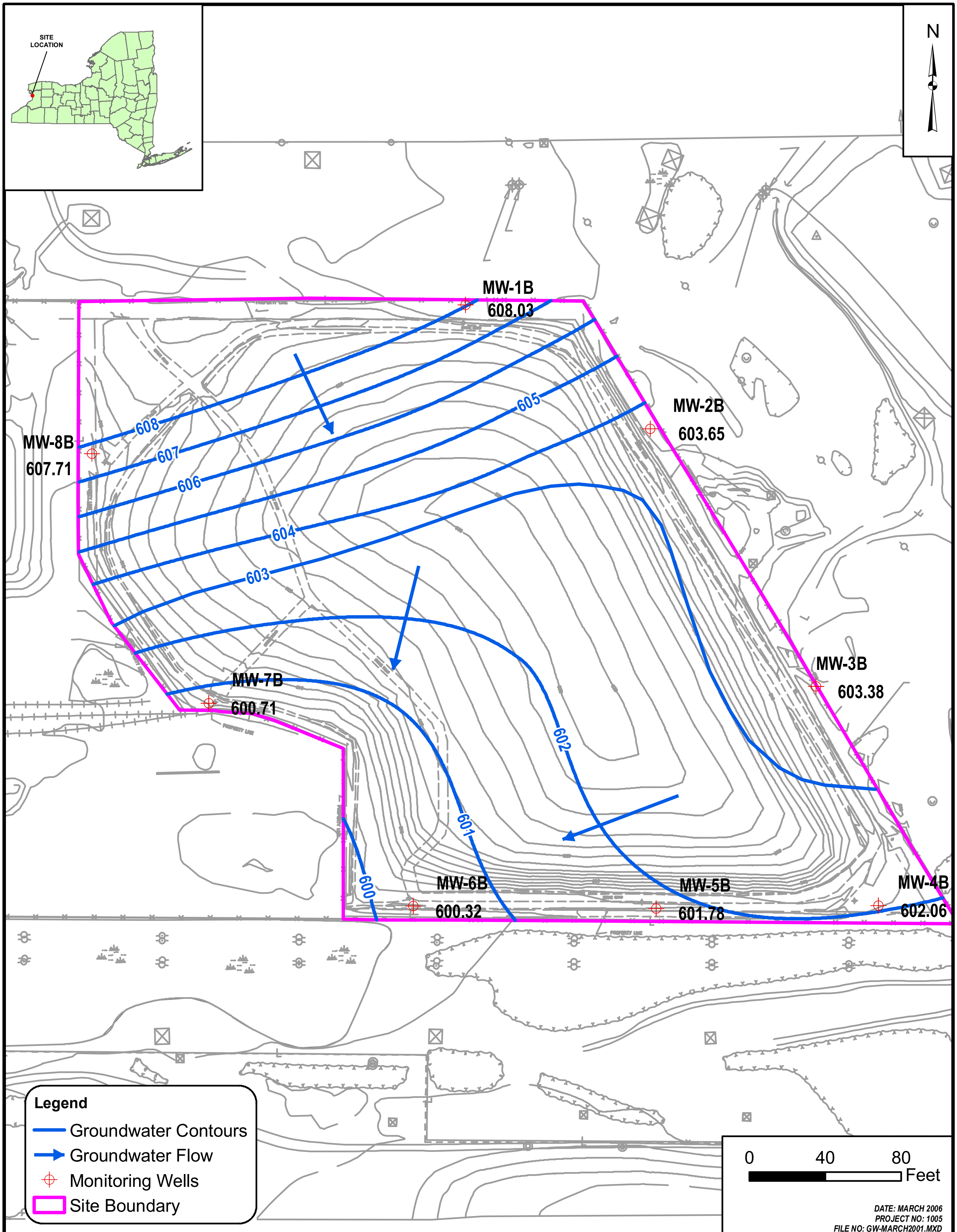
Groundwater Contour Maps



GREENSTAR Engineering, P.C.

AIRCO PARCEL
NIAGARA FALLS, NEW YORK

GROUNDWATER CONTOURS
DECEMBER 2000



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GROUNDWATER CONTOURS
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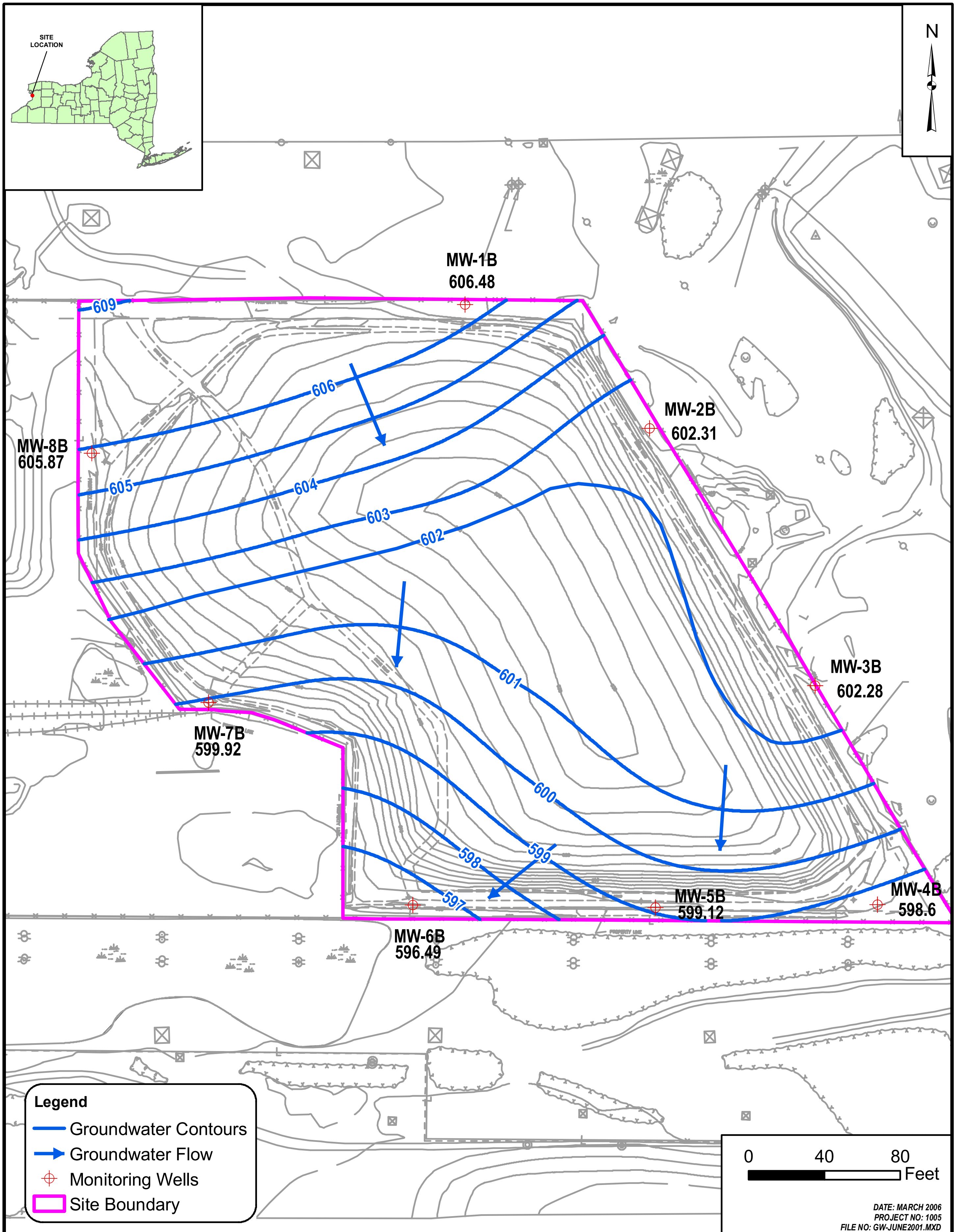

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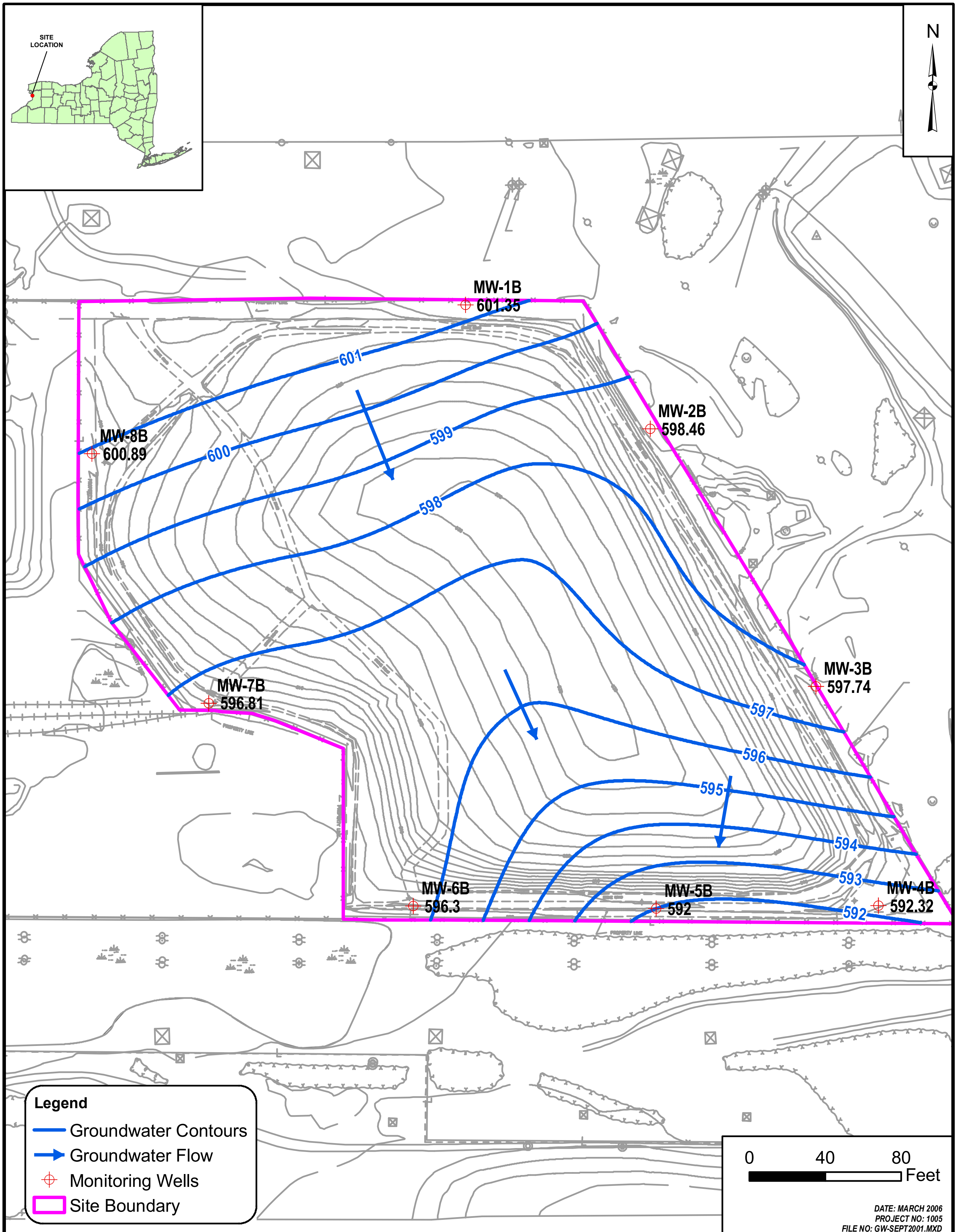
GROUNDWATER CONTOURS
JUNE 2001



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GROUNDWATER CONTOURS
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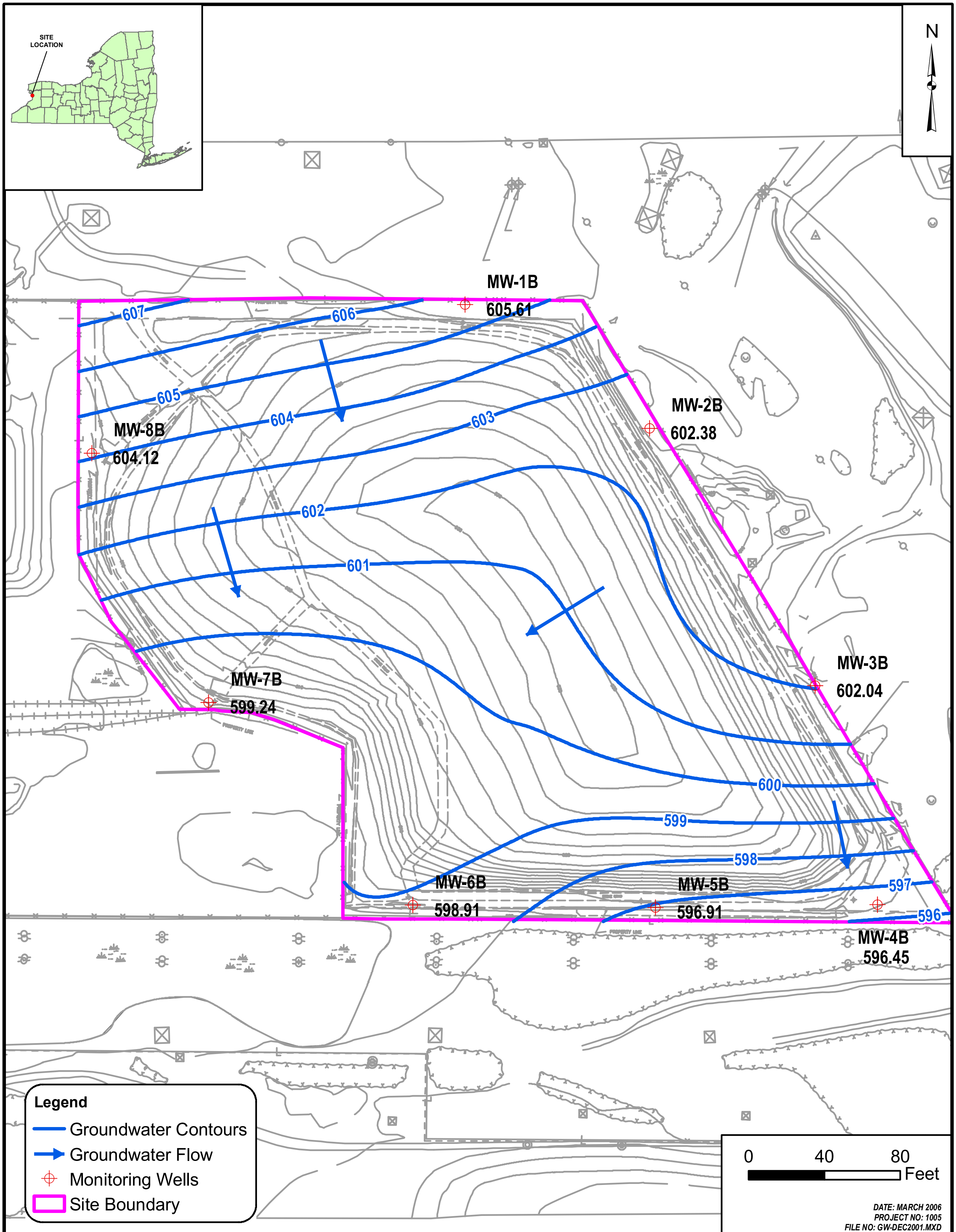

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GROUNDWATER CONTOURS
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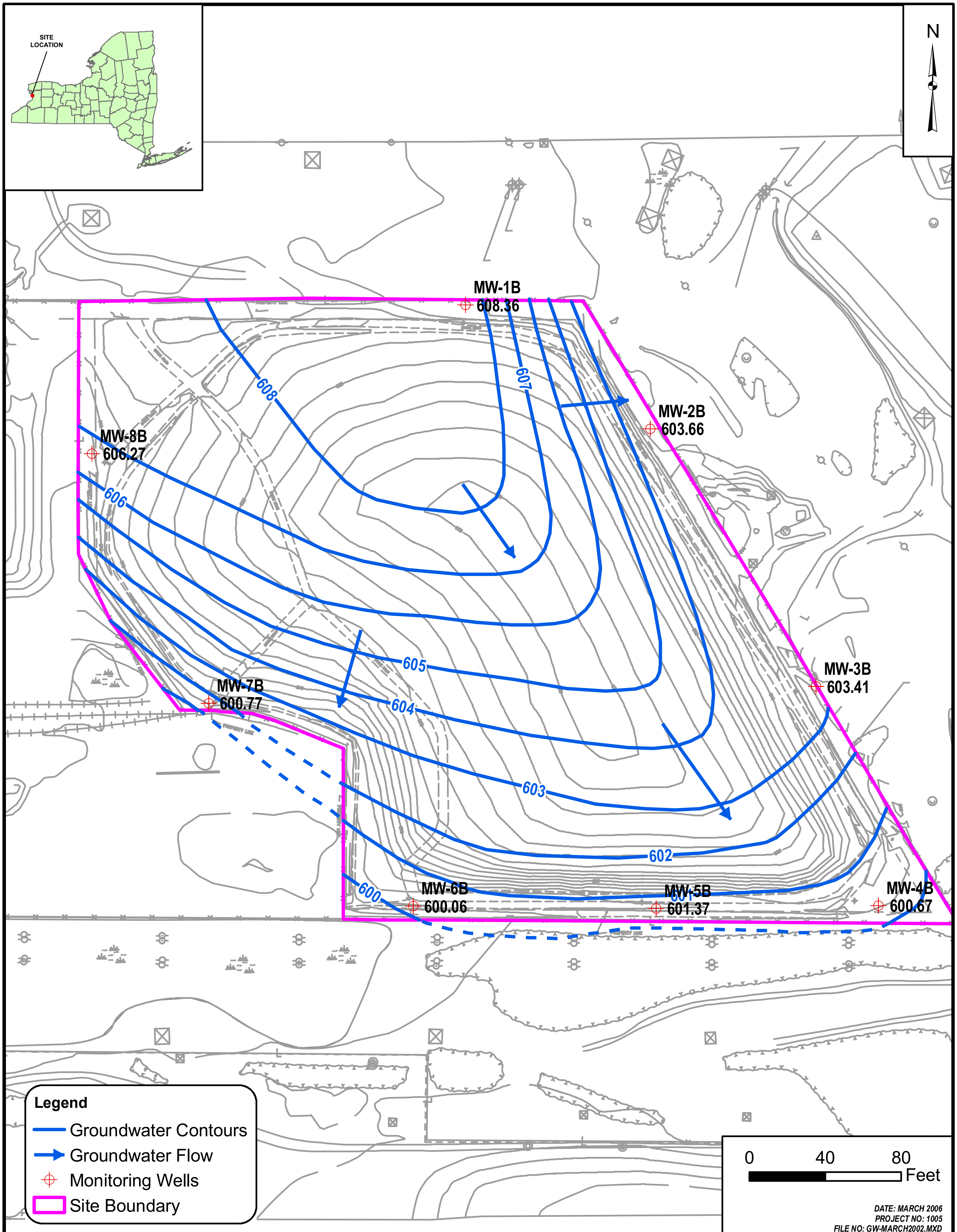

DATE: MARCH 2006
PROJECT NO: 1005
FILE NO: GW-MARCH2002.MXD

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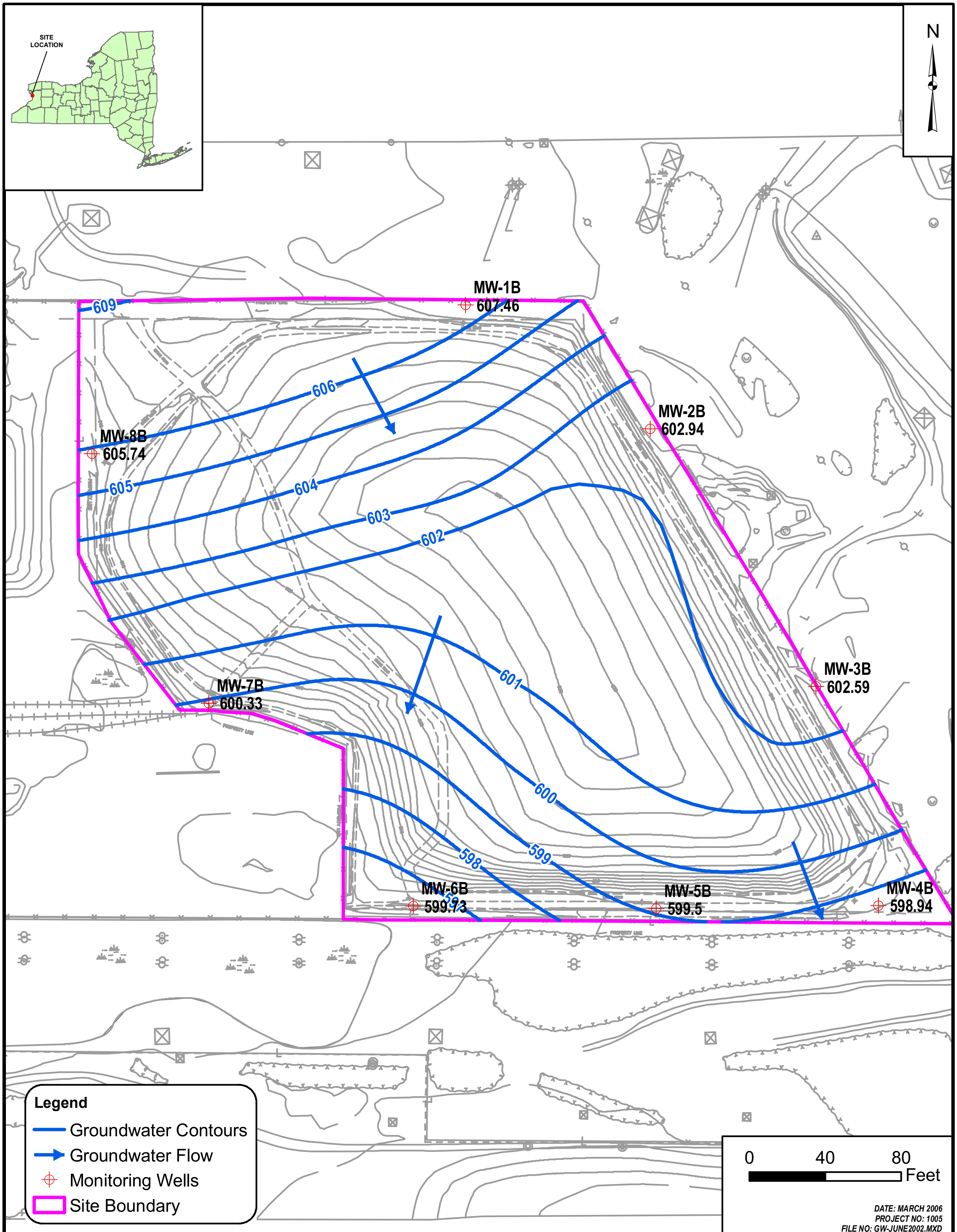
GROUNDWATER CONTOURS
MARCH 2002



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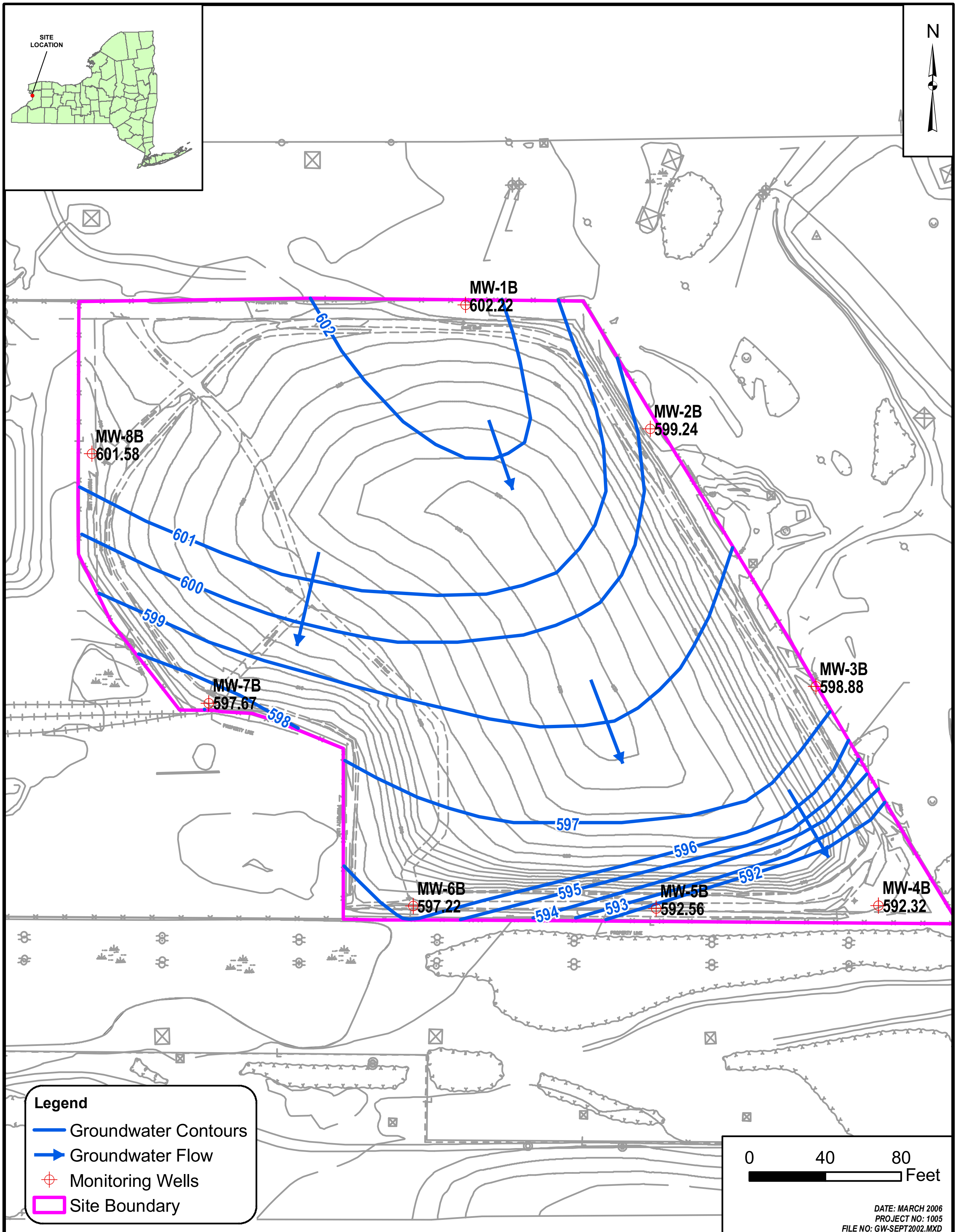
GROUNDWATER CONTOURS
JUNE 2002



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GROUNDWATER CONTOURS
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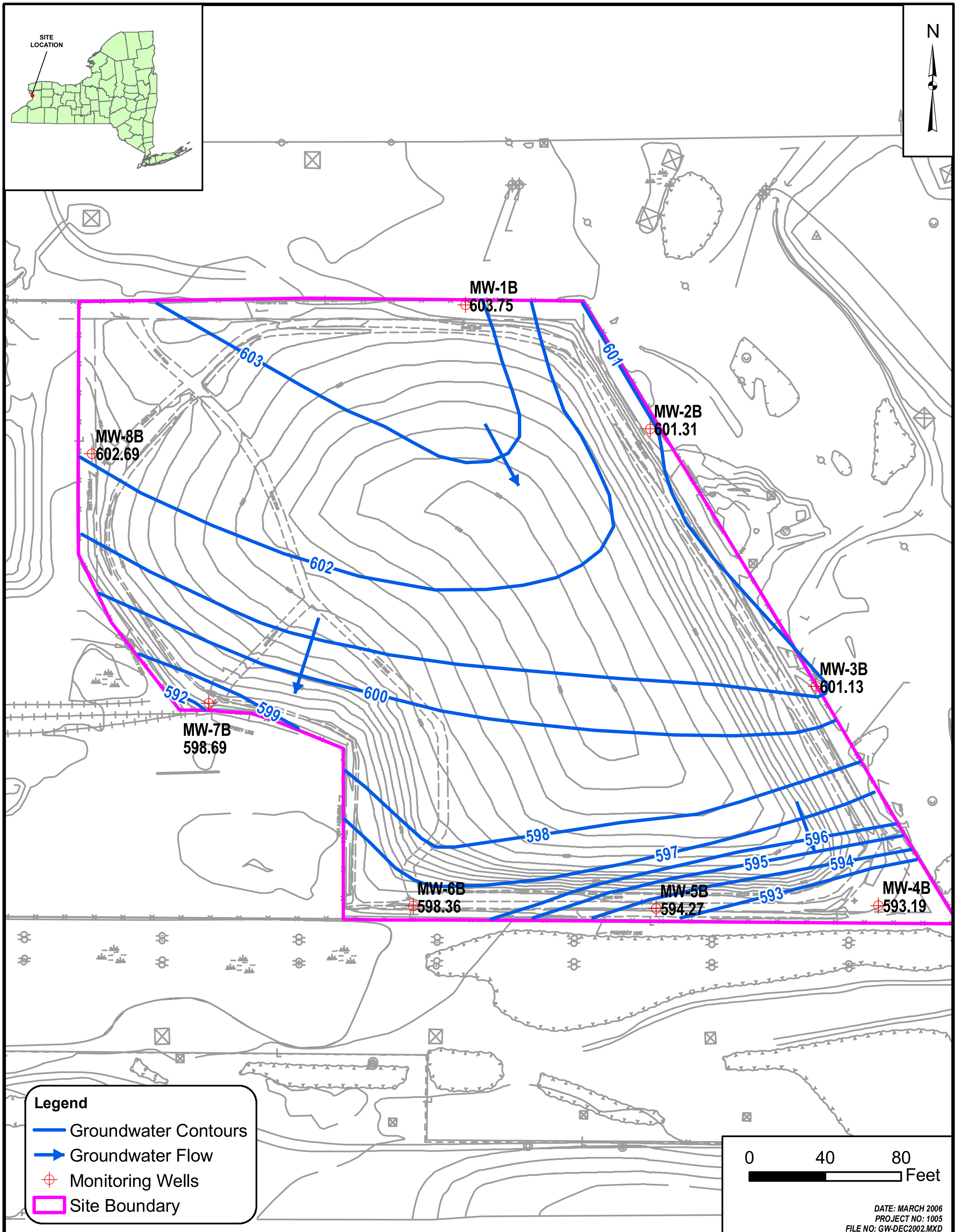

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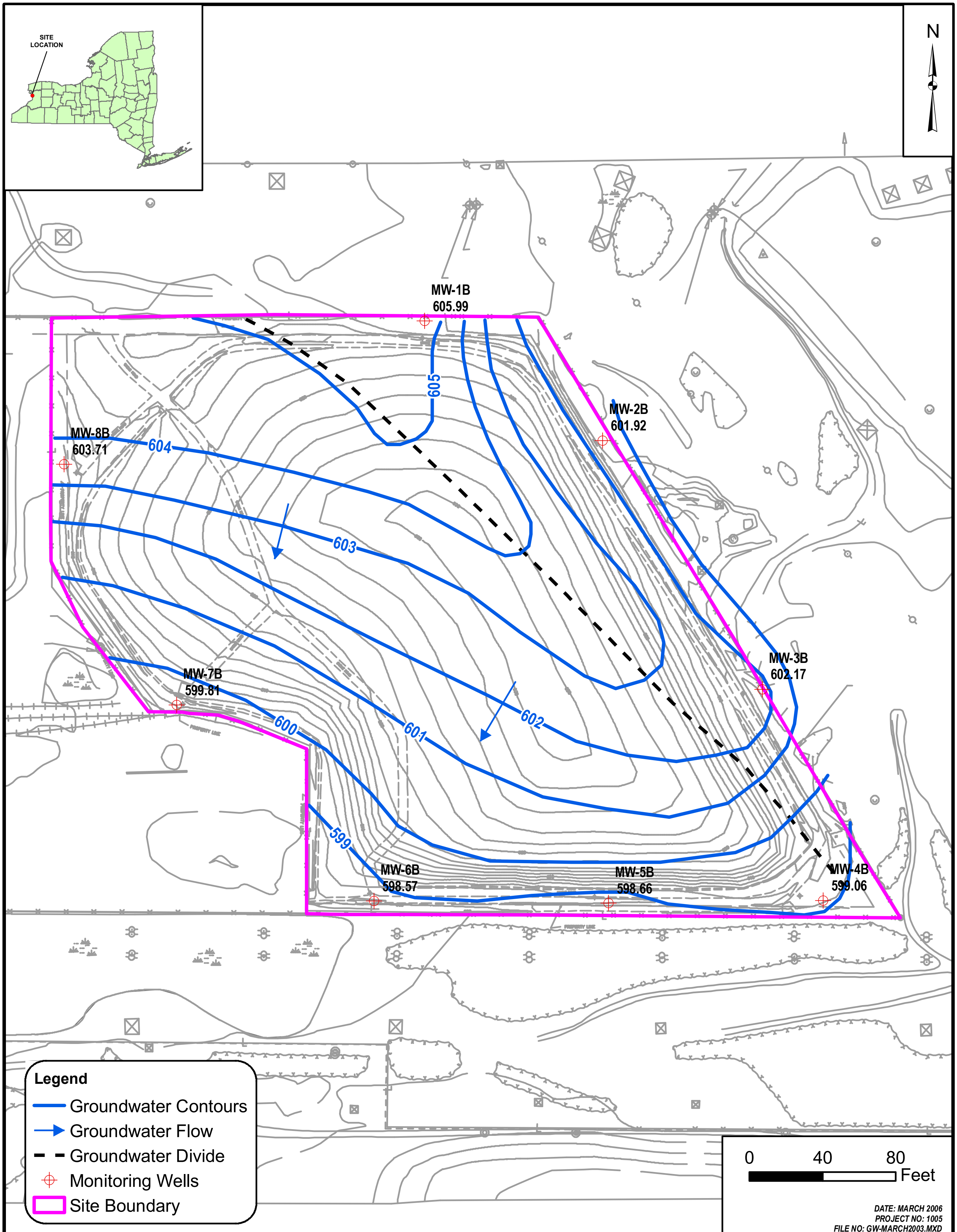
GROUNDWATER CONTOURS
DECEMBER 2002



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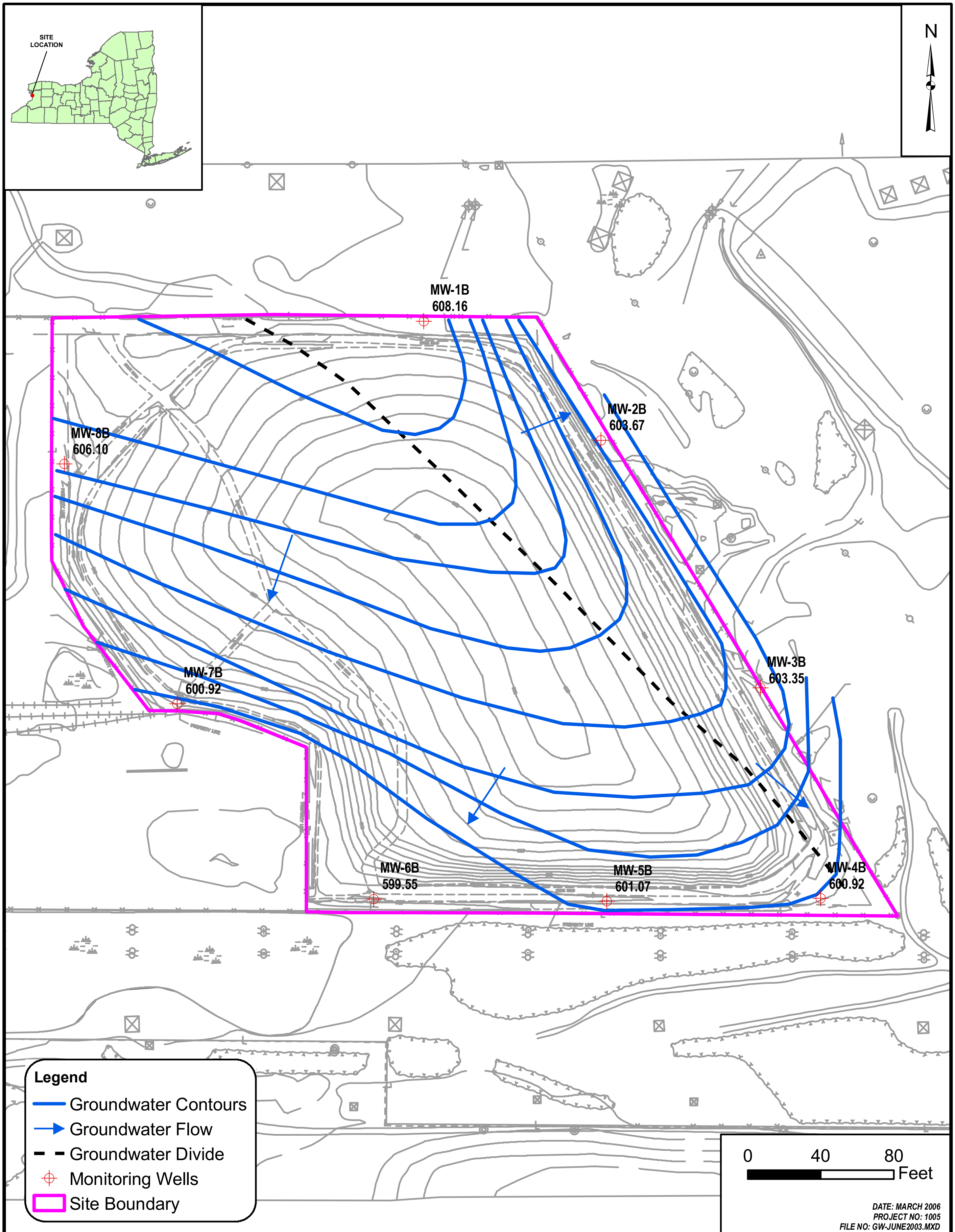
GROUNDWATER CONTOURS
MARCH 2003



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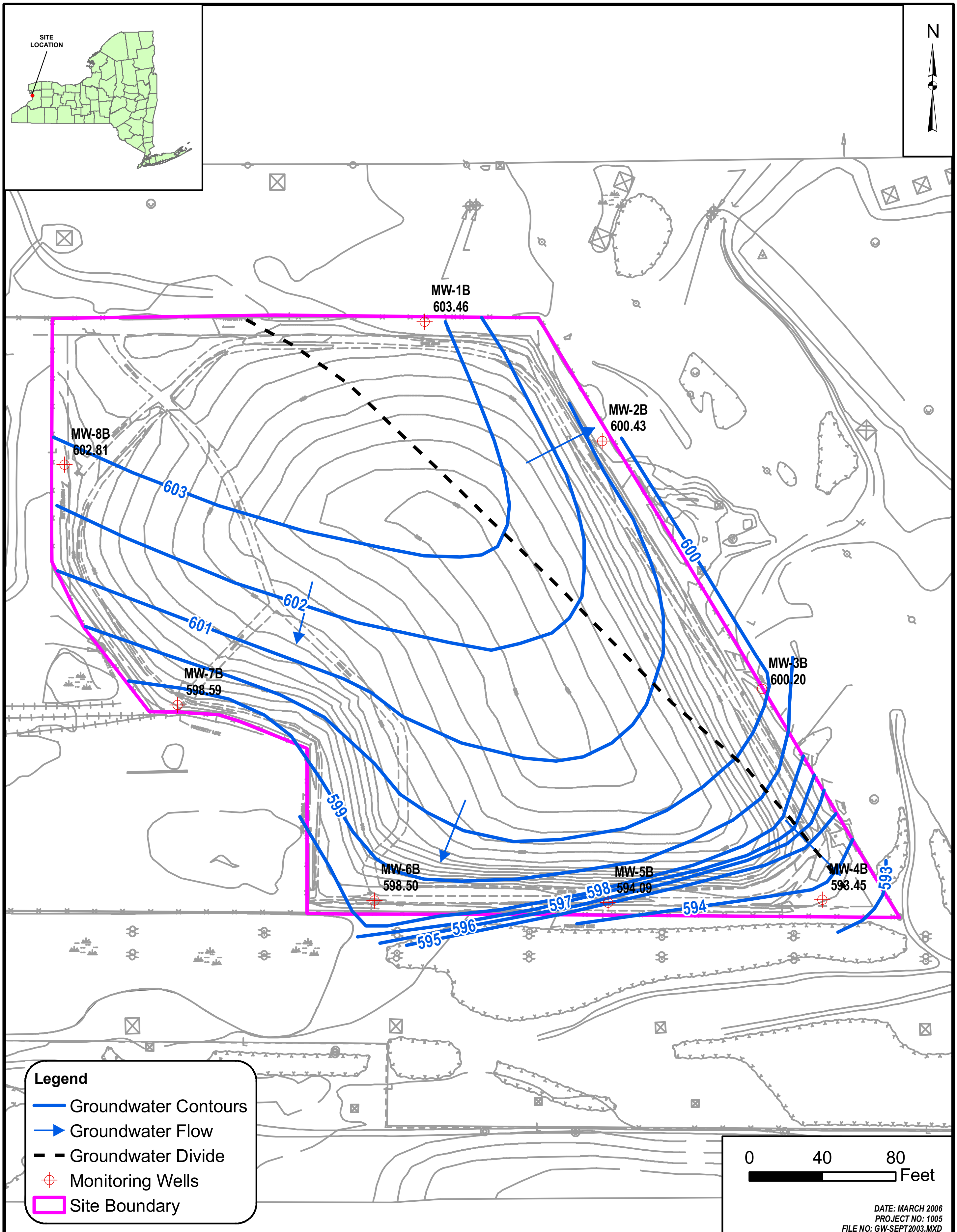
GROUNDWATER CONTOURS
JUNE 2003



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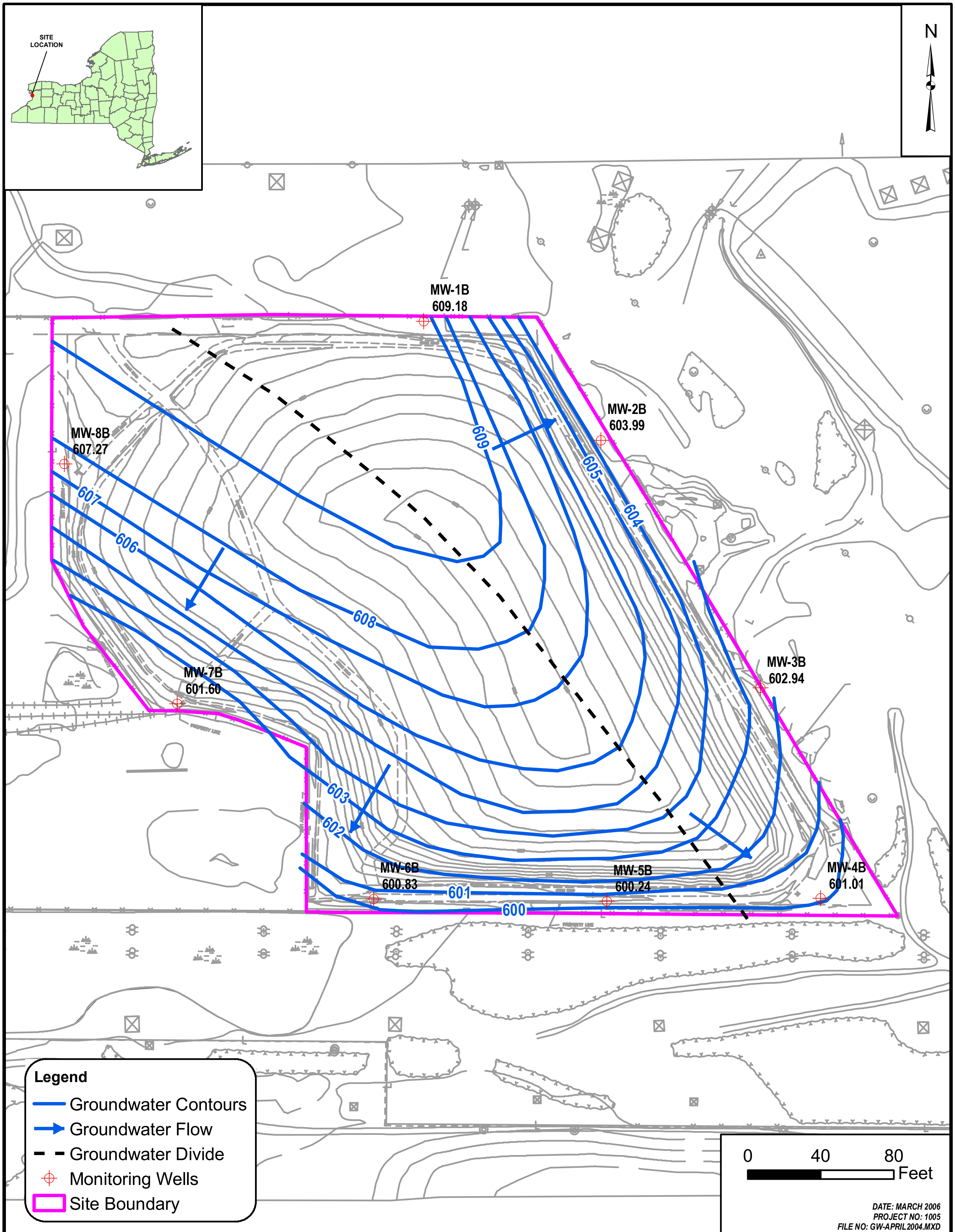
GROUNDWATER CONTOURS
SEPTEMBER 2003



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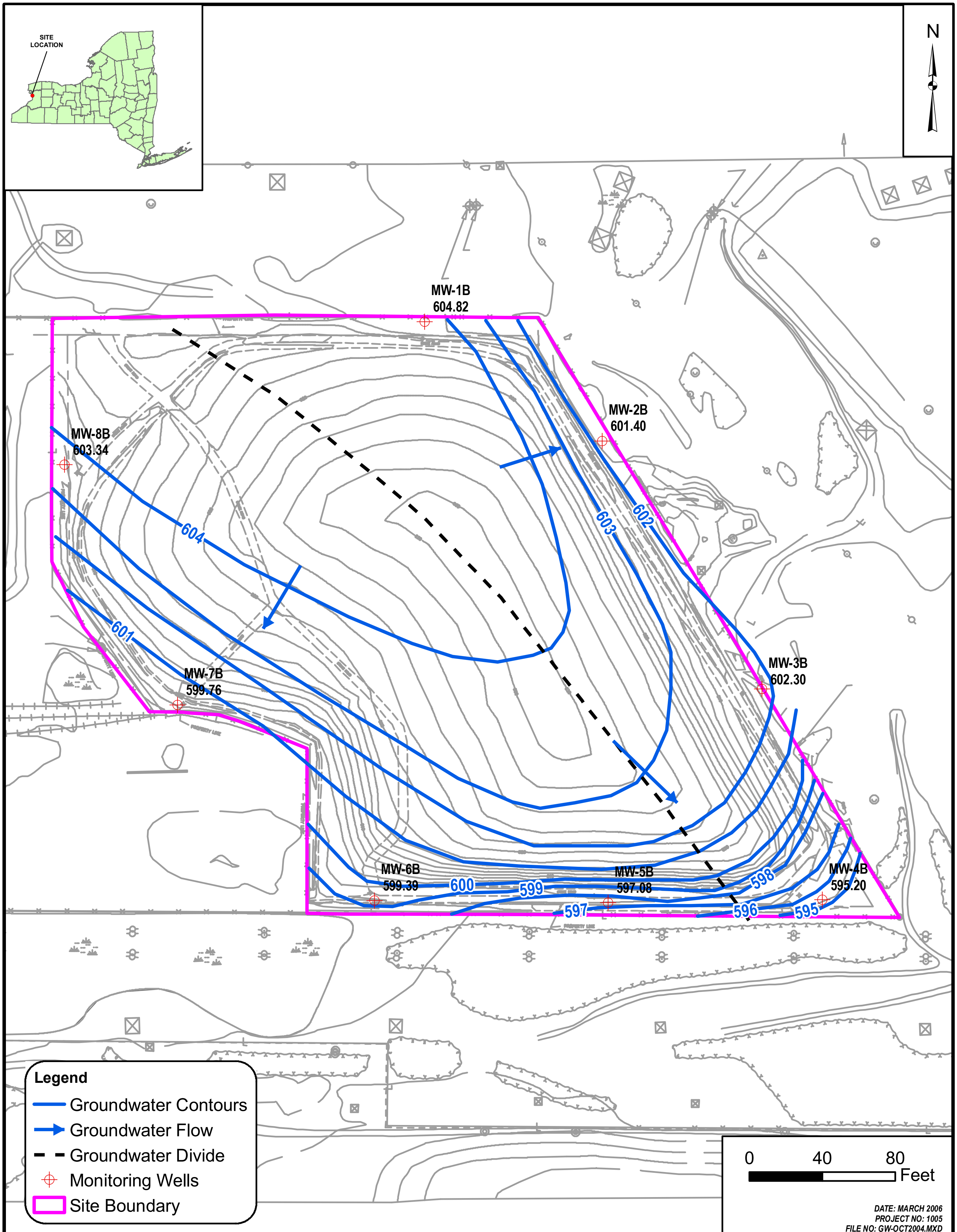
GROUNDWATER CONTOURS
APRIL 2004



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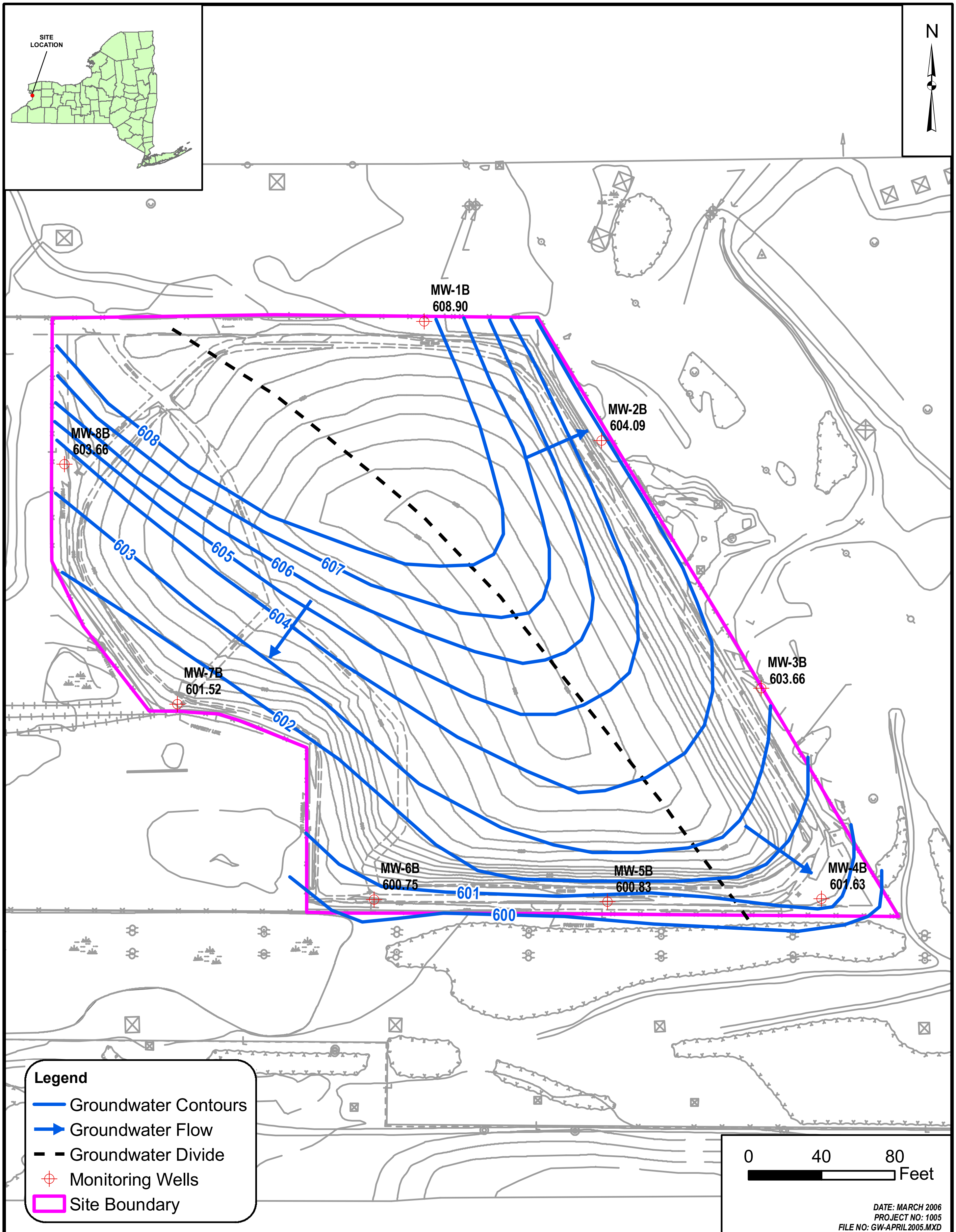
GROUNDWATER CONTOURS
OCTOBER 2004



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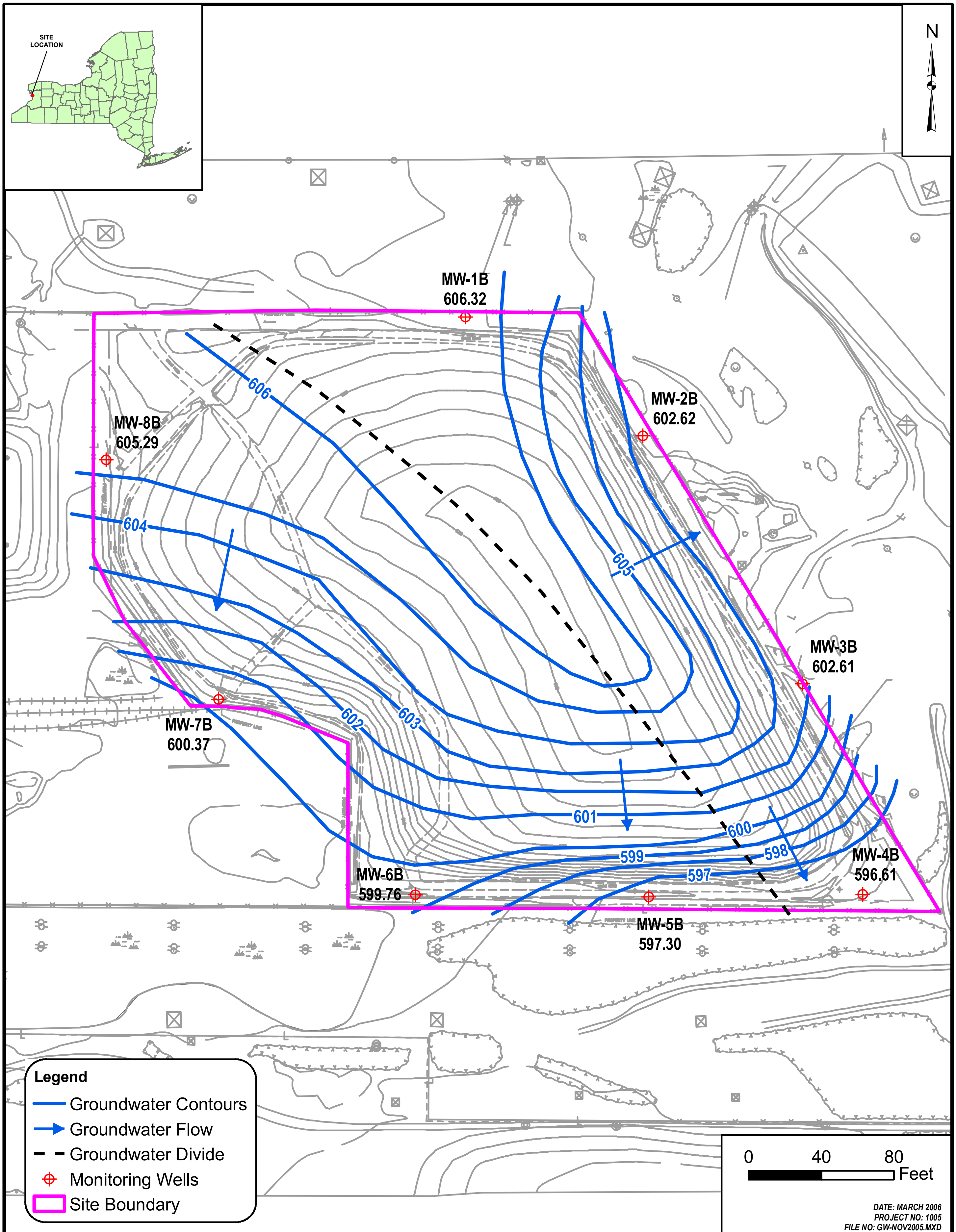
GROUNDWATER CONTOURS
APRIL 2005



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GROUNDWATER CONTOURS
NOVEMBER 2005

Appendix B

Analytical Results for Groundwater, Surface Water, Groundwater Collection and Treatment System Effluent Sampling

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-1B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Aluminum	---	2.8	9.7														
Arsenic	0.025	(<0.005U)															
Barium	1	0.11	0.148														
Boron	1	0.16	0.164														
Cadmium	0.005	(<0.005U)	(<0.005U)					(<0.005U)	(<0.005U)			(<0.005U)			(<0.01U)		
Calcium	---	165	173														
Chromium	0.05	0.009	**0.129**	(<0.005U)	0.011	(<0.005U)	(<0.005U)	(<0.005U)	0.019	**0.079**	(<0.005U)	0.014	0.014	0.016	(<0.01U)	(<0.01U)	0.014
Chromium, Hexavalent	0.05	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Copper	0.2	(<0.005U)	0.013														
Cyanide	0.2	(<0.004U)	(<0.004U)														
Hardness	---		737														
Iron	0.3	**2.7**	**7.8**	**0.386**	**3.4**	0.242	**0.376**	**0.521**	**2.43**	**5.27**	**1.27**	**1.85**	**1.6**	**2.9**	**0.93**	**1.1**	**2.1**
Lead	0.025	0.014	**0.032**	(<0.005U)	0.015	(<0.005U)	(<0.005U)	(<0.005U)	0.008	0.023	(<0.005U)	0.005	0.017	0.022	(<0.01U)	(<0.01U)	(<0.01U)
Magnesium	35*	**55.4**	**74.2**	**55.6**	**61.3**	**54.1**	**58.6**	**63.9**	**68.8**	**79.3**	**61**	**69.5**	**75**	**63**	**65**	**59**	**63**
Manganese	0.3	**0.61**	**0.895**	**0.628**	**0.672**	**0.671**	**0.722**	**0.816**	**0.844**	**0.914**	**0.756**	**0.809**	**0.87**	**0.82**	**0.81**	**0.76**	**0.75**
Nickel	0.1	0.007	0.052														
Potassium	---	6	8.5														
Selenium	0.01	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)		(<0.01U)
Silica	---	27.7	78.1	24.7	21	15.5	17.6	19.2	18.8	34.4	22.4	25.9					9.7
Silicon	---												10	9.9	8.1	7.9	
Sodium	20	**82.2**	**102**	**100**	**137**	**119**	**127**	**137**	**127**	**107**	**110**	**118**	**120**	**120**	**110**	**110**	**120**
Thallium	0.0005*	**0.0015**	(<0.001U)			**0.006**	(<0.005U)	(<0.005U)					(<0.01U)	(<0.01U)		(<0.01U)	
Zinc	2*	**34**	0.559	0.261	0.27	0.237	0.192	0.248	0.237	0.468	0.319	0.36	0.52	0.61	0.53	0.61	0.55

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-2B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Dec-04	Apr-05	Nov-05
Analyte	**AWQS**																
Aluminum	---	8	0.658														
Arsenic	0.025	(<0.005U)															
Barium	1	0.33	0.292														
Boron	1	(<0.1U)	(<0.1U)														
Cadmium	0.005	(<0.005U)	(<0.005U)					(<0.005U)	(<0.005U)			(<0.005U)			(<0.01U)		
Calcium	---	417	382														
Chromium	0.05	**0.34**	**0.325**	**0.368**	**0.333**	**0.369**	**0.351**	**0.369**	**0.385**	**0.428**	**0.426**	**0.343**	**0.44**	**0.26**	**0.31**	**0.26**	**0.5**
Chromium, Hexavalent	0.05	**0.095**	**0.298**	**0.36**	**0.299**	**0.39**	**0.387**	**0.416**	**0.4**	**0.43**	**0.39**	**0.34**	**0.41**	**0.26**	**0.21**	**0.18**	**0.48**
Copper	0.2	0.011	0.01														
Cyanide	0.2	(<0.004U)	0.007														
Hardness	---		953														
Iron	0.3	**10**	**0.399**	**0.583**	**0.98**	0.295	**1**	**0.385**	0.213	0.175	0.175	**1.14**	**0.44**	**0.37**	**0.45**	**0.62**	**0.47**
Lead	0.025	0.025	(<0.005U)	(<0.005U)	**0.039**	(<0.005U)	0.005	(<0.005U)	(<0.005U)	0.006	**0.04**	(<0.005U)	(<0.01U)	0.01	(<0.01U)	(<0.01U)	(<0.01U)
Magnesium	35*	13.9	(<1U)	1.1	1.4	(<1U)	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<0.01U)	(<1U)	0.35	(<1U)
Manganese	0.3	**0.33**	0.017	0.024	0.03	0.008	0.024	0.006	0.007	(<0.005U)	(<0.005U)	0.024	0.015	0.017	0.05	0.024	0.013
Nickel	0.1	0.015	0.008														
Potassium	---	18.3	13.5														
Selenium	0.01	0.009	0.007	0.008	0.008	0.008	0.009	0.007	0.007	0.007	(<0.005U)	0.008	(<0.01U)	(<0.01U)	(<0.01U)		(<0.01U)
Silica	---	28.4	16.4	7.1	2.91	1.3	9.6	3.3	1.7	3.13	2.25	10					2.4
Silicon	---												2.4	1.3	8	4.1	
Sodium	20	**55.8**	**42.3**	**48**	**57.1**	**61.9**	**46.8**	**49.1**	**55.2**	**57.1**	**53**	**45.8**	**56**	**35**	**150**	**35**	**77**
Thallium	0.0005*	**0.0021**	**0.001**			(<0.005U)	(<0.005U)	(<0.005U)					**0.013**	**0.027**		**0.036**	
Zinc	2*	0.24	0.037	0.02	0.023	0.012	0.026	(<0.005U)	(<0.005U)	0.051	0.02	(<0.005U)	0.078	0.051	0.037	0.03	0.011

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-3B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Aluminum	---	0.11	1.3														
Arsenic	0.025	(<0.005U)															
Barium	1	0.014	0.017														
Boron	1	(<0.1U)	(<0.1U)														
Cadmium	0.005	(<0.005U)	(<0.005U)					(<0.005U)	(<0.005U)			(<0.005U)			(<0.01U)		
Calcium	---	27.5	26.6														
Chromium	0.05	(<0.005U)	0.012	0.01	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	0.006	0.013	(<0.005U)	(<0.005U)	0.018	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Chromium, Hexavalent	0.05	(<0.01U)	(<0.01U)	(<0.01U#)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Copper	0.2	(<0.005U)	(<0.005U)														
Cyanide	0.2	(<0.004U)	(<0.004U)														
Hardness	---		119														
Iron	0.3	0.044	**1.2**	**2.6**	0.26	0.057	0.244	0.11	**2.87**	0.17	**0.445**	0.129	**0.46**	0.2	(<0.05U)	0.12	0.083
Lead	0.025	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	0.005	(<0.005U)	**0.029**	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Magnesium	35*	13.3	12.7	12.4	10.9	3.5	2.5	1.8	9.5	4.69	2.44	1.95	3.5	0.87	1.5	4.7	1
Manganese	0.3	0.021	0.034	0.066	0.008	(<0.005U)	0.007	(<0.005U)	0.056	0.007	0.006	(<0.005U)	0.019	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Nickel	0.1	(<0.005U)	0.015														
Potassium	---	1.4	1.7														
Selenium	0.01	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)		(<0.01U)
Silica	---	15.7	23.5	33	13.4	19.2	20.8	20.4	16.6	18.2	21.6	20.2					10
Silicon	---												9.7	8.8	1.8	7.3	
Sodium	20	**44.5**	**42.3**	**46.7**	**44.9**	**60.5**	**61.7**	**64.8**	**70.3**	**73.3**	**86.6**	**73.1**	**82**	**76**	9.6	**67**	**110**
Thallium	0.0005*	**0.0024**	(<0.001U)			(<0.005U)	(<0.005U)	(<0.005U)					(<0.01U)	(<0.01U)		(<0.01U)	
Zinc	2*	(<0.005U)	0.018	0.017	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	0.041	(<0.005U)	0.209	0.091	0.067	0.034	0.011	0.015	0.012

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-4B											
		Mar-01	Jun-01	Dec-01	Mar-02	Jun-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**												
Aluminum	---	0.242											
Barium	1	0.042											
Boron	1	(<0.1U)											
Cadmium	0.005	(<0.005U)				(<0.005U)		(<0.005U)			**0.013**		
Calcium	---	87.6											
Chromium	0.05	**0.169**	**0.2**	**0.217**	**0.17**	**0.185**	**0.214**	**0.21**	**0.25**	**0.23**	**0.2**	**0.22**	**0.23**
Chromium, Hexavalent	0.05	**0.137**	**0.175#**	**0.19**	**0.194**	**0.2**	**0.18**	**0.22**	**0.19**	**0.22**	**0.2**	**0.18**	**0.2**
Copper	0.2	0.007											
Cyanide	0.2	(<0.004U)											
Hardness	---	449											
Iron	0.3	0.289	**5.9**	**2.9**	**0.798**	**3.8**	**1.22**	**1.18**	**7.8**	**2.2**	**3.4**	**1.3**	**7.2**
Lead	0.025	(<0.005U)	0.014	0.006	(<0.005U)	0.005	(<0.005U)	(<0.005U)	**0.027**	0.014	**0.037**	(<0.01U)	0.011
Magnesium	35*	**55.9**	**50.5**	**49.7**	**49**	**44**	**44.7**	**47.7**	**45**	**42**	35	**40**	**44**
Manganese	0.3	0.026	0.107	0.071	0.013	0.066	0.013	0.007	0.16	0.04	**0.52**	0.025	0.2
Nickel	0.1	(<0.005U)											
Potassium	---	2.3B*											
Selenium	0.01	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	**0.02**	**0.013**	(<0.01U)		(<0.01U)
Silica	---	23.2	43.2	53.3	19.5	24.6	20.3	18.3	15				14
Silicon	---									8.2	10	8.4	
Sodium	20	**55.3B***	**68.5**	**70.4**	**77**	**123**	**96.4**	**83**	**160**	**100**	**180**	**99**	**110**
Thallium	0.0005*	(<0.001U)		(<0.005U)	(<0.005U)	**0.006**			(<0.01U)	(<0.01U)		(<0.01U)	
Zinc	2*	0.025	0.089	0.039	0.014	0.035	0.03	0.01	0.24	0.06	0.16	0.04	0.095

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-5B													
		Mar-01	Jun-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**														
Aluminum	---	0.261													
Barium	1	0.029													
Boron	1	(<0.1U)													
Cadmium	0.005	(<0.005U)				**0.008**				(<0.005U)			(<0.01U)		
Calcium	---	110													
Chromium	0.05	0.018	0.007	0.019	0.007	0.008		(<0.005U)	(<0.005U)	(<0.005U)	0.036	(<0.01U)	0.01	(<0.01U)	0.013
Chromium, Hexavalent	0.05	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	0.016	(<0.01U)	0.02	(<0.01U)
Copper	0.2	(<0.005U)													
Cyanide	0.2	(<0.004U)													
Hardness	---	596													
Iron	0.3	**0.306**	**0.667**	**13.1**	**2.3**	**4.5**		**3.54**	**0.312**	**0.548**	**29**	**0.62**	**2.1**	**1.2**	**4.6**
Lead	0.025	(<0.005U)	(<0.005U)	0.021	(<0.005U)	(<0.005U)		0.007	(<0.005U)	(<0.005U)	**0.16**	(<0.01U)	0.016	(<0.01U)	(<0.01U)
Magnesium	35*	**78.3**	**70.2**	**78.4**	**74.4**	**74.6**		**71.3**	**60.4**	**71.6**	**120**	**65**	**71**	**65**	**77**
Manganese	0.3	0.023	0.051	0.295	0.054	0.119		0.136	(<0.005U)	0.026	**1.2**	0.066	0.19	0.058	0.17
Nickel	0.1	0.007													
Potassium	---	1.1													
Selenium	0.01	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)		(<0.005U)	(<0.005U)	(<0.005U)	0.01	(<0.01U)	(<0.01U)		(<0.01U)
Silica	---	24.4	22.7	192	24.4	26		29.7	20.4	18	31				15
Silicon	---											8.3	11	8.7	
Sodium	20	**55.8B***	**64.4**	**103**	**58.9**	**104**		**94.8**	**124**	**65**	**88**	**72**	**51**	**71**	**77**
Thallium	0.0005*	(<0.001U)		**0.007**	(<0.005U)	(<0.005U)					(<0.01U)	(<0.01U)		(<0.01U)	
Zinc	2*	0.029	0.015	0.233	0.045	0.062		0.131	0.027	0.028	1.7	0.072	0.15	0.085	0.11

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-6B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Aluminum	---	0.039	0.152														
Arsenic	0.025	(<0.005U)															
Barium	1	0.05	0.036														
Boron	1	(<0.1U)	(<0.1U)														
Cadmium	0.005	(<0.005U)	(<0.005U)					(<0.005U)	(<0.005U)			(<0.005U)			(<0.01U)		
Calcium	---	99.1	101														
Chromium	0.05	(<0.005U)	(<0.005U)	0.016	0.007	(<0.005U)	0.006	0.018	(<0.005U)	0.031	(<0.005U)	(<0.005U)	(<0.01U)	0.016	(<0.01U)	(<0.01U)	(<0.01U)
Chromium, Hexavalent	0.05	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Copper	0.2	(<0.005U)	(<0.005U)														
Cyanide	0.2	(<0.004U)	(<0.004U)														
Hardness	---		567														
Iron	0.3	0.063	0.229B*	**11.9**	0.186	**1.8**	**0.861**	**1.3**	0.268	**1.57**	**0.338**	**0.696**	**0.45**	**0.6**	**0.46**	0.3	**0.46**
Lead	0.025	(<0.005U)	(<0.005U)	0.006	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Magnesium	35*	**65.8**	**76.7**	**85.2**	**69.2**	**75.4**	**84.1**	**79.2**	**77.1**	**82.7**	**43.2**	**82.8**	**89**	**78**	**70**	**81**	**71**
Manganese	0.3	0.044	0.09	**0.434**	0.079	0.135	0.134	0.139	0.128	0.141	0.069	0.151	0.19	0.14	0.12	0.13	0.13
Nickel	0.1	(<0.005U)	0.007														
Potassium	---	2.8	2.3														
Selenium	0.01	0.005	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)		(<0.01U)
Silica	---	15.1	19.2	120	12.1	25.2	18.9	19.2	11.6	20.1	13.2	15.7					6.9
Silicon	---												7.9	6.4	6.3	6.3	
Sodium	20	**50.4**	**68.1**	**67.8**	**66.8**	**65.1**	**69.2**	**72**	**73.1**	**67.9**	**76.6**	**66.7**	**65**	**58**	**61**	**58**	**96**
Thallium	0.0005*	**0.0071**	(<0.001U)			(<0.005U)	(<0.005U)	(<0.005U)					(<0.01U)	(<0.01U)		(<0.01U)	
Zinc	2*	(<0.005U)	0.01	0.024	(<0.005U)	0.011	(<0.005U)	(<0.005U)	(<0.005U)	0.038	(<0.005U)	(<0.005U)	0.058	0.017	0.023	0.011	0.011

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-7B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Aluminum	---	3	10.3														
Arsenic	0.025	(<0.005U)															
Barium	1	0.057	0.093														
Boron	1	(<0.005U)	(<0.1U)														
Cadmium	0.005	(<0.005U)	(<0.005U)					**0.014**	(<0.005U)			(<0.005U)			(<0.01U)		
Calcium	---	15.8	21.9														
Chromium	0.05	**0.36**	**0.331**	**0.296**	**0.231**	**0.21**	**0.092**	**0.173**	**0.189**	**0.133**	**0.143**	**0.058**	**0.069**	**0.052**	**0.057**	**0.091**	**0.13**
Chromium, Hexavalent	0.05	**0.256**	**0.197**	**0.274**	**0.18**	**0.18**	**0.064**	**0.0612**	**0.16**	0.02	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	0.017	**0.06**	0.026
Copper	0.2	(<0.005U)	(<0.005U)														
Cyanide	0.2	0.006	(<0.004U)														
Hardness	---		92.9														
Iron	0.3	**3.4**	**8.5**	**6.8**	**6**	**9.9**	**4.2**	**16.1**	**22.9**	**12.1**	**9.3**	**5.04**	**2.8**	**6**	**1.8**	**6.3**	**5.1**
Lead	0.025	**66.2**	(<0.005U)	(<0.005U)	(<0.005U)	0.005	(<0.005U)	0.008	0.01	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	0.01	(<0.01U)	0.019	(<0.01U)
Magnesium	35*	6.5	9.3	9.3	10.4	11	12.8	16	21.7	15.1	13.6	11.6	8.3	11	11	12	12
Manganese	0.3	0.076	0.174	0.161	0.151	0.199	0.139	0.258	**0.488**	0.236	0.248	0.116	0.1	0.14	0.091	0.13	0.14
Nickel	0.1	(<0.005U)	0.015														
Potassium	---	6.5	10.7														
Selenium	0.01	0.005	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)		(<0.01U)
Silica	---	23.1	76.3	60.4	19.1	158	29.5	87.2	42.1	60.3	46	43					11
Silicon	---												9.8	10	7.1	15	
Sodium	20	**51.3**	**58.9**	**57.1**	**56.8**	**58.5**	**72.4**	**67.1**	**69**	**66.7**	**62.2**	**62.9**	**55**	**70**	**65**	**63**	**67**
Thallium	0.0005*	**0.0019**	(<0.001U)			(<0.005U)	(<0.005U)	**0.006**					(<0.01U)	(<0.01U)		(<0.01U)	
Zinc	2*	(<0.1U)	0.027	0.014	0.011	0.054	0.012	0.063	0.066	0.048	0.034	(<0.005U)	0.11	0.075	0.033	0.082	0.041

Groundwater

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		MW-8B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Aluminum	---	53.6	4														
Arsenic	0.025	0.015															
Barium	1	0.48	0.057														
Boron	1	(<0.1U)	(<0.1U)														
Cadmium	0.005	**0.01**	(<0.005U)					(<0.005U)	**0.007**			0.005			(<0.01U)		
Calcium	---	337	131														
Chromium	0.05	**0.12**	**0.168B***	**0.366**	**0.136**	**0.16**	**0.134**	**0.088**	**0.132**	**0.091**	**0.277**	**0.117**	**0.22**	**0.068**	**0.061**	**0.081**	**0.15**
Chromium, Hexavalent	0.05	**0.088**	**0.194**	**0.313**	**0.146**	**0.11**	0.036	**0.0583**	**0.09**	0.03	**0.22**	**0.08**	**0.15**	**0.07**	0.037	**0.079**	**0.12**
Copper	0.2	0.096	0.009														
Cyanide	0.2	(<0.004U)	(<0.004U)														
Hardness	---		614														
Iron	0.3	**70.3**	**3.2**	**0.701**	**1.3**	**2.9**	**13.4**	**1.5**	**39**	**2.32**	**1.46**	**3.51**	**9.6**	**1.1**	**0.6**	**2.1**	**5.3**
Lead	0.025	**0.19**	0.005	(<0.005U)	(<0.005U)	0.007	**0.032**	(<0.005U)	**0.073**	0.006	(<0.005U)	(<0.005U)	**0.029**	0.011	(<0.01U)	(<0.01U)	0.012
Magnesium	35*	**142**	**69.5**	**67.1**	**62.1**	**59.8**	**62.3**	**61**	**108**	**50.8**	**66.4**	**51**	**79**	**37**	**37**	**40**	**49**
Manganese	0.3	**1.8**	0.183	0.073	0.19	**0.425**	**0.532**	0.079	**1.36**	0.109	0.185	0.145	**0.87**	0.1	0.26	0.14	**0.38**
Nickel	0.1	0.062	0.027														
Potassium	---	29.1	6.2														
Selenium	0.01	**0.13**	**0.112B***	**0.211**	**0.125**	**0.053**	**0.052**	**0.07**	**0.064**	**0.05**	**0.134**	**0.064**	**0.14**	**0.043**	**0.043**		**0.055**
Silica	---	116	35.4	21.3	15.3	49	35.1	22.8	52.8	25.5	20.8	30.9	18				17
Silicon	---													7.9	7.4	9.8	
Sodium	20	**93.5**	**134**	**111**	**174**	**157**	**233**	**205**	**185**	**159**	**137**	**212**	**160**	**270**	**230**	**200**	**250**
Thallium	0.0005*	**0.0018**	(<0.001U)			(<0.005U)	**0.009**	(<0.005U)					**0.01**	(<0.01U)		(<0.01U)	
Zinc	2*	1.9	0.078	0.011	0.021	0.133	0.661	0.232	0.59	0.099	0.065	0.117	0.32	0.056	0.058	0.071	0.14

Water Quality Parameters (mg/L)

Groundwater

Water Quality Parameters (mg/L)

		MW-1B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Alkalinity	---	350	386														
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<0.03U)	(<0.03U)	(<0.03U)	(<0.03U)	(<0.03U)
BOD	---	2	3														
Chloride	250	233	208														
COD	---	(<5U)	21.7														
Color, apparent	---		25														
Hardness	---	549															
Nitrate (expressed as N)	10	(<0.1U)	(<0.1U)														
pH	---	7.56	6.05														
Phenolics	0.001	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	**0.009**	(<0.002U)	**0.002**	(<0.002U)		(<0.002U)			(<0.05U)
Sulfate	250	214	158	167	209	184	177	170	206	**2550**	215	185	210	180	210	200	180
TDS	---	1040	934														
TKN	---	(<1U)	(<1U)														
TOC	---	3.3	3.9														

		MW-2B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Dec-04	Apr-05	Nov-05
Analyte	**AWQS**																
Alkalinity	---	1000	930														
Ammonia (expressed as N)	2	**2.57**	1.31	1.5	2	1.4	1.5	1.3	**2.5**	1.6	1.4	**2.3**	1.5	**2.7**	2	**2.9**	1.5
BOD	---	(<2U)	(<1U)														
Chloride	250	44	39														
COD	---	11.2	7.9														
Color, apparent	---		5														
Hardness	---	1100															
Nitrate (expressed as N)	10	(<0.1U)	0.18														
pH	---	11.95	11.52														
Phenolics	0.001	**0.0139**	(<0.002U)	(<0.002U)	**0.0136**	(<0.002U)	(<0.002U)	(<0.002U)	**0.01**	**0.002**	**0.002**	**0.003**		**0.0047**			(<0.05U)
Sulfate	250	21.7	13	15	13.9	16	12.8	14.7	14.3	21.5	15.7	14.8	17	29	26	19	17
TDS	---	1010	983														
TKN	---	2.23	1.87														
TOC	---	4.7	4														

Groundwater

Water Quality Parameters (mg/L)

		MW-3B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Alkalinity	---	91	114														
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.49	0.26	0.18	0.32	0.51
BOD	---	(<2U)	1														
Chloride	250	57.1	66.2														
COD	---	12.5	6.91														
Color, apparent	---		5														
Hardness	---	124															
Nitrate (expressed as N)	10	(<0.1U)	(<0.1U)														
pH	---	9.06	8.11														
Phenolics	0.001	**0.00484**	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	**0.0026**	(<0.002U)	**0.003**	(<0.002U)	(<0.002U)		(<0.002U)			(<0.05U)
Sulfate	250	22.1	19.6	26.8	23.1	52.5	61.5	25	44.9	**1390**	132	96.9	99	120	100	84	130
TDS	---	252	260														
TKN	---	(<1U)	1.12														
TOC	---	3.6	4.1														

		MW-4B											
		Mar-01	Jun-01	Dec-01	Mar-02	Jun-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**												
Alkalinity	---	336											
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<0.03U)	(<0.03U)	(<0.03U)	(<0.03U)	(<0.03U)
BOD	---	1											
Chloride	250	13.9											
COD	---	15.1											
Color, apparent	---	20											
Nitrate (expressed as N)	10	1.6											
pH	---	7.3											
Phenolics	0.001	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)		(<0.002U)			(<0.05U)
Sulfate	250	**276**	190	176	144	142	156	138	160	150	160	140	140
TDS	---	776											
TKN	---	(<1U)											
TOC	---	1.9											

Groundwater

Water Quality Parameters (mg/L)

		MW-5B													
		Mar-01	Jun-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**														
Alkalinity	---	455													
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.043	(<0.03U)	(<0.03U)	(<0.03U)	(<0.03U)
BOD	---	2													
Chloride	250	36													
COD	---	(<5U)													
Color, apparent	---	5													
Nitrate (expressed as N)	10	1.17													
pH	---	6.86													
Phenolics	0.001	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	0	(<0.002U)	(<0.002U)	(<0.002U)		(<0.002U)			(<0.05U)
Sulfate	250	**263**	192	**259**	169	148		**2630**	207	126	150	160	130	140	130
TDS	---	893													
TKN	---	(<1U)													
TOC	---	2.2													

		MW-6B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Alkalinity	---	271	264														
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<0.03U)	(<0.03U)	(<0.03U)	0.061	(<0.03U)
BOD	---	(<2U)	(<1U)														
Chloride	250	61.7	60.8														
COD	---	5.24	7.24														
Color, apparent	---		5														
Hardness	---	493															
Nitrate (expressed as N)	10	1.19	0.63														
pH	---	7.96	7.07														
Phenolics	0.001	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)		(<0.002U)			(<0.05U)
Sulfate	250	**305**	**312**	**299**	**252**	**310**	233	201	213	**2510**	182	209	210	190	220	190	250
TDS	---	765	848														
TKN	---	(<1U)	(<1U)														
TOC	---	3	3														

Groundwater

Water Quality Parameters (mg/L)

		MW-7B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Alkalinity	---	129	139														
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.16	0.057	(<0.03U)	0.11	0.16
BOD	---	(<2U)	1														
Chloride	250	10.3	14.2														
COD	---	7.91	(<5U)														
Color, apparent	---		70														
Hardness	---	50.7															
Nitrate (expressed as N)	10	(<0.1U)	(<0.1U)														
pH	---	8.6	8.64														
Phenolics	0.001	**0.00222**	**0.003**	**0.007**	(<0.002U)	**0.009**	(<0.002U)	(<0.002U)	**0.003**	**0.007**	**0.003**	**0.013**		**0.011**			**0.052**
Sulfate	250	39	37.7	43.1	37	41.9	48.4	36.3	33.5	38.6	53.2	44.3	29	99	34	44	39
TDS	---	238	231														
TKN	---	(<1U)	1.21														
TOC	---	2.5	2														

		MW-8B															
		Dec-00	Mar-01	Jun-01	Sep-01	Dec-01	Mar-02	Jun-02	Sep-02	Dec-02	Mar-03	Jun-03	Sep-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**																
Alkalinity	---	380	372														
Ammonia (expressed as N)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.064	(<0.03U)	(<0.03U)	(<0.03U)	(<0.03U)
BOD	---	(<2U)	1														
Chloride	250	68.1	67.2														
COD	---	(<5U)	34.3														
Color, apparent	---		40														
Hardness	---	1430															
Nitrate (expressed as N)	10	3.68	2.43														
pH	---	7.84	6.99														
Phenolics	0.001	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)	(<0.002U)		(<0.002U)			(<0.05U)
Sulfate	250	**475**	**503**	**434**	**419**	**464**	**457**	**365**	**398**	**399**	**366**	**335**	**330**	**300**	**280**	230	**260**
TDS	---	1130	1260														
TKN	---	(<1U)	(<1U)														
TOC	---	2.5	2														

APPENDIX B (CONTINUED)

Surface Water

Baseline Metals by EPA Method 6010/6020 (mg/L)

Total (Unfiltered)

		SS												
		Dec-00	Mar-01	Jun-01	Dec-01	Mar-02	Jun-02	Dec-02	Mar-03	Jun-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**													
Aluminum	---	0.38	27.7											
Arsenic	0.34	(<0.005U)												
Barium	---	0.14	0.17											
Boron	10	0.1	(<0.1U)											
Cadmium	---	(<0.005U)	(<0.005U)				(<0.005U)			(<0.005U)		(<0.01U)		
Calcium	---	149	93.5											
Chromium	---	(<0.005U)	0.035	0.011	0.432	0.016	0.559	0.392	0.429	0.015	0.11	0.24	(<0.01U)	(<0.01U)
Chromium, Hexavalent	0.016	(<0.01U)	(<0.01U)	(<0.01U)	**0.34**	(<0.01U)	**0.402**	**0.37**	**0.37**	(<0.01U)	**0.1**	**0.2**	(<0.01U)	(<0.01U)
Copper	---	(<0.005U)	0.014											
Cyanide	0.022	(<0.004U)	(<0.004U)											
Hardness	---		329											
Iron	0.3	0.16	**21.8**	**1.4**	**5.5**	**0.674**	**9.3**	(<0.025U)	0.099	**1.01**	(<0.05U)	(<0.5U)	0.051	**0.7**
Lead	---	(<0.005U)	0.011	(<0.005U)	0.032	(<0.005U)	0.033	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Magnesium	---	(<1U)	23.1	7.6	522	41.1	170	3.61	2.46	8.87	2.5	(<10U)	14	31
Manganese	---	(<0.005U)	0.267	0.038	0.226	0.019	0.215	(<0.005U)	(<0.005U)	0.035	(<0.01U)	(<0.01U)	0.018	0.52
Nickel	---	0.009	0.019											
Potassium	---	134	12											
Selenium	0.0046	**0.011**	(<0.005U)	**0.009**	**0.027**	**0.006**	**0.03**	**0.016**	**0.024**	**0.012**	(<0.01U)	(<0.01U)		(<0.01U)
Silic	---							1.16						
Silica	---	13.5	129	30.3	112	18.3	53.3		1.4	7.05				11
Silicon	---										1.8	0.43	2.2	
Sodium	---	77.7	9	94.6	77.2	68	127	71.9	65.6	54.8	25	52	4.1	12
Sulfate	---							13.4						
Thallium	0.02	0.0043	(<0.001U)		(<0.005U)	0.008	(<0.005U)				(<0.01U)		0.011	
Zinc	---	(<0.005U)	0.06	(<0.005U)	0.067	(<0.005U)	0.082	(<0.005U)	(<0.005U)	(<0.005U)	(<0.01U)	(<0.01U)	0.019	(<0.01U)

Water Quality Parameters (mg/L)

Surface Water

Water Quality Parameters (mg/L)

		SS												
		Dec-00	Mar-01	Jun-01	Dec-01	Mar-02	Jun-02	Dec-02	Mar-03	Jun-03	Apr-04	Oct-04	Apr-05	Nov-05
Analyte	**AWQS**													
Alkalinity	---	220	124											
Ammonia (expressed as N)	---	24.8	(<1U)	12.2	3.8	13.3	4.5	3.8	4.4	4.1	1.4	(<3.3U)	0.031	(<0.03U)
BOD	---	9	3											
Chloride	---	59.5	11.6											
COD	---	33.6	21.4											
Color, apparent	---		60											
Hardness	---	371												
Nitrate (expressed as N)	---	(<0.1U)	7.99											
pH	---	10.35	7.68											
Phenolics	---	0.0546	(<0.002U)	0.212	0.064	0.011	0.0594	0.044	0.018	0.113	0.018			0.052
Sulfate	---	621	142	498	44.6	406	10.7		14.7	31.5	71	9.9	23	68
TDS	---	1160	439											
TKN	---	25.6	2.78											
TOC	---	(<1U)	10											

Treatment System Discharge

All Monitored Parameters

Treatment System Discharge

Parameter	NYSDEC Discharge Criteria	2003						
		20-Nov	25-Nov	02-Dec	09-Dec	16-Dec	23-Dec	30-Dec
pH	6-8 SU	**2.1(a)**	7.7	**8.1**	6.3	7	6.8	7.2
Total suspended solids	10 mg/L	**12**	(<4U)	7	**160**	**43**	10	**30**
Ammonia as N	9.2 mg/L	2.9	2.1	2.6	3.1	4.3	3.6	3
Total Kjeldahl nitrogen	Monitor	2.3	3.3	2.1	4.8	5	3.2	2.3
Biochemical oxygen demand	5.0 mg/L	4	(<4U)	(<4U)	**70**	**7.6**	(<4U)	**8**
1,1-Dichloroethane	5.0 mg/L	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Trichloroethane	5.0 mg/L	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Nickel	0.07 mg/L	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Copper	0.0147 mg/L	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Barium	2 mg/L	(<0.01U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.01U)	(<0.2U)	(<0.2U)
Total chromium	0.05 mg/L	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Hexavalent chromium	0.011 mg/L	NA	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Iron	0.3 mg/L	**1.7**	0.22	**1.6**	**150**	**24**	**7.8**	**21**
Selenium	0.0046 mg/L	(<0.01U)	**0.012**	**0.014**	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Thallium	0.004 mg/L	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Zinc	0.115 mg/L	(<0.01U)	(<0.01U)	0.013	(<0.01U)	(<0.01U)	(<0.01U)	0.016
Nitrate as N	Monitor	0.83	(<0.1U)	(<0.1U)	0.17	0.34	0.25	0.26
Nitrite as N	Monitor	(<0.1U)	0.88	0.89	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)
Chemical oxygen demand	40 mg/L	14	3.8	4	36	20	23	21
Total dissolved solids	Monitor	480	NA	NA	660	890	730	450
Total Recoverable Phenolics	0.008 mg/l	NA	NA	NA	NA	NA	NA	NA

Parameter	2004					
	07-Jan	17-Feb	25-Mar	16-Apr	29-Jul	05-Aug
pH	7.5	6.3	7.4	7.8	7.9	8
Total suspended solids	**22**	**110**	**14**	9.5	(<4U)	**15**
Ammonia as N	3.3	4.7	3	1.8	6.3	3.6
Total Kjeldahl nitrogen	4.2	6	6.4	3.2	6.4	4.4
Biochemical oxygen demand	**8.4**	**16**	**12**	(<4U)	(<4U)	(<4U)
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Nickel	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Copper	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Barium	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)
Total chromium	(<0.01U)	0.012	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Hexavalent chromium	(<0.01U)	(<0.01U)	(<0.01U)	**0.013**	(<0.01U)	(<0.01U)
Iron	**6.5**	**64**	**7.6**	**0.38**	**0.45**	**0.96**
Selenium	**0.012**	(<0.01U)	**0.015**	(<0.01U)	(<0.01U)	(<0.01U)
Thallium	(<0.01U)	(<0.01U)	**0.012**	(<0.01U)	(<0.01U)	(<0.01U)
Zinc	0.011	0.016	(<0.01U)	0.014	(<0.01U)	(<0.01U)
Nitrate as N	0.2	(<0.1U)	(<0.1U)	0.23	(<0.1U)	0.17
Nitrite as N	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	(<0.1U)	0.21
Chemical oxygen demand	10	40	14	12	(<2U)	11
Total dissolved solids	690	NA	850	470	460	450
Total Recoverable Phenolics	NA	NA	NA	NA	NA	NA

Parameter	2005			
	25-Feb	27-Apr	08-Nov	27-Dec
pH	6.4	6.5	6.4	6.1
Total suspended solids	**79**	(<4U)	**66**	9
Ammonia as N	2	4.3	0.42	1.8
Total Kjeldahl nitrogen	2.8	4.7	1.3	2.7
Biochemical oxygen demand	**6.4**	(<4U)	(<10U)	(<4U)
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)
Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)
Nickel	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Copper	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Barium	(<0.2U)	(<0.2U)	(<0.2U)	(<0.2U)
Total chromium	(<0.01U)	0.039	(<0.01U)	0.045
Hexavalent chromium	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Iron	**38**	**0.57**	**23**	**3.6**
Selenium	(<0.01U)	(<0.01U)	(<0.01U)	(<0.01U)
Thallium	(<0.01U)	**0.025**	(<0.01U)	(<0.01U)
Zinc	0.036	0.022	0.012	0.015
Nitrate as N	1.6	0.5	0.1	0.29
Nitrite as N	0.49	0.39	(<0.1U)	(<0.1U)
Chemical oxygen demand	15	22	32	15
Total dissolved solids	780	NA	360	780
Total Recoverable Phenolics	NA	NA	(<0.002U	(<0.002U

TABLE NOTES

Groundwater sampling results were compared to NYSDEC Ambient Water Quality Standards (AWQS) (NYSDEC 1999) and guidance values for Class GA waters. Class GA groundwater is used as a source of drinking water. Surface water samples were compared to NYSDEC AWQS for Class D surface waters. Class D waters are used for fishing but are not conducive to fish propagation. If no Class D standards were applicable for a particular compound, analytical results were compared to the more stringent Class C standards. Class C waters are suitable for fishing and fish propagation.

(a)	=	Laboratory error; sample diluted with acid.
NA	=	Sample not analyzed for parameter.
*	=	Indicates guidance value.
U	=	Not detected. Sample quantitation limits shown as (<__U).
B*	=	The reported value is less than the Contract Required Detection Limit (CRDL) but greater than the Instrument Detection limit (IDL).
#	=	Sample received outside holding time.

Results shaded and in boldface indicate concentrations above the New York State Ambient Water Quality Standards or Guidance Values.

The analytes shown for each well were detected at concentrations above the AWQS in at least one of the samples from that well.

Analytical Methods for Water Quality Parameters

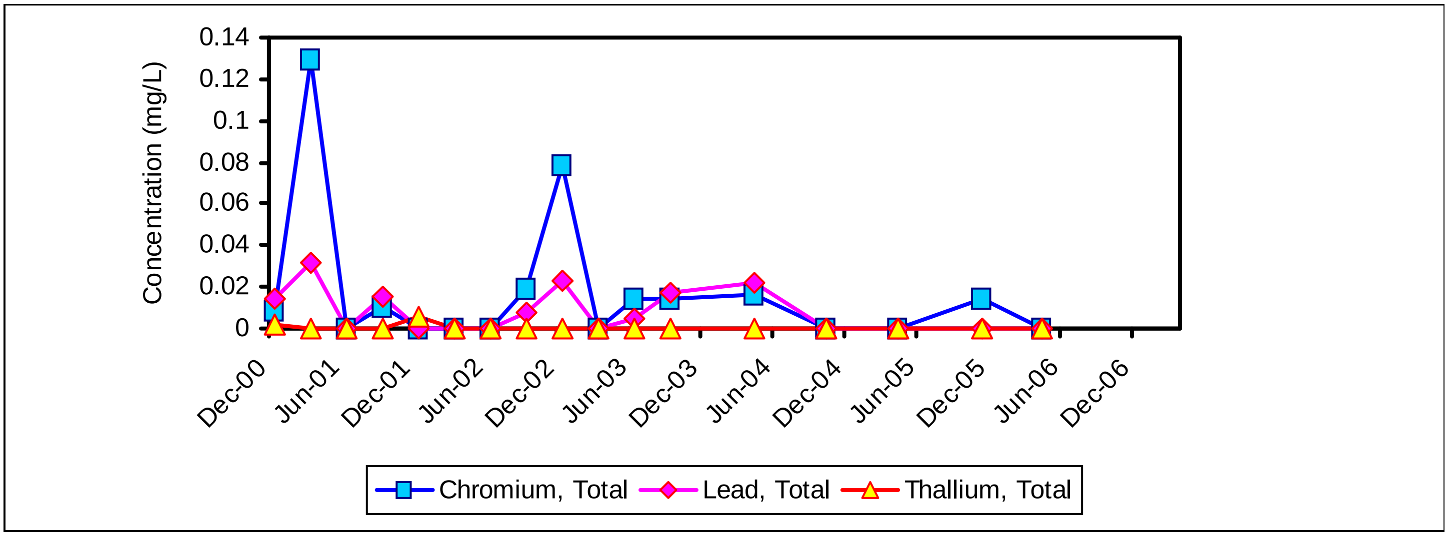
Ammonia (expressed as Nitrogen)	=	EPA 350.2
Phenolics	=	EPA 420.2
Sulfate	=	EPA 375.3

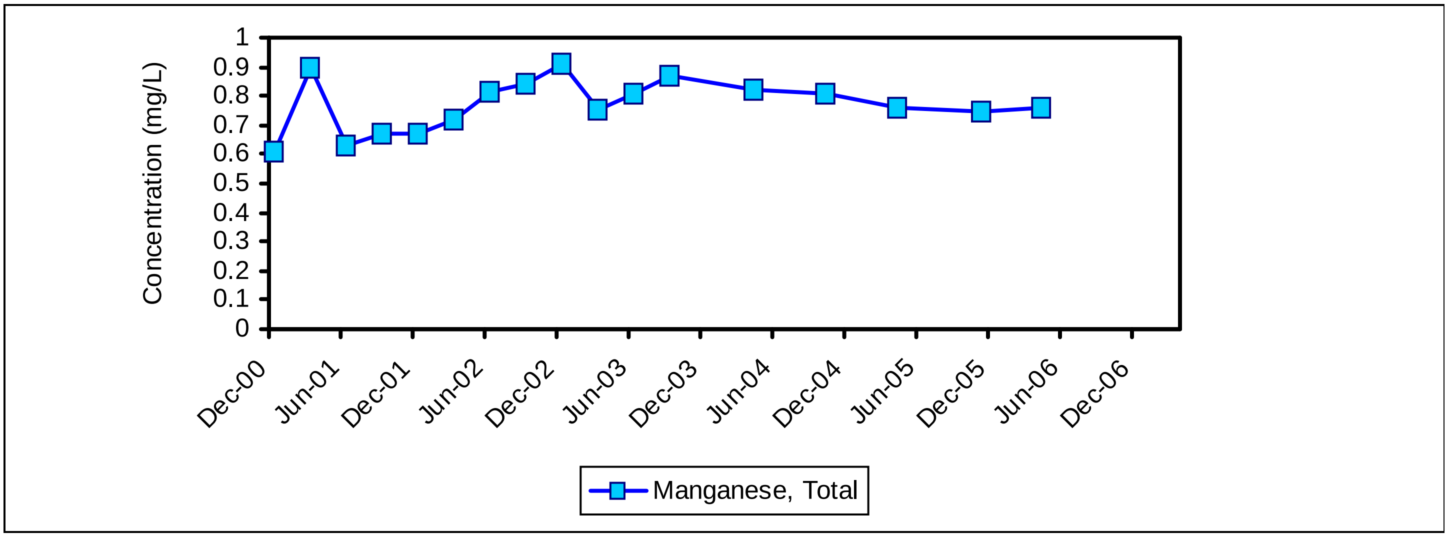
Appendix C

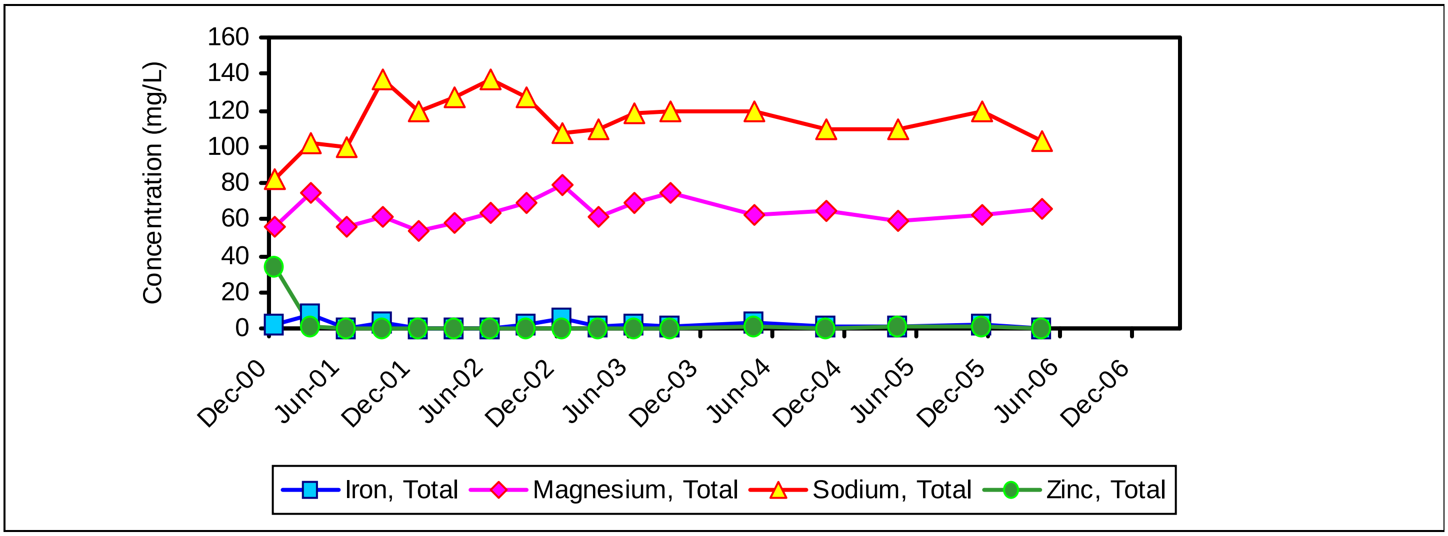
Monitoring Well Trend Charts

Sample Location: MW-1B

Sample Matrix: Groundwater



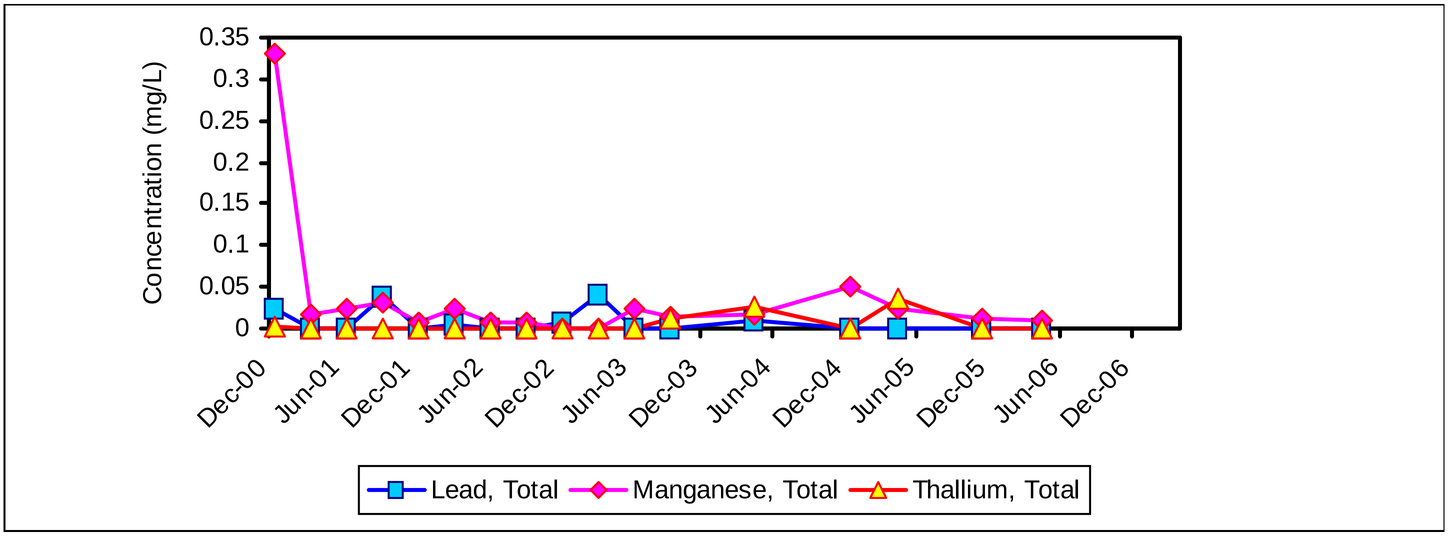


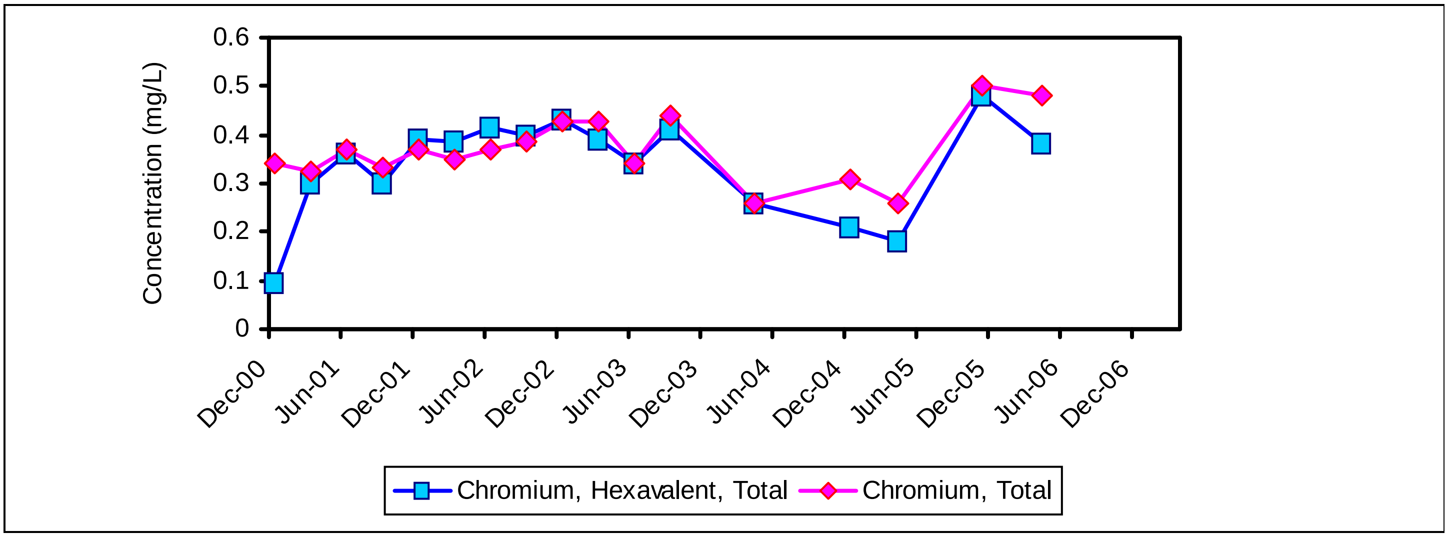


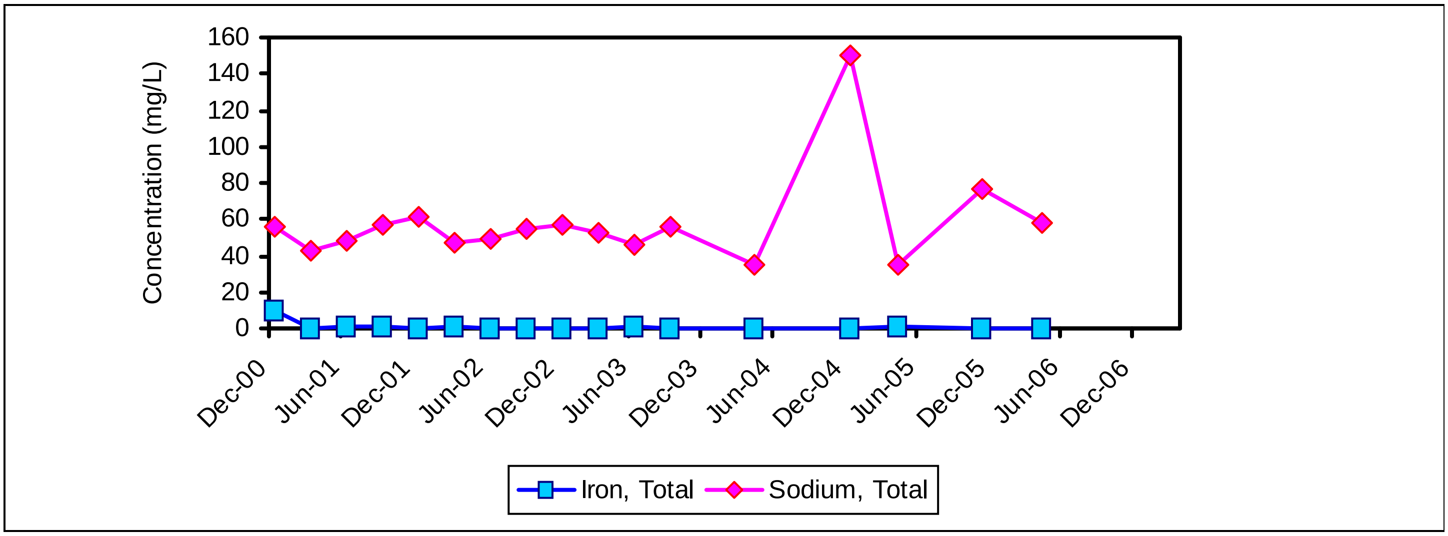
APPENDIX C, CONTINUED

Sample Location: MW-2B

Sample Matrix: Groundwater

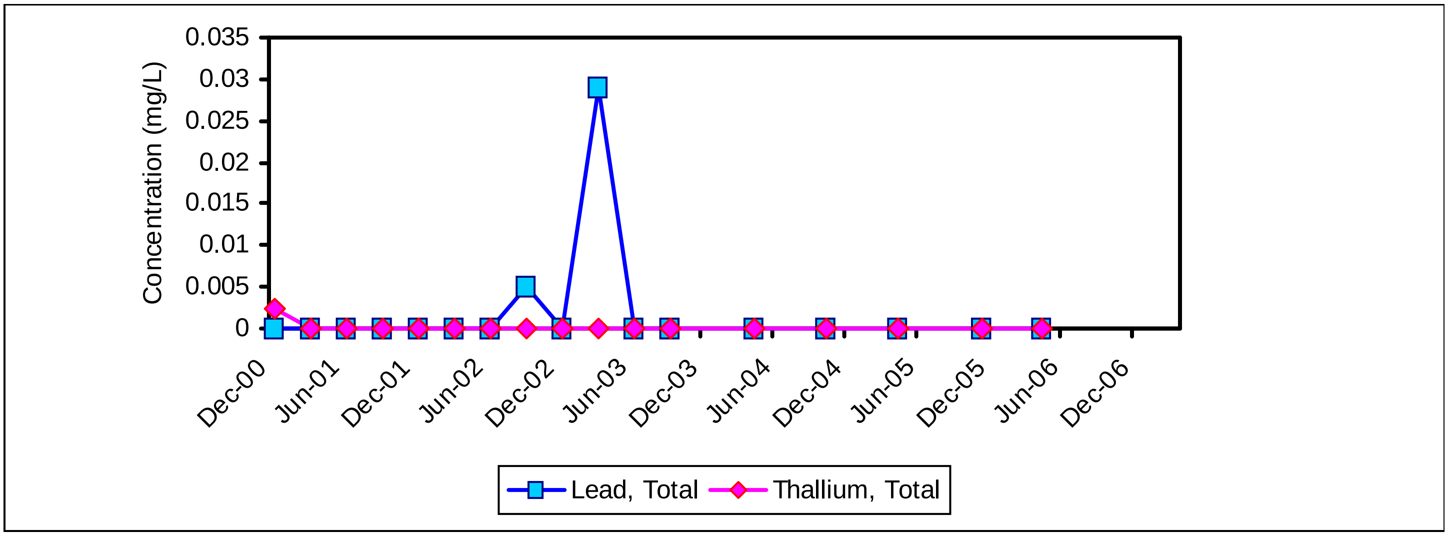


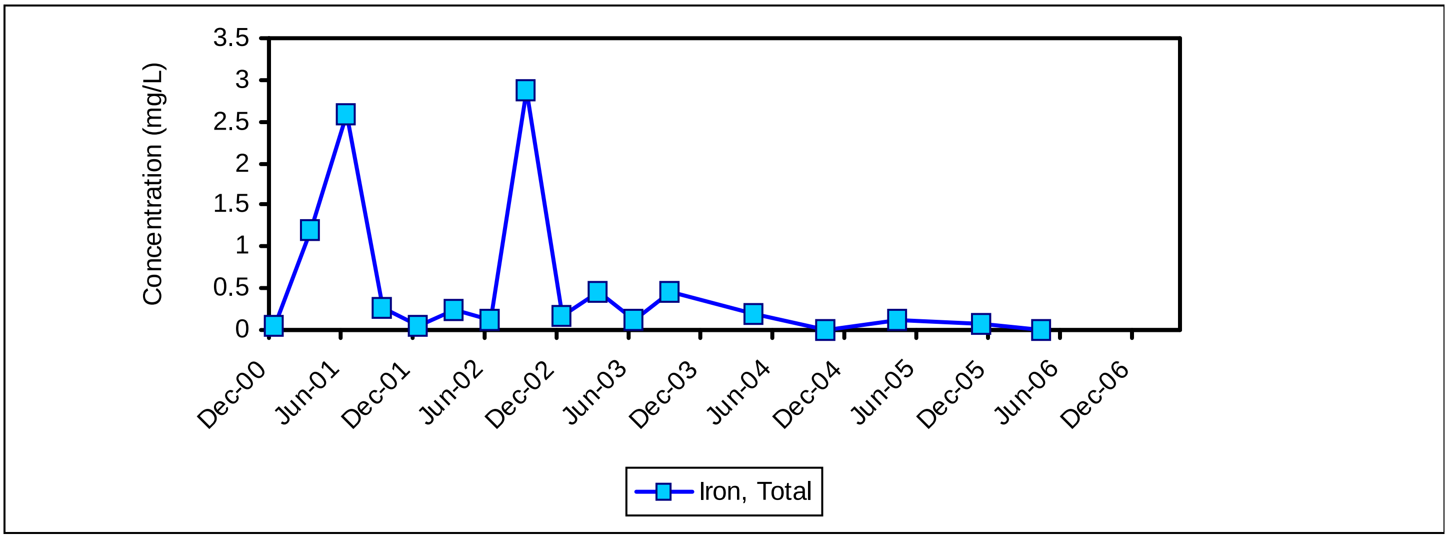


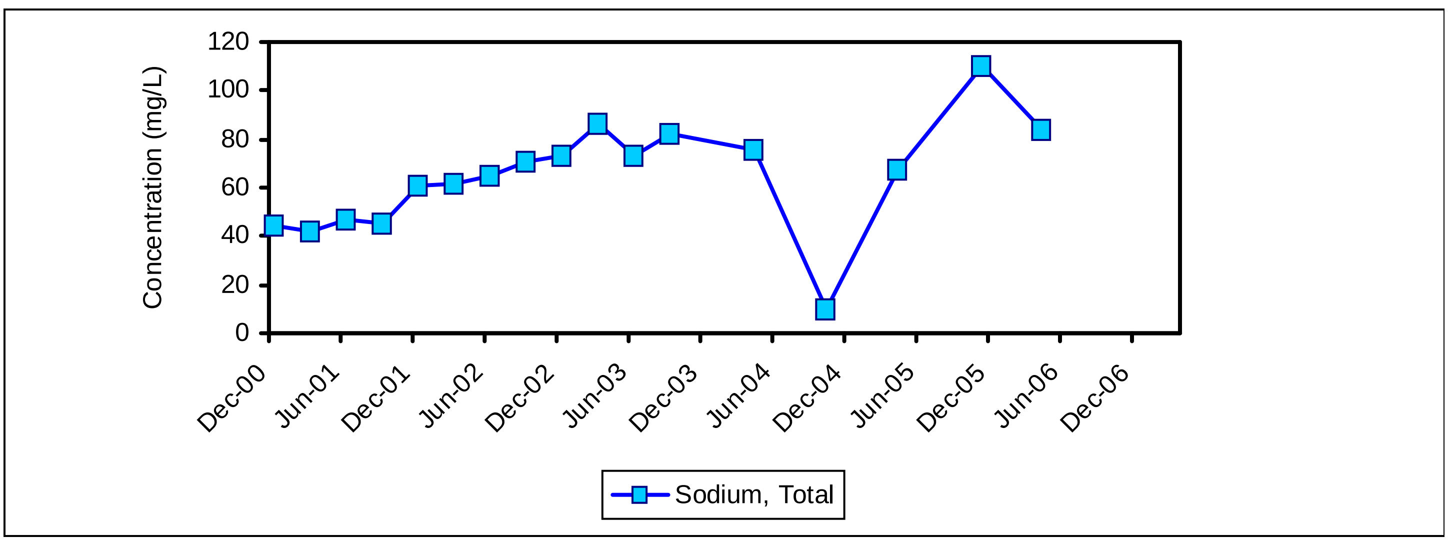


Sample Location: MW-3B

Sample Matrix: Groundwater

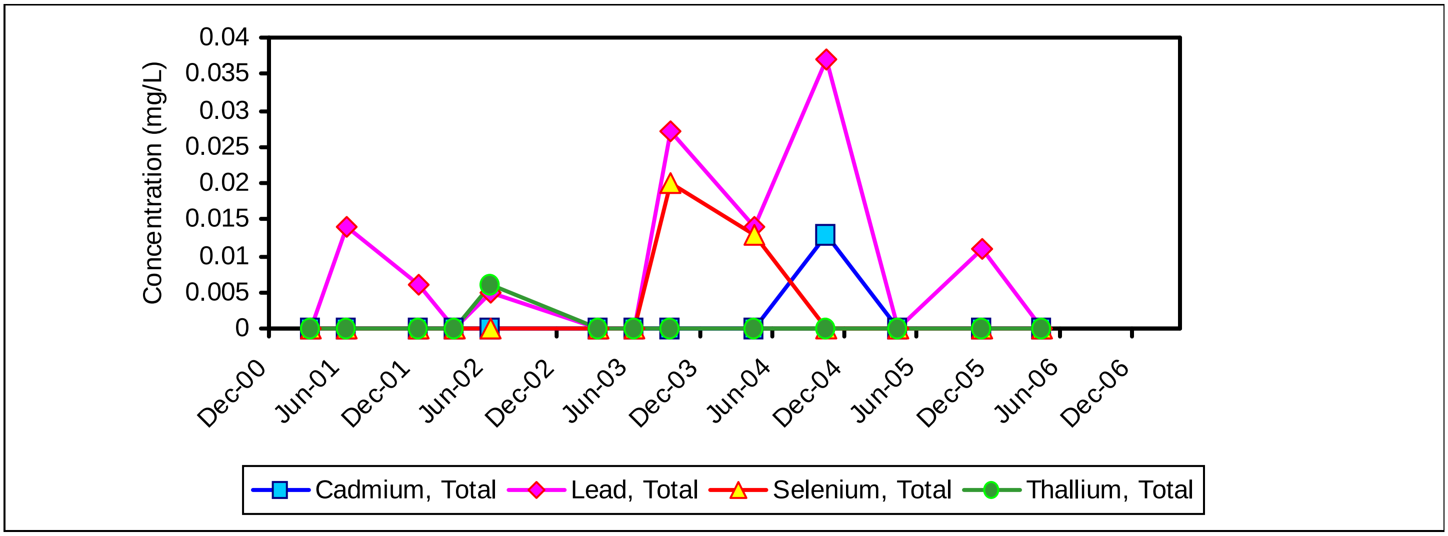


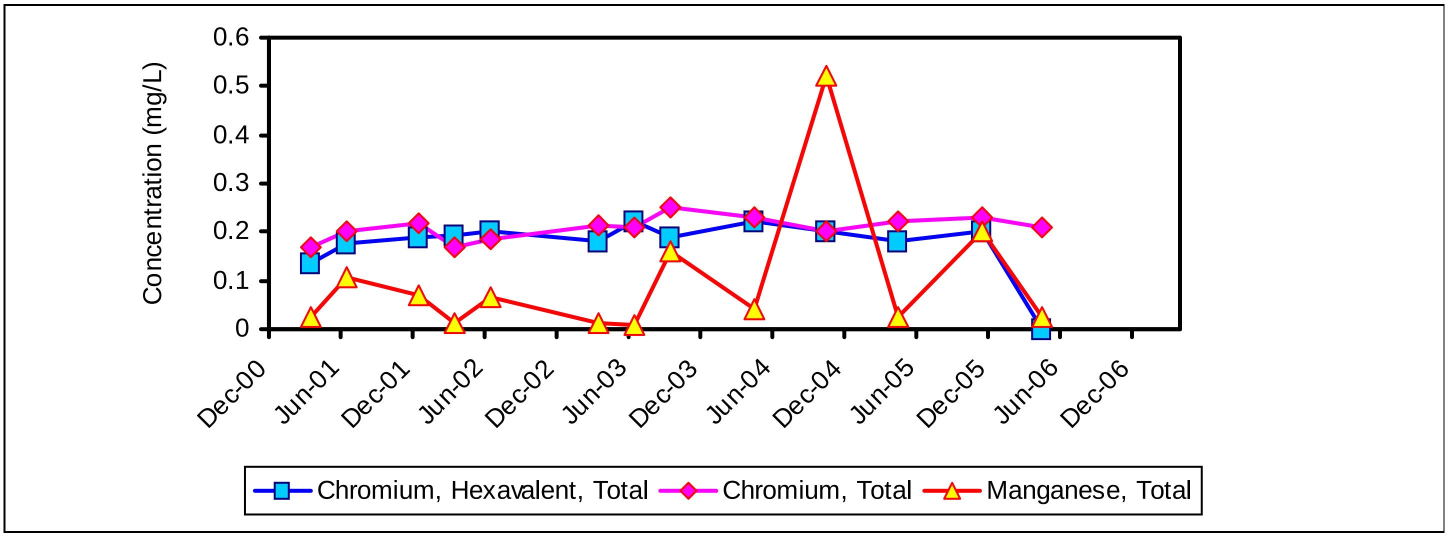


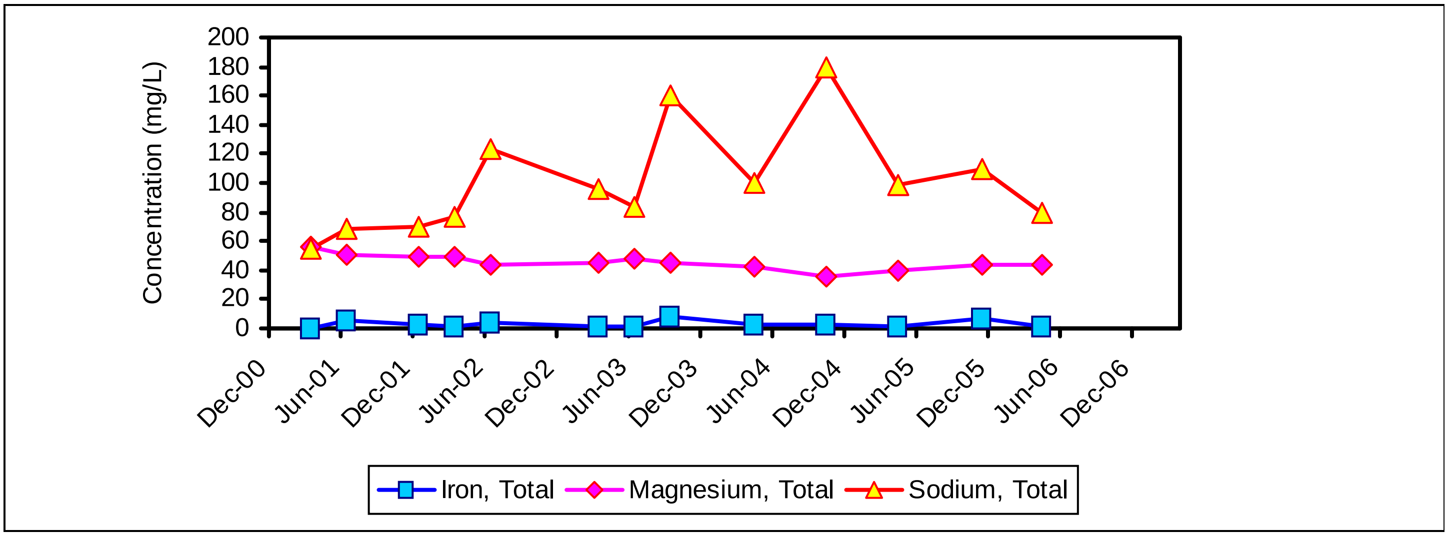


Sample Location: MW-4B

Sample Matrix: Groundwater

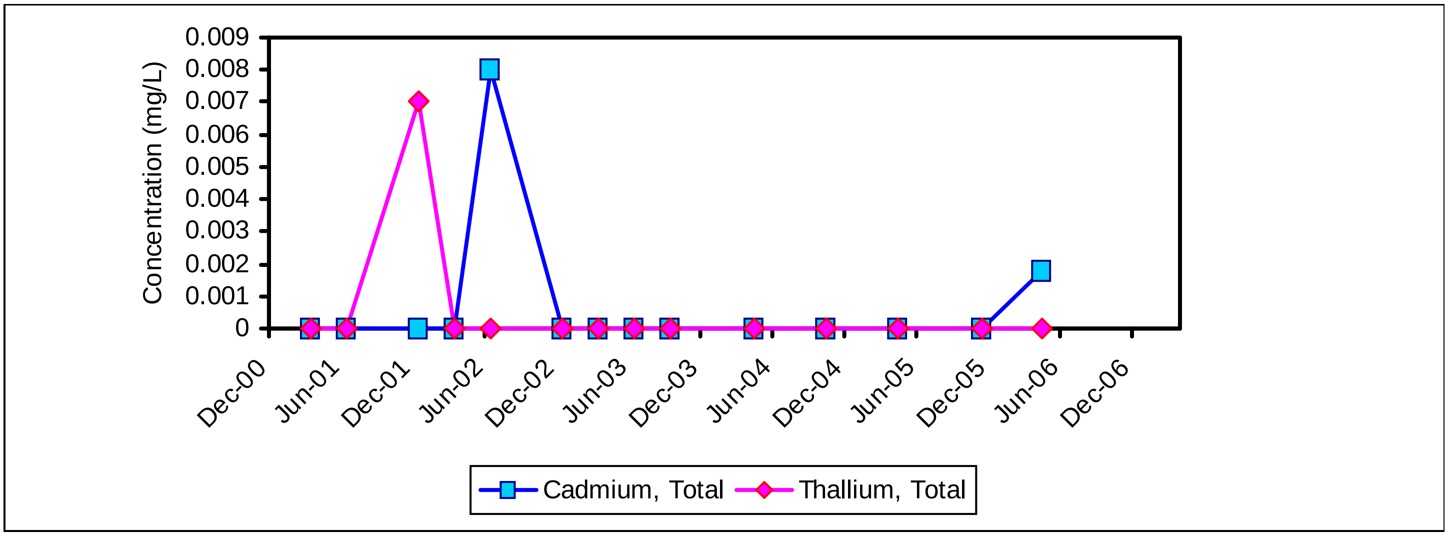


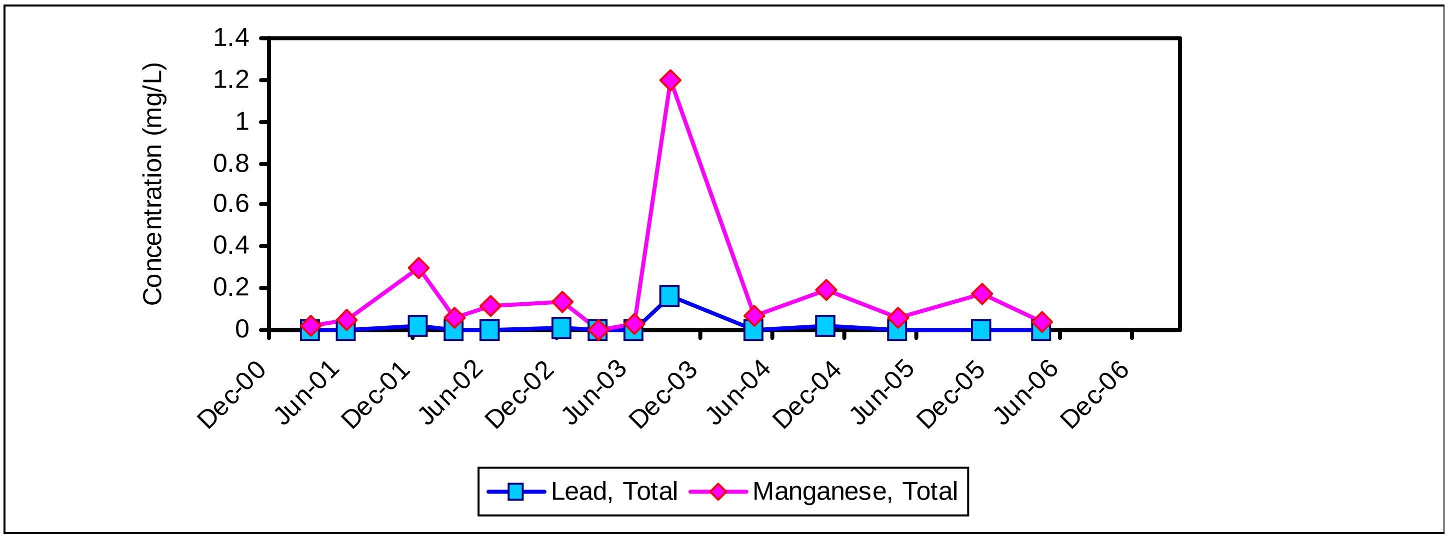


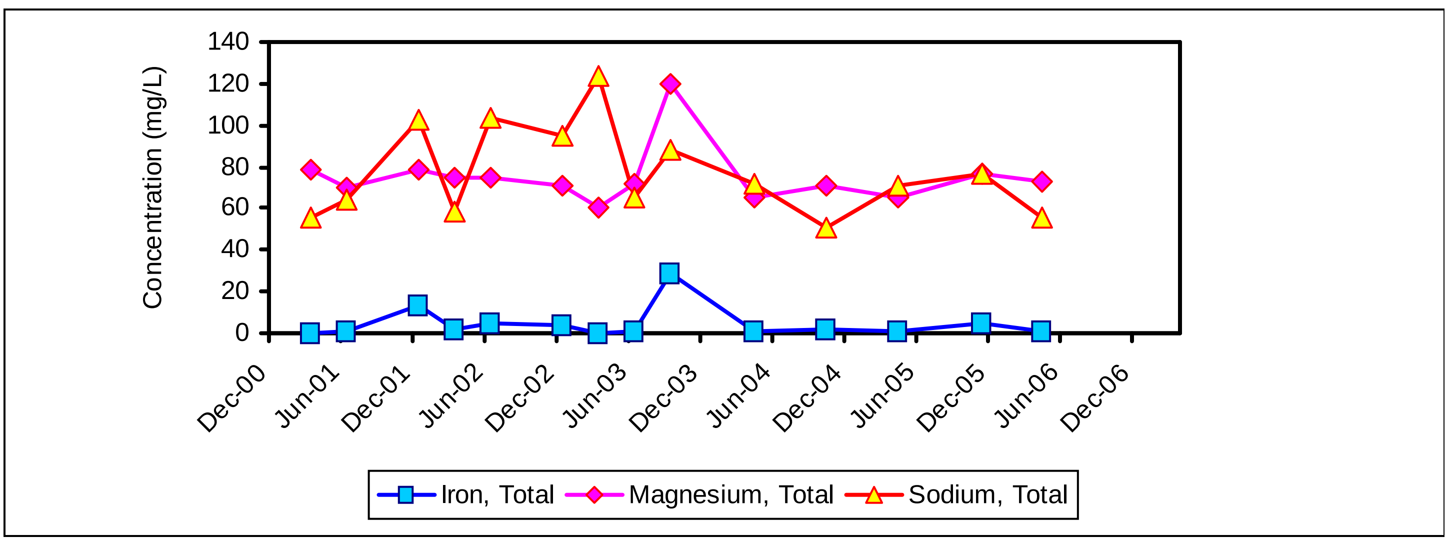


Sample Location: MW-5B

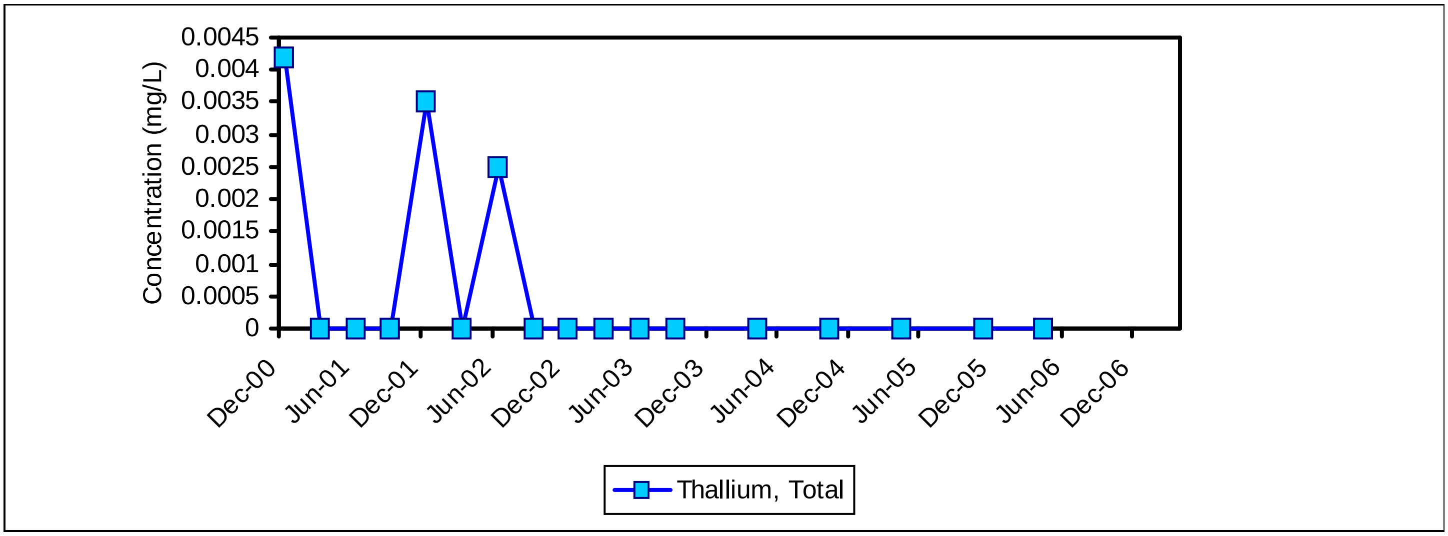
Sample Matrix: Groundwater

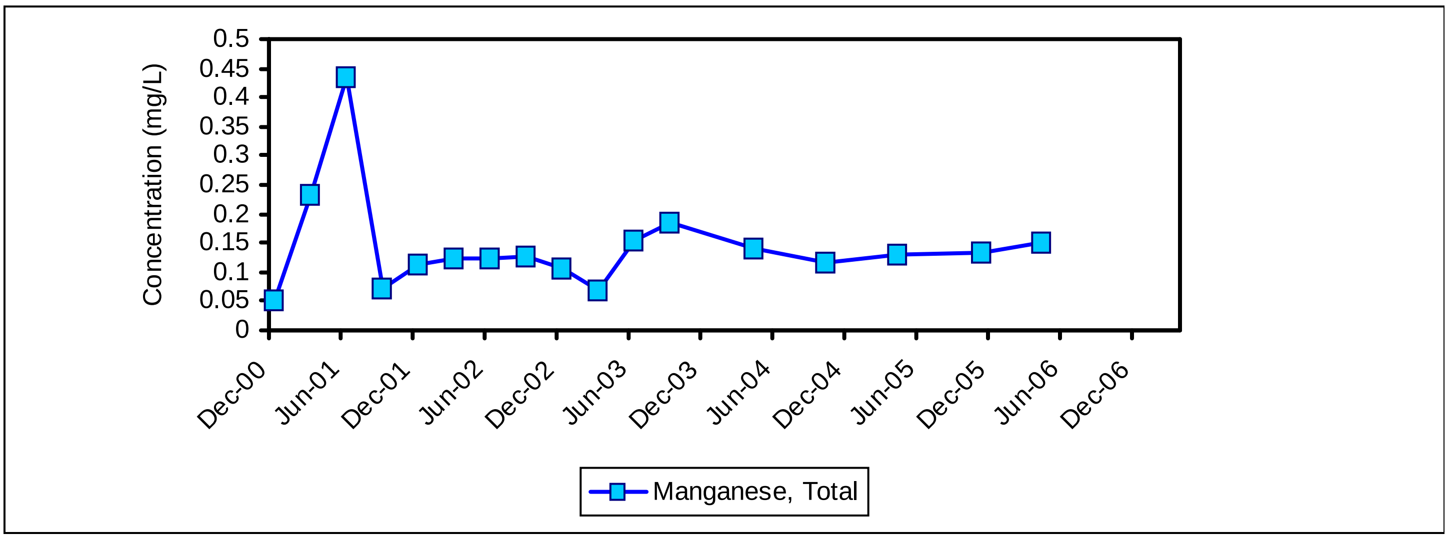


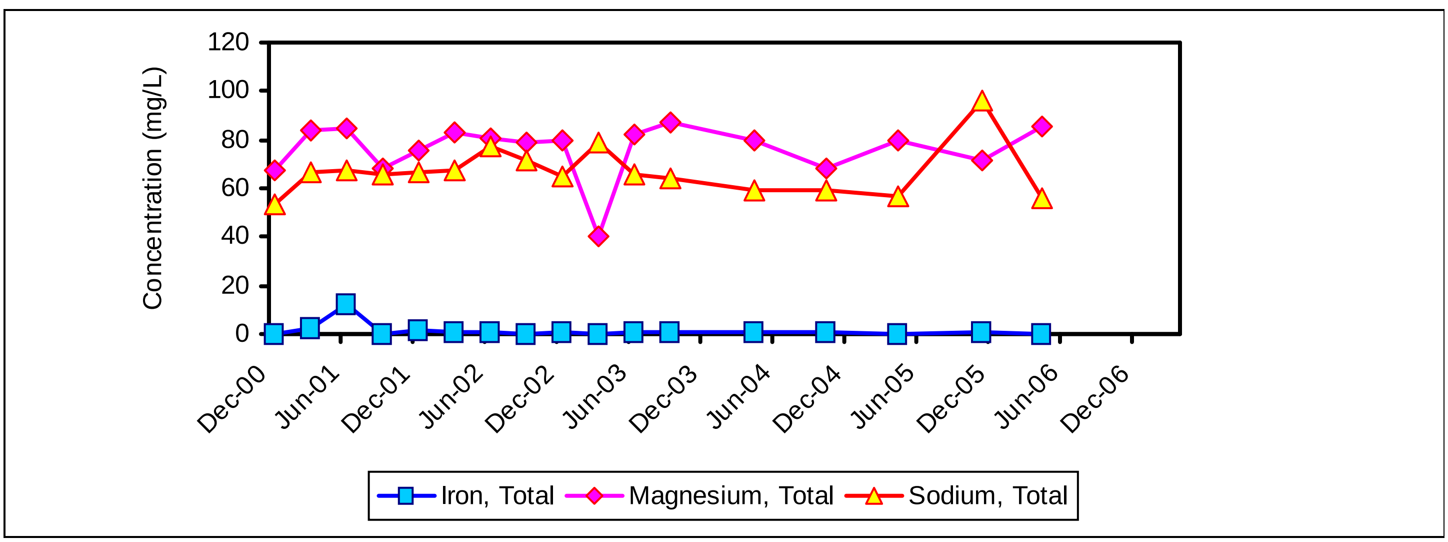




Sample Location: MW-6B
Sample Matrix: Groundwater

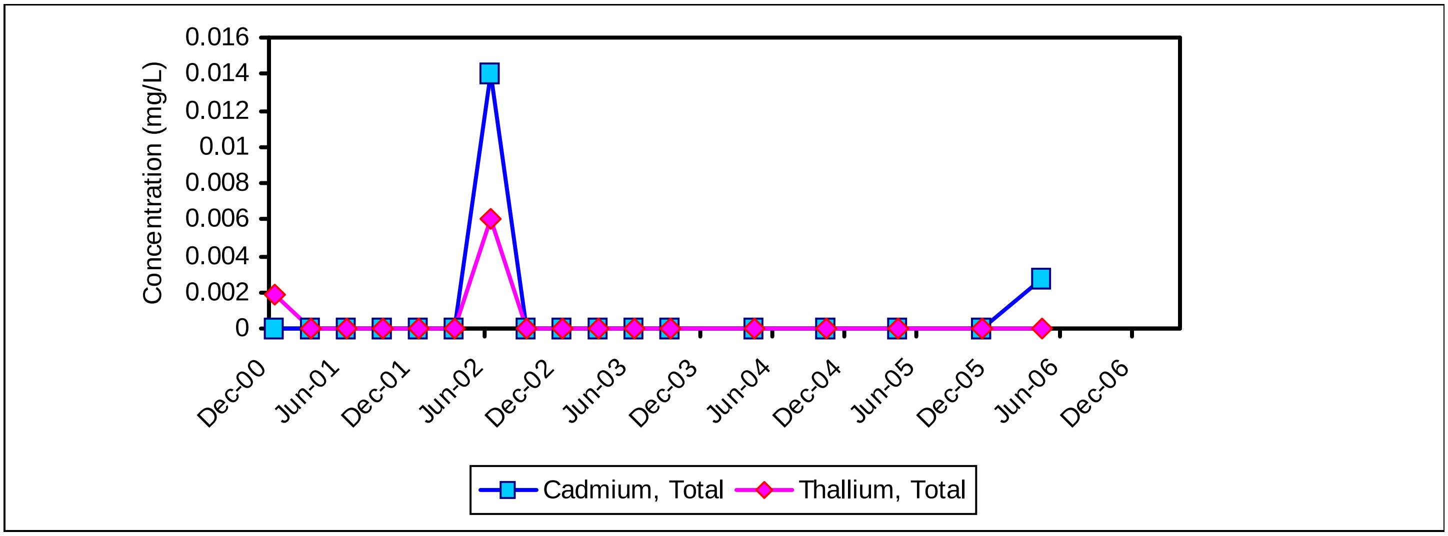


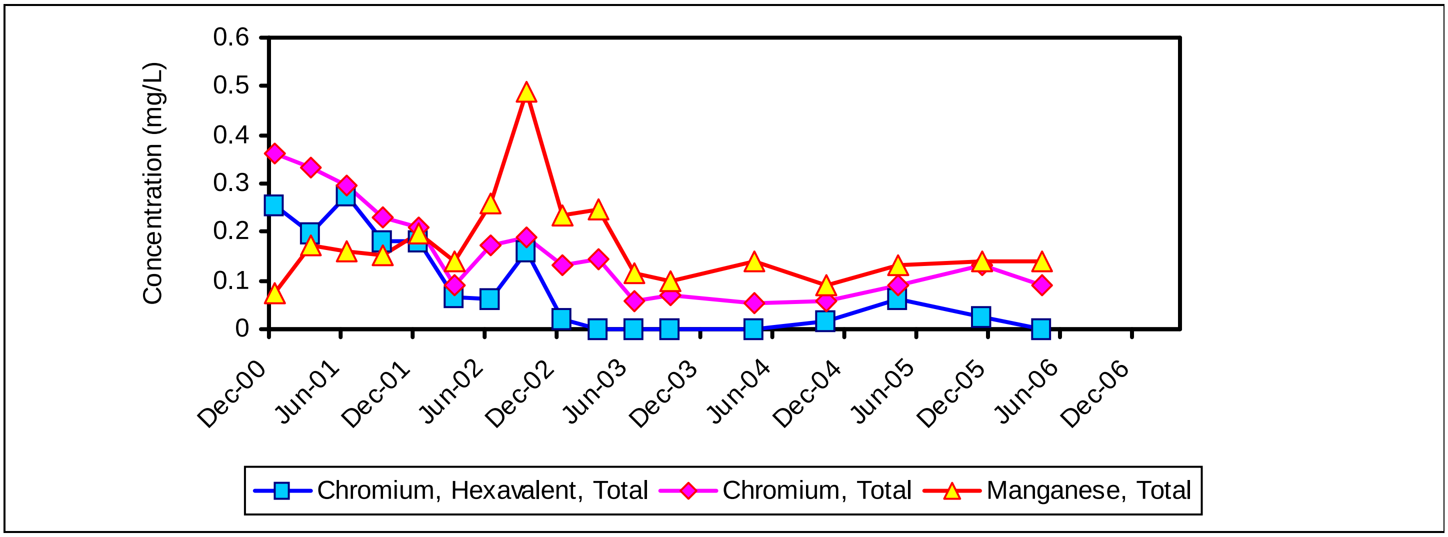


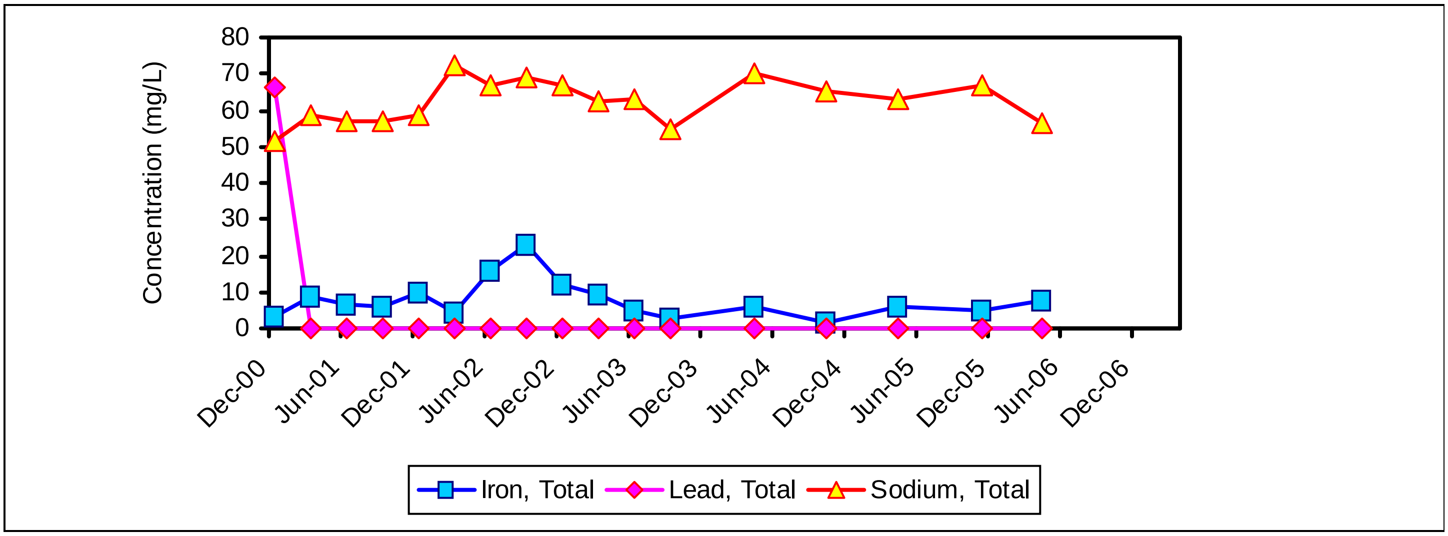


Sample Location: MW-7B

Sample Matrix: Groundwater



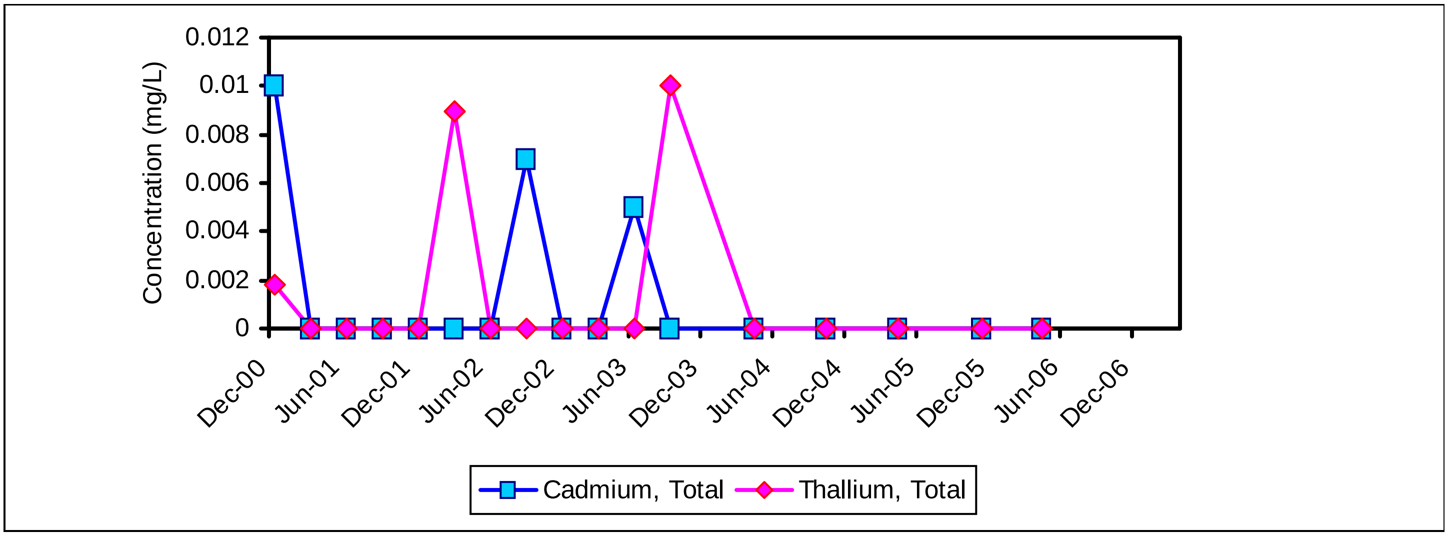


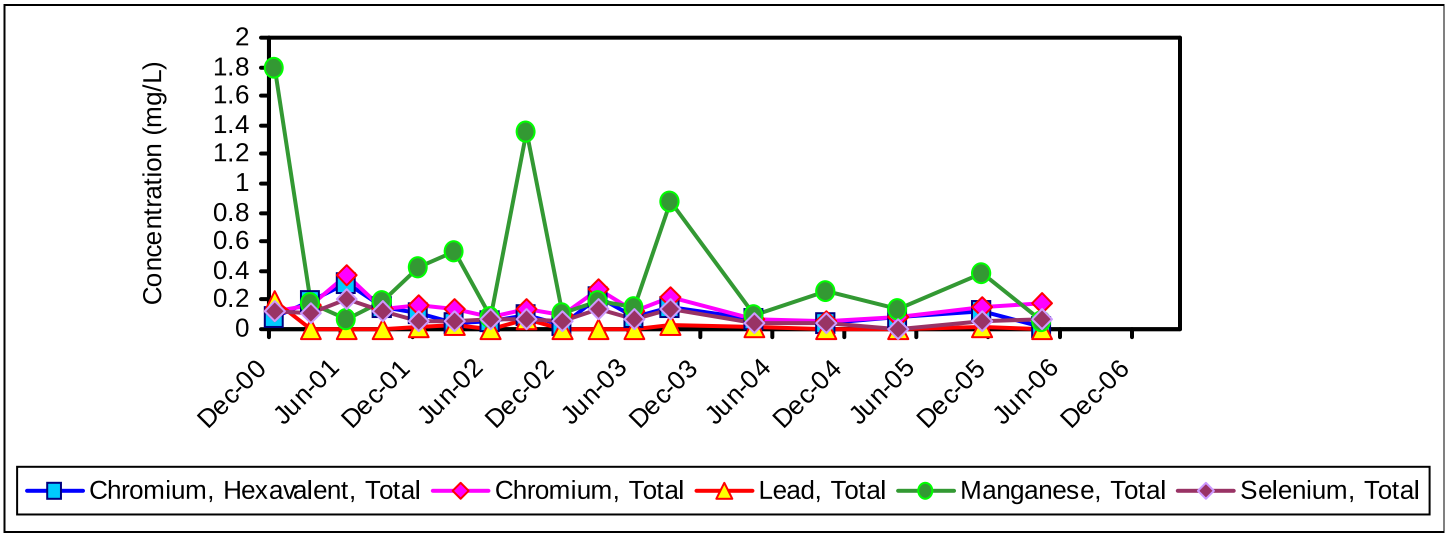


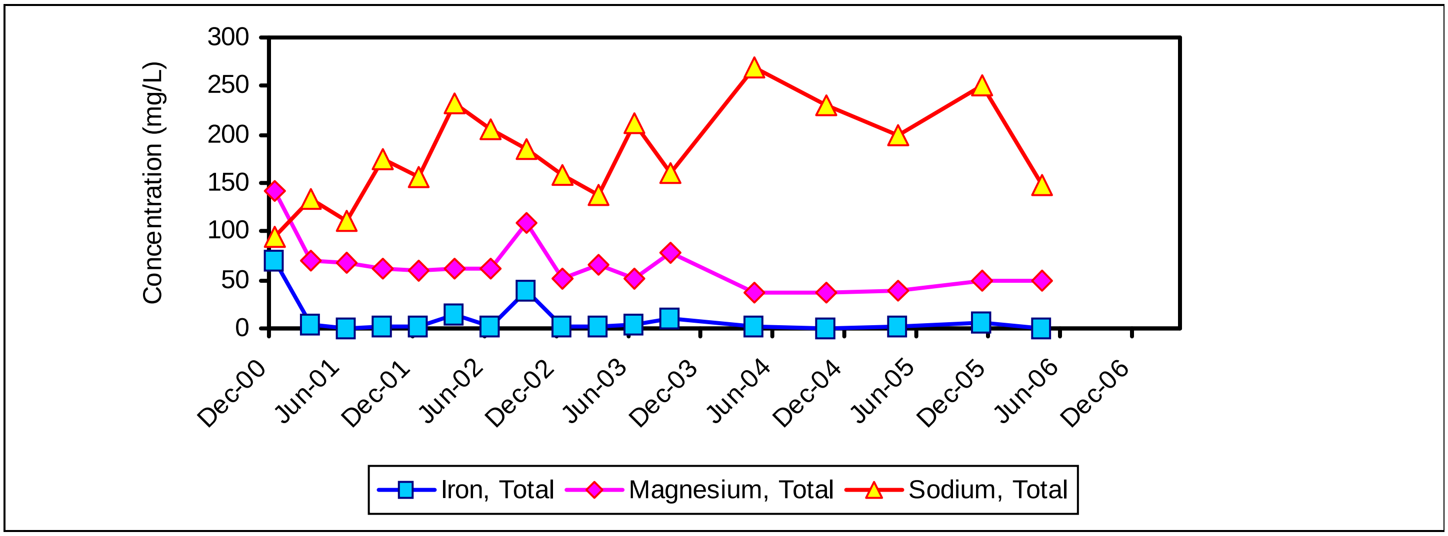
APPENDIX C, CONTINUED

Sample Location: MW-8B

Sample Matrix: Groundwater

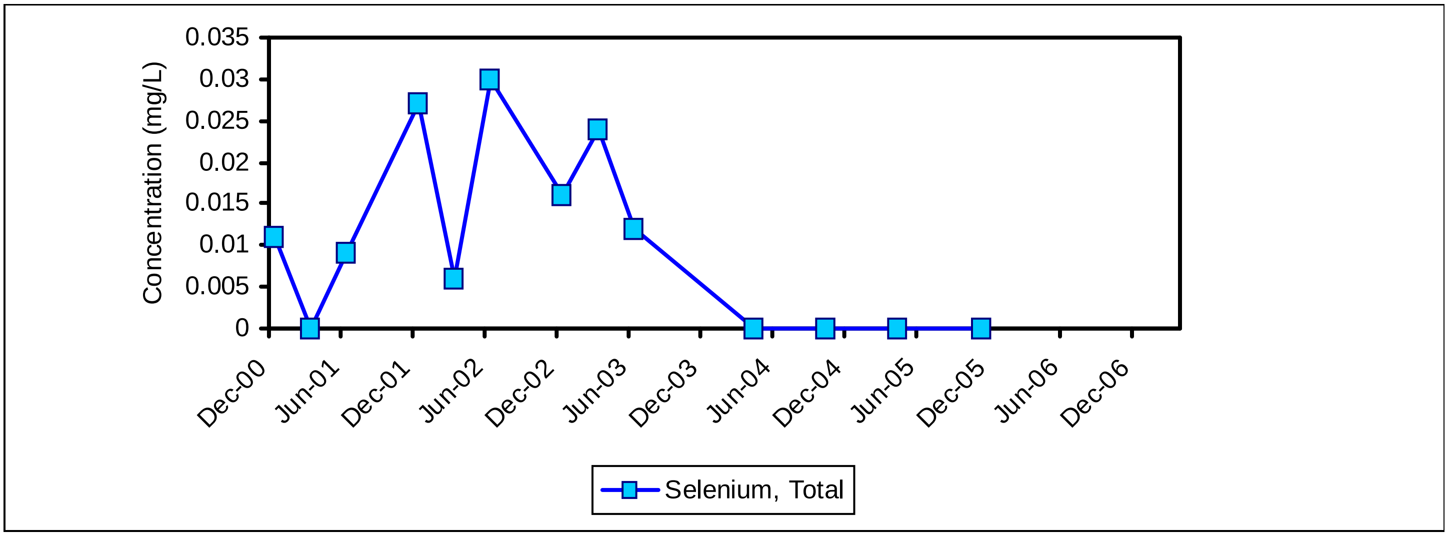


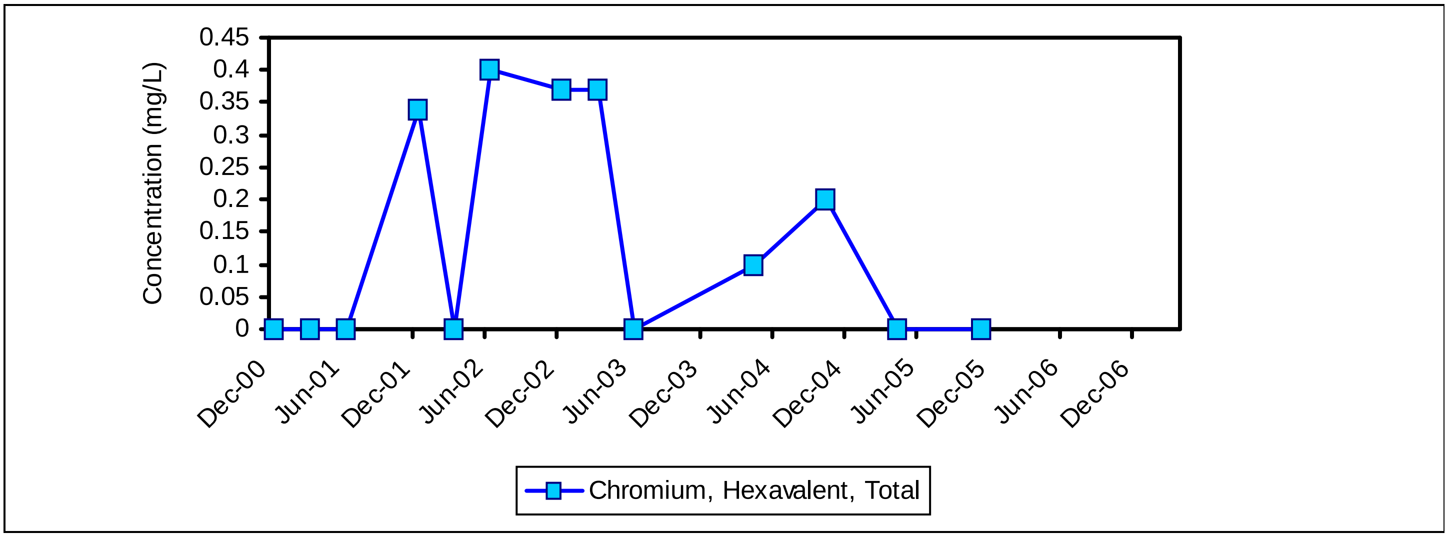


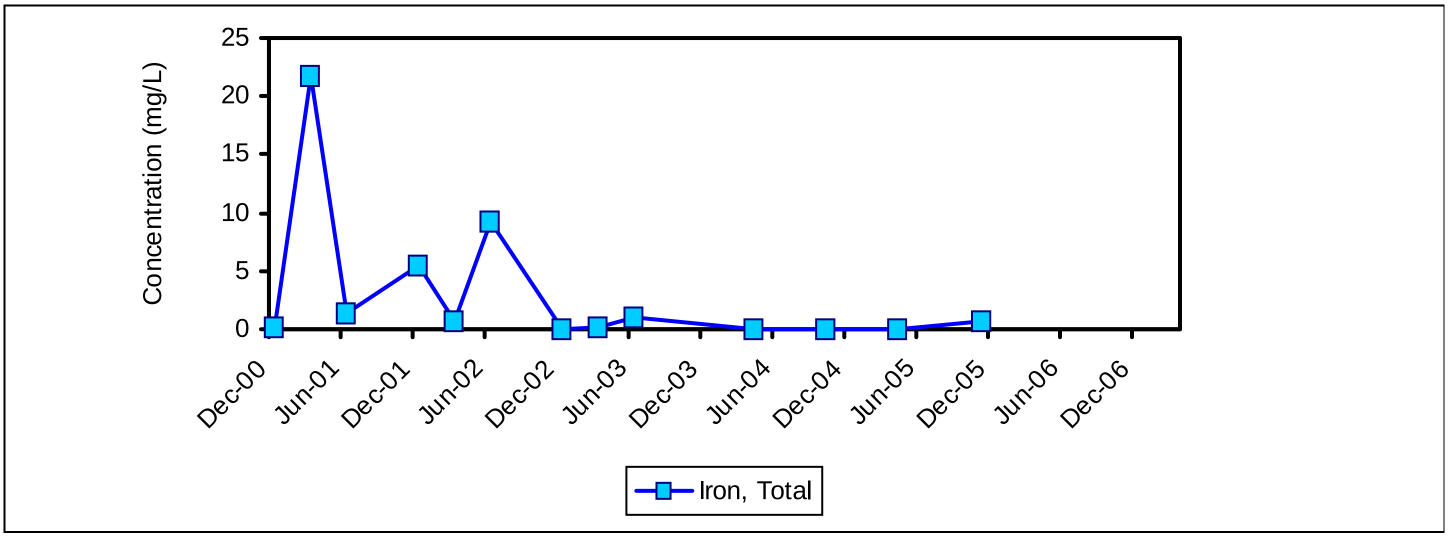


Sample Location: SS

Sample Matrix: Surface Water







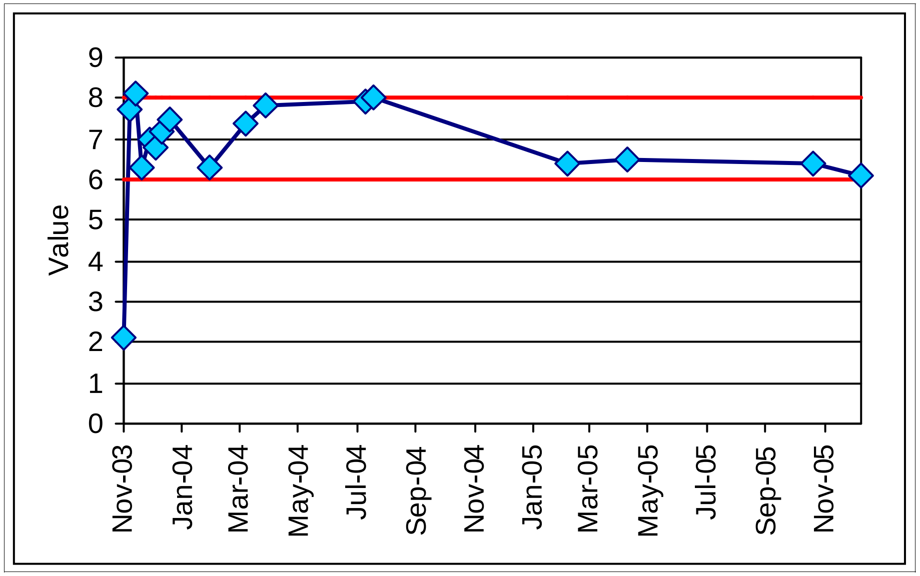
Appendix D

Groundwater Collection and Treatment System Effluent Trend Charts

APPENDIX D GROUNDWATER COLLECTION AND TREATMENT SYSTEM EFFLUENT TREND CHARTS

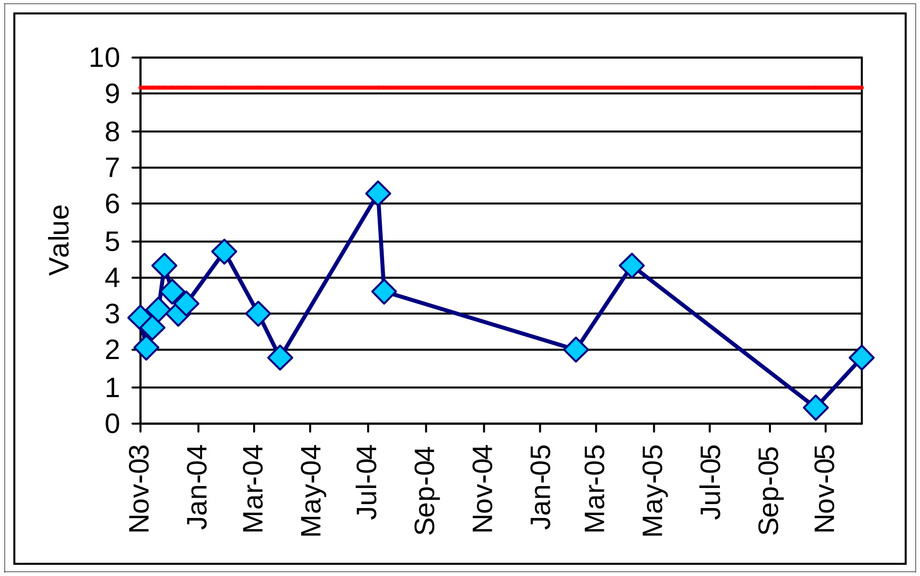
Parameter: pH

New York State Effluent Limit: 6-8 SU



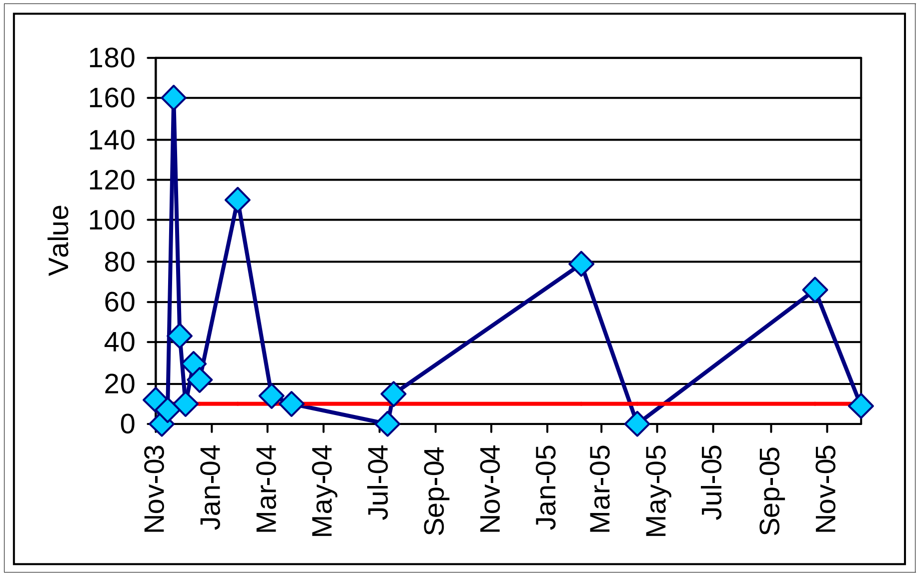
Parameter: Ammonia as N

New York State Effluent Limit: 9.2 mg/L



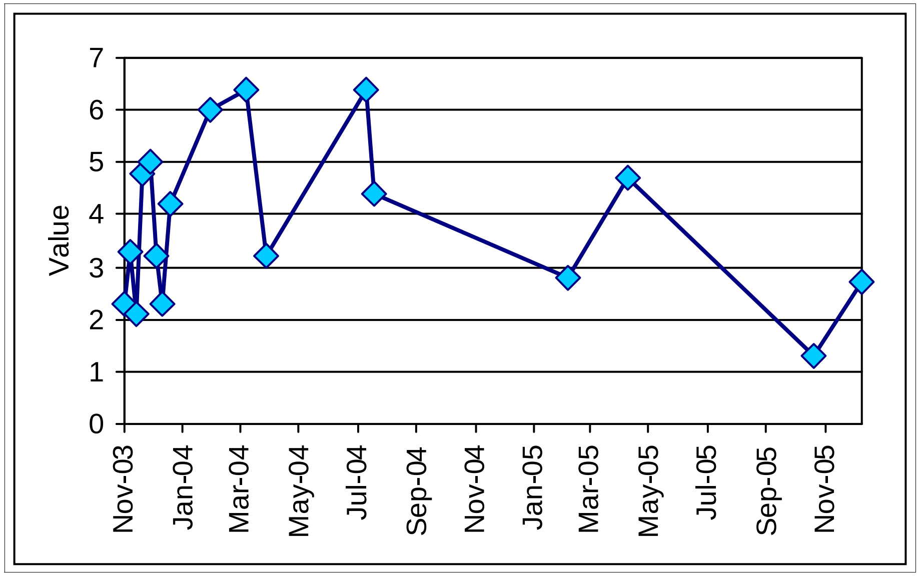
Parameter: Total suspended solids

New York State Effluent Limit: 10 mg/L



Parameter: Total Kjeldahl nitrogen

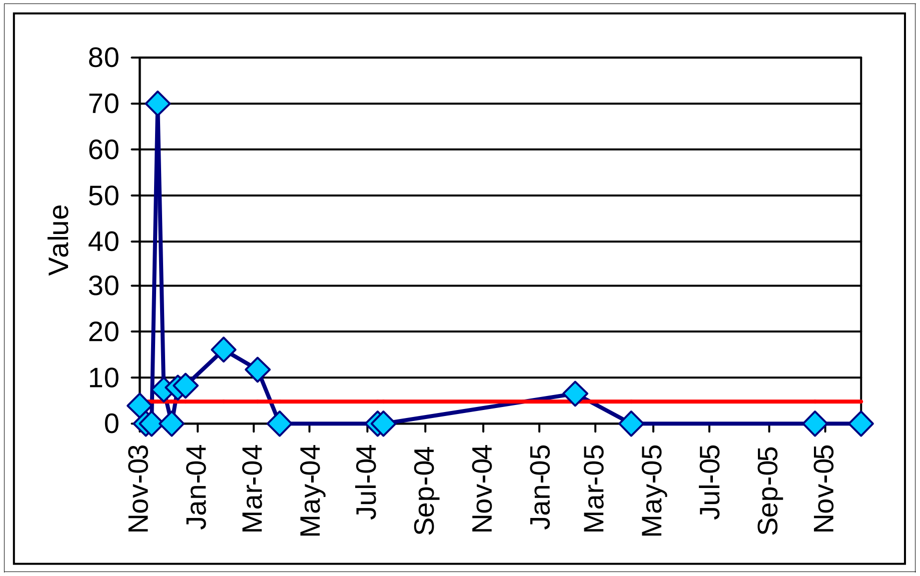
New York State Effluent Limit: Monitor



APPENDIX D, CONTINUED

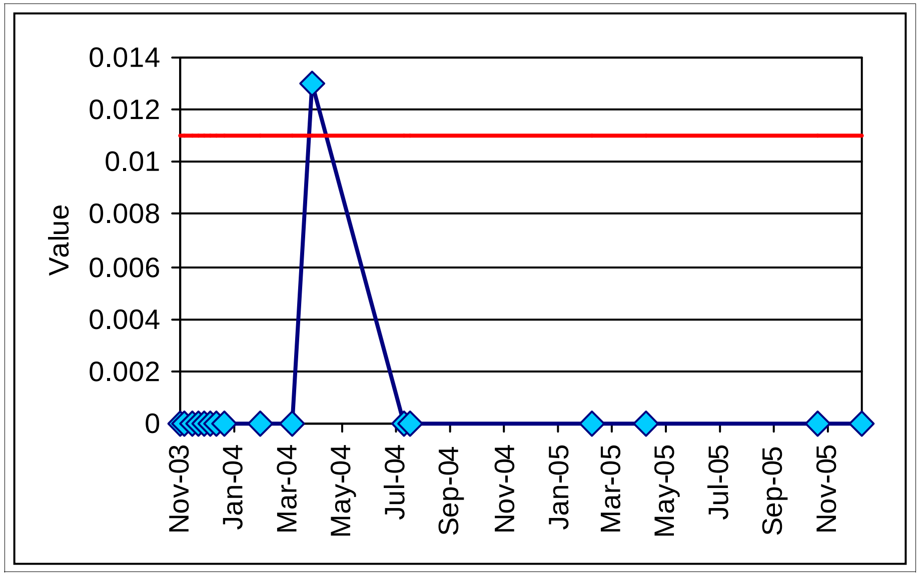
Parameter: Biochemical oxygen demand

New York State Effluent Limit: 5.0 mg/L



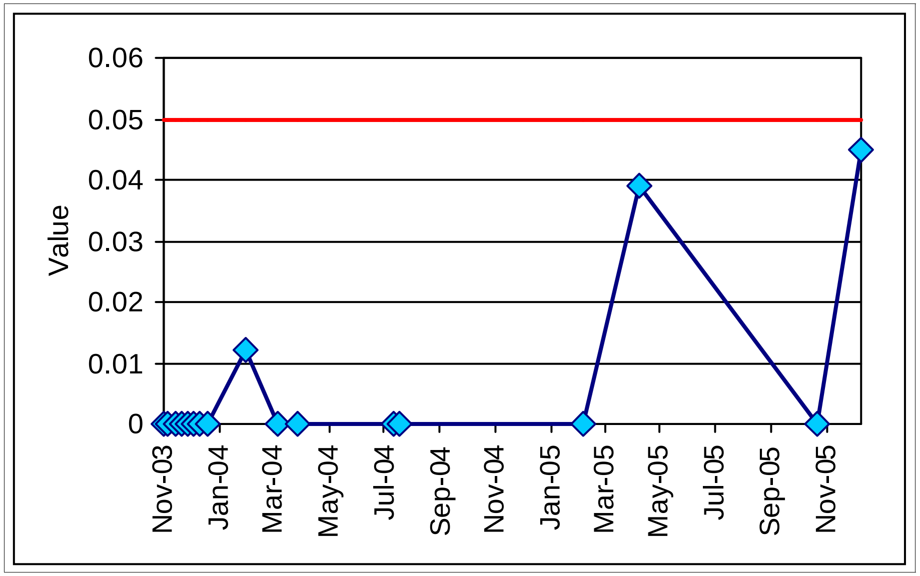
Parameter: Hexavalent chromium

New York State Effluent Limit: 0.011 mg/L



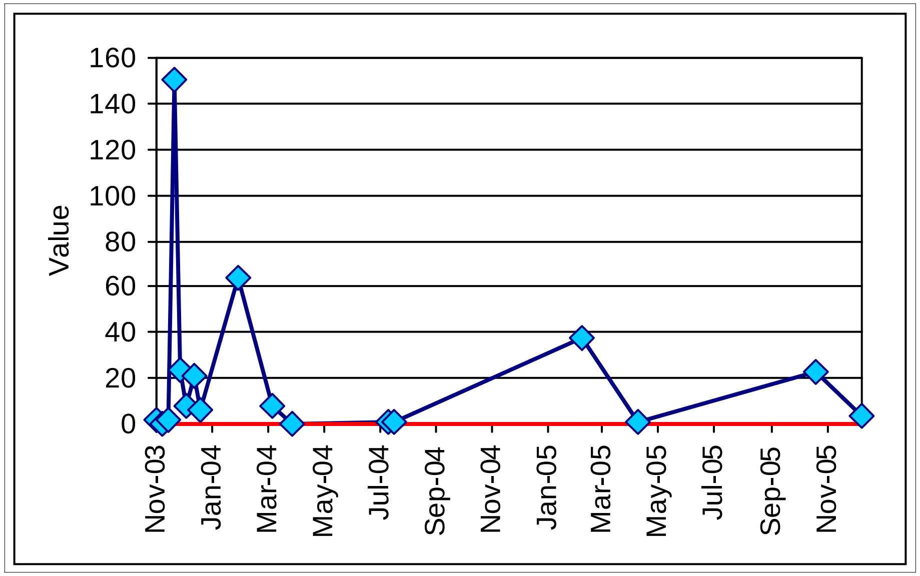
Parameter: Total chromium

New York State Effluent Limit: 0.05 mg/L



Parameter: Iron

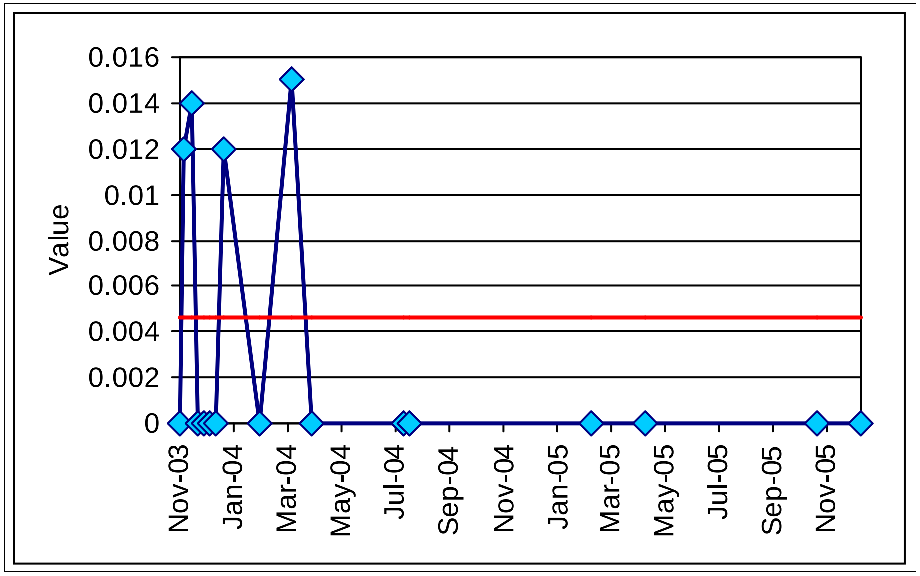
New York State Effluent Limit: 0.3 mg/L



APPENDIX D, CONTINUED

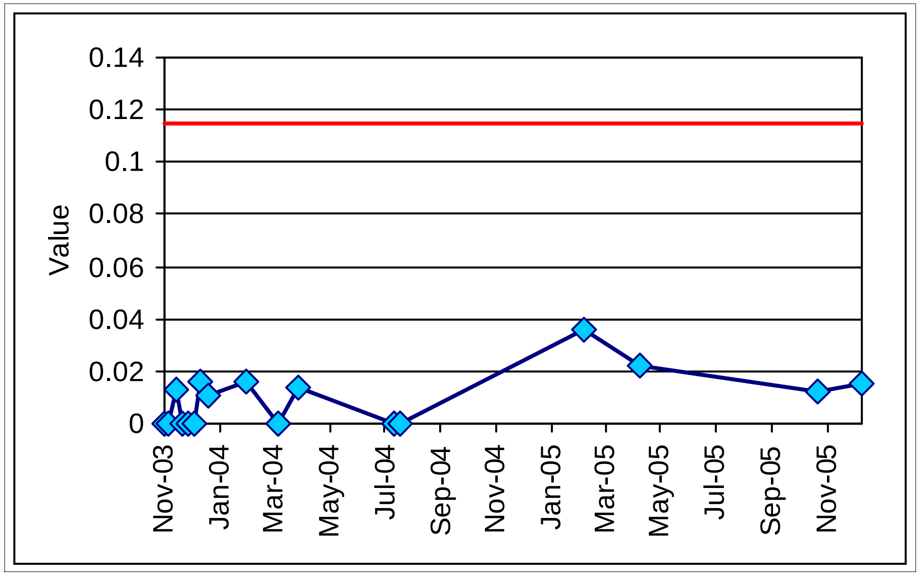
Parameter: Selenium

New York State Effluent Limit: 0.0046 mg/L



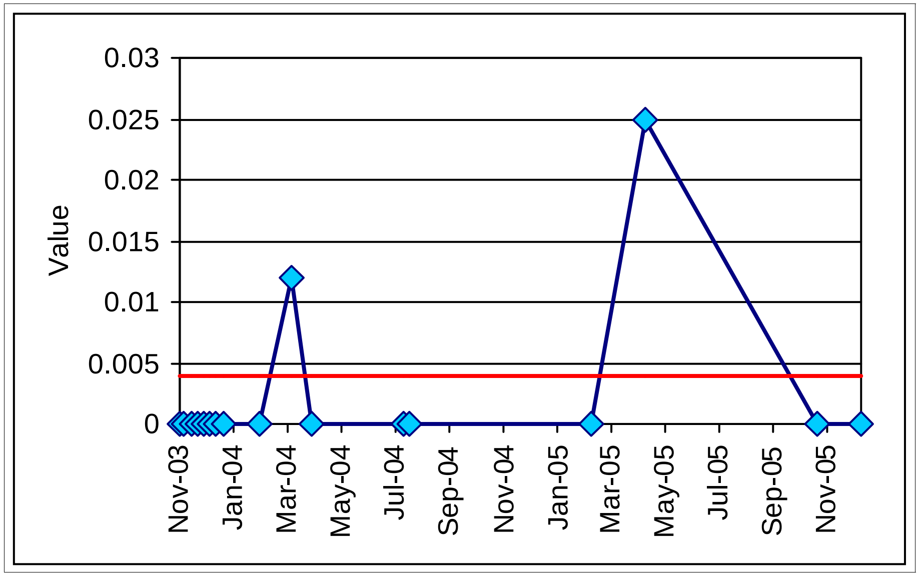
Parameter: Zinc

New York State Effluent Limit: 0.115 mg/L



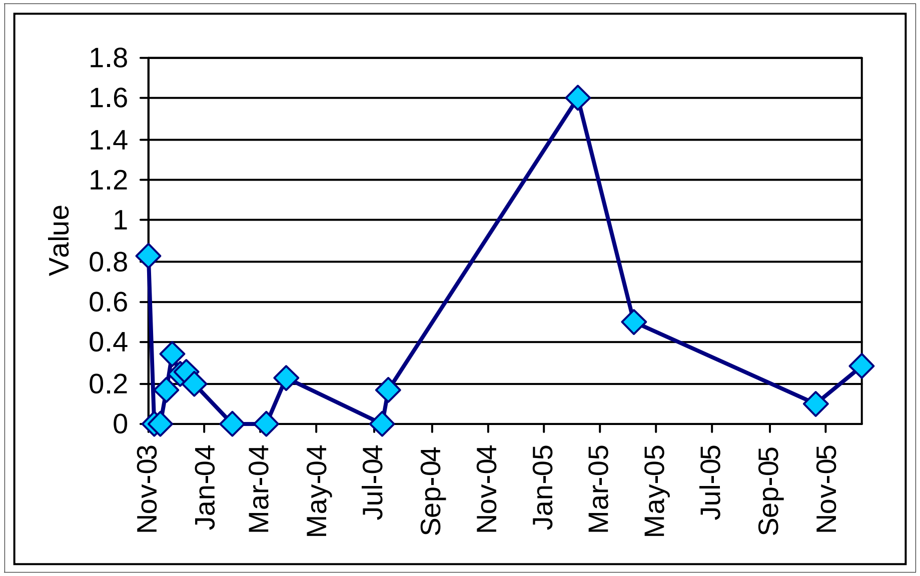
Parameter: Thallium

New York State Effluent Limit: 0.004 mg/L



Parameter: Nitrate as N

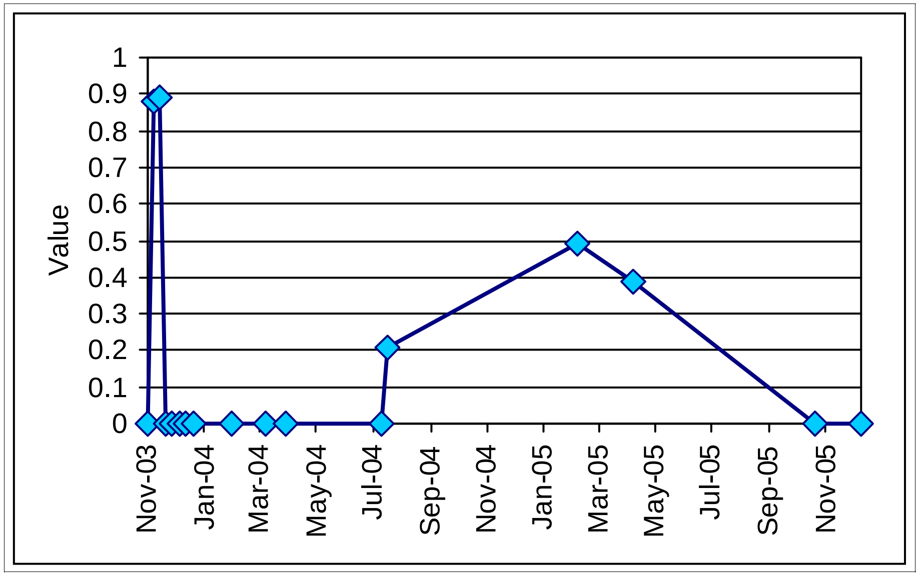
New York State Effluent Limit: Monitor



APPENDIX D, CONTINUED

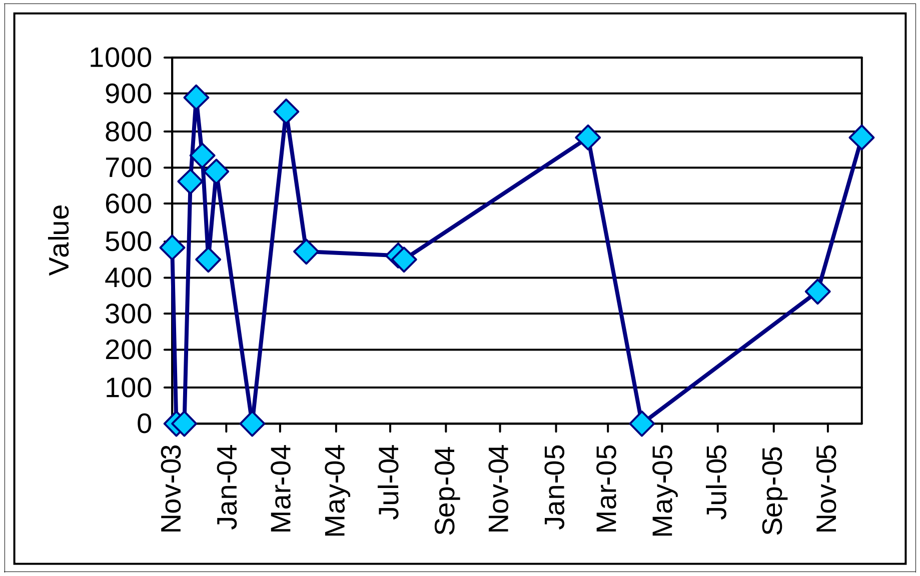
Parameter: Nitrite as N

New York State Effluent Limit: Monitor



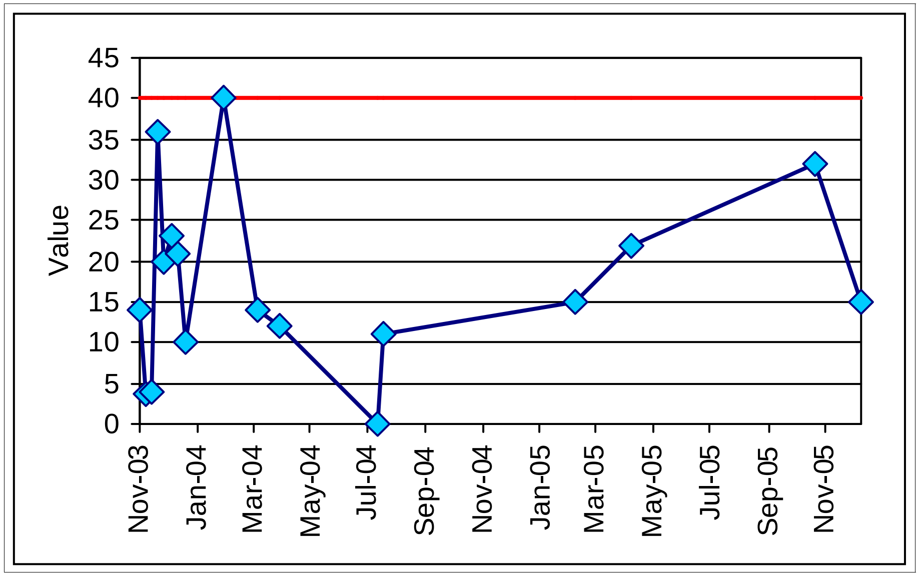
Parameter: Total dissolved solids

New York State Effluent Limit: Monitor



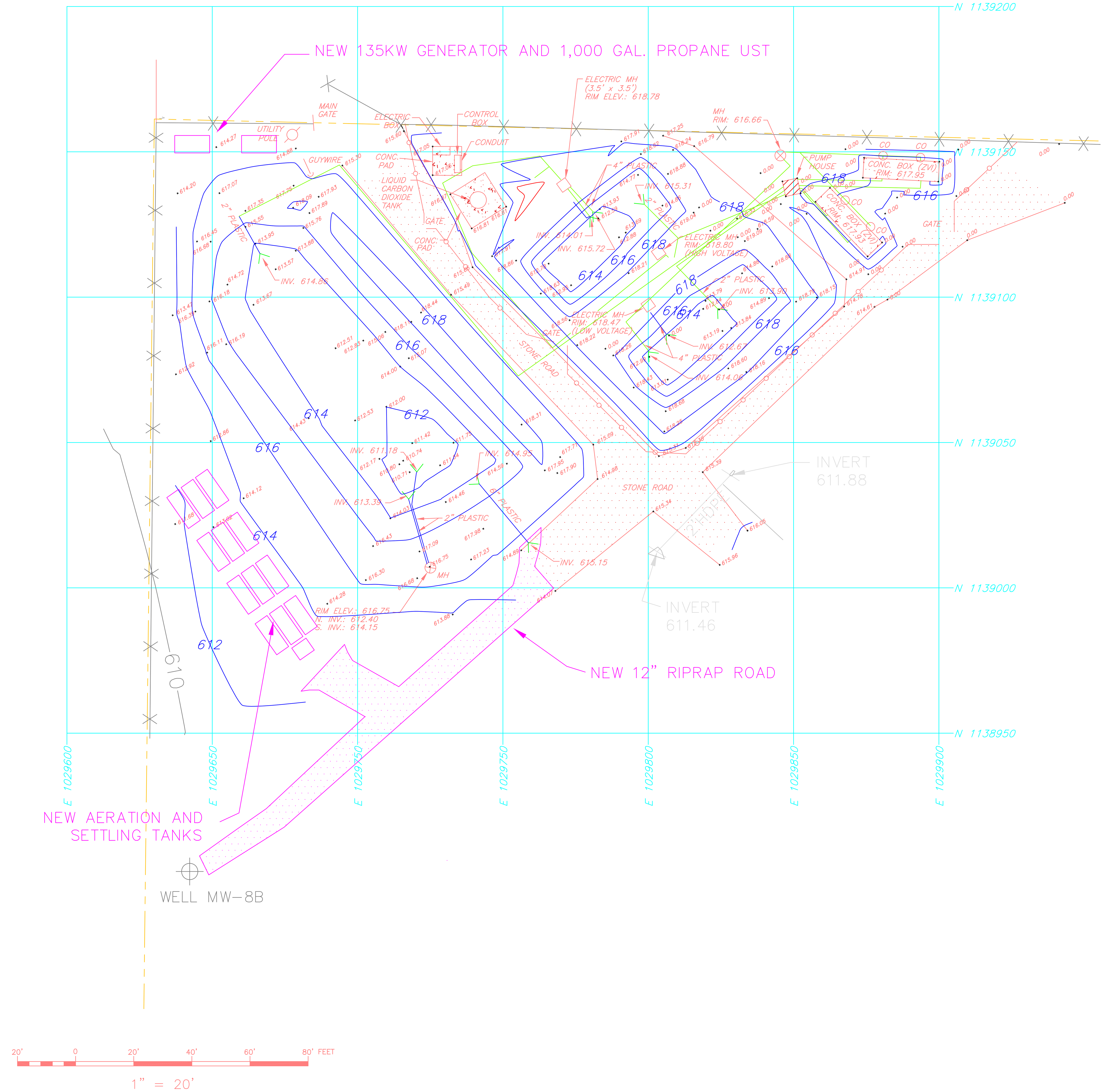
Parameter: Chemical oxygen demand

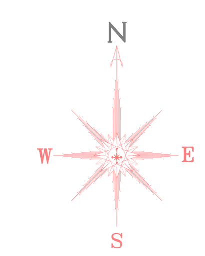
New York State Effluent Limit: 40 mg/L

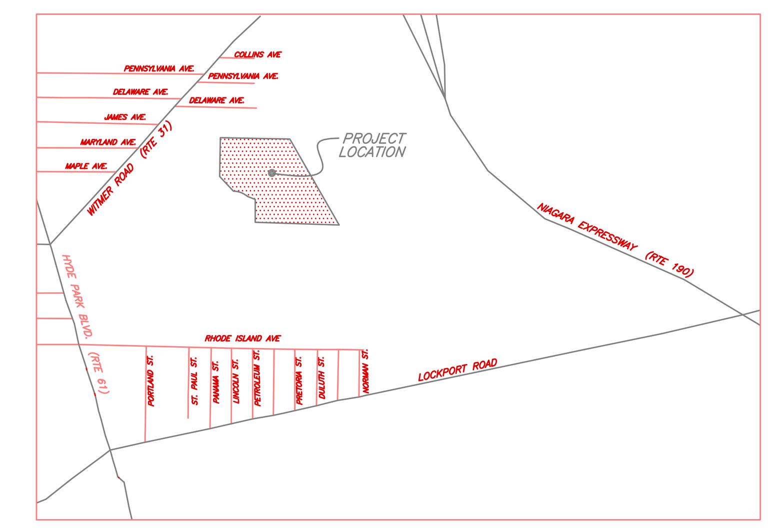


Appendix E

Proposed Groundwater Collection and Treatment System Modifications







LOCATION MAP: NOT TO SCALE

LEGEND

N XXXXX = NORTH COORDINATE
E XXXXX = EAST COORDINATE
XXX.XX = SPOT ELEVATION / LAYER THICKNESS
CO = CLEANOUT
DIA. = DIAMETER
CONC. = CONCRETE
ELEV. = ELEVATION
INV. = INVERT
MH = MANHOLE
MW = MONITORING WELL

XXX = MAJOR CONTOUR LINE (FINAL CONDITIONS 2003)
XXX = MINOR CONTOUR LINE (FINAL CONDITIONS 2003)
XXX = MAJOR CONTOUR LINE (FINAL CONDITIONS 2000)
= MINOR CONTOUR LINE (FINAL CONDITIONS 2000)
= CHAIN LINK FENCE (EXISTING)
= CHAIN LINK FNC. (NEW)
= PROPERTY LINE (APPROXIMATE)
= 4" HDPE GROUNDWATER RELIEF PIPE (LOCATION AS DESIGNATED BY SLC ENVIRONMENTAL SERVICES)

GENERAL NOTES:

1.) HORIZONTAL DATUM: NEW YORK STATE PLANE COORDINATE SYSTEM NAD 1983, NEW YORK WEST ZONE
2.) VERTICAL DATUM: NGVD 1929
3.) VERTICAL AND HORIZONTAL DATUMS TIED INTO 1991 CITY OF NIAGARA FALLS GIS CONTROL PROJECT MONUMENTS SMC 20A AND SMC 45
4.) ALL UNITS MEASURED IN U.S. SURVEY FEET
5.) ALL DATA AND FEATURES PLOTTED IN GRAY IS FROM DATA GATHERED BY WENDEL DUCHSCHERER IN 2000.
6.) ALL INFLUENT LINE INVERTS FOR THE TANKS ARE APPROXIMATELY 4.5' BELOW TOP OF VAULT ELEVATIONS.
6.) ALL EFFLUENT LINE INVERTS FOR THE TANKS ARE APPROXIMATELY 1.5' BELOW TOP OF VAULT ELEVATIONS.

WELL TABLE

WELL DESIGNATION	LOCATION		ELEVATIONS (feet)		
	NORTHING	EASTING	GROUND	CASING	RISER
MW-1B	1139140.13	1030297.45	616.2	617.77	617.59
MW-2B	1138916.42	1030611.03	613.3	615.88	615.42
MW-3B	1138461.58	1030885.32	608.9	611.22	610.95
MW-4B	1138079.24	1030982.86	605.7	606.68	606.45
MW-5B	1138085.16	1030597.75	603.0	605.48	605.09
MW-6B	1138101.19	1030177.05	601.2	603.47	603.25
MW-7B	1138463.39	1029833.06	607.0	609.48	609.23
MW-8B	1138901.46	1029642.84	609.4	611.62	611.44

AIRCO PARCEL GROUND WATER TREATMENT SYSTEM PROPOSED MODIFICATIONS

NIAGARA FALLS, NY

DRAFT DRAWING

GREENSTAR Engineering, P.C.
6 GELLATLY DRIVE
WAPPINGERS FALLS, NEW YORK
(845) 223-9944
WWW.GREENSTARSOLUTIONS.COM

NO. BY	REVISIONS	DATE

DWG. TITLE: AIRCO GROUNDWATER TREATMENT SYSTEM PROPOSED MODIFICATIONS

DWG. NAME: GCTS Proposed Modifications.dwg

DATE: 6/28/2006
SCALE: 1" = 20'
DWN.: CEM CHK.: -
PROJ. No.: 1005
DWG. No.: E-1