ENVIRONMENTAL RESOURCES MANAGEMENT

Baker Properties, Inc.

Remedial Action Work Plan

Former Banknote Facility
10 Dunnigan Drive
Town of Ramapo,
Rockland County, NY
Voluntary Cleanup Program
NYSDEC VCP Number: V-00359

December
October 2003 Revised Current.

ERM Project Number: 0001138

Environmental Resources Management
5788 Widewaters Parkway
DeWitt, New York 13214

ERM

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APPROVED BY:

Date 10/29/03

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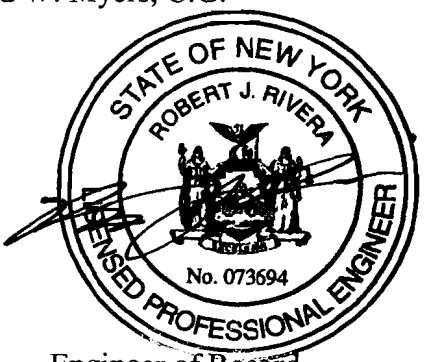

Engineer of Record

Date 10/17/03

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1.0 INTRODUCTION

1.1 GENERAL

This Remedial Action Workplan (RAWP) has been prepared by Environmental Resources Management (ERM) on behalf of Baker Properties, Inc. for the 10-acre parcel and structure located at 10 Dunnigan Drive, Town of Ramapo, Rockland County, New York (Site). The Site Location Map is presented as Figure 1. This RAWP delineates the extent of affected media and specifies remedial activities to be performed as part of a voluntary cleanup agreement (VCP No.: V-00359) between Baker Properties, Inc. (Volunteer) and the New York State Department of Environmental Conservation (NYSDEC).

Remedial activities will be implemented at the site in the areas of concern (AOCs) in the chromium room, and along the western side of the building. The AOCs has been identified from previous site investigations, and includes the Chromium Room as shown on Figure 2, Site Layout.

Sample locations and data from previous investigations are presented on Figures 3 through 9, and the areas of chromium affected soil greater than 50 parts per million (PPM) are presented on Figure 10 (indicated as the AOCs). Soil in these areas are known to contain variable concentrations of chromium and/or hexavalent chromium in excess of the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 guidance values.

In an effort to maintain the integrity of the building and area; to protect human health and the environment; to work within budgetary limitations of the project; and to implement a remedial strategy consistent with the intended use of the property, the Volunteer proposes to implement a remedial strategy that removes the affected soils that pose a threat to human health and the environment and to monitor and restrict ground water use.

1.2 OBJECTIVES

The remedial action objectives (RAOs) selected for the Site are to eliminate the potential for direct human contact with the chromium affected soils through soil excavation. The remedial activities will meet the project objectives as follows:

- Eliminate the potential for direct human contact with chromium affected soil. The selected remedy will involve the excavation of all soil with concentrations greater than 50 mg/kg, to a depth of approximately 6-feet below grade. (Note: Previous excavations in

the chromium room during previous excavation work by ERM in May 2003 indicated a water table at approximately 6 feet below the slab in the chromium room.) Excavation will take place in the area of concerns (AOCs), including the Chromium Room, and the western portion of the site as shown on Figure 10, to remove and properly manage the chromium impacted soils.

The main elements of the selected remedy, which have been designed to meet the objectives as stated above, include the following:

- Excavation of chromium affected soil from the chromium room and areas on the outside of the building;
- Containerize and dispose off-site all chromium affected soil; and
- Backfill with clean soil and restore all excavation areas.

The remedy will accomplish the removal of all affected soil above 50 ppm, such that there will be no need for land use restrictions associated with site soil.

The ground water remedial action will include the monitoring of selected monitoring wells and the placement of ground water use limitations on the property deed.

1.3 *SITE BACKGROUND*

The Site is located at 10 Dunnigan Drive within the Village of Montebello in the Town of Ramapo, Rockland County, New York. Figure 1 presents a Site Location Map showing the location of the facility and the surrounding areas. Site coordinates are 41°06.93' North latitude and 74°07.05' West longitude. The entire facility is situated on approximately 10 acres of land.

The building was constructed circa 1965, and is approximately 93,000 square feet in size. Of the 93,000 total square feet, 88,000 square feet constitutes the original manufacturing area, while 5,000 square feet comprises office space. Figure 2 presents a Site Layout of the facility property including the building structure.

The facility was originally a carton manufacturing plant built for and operated by International Paper Company (IPC). IPC leased the building to Savin Corp. (Savin) in December of 1978. Savin used the facility for light assembly of office machines and equipment, and for warehousing and distribution. Around early 1983, Baker purchased the property and continued the lease to Savin. Savin's lease was terminated in January of

1984. That lease concluded the manufacturing, warehousing and distribution activities at the site.

Baker leased the facility to American Banknote (ABN) from January of 1984 to April of 1990. In 1990, ABN assigned its lease of the property over to Banknote Corporation of America (BCA), who leased the property until December 1995. There were two (2) known environmental issues during ABN's and BCA's occupancy of the building associated with the operation of a chromium scrubber on the east side of the building. This area was discovered in August 1986 and reportedly remediated at a later, but unknown, date. The second discovery of chromium contamination was in this same area in March of 1990. In 1992, the soil in this area was again remediated, under the direction of the NYSDEC.

Since December 1995, the building has been completely decontaminated and sampled and affected soil has been removed from the west side of the building and the former chromium plating room. Additionally, an extensive database of subsurface samples has been generated to characterize and monitor the subsurface soil and water at the Site. These voluntary sampling events have shown a stable or declining concentration of chromium over time.

1.4 *SITE GEOLOGY AND HYDROGEOLOGY*

Based on data gathered from the "Surficial Geology and Geologic Sections" by Richard B. Moore and Donald H. Caldwell dated 1981, the Site lies across a boundary between lacustrine sand and silt on the west side of the Site and an ablation till on the east side of the Site. The lacustrine deposit was formed when the area was covered with an ancient glacial lake and the ablation till was deposited as the glacier receded from the area.

The Site is located along the western edge of the Newark Lowlands which is bounded on the northwest by the Hudson Highlands and on the southeast by the Manhattan Prong. The Newark Lowlands are lower and flatter than the Hudson Highlands because the underlying bedrock consists of distinctive red sandstone and shales which erode easier than the metamorphic rocks of the Hudson Highlands. Numerous ridges of more resistant igneous rocks run northeast-southwest through the Newark Lowlands.

The sedimentary and igneous rocks of the Newark Lowlands lie in a large basin known as the Newark Basin. These rocks are Triassic to Jurassic in age and are known as the Newark Group. The Site is located on the Hammer Creek Conglomerate which intermingles with the Brunswick Formation. The Hammer Creek Conglomerate contains blocks and boulders of various older limestones and dolostones. Most of this deposit is overlain by unconsolidated glacial deposits of Pleistocene age as described above.

The United States Geological Survey (USGS) 7.5 Minute Series topographic map, dated 1955, for the Park Ridge, NJ - New York Quadrangle shows the Site is relatively flat and has an elevation of approximately 440 feet above mean sea level. At the southern portion of the property, elevations drop off slowly to the south and west. At the northern property line, elevations decrease to the north towards Interstate 87/287. Surface water drainage from the southern portion of the Site eventually drain into an unnamed creek located approximately 1,000 feet south of the Site. This unnamed creek drains into the Mahwah River approximately one and a half miles northwest of the Site. Surface water drainage along northern portions of the Site would eventually drain to a storm water conveyance ditch located along Interstate 87/287.

Depth to ground water as measured in the shallow wells at the Site ranged from approximately 10 feet to 22 feet below grade. Previous ground water studies indicate the ground water flows in a north-northwesterly direction.

1.5 *PREVIOUS SITE INVESTIGATIONS*

There were two known environmental issues during ABN's occupancy. The first was the discovery of chromium contaminated soil to the west of the building in August 1986. This soil was reportedly remediated at a later, but unknown, date.

The second environmental issue was the discovery of additional chromium contaminated soil in this same area in March of 1990. In 1992, the soil in this area was again remediated, under the direction of the NYSDEC.

During BCA's operation of the facility, no known releases of regulated substances to the environment were reported. As part of BCA's plan to vacate the property in December of 1995, BCA, through its consultant Kiber Environmental Services (Kiber), conducted an extensive decontamination of all interior surfaces and conducted an environmental assessment of the facility that included environmental media sampling (i.e., soil & groundwater). Results of this effort indicated the presence of chromium in the soil and ground water on the west side of the building at concentrations that required additional investigation.

Between December 1995 through May 2003, 108 soil samples were collected at the Site. The soil borings and soil samples are identified as BSB for basement soil boring and CRB for chromium room boring. As previously noted, the locations of previous sampling events are presented on Figure 3 with associated analytical laboratory results presented on

Figures 4 through 9. The area of chromium affected soil is presented on Figure 10.

Since December 1995, a series of voluntary investigations have occurred to characterize and monitor the ground water at the Site. These voluntary sampling events (a total of nine events performed on a quarterly basis from 1996 until 1998, and a bi-annual basis thereafter, with the most recent event in 2002) have shown a stable or declining concentration of chromium and nickel.

The Site has 11 monitoring wells installed as part of site investigations between 1996 and 2002. Monitoring Well locations are presented on Figure 11. Ground water flows to the north-northwest across the Site. Chromium has been detected in the shallow saturated zone in MW-2 adjacent and due west of the chromium room and in decreasing concentrations down gradient. The hydraulic permeability at the Site was estimated by Peachtree Environmental to be between 10-3 and 10-5 cm/sec across the site. The unsaturated zone extends from the ground surface to approximately 10 feet below grade. A shallow saturated zone extends from roughly 10 below grade to 52 feet below grade. Bedrock is located at approximately 39 to 52 feet below existing ground surfaces.

1.6 *PURPOSE AND ORGANIZATION OF REPORT*

This report presents the general design and implementation requirements for the remedial activities at the Site and has been organized into the following sections:

- Section 1 – Introduction
- Section 2 – Engineering Evaluation of Proposed Remedy: Remedial Action Selection
- Section 3 - Remedial Activities
- Section 4 – Treatment and Disposal
- Section 5 – Health and Safety
- Section 6- Quality Assurance/Quality Control
- Section 7 – Implementation Schedule
- Section 8 – Remedial System Effectiveness
- Section 9 – Operations and Maintenance

- Section 10 - Project Organization and Management
- Section 11 - Final Report

2.0 *ENGINEERING EVALUATION OF THE PROPOSED REMEDY: REMEDIAL ACTION SELECTION REPORT*

This section identifies the applicable standards, criteria and guidance (SCGs) and describes the remedial goals for the Site. The proposed remedy is then evaluated with respect to the six evaluative criteria identified in the VCP Guide, *Draft* (NYSDEC, May 2002). These criteria are:

- protection of human health and the environment;
- compliance with standards, criteria, and guidance (SCGs);
- short-term effectiveness and impacts;
- long-term effectiveness and permanence;
- reduction of toxicity, mobility, or volume; and
- implementability.

These criteria are consistent with those outlined in 6 New York Code of Rules and Regulations Part 375 1.10 for Remedy Selection.

2.1 *APPLICABLE STANDARDS, CRITERIA, AND GUIDANCE*

The following are the SCGs that are considered to be ARARs for the Site:

- NYSDEC Voluntary Cleanup Program Guide *Draft*, May 2002;
- NYSDEC Technical and Administrative Guidance Memorandum Number HWR-94-4046: Determination of Soil Cleanup Objectives and Cleanup Levels – Recommended Soil Cleanup Objectives, dated January 24, 1994 (TAGM-4046);
- NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values, October 1993 (TOGS 1.1.1);
- USEPA 40 Code of Federal Regulations (CFR) Part 475: Lead, Identification of Dangerous Level, Final Rule, 2000;
- NYCRR Part 375 1.10: Remedy Selection; and
- Guidelines and Requirements for Workers at Hazardous Waste Sites (Subpart 120), OSHA 29 CFR 1910.

2.1.1 *Summary of Data in Excess of Comparison Criteria*

Between December 1995 through May 2003, 11 monitoring wells and 108 soil samples were collected for chromium analysis. The samples were collected from surface and subsurface soil throughout the Site, but primarily from the area of the Chromium Room on the west side of the building and the landscaped area immediately west of the Chromium Room. Soil in both areas of concern (AOCs) are known to contain variable concentrations of chromium and/or hexavalent chromium in excess of the NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046 guidance values.

2.2 *REMEDIAL GOALS AND OBJECTIVES*

As previously stated in Section 1.2 of this report, the RAOs selected for the Site are protective of human health and the environment and designed to eliminate the potential for direct human contact with the chromium affected soil and ground water. The RAOs will meet the project objectives as follows:

- Eliminate the potential for direct human contact with the chromium affected soil and remove potential sources to ground water. The selected remedy will involve the excavation of all soil with chromium concentrations greater than 50 mg/kg, to a depth equal to the water table which was observed at approximately 6-feet below the Chromium Room floor during the July 2002 and May 2003 sampling events. Excavation will occur in the Chromium Room and the area immediately west of the Chromium Room. Soil samples will be collected following excavation to confirm soil concentrations.

- Eliminate contact with, and use of, site ground water present at concentrations greater than ambient water standards. Site ground water flow direction will be documented and chromium concentrations monitored for five consecutive quarters to confirm flow direction and the previously observed downward trend of ground water concentrations of chromium. Following the quarterly monitoring program site monitoring wells will be sampled every fifth quarter for five consecutive years. In addition, a use limitation will be placed on site ground water to run with the property deed prohibiting use and contact with site ground water.

2.3 *SUMMARY: ENGINEERING EVALUATION OF SELECTED REMEDY*

The proposed remedial action described in Section 1.2 was developed through a review of NYSDEC guidelines, comments from the NYSDEC, and experience in developing remedial actions for similar types of environmental issues. The main elements of the selected remedy, which have been designed to meet the objectives as stated above, include the following:

- Excavation of chromium affected soil greater than 50 ppm from the Chromium Room and the soil immediately adjacent to and west of the Chromium Room;
- appropriate containerization and off-site disposal of chromium affected soil;
- backfilling with clean soil and site restoration of the excavation areas to original grade and use; and,
- monitoring, and use limitations on site ground water.

This section evaluates the proposed remedy with respect to the six evaluative criteria outlined in the Draft VCP Guidance dated May 2002. The potential impacts to human health and the environment which result from the use of the remedy, and whether the remedy has proven reliable for the media and constituents of concern (COC) requiring remediation at the Site.

The criteria for effectiveness consider whether the technology will address the volume of affected media and meet the RAOs. The short and long-term impacts for the Site, surrounding community and the environment are considered.

The criteria for implementability focuses on institutional aspects associated with use of the remedial technology. Institutional aspects involve potential permits or access approvals for on-Site work as well as considerations such as zoning board requirements.

2.3.1 *Protection of Human Health and the Environment*

Protection of Human Health and the Environment is by the remedy's ability to address the RAOs. The Site RAOs were presented in Sections 1.2 and 2.2. Institutional controls would address the following RAOs:

- prevent direct contact and incidental ingestion of soil containing chromium concentrations in excess of 50 ppm in areas underneath existing cover; and
- prevent the downward and offsite migration of existing contaminants into currently unaffected soils.

The existing engineering controls, consisting of the excavation and backfill with clean soil in areas and landscaping excavated areas, address the soils that contain chromium concentrations greater than 50 ppm in the AOCs.

2.3.2 *Standards, Criteria, and Guidance*

The following are the standards, criteria, and guidance (SCGs) that are considered to be ARARs for the Site:

- NYSDEC Voluntary Cleanup Program Guide *Draft*, May 2002;
- NYSDEC Technical and Administrative Guidance Memorandum Number HWR-94-4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994 (TAGM-4046);
- NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values, October 1993 (TOGS 1.1.1);
- USEPA 40 Code of Federal Regulations (CFR) Part 475: Lead, Identification of Dangerous Level, Final Rule, 2000; and
- Guidelines and Requirements for Workers at Hazardous Waste Sites (Subpart 120), OSHA 29 CFR 1910.

The remedy will comply with the guidelines outlined in the VCP Guide. This remedy will not achieve TAGM 4046 recommended soil cleanup objectives. The excavation of soils above 50 ppm chrome and backfill with clean soil will achieve a project specific soil cleanup objective as approved by the State of New York. This action will reduce the potential for exposure by eliminating the pathway of direct contact. Furthermore, since additional groundwater monitoring is planned migration of contaminates to determine the effectiveness of the proposed remedial action. Finally, any remedial actions conducted at the Site will comply with applicable OSHA requirements contained in 29 CRF 1926: Safety and Health Regulations for Construction.

2.3.3 *Short-Term Effectiveness and Impacts*

For remedial action construction, there would be additional construction traffic for transportation of materials to the Site and removal and disposal

of cleared and grubbed vegetation. Additionally, dust could potentially be generated during excavation and placement of the soil backfill.

Building employees may be restricted from accessing the western end of the parking lot during construction, and would be notified in advance. Furthermore, access through the southwestern entrance could be restricted at times, and the southwestern entrance to the property would be the only viable access for construction employees, deliveries, utility vehicles, and emergency vehicles during these times. Delivery times could be coordinated to minimize these effects. These issues can be addressed to safely implement the remedy and address local community concerns. Dust issues would be addressed through the HASP and a community air monitoring plan (CAMP).

2.3.4 *Long-Term Effectiveness and Permanence*

Long-term effectiveness and permanence is measured by the magnitude of the residual potential for exposure and the adequacy and reliability of controls. Thus, the long-term permanence and effectiveness of the remedy can be measured in its long-term ability to meet the RAOs for the Site.

The following are the RAOs for the Site:

- prevent direct contact and incidental ingestion of soil containing chromium concentrations in excess of 50 ppm in areas underneath existing cover; and
- prevent the downward and offsite migration of existing contaminants into currently unaffected soils.

The proposed remedy would provide adequate long-term effectiveness and permanence. Excavation and backfilling the AOCs, would provide assured protection of human health and the environment in the long-term. Additional effectiveness discussions are presented in Section 8.0.

2.3.5 *Reduction of Toxicity, Mobility, or Volume*

Soil containing chromium above 50 ppm will be excavated and removed from the Site and the excavation will be backfilled with clean soil. The toxicity of chromium will be lowered and the exposure pathway would be eliminated.

2.3.6 *Implementability*

The excavation and backfill of chromium soils proposed for the Site can be completed in a reasonable time frame, and are readily implementable

technologies. The space available for work surrounding the AOCs is limited. Coordination of the staging and delivery of materials and equipment will be necessary.

The excavation and backfill operation poses some implementability issues that must be taken into consideration, but is not prohibitive of implementing the capping remedy. These implementability issues include the proximity of the remedial action to the property lines and maintaining final site topography/drainage.

2.3.7 *Summary of the Evaluative Criteria*

The proposed remedy was compared against the six evaluative criteria outlined in the *Draft* VCP guidelines. In addition, cost effectiveness and community acceptance were also evaluated. The proposed institutional and engineering controls would be protective of human health and environment in the long-term by reducing the potential for exposure through eliminating direct contact with chromium in soil. All SCGs would be met and the pathway for exposure will be eliminated with the proposed remedy. The estimate cost was determined to be acceptable to the owner and the proposed remedial measures provides for short term minimal disturbance with minimal to no long term disturbance which is more acceptable to the surrounding community.

Short-term impacts will be minimized through the use of the HASP and proper notification to construction employees and material and equipment suppliers. The groundwater monitoring will be in place to ensure the long-term effectiveness of engineering controls.

3.0 REMEDIAL ACTIVITIES

3.1 GENERAL

This section presents the on-site activities associated with this site remedial action. The remedial action includes the excavation, appropriate containerization and off-site disposal of chromium impacted soils. Remedial activities will also address the previously identified AOCs within the building structure and exterior portions of the property that are affected with chromium contaminated soil.

The primary remedial components include the following:

- General site preparation including a surveyed delineation of the extent of the areas that will require grading associated with site excavation and backfill;
- Removal of existing vegetation from the areas that will require soil excavation;
- Soil excavation in the areas of concern;
- Excavation end-point soil sampling in the AOCs;
- Ground water monitoring of selected monitoring wells and the placement of ground water use limitations on the property deed.
- Site restoration.

3.2 SITE PREPARATION

This section summarizes the activities that will be performed to prepare the Site for the subsequent remedial activities associated with excavation of existing soils and sediments in the areas of concern, grading and fill activities associated with site restoration.

3.2.1 Mobilization

Heavy equipment and materials, including a dozer, excavator, dump truck, etc., required for soil removal and grading activities will be mobilized and staged at the Site. As part of the mobilization, the remedial contractor will obtain a utility clearance for the site. If determined necessary, the remedial contractor will mobilize a field trailer to the Site for use as a field office by the on-site personnel. The field trailer will be staged at the Site prior to the start of the remedial activities. The remedial

contractor will arrange for utility connections to the trailer (e.g., telephone, electrical) as required. Prior to implementation of the RAWP, the remedial contractor will obtain any permits as appropriate.

Site work zones will be established on-site as specified in Section 5, Health and Safety.

3.2.2 *Clearing/Grubbing*

Prior to performing any intrusive work at the areas of concern, the Site will be cleared and grubbed of any existing vegetation that will interfere with the remedial activities. Trees and brush will be removed to the ground surface using heavy construction equipment. The cleared vegetative material (i.e., trees, shrubbery) having no visible signs of contamination will be left on-site or transported off-site for disposal as a non-hazardous waste. Any large surficial debris, which is not considered appropriate for backfill, will be removed and managed in accordance with Federal, State and Local requirements.

3.2.3 *Temporary Soil Erosion and Storm Water Controls*

Prior to excavation and grading, temporary erosion control and storm water management structures will be installed at the Site to control surface-water run-on and run-off and to minimize the potential for erosion and off-site migration of chromium impacted soils and sediments. Soil erosion and storm water run-off structures will be installed, operated, and inspected in accordance with "New York Guidelines for Urban Erosion and Sediment Control (April 1997)". Storm water and erosion controls will include the following:

- Silt fence and hay bales around excavation and grading areas (areas of concern excavation, non paved cap grading areas) and the soil staging area if stockpiling of impacted soils is required;
- Temporary storm-water diversion ditches for the control of surface-water run-off from the up gradient "clean" areas onto impacted portions of the Site;
- Sedimentation control structures around the existing drainage swales.

The specific requirements for storm-water and erosion control structures are described in more detail below.

- A silt fence will be installed along the perimeter of the excavation area, around the soil stockpiling area (if temporary stockpiling of impacted soils is required prior to offsite disposal of impacted soils), and along the perimeter of all non-paved areas that will require grading associated with the remedial activities. The silt fence will be anchored a minimum of six inches into the ground and staked every ten feet. Hay bales will be used in conjunction with silt fence along low lying areas of the excavation and grading areas that are expected to receive a greater amount of run-off. The hay bales will be installed immediately adjacent to a three-foot high silt fence. The hay bales will be secured to the ground with stakes or equivalent. Inspection and proper maintenance of the controls will be performed as an integral component of Site maintenance during remediation activities.

3.2.4 *Material Staging Areas*

Material staging areas will be constructed only in the event that impacted soils requiring off site disposal are not direct loaded into appropriate containers (i.e., lined steel roll off boxes or transport vehicles).

The staging areas for the storage of excavated soil will be constructed adjacent to impacted areas, downgradient from any areas that have previously been deemed as non-impacted or "clean". The staged material will be covered daily and during precipitation events. The covered material will be secured during inclement weather and during periods of inactivity. Silt fencing/hay bales (or equivalent) will be placed around active soil piles to limit impacted run-off.

Temporary stockpiles will be placed on top of polyethylene sheeting.

3.2.5 *Decontamination Facility*

Equipment and personnel decontamination facilities will be constructed within the Contamination Reduction Zone (CRZ) of the excavation area. The decontamination facilities will consist of large equipment decontamination and small personnel decontamination stations and may be combined into one facility, as appropriate. The large equipment station will be used for removal of chromium impacted soil, sediment, debris, and dust from large equipment (e.g., excavator, dozer) at the end of excavation activities. The large equipment station will be lined with a polyethylene liner and bermed in sufficient size to contain all decontamination water and sediment. The large station will be equipped with a 2,000 pounds per square inch (psi) pressure washer or steam cleaner, a sump pump and 55-gallon drums for storage of decontamination wastewater.

Soils/sediments remaining in the sump will be containerized for waste characterization and appropriate off site disposal.

The small personnel station will be used to clean hand sampling equipment (trowels, hand augers, shovels, etc.) and reusable personnel protective equipment (PPE). The small station will be lined, bermed, and equipped with containerized rinse water and cleaning supplies. 55-gallon drums will also be used for the storage of decontamination wastewater and contaminated PPE.

For the excavation areas, the large equipment decontamination station will be constructed in close proximity to the excavation activities. The location of the small equipment decontamination station will vary based on the excavation progression. The use of the small personnel decontamination station in the excavation area should only be required during confirmation soil sampling activities.

3.2.6 *Site Survey*

A pre-construction survey of the site will be performed prior to the implementation of the excavation and grading activities, in order to establish baseline conditions and delineate the limits of the areas of concern that will require excavation. The initial limits of soil and sediment to be excavated and graded will be located and staked. A post-construction survey will be performed at all excavated and graded areas to document remedial activities.

3.3 *SOIL EXCAVATION*

3.3.1 Site Delineation/Limits of Excavation

Site delineation and limits of excavation in the areas of concern were established as a result of previous investigative activities at the site. A summary of the locations of all prior borings as well as the limits of excavation that require excavation are presented on Figures 3 and 10, respectively. Depth of soil excavation will be based on the depth to the water table. Soil will be excavated to the water table estimated to be at a depth of approximately six (6.0) to eight (8.0) feet below grade.

3.3.2 *Soil Excavation and Grading*

Dedicated on-site trucks and excavating equipment will be used for the areas of excavation and final grading. The excavation and loading of chromium impacted soils and sediments will utilize "clean loading" procedures to minimize contact between impacted

material and excavation and transport equipment. These procedures will ensure that impacted materials are not spread to unimpacted areas including adjacent properties and roadways. Dedicated equipment (e.g., excavator, bulldozer) will be decontaminated prior to leaving the Site. Decontamination will be performed at the designated on-site decontamination stations.

A trackhoe, or equivalent, will be used for removing soils and sediments from all excavation areas. Excavated soils will be directly loaded into a dump truck for transport to the soil staging area or direct loaded into double polyethylene lined roll off boxes for appropriate off-site disposal.

Prior to exiting the exclusion zone, the truck exterior, wheels, and undercarriage will be inspected for the presence of any impacted soils and sediments. If necessary, the dump trucks will be decontaminated in the appropriate decontamination station prior to transport to prevent the spreading of impacted soils and sediments.

3.3.3 Confirmation/Post Excavation Sampling in Areas of Concern

Upon completion of the excavation in the areas of concern, confirmation/post excavation samples will be collected from each of the excavation as per the NYSDEC DRAFT DER-10 (December 2002) Technical Guidance for Site Investigation and Remediation to ensure that chromium containing material has been removed in accordance with the site specific clean-up levels. Samples will be collected as discussed on page 78 of 103 of the above referenced document. The excavations at both AOCs at the subject Site will have perimeters ranging from 20 to 300 feet in perimeter and the associated chromium contamination was a result of surface spill(s). Therefore; the confirmation sampling will consist of one discrete sample from every 30 linear feet of sidewall and one discrete sample from every 900 square feet of bottom area.

Post-remediation sample locations and depth will be biased towards the areas and depths of highest contamination identified during previous sampling episodes unless field indicators, such as field instrument measurements or visual contamination identified during the remedial action, indicate that other locations and depths may be more heavily contaminated. In all cases, post-remediation samples will be biased toward locations and depths of the highest expected contamination.

The samples will be collected and analyzed for total chromium in accordance with United States Environmental Protection Agency

(USEPA) SW-846 methodology. Sample containers will be placed in a chilled insulated container and handled in accordance with appropriate custody and Quality Assurance/Quality Control (QA/QC) procedures.

3.3.4 *Sample Equipment Decontamination*

The small personnel decontamination station will be used for the preparation and breakdown of sampling equipment. Buckets and/or tubs will be set up in the decontamination station to decontaminate sampling equipment such as stainless steel auger, hand trowels and bowls. All water that has been used for decontamination will be stored in designated containers and held on site for proper disposal determination.

Small non-disposable equipment will be decontaminated using the following procedure:

- Wash with non-phosphate laboratory grade detergent and hot water, using a brush to remove any particulate matter or surface film;
- Rinse with tap water;
- Dilute acid rinse;
- Rinse twice with deionized water; and
- Air dry.

After decontamination, the sampling devices will be wrapped in aluminum foil to prevent contamination during handling.

3.3.5 Data Evaluation

Confirmation sample analytical reports generated by the analytical laboratory will be reduced into a summary table. The data will then be reviewed for accuracy, precision and completeness in order to determine the usability of the data according to criteria set forth in the Division of Environmental Remediation's "Data Usability Summary Report" (DUSR) guidelines. Review of laboratory data packages will include an evaluation of holding times, calibration requirements (initial and continuing), blank contamination, and matrix spikes and duplicates (where applicable).

If problems arise and data are found to deviate from expected results, the affected data points will be annotated in the summary table with appropriate qualifiers.

3.3.6 *Backfilling/Restoration of Excavated Areas*

Imported backfill will be uncontaminated pursuant to any applicable remediation standard and free of extraneous debris or solid waste. Documentation of the quality of the fill including sampling data may be required by the NYSDEC. Uncontaminated soil from the site may be returned to excavations or may be used elsewhere on the site. The bills of lading should be provided to the NYSDEC to document the source(s) of fill. The documentation should include:

> (1) The name of the affiant and relationship to the source of the fill;
> (2) The location where the fill was obtained and a brief history of the site which is the source of the fill.

Backfilling of excavated areas will be performed following the removal of impacted soils and receipt of laboratory test results confirming that project objectives were obtained. ERM has planned to receive the confirmation results within two days of sampling. Excavated areas will be filled with clean imported soil and compacted as appropriate. Backfilled areas will be restored to their original grade and slope.

Backfill will be placed in the excavation areas using a bulldozer or rubber tired grader and will be compacted using on-site equipment. The areas will be backfilled to the existing grade. The backfilled areas will be seeded with a seed-fertilizer-mulch mixture or a new concrete floor will be placed in the chromium room. If necessary, additional measures will be utilized to stabilize restored slopes and drainage contours. These may include the use of jute mesh, rip, or equivalent. Long-term maintenance of the area will be the responsibility of Baker.

A final grading plan will not be submitted as part of this RAWP.

3.3.7 Fugitive Dust Control

This section addresses standard and contingent fugitive dust suppression measures to be implemented as an integral component of the remedial action for the site. The components of fugitive dust control include the following:

- Identification of fugitive dust sources; and

- Baseline dust suppression measures.

3.3.8 Dust Sources and Control

This section identifies potential fugitive dust sources and control techniques associated with excavation activities. The potential sources include those associated with typical remedial construction projects, such as excavation, material handling and transport, material placement, and grading. This section addresses fugitive dust control associated with handling of impacted soils to prevent visible particulates at the parking lot, nearby buildings, or the relevant property line, whichever is closer. The following potential dust sources have been identified for this remedial action:

Excavation and soil handling:

The primary contributing factors to fugitive dust emissions at the point of excavation are material properties (moisture and PM-10 content), geometry of the excavation face, bucket capacity, drop heights, excavation rate, and meteorological conditions, including wind speed and precipitation. Excavation and handling of soils can potentially result in fugitive dust emissions.

Vehicular traffic:

The primary source of fugitive dust from vehicular traffic is a result of contact between the vehicle wheels and ground surface. Fugitive dust emissions associated with movement of vehicles on-site will be a function of vehicle speed, vehicle weight, number of wheels, silt content of the road material, moisture content of the road material, and frequency of precipitation events. Of these factors, control of moisture content and vehicle speeds for on-site areas will be implemented as the primary fugitive dust control measures.

Soil Stockpiles:

Material stockpiles include the working piles and clean fill. Fugitive dust emissions associated with stockpiles will be generated during the transfer of material onto and off of the piles and wind erosion. Significant contributing factors include silt content, moisture content, stockpile dimensions/alignment, wind speed/direction, and the general stockpile activity.

The primary dust control technique for this remedial project will be a fine water spray. Water will be sprayed on an as needed basis for

each of the potential sources listed above. The rate at which water is applied will be a function of the general activity in the area (i.e., excavation rate, number of vehicles actively operating), the moisture content of material being excavated or moved, wind speed and direction, precipitation, and excavation geometry. Water will be applied evenly over the dust source to that level required preventing visible particulates at the relevant property line. The effectiveness of fugitive dust controls will be evaluated through the use of real-time monitoring utilizing a RAM-1 Real Time Aerosol Monitor or equivalent. The use of water spray will be optimized so that fugitive dusts are sufficiently controlled, while preventing generation of surface-water run off.

3.4 GROUND WATER MONITORING

Based on evaluation of data obtained over the course of preparing this RAWP, ERM recommends that the ground water monitoring wells at the west end of the site and within the western facility (MW-1, MW-2, MW-3 MW-4, DW-1, MW-5 MW-6 MW-7, MW-8 and MW-10) for chromium. Its is recommended that the wells be sampled on a quarterly basis for five quarters and thereafter, every fifth quarter over a five year period. At the beginning of the fifth year the ground water program will be re-evaluated to determine whether to continue sampling or to modify sampling interval.

4.0 TREATMENT AND DISPOSAL

4.1 GENERAL

This section summarizes procedures for the characterization, transportation and disposal of any Resource Conservation and Recovery Act (RCRA) non-hazardous solid or hazardous wastes generated during remedial activities at the Site. These wastes will be properly managed to minimize environmental impacts and to comply with all applicable federal, state, local laws and regulations. These procedures, in conjunction with applicable non-hazardous and hazardous waste manifests, will accompany the waste from its point of origin to its final destination.

4.2 WASTE TRANSPORTATION

All solid and liquid waste will be transported off site by a permitted Title 6 of New York State Compilations of Codes, Rules, and Regulations (6 NYCRR) Part 364 approved hauler. The waste will also be transported off site in accordance with the Department of Transportation (DOT) guidelines as outlined in 49 Code of Federal Regulations (CFR) Parts 171 through 179, 6 NYCRR Part 364, and any other applicable state and local regulations. Each shipment of solid or liquid waste generated at the Site will be properly characterized, containerized, loaded, and manifested prior to exiting the Site. Also, the waste transporters must carry with them a copy of the applicable waste transporter's permit, as required.

A non-hazardous bill of lading or hazardous waste manifest will be prepared and completed for each shipment of solid or liquid waste prior to exiting the Site. The transporter must possess the signed non-hazardous bill of lading or hazardous waste manifest when transporting the waste material to the waste disposal facility. Also, the transporter must have the proper labels and placards on the waste containers when transporting the waste materials off site. Once arriving at the waste disposal facility, the manifest must be given to the waste disposal facility as it accepts the waste material at their facility.

4.3 WASTE DISPOSAL

All solid and liquid waste materials generated at the Site will be characterized and managed in accordance with Federal, State, and Local requirements. The materials expected to be generated during remedial activities at the Site include, but are not limited to:

- Vegetation and brush;
- General debris including, asphalt, concrete, rocks, construction materials (e.g., gravel, polyethylene, fence posts, silt fence, personal protective equipment, disposable sampling equipment); and
- Wastewater (i.e., decontamination water, impacted surface water).

The following represents the appropriate management of the materials above:

- Vegetative material will be transported off-site as a non-hazardous waste to an appropriate disposal facility.
- General debris will be characterized as non-hazardous waste and either containerized in 55-gallon drums or directly loaded into a dump trailer for appropriate off-site disposal. Containerization of the debris will be based on debris size, at the discretion of the remedial contractor. Natural debris such as rocks and boulders will be transported off-site with the vegetative material.
- Wastewater will be containerized in 55-gallon drums and characterized for disposal using historical and newly generated analytical data, as appropriate. The 55-gallon drums will be placed in a staging area pending off-site disposal at a treatment, storage, and disposal facility (TSDF);
- Excavated soil and debris will be characterized either as a RCRA non-hazardous or hazardous waste based on appropriate characterization. Non-hazardous soil will be shipped off-site for disposal at a non-hazardous Subtitle D TSDF. Hazardous soil will be shipped off-site for disposal at a hazardous Subtitle C TSDF.

All wastes will be disposed in compliance with applicable federal and state regulations.

4.4 *WASTE CHARACTERIZATION*

The following represents a summary of the procedures to follow for the characterization of previously described wastes.

- Excavated Soil and Debris: one representative composite sample will be collected from the soil/concrete to be excavated for every 250 tons of material generated or as required by the facility receiving the material. The composite sample will be analyzed via TCLP for the eight RCRA metals, in accordance with USEPA SW-846 methodology and as per requirements of the facility receiving the material.

5.0 *HEALTH AND SAFETY*

5.1 *GENERAL*

The following summarizes the site work zone and ambient air monitoring criteria for the project.

ERM will prepare a site specific Health and Safety Plan (HASP) upon acceptance of this RAWP. As a standard practice, a route to the hospital will be included in the ERM Site Specific HASP. Each contractor on-site will either accept the ERM Site Specific HASP or will prepare their own Site Specific HASP that will address PPE and health and safety procedures for their individual activities at the site and the contractor's HASP will be as stringent as the ERM HASP.

5.2 *SITE WORK ZONES*

To reduce the accidental spread of site contamination during remedial activities, work zones will be established at the remedial areas to control site operations and personnel flow. The Site work zones will consist of the Exclusion Zone (EZ), CRZ, and the Support Zone (SZ).

The excavation areas EZ will be clearly marked by lines, placards, hazard tape and/or signs. There will be an access control point at the periphery of the EZ regulating personnel and equipment flow into and out of the EZ into the CRZ discussed below. The access control point will vary based on excavation progression.

The CRZ is the transition area between the EZ and the SZ. The CRZ limits the physical transfer of contamination to clean areas. Personnel and equipment decontamination activities will occur in the CRZ. Access control point will be designated individually for large excavation equipment and personnel and small equipment.

The SZ will be the location of the administrative and support functions for remedial activities. The field trailer will be located in the support zone. Any function that need not or cannot be performed in the impacted area is performed in the SZ.

5.3 *AMBIENT AIR MONITORING ACTION LEVELS*

The ambient air monitoring program will consist of up to four perimeter monitoring stations around the excavation areas. The monitoring program will collect data from an upwind location in addition to downwind perimeter locations.

Normal operating conditions for fugitive dust control are dictated by ambient air monitoring results. In accordance with the NYSDEC TAGM No. 4031, "Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites (October 27, 1989), the ambient air monitoring action level for PM-10 is 150 ug/m^3, integrated over a fifteen minute period. If the 150 ug/m^3 action level is exceeded, then a background measurement of downwind levels is taken. If the downwind levels are less than 100 ug/m^3 greater than the upwind levels, then no further action is required. However, if the number is above 100 ug/m^3, the dust control measures presented in Section 3.0 of this report will be implemented.

In addition, because fugitive dusts generated at this site have the potential to be impacted by chromium, an additional standard of no visible dust at the property lines will also be implemented as part of this project, in accordance with TAGM No. 4031.

The NYSDOH Generic Community Air Monitoring Plan (CAMP) is provided as Appendix A to be used as Site guidance.

6.0 *QUALITY ASSURANCE/QUALITY CONTROL*

All Site sampling and monitoring will be conducted in accordance with the approved Quality Assurance Project Plan (QAPP). The QAPP is a separate document, which is presented along with this RAWP. The procedures described in the QAPP are designed to monitor and confirm that remedial activities meet the intent of the selected remedy and that data generated during the remediation is objective and valid. ERM will request NYSDEC Analytical Services Protocol (ASP) Level B deliverables from the project laboratory for all confirmation soil samples collected during site remediation and all ground water samples collected during the ground water monitoring program.

All materials and methods used to construct the proposed remediation system will be consistent with standard engineering practices and industry standards. Prior to purchase of all materials and equipment for use on Site, the engineering consultant shall review technical specifications and manufacturers cut sheets for adequacy and appropriateness for its intended purpose. The engineering consultant shall provide oversight during the design, and installation of the proposed remedial measures.

Subcontractors shall be responsible for job Site control including control of the quality of the installed facilities, day-to-day planning, supervision of subcontracted work, examination of materials delivered for incorporation into the finished product. The engineering consultant shall provide quality assurance through observation/oversight of the chosen remedial system during construction.

7.0 *IMPLEMENTATION SCHEDULE*

Figure 12 presents the proposed tentative schedule for remedial and associated activities at the Site. The proposed remedial schedule is tentative and is subject to periodic review and modification based on the progress of Site remediation activities and comments from the Volunteer and NYSDEC. Significant revisions of project schedule, if any, will be communicated to NYSDEC and other relevant parties in monthly progress reports.

8.0 *Remedial System Effectiveness*

This section addresses parameters, conditions, procedures, and protocols to determine the effectiveness of the remediation, including a schedule for periodic sampling of ground water monitoring and recovery wells on Site. Performance goals can be summarized as follows:

1. Reduce the concentration of chromium in subsurface soil to applicable TAGM-4046 levels, and as acceptable to the NYSDEC for the subject site.
2. Continued monitoring of the ground water to verify decreasing concentrations of chromium and nickel.

The effectiveness of the site remediation program will be evaluated by the following criteria:

1. Measurements of the concentrations of compounds of concern in soil and ground water samples.
2. Laboratory analysis of confirmation soil samples.
3. Laboratory analysis of confirmation ground water samples from existing monitoring wells.

A NYSDOH-approved environmental laboratory will perform all analyses.

8.1 SAMPLING AND ANALYSIS PROGRAM

8.1.1 Soil Confirmation Sampling

Upon completion of the excavation in the areas of concern, an individual soil sample will be collected from each of the four excavation sidewalls and excavation bottom to ensure that chromium containing material has been removed in accordance with the site specific clean-up levels. Samples will be collected from the center of the excavation floor and each sidewall with a hand auger. If the presence of groundwater impedes the collection of the soil sample at the bottom of the excavation, the groundwater will be removed and managed appropriately.

The samples will be collected and analyzed for total chromium in accordance with United States Environmental Protection Agency (USEPA) SW-846 methodology. Sample containers will be placed in a chilled insulated container and handled in accordance with appropriate custody and Quality Assurance/Quality Control (QA/QC) procedures.

As previously stated in Section 2, confirmation sample analytical reports generated by the analytical laboratory will be reduced into a summary table. The data will then be reviewed for accuracy, precision and completeness in order to determine the usability of the data according to criteria set forth in the Division of Environmental Remediation's "Data Usability Summary Report" (DUSR) guidelines. Review of laboratory data packages will include an evaluation of holding times, calibration requirements (initial and continuing), blank contamination, and matrix spikes and duplicates (where applicable).

If problems arise and data are found to deviate from expected results, the affected data points will be annotated in the summary table with appropriate qualifiers.

8.1.2 Ground Water Monitoring

Based on evaluation of data obtained over the course of preparing this RAWP, ERM recommends that the ground water monitoring wells at the west end of the site (MW-1, MW-2, MW-3 MW-4, DW-1, MW-5 MW-6 MW-7, MW-8 and MW-10) for chromium. Its is recommended that the wells be sampled on a quarterly basis for five quarters and thereafter, every fifth quarter for five year. At the beginning of the fifth year the ground water program will be re-evaluated to determine the most appropriate sampling interval.

9.0 *OPERATIONS AND MAINTENANCE*

An Operations and Maintenance Plan (OMP) for the site will discuss the the monitoring of site conditions through the ground water monitoring program. Upon acceptance of this RAWP, ERM will submit to the NYSDEC within thirty days the OMP for the subject site detailing ground water monitoring activities.

10.0 *PROJECT ORGANIZATION AND MANAGEMENT*

This section presents the preliminary project schedule for implementation of the remedial action as well as indicates project organization chart. The following provides the chain of command to be followed in the event of an emergency.

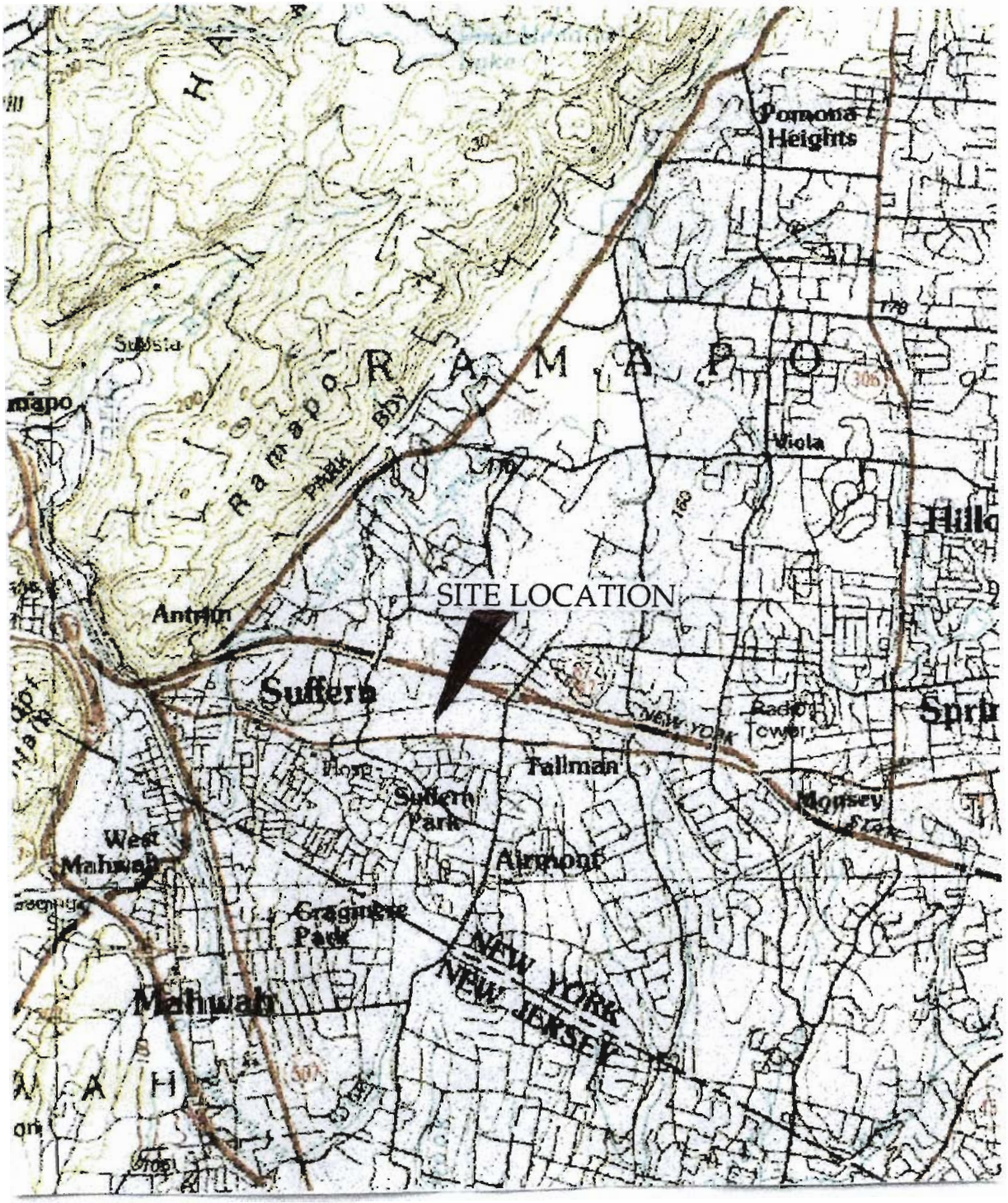
Individual	Company	Project Responsibilities	Contact Information
Doug Grimmer	Baker Properties	Owner's Representative	485 Washington Ave. Pleasantville, NY 10570 (914)747-1550
Dan Eaton	NYSDEC	NYSDEC Representative	625 Broadway, 11th Floor Albany, NY 12233-5400 (518)402-9622
Edward Hinchey	ERM-NE	Consultant; Principal-in-Charge	5788 Widewaters Pkwy. DeWitt, NY 13214 (315) 445-2554
David W. Myers	ERM-NE	Senior Project Manager	5788 Widewaters Pkwy. DeWitt, NY 13214 (315) 445-2554

11.0 *FINAL REPORT*

The final report will include the following:

- P.E. Certification: the certification of the remedial activities that were performed in accordance with the voluntary agreement and the approved RAWP set forth between the NYSDEC and Baker Properties;
- Introduction: a brief description of the site, the site's background and the purpose and organization of the report;
- Pre-construction activities: will provide the details pertaining to the preparation of construction plans, mobilization and site preparation;
- Excavation summary: will provide a summary of the excavation activities at the site;
- Post-excavation summary: will provide the details pertaining to the final grading and restoration of the excavated areas and the demobilization of the site;
- Confirmation sample and analytical data summary: a summary of the confirmatory sampling activities as well as a summary of the analytical data;
- Characterization, transportation and disposal summary: a summary of the characterization, transportation and disposal of all waste generated at the site during the remedial action; and
- Health and safety summary: will provide details of the air monitoring during the excavation activities, the level of personnel protection equipment used during the remedial action, a summary of the personnel training and medical surveillance of the personnel participating in the remedial action, and the personnel and equipment decontamination activities at the site; and

FIGURES



Site Location Map Former Banknote Facility Suffern, NY		
PREPARED FOR: BAKER PROPERTIES		
ERM	SCALE: NTS DATE: October 2003	FIGURE: 1

G:/Baker/1138/site location map_fig 1

NORTH

Donnigan Drive

New York State Thruway

Railroad Tracks

BASEMENT

Chromium Room

Loading Dock

Site Layout
Former Banknote Facility
Suffern, NY

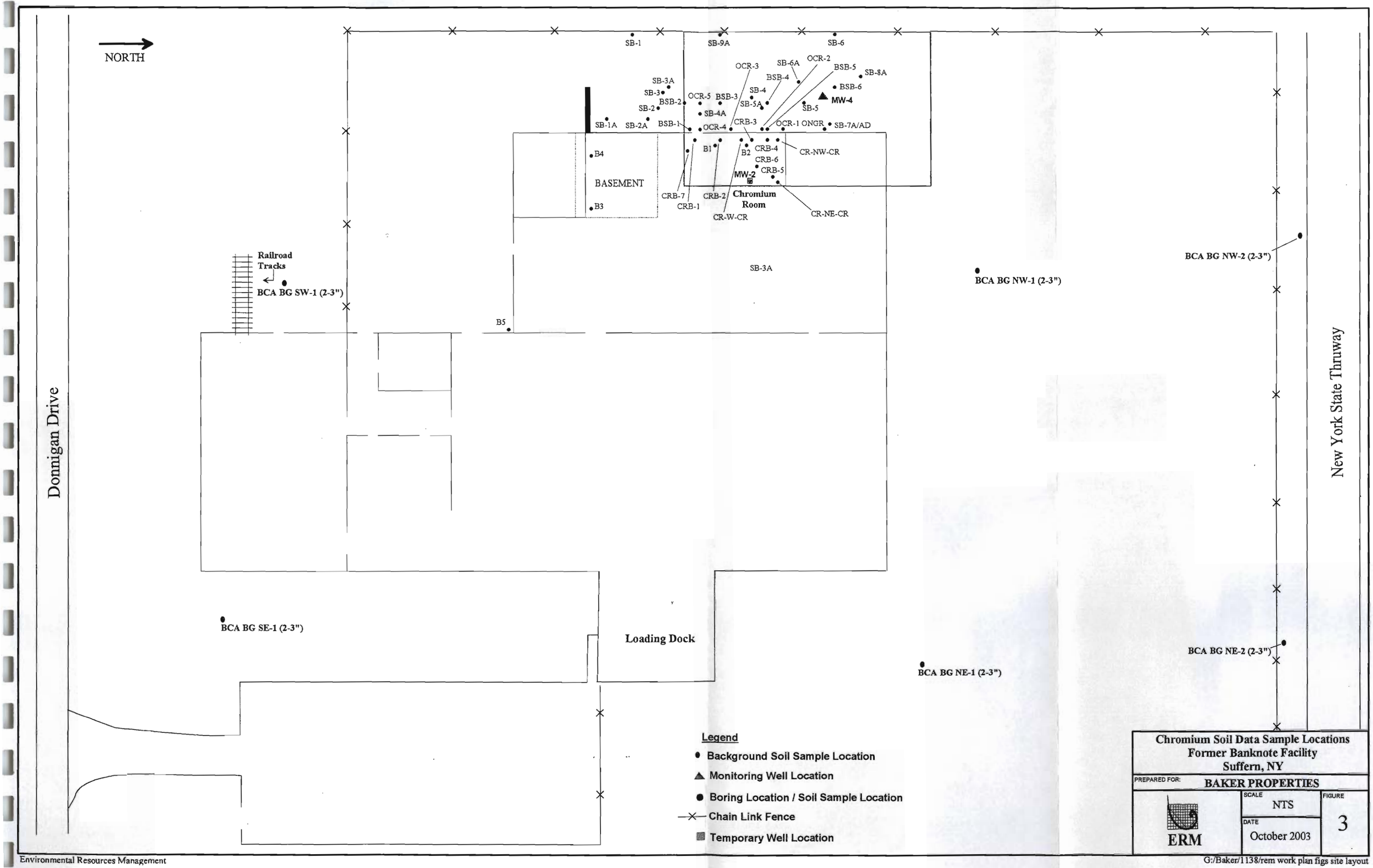
PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 2



Chromium Soil Data Sample Locations
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 3

NORTH

OCR5	
OS	300
1	35
2	26

OCR4	
OS	950
1	290
2	500

OCR3	
OS	44
1	43
2	33

OCR2	
OS	900
1	79
2	140

OCR1	
OS	160
1	47
2	27

ONGR	
OS	53

CR-W-CR	
S	564
1	340
2	490

(TCLP = 0.45mg/L)

CR-NW-CR	
CS	930
S	683
1	760
2	790

(TCLP = 0.34mg/L)

CR-NE-CR	
CS	560
S	7.4
1	22

BASEMENT

Chromium Room

FORMER BANKNOTE FACILITY

New York State Thruway

LEGEND

- ▲ Monitoring Well Location
- ● Boring Location / Soil Sample Location
- —X— Chain Link Fence
- ▩ Temporary Well Location

* Soil Removed During 2002 Excavation

Sample ID	
Depth (ft)	Conc. (ppm)

Soil Sample With Analytical Data

Chromium Soil Data December 1995
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 4

NORTH

SB1	
3-5	8
8-10	5.6

SB6	
6-8	9.7
8-10	8.6

SB3	
5-7	12.3
7-9	8.7
9-11	23.2
11-12	11

SB4	
6-8	11.1
8-10	10.3
10-12	14.3
12-14	7.2

SB5	
8-10	9.6
10-12	11.2
12-14	9.3

SB2	
6-8	10
9	16.1

BASEMENT

Chromium Room

FORMER BANKNOTE FACILITY

New York State Thruway

LEGEND

- Monitoring Well Location
- Boring Location / Soil Sample Location
- Chain Link Fence
- Temporary Well Location

Sample ID	
Depth (ft)	Conc. (ppm)

Soil Sample With Analytical Data

Chromium Soil Data January 1996
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 5

NORTH

MW4	
0.25-0.75	15.2
2-4	6.93
4-6	9.95
6-8	3.20

B4	
0-2	11.8
2-4	8.84
4-6	6.02

BASEMENT

B3	
0-2	22.6
2-4	7.84

B1	
2-4	175
4-6	8.99
6-8	11.1
8-10	7.71

B2	
2-4	60.6
4-6	23.3
6-8	4.54
-8-10	26.5

Chromium Room

MW2	
0-2	12.3
2-4	11.7
4-6	5.8
6-8	8.4
8-10	11.3
10-12	10.3
12-14	4.38

FORMER BANKNOTE FACILITY

B5	
0-2	7.69

New York State Thruway

* Soil Removed During 2002 Excavation

Sample ID	
Depth (ft)	Conc. (ppm)

Soil Sample With Analytical Data

LEGEND

- Monitoring Well Location
- Boring Location / Soil Sample Location
- Chain Link Fence
- Temporary Well Location

Chromium Soil Data July 2001
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 6

NORTH

BCA-0702-SB9A	
19-T Cr	ND-Hex Cr

BCA-0702-SB1A	
12-T Cr	ND-Hex Cr

BCA-0702-SB3A	
15-T Cr	ND-Hex Cr

BCA-0702-SB6A	
94-T Cr	ND-Hex Cr

BCA-0702-SB8A	
14-T Cr	ND-Hex Cr

BCA-0702-SB2A	
24-T Cr	ND-Hex Cr

BCA-0702-SB4A	
39-T Cr	ND-Hex Cr

BCA-0702-SB5A	
72-T Cr	ND-Hex Cr

BCA-0702-SB7A	
23-T Cr	ND-Hex Cr

BCA-0702-SB7AD	
27-T Cr	ND-Hex Cr

BASEMENT

Chromium Room

FORMER BANKNOTE FACILITY

New York State Thruway

LEGEND

Sample ID	
T Cr Conc. (ppm)	Hex Cr Conc. (ppm)

Soil Sample With Analytical Data

▲ Monitoring Well Location

● Boring Location / Soil Sample Location

—X— Chain Link Fence

■ Temporary Well Location

Chromium Soil Data - Peachtree - July 2002
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 7

NORTH

Donnigan Drive

New York State Thruway

BASEMENT

Chromium Room

Railroad Tracks

BCA BG SW-1	
2-3	7.58

BCA BG NW-1	
2-3	8.51

BCA BG NW-2	
2-3	7.53

BCA BG SE-1	
2-3	9.67

Loading Dock

BCA BG NE-1	
2-3	10.8

BCA BG NE-2	
2-3	7.47

Legend

- Background soil sample boring location

Sample ID	
Depth (in)	Conc. (ppm)

Soil Sample With Analytical Data

Chromium Soil Data August 2002
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 8

NORTH

BSB-6	
0.5	15.5
1.0	11.9
2.0	12.9

BSB-2	
1.0	10.4
3.0	11.3
4.0	10.7

BSB-3	
3.5	12

BSB-4	
3.0	354

BSB-1	
1.5	415
3.0	184
4.0	118

BSB-5	
4.0	19.7

CRB-1		
0.0	291 - T Cr	86 - Hex Cr
1.5	9.31 - T Cr	ND - Hex Cr

CRB-4		
0.0	641 - T Cr	59 - Hex Cr

CRB-2		
0.0	77.4 - T Cr	26 - Hex Cr
1.5	16.5 - T Cr	ND - Hex Cr

CRB-5		
0.0	342 - T Cr	100 - Hex Cr

BASEMENT

Chromium Room

CRB-3		
0.0	120 - T Cr	22 - Hex Cr
1.5	11.5 - T Cr	ND - Hex Cr

CRB-7		
0.0	20.1 - T Cr	ND - Hex Cr
1.5	23.9 - T Cr	ND - Hex Cr

CRB-6		
0.0	10.2 - T Cr	ND - Hex Cr

FORMER BANKNOTE FACILITY

New York State Thruway

Sample ID		
Depth (ft)	T Cr Conc. (ppm)	Hex Cr Conc. (ppm)

Soil Sample Collected 30 May 2003

Area of 2002 Excavation

Sample ID	
Depth (ft)	Conc. (ppm)

Soil Sample Collected 29 May 2003

LEGEND

- Monitoring Well Location
- Boring Location / Soil Sample Location
- Chain Link Fence
- Temporary Well Location

Chromium Soil Data May 2003
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 9

NORTH

Chromium Room Area of Concern (AOC)

Western Exterior AOC

BCA-0702-SB6A

OCR5

BSB-4

BCA-0702-SB5A

BSB-1

OCR4

OCR2

OCR1

ONGR

CRB-1

CRB-2

CRB-3

CRB-4

CRB-5

18.5 Feet

38.5 Feet

BASEMENT

Chromium Room

FORMER BANKNOTE FACILITY

New York State Thruway

LEGEND

- Monitoring Well Location
- Soil Sample Location >50 PPM Chromium
- Chain Link Fence
- Temporary Well Location

Estimated Horizontal Extent of Chromium Affected Soil (Area with Cr >50 ppm)

Chromium Affected Soil > 50 PPM
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 10

NORTH

MW-1
MW-2
MW-3
MW-4
DW-1
MW-5
MW-6
MW-7
MW-8
MW-9
MW-10

Railroad Tracks

BASEMENT

Chromium Room

Loading Dock

Donnigan Drive

New York State Thruway

Legend

Monitoring Well Location

Monitoring Well Locations
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

SCALE: NTS

DATE: October 2003

FIGURE: 11

DRAFT - Schedule to Complete VCA, Suffern New York
Baker Properties, Inc.
Prepared by ERM, October 2003

ACTIVITY	Duration (Days)	October				November				December					Jan-04				February				March					April				May				June				
		6	13	20	27	3	10	17	24	1	8	15	22	29	5	12	19	26	2	9	16	23	1	8	15	22	29	5	12	19	26	3	10	17	24	1	7	14	21	29
Pre-Construction Activities																																							
Prepare Remedial Action Plan (RAP)	10																																						
NYSDEC Review of RAP	15																																						
Final RAP	Milestone																																						
Required 30 Day Public Notice	20																																						
Construction Activities																																							
Solicit Subcontractor Bids	10																																						
Prepare Contract Documents	2																																						
Mobilize for Soil Excavation	Milestone																																						
Excavation and Backfillin Chromium Room	7																																						
Excavation West of Chromium Room	10																																						
Collect Confirmation Soil Samples	Milestone																																						
Installation of Soil Cap	5																																						
Finish Grading	3																																						
Soil Excavation Complete	Milestone																																						
Prepare, Review and Submit Final Report	30																																						
NYSDEC Review and Sign Off	20																																						
Receive NYSDEC Release	Milestone																																						
Ground Water Monitoring Activities																																							
Review Ground Water Sampling Requirements	10																																						
Prepare Sampling Schedule for NYSDEC	2																																						
NYSDEC Review	20																																						
Decommission Specific Wells	3																																						
Conduct First Round of Sampling	5																																						
Institutional Control for GW																																							
Draft Deed Restriction for GW (only)	20																																						
NYSDEC Review	20																																						
Baker Legal Review	10																																						
File with County Clerk	Milestone																																						

Schedule to Complete VCA
Former Banknote Facility
Suffern, NY

PREPARED FOR: **BAKER PROPERTIES**

ERM

DATE: October 2003

FIGURE: 12

G:/Baker/1138/draft schedule template

APPENDIX A

NYSDOH GENERIC COMMUNITY MONITORING PLAN (CAMP)

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000