Former Borden Resin Facility

BAINBRIDGE, CHENANGO COUNTY, NEW YORK

Site Management Plan

NYSDEC Site Number: 709001

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1.0 INTRODUCTION AND DESCRIPTION OF REMEDIAL PROGRAM

1.1 INTRODUCTION

This document is required as an element of the remedial program at Former Borden Resin Facility (hereinafter referred to as the "Site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program administered by New York State Department of Environmental Conservation (NYSDEC). The site was remediated in accordance with Order on Consent Index #A7-01210-87-09, Site # 709001, which was executed on November 21, 1990 and amended last on November 14, 2008.

1.1.1 General

Columbus Real Estate, LLC. (CRE) entered into an Order on Consent with the NYSDEC to remediate a 190-acre property located in Village of Bainbridge, Chenango County, New York. This Order on Consent required the Remedial Party, CRE, to investigate and remediate contaminated media at the site. The site location is shown in Figure 1. Sections of the original 210-acre area have been released from the Order on Consent by NYSDEC. An 111-acre parcel north of the former Borden Facility was released with no outstanding remedial obligations on November 14, 2008.

Based on a conversation with the NYSDEC Project Manager, Lawrence Thomas, on 14 March 2011 this Site Management Plan (SMP) covers the 78.66-acre property within the boundaries shown in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Deed Notification/Restriction (Appendix A).

After completion of the remedial work described in Section 1.4 of this SMP, some contamination was left in the subsurface at this site, which is hereafter referred to as 'remaining contamination." This SMP was prepared to manage the soil and groundwater contamination remaining at the site in accordance with ECL Article 71, Title 36. All

reports associated with the site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State.

This SMP was prepared by Environmental Resources Management (ERM), on behalf of CRE, in accordance with the requirements in NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, dated May, 2010, and the guidelines provided by NYSDEC.

1.1.2 Purpose

The site still contains contamination after completion of the remedial actions. A Deed Notification/Restriction for soil and groundwater has been prepared along with this document and is presented in Appendix A. The Institutional Controls (ICs) place restrictions on site use, and mandate operation, maintenance, monitoring and reporting measures for all Environmental Controls (ECs). This SMP specifies the methods necessary ensure compliance with all ICs required by the Deed Restriction/Notification for contamination that remains at the site.

This SMP provides a detailed description of all procedures required to manage remaining contamination at the site, including: (1) implementation and management of all ICs; (2) media monitoring; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, this SMP includes two plans: (1) an Engineering and Institutional Control Plan for implementation and management of ECs; and (2) a Monitoring Plan for implementation of Site Monitoring.

This plan also includes a description of Periodic Review Reports for the periodic submittal of data, information, recommendations, and certifications to NYSDEC.

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Deed Restriction. Failure to properly implement the SMP is a violation of the Deed Restriction.
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the Order on Consent, (Index #A7-01210-87-09; Site #709001) for the site, and thereby subject to applicable penalties.
- This SMP may only be revised with the approval of the NYSDEC.

1.1.3 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. In accordance with the Deed Restriction for the site, the NYSDEC will provide a notice of any approved changes to the SMP, and append these notices to the SMP that is retained in its files.

1.2 SITE BACKGROUND

1.2.1 Site Location and Description

The site is located in the Town and Village of Bainbridge, County of Chenango New York and is identified as parcels 254-1-42.1, 254-1-43, and 254-1-44.12 on the Town of Bainbridge Tax Map and parcels 254-19-1-1.2, 254-19-1-2 and 254-19-1-3 on the Village of Bainbridge Tax Map. The site is an approximately 79-acre area land-locked parcel with a narrow right-of-way to Pruyn Street from the west. The nearest features are Canadian Pacific Railroad and New York State Route 7 to the south, and Beatty Creek and Chenango County Route 38 to the east (see Figure 1).

1.2.2 Site History

The Site was originally owned and operated by Borden, Inc. beginning in the early 1940's and continuing until approximately 1981. The facility produced solid and liquid synthetic resins such as phenol-formaldehyde, urea-formaldehyde, melamine-formaldehyde, and polyvinyl acetate in large reactor vessels on site. The facility generated and stored wastes associated with the production of these resins in several areas of the site.

In early 1981 production activities were terminated and Borden began closing the facility in conjunction with the Unites States Environmental Protection Agency (EPA) and the New York Department of Environmental Conservation (NYSDEC). Various sampling events conducted by consultants, EPA, and NYSDEC since 1981 have identified contamination at the site.

In 1990 Borden entered into a Consent Agreement with the State of New York to develop and implement an inactive hazardous waste disposal site remedial program. Facility investigation reports were submitted in July 1992 and August 1996, and approved by NYSDEC in December 1996. A Corrective Measures Study (CMS) Report

was submitted in February 1997 and was revised and approved by the NYSDEC in April 1998. In December 1997 the site was purchased by CRE. A final Corrective Measures Implementation (CMI) Plan was approved by the NYSDEC in November 1998.

1.2.3 Geologic Conditions

Soil

In general, soil types encountered during previous field investigations at the Site are consistent with glacial fluvial overbank deposition. Site soils consisted predominantly of medium to dark brown silty gravels and gravelly silts with lenses of gray to brown clayey silt and silty sands in the upper 12- to 16-feet. At deeper intervals fine sandy silts and silty clay are encountered. Closer to the Susquehanna River sandy clays are encountered. The unconsolidated deposits are heterogeneous both laterally and vertically. Geological sections are shown in Figure 3.

Groundwater

Groundwater elevation measurements collected from monitoring wells at the Site consistently show groundwater flowing to the southwest across the central and western portions of the site, and southeast towards Beatty Creek in the eastern portion of the Site (Figure 4). Hydraulic gradients are variable across the Site. Pumping tests have been performed on recovery wells at the Site and indicated hydrologic conductivity (k) values ranging from 0.06 ft/day (2.1 X 10^{-5} cm/sec) to 14.5 ft/day (5.1 X 10^{-3}cm/sec). The reported average is 0.35 ft/day (1.2 X 10^{-4}cm/sec). The lower range of values is consistent with the silty soils encountered in the water bearing zone. The higher reported k-value may be a function of preferential pathways caused by the presence of numerous subsurface conduits that cross the Site.

1.3 SUMMARY OF REMEDIAL INVESTIGATION FINDINGS

Several remedial investigations (RI) were performed to characterize the nature and extent of contamination at the site. The results of these investigations are described in detail in the following reports:

- RCRA Facility Investigation Report, August 1992, T.M. Gates, Inc
- Phase II RCRA Facility Investigation Report, August 1996, T.M. Gates, Inc.

- Corrective Measures Study (CMS) Report, February 1997, revised April 1998, T.M. Gates, Inc.
- Revised Groundwater Sampling and Analysis Plan, February 1997, T.M. Gates, Inc.
- Final Corrective Measures Implementation Plan (CMIP), November 1998, T.M. Gates, Inc.
- Certification of Completion Final Corrective Measures Addressing Soil and Sewer Contamination, September 2001, Environmental Resource Management Center, Northern Kentucky University.
- Geoprobe Soil Investigation Results and Recommendations, August 2002, revised October 2002, MACTEC, Inc.
- Enhanced Removal of Source Area Contamination, October 2002, MACTEC, Inc.
- Soil Boring Investigation Report Former Borden Facility, October 2005, MACTEC, Inc.
- Soil Investigation and Treatment Progress Report, January 2006, MACTEC
- Status Report, Site Cleanup, Former Borden Resins Facility Soil Excavation – Phenol Recovery Area, September 2006, Environmental Resources Management.
- Status Report – Land Farming Activities Former Borden Resins Facility Soil Excavation – Phenol Recovery Area, October 2008, Environmental Resources Management.
- Test Pit Investigation, Former Borden Resins Facility, June 2008, Environmental Resources Management.

The extensive soil, sediment and groundwater Resource Conservation Recovery Act (RCRA) Investigations were conducted to evaluate all Solid Waste Management Units (SWMUs). Data from hundreds of soil/sediment samples and 40 groundwater monitoring wells were gathered to define the extent of any impacts. From these data, Interim Corrective Measures (ICM) and Final Corrective Measures (FCM) actions and goals for Site remedy were created and presented in the NYSDEC *Final Statement of Basis for the Former Borden Facility* (FSOB) dated 19 November 1998.

The SWMUs that were investigated at the Site are noted below and shown on Figures 5A and 5B:

- PCB Area;
- Bone Yard;
- River Lagoon;
- Phenol Recovery Area (PRA);
- Land Application Area (LAA);
- Storm/Process Sewers;
- Gasoline Underground Storage Tank (UST);
- Western Creek;
- Eastern (Beatty) Creek;
- Susquehanna River; and
- Groundwater

During the course of the RCRA investigations Borden implemented ICMs to immediately address the potential spread of contamination. Table 1 shows a chronology of the interim measures completed. Analytical analyses of samples collected between 1981 and 1998 reported constituents in surface water and sediment from the Western Creek, Eastern Creek and the Susquehanna River were either below NYSDEC action levels or were not detected. As reported in the FSOB, work completed in 1991 in the area of the gasoline UST prompted no further action required. The remaining areas impacted by hazardous constituents at the Site, post 1998, are listed in Table 2. For each constituent of concern the highest concentration encountered and the site cleanup objective is listed in Table 3.

Site-Related Soil

Soil in the PCB Area, Bone Yard, River Lagoon, PRA, LAA, and portions of the Storm/Process Sewers contained contamination at concentrations that lead to remedial efforts. Remediation methods included both excavation and in-situ treatment. In areas

where the soil was excavated or treated to site cleanup objectives no further remedial efforts are needed. Residual contamination at concentrations above unrestricted use levels remain in certain areas, so restrictions on future use of the site were required. Further discussion of contaminate and remedial efforts in these SWMUs is presented in Section 1.4 of this document.

Site-Related Groundwater

Residual groundwater contamination is limited to the PRA and Boneyard area. The primary constituents of concern in the PRA are toluene, phenolic compounds and formaldehyde. To a lesser extent, benzene, ethylbenzene, xylene and semi-volatile tentatively identified compounds (TICs) have been reported. The constituent of concerns in the Boneyard are PCBs and formaldehyde. The highest concentration and the site cleanup objective of each constituent of concern are listed in Table 3. The groundwater monitoring program for the PRA and Boneyard is presented in Section 3.3.1.

Site-Related Soil Vapor Intrusion

On-site and Off-site soil vapor intrusion concerns have not been formally evaluated. .

Underground Storage Tanks

One gasoline UST was reported at the Site. The UST was removed along with the associated contaminated soil. The FSOB lists this area as requiring no further action.

1.4 SUMMARY OF REMEDIAL ACTIONS

The site was remediated in accordance with the NYSDEC-approved Statement of Basis dated November, 1998; Soils Management Work Plan, September 1999; Final Corrective Measures Addressing Soil and Sewer Contamination, September 2001; and the 2007 Land Farming Work Plan, February 2007.

The following is a summary of the Remedial Actions performed at the site by SWMU:

PCB Area

In 1999 and 2000 contaminated coarse-grained fill, pipe fragments, rubble and wooden pilings were excavated around the former chimney stack. The remedial plan was to cut the wooden pilings below the level of contamination. Attempts to cut the wooden

pilings resulted in the binding of saw blades due to expansion of the wet wooden pilings. Subsequent sampling of drill cores from the pilings reported the most significant PCB contamination was limited to the surface of the pilings. A modified remedial approach was agreed upon and approved by the NYSDEC in a 2 November 1999 letter where the wooden pilings were to be pressure washed to remove the surficial contamination. After pressure washing, verification samples were collected and analyzed confirming that the remaining PCB concentrations on the pilings are less than the remedial cleanup objective of less than 25 parts per million (ppm).

Bone Yard Area

Between September and December 1999 the Bone Yard area was excavated in accordance to the limits specified in the CMIP. Verification samples were collected from the original grid sample locations. Based on the results of laboratory PCB analyses, four of the 25 grid locations and two additional samples from areas that showed visible impacts, did not achieve cleanup objectives. An additional one-foot of soil was excavated from areas exhibiting PCB concentrations above the cleanup objectives. Upon re-excavation, all locations achieved the remedial cleanup objectives with one exception. A third round of excavation was required in the vicinity of 15E before all areas achieved the cleanup objective limit of less than 25 ppm, as verified by laboratory analytical of samples collected from the sidewalls and bottom of the excavations.

River Lagoon Area

Between September and December 1999 the River Lagoon area was excavated in accordance to the limits specified in the CMIP. Verification samples were collected from the original grid sample locations. Based on the results of laboratory PCB analysis, 21 of the 44 grid locations did not achieve cleanup objectives of less than 1 ppm. In a letter dated 15 November 1999 the NYSDEC agreed to a modified remedial approach, additional overburden was removed and segregated to allow the excavation of a sludge layer that contained elevated concentrations of PCBs. A native clay formation encountered below the sludge layer was sampled and analyzed by the laboratory verifying that the remedial cleanup objective level was achieved. In addition to the sludge layer, excavation revealed an area containing five buried drums in the vicinity of the former spillway. The drums were not intact and contained material that was later shown to be phenolic material. The drums and contents were disposed of with the contaminated soil as non-hazardous waste.

Phenol Recovery Area

In 1999 contaminated soil on the PRA was excavated as specified in the CMIP. The excavation extended vertically to approximately three-feet below the water table, seven-foot total depth. The remedial cleanup objective (headspace readings < 50 ppm) was achieved at all excavation perimeter locations except in the vicinity of the PCB Tank. Concerns of compromising the structural integrity of the tank terminated the excavations.

In 2000 the PCB tank and adjacent concrete pad foundation were removed to allow continued excavation of contaminated soil. During this phase of the excavation it was found that PID readings were determined to provide inaccurate indications of the extent of significant contamination. Additional soils were removed, including an area beneath the former PCB tank. Due to the significant added volume of contaminated soil, and given the bio-treatability of the contaminants all parties agreed that the additional excavated soil could be treated on-site as discussed in an email correspondence between ERMC and NYSDEC dated 24 and 27 October 2000.

From 2000 through 2002 various remedial activities were performed on the stockpiled soil and groundwater in the PRA, including air sparging for in-situ bioremediation, injection of Oxygen Releasing Compound (ORC) to enhance natural bio-degradation, and installation and operation of a groundwater pump-and-treat system in the PRA. The groundwater pump-and-treat system was in operation recovering contaminated water from up to five recovery wells and one sump providing hydraulic control of groundwater beneath the PRA from December 2002 to November 2005.

In 2005 a soil boring investigation was undertaken to identify possible residual soil contamination that may still be impacting groundwater. A recommendation to excavate three areas that contained significant concentrations of phenol was presented from the results of these data. NYSDEC agreed to the recommendation and in November 2005 soil materials were removed from two locations, the west and east pond areas; excavated soil was staged in the northern portion of the PRA. The rate of groundwater infiltration and collapse of excavation sidewalls into the excavations was greater than expected, limiting the depth and breadth of the remedial effort. The third excavated area was located in the southern portion of the PRA. Numerous utilities were encountered and the area was not thoroughly excavated. The excavation activities removed the majority of the groundwater pump and treat system, which was abandoned. Two ponds were

created by the excavation; diffusers were installed in the ponds and aerated by an electric air compressor.

In April 2007, NYSDEC agreed to a land farming remedial effort for soil stockpiled during the 2005 excavation. Stockpiles were leveled and contoured to slope towards the aerated ponds. At monthly intervals the upper foot of soil was sampled for phenols; areas that reported low phenolic concentrations were pushed into the western pond, the remaining soil was re-leveled and tilled. Land farming activities continued until October 2008 when the majority of excavated soil had been removed from the stockpile area. At the conclusion of the land farming activities the western pond was approximately 90 to 95 percent filled to original pre-excavation elevations.

In May 2008 a test pit investigation was completed in the PRA with the purpose to identify areas that contained significant phenol concentrations in the unsaturated soil zone. The investigation concluded that PRA does not contain soils with significant concentrations of phenolic compounds above the saturated zone.

Land Application Area

Only the central trenches in the land application area exhibited PCB concentrations at levels that required excavation. Excavation of soil in the central trench area proceeded in accordance with the limits specified in the CMIP. Verification samples were collected from the original grid sample location after excavation. Based upon the results of the laboratory analysis grid location 5I did not achieve the remedial cleanup objective of 25 ppm for PCBs. An additional one-foot of soil was removed from location 5I and re-sampled with a result less than 10 ppm.

Storm/Process Sewers

The original CMIP for addressing PCB contaminated sediments in the sewers was to remove contaminated sediments by jet-washing with high pressure water. Measures to address the sewers were implemented in 2000. The attempt to jet-wash the sewers were unsuccessful due to the degree of blockage. A decision was made to remediate the contamination by sewer excavation and removal where practicable. Remedial efforts in individual sewer lines are discussed below.

Western Sanitary Sewer

An 8-inch sanitary sewer was historically used to discharge sanitary wastes from the former resin facility and adjacent former Elmer's Glue Plant the Village of Bainbridge treatment plant (Village plant). This system was disconnected in 1997 from the Village plant by filling the manhole nearest the Village line with concrete. Sediment collected and analyzed for PCBs in portions of the sewer upstream of the plugged manhole reported concentrations above 1 ppm but less than 10 ppm. No remedial efforts were undertaken in these sewer lines.

Western Industrial Sewer

A 24-inch industrial sewer that discharged industrial wastewater from the former Resin Facility to the River Lagoon was removed south of Route 7 in 1993. The manhole north of the railroad line and associated line running under the railroad had been plugged with concrete in the mid-1980's. The remaining portions of the sewer were remediated by excavation with removal of the sewers and sediments by the procedures outlined in a letter (22 November 1999) from the remediation contractor and subsequently approved by the NYSDEC (30 November 1999). Verification samples were collected at 19 locations and all samples achieved the off-site clean-up objective of <1 mg/kg PCBs. The remaining segment of line under Route 7 was jet-washed and filled with grout as specified by the Department of Transportation access agreement.

Eastern Sewers

The eastern sewer was a 15-inch vitrified tile line that historically transported wastewater from the PRA to the former River Lagoon. The total length of the sewer was approximately 2,400 feet; based upon sampling results it was shown to have sediments laden with PCBs. For ease of discussion the sewer has been divided into 5 segments (A to E).

Segment A

Sewer segment A ran from the manhole at the former on-site wastewater treatment system in the PRA to a buried manhole in Beatty Creek. This segment was filled with concrete in the late 1980's. An exploratory excavation was completed, confirming that this section of the sewer was indeed filled.

Segment B

Sewer segment B was located beneath the Beatty Creek stream bed and beneath the railroad bridge. This run coincides with the location of the Village of Bainbridge sewer and water lines. In 2000 the creek was diverted and a temporary manhole was installed to gain access to the pipe. The section was jet-washed approximately 70-feet until refusal, presumably due to concrete placed in segment A, was encountered.

Segment C

Sewer segment C ran beneath the stream bed between the railroad crossing and Route 7. This segment was excavated, removed and disposed of as non-hazardous waste in 2000. During excavation of the sewer line an additional 15-inch vitrified tile sewer was encountered. After testing this line contained PCB laden sediment. According to the Village of Bainbridge this was an abandoned segment replaced pre-1958. The entire abandoned piping was removed during the excavation as "Y" connection of the old pipe into the known sewer line was found. After removal, verification samples of the bedding were collected, analyzed and reported non-detect for PCBs.

Segment D

Sewer segment D runs beneath the Route 7 culverts, thus precluding excavation and removal of the pipe. The segment is approximately 140-feet long. The pipe run was jet-washed until the return water was non-turbid and clear. To verify if the pipe run was sediment-free a video camera was sent down the pipe run. The upper 70-feet was clear but at this point the camera was obstructed by a large rock, only the bottom 50-feet of pipe could be verified as sediment-free due to the large volume of infiltrated water. Segment D is considered clean and was backfilled at both ends with native materials.

Segment E

Sewer segment E ran from approximately 25-feet south of Route 7 culvert to the former River Lagoon. Approximately 700-feet of the sewer run is under the Beatty Creek stream bed; and 1,300-feet of the sewer ran diagonally across a farm field (Benson's Field) ending at the River Lagoon. In 2000, the entire segment E run, including sediment, pipe and manholes were excavated. Verification samples were collected at 100-foot intervals from the bedding beneath the former pipe. At two locations, re-excavation of one-foot increments was required due to slightly elevated PCB

concentrations in the bedding material. Verification samples collected after re-excavation demonstrated that the clean-up objectives of 1 mg/kg PCBs were achieved along the entire reach of sewer removal. NYSDEC raised concern of a low area within the Benson field that occasionally pooled with water from a breach in the sewer run. Samples collected during the RCRA facility investigation reported PCBs as non-detect in this area. Additional samples were collected from this area confirmed the non-detectable concentration of PCBs. No corrective measures were required to address the "Benson Lake" area.

1.4.1 Removal of Contaminated Materials from the Site

A list of the soil cleanup objectives (SCOs) for the primary contaminants of concern (COCs) and applicable land use for each area at this site is provided in Table 3.

PCB Area

The final depth of the PCB area excavation was approximately 7- to 8-feet deep; 1,156-tons of soil were removed and transported to a NYSDEC approved landfill as hazardous waste. Figure 6 shows the extent of the excavation and the results of the verification sampling at locations reported above 1 part per million (ppm) PCBs. After all significant contaminated materials were removed from the PCB area the excavation was restored to the original grade and topography with site derived concrete rubble (chimney stack and building foundation rubble) and clean imported soil fill. After completion of remediation certain areas within the PCB Area contain soils with residual PCB concentrations greater than 1 ppm, therefore requiring deed notification.

Bone Yard Area

The depths of the excavations performed in the Bone Yard Area are listed in Table 4. The total tonnage of material excavated and transported offsite from the Bone Yard was 3,222-tons, with 1,995-tons classified as hazardous waste, the remainder as non-hazardous waste. After completion, the excavations were backfilled with clean imported soil fill. Certain areas of the Bone Yard after completion of remediation contain soil with residual PCB concentrations greater than 1 ppm, but less than 25 ppm and therefore require deed notification. Figure 7 illustrates the extent of residual PCBs in the Bone Yard Area.

River Lagoon Area

Figure 8 illustrates the horizontal and vertical limits of the final River Lagoon excavation from which 17,734-tons of soil was removed and transported offsite as non-

hazardous (13,541-tons) and hazardous (4,193-tons) waste. The NYSDEC approved modified remediation approach was to excavate down to native clay layer. The clay layer was sampled at 32 different locations with all the analytical results reporting PCBs at less than 1 ppm, thus meeting the unrestricted-use cleanup criteria. Therefore, no further conditions or restrictions apply to the River Lagoon Area.

Phenol Recovery Area

Figure 9 illustrates the horizontal and vertical limits of excavation number one and number two in the PRA. No soil was removed from excavation number three due to encounters with shallow utilities. Approximately 3,586-tons of soil were excavated from the PRA with 1,086-tons disposed of as non-hazardous waste. The remaining 2,500-tons was stockpiled on-site and remediated by air-sparging and land farming activities. After completion of the remediation certain areas of the PRA contain soil with residual phenol concentrations greater than 50 ppm, and therefore require deed notification.

In 2009 excavation number one was backfilled and graded to near pre-excavation elevations with remediated soil from the PRA land farming operation. Excavation number two is proposed to be filled with imported clean fill in October/November 2012. A separate work plan for backfilling excavation number two (also known as Pond 2 in relation to water sampling at the Site) and storm water pollution prevention plan (SWPPP) has been prepared and will be submitted under a separate cover. Upon completion of the placement of backfill in excavation two, the Pond 2 sample as discussed in Section 3.3.1 will not be required.

Land Application Area

Approximately 200-tons of soil was excavated and disposed of as non-hazardous waste. Clean imported soil fill was used to backfill the excavations and re-graded to mitigate potential fall hazards. After completion of remediation certain areas in the north, central and south trenches contain soil with residual PCB concentrations greater than 1 ppm, and therefore require deed notification. Figure 10 illustrates the extent of residual PCB concentrations in the LAA.

Storm/Process Sewers

Western Sanitary Sewer

No remedial effort was undertaken in the western sanitary sewer. Sediment sampled and analyzed from manholes W1B, W1C and W2 (Figure 11) contain PCB concentrations greater 1 ppm and less than 10 ppm, therefore deed notification is not required..

Western Industrial Sewer

Remedial efforts in the western industrial sewer (Figure 12) included excavation of sewer lines and bedding, jet-washing of lines that could not be excavated and plugging of lines once cleaned. Contaminated soil was disposed of as non-hazardous and hazardous waste, groundwater and jet-washing water was collected by vacuum tankers and treated on-site. Verification samples were collected at 19 locations including sewer bedding from the removed portion of the sewer, as well as bedding from influent pipes that were left in place. All verification samples achieved the off-site criterion of less than one mg/kg PCBs. Since all PCB-contaminated sediment has been removed by sewer excavation or jet washing, no further condition or restrictions apply to the western industrial sewer.

Eastern Sewers

Figure 13 shows the location of the eastern sewer segments (A, B, C, D, and E) described below.

Segment A

Segment A of the Eastern Sewer was grouted in place in 1981 and confirmed by a test pit completed in 1999. No additional corrective measure is deemed necessary to address this segment of the Eastern Sewer.

Segment B

Segment B of the Eastern Sewer was jet washed until the effluent water was clear. Due to the large volume of water in this segment a video of the sewer was not possible. During the jet washing, approximately 6,000 gallons of wash water were recovered and

treated by the on-site waste treatment system. No additional corrective measure is deemed necessary to address this segment of the Eastern Sewer.

Segment C

Segment C of the Eastern Sewer and the encountered 15-inch vitrified tile sewer were excavated. The sewer pipe and sludge were disposed of as non-hazardous waste (based on characterization sampling). Verification samples collected from under the removed bedding demonstrate that the off-site criterion of one mg/kg was achieved in Segment C and no additional corrective measure is deemed necessary.

Segment D

Segment D of the Eastern Sewer is located beneath Route 7, precluding excavation. In 2000, the segment was jet washed producing approximately 64,000 gallons of sewer sludge and wash water that was recovered by vacuum tanker truck and treated in the on-site PCB-water treatment system. No additional corrective measure is deemed necessary to address this segment of the Eastern Sewer.

Segment E

The entire run of segment E of the Eastern Sewer, including sludge, pipe and manholes was excavated in 2000. After excavation was complete, verification samples were collected at 100-foot intervals from bedding beneath the pipe. At two locations, PCBs were slightly elevated and required the removal of an additional one-foot of bedding material. Verification samples collected after re-excavation demonstrated that the clean-up criterion (one mg/kg) was achieved along the entire reach of the sewer removal.

Since all PCB-contaminated sediment has been removed by sewer excavation or jet-washing, no further conditions or restrictions apply to the Eastern Sewer.

1.4.2 Site-Related Treatment Systems

No long-term treatment systems were installed as part of the site remedy.

1.4.3 Remaining Contamination

Remaining contamination at the Site will be discussed below by specific area.

PCB Area

Figure 6 shows the two areas within the PCB area that report contamination above one mg/kg. The contamination is located in the native soil below the clean fill materials used to backfill the excavation. Contamination in the smaller northern area is located at a depth between 4- and 6-feet bgs at concentrations <4 mg/kg as shown on Figure 6. There are no known active public or private utilities in this area.

Bone Yard Area

Figure 7 shows the area subject to deed notification as elucidated by the concentrations of PCBs of the verification samples. Contaminated soil is located at a depth between 1- and 6-feet bgs located beneath the fill material used to backfill the excavation. There are no known active public or private utilities in this area.

Phenol Recovery Area

Figure 9 represents the excavated areas and location of verification samples collected in the PRA. Shallow verification samples as shown on Figure 9 report concentrations less than 50 mg/kg, as do verification samples collected during land farming operations in 2008. Test pits installed in other areas of the PRA did not reveal excessive staining or elevated readings on field instruments in the shallow (<3-feet bgs) subsurface. However, to be conservative soil management activities in this area will start at depths of 3-feet bgs. The majority of the area is covered with clean fill materials or soils that have been remediated. The fill depth varies across the area. One known underground utility is located in the excavation 3 area, running east west across the Site. The utility is a water line reportedly connected to the fire water suppression line at the Borden Facility and during excavation of this area the integrity of the line was compromised leading to flooding of the excavation.

Land Application Area

Figure 10 represents the Land Application Areas showing the depth of the verification samples and the concentration range of reported PCBs. Figure 10 shows the extent of deed restrictions in the LAA ranging from 1- to 6-feet bgs beneath imported fill materials. There are no known active public or private utilities in this area.

Western Sanitary Sewer

Sediment with in the Western Sanitary Sewer has reported PCB concentrations above one mg/kg. These sediments were not remediated or mitigated. The depth of the

contamination is unknown; however, bedding below other sanitary sewers was not contaminated much more than 1-foot below the pipe invert. This section of sewer has been plugged downstream limiting the area of restriction between manholes W1B and W3 as shown on Figure 11.

2.0 ENGINEERING AND INSTITUTIONAL CONTROL PLAN

2.1 INTRODUCTION

2.1.1 General

Since remaining contaminated soil and groundwater exists beneath the site, Engineering Controls and Institutional Controls (EC/ICs) are required to protect human health and the environment. This Engineering and Institutional Control Plan describes the procedures for the implementation and management of all EC/ICs at the site. The EC/IC Plan is one component of the SMP and is subject to revision by NYSDEC.

2.1.2 Purpose

This plan provides:

- A description of all EC/ICs on the site;
- The basic implementation and intended role of each EC/IC;
- A description of the key components of the ICs set forth in the Environmental Deed Restriction(s);
- A description of the features to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of EC/ICs, such as the implementation of the Excavation Work Plan for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the site; and
- Any other provisions necessary to identify or establish methods for implementing the EC/ICs required by the site remedy, as determined by the NYSDEC.

2.2 ENGINEERING CONTROLS

2.2.1 Engineering Control Systems

Soil Cover

Exposure to remaining contamination in soil/fill at the site is prevented by a soil cover system placed over a portion of the site as defined as generally within the area subject to Deed Notification as presented on Figures 6, 7 and 10 of this SMP. The Excavation Work Plan that appears in Appendix B outlines the procedures required to be implemented in the event the cover system is breached, penetrated or temporarily removed, and any underlying remaining contamination is disturbed. Procedures for the inspection and maintenance of this cover are provided in the Monitoring Plan included in Section 4 of this SMP.

2.2.2 Criteria for Completion of Remediation/Termination of Remedial Systems

Generally, remedial processes are considered completed when effectiveness monitoring indicates that the remedy has achieved the remedial action objectives identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.6 of NYSDEC DER-10.

The following Engineering Controls were previously required in the PRA:

- Groundwater pump and treat system; and
- Air sparging.

These ECs were discontinued when further excavation and land farming remedial efforts were approved by the NYSDEC.

However, the following requirements must be met:

- Compliance with the Environmental Deed Restriction(s) and this SMP by the Grantor and the Grantor's successors and assigns;
- All Engineering Controls must be operated and maintained as specified in this SMP;
- The soil cover ECs on the Site Property must be inspected at a frequency and in a manner defined in the SMP.
- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;

Data and information pertinent to Site Management of the Site Property must be reported at the frequency and in a manner defined in this SMP;

2.2.2.1 Monitored Natural Attenuation

Groundwater monitoring activities to assess natural attenuation will continue, as determined by the NYSDEC, until residual groundwater concentrations are found to be consistently below NYSDEC standards or have become asymptotic at an acceptable level over an extended period. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. An IC in the form of a Deed Restriction relating to groundwater is included as part of Appendix A (See Figures 14 and 15). If groundwater contaminant concentrations become asymptotic at a level that is not acceptable to the NYSDEC, the IC will have to be revised and could include additional source removal, treatment and/or control measures.

2.3 INSTITUTIONAL CONTROLS

A series of Institutional Controls are required by the Decision Document to: (1) monitor soil cover system; (2) prevent future exposure to contamination by controlling disturbances of the subsurface; and, (3) limit the use and development of the site to restrictive commercial uses only.

Institutional Controls may be required by NYSDEC at any time and the Deed Restriction may not be discontinued without an amendment to or extinguishment of the Deed Restriction.

Site restrictions that apply to the Site Property are:

- The property may only be used for restricted commercial or restricted industrial use provided that the long-term Engineering Control included in this SMP is employed.
- The property may not be used for unrestricted, residential, or restricted residential use without additional remediation and amendment of the Environmental Deed Restriction(s), as approved by the NYSDEC;
- All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- The use of the groundwater underlying the property is prohibited without treatment rendering it safe for intended use;

- The potential for vapor intrusion must be evaluated for any buildings developed in the PRA and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the property are prohibited;
- The site owner or remedial party will submit to NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the Site Property are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. NYSDEC retains the right to access such Site Property at any time in order to evaluate the continued maintenance of any and all controls. This certification shall be submitted annually, or an alternate period of time that NYSDEC may allow and will be made by an expert that the NYSDEC finds acceptable.

2.3.1 Excavation Work Plan

The site has been remediated for restricted commercial use. Any future intrusive work that will penetrate the soil cover or cap, or encounter or disturb the remaining contamination, including any modifications or repairs to the existing cover system will be performed in compliance with the Excavation Work Plan (EWP) that is attached as Appendix B to this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) previously prepared for the Site that are in current compliance with DER-10, and 29 CFR 1910, 29 CFR 1926, and all other applicable Federal, State and local regulations. Any intrusive construction work will be performed in compliance with the EWP, HASP and CAMP, and will be documented in the periodic inspection and certification reports submitted under the Site Management Reporting Plan (See Section 5).

The site owner and associated parties preparing the remedial documents submitted to the State, and parties performing this work, are completely responsible for the safe performance of all intrusive work, the structural integrity of excavations, proper disposal of excavation de-water, control of runoff from open excavations into remaining contamination, and for structures that may be affected by excavations (such as building foundations and bridge footings). CRE or any future site owner will ensure that site

development activities will not interfere with, or otherwise impair or compromise, the engineering controls described in this SMP.

2.3.2 Soil Vapor Intrusion Evaluation

The potential for soil vapor intrusion (SVI) has been identified in the PRA. Prior to the construction of any enclosed structures located over areas that contain remaining contamination a SVI evaluation may need to be performed to determine whether any mitigation measures are necessary to eliminate potential exposure to vapors in the proposed structure. Alternatively, a SVI mitigation system may be installed as an element of the building foundation without first conducting an investigation. This mitigation system will include a vapor barrier and passive sub-slab depressurization system that is capable of being converted to an active system.

Prior to conducting a SVI investigation or installing a mitigation system, a work plan will be developed and submitted to the NYSDEC and NYSDOH for approval. This work plan will be developed in accordance with the most recent NYSDOH "Guidance for Evaluating Vapor Intrusion in the State of New York". Once the investigation is completed the final data will be transmitted to the agencies and if necessary, measures to mitigate potential vapor intrusion will be evaluated, selected, designed, installed, and maintained based on the SVI evaluation, the NYSDOH guidance, and construction details of the proposed structure.

2.4 INSPECTIONS AND NOTIFICATIONS

2.4.1 Inspections

Inspections of all remedial components installed at the site will be conducted at the frequency specified in the SMP Monitoring Plan schedule. A comprehensive site-wide inspection will be conducted annually, regardless of the frequency of the Periodic Review Report. The inspections will determine and document the following:

- Whether Engineering and/or Institutional Controls continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Deed Restriction(s);

- Achievement of remedial performance criteria;
- Sampling and analysis of appropriate media during monitoring events;
- If site records are complete and up to date; and
- Changes, or needed changes, to the remedial or monitoring system;

Inspections will be conducted in accordance with the procedures set forth in the Monitoring Plan of this SMP (Section 3). The reporting requirements are outlined in the Periodic Review Reporting section of this plan (Section 5).

If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs, an inspection of the site will be conducted within 5 days of the event to verify the effectiveness of the EC/ICs implemented at the site by a qualified environmental professional (QEP) as determined by NYSDEC.

2.4.2 Notifications

Notifications will be submitted by the property owner to the NYSDEC as needed for the following reasons:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the Order on Consent, 6NYCRR Part 375, and/or Environmental Conservation Law.
- 7-day advance notice of any proposed ground-intrusive activities pursuant to the Excavation Work Plan.
- Verbal notice by noon of the following day of any emergency, such as a fire, flood, or earthquake that reduces or has the potential to reduce the effectiveness of Engineering Controls in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
- Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action shall be submitted to the NYSDEC within 45 days and shall describe and document actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the site or the responsibility for implementing this SMP will include the following notifications:

- At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser has been provided with a copy of the Order on Consent, and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing.

2.5 CONTINGENCY PLAN

Emergencies may include injury to personnel, fire or explosion, environmental release, or serious weather conditions.

2.5.1 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to the QEP. These emergency contact lists must be maintained in an easily accessible location at the site.

Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3 day notice required for utility markout)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

Contact Numbers

ERM Syracuse, New York Office (ask for Dave W. Myers or Todd L. Marsh)	(315) 445-2554
Columbus Real Estate, LLC. (Oliver Pau)	(919) 743-2514

* Note: Contact numbers subject to change and should be updated as necessary

2.5.2 Map and Directions to Nearest Health Facility

Site Location: County Route 38, Bainbridge, NY 13733

Nearest Hospital Name: Tri-Town Regional Hospital

Hospital Location: 43 Pearl St West, Sidney, NY 13838

Hospital Telephone: 607-563-7080

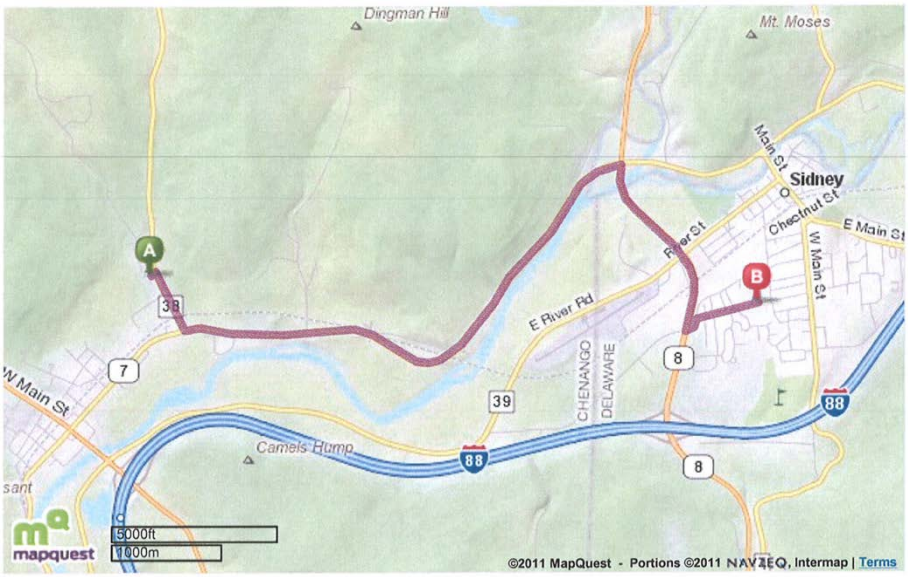
Directions to the Hospital:

1. Turn right onto CR-38; go 0.2 mi
2. Turn left onto RT-7; go 3.4 mi
3. Turn right onto RT-8 S; go 1.2 mi
4. Turn left onto Delaware St / Delaware Ave; go 0.1 mi
5. Take first right onto West Pearl St; go 0.4 mi
6. 43 Pearl St

Total Distance: 5.3 mi

Total Estimated Time: 9-minutes.

Map Showing Route from the site to the Hospital:



2.5.3 Response Procedures

As appropriate, the fire department and other emergency response group will be notified immediately by telephone of the emergency. The emergency telephone number list is found at the beginning of this Contingency Plan (Table 5). The list will also be posted prominently at the site and made readily available to all personnel at all times.

3.0 SITE MONITORING PLAN

3.1 INTRODUCTION

3.1.1 General

The Monitoring Plan describes the measures for evaluating the performance and effectiveness of the remedy to reduce or mitigate contamination at the site, the soil cover system, and all affected site media identified below. This Monitoring Plan may only be revised with the approval of NYSDEC.

3.1.2 Purpose and Schedule

This Monitoring Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance, particularly ambient groundwater standards;
- Assessing achievement of the remedial performance criteria.
- Evaluating site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

To adequately address these issues, this Monitoring Plan provides information on:

- Sampling locations, protocol, and frequency;
- Information on all designed monitoring systems (e.g., well logs);
- Analytical sampling program requirements;
- Reporting requirements;
- Quality Assurance/Quality Control (QA/QC) requirements;
- Inspection and maintenance requirements for monitoring wells;
- Monitoring well decommissioning procedures; and
- Annual inspection and periodic certification.

To evaluate any potential reduction in concentrations of contaminants or potential off-site migration, semi-annual groundwater monitoring is proposed for the next 5-years, followed by an additional 5-years of annual sampling of on-site and off-site monitoring wells will be conducted. The monitoring frequency after 10-years (if necessary) will be determined by the QEP and approved by the NYSDEC. Trends in contaminant concentrations of groundwater in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in the Table below and outlined in detail in Sections 3.2 and 3.3 below.

Monitoring Plan

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater	Semi-annually for 5-years, followed by 5-years of annual sampling to be reevaluated in 10-years	Groundwater	BTEX, phenols, PCBs, and formaldehyde as specified in Table 8.

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC.

3.2 SOIL COVER SYSTEM MONITORING

The Soil Cover System will be inspected annually for disturbances and erosional features. Repairs will be made as deemed necessary according to the procedures discussed in Appendix B.

3.3 MEDIA MONITORING PROGRAM

3.3.1 Groundwater Monitoring

Groundwater monitoring will be performed on a periodic basis to assess the performance of the remedy. The network of monitoring wells (Figure 14 and 15) has been installed to monitor both up-gradient and down-gradient groundwater conditions at the site. Table 5 presents the monitoring wells to be sampled and the analyses required. The sampling frequency may be modified with the approval NYSDEC. The SMP will be

modified to reflect changes in sampling plans approved by NYSDEC. Deliverables for the groundwater monitoring program are specified below.

3.3.1.1 Sampling Protocol

All monitoring well sampling activities will be recorded in a field book and a groundwater-sampling sheet presented in Appendix C. Other observations (e.g., well integrity, etc.) will be noted on the well sampling sheet. The well sampling sheet will serve as the inspection form for the groundwater monitoring well network. Appendix D is the Site Specific Quality Assurance Project Plan (QAPP) which contains the field sampling protocols that will be used to monitoring the groundwater at the Site.

3.3.1.2 Monitoring Well Repairs, Replacement and Decommissioning

If bio-fouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced (as per the Monitoring Plan), if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC will be notified prior to any repair or decommissioning of monitoring wells for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent periodic report. Well decommissioning without replacement will be done only with the prior approval of NYSDEC. Well abandonment will be performed in accordance with NYSDEC's "Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be reinstalled in the nearest available location, unless otherwise approved by the NYSDEC.

3.4 SITE-WIDE INSPECTION

Site-wide inspections will be performed on a regular schedule at a minimum of once a year. Site-wide inspections will also be performed after all severe weather conditions that may affect Engineering Controls or monitoring devices. During these inspections, an inspection form will be completed (Appendix C). The form will compile sufficient information to assess the following:

- Compliance with all ICs, including site usage;
- An evaluation of the condition and continued effectiveness of ECs;
- General site conditions at the time of the inspection including an evaluation of the need for mowing or vegetation control to ensure continued access to the Site and the groundwater monitoring network;
- The site management activities being conducted including, where appropriate; confirmation sampling and a health and safety inspection;
- Compliance with permits and schedules; and
- Confirm that site records are up to date.

3.5 MONITORING QUALITY ASSURANCE/QUALITY CONTROL

All sampling and analyses will be performed in accordance with the requirements of the QAPP prepared for the site (Appendix D). Main elements include:

- QA/QC Objectives for Data Measurement;
- Sampling Program:
    - Sample containers will be properly washed, decontaminated, and appropriate preservative will be added (if applicable) prior to their use by the analytical laboratory. Containers with preservative will be tagged as such.
    - Sample holding times will be in accordance with the NYSDEC ASP requirements.
    - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody;
- Calibration Procedures:
    - All field analytical equipment will be calibrated immediately prior to each day's use. Calibration procedures will conform to manufacturer's standard instructions.

  - The laboratory will follow all calibration procedures and schedules as specified in USEPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.

- Analytical Procedures;
- Internal QC and Checks;
- QA Performance and System Audits;
- Preventative Maintenance Procedures and Schedules;
- Corrective Action Measures.

3.6 MONITORING REPORTING REQUIREMENTS

Forms and any other information generated during regular monitoring events and inspections will be kept on file at the main office of the QEP. All forms, and other relevant reporting formats used during the monitoring/inspection events, will be (1) subject to approval by NYSDEC and (2) submitted at the time of the Periodic Review Report, as specified in the Reporting Plan of this SMP.

All monitoring results will be reported to NYSDEC on a periodic basis in the Periodic Review Report. A letter report will also be prepared subsequent to each sampling event. The letter report will include, at a minimum:

- Date of event;
- Personnel conducting sampling;
- Description of the activities performed;
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;
- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);

- Any observations, conclusions, or recommendations; and
- A determination as to whether groundwater conditions have changed since the last reporting event.

Data will be reported in hard copy or digital format as determined by NYSDEC. A summary of the monitoring program deliverables are summarized in the Table below.

Schedule of Monitoring/Inspection Reports

Task	Reporting Frequency*
Semi-annual or annual report	Semi-Annual field work May and November (first 5-years); Annual field work (second 5-year period) will be completed in November. Reports to follow within 60-days of sampling event.
Periodic Review Report	Periodic review will be included with the November sampling report.

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC

4.0 OPERATION AND MAINTENANCE PLAN

4.1 INTRODUCTION

The site remedy does not rely on any mechanical systems, such as sub-slab depressurization systems or air sparge/ soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

5.0 INSPECTIONS, REPORTING AND CERTIFICATIONS

5.1 SITE INSPECTIONS

5.1.1 Inspection Frequency

All inspections will be conducted at the frequency specified in the schedules provided in Section 3 Monitoring Plan of this SMP. At a minimum, a site-wide inspection will be conducted annually. Inspections of remedial components will also be conducted whenever a severe condition has taken place, such as an erosion or flooding event that may affect the ECs.

5.1.2 Inspection Forms, Sampling Data, and Maintenance Reports

All inspections and monitoring events will be recorded on the appropriate forms for their respective system which are contained in Appendices C. Additionally, a general site-wide inspection form will be completed during the site-wide inspection (see Appendix C). These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including all media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format in the Periodic Review Report.

5.1.3 Evaluation of Records and Reporting

The results of the inspection and site monitoring data will be evaluated as part of the EC/IC certification to confirm that the:

- EC/ICs are in place, are performing properly, and remain effective;
- The Monitoring Plan is being implemented;
- The site remedy continues to be protective of public health and the environment and is performing as designed in the SMP.

5.2 CERTIFICATION OF ENGINEERING AND INSTITUTIONAL CONTROLS

After the last inspection of the reporting period, a QEP will prepare the following certification:

For each institutional or engineering control identified for the site, the professional will certify that all of the following statements are true:

- The inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;
- The institutional control and/or engineering control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;
- Nothing has occurred that would impair the ability of the control to protect the public health and environment;
- Nothing has occurred that would constitute a violation or failure to comply with any site management plan for this control;
- Access to the site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control;
- If a financial assurance mechanism is required under the oversight document for the site, the mechanism remains valid and sufficient for the intended purpose under the document;
- Use of the site is compliant with the Environmental Deed Restriction(s);
- The engineering control systems are performing as designed and are effective;
- To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program; and
- The information presented in this report is accurate and complete.
- I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner or Owner's Designated Site Representative]: [I have been authorized and designated by all site owners to sign this certification] for the site.

5.3 PERIODIC REVIEW REPORT

A Periodic Review Report will be submitted to the Department in November of each year as previously stated. The report will be prepared in accordance with NYSDEC DER-10 and submitted within 30-days of the end of each certification period. Media sampling results will also incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site;
- Results of the required annual site inspections and severe condition inspections, if applicable;
- All applicable inspection forms and other records generated for the site during the reporting period in electronic format;
- A summary of any discharge monitoring data and/or information generated during the reporting period with comments and conclusions;
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These will include a presentation of past data as part of an evaluation of contaminant concentration trends;
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted electronically in a NYSDEC-approved format;
- A site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP, ROD or Decision Document;
    - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding site contamination based on inspections or data generated by the Monitoring Plan for the media being monitored;

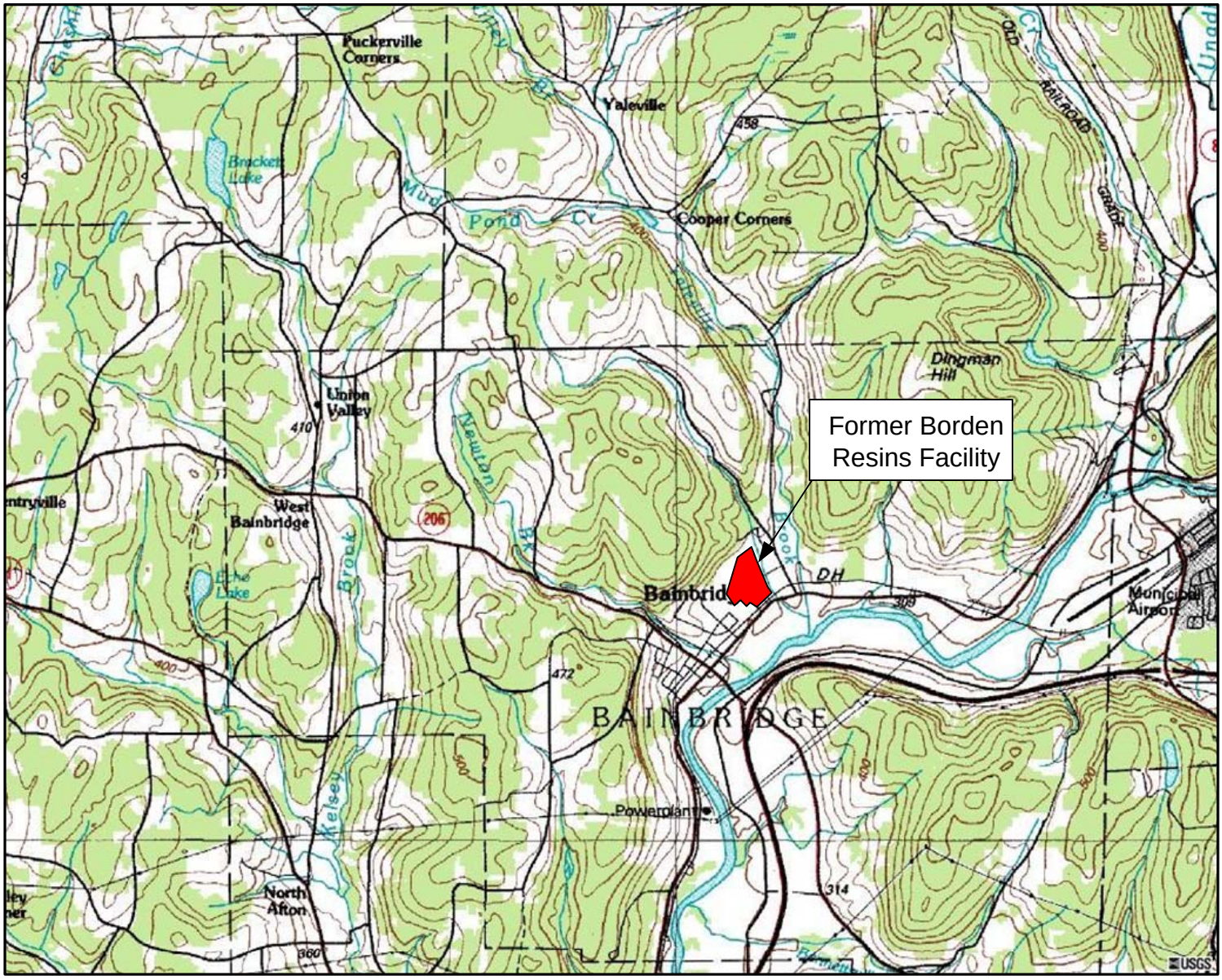
- Recommendations regarding any necessary changes to the remedy and/or Monitoring Plan; and
- The overall performance and effectiveness of the remedy.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office and the Region 7 Office.

5.4 CORRECTIVE MEASURES PLAN

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an institutional or engineering control, a corrective measures plan will be submitted to the NYSDEC for approval within 60-days of the observation of the noted control failure. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the corrective measures plan until it is approved by the NYSDEC.

FIGURES



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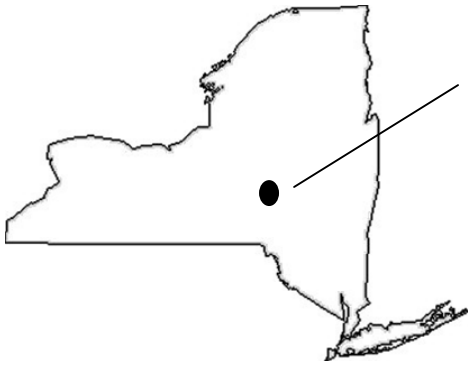
www.TerraServer.com



Site Location Map		
Former Borden Resins Facility Bainbridge, New York		
ERM	Scale 1:2000	Figure 1
	Date October 2012	

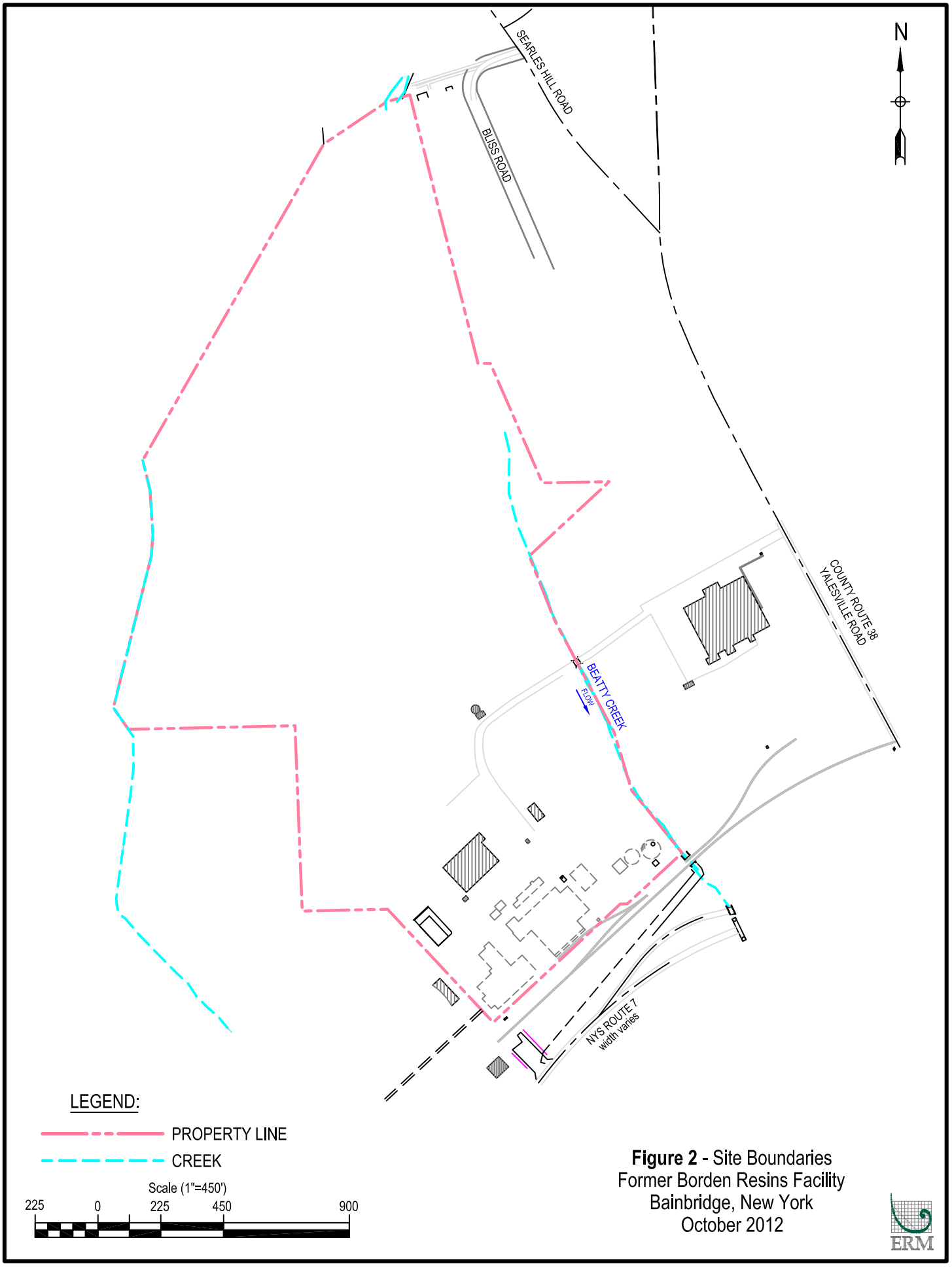


Figure 2 - Site Boundaries
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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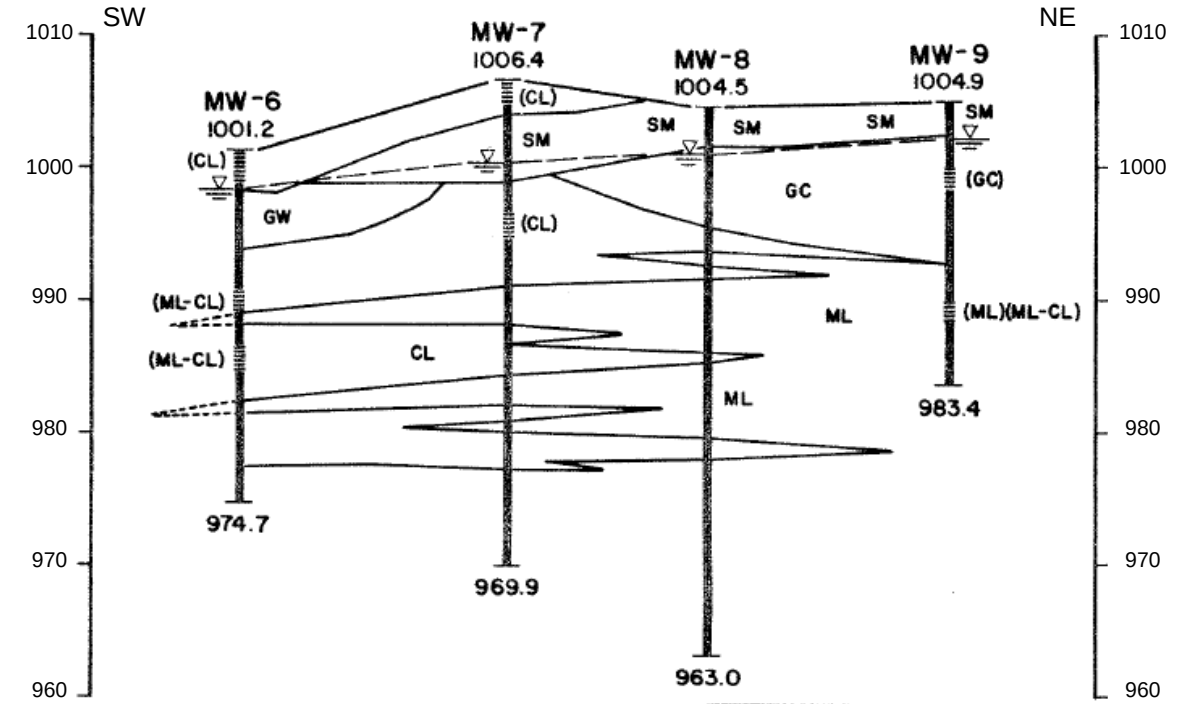
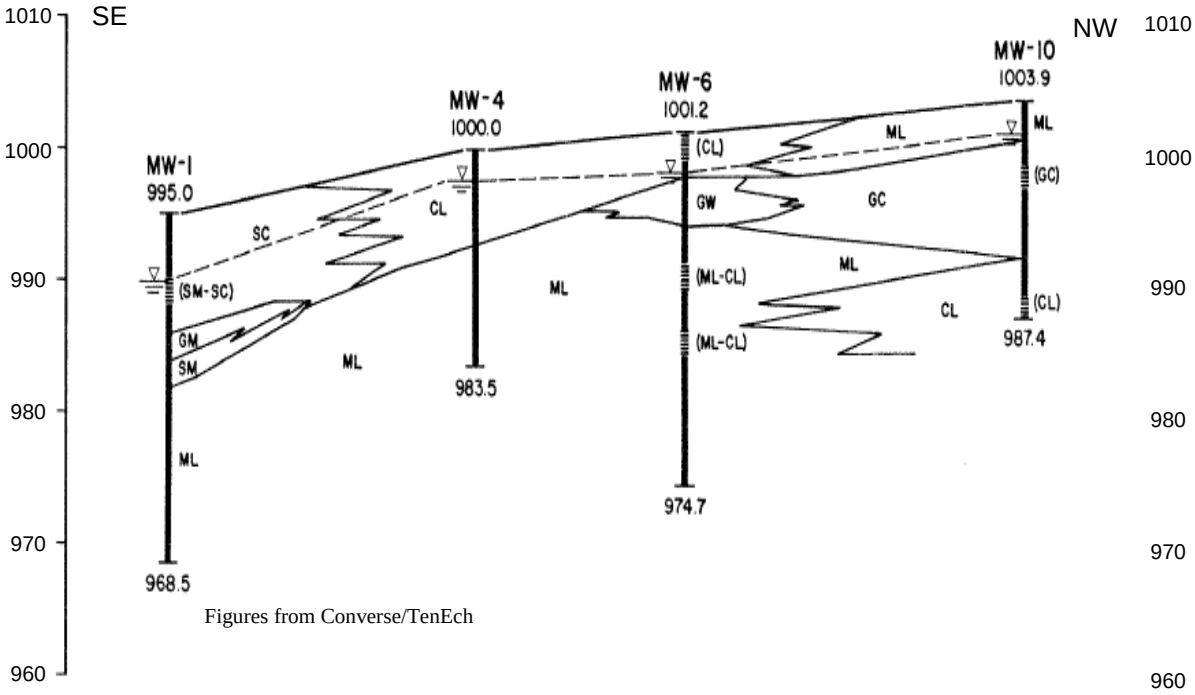




Figures from Converse/TenEch

Key:

- CL – Inorganic Clay
- GC – Clayey Gravel
- GM – Silty Gravel
- GW – Well graded gravel
- ML – Inorganic silts and fine sands
- SC – Clayey sands
- SM – Silty sands
- ▽ - Top of water table
- — — — - Water table

Scale:
Vertical: 1" = 10'
Horizontal: 1" = 100'

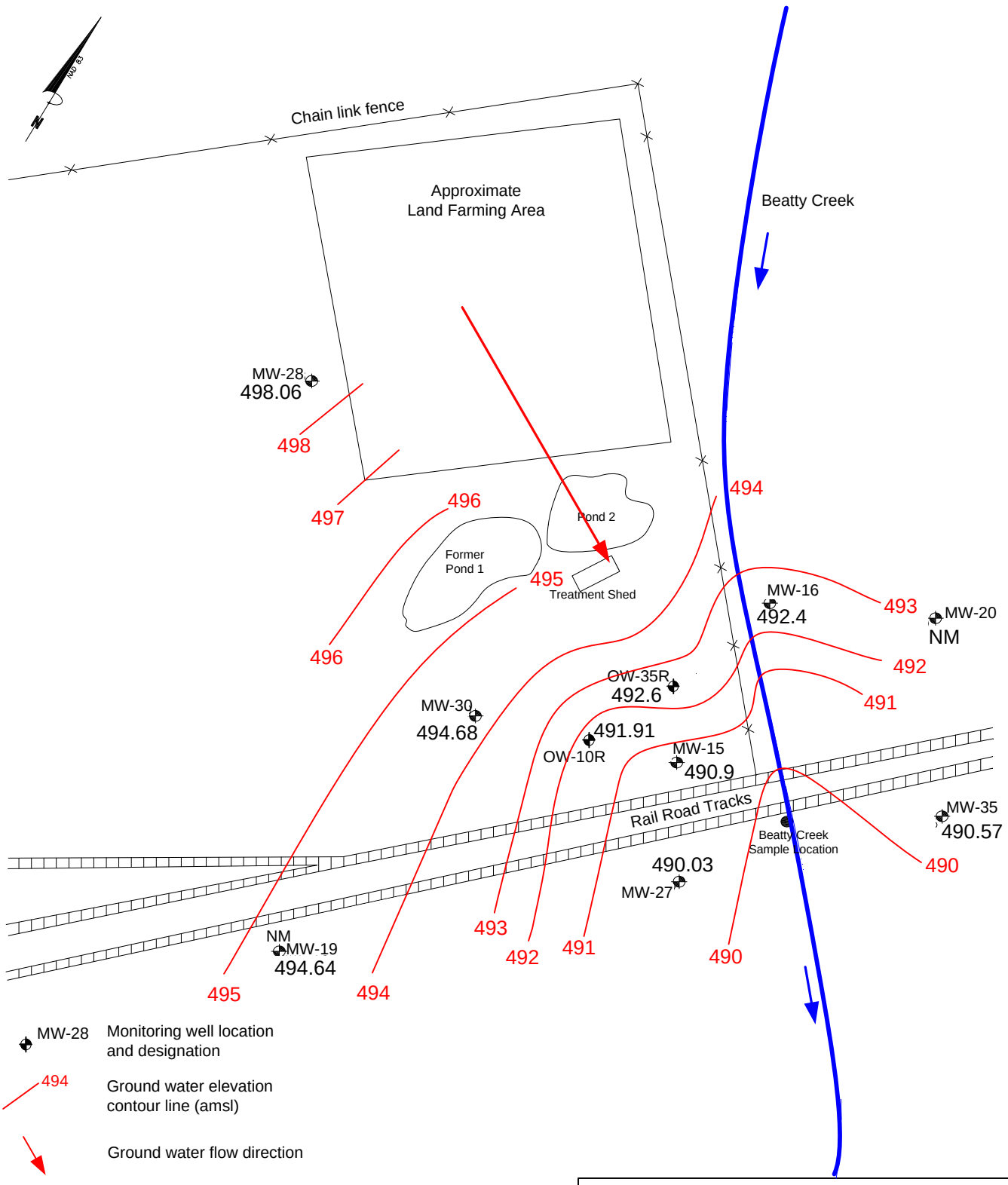
Geologic Cross Sections

Former Borden Resins Facility, Bainbridge, New York

Environmental Resources Management

Date: October 2012

Figure: 3



Ground water elevations shown were measured in May 2010. Elevations are referenced from a Site datum unique to the PRA.

Notes:
- Existing ponds and Beatty Creek are not to scale.
- Base map obtained from MACTEC Environmental Consultants, Inc.

Ground Water Contour Map – Typical

Former Borden Resins Facility Bainbridge, New York

ERM

Scale	Figure
As Shown	4
Date	
September 2011	

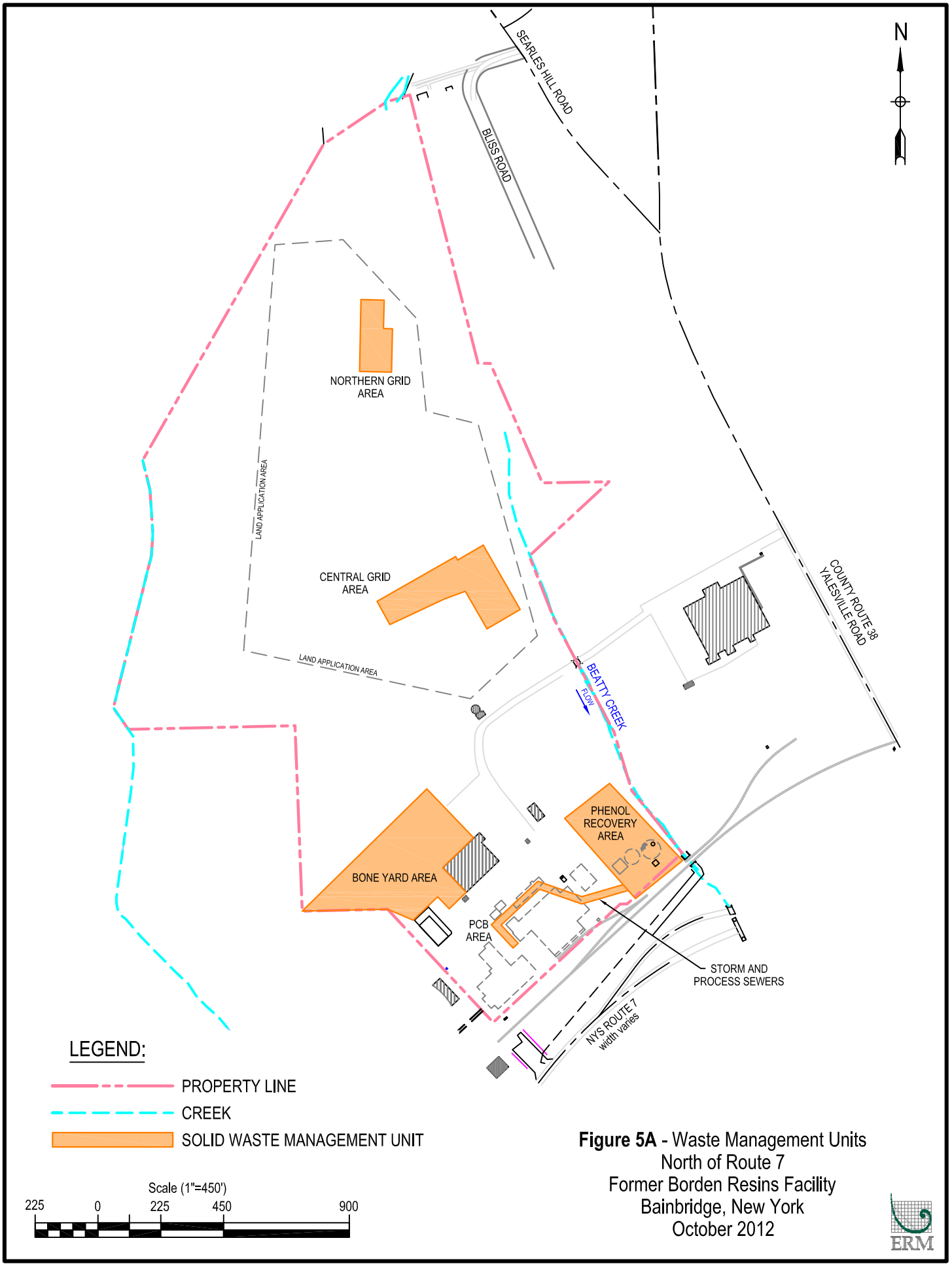


Figure 5A - Waste Management Units
North of Route 7
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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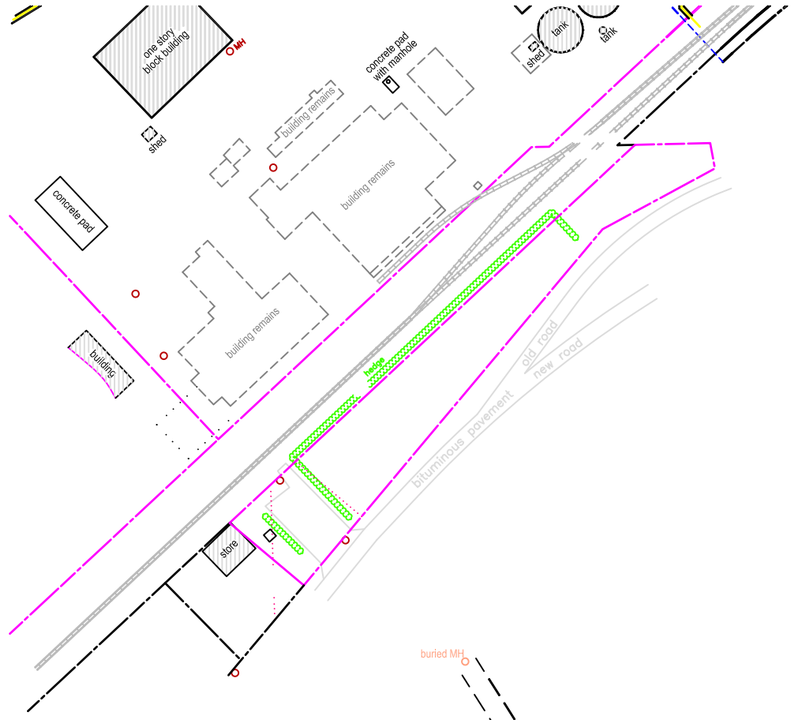

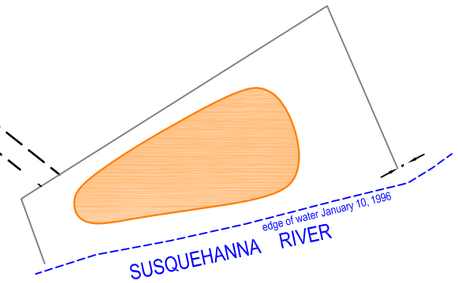

N

LEGEND:

- PROPERTY LINE
- MANHOLE AND SEWER LINE
- SOLID WASTE MANAGEMENT UNIT

NOTE:
BASEMAP PROVIDED BY BOCK & CLARK'S NATIONAL SURVEYORS NETWORK, AKRON, OHIO.

Scale (1"=220')

110 0 110 220 440

Figure 5B - Waste Management Units
South of Route 7
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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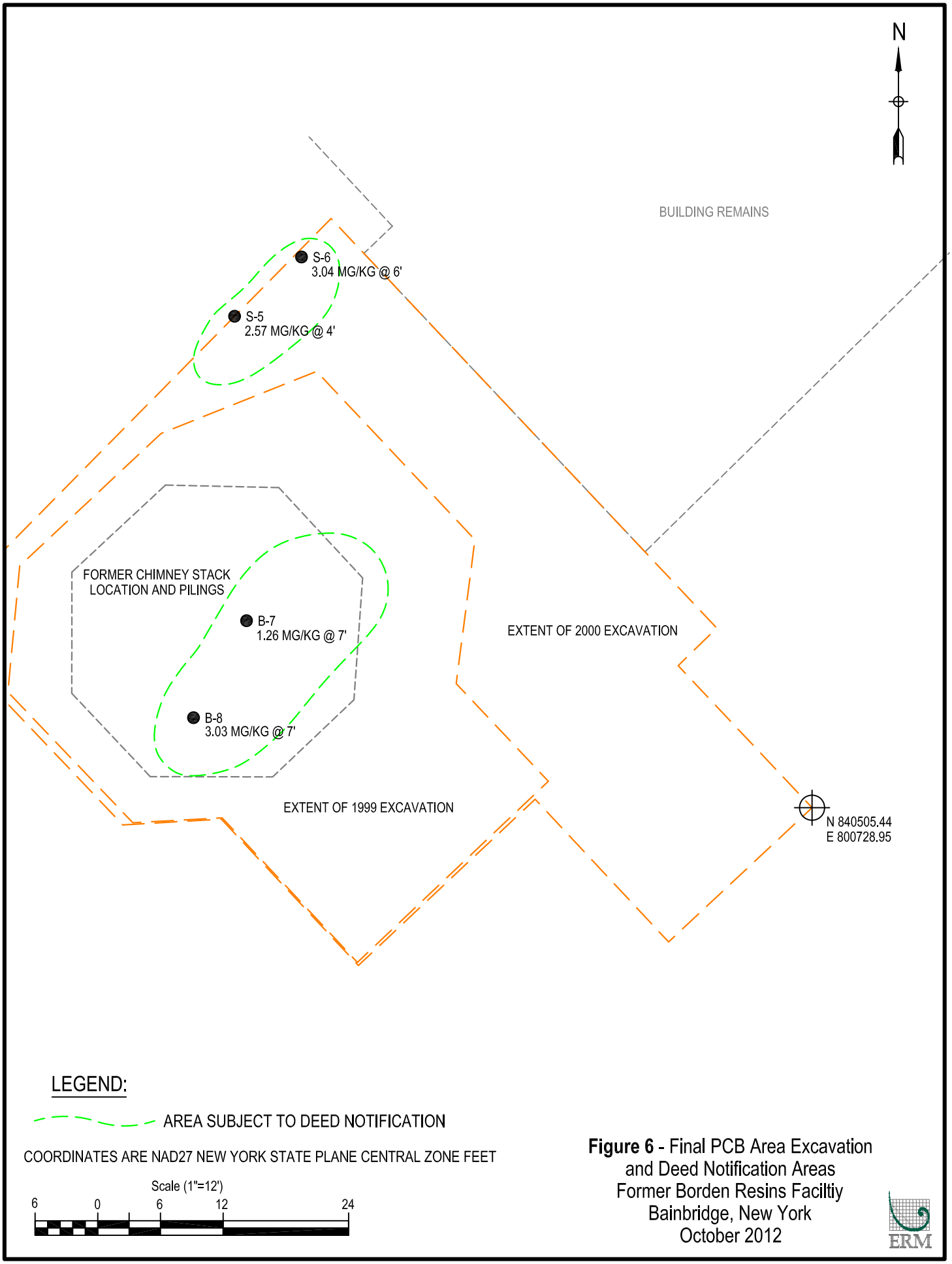

Figure 6 - Final PCB Area Excavation and Deed Notification Areas
Former Borden Resins Faciltiy
Bainbridge, New York
October 2012

ERM

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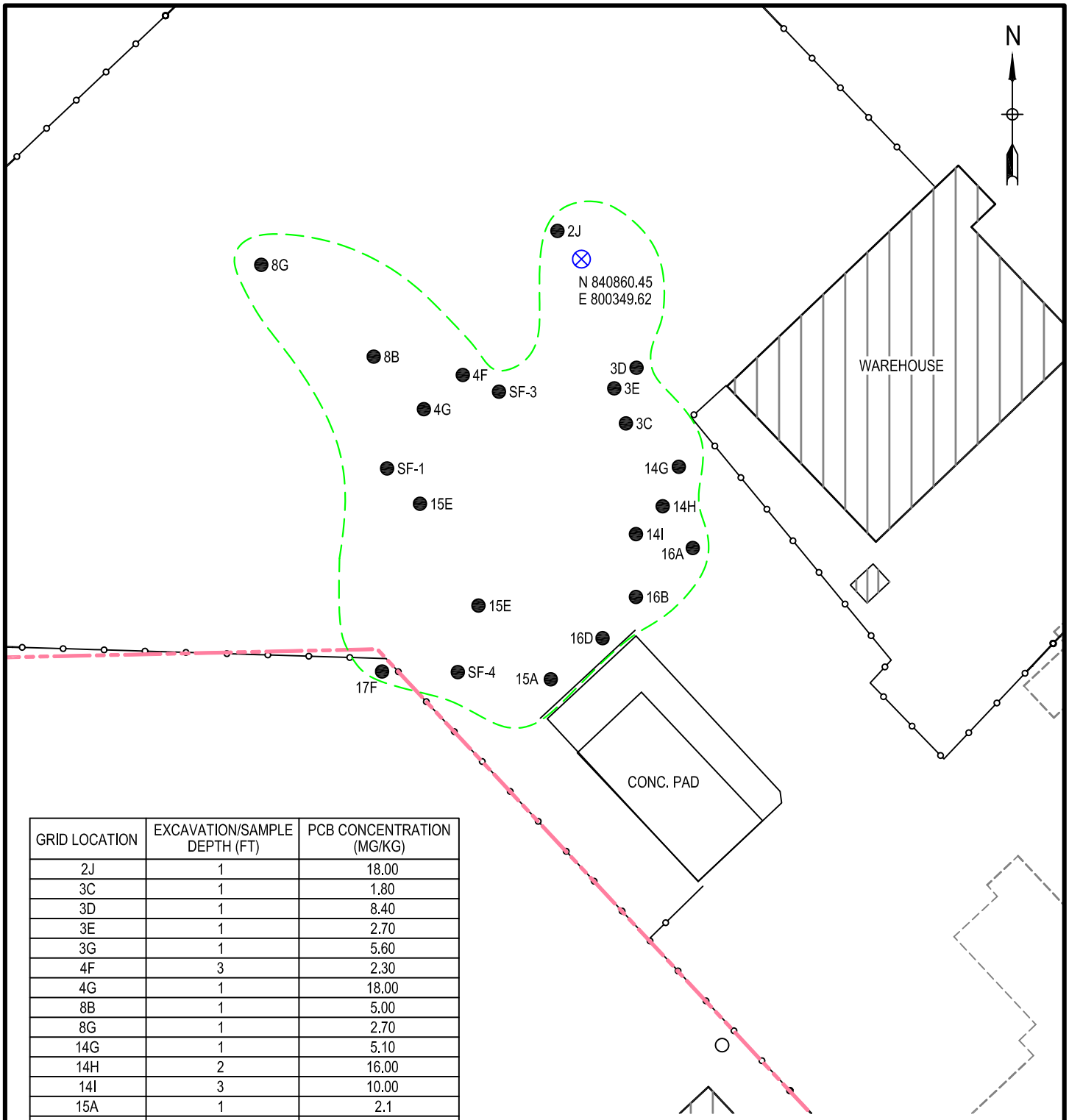

GRID LOCATION	EXCAVATION/SAMPLE DEPTH (FT)	PCB CONCENTRATION (MG/KG)
2J	1	18.00
3C	1	1.80
3D	1	8.40
3E	1	2.70
3G	1	5.60
4F	3	2.30
4G	1	18.00
8B	1	5.00
8G	1	2.70
14G	1	5.10
14H	2	16.00
14I	3	10.00
15A	1	2.1
15C	3	13.00
15E	5	11.00
16A	2	1.30
16B	1	18.00
16D	1	5.70
17F	2	11.00
SF-1	SIDEWALL NEAR 15E	10.00
SF-3	4	14.00
SF-4	SIDEWALL NEAR 15D	21.00

COORDINATES ARE NAD27 NEW YORK STATE PLANE CENTRAL ZONE FEET

Scale (1"=80')

40 0 40 80 160

LEGEND:

PROPERTY LINE

AREA SUBJECT TO DEED NOTIFICATION

FENCE

Figure 7 - Boneyard Residual PCBs and Deed Notification Area
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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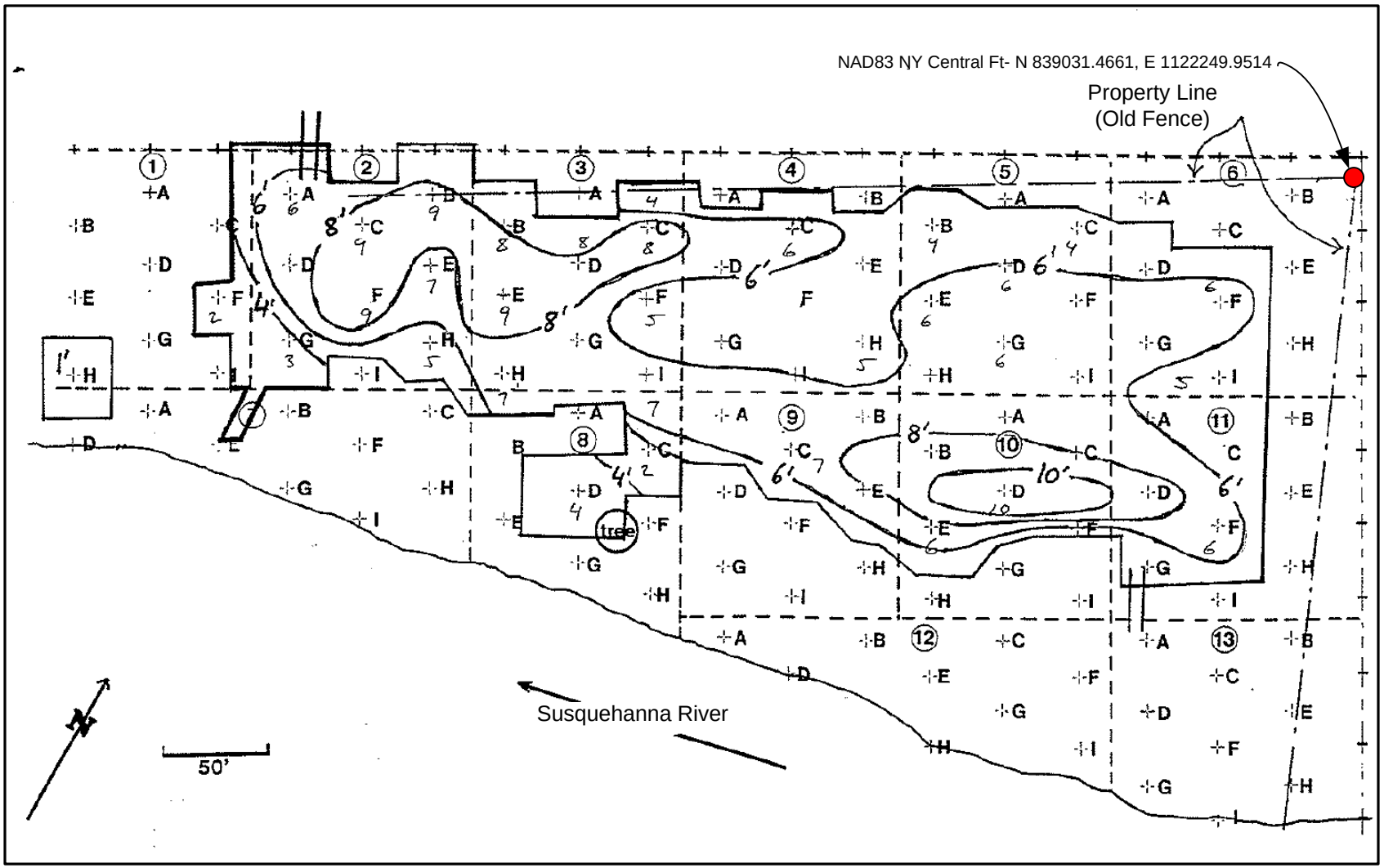

River Lagoon Sample Grid and Excavation Limits

Former Borden Resins Facility Bainbridge, New York

Environmental Resources Management

Date: October 2012

Figure: 8

Base map adapted from RFI Report, 1992
Excavation depths reported by MACTEC,
1999 Envionmental Resources Management
Center Northern Kentucky University 2001

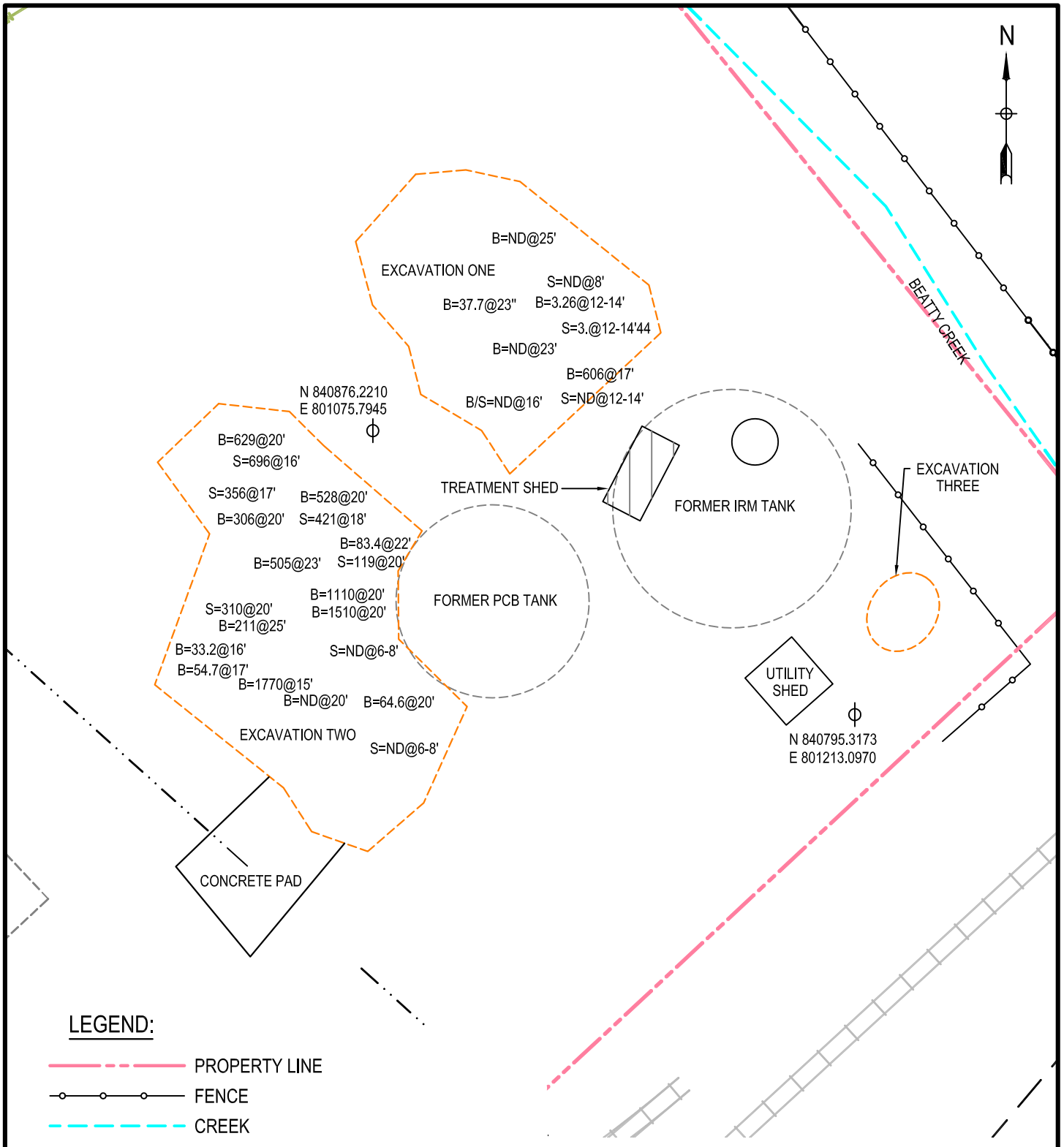

Figure 9 - Horizontal and Vertical Limits of PRA Excavations
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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Figure 10 - LAA Residual PCBs and Deed Notification Areas
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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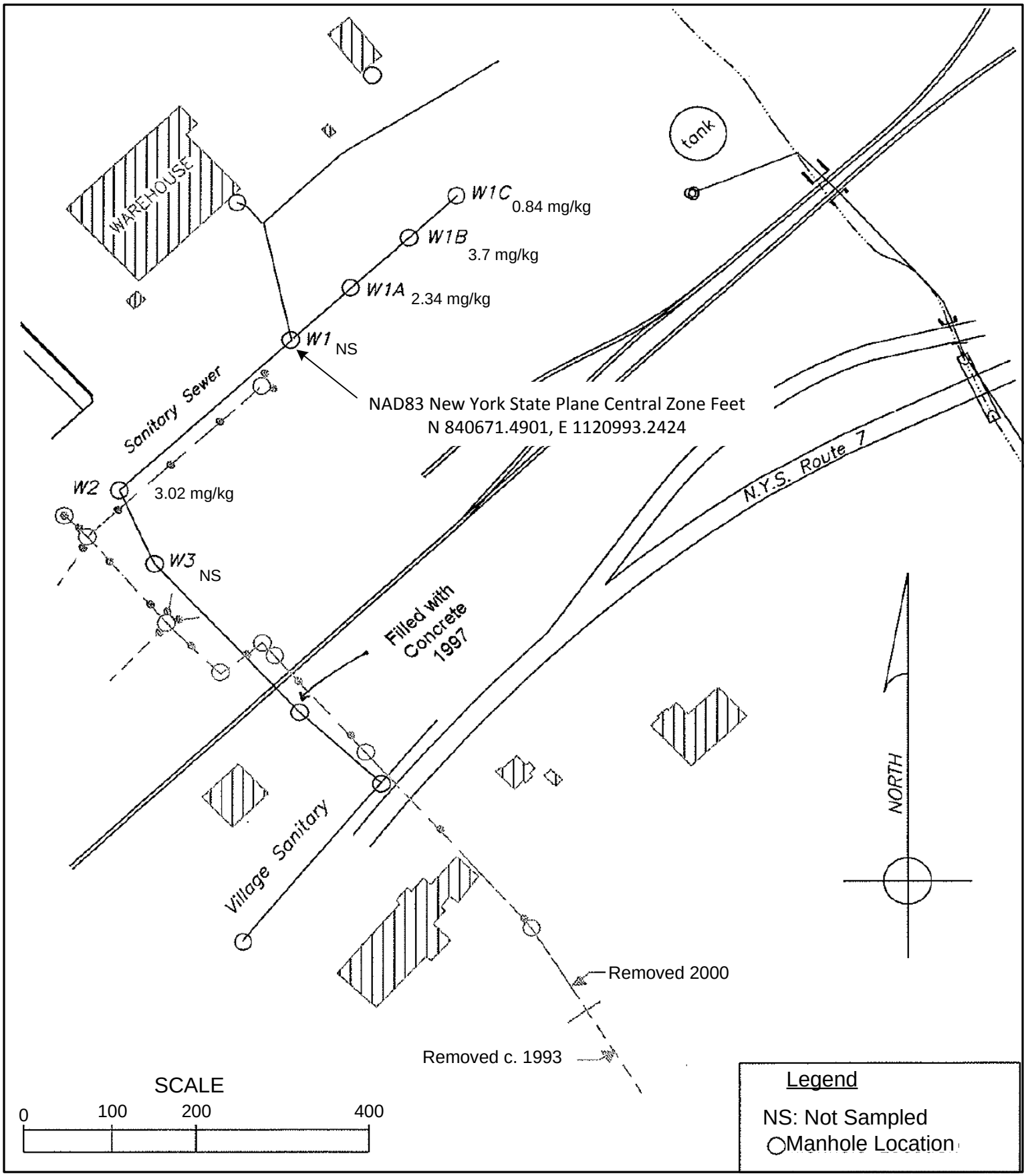
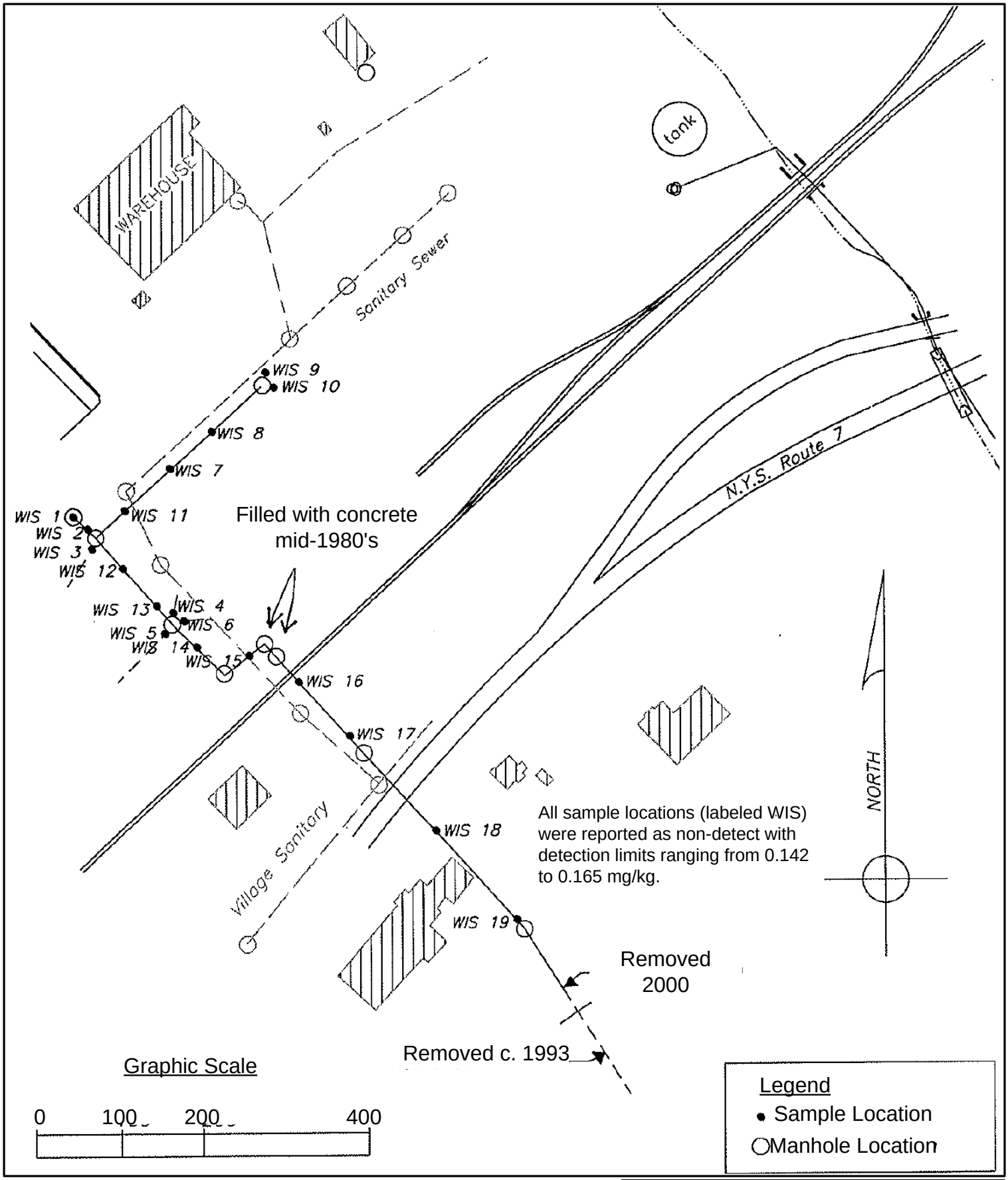


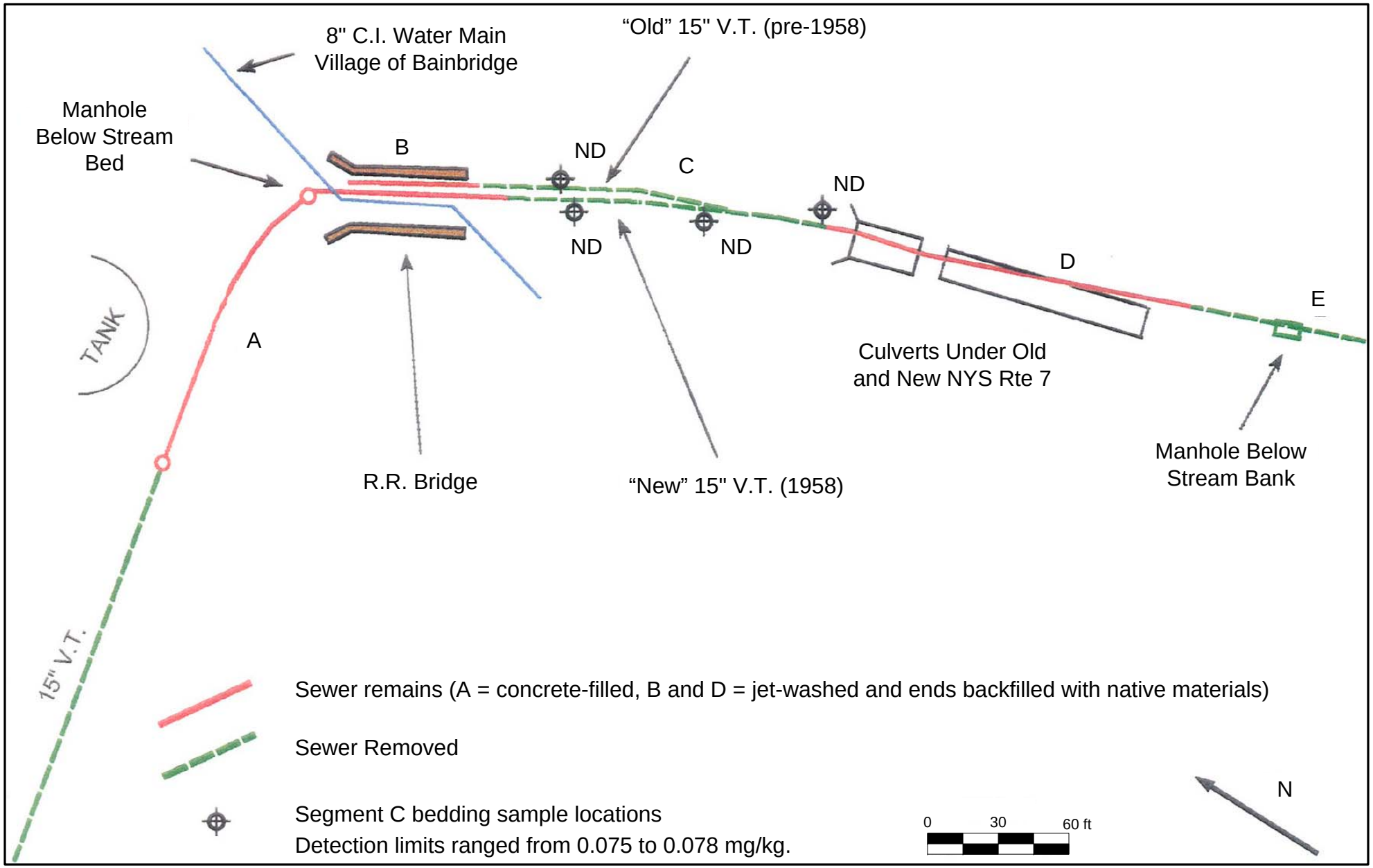
Base map adapted from Lynn Pullis, L.S. survey
Environmental Resources Management Center
Northern Kentucky Univerisity, 2001

Western Sanitary Sewer Residual PCB Concentrations in Sediment		
Former Borden Resins Facility Bainbridge, New York		
ERM Environmental Resources Management	Date: October 2012	Figure: 11



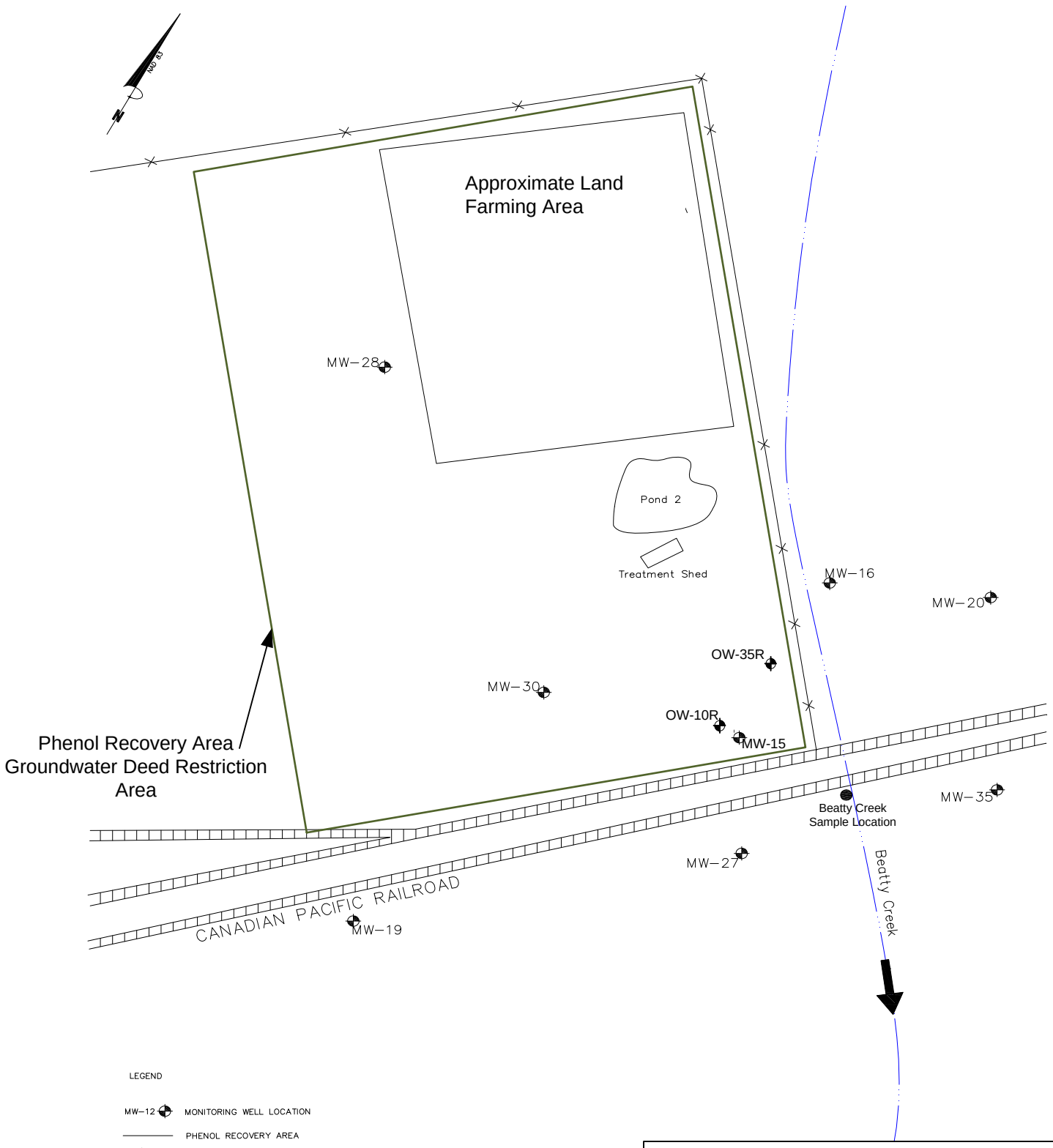
Base map adapted from Lynn Pullis, L.S. survey Environmental Resources Management Center Northern Kentucky University 2001

Western Industrial Sewer Residual PCB Concentrations in Sediment		
Former Borden Resins Facility Bainbridge, New York		
Environmental Resources Management	Date: October 2012	Figure: 12



Base map adapted from 1958 facility sewer map Environmental Resources Management Center Northern Kentucky University 2001

Eastern Sewer Residual PCB Concentrations North of Route 7		
Former Borden Resins Facility Bainbridge, New York		
Environmental Resources Management	Date: October 2012	Figure: 13



LEGEND

MW–12 MONITORING WELL LOCATION

PHENOL RECOVERY AREA

Creek Flow Direction

CHAIN LINK FENCE

CREEK SAMPLE LOCATION

SCALE (IN FEET)

0 16 32 64

Notes: – Existing Ponds and Beatty Creek are not to scale.
– Base map obtained from MACTEC Environmental Consultants, Inc.

Groundwater Monitoring Well Locations – Phenol Recovery Area and Groundwater Deed Restriction Area

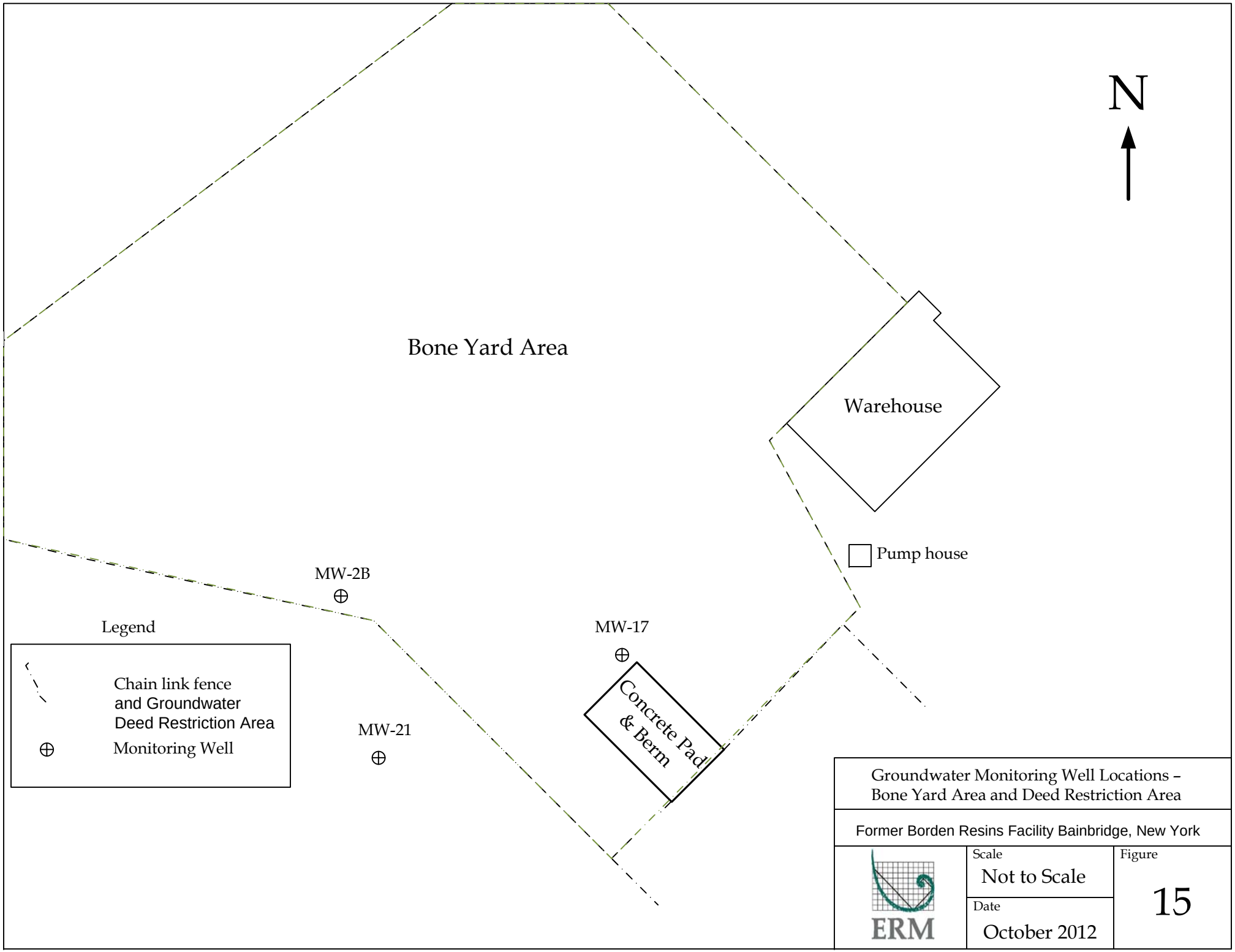
Former Borden Resins Facility Bainbridge, New York

ERM

Scale: As Shown

Date: October 2012

Figure: 14



Groundwater Monitoring Well Locations – Bone Yard Area and Deed Restriction Area

Former Borden Resins Facility Bainbridge, New York

ERM

Scale: Not to Scale

Date: October 2012

Figure: 15

TABLES

Table 1
Chronology of Corrective Actions through 1996
Former Borden Resins Facility
NYSDEC Site No. 709001

SWMU	Year(s)	Activity	Disposition of Wastes
River lagoon	1983	Re-graded (filled) lagoon with berm material.	Not applicable
Bone Yard	1981	Disposed of 630-tons of stockpiled waste resin.	Haz, non-haz off-site landfills, or reclamation
	1981	Excavated 275-tons of buried resin and contaminated soil.	Hazardous waste off-site landfill
	1981	Biologically treated 500,000 gallons of contaminated groundwater.	Re-applied to land surface
Phenol Recovery Area	1982-83	Excavated 100-tons of contaminated soil from former lined surface impoundment.	Hazardous waste off-site landfill
	1981-90	Biologically treated 4-million gallons of contaminated	Re-applied to land surface
	1991	Excavated 35-tons of contaminated soil from former lined surface impoundment.	Non-hazardous waste off-site landfill (1995)
	1995-96	Biologically treated 2-million gallons of contaminated groundwater.	Re-applied to land surface and/or discharge to creek
	1996	Removed 10-tons of sludge, debris from IRM tank.	Non-hazardous waste off-site landfill
	1996	Carbon treated 250,000 gallons of PCB water from former bio-tank.	Re-applied to land surface
	1996	Removed 12-tons of PCB sludge from former bio-tank.	On-site incineration
PCB Area	1983	Cleaned and removed all PCB equipment.	Incinerated PCB oils off-site
	1987	Excavated 225-tons of contaminated soil.	Hazardous waste off-site landfill
	1995	Excavated 270-tons of contaminated soil and stack foundation.	Hazardous waste off-site landfill (1996)
PCB Sewers	1991	Excavated 250-tons of contaminated soil and sewer tile.	Haz and non-haz off-site landfills (1995-96)
Resin Excavations	1993	Excavated 530-tons of buried resin and contaminated soil.	Non-hazardous waste off-site landfill (1995)
Gasoline UST	1991	Removed UST and aerated excavation spoils.	Returned to excavation after testing
Para-formaldehyde	1987	Disposed of 65-tons of waste resin and contaminated soil.	Hazardous waste off-site landfill

Table 2
Areas Impacted by Hazardous Consituents
Former Borden Resins Facility
NYSDEC Site No. 709001

Location	Type of Contamination	Media Investigated	Media Impacted
PCB Area	PCBs/VOCs	Soil & Groundwater	Soil & Groundwater
Bone Yard	PCBs/Formaldehyde	Soil & Groundwater	Soil & Groundwater
River Lagoon	PCBs	Soil & Groundwater	Soil & Groundwater
Land Application Area	PCBs	Soil & Groundwater	Soil
Phenol Recovery Area	Formaldehyde and VOCs	Soil & Groundwater	Soil & Groundwater
Storm/Process Sewers	PCBs	Sediment & Water	Sediment

Table 3
Concentrations and Site Cleanup Objectives
Former Borden Resins Facility
NYSDEC Site No. 709001

Location	Type of Contamination	Highest Concentration Reported in Area	Site Cleanup Objective	Highest Residual Concentrations Remaining
PCB Area	PCBs in soil	3,500 ppm	25 ppm or less*	1.26 to 3.04 ppm
Bone Yard	PCBs in soil	14,800 ppm	25 ppm or less*	1.8 to 21.0 ppm
	PCBs in groundwater	0.76 ppb	0.1 ppb	0.76 ppb
	Formaldehyde in groundwater	2,400 ppb	50 ppb	< 8 ppb
River Lagoon	PCBs in soil	1,100 ppm	1 ppm or less	< 1 ppm
Land Application Area (north)	PCBs in soil	18 ppm	25 ppm or less*	> 1 and < 25 ppm
Land Application Area (central and south)	PCBs in soil	117 ppm	25 ppm or less*	> 1 and < 25 ppm
Phenol Recovery Area	Phenols in soil	1,770 ppm	50 ppm or less	1,770 ppm
	Toluene in groundwater	330,000 ppb	5 ppb	3,300 ppb
	Phenolics in groundwater	102,000 ppb	1 ppb	5,047 ppb
	Semi-volatile TICs in groundwater	32,050 ppb	50 ppb	< 50 ppb
	Formaldehyde in groundwater	4,425 ppb	50 ppb	< 50 ppb
Storm/Process Sewers (West River lagoon sewer)	PCBs in soil	5.8 ppm	1 ppm or less	< 1 ppm
Storm/Process Sewers (East River lagoon sewer)	PCBs in soil	870 ppm	1 ppm or less	< 1 ppm

Note:
*: additionally surface soil (0-10-inches) shall contain 1 ppm or less PCBs.

Table 4
Final Verification Sample Results - Bone Yard
Former Borden Resins Facility
NYSDEC Site No. 709001

Grid Location	Excavation / Sample Depth (ft.)	Sample Date	PCB Concentration
2J	1	10/8/1999	18.00
3C	1	10/8/1999	1.80
3D	1	10/8/1999	8.40
3E	1	10/8/1999	2.70
3G	1	10/8/1999	5.60
4F	3	10/8/1999	2.30
4G	1	10/8/1999	18.00
8B	1	10/8/1999	5.00
8G	1	10/8/1999	2.70
14G	1	10/8/1999	5.10
14H	2	10/8/1999	16.00
14I	3	11/4/1999	10.00
15A	1	10/8/1999	2.1
15C	3	11/4/1999	13.00
15E	5	10/8/1999	11.00
16A	2	11/4/1999	1.30
16B	1	10/8/1999	18.00
16D	1	10/8/1999	5.70
17F	2	10/8/1999	11.00
SF-1	sidewall near 15E	10/13/1999	10.00
SF-3	4	11/4/1999	14.00
SF-4	sidewall near 15D	10/13/1999	21.00

Table 5
Monitoring Well Sampling Plan
Former Borden Resins Facility
NYSDEC Site No. 709001

Sample Location	May Sampling	November Sampling*
MW-16	5,2,3	5,2
MW-27	5,2,3	5,2
MW-30	5,2	5,2
MW-15	5,2	5,2
MW-28	5,2	5,2
MW-35	5,2	5,2
OW-35R	5,2	5,2
Beatty Ck	5,2	5,2
Pond 2^	5,2	5,2
MW-19	5,2	5,2
OW-10R	5,2,3	5,2
MW-2B	4	no sample
MW-17	4	no sample
MW-21	4	no sample
Dupe (OW-35)	5,2	5,2

Required Analysis
2 = BTEX by USEPA Method 8260
3 = Formaldehyde by SW 8315A
4 = PCBs by USEPA Method 8082
5 = Phenols by USEPA Method 8270

*: November sampling for first 5-years.
^: sample only until pond is backfilled.

APPENDIX A

METES AND BOUNDS – SITE DEED NOTIFICATIONS/RESTRICTIONS

DECLARATION of COVENANTS and RESTRICTIONS

THIS COVENANT is made the ___ day of _____ 20__, by Cherokee-Columbus Real Estate, LLC, a corporation organized and existing under the laws of the State of North Carolina and having an office for the transaction of business at 111 East Hargett Street, Suite 300; Raleigh, North Carolina 27601.

WHEREAS, the former Borden Resin Facility is the subject of an Order on Consent executed by Cherokee-Columbus Real Estate, LLC as part of the New York State Department of Environmental Conservation's (the "Department's) State Superfund Program, namely that parcel of real property located on 108 to 112 North Main Street in the Village of Bainbridge, County of Chenango, State of New York, which is part of lands conveyed by Borden Chemical Company to Cherokee-Columbus Real Estate, LLC by deed dated January 1998 and recorded in the Chenago County Clerk's Office in Liber and Page 806 and 285 Village of Bainbridge Tax Map Nos. 254.19-1-1.2; 254.19-1-2; liber 309 and page 555 Village of Bainbridge Tax Map No. 254-19-1-3; liber 806 and page 285 Town of Bainbridge Tax Map No. 254.1-42.1; liber 363 and page 105 Town of Bainbridge Tax Map No. 254-1-43; and liber 429 and book 283 Town of Bainbridge Map No. 254-1-44.12, and being more particularly described in Appendix "A," attached to this declaration and made a part hereof, and hereinafter referred to as "the Property"; and

WHEREAS, the Department approved a remedy to eliminate or mitigate all significant threats to the environment presented by the contamination disposed at the Property and such remedy requires that the Property be subject to restrictive covenants.

NOW, THEREFORE, Cherokee-Columbus Real Estate, LLC,, for itself and its successors and/or assigns, covenants that:

First, the Property subject to this Declaration of Covenants and Restrictions is as shown on a map attached to this declaration as Appendix "B" and made a part hereof.

Second, unless prior written approval by the Department or, if the Department shall no longer exist, any New York State agency or agencies subsequently created to protect the environment of the State and the health of the State's citizens, hereinafter referred to as "the Relevant Agency," is first obtained, where contamination remains at the Property subject to the provisions of the Site Management Plan ("SMP"), there shall be no use or occupancy of the Property that results in unacceptable human exposure to contaminated soils.

Third, the owner of the Property shall prohibit the Property from ever being used for purposes other than for Commercial or Industrial use without the express written waiver of such prohibition by the Department or Relevant Agency.

Fourth, the owner of the Property shall prohibit the use of the groundwater underlying the Property without treatment rendering it safe for drinking water or industrial purposes, as

appropriate, unless the user first obtains permission to do so from the Department or Relevant Agency.

Fifth, the owner of the Property shall provide a periodic certification, prepared and submitted by a qualified environmental professional acceptable to the Department or Relevant Agency, which will certify that the institutional controls put in place are unchanged from the previous certification, comply with the SMP, and have not been impaired.

Sixth, the owner of the Property shall continue in full force and effect any institutional controls required for the Remedy and maintain such controls, unless the owner first obtains permission to discontinue such controls from the Department or Relevant Agency, in compliance with the approved SMP, which is incorporated and made enforceable hereto, subject to modifications as approved by the Department or Relevant Agency.

Seventh, this Declaration is and shall be deemed a covenant that shall run with the land and shall be binding upon all future owners of the Property, and shall provide that the owner and its successors and assigns consent to enforcement by the Department or Relevant Agency of the prohibitions and restrictions that the Consent Decree requires to be recorded, and hereby covenant not to contest the authority of the Department or Relevant Agency to seek enforcement.

Eighth, any deed of conveyance of the Property, or any portion thereof, shall recite, unless the Department or Relevant Agency has consented to the termination of such covenants and restrictions, that said conveyance is subject to this Declaration of Covenants and Restrictions.

IN WITNESS WHEREOF, the undersigned has executed this instrument the day written below.

By: _____

Print Name: _____

Title:_____ Date:_____

STATE OF NEW YORK)

) s.s.:

COUNTY OF)

On the _____ day of _____, in the year 201_, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____

Notary Public State of New York

APPENDIX A

OF

DECLARATION OF COVENANTS AND RESTRICTIONS

PROPERTY DESCRIPTION METES AND BOUNDS

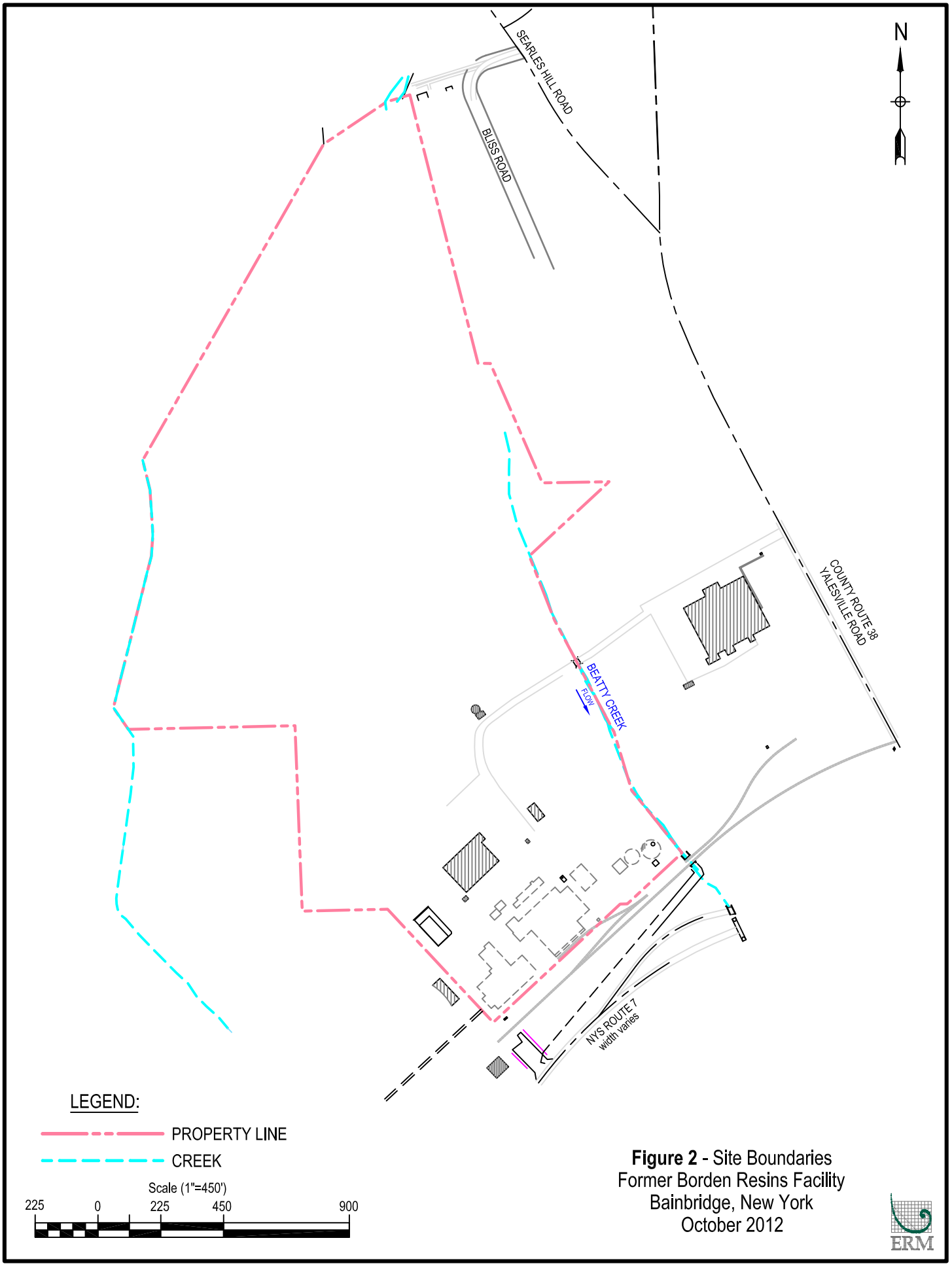


Figure 2 - Site Boundaries
Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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LYNN PULLIS
Licensed Surveyor in New York and Pennsylvania
32 LA GRANGE STREET
BINGHAMTON, NEW YORK 13905-1717
607-723-9933

CHEROKEE COLUMBUS REAL ESTATE **78.66 ACRES** **OCTOBER 6, 2008**
(GPS BEARINGS)

Commenceing at a rebar with cap marked "Lynn Pullis NYLS 46562" found at the intersection of the westerly boundary of County Route 38 with the northerly boundary of the Canadian Pacific Railroad;

Then S59-16-26W (GPS Grid North at 76-35 West Longitude), a chord distance of 831.37' to a point on said railroad boundary;

Then S74-00-16W, along said railroad boundary, 12.00' to the **point of beginning** in the center of Beatty Creek;

Then along the approximate center of said Beatty Creek the following four courses:

N38-55-32W, 288.00' to a point;

Then N16-45-32W, 218.00' to a point;

Then N28-01-32W, 453.00' to a point;

Then N21-25-32W, 247.90' to a point;

Then N47-04-33E, 390.28' to a rebar with cap (Mack) found;

Then S88-57-33W, 239.01' to a pipe found;

Then N23-30-56W, 466.70' to a pipe found;

Then N89-08-43W, 44.50' to a point;

Then N14-14-59W, 991.85' to a rebar with cap set;

Then S73-15-51W, 86.55' to a rebar with cap set;

Then S56-09-40W, 271.36' to a rebar with cap set;

Then S29-47-44W, 1305.11' to the center of a creek;

Then approximately along the center of said creek the following five courses:

S13-48-35E, 110.19' to a point;

Then S03-36-41E, 161.65' to a point;

Then S04-27-40W, 76.07' to a point;

Then S14-01-01W, 559.42' to a point;

Then S34-40-41E, 93.87' to a point;

Then N88-44-13E, 597.11' to a rebar found;

Then S02-14-05E, 664.52' to rebar with cap found;

Then N88-43-49E, 305.71' to a rebar with cap found;

Then S43-01-11E, 554.73' to a rebar with cap found in the northerly boundary of the Canadian Pacific Railroad;

Then along said railroad boundary the following three courses:

N47-00-16E, 621.81' to a rebar with cap found;

Then N88-43-49E, 25.54' to a rebar with cap found;

Then N47-00-16E, 268.06' to the point of beginning.

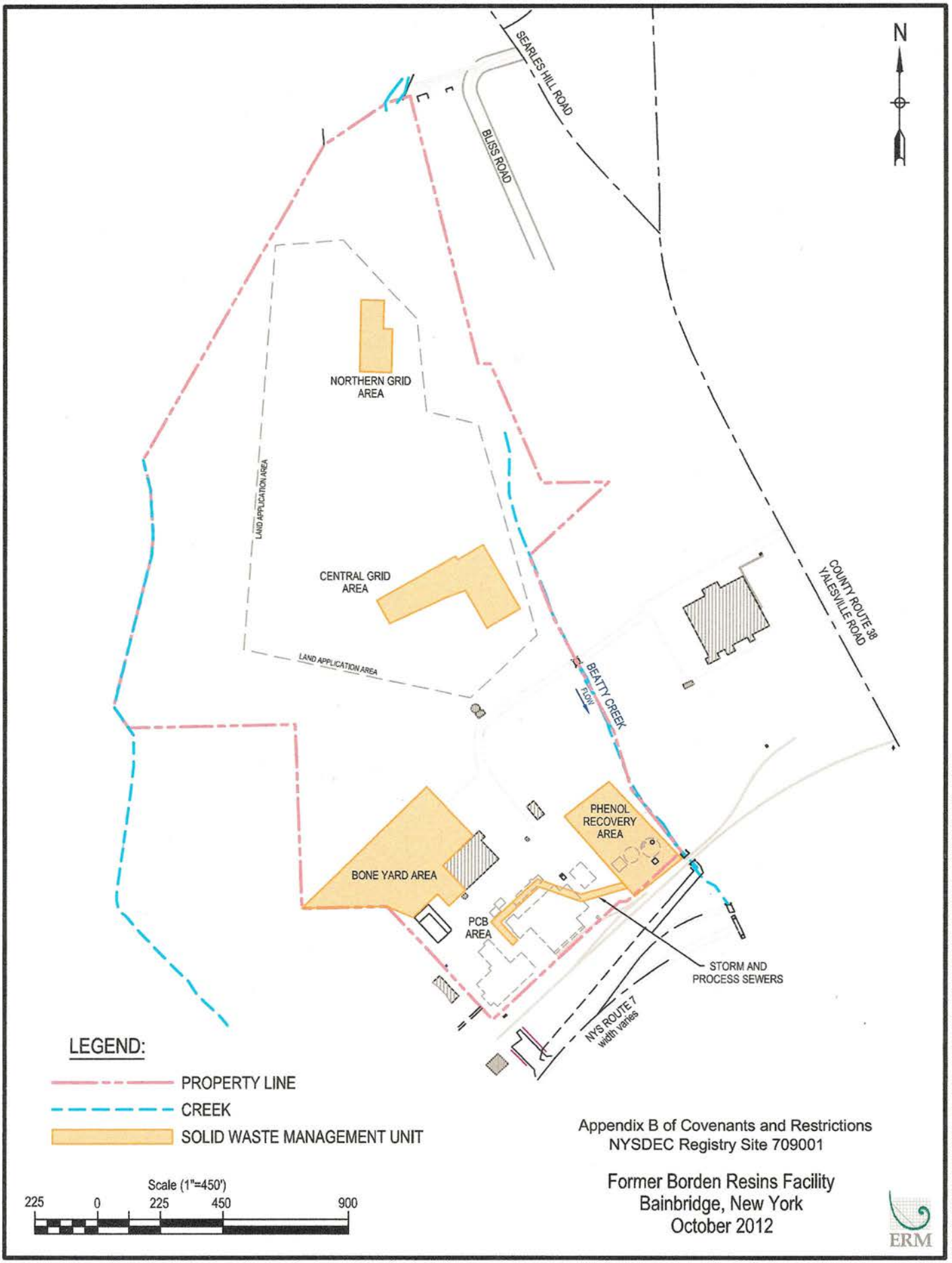
This parcel contains 78.66 acres.

APPENDIX B

OF

DECLARATION OF COVENANTS AND RESTRICTIONS

PROPERTY MAP



Appendix B of Covenants and Restrictions
NYSDEC Registry Site 709001

Former Borden Resins Facility
Bainbridge, New York
October 2012

ERM

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APPENDIX B

EXCAVATION WORK PLAN

APPENDIX B – EXCAVATION WORK PLAN

B-1 NOTIFICATION

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination, the site owner or their representative will notify the Department. Currently, this notification will be made to:

Lawrence Thomas
Engineering Geologist

Remedial Bureau E
Division of Environmental Remediation

625 Broadway
Albany, NY 12233-7017

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent, plans for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated and any work that may impact an engineering control,
- A summary of environmental conditions anticipated in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work,
- A summary of the applicable components of this EWP,
- A statement that the work will be performed in compliance with this EWP and 29 CFR 1910.120,
- A copy of the contractor's health and safety plan, in electronic format, if it differs from the HASP will provided in Appendix A of this document,
- Identification of disposal facilities for potential waste streams,

- Identification of sources of any anticipated backfill, along with all required chemical testing results.

B-2 SOIL SCREENING METHODS

Visual, olfactory and instrument-based soil screening will be performed by a qualified environmental professional during all remedial and development excavations into known or potentially contaminated material (remaining contamination). Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal, material that requires testing, material that can be returned to the subsurface, and material that can be used as cover soil.

B-3 STOCKPILE METHODS

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC.

B-4 MATERIALS EXCAVATION AND LOAD OUT

A qualified environmental professional or person under their supervision will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and its contractors are solely responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and Deed Restrictions on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or Deed Restrictions on the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site until the activities performed under this section are complete.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials.

B-5 MATERIALS TRANSPORT OFF-SITE

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

All trucks will be washed prior to leaving the site. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

All trucks loaded with site materials will exit the vicinity of the site using only these approved truck routes. This is the most appropriate route and takes into account:

(a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off-site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport; [(g) community input [where necessary]]

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

B-6 MATERIALS DISPOSAL OFF-SITE

All soil/fill/solid waste excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed in accordance with all local, State (including 6NYCRR Part 360) and Federal regulations. If disposal of soil/fill from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC. Unregulated off-site management of materials from this site will not occur without formal NYSDEC approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, i.e. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C/D recycling facility, etc. Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled, at minimum, as a Municipal Solid Waste per 6NYCRR Part 360-1.2. Material that does not meet Track 1 unrestricted SCOs is prohibited from being taken to a New York State recycling facility (6NYCRR Part 360-16 Registration Facility).

B-7 MATERIALS REUSE ON-SITE

The qualified environmental professional will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for re-use on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

B-8 FLUIDS MANAGEMENT

All liquids to be removed from the site, including excavation dewatering and development waters, will be handled, transported and disposed in accordance with applicable local, State, and Federal regulations. Dewatering and development fluids will not be recharged back to the land surface or subsurface of the site, but will be managed off-site.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

B-9 COVER SYSTEM RESTORATION

After the completion of soil removal and any other invasive activities the cover system will be restored in a manner that complies with the decision document. The demarcation layer, consisting of orange snow fencing material or equivalent material will be replaced to provide a visual reference to the top of the 'Remaining Contamination Zone', the zone that requires adherence to special conditions for disturbance of remaining contaminated soils defined in this Site Management Plan. If the type of cover system changes from that which exists prior to the excavation (i.e., a soil cover is replaced by asphalt), this will constitute a modification of the cover element of the remedy and the

upper surface of the ‘Remaining Contamination. A figure showing the modified surface will be included in the subsequent Periodic Review Report and in any updates to the Site Management Plan.

B-10 BACKFILL FROM OFF-SITE SOURCES

All materials proposed for import onto the site will be approved by the qualified environmental professional and will be in compliance with provisions in this SMP prior to receipt at the site.

Material from industrial sites, spill sites, or other environmental remediation sites or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6NYCRR 375-6.7(d). Soils that meet ‘exempt’ fill requirements under 6 NYCRR Part 360, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

B-11 STORMWATER POLLUTION PREVENTION

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

B-12 CONTINGENCY PLAN

If underground tanks or other previously unidentified contaminant sources are found during post-remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for full a full list of analytes (TAL metals; TCL volatiles and semi-volatiles, TCL pesticides and PCBs), unless the site history and previous sampling results provide a sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC for approval prior to sampling.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to NYSDEC's Project Manager. Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the periodic reports prepared pursuant to Section 5 of the SMP.

B-13 COMMUNITY AIR MONITORING PLAN

A Community Air Monitoring Plan will be developed for excavation events. A figure showing the location of air sampling stations based on generally prevailing wind conditions will be generated. These locations will be adjusted on a daily or more

frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations. Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

B-14 ODOR CONTROL PLAN

This odor control plan is capable of controlling emissions of nuisance odors off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the property owner's Remediation Engineer, and any measures that are implemented will be discussed in the Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

B-15 DUST CONTROL PLAN

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved though the use of a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon

capable of spraying water directly onto off-road areas including excavations and stockpiles.

- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

APPENDIX C

PERTINENT DOCUMENTS

Low-Flow Ground Water Sampling Form

Site Name:
Project No.:

NOTE: DISCONNECT FLOW-THROUGH CELL PRIOR TO SAMPLE COLLECTION

Monitoring Well:
Date:
Sampling Personnel:
Weather Conditions:
Time:

Total Depth (TD):	Screen Length:
Depth to Water (DTW)[1]:	Well Diameter:
Total Volume Purged:	Casing Type:
Purge Rate:	Sampling Device:
Tubing Type:	Measuring Point:
Pump Intake (feet below MP):	Color: Odor:

Time: (min)	**DTW:** (feet)	**Comments:**	**Temp** (°C)	**SpC** (uS/cm)	**Cond** (uS/cm)	**DO** (mg/L)	**pH** (std units)	**Turb** NTU	**ORP** mV	**Flow** (mL/min)
Stabalization Criteria[2]	[3]		+/- 3%	+/- 3%	+/- 3%	+/- 10%	+/- 0.1 unit	+/- 10%[4]	+/- 10 mV	100-400

Sampling Time:

Samples Collected: Analysis Requested: Preservative:

Additional Field Measurements

Notes:

[1] = Do not measure depth to bottom of well until after purging and sampling to reduce resuspending fines that may be resting on the well bottom.

[2] = Stabilization criteria based on three most recent consecutive measurements.

[3] = Total drawdown in well to be less than 0.1-meters (0.32-feet). Purging rate to be lowered as necessary to keep drawdown below 0.1-meters (0.32-feet).

[4] = Plus or minus 10-percent when turbidity is over 10 NTUs.

CLEAN METERS AND FIELD EQUIPMENT AFTER USE.

GROUND WATER SAMPLING RECORD

SITE _____ DATE _____

PROJECT NUMBER: _____

SAMPLE ID : _____

WELL ID : _____ Time Onsite: _____ Time Offsite: _____

SAMPLERS : _____ _____ _____

_____ _____ _____

Depth of well (from top of casing) ..... _____ Time: _____

Static water level (from top of casing) ..... _____ Time: _____

Water level after purging (from top of casing) ..... _____ Time: _____

Water level before sampling (from top of casing) ..... _____ Time: _____

Purging Method:

_____ Airlift _____ Low-Flow Pump

_____ Bailer _____ Peristaltic Pump

_____ Submersible _____ Ded. Pump

Well Volume Calculation:

		1 volume	3 volumes
2 in. well:	_____ ft. of water x 0.16 =	_____ gal.	x 3 = _____ gal.
3 in. well:	_____ ft. of water x 0.36 =	_____ gal.	x 3 = _____ gal.
4 in. well:	_____ ft. of water x 0.65 =	_____ gal.	x 3 = _____ gal.
6 in. well:	_____ ft. of water x 1.47 =	_____ gal.	x 3 = _____ gal.

Volume of water removed: _____ gal. >3 volumes: yes ____ no ____ purged dry? yes _____ no _____

Field Tests:

	pH	Cond.	Turb.	DO	Temp.		DEP	SAL	TDS	ORP
units	-	mg/cm	NTU	g/L	C	F	-	-	g/L	mV
Initial										
1 Volume										
2 Volumes										
3 Volumes										

Sampling

Time of Sample Collection: _____

Collection Method:	Analyses:	Analytical Method:
_____ Disposable bailer	_____ VOCs -	8260 _____ 503.1 _____ Other _____
_____ Teflon bailer	_____ SVOCs	_____
_____ Dedicated pump	_____ Metals	_____
_____ Submersible Pump	_____ PCB/Pest	_____
_____ Low-Flow Sampling	_____ MNA	_____
_____ Other: _____	_____ Other	_____

Observations

Weather/Temperature: _____

Sample Description: _____

Free Product? yes ____ no ____ describe _____

Sheen? yes ____ no ____ describe _____

Odor? yes ____ no ____ describe _____

Comments:

NOTE: DISCONNECT FLOW-THROUGH CELL PRIOR TO SAMPLING

CLEAN METERS AND FIELD EQUIPMENT AFTER USE.

FORMER BORDEN RESIN FACILITY
SITE-WIDE INSPECTION FORM

Date: _____

Name of Inspector: _____

Answer the following questions. Describe changes that have occurred since the previous inspection in detail.

FIELD CONDITIONS

1) Describe the Site conditions during inspection: Weather, areas of erosion or deposition, stressed vegetation, Site perimeter fencing, building condition, well casing condition, etc. Document with photographs.

2) Has the Site been maintained to adequately access monitoring wells i.e. mowed, brush cleared.

3) Has there been any changes to Site use since the previous inspection?

4) Have soil cover systems been disturbed? If so explain in detail.

5) Are there health and safety issues? Explain if so, document with photographs.

6) If Site conditions have changed, or there are health and safety issues, who was contacted?

RECORD KEEPING

7) Is the Site in compliance with required permits and sampling schedules?

8) Have Site records been adequately documented and are up to date?

Inspector Signature: _____

APPENDIX D

QUALITY ASSURANCE PROJECT PLAN

QAPP

Columbus Real Estate, LLC

Site-Specific
Quality Assurance Project Plan

Columbus Real Estate, LLC
Former Borden Resin Facility
Bainbridge, Chenango County, New York

NYSDEC Site Number: 709001

Revised October 2012

ERM Project Number 0130339

Environmental Resources Management
5788 Widewaters Parkway
Dewitt, New York 13214
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FX: (315) 445-2543
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APPENDICES

1.0 INTRODUCTION

Environmental Resources Management (ERM) has prepared a Site Management Plan (SMP) as a required document of the remedial program at the Former Borden Resin Facility (hereinafter referred to as the "site") under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remediation Program administered by the New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with Order on Consent Index #A7-0210-87-09, Site # 709001, which was executed on 21 November 1990 and amended last on 14 November 2008.

This Quality Assurance Project Plan (QAPP) presents the project quality objectives and procedures to be used in performing any additional site evaluations, the Site semi-annual and annual ground water monitoring program discussed in the SMP, reporting requirements, and schedule of the project.

2.0 SCOPE OF WORK

The SMP for the Former Borden Resin Facility provides a detailed description of all procedures required to manage remaining contamination at the site, including: (1) implementation and management of all institutional controls (ICs); (2) media monitoring; and (3) performance of periodic inspections, certification of results, and submittal of Periodic Review Reports.

To address these needs, the SMP includes two plans: (1) an Institutional Control Plan for implementation and management of engineering controls (ECs); and (2) a Monitoring Plan for implementation of Site Monitoring.

Semi-annual groundwater monitoring is proposed for the next 5-years and then annually for 5-years to monitoring the overall reduction in contamination on-site and off-site will be conducted. The wells to be monitored are as referenced in the Site Operations and Quarterly Groundwater Monitoring Plan approved by the NYSDEC on 22 March 2007. The monitoring frequency after 10-years (if necessary) will be determined by the Qualified Engineering Professional (QEP) and approved by the NYSDEC. Trends in contaminant concentrations of groundwater in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in Table 2-1 below.

Table 2-1: Monitoring Plan

Monitoring Program	Frequency*	Matrix	Analysis
Groundwater	Semi-annually for 5-years, followed by 5-years of annual sampling to be reevaluated in 10-years	Groundwater	BTEX, phenols, PCBs, and formaldehyde as specified in Table 5-1.

* The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH.

All samples will be obtained and described in the field by an ERM geologist and selected samples will be sent under chain of custody to an Environmental Laboratory Approval Program (ELAP) approved laboratory for the analyses presented above.

3.0 QUALITY ASSURANCE OBJECTIVES

3.1 DATA QUALITY OBJECTIVES

Data quality objectives (DQOs) are qualitative and quantitative criteria required to support the decision making process. DQOs define the uncertainty in a data set and are expressed in terms of precision, accuracy, representativeness, completeness and comparability (PARCC). The DQOs apply to confirmation samples at the Site. These parameters are defined as follows:

- ***Precision:*** a measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of standard deviation. Various measure of precision exists depending upon the prescribed similar conditions.

- ***Accuracy:*** the degree of agreement of a measurement (or an average of measurements) with an accepted reference or "true value". Accuracy is one estimate of the bias in a system.

- ***Representativeness:*** expresses the degree to which data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, a process condition, or an environmental condition.

- ***Completeness:*** a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under correct, normal conditions.

- ***Comparability:*** expresses the confidence with which one data set can be compared to another data set.

It is the responsibility of the field team to collect representative and complete samples. It is the responsibility of the field screening chemist (if applicable) and/or the analytical laboratory to analyze these samples using accepted protocols resulting in data that meet PARCC standards.

3.2 FIELD SAMPLING QUALITY OBJECTIVES

The objectives with respect to field sampling and testing activities are to maximize the confidence in the data in terms of PARCC. Internal QC checks in the field may be utilized during this investigation through the use of field duplicates or other methods as presented below.

- **Field Duplicates** - One of every 20 ground water samples collected in the field will be accompanied by a blind duplicate sample. The duplicate will be prepared by homogenizing the sample and preparing two identical sample aliquots for analysis. The duplicate sample will be assigned a fictitious sample number which will be recorded in the field notebook. Analysis of duplicate samples will determine the precision of analytical techniques.

Precision will be calculated as relative percent difference (RPD) if there are two analytical points, and percent relative standard deviation (%RSD) if there are more than two analytical points. Through the submission of field QC samples, the distinction may be made between analytical problems, sampling technique considerations, and sample matrix variability. This distinction will be made by the data reviewer based on industry guidelines and professional judgment.

The DQO for completeness of all data to be collected during the investigation is 100%. In the event that 100% data completeness is not obtained due to inaccessibility of sampling points or other field conditions, the effect that the missing data will have on the project objectives will be evaluated. If necessary, corrective action will be initiated to resolve any data gaps that develop as a result of less than 100% data completeness.

Every effort will be made to obtain valid data for all sampling points, particularly those identified by the Field Team Leader as critical points. In this regard, sampling points identified as critical will be selected for QC sampling (duplicate sample collection) at the frequency specified.

In order to establish a degree of comparability, such that observations and conclusions can be directly compared with all historical data, standardized methods of field analysis, sample collection, holding times, sample preservation and standard units of measurement for data will be used. In addition, field conditions will be documented and considered when evaluating data to determine the effects of sample characteristics on analytical results. Whenever possible, the same sampling team will obtain all samples on consecutive days to reduce inconsistencies which may be caused by technique and time variables.

3.3 LABORATORY DATA QUALITY OBJECTIVES

The laboratory will demonstrate analytical precision and accuracy by the analysis of laboratory duplicates and by adherence to accepted manufacture and procedural methodologies.

The performance of the laboratory will be evaluated by the Project Manager. The evaluation will include a review of all deliverables for completeness and accuracy when applicable.

4.0 QUALITY CONTROL PROCEDURES

This section presents a general overview of the QA/QC procedures that will be implemented during the remediation. These quality control procedures are to be implemented:

- in the field; and
- in the project laboratory.

4.1 FIELD ACTIVITIES

Sampling and analysis will be conducted during or subsequent planned remedial activities and may include the collection of, ground water samples and soil vapor samples to assess the effectiveness of remedial activities. Field sampling procedures are described in Attachment A of this QAPP. All field and laboratory personnel will handle project samples in a manner that facilitates custody tracking and validity of the samples. Sample custody procedures are presented as Attachment B of this QAPP.

All field measurement and sampling equipment will be cleaned or decontaminated according to procedures presented in Attachment C.

All field activities will be documented in accordance with procedures presented in Attachment D.

4.2 CALIBRATION PROCEDURES

Laboratory calibration and frequency for specific analytical methods and pieces of equipment is specified in the United States Environmental Protection Agency (USEPA) SW-846 and the project laboratory's Standard Operating Procedures.

Team members will be familiar with the field calibration, operation, and maintenance of the equipment, and will perform the prescribed field operating procedures outlined in the operation and field manuals accompanying the respective instrument. Field personnel will keep records of all field instruments calibrations and field checks in the field logbooks. Calibration information recorded in field logbooks will include date, time, instrument make and model, a description of specific calibration or field check procedures, and any instrument deviations.

If on-site monitoring equipment should fail, the Field Team Leader will be contacted immediately. Replacement equipment will be provided or the malfunction will be repaired in a timely fashion.

5.0 ANALYTICAL PROCEDURES AND DATA EVALUATION

A general summary of the sampling program, analytical methods, preservatives, and containers, is shown in Table 5-1 below.

Table 5-1
Monitoring Well Sampling Program
Former Borden Resins Facility
NYSDEC Site No. 709001

Sample Location	May Sampling	November Sampling*
MW-16	5,2,3	5,2
MW-27	5,2,3	5,2
MW-30	5,2	5,2
MW-15	5,2	5,2
MW-28	5,2	5,2
MW-35	5,2	5,2
OW-35R	5,2	5,2
Beatty Creek	5,2	5,2
Pond 2^	5,2	5,2
MW-19	5,2	5,2
OW-10R	5,2,3	5,2
MW-2B	4	no sample
MW-17	4	no sample
MW-21	4	no sample
Dupe (OW-35)	5,2	5,2

Required Analysis
2 = BTEX by USEPA Method 8260
3 = Formaldehyde by SW 8315A
4 = PCBs by USEPA Method 8082
5 = Phenols by USEPA Method 8270

*: November sampling for first 5-years only.
^: sample only until pond is backfilled.

All samples will be analyzed by a New York State Department of Health (NYSDOH)-approved environmental laboratory.

Upon receipt of analytical reports from the laboratory, ERM will evaluate the data packages. A full data validation is not included in the scope of work.

Data from laboratory analyses will be used to evaluate potential remedial adjustments and to evaluate the effectiveness of remedial activities.

6.0 KEY PROJECT PERSONNEL

ERM will staff this project with persons having expertise in the tasks to be performed and experience in working on NYSDEC sites. Key project personnel assigned to this project are presented below.

ERM Project Director (PD): Michael Teetsel, C.P.G.
The Principal In Charge (PIC) responsible for the satisfactory completion of all work related to the excavation project and provides senior technical support to the project team.

ERM Project Manager (PM): David W. Myers, C.G.
Responsible for all work and conducts ultimate Quality Assurance/Quality Control (QA/QC) overview.

ERM Field Team Leaders (FTL): Based on project availability, Todd Marsh, P.G.;
Manages day-to-day activities at each site location during Field Implementation; report to PMs.

ERM Project Health and Safety Coordinator: Ernie Sweet, ASP
Reviews and approves HASP; provides technical advice and assistance on health and safety issues as necessary.

ERM Site Safety Officer (SSO): David W. Myers, C.G.
Responsible for ensuring implementation of HASP; reports to PD and PM

Attachment A
General Sampling Procedures

GENERAL SAMPLING PROCEDURES FOR OVERSITE OF REMEDIAL ACTIVITIES

1.0 INTRODUCTION

During the course of performing the project protocols as established in the SMP, the applicable procedures listed below will be followed for sample collection.

- Wherever possible, samples will be collected first from the location expected to be least contaminated. Samples that are expected to be most contaminated will be collected last.

- Accurate and detailed field notes will be maintained including detailed descriptions of sample collection and handling procedure and sample characteristics.

- Sampling procedures will be performed with the overall intent of collecting representative samples and minimizing sample disturbance.

- Worst-case samples will be selected for analyses based on observations (e.g., staining, odor), organic vapor field screening results, or other methods acceptable to NYSDEC.

- Any additional borings drilled that will not be used for monitoring wells will be backfilled with drill cuttings in accordance with NYSDEC guidance (TAGM-HWR-89-4032).

- Sample bottles will be labeled with the sample location, identification number, and date and time of sampling prior to being filled with a sample.

- All sample collection, handling and shipping information will be recorded in the field notebook.

2.0 SOIL/SEDIMENT SAMPLE COLLECTION PROCEDURES

2.1 Materials

The following materials generally will be available if any soil, sediment and bench test sampling activities are required:

- health and safety equipment (personal protective equipment or PPE; FID or PID, etc.);
- sample retrieval device (concrete cutting machine, split-spoon sampler, hand operated corer, hand auger, trowel);
- stainless steel spatulas, bowls, and/or scoops;
- plastic (polyethylene) sheeting;

- knife;
- sample containers and seals;
- chain-of-custody forms;
- transport container with a cold source (ice or blue ice);
- field book;
- decontamination supplies; (detergent, water, buckets, brushes, etc.); and
- aluminum foil and sealable plastic storage bags.

2.2 *Sample Collection*

The applicable procedures noted below, if required, will be followed during collection of soil, sediment, or bench test samples.

1. All subsurface soil samples will be collected using standard geoprobe methodology. Individual macrocore plastic sample liners will be replaced for each discreet sampling interval. No other equipment is anticipated to be used, but if necessary such equipment will be made of stainless steel.

2. Soil samples will be homogenized using USEPA's coning and quartering method. This method includes removing any debris not considered as part of the sample, thoroughly mixing the sample in the center of a decontaminated stainless steel pan or bowl, then quartering and mixing the individual sample corners. The entire sample will be rolled to the center of the pan followed by a final mix. Placement into sample containers will be conducted after homogenization. Soil samples will not require preservation except for cooling to 4^{o} Celsius.

4. All samples containers are to be labeled with: 1) site name; 2) AOC project number; 3) boring number; 4) sampled interval; 5) date; 6) time of collection; and 7) initials of sampling personnel.

5. The sample collector will record descriptions of samples as to: 1) percent recovery; 2) structure and degree of sample disturbance; 3) soil type; 4) color; 5) odor; 6) moisture content; 7) texture; 8) grain size, shape, and angularity; 9) density or consistency; and 10) any other observations, particularly relating to waste materials or unnatural materials.

6. Sample containers will be capped immediately after filling and placed into a chilled-cooler containing sufficient ice to cool the media for transport to the project laboratory.

7. All equipment used to collect samples for analysis will be either cleaned before each use or dedicated to a particular sample location after initial cleaning.

3.0 GROUND WATER SAMPLE COLLECTION PROCEDURE

The following procedures will be used for collection of ground water samples.

Well purging and sampling methods will utilize the simplest sampling method that will yield representative ground water samples. ERM expects to use low-flow purging for well sampling at the Site. The well purging method will be consistent with the well development method. A peristaltic pump and low flow sampling techniques will be used to collect ground water samples.

Prior to sampling, all wells will be purged of at least three well casing volumes. Wells with low recovery rates will be evacuated slowly until stable prior to sampling.

3.1 MATERIALS

The following materials will generally be available for ground water sampling activities:

- water level indicator (accurate to 0.01 foot);
- new dedicated well tubing;
- peristaltic pump;
- sample bottles and labels;
- chain-of-custody forms;
- thermally-insulated cooler with cold source;
- sample preservative (may be added to bottle by analytical laboratory);
- field book;
- PPE as needed (gloves, etc.);
- decontamination supplies (detergent, water, hexane, methanol or nitric acid rinses, bucket, brushed, etc.).

3.2 GROUND WATER SAMPLING PROTOCOL

Ground water sampling protocols to be used at the Site are as follows.

- Sampling will progress from the least-affected well to the most-affected well based on visual and olfactory observations and/or on historical results of sampling and analysis. Samples will be properly preserved, stored on ice and transported under proper chain-of-custody procedures.

- The depth to water in each well will be measured to the nearest 0.01-foot and the volume of water in the well calculated. The volume of water in the well, in gallons, will be calculated by subtracting the measured depth to water from the total depth of the well and multiplying by the appropriate conversion factor for the inside diameter of the well (i.e., 0.163 gallons per linear foot is the conversion factor for a two-inch well).

- Each well will then be purged to remove stagnant water from the screened portion of the well. Purging will be accomplished using low-flow (minimal drawdown)/low-volume purging techniques. Low-flow purging will be conducted using peristaltic pumps with the associated control box(es) equipped with Teflon bladders and dedicated Teflon lined polypropylene tubing.

- The low-volume purging technique will be used to purge either three well volumes from the well or as measured parameters stabilize. Wells with low recovery rates will be evacuated to near dryness once and allowed to recover sufficiently for samples to be collected. All purged water will be contained in 5-gallon plastic drums or other containers during purging operations. Purge waters from wells known to be "clean" based on absence of separate-phase product, sheen, or odors and historical laboratory analytical results may be poured on the ground near the well. In no event shall purge water be disposed of in a way that could cause a discharge to storm sewers or surface water.

- All bottles (if required) will be filled to a minimum of 90 percent capacity and then properly preserved (**Note**: if specifically required by NYSDEC, all non-VOC acid-based aqueous sample preservation may be verified by pouring a small amount of the preserved sample over pH paper; submerging pH paper into a sample container will not be permitted).

- Sample containers will be capped immediately after filling and placed into a pre-chilled cooler for transport to the project laboratory under proper chain-of-custody procedures.

Attachment B
Sample Custody Procedures

SAMPLE CUSTODY PROCEDURES

The primary objective of sample custody procedures is to create an accurate written record which can be used to trace the possession and handling of all samples from the moment of their collection, through analysis, until their final disposition. For the purpose of this document, the USEPA Office of Enforcement and Compliance Monitoring, National Enforcement Investigation Center (NEIC) Policies and Procedures (May 1986) definition of custody applies. USEPA states that a sample is under custody if:

1. it is in one's possession, or
2. it is in one's view, after being in one's possession, or
3. it is locked up after being in one's possession, or
4. it is in a designated secure area.

Custody for samples collected during this excavation will be maintained by the Field Team Leader (FTL) or the field personnel collecting the samples. The FTL or field personnel are responsible for documenting each sample transfer and maintaining custody of all samples until they are shipped to the laboratory.

A self-adhesive label will be affixed to each sample container before sample collection. These labels will be covered with clear waterproof tape in order to protect the label from water or solvent attack. The sample label should contain the following information:

- laboratory name;
- sample identification/number;
- sample location;
- sample matrix;
- date and time of collection;
- designation as a grab or composite sample;
- analytical parameter(s);
- preservative; and
- name of sampler.

All sampling containers will be supplied by the project laboratory. The bottles are cleaned by the bottle supplier, in accordance with standard laboratory procedures. Analytical proof of cleanliness can be made available for review on-site if requested. Sample containers will be enclosed in clear plastic bags and packed with cushioning material (e.g. vermiculite) inside the coolers.

Custody of the sample bottles will be maintained by the FTL. Sample bottles needed for a specific sampling task will then be relinquished by the FTL to the sampling team after the FTL has verified the integrity of the bottles and that the proper bottles have been assigned for the task. ERM will place a sufficient

volume of sample in the appropriate laboratory-grade bottles for use as sample containers. All necessary chemical preservatives will then be added to the bottles after sample collection.

The samples collected for analyses will be stored in an insulated cooler for shipment to the laboratory. The samples will be hand-delivered or shipped to the laboratory within 24 hours of sample collection for arrival no later than 48 hours after sample collection. ERM field chain-of-custody records completed at the time of sample collection will be placed inside the cooler for shipment to the laboratory. These record forms will be sealed in a zip-lock type plastic bag to protect them against moisture. Each cooler will contain sufficient ice packs to insure that a 4°C (± 2°C) temperature is maintained, and will be packed in a manner to prevent damage to sample containers. Sample coolers will be sealed with nylon strapping tape and the FTL will sign and date a custody seal and place it on the cooler in such a way that any tampering during shipment will be detected. A cooler custody seal is not required for hand deliveries where custody of the sample cooler is maintained by the FTL or sampling technician.

All coolers will be hand-delivered or shipped by an overnight courier according to current United States Department of Transportation (USDOT) regulations. Upon receiving the samples, the sample custodian at the laboratory will inspect the condition of the samples, compare the information on the sample labels against the field chain-of-custody record, assign a laboratory control number, and log the control number into the computer sample inventory system. The sample custodian will then store the sample in a secure sample storage cooler maintained at 4°C (± 2°C) and maintain custody until the sample is assigned to an analyst for analysis. Custody will be maintained until disposal of the analyzed samples.

The sample custodian will note any damaged sample vials, void space within the vials, or discrepancies between the sample label and information on the field chain-of-custody record when logging the sample. This information will also be communicated to the FTL or field personnel so proper action can be taken. The chain-of-custody form will be signed by both the relinquishing and receiving parties and the reason for transfer indicated each time the sample custody changes.

An internal chain-of-custody form will be used by the laboratory to document sample possession from laboratory sample custodian to analysts and final disposition. All chain-of-custody information will be supplied with the data packages for inclusion in the document control file.

Attachment C
Decontamination Procedures

DECONTAMINATION PROCEDURES

1.0 INTRODUCTION

Decontamination or cleaning of all field investigation and sampling equipment will follow guidelines established in the USEPA Region II CERCLA Quality Assurance Manual, Final Copy, October 1989, and specific decontamination procedures detailed below.

Equipment cleaning areas will generally be established within or adjacent to the specific work area. The equipment cleaning procedures described below include pre-field, field and post-field cleaning of sampling equipment. The equipment consists of soil and sediment sampling equipment. The non-disposable equipment will be cleaned after completing each sampling event. All rinse water will be contained and treated on site or sent to an approved disposal facility. Cleaning procedures will be monitored by the project QA/QC officer and QA/QC checks and samples as previously described.

Any water used in the decontamination process will be contained and collected for characterization and proper disposal if necessary. Solids (e.g., disposable gloves, disposable clothing, and other disposable equipment) resulting from personnel cleaning procedures will be contained for proper disposal. Decontamination procedures will be fully documented in the field notebook.

2.0 SAMPLING EQUIPMENT DECONTAMINATION

Typical sampling equipment cleaning materials may include:

- phosphate-free detergent solution soap;
- potable water (obtained from a treated municipal water source);
- deionized water;
- wash basins;
- brushes;
- plastic (typically polyethylene) sheeting;
- aluminum foil;
- large, heavy-duty garbage bags;
- spray bottles;
- zip-lock type bags;
- paper towels/Handiwipes®; and
- non-phthalate (i.e., latex or nitrile) disposable gloves (surgical gloves). Note: These gloves will also be worn by the sampling team and changed between sample points.

All sampling equipment will be stored in a clean environment and, where appropriate, the equipment will be covered in aluminum foil.

Field decontamination procedures, as described below, will include the establishment of cleaning stations. These stations will be located away from the immediate work area so as not to adversely impact the cleaning procedure, but close enough to the sampling teams to keep equipment handling to a minimum.

A designated area will be established to conduct large scale cleaning. All equipment such as drill rigs will receive an initial cleaning at this location prior to use on-Site. The frequency of subsequent on-Site cleaning will depend on actual equipment use in the collection of environmental samples. All fluids and residues produced from the decontamination procedures will be collected and stored on-Site until analyses can be conducted and a decision regarding final disposition of the materials is made pursuant to state and federal requirements.

All non-disposable sampling equipment (e.g., hand-operated coring devices, knives, hand-augers, bowls, etc.) will be cleaned before each use. The field sampling equipment cleaning procedure is as follows:

1. Phosphate-free detergent solution;
2. potable water rinse;
3. de-ionized water rinse;
4. repeat water rinse two more times (i.e., triple rinse) and allow to air dry if time allows; and
5. Wrap equipment completely with aluminum foil to prevent contact with other materials during storage and/or transport to the sampling location.

The initial step (detergent and water wash) removes all visible particulate matter and residual oils and grease (this may be preceded by a steam cleaning to facilitate residuals removal). When analyzing for inorganic constituents the detergent and water wash will be followed by a potable water rinse, and a de-ionized water rinse.

All heavy equipment (geoprobes, etc.) will be cleaned before entering the study area. All down-hole equipment will be cleaned as described above between uses at each location. Clean drilling equipment will be stored in an in-active work area on-site until use.

3.0 METER AND FILTER DECONTAMINATION

All meters and probes that are used in the field will be decontaminated between use as follows:

1. detergent/potable water wash; and
2. de-ionized water rinse (triple rinse).

Filtering apparatus will be cleaned prior to each use by washing with a phosphate-free detergent solution, rinsing with potable water, followed by a 10 percent nitric acid solution rinse, a potable water rinse, and a final rinse with

deionized water. Following sample collection the used filter will be properly disposed.

Sampling equipment and probes will be decontaminated in an area covered by polyethylene sheeting near the sampling location.

Attachment D
Field Documentation

FIELD DOCUMENTATION

All field data, such as those generated during field measurements, observations, and field instrument calibrations, will be entered directly into a bound field notebook. Each project team member will be responsible for proofing all data transfers made, and the Field Team Leader may proof at least 10 percent of all data transfers.

One or more bound field notebooks will be maintained for the Site; each book will be consecutively numbered. The book(s) will remain with the Site project file.

All entries in the Logbook will be made in ink. Logbook entries will generally include but not be limited to the following:

First Page:

- facility name and number;
- date and time started; and
- personnel on-site.

Subsequent Pages:

- a detailed description of investigative activities including sampling, on-site meetings and any problems encountered along with the duration of these activities;
- documentation of all personnel monitoring results (e.g. PID readings);
- list of all samples obtained and sample appearance (referenced to field logs if necessary);
- list of PPE used and documentation procedure; and
- all other pertinent daily activities.

Each new day will contain:

- date and time started;
- weather;
- personnel on-site;
- activity information; and

- initials of notekeeper.

*Note: When a mistake is made in the log, it will be crossed out with a single ink line and will be initialed and dated.

Special care will be taken in the description and documentation of sampling procedures. Sampling information to be documented in the field notebook and/or associated forms are as follows:

- sample number;
- date and time sample collected;
- source of sample (area, monitoring well number, etc.);
- location of sample - document with a Site sketch and/or written description of the sampling location so that accurate resampling can be conducted if necessary;
- sampling equipment (trowel, split spoon, sediment corer, etc.);
- analysis and QA/QC required;
- chemical preservative used (HCI, HNO_3, H_2SO_4, NaOH, etc.);
- field instrument calibration including date of calibration, standards used and their source, results of calibration and any corrective actions taken;
- field parameters data (pH, temperature, conductivity, etc.);
- field observations - all significant observations will be documented;
- sample condition (color, odor, etc.);
- relevant Site conditions (stressed vegetation, exposure of buried wastes, erosion problems, etc.);
- sample shipping procedure, date, time, destination and if container seals were attached to transport container(s); and
- general comments - any observation or event that occurred that would be relevant to the facility (e.g., weather changes and effect on sampling, conversations with the client, public official or private citizen; and instrument calibration, equipment problems, field changes, etc.).