Site Management Plan

Brewer Street Site
(Index No. B8-0547-98-12)
Rochester, New York

Prepared for:

Rochester Gas and Electric Corporation
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Project No. 9252

Geomatrix

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1.0 INTRODUCTION

Geomatrix Consultants (Geomatrix) was retained to prepare this post-remediation Site Management Plan (SMP) for the Brewer Street Site located in Rochester, New York (Figure 1). The remediation of the Brewer Street Site was conducted jointly by the Rochester Pure Waters District and Monroe County through the Monroe County Department of Environmental Services (MCDES) and Rochester Gas and Electric Corporation (RG&E) pursuant to a Voluntary Cleanup Agreement (VCA, Index #B8-0547-98-12) executed with the New York State Department of Environmental Conservation (NYSDEC), on July 18, 2002.

1.1 SITE HISTORY/DESCRIPTION

As shown on Figure 1, the Site is located adjacent to the Middle Falls Dam in the Genesee River Gorge in Rochester, NY. The Site plan showing pre-remediation topography and features is shown on Figure 2. The approximate 3.25-acre Site was used to manage tunnel cuttings (i.e., "tunnel muck") and waters (i.e., "construction water") generated when the Cliff Street Siphon Tunnel was constructed under the Genesee River as part of the Monroe County Pure Waters Combined Sewer Overflow Abatement Program between 1984 and 1985. The tunnel muck and construction water were transferred to the Site and treated using settling and polishing ponds prior to effluent discharge. The tunnel muck contained aromatic volatile organic compounds (VOCs) including benzene, toluene, ethylbenzene and xylene (BTEX), and polyaromatic hydrocarbons (PAHs) in the aqueous phase and a dense non-aqueous phase liquid (DNAPL).

Site characterization data are presented in reports titled "Site Characterization and Remedial Alternatives Evaluation Report" prepared by Blasland, Bouck & Lee, Inc. (BBL), dated August 1998 and "Supplemental Investigation Report (SIR)" prepared by Geomatrix, dated February 2002. The SIR was approved by the NYSDEC on April 11, 2003. Collectively, these investigations identified impacted on-Site soils and two distinct areas of impacted Genesee River sediment designated as the "North Lobe" and the "South Lobe". Site soils and Genesee River sediments adjacent to the Site were impacted primarily by PAHs and, to a lesser extent, aromatic VOCs.

1.2 SITE REMEDIAL ACTION SUMMARY

The voluntary cleanup actions were conducted in two phases. The first phase was a large scale excavation of impacted soils, weathered bedrock and river sediments and off-Site disposal of the excavated materials. This was conducted in 2003 and is referred to herein as the 2003 Remedial Action.

The second phase of the voluntary cleanup entailed pressure grouting of the bedrock near the dam to displace and/or immobilize residual DNAPL and construction of a concrete cap on the exposed Rock Ledge at the base of the dam. This work was conducted in 2006-2007 and is referred to herein as the 2006 Remedial Action.

1.2.1 2003 Remedial Action

Monroe County and RG&E submitted the RWP for the 2003 Remediation in June 2003. The RWP was approved by NYSDEC by letter dated July 9, 2003. The remediation activities conducted during 2003 involved excavation of impacted soils and river sediments for disposal at the permitted off-Site facility; the Mill Seat Landfill located in Riga, NY.

The approved cleanup objectives for the project were as follows:

Media	*Cleanup Objective*
Surface and Subsurface Soil	Removal of non-aqueous phase liquids
Marsh Area Surface Soils (upper 2 feet)	4 mg/kg total PAHs
Surface Soils (upper 1 foot non-wetland areas)	5 mg/kg total carcinogenic PAHs 10 mg/kg total PAHs, 1mg/kg VOCs
Subsurface Soils (Site-wide)	100 mg/kg total PAHs 10 mg/kg total VOCs

Soils excavation proceeded until cleanup objectives were attained at all locations. River sediments were excavated to bedrock within the areas designated for remediation in the approved RWP. A total of 62,195 tons of soils, weathered bedrock and sediment were removed from the Site between July 23, 2003 and October 10, 2003. The soil excavations were backfilled with clean soil and the Site was graded in accordance with the approved grading plan presented in the RWP. The 2003 remediation soil excavation areas are shown on Figure 3.

These actions are documented in the Construction Closeout Report and Final Engineering Report (May 2004) prepared by Geomatrix Consultants and its design/construction subcontractor TurnKey Environmental Restoration, LLC (TurnKey).

1.2.2 2006 Remedial Action

The 2006 Remedial Action was undertaken pursuant to Section 13.0 of the RWP to mitigate migration of potential DNAPL presence in shallow bedrock. The work performed is described in the Supplemental Remediation Work Plan (SRWP) (prepared by Geomatrix and dated September 7, 2006) which was approved by the NYSDEC by letter dated September 19, 2006.

The 2003 Remedial Action removed the DNAPL source within the Site overburden and weathered upper bedrock. Based on the Supplemental Investigation results supported by post-remediation monitoring conducted during 2004-2006, potential DNAPL presence remaining at the Site was found to be limited to the upper 10 feet of bedrock in the immediate vicinity of the dam headwall and in the upper 5 to 8 feet of bedrock at the exposed rock ledge within the between the eastern dam headwall (Abutment A) and Pier B (Rock Ledge). This area of the Site is shown on Figure 4. The 2006 remediation utilized grout injection to:

1. Displace mobile DNAPL upward to the Rock Ledge containment area (where it was removed), and;

2. Immobilize any residual DNAPL presence within the bedrock fractures.

After completion of the pressure grouting and removal of displaced DNAPL, the Rock Ledge surface was sealed by capping with reinforced concrete constructed to withstand uplift force associated with the reservoir "pond level" behind the adjacent dam. In addition, the Rock Ledge Cap was designed to accommodate backfill and a new support wall required to stabilize Abutment A. The new support wall was constructed in 2007 from Pier B to Abutment A along the northern side of the Rock Ledge Cap.

Construction of this support wall created a configuaration where the Rock Ledge Cap is completely surrounded by walls (i.e., the wall replacing Gate 1, Pier B, the new support wall and the existing Abutment A). To provide additional stabilization of the headwall, the interior of the walled-in area was subsequently filled with 18 to 24 inches of clean washed stone overlain with clean soil.

Details of the 2006 Remedial Action are presented in the Final Engineering Report (FER), prepared by Geomatrix (June 2007).

1.3 PURPOSE AND ORGANIZATION OF THIS PLAN

The purpose of this SMP is to establish guidelines for any future on-Site excavation activities to ensure that the soil is handled appropriately and in accordance with the Site cleanup levels, to present the post-remediation inspection and monitoring program associated with the 2006 Remedial Action, and to identify the institutional controls implemented to restrict future usage of the Site.

As stated in the SRWP, the SMP includes the following:

1. Protocols for future site excavations and soil management (see Section 2.0);

2. Provisions for periodic inspection of the exposed outer (northern) edge of the Rock Ledge Cap, new support wall and associated drains (See Section 3.0); and

3. Provisions for periodic certification (See Section 4.0).

4. Copy of the filed deed restriction limiting land use to restricted residential or other less restricted uses (see Section 5.0);

5. SMP Certification (Section 6.0)

2.0 ON-SITE SOIL MANAGEMENT

2.1 OBJECTIVES

This Section addresses Site (as defined in the VCA) soil management issues related to potential future activities at the property. Any soil management plans or procedures developed for the Site in the future will, at a minimum, comply with the general requirements presented herein (or any modifications subsequently approved by NYSDEC).

2.2 BACKGROUND

Although the Site cleanup objectives (see Section 1.2.1) were attained, certain precautions will be implemented during excavations should they occur at the Site in the future. Soil management protocols are discussed separately for areas within the 2003 remediation excavation area (Section 2.3), for the area near the dam structure which is outside the 2003 remediation excavation area (Section 2.4) and for bedrock excavations (Section 2.5). Potential excavation water handling is discussed in Section 2.6. The soil management protocols described herein do not apply to North Lobe and South Lobe sediments as these areas were excavated to bedrock and were not backfilled with Site soils.

Figure 3 shows the extent of the soil remediation excavation areas. Figure 3 also shows the "land" (i.e., not including the Genesee River) Site limits as defined in the VCA. The requirements presented below apply to areas within the land Site limits shown on Figure 3.

2.3 SOIL MANAGEMENT PROTOCOLS: ALL AREAS OF THE SITE

During the remediation (see Section 1.2.1), the Site was cleaned up to levels considered acceptable for short duration exposures as would occur during routine excavation projects. Therefore, except as noted in Sections 2.4 and 2.5 below, no specific personal protective equipment (PPE) would be required during such activities. However, as the cleanup levels were based on total VOC and total PAH levels, it is possible that certain individual VOCs or PAHs may be present at concentrations in soil above the guidance values from NYSDEC, Division of Technical and Administrative Guidance Memorandum (TAGM #4046) Determination of Soil Cleanup Objectives and Cleanup Levels, January 1994.

Exceedance of these levels could be encountered in soil excavations on the Site, though not within the areas backfilled with imported clean backfill. Therefore, certain precautions will be required for management of excavated soil (except where excavations occur within the clean

imported backfill). Specifically, the following requirements address the general proper handling, backfilling and reuse of excavated soils.

2.3.1 Soil Segregation and Backfilling

If the excavation is to be backfilled, excavated topsoil (approximately the top six inches) will be segregated and replaced in the excavation above the backfilled soil. If segregation of topsoil is not feasible, 6-inches of clean topsoil obtained from an appropriate source will be placed after completion of the backfilling. Excavated soil beneath the topsoil that shows signs of impact (e.g. odors, staining or elevated PID measurements) will be placed on plastic sheeting prior to backfilling.

2.3.2 On-Site reuse of Excavated Soils

The following restrictions apply to the on-Site reuse of soils excavated on the Site.

1. No excavated soils from the non-marsh areas of the Site may be placed in the marsh areas without NYSDEC approval.

2. No excavated soils may be used as surface soils at the Site (less than one foot depth) unless sampled and analyzed and shown to meet the cleanup objectives listed in Section 1.2.1, above.

3. Excavated soils may be used as on-Site backfill for subsurface soils (greater than one foot depth) without sampling and analyses as long as there is one foot of cover soils meeting the cleanup objectives presented in Section 1.2.1. Excavated soils which are removed from the Site must be handled and/or disposed of in accordance with applicable regulations.

2.3.3 Off-Site Use/Disposal of Excavated Soils

In the event soils are transported off the Site, excavated soils from within the land Site limits shown on Figure 3 must be used or disposed in accordance with all applicable regulations. This may require chemical analyses to determine whether the excavated material is suitable for its intended use or disposal.

2.4 Special Requirements for Excavations Near the Dam Headwall (Restricted Excavation Area)

Due to stability concerns, it was not feasible to excavate soils adjacent to the dam headwall. Any future excavations in this area, located between the remediation excavation limits and the dam structures, could encounter soils with VOC or PAH concentrations above the Site cleanup

objectives. This area is noted on Figure 3 as the "restricted excavation area". The special conditions for excavations in this area are described below.

2.4.1 Health and Safety

Excavation in this area will require a project-specific health and safety plan (HASP) which will include the following provisions:

1. PPE requirements
2. Air monitoring protocols and action limits for respiratory PPE upgrades
3. Equipment decontamination protocols
4. Other project-specific safety requirements as appropriate

2.4.2 Soil Handling

Soil excavated from the areas adjacent to the dam structures as shown on Figure 3 shall be handled as follows:

1. Excavated soil shall be stored on plastic sheeting.
2. No soil excavated from this area may be used at other locations of the Site unless shown through chemical analyses to meet the Site cleanup levels.
3. No soil excavated from this area may be removed from the Site unless shown through chemical analyses to meet appropriate regulatory standards.
4. Excavated soil containing visible NAPL presence must be segregated and disposed off-Site at a permitted facility. This soil may not be backfilled into the excavation.
5. Excavated soil exhibiting petroleum odor or other evidence of contamination (e.g. staining) must be sampled and shown to meet the Site cleanup levels prior to use as backfill. Soil not meeting the Site cleanup levels must be disposed off-Site at a permitted facility.
6. Soil not exhibiting NAPL presence or other evidence of contamination may be used as backfill without chemical analyses but only in the specific excavation from which it was removed.
7. Water drainage from soil stockpiles must be containerized and handled as described in Section 2.6, below.

Excavation equipment will be thoroughly decontaminated with a water wash prior to moving from one excavation to another.

2.5 SPECIAL REQUIREMENTS FOR BEDROCK EXCAVATION: SITE-WIDE

During the remediation excavations, visibly impacted weathered bedrock was excavated where feasible. However, as a precaution, any bedrock excavation should consider the possibility of encountering VOCs and/PAHs at concentrations above the Site cleanup levels. The following special conditions will apply.

2.5.1 Health and Safety

Any bedrock excavation will require a project-specific health and safety plan (HASP) which will include the following provisions:

1. PPE requirements
2. Air monitoring protocols and action limits for respiratory PPE upgrades
3. Equipment decontamination protocols
4. Other project-specific safety requirements as appropriate

2.5.2 Bedrock Handling

Bedrock excavated from any area of the Site will be handled as follows:

1. Excavated bedrock that is suspected to be impacted shall be stored on plastic sheeting.
2. No excavated bedrock may be used at other locations of the Site unless shown through chemical analyses to meet the Site cleanup levels.
3. No excavated bedrock may be removed from the Site unless shown through chemical analyses to meet appropriate regulatory standards
4. Excavated bedrock containing visible NAPL presence must be segregated and disposed off-Site at a permitted facility. This material may not be backfilled into the excavation.
5. Excavated bedrock exhibiting petroleum odor or other evidence of contamination (e.g. staining) must be sampled and shown to meet the Site cleanup levels prior to use as backfill. Weathered bedrock not meeting the Site cleanup levels must be disposed off-Site at a permitted facility
6. Excavated bedrock not exhibiting NAPL presence or other evidence of contamination may be used as backfill without chemical analyses but only in the specific excavation from which it was removed.

7. Water drainage from excavated bedrock stockpiles must be containerized and handled as described in Section 2.6, below.

Excavation equipment will be thoroughly decontaminated with a water wash prior to moving from one excavation to another.

2.6 EXCAVATION WATER HANDLING

Water generated from equipment decontamination and water removed from excavations within the land Site limits (see Figure 3) must be tested and containerized for proper use or disposal. Impacted water may not be pumped onto the ground or discharged to the River without NYSDEC approval. Water from excavations may not be discharged to the storm or sanitary sewer system without obtaining the appropriate regulatory approvals.

3.0 POST-REMEDIATION INSPECTION PLAN

The performance of the 2006 Remedial Action (Rock Ledge remediation) will be monitored based on visual examination of the outer (northern) edge of the cap, the new support wall, the exposed face of the waterfall directly beneath the cap and the surface of the river adjacent to the waterfall beneath the cap. The edge of the cap is visible in its entirety from Pier C (the first pier encountered northwest of Pier B). The inspection will be performed from Pier C using binoculars as needed. These locations are shown on Figure 4.

3.1 INSPECTION ACTIVITIES

During the inspections, the dam will be operated such that the edge of the cap is not inundated with water (this may necessitate closing of Gate 2). Except as noted below, these inspections will be visual and conducted using the "binocular approach" without physically entering the former spillway and rock ledge area (i.e., routine inspections). The routine inspections will consist of the following:

1. Examine the exposed edge of the cap for DNAPL or sheen presence, water seepage, and evidence of physical deterioration.

2. Examine the new support wall for the same.

3. Examine the flow (if any) from the new support wall drain pipes for DNAPL or sheen presence.

4. Examine the face of the waterfall adjacent to the Rock Ledge for DNAPL seepage.

5. Examine the surface of the river adjacent to the Rock Ledge for sheen presence.

The frequency of the routine inspections will be quarterly for the first year, semiannually for the second year and annually thereafter. Inspections will be conducted by RGE or its designate.

In addition, at a frequency of at least once per year, inspection personnel will physically enter the former spillway and rock ledge area to examine the rock ledge for the indications of DNAPL seepage (sheen presence, odors). These detailed inspections will be scheduled to coincide with dam maintenance activities (or other times) when water flow is diverted away

from the rock ledge area. All personnel entering the former spillway and rock ledge area will follow RG&E safety requirements including fall protection.

After 5 years, RGE may reevaluate the need for continued inspections and recommend changes to the frequency as appropriate. Any proposed changes will be subject to NYSDEC approval.

3.2 REPORTING

The results of the routine and detailed inspections will be reported to the NYSDEC by letter on an annual basis. The annual letter reports will be submitted on the anniversary date of the approval of this SMP or as amended (with NYSDEC approval).

4.0 PERIODIC CERTIFICATION

The results of the inspections described above will be used to periodically certify the 2003 and 2006 Remedial Actions are meeting the objectives of the RWP and SWRP. A certification letter will be submitted along with each annual letter report (see Section 3.2, above).

5.0 DEED RESTRICTION

A deed restriction has been filed which provides for the following:

1. Site usage will be limited to restricted residential or non-residential use classifications, other uses are prohibited without the express written waiver of such prohibition by the NYSDEC, or if at such time the NYSDEC no longer exists, the New York State department, bureau, or other entity replacing NYSDEC;

2. Groundwater at the Site will be prohibited from being used for potable or industrial water supply unless the user first obtains permission to do so from the NYSDEC (or its replacement);

3. RG&E (and its successors) are required to implement the provisions of this SMP (including future modifications) until such time as this SMP has been discontinued;

4. The SMP will not be modified, replaced or discontinued without the approval of NYSDEC (or its replacement); and

5. RG&E (and its successors) consent to enforcement by the NYSDEC (or its replacement) and will not contest such enforcement.

A copy of the filed deed restriction is included in Appendix A (TO BE PROVIDED).

6.0 SMP CERTIFICATION

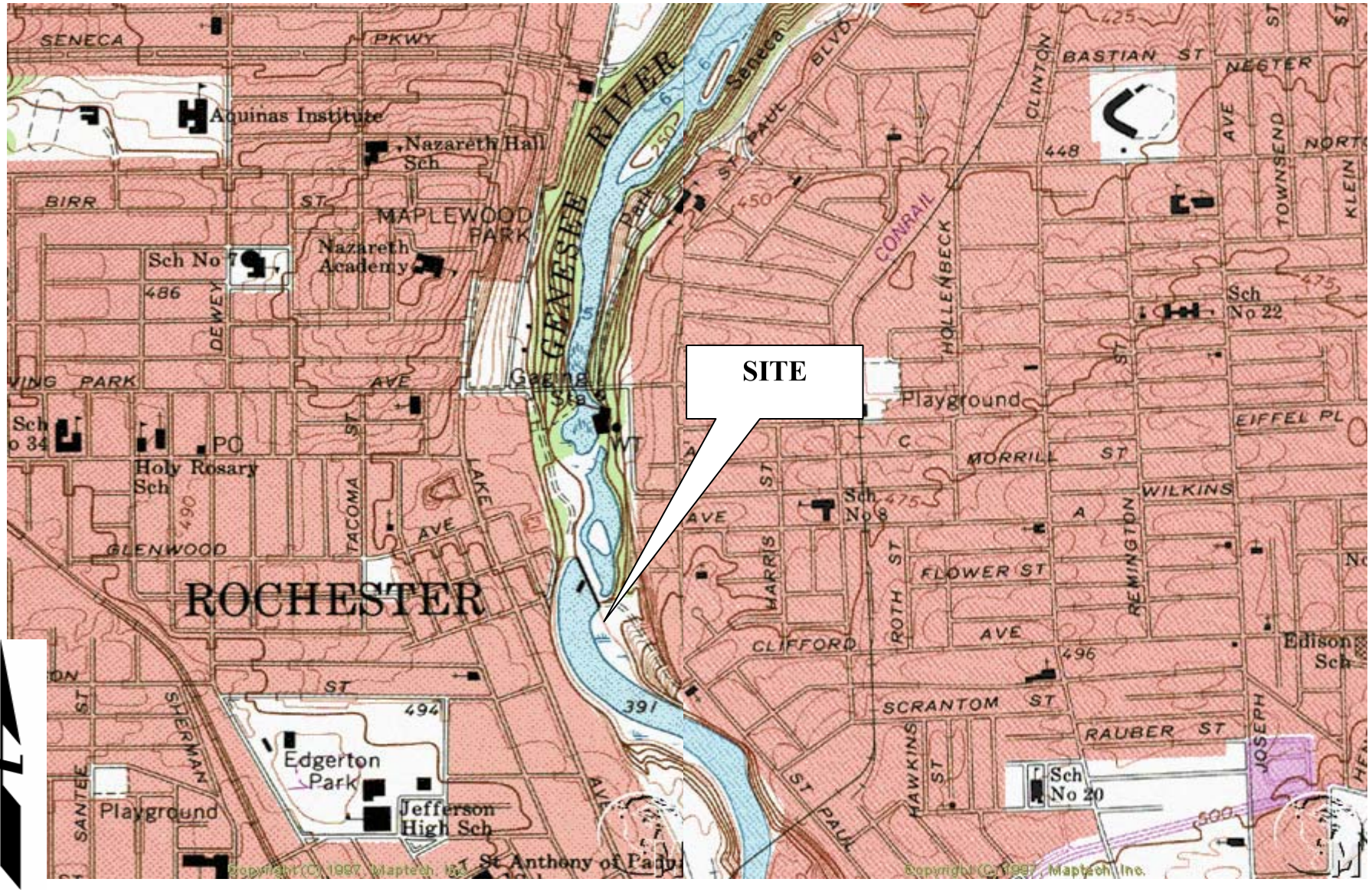
This Site Management Plan was prepared by the undersigned in accordance with the Voluntary Cleanup Agreement (Index #B8-0547-98-12).

Kelly R. McIntosh, Ph.D., P.E.

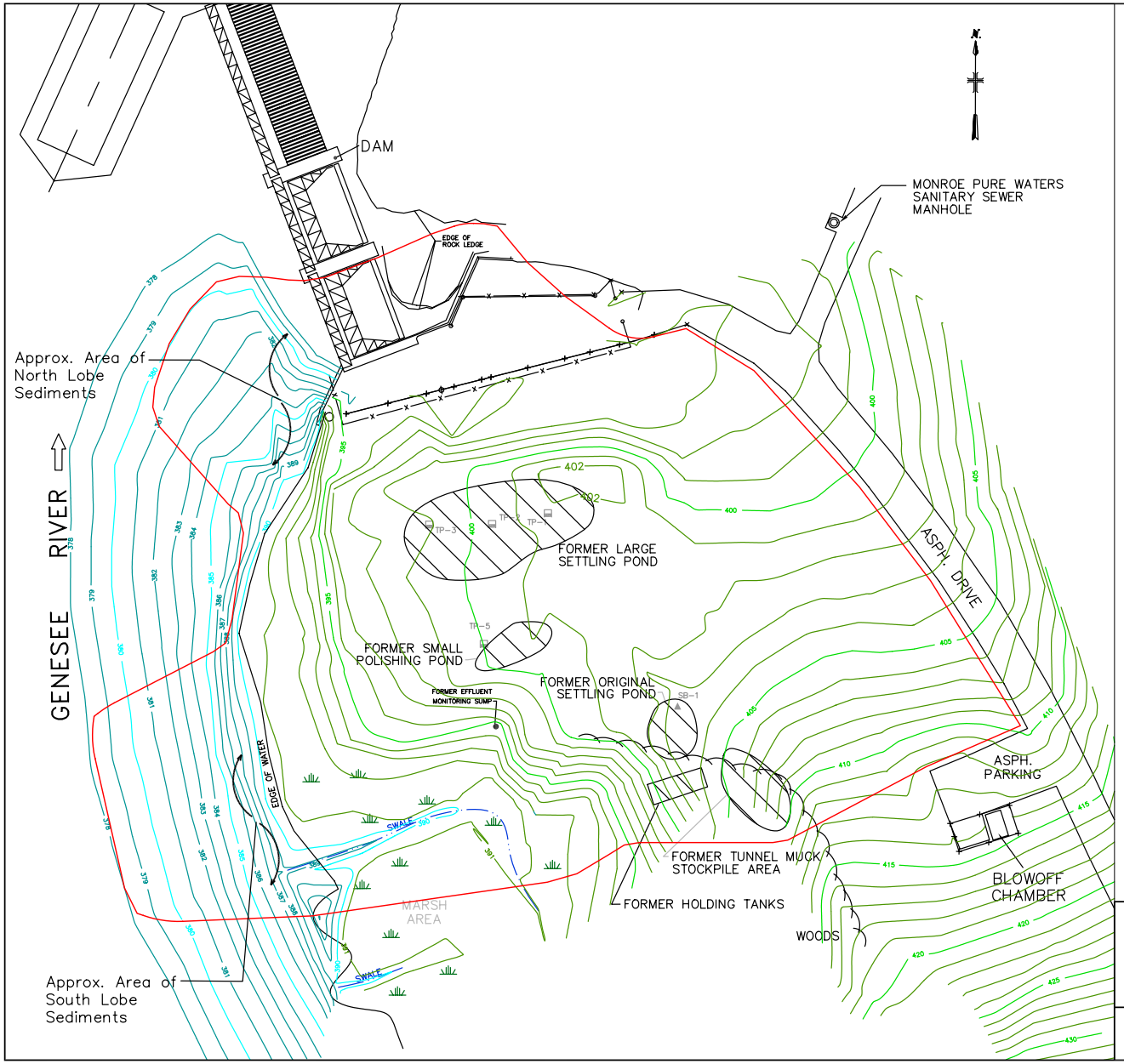
GEOMATRIX ENGINEERING LLC

\\WILL1\deptdata\Project\007076 Brewer Street Site\Task A WorkPlan\Draft\Figure 1 Site Location Map.doc

Non-GDS



GEOMATRIX	SITE LOCATION MAP Operations, Maintenance and Monitoring Plan Brewer Street Site USGS Topographic Map Rochester West/East Quadrangle	Project No. 9252 Figure 1



LEGEND

400	5–FOOT LAND CONTOURS
402	1–FOOT LAND CONTOURS
385	5–FOOT RIVER BED CONTOURS
384	1–FOOT RIVER BED CONTOURS
	SITE LIMITS (3.25 ACRES)

NOTES:

1.) ALL ELEVATIONS SHOWN ON THIS MAP ARE BASED ON THE NGVD 1929 DATUM GENERATED FROM USC&GS BENCH MARK "ST.PAUL."

2.) ALL PROPERTY LINE AND R.O.W. INFORMATION SHOWN ON THIS MAP WAS DETERMINDED FROM CURRENT TAX MAP INFORMATION ONLY.

3) ALL LOCATIONS ON THIS MAP ARE BASED ON THE NEW YORK STATE PLANE COORDINATE SYSTEM (WEST ZONE). NO SUBSURFACE UTILITIES WERE DETECTED.

4) EDGE OF WATER AS OF 10–6–93

5) SITE BENCH MARK IS NORTHWEST CORNER OF BLOWOFF CHAMBER, ELEV.=415.69

6) SUMP, POND AND STOCKPILE LOCATIONS ARE APPROXIMATE.

7) BASE MAP SOURCE: BBL (1998)

60' 0' 60' 120'

SCALE: 1 INCH = 60 FEET
SCALE IN FEET
(approximate)

SITE PLAN AND PRE-REMEDIATION FEATURES
BREWER STREET SITE
ROCHESTER, NEW YORK

BENCHMARK ENVIRONMENTAL ENGINEERING SCIENCE, PLLC

Project No.	Figure
9252	2

DATE: AUGUST 2002
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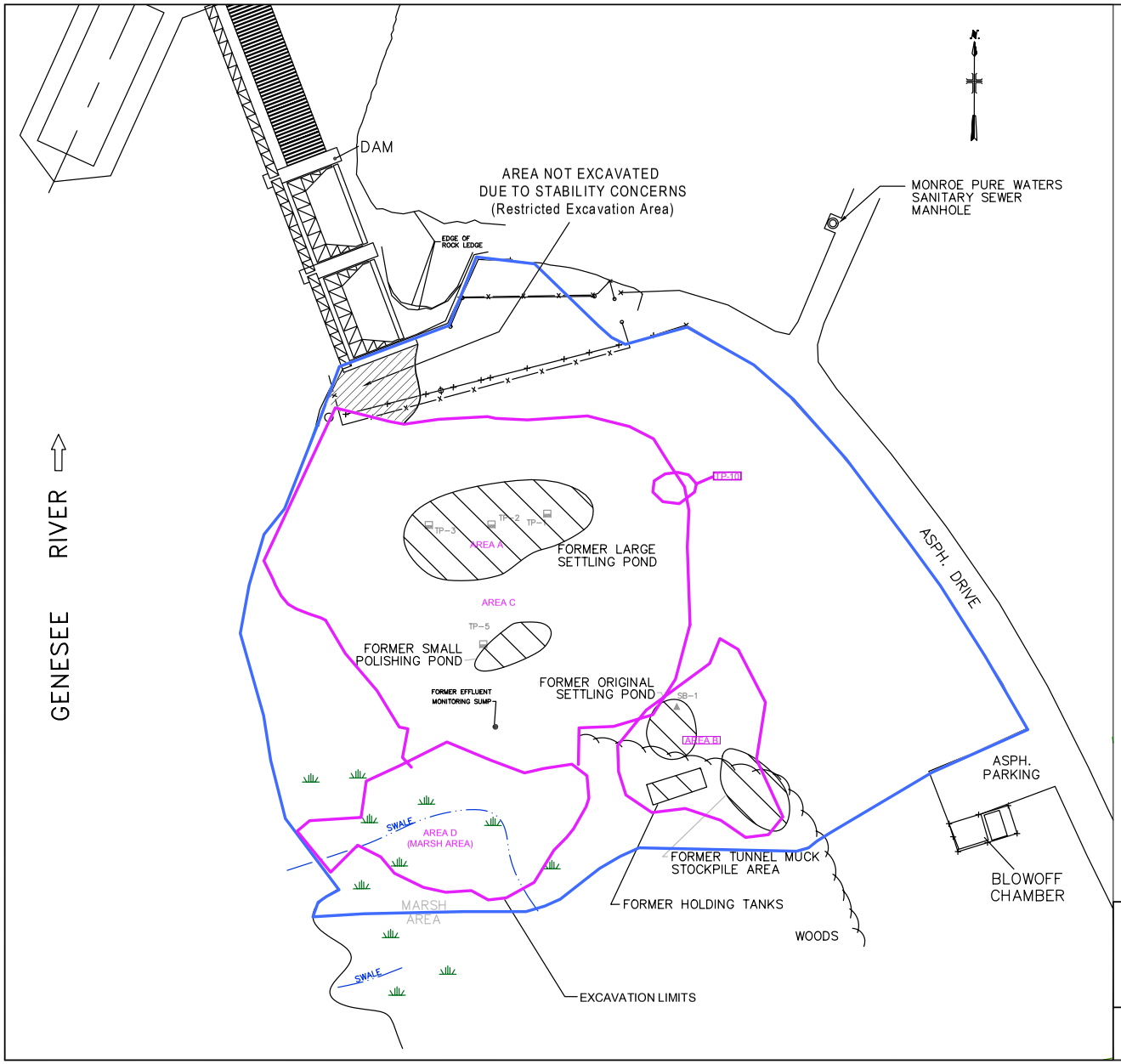

LEGEND

EXCAVATION LIMITS

LAND-SITE LIMITS

NOTES:

1.) ALL ELEVATIONS SHOWN ON THIS MAP ARE BASED ON THE NGVD 1929 DATUM GENERATED FROM USC&GS BENCH MARK "ST.PAUL."

2.) ALL PROPERTY LINE AND R.O.W. INFORMATION SHOWN ON THIS MAP WAS DETERMINDED FROM CURRENT TAX MAP INFORMATION ONLY.

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5) SITE BENCH MARK IS NORTHWEST CORNER OF BLOWOFF CHAMBER, ELEV.=415.69

6) SUMP, POND AND STOCKPILE LOCATIONS ARE APPROXIMATE.

7) BASE MAP SOURCE: BBL (1998)

8) LAND- SITE LIMITS ARE AS IDENTIFIED IN THE VOLUNTARY CLEANUP AGREEMENT, EXCLUDING AREAS WITHIN THE GENESEE RIVER.

60' 0' 60' 120'

SCALE: 1 INCH = 60 FEET
SCALE IN FEET
(approximate)

SOIL EXCAVATION AND LAND-SITE LIMITS
BREWER STREET SITE
ROCHESTER, NEW YORK

BENCHMARK ENVIRONMENTAL ENGINEERING SCIENCE, PLLC	GEOMATRIX	Project No. 0028-007-200	Figure 3

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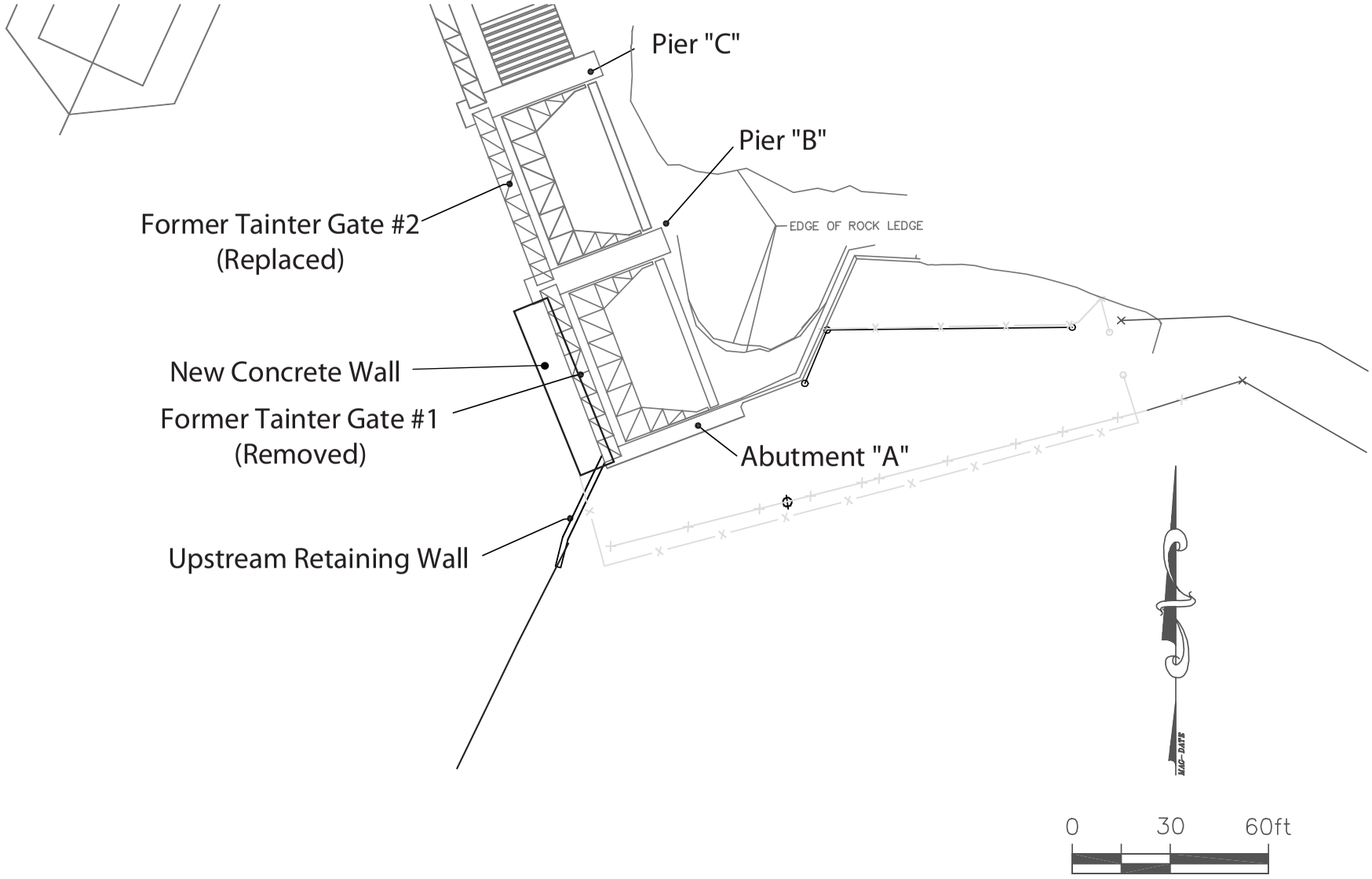

GEOMATRIX

ROCK LEDGE REMEDIATION AREA (2006)
BREWER STREET SITE
ROCHESTER, NEW YORK

Project No.
9252

Figure
4

APPENDIX A

Copy of Deed Restriction
(To be Provided)