



915184

**PROPOSED SCOPE OF WORK/WORK PLAN  
FOR INTERIM CORRECTIVE MEASURE**

**BUFFALO COLOR AREA ABCE  
BUFFALO, NEW YORK**

**Prepared for:  
Honeywell International, Inc.**

**PRINTED ON**

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Prepared for:  
Honeywell International, Inc.

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## 1.0 INTRODUCTION

This report presents the proposed Scope of Work (SOW) and Work Plan (WP) for the design and implementation of the Interim Corrective Measures (ICM) for the Buffalo Color Site Area ABCE (Site). The remedial alternative for the Site is described in the draft Statement of Basis dated November 7, 2001. The Site is located in the City of Buffalo, New York as shown on Figure 1.1. The Site facilities are shown on Figure 1.2.

The description of the SOW and WP provided in this document are primarily derived from the following documents:

- i) Final Report on RCRA Facility Investigation, November 1997 (RFI) and addendum dated December 1998;
- ii) Report on Corrective Measures Study, January 2000 (CMS); and
- iii) Draft Statement of Basis for Buffalo Color Corporation, November 7, 2001.

The major components of the ICM selected for the Site include the following:

- i) Area A Groundwater Extraction System (Migration Control System - MCS);
- ii) Area BCE Groundwater Control;
- iii) Institutional Controls;
- iv) Groundwater Monitoring;
- v) Repair Sheet Piling Breach (Area E);
- vi) Area A Bank Erosion Control; and
- vii) Management of materials generated during implementation of the ICM.

A more detailed description of the scope of work associated with each of the ICM components is presented in Section 2.0.

## **2.0 DESCRIPTION OF THE INTERIM CORRECTIVE MEASURE**

### **2.1 INTERIM CORRECTIVE MEASURE GOALS**

- i) Control migration of contaminated groundwater to protect human health and the environment. This includes preventing the migration of contaminated groundwater to the Buffalo River.
- ii) Long-term operation of the groundwater control measures will reduce the contaminant mass, and may lead to the eventual restoration of groundwater quality in this area. The MCS shall remain in operation until such time as it is determined that residual contamination will not result in an exceedance of the groundwater quality criteria at the facility boundary, or other applicable criteria are achieved.

### **2.2 INTERIM CORRECTIVE MEASURE**

The ICM for the Site consists of the following:

- i) Area A groundwater extraction (MCS) system;
- ii) Area BCE groundwater control;
- iii) Institutional controls;
- iv) Groundwater monitoring;
- v) Repair sheet piling breach (Area E);
- vi) Area A Bank Erosion Control; and
- vii) Management of materials generated during implementation of the ICM.

This section presents a description of the individual activities associated with each of the major ICM components.

### 2.2.1 AREA A GROUNDWATER EXTRACTION SYSTEM (MCS)

This system will be constructed in the overburden, in Area A, and will be located between the Site and the Buffalo River. The system will be designed to prevent the migration of contaminated groundwater to the river and, in the long-term lead to the restoration of groundwater quality in Area A. Groundwater collected by the MCS will be directly discharged to the Buffalo Sewer Authority (BSA).

The evaluations presented in the CMS identified that five (5) groundwater extraction wells (nominal 6 inch diameter) should be sufficient to prevent the discharge of Area A groundwater to the River. The wells will be screened in the alluvium to an average depth of approximately 35 feet below ground surface (bgs) and installed along the southeastern perimeter of Area A approximately 100 feet from the Buffalo River. The five extraction wells will be equipped with submersible electric pumps and associated pumping level controls. In the CMS, a total pumping rate of 30 gpm was used. The extraction wells are to be set in subsurface vaults and connected by a forcemain for transfer of the groundwater to either:

- i) the existing BCC BSA Outfall 003 for direct discharge to the BSA sewer; or
- ii) to a new monitoring station discharge point directly discharging to the BSA Sewer System.

A layout of the Area A MSC is shown on Figure 2.1. A cross-section of the physical components of the extraction well system is shown on Figure 2.2.

#### 2.2.1.1 DESIGN OF AREA A GROUNDWATER EXTRACTION SYSTEM

The activities associated with the groundwater components are:

- i) finalize arrangements for direct discharge to the BSA;
- ii) design groundwater extraction system;
- iii) construct groundwater extraction system; and
- iv) test system performance.

### DIRECT DISCHARGE TO BSA

Discharge requirements will be reviewed with the BSA and finalized prior to discharge to the sanitary sewers.

Since the projected total flow (Area A and Area D) are likely to exceed 30 gpm, the BSA was contacted and relevant groundwater data was submitted. The BSA has indicated that the potential loadings associated with direct discharge from a groundwater extraction system at the BCC Site would be very low and not a significant factor. A modification of BCC's sewer use permit or some other formal authorization will be required from the BSA for direct discharge to the BSA, as well as concurrence from the NYSDEC Division of Water.

### DESIGN OF AREA A GROUNDWATER EXTRACTION SYSTEM

The groundwater extraction system will be designed based on the results presented in the RFI and CMS. If such results are deemed to be insufficient for the design, pumping tests of prototype groundwater extraction well(s) may be performed. Based upon the evaluation of the pumping tests, the number of groundwater extraction wells will be determined. The groundwater withdrawal system will be designed to capture and control the Area A overburden groundwater where it discharges to the river.

The extraction system design will include the number and location of extraction wells and the pumping rate for each well. The design for the extraction system will include some flexibility to adjust for conditions encountered in the field which could not be foreseen during the design. The groundwater extraction wells will be pump tested to compare actual performance to the anticipated design performance. Based on the pump testing results, the design may be altered to optimize the number and location of the required extraction wells.

Groundwater extraction termination criteria will be developed. The groundwater extraction system will continue to operate until the groundwater extraction termination criteria are achieved, or until chemical levels have ceased to decline and are remaining constant at levels that are above the agreed-upon termination criteria levels. In either case, application for approval to terminate groundwater extraction will be made to the NYSDEC.



### 2.2.2 AREA BCE GROUNDWATER CONTROL

The objective of this component is to control off-Site migration of contaminated groundwater in the upper aquifer from these plant areas, precluding it from discharging, ultimately, to the Buffalo River. It is noted that a portion of the Area B flow will be collected by the Area A system described above. The Site investigation and evaluations done as part of the RFI and CMS indicated that flow in Area BCE is presently contained due to the passive infiltration of groundwater into Plant sewers and the Buffalo Sewer Authority sewers located adjacent to these plant areas. This will in the long-term lead to the restoration of groundwater quality in Area BCE.

### 2.2.3 INSTITUTIONAL CONTROLS

Institutional controls will be established for this Site, including soils and water management procedures to be followed when conducting excavation activities at the Site.

These measures will include the following institutional controls:

- i) access is restricted to BCC employees, their subcontractors, and other authorized persons;
- ii) a chain-link fence with locking gates surrounds the Site, except for cross streets and railroad track areas;
- iii) routine maintenance of the ICM; and
- iv) health and safety rules for employees, visitors and contractors involved in ICM activities at the Site.

An excavation management plan will be developed to define procedures for limiting exposure to soil and groundwater contaminants, air monitoring requirements, dust control measures, and required personal protective equipment.

BCC will place land use restrictions on the property deed to restrict the BCC property to industrial/commercial uses so long as residual soil or groundwater contaminant concentrations require this restriction. BCC will also place a notice on the deed indicating that the Site had been used for hazardous waste management and could potentially contain residual contaminant levels. This will also include an updated property survey delineating the nature and extent of contamination.

#### 2.2.4 LONG-TERM GROUNDWATER MONITORING PROGRAM

The remedy will include a long-term groundwater monitoring program for monitoring the performance of the Area A and the Area BCE groundwater control systems. The monitoring results will be evaluated to ensure that the implemented measures attain the ICM goals. The program will include specific performance criteria (hydraulic and chemical) to ensure the contaminated groundwater is contained and effectively captured in Area A. The chemical monitoring of groundwater quality will also be used to track the restoration of the groundwater. The monitoring program will provide a means of identifying and correcting problems that may develop in the future.

Groundwater monitoring will be performed for the shallow and confined aquifers in Area ABCE. This proposed monitoring program will incorporate select BCC wells from the current Post Closure Monitoring program (former Lagoons 1, 2, 3 area), select remedial extraction wells, and new wells/piezometers in the vicinity of the Area A groundwater extraction system. The scope of the groundwater monitoring program, as described in the Draft Statement of Basis, is provided below. The existing monitoring points are shown on Figure 2.3.

Groundwater monitoring will be conducted for a period of five years after completion of construction to ensure that the ICM goals are being met. After the initial five-year period, an assessment of the groundwater monitoring program will be performed to determine the scope of the monitoring program for the next five years.

##### Shallow Aquifer

Shallow aquifer wells included in the long-term groundwater monitoring program will consist of twenty-one (21) existing wells: RFI-PZ-17, RFI-PZ-18, RFI-PZ-19, RFI-17, RFI-18, RFI-20, RFI-22, RFI-24, RFI-25, RFI-27, RFI-28, RFI-29, RFI-30, RFI-32, RFI-33, RFI-34, RFI-35, RFI-36, RFI-42, RFI-45, and RFI-51. In addition, one piezometer will also be installed in proximity to each of the extraction wells. In combination with the existing site wells, these new piezometers will be used to monitor water level elevations and performance of the extraction system. Groundwater elevations will be recorded frequently (e.g., weekly/monthly) at system startup and on a quarterly basis after the system has stabilized.

Monitoring for VOCs and SVOCs will be performed on a semi-annual basis and monitoring for metals and inorganics will be performed on an annual basis. Initial

performance testing of the Area A extraction system will require more intensive (more frequent) monitoring to evaluate its effectiveness.

### Confined Aquifer

Confined aquifer wells will consist of six (6) wells: R-01, R-04, RFI-16, RFI-19D, RFI-21D, and RFI-23D. Monitoring for site-specific VOCs, SVOCs, metals, and inorganics will be performed on a biennial (once every two years) basis. The need to continue monitoring the confined aquifer will be evaluated after the second monitoring event.

## 2.2.5 REPAIR SHEET PILING BREACH (AREA E)

The BSA sewer is bound by sheet piling consisting of wood planking and steel piling. In the area where BCC Outfall 011 crosses the BSA sewer line, a 5 to 10-foot section of the sheet piling has been reportedly removed (see Figure 2.4 for approximate location as indicated by the deflection of the groundwater potentiometric contours). This component of the ICM involves the repair of this section of the sheet piling to reduce groundwater flow from Area E via this breach. This repair will be achieved by the following general method:

- i) excavation of the overburden to below the bottom of BCC Outfall 011 and beyond the limits of the breach. Note, the breach repair will apply to both the north and south sections of sheet piling breached by the outfall;
- ii) installation of appropriate formwork against the sheet pile;
- iii) placement of a low permeability concrete grout mixture and curing of the grout to close the breach; and
- iv) backfilling of soil to grade.

The above repair is shown conceptually on Figure 2.5.

## 2.2.6 AREA A BANK EROSION CONTROL

### Area A Bank Erosion Control

This component of the ICM involves the placement of riprap (or other approved erosion control materials) along the approximate 190 foot section of exposed Area A bank adjacent to the Buffalo River to prevent soil and potential contaminants from eroding

from the bank. Some surface preparation such as brush removal, grading, and geotextile installation prior to placement of the riprap will be required. A conceptual cross-section for this measure is provided on Figure 2.6.

### 3.0 INTERIM CORRECTIVE MEASURE DESIGN/IMPLEMENTATION

A detailed Interim Corrective Measure Design (ICMD) will be prepared outlining the procedures by which the ICM, including the specific major components of the remedy as listed in Section 2.0, will be completed.

The ICMD will include the items presented in the following sections. During the design phase, contract documents and specifications and bid documents will be prepared for the construction of the ICM.

#### 3.1 HEALTH AND SAFETY PLAN

A Health and Safety Plan (HASP) will be developed which will meet the requirements of the Occupational Safety and Health Administration (OSHA). Both the Occupational Safety and Health Guidance for Hazardous Site Activities [October 1985 (HDD 5 NIOSH) Publication No. 85-115] and the EPA's Standard Operating Safety Guides (July 1988) will be used in the development of the HASP. The HASP will include a Contingency Plan as described in item ix) below.

The HASP will include:

- i) the name and qualifications of the person responsible in the event of an emergency situation;
- ii) provision of an initial safety indoctrination and training of all employees, including the name of the person providing the training and the topics of the training;
- iii) a plan for meeting with local, state and federal agencies involved in the ICM and local emergency response agencies;
- iv) first aid and medical information including the location of first aid equipment, names of personnel trained in first aid, a map of the route to the nearest medical facility, emergency telephone numbers of fire and rescue and local hazardous response teams, and the EPA National Emergency Response Team;
- v) a plan for protection of on-Site workers;
- vi) a plan for protection of the public and visitors to the Site;
- vii) an air monitoring plan including personnel monitoring, on-Site monitoring, perimeter monitoring, and monitoring results that will trigger the Contingency Plan;

- viii) a contaminant control plan including designation of work areas, protocols for each designated work area and decontamination procedures; and
- ix) a Contingency Plan including a Control and Countermeasures Plan with contingency measures for potential spills and releases of materials during any activities taken at or near the Site.

### 3.2 DESIGN AND IMPLEMENTATION SCHEDULE

The Final Design will be submitted within 150 days after NYSDEC approval of this SOW/WP. The Final Design documents will include a schedule for the implementation of the ICM. It is planned to start construction of the ICM in Spring 2004.

### 3.3 PERMITTING REQUIREMENTS PLAN

A plan to ensure that all non-State permitting requirements are satisfied will be developed.

### 3.4 QUALITY ASSURANCE PROJECT PLAN (QAPP)

A Quality Assurance Project Plan (QAPP) will be developed. The QAPP will include chain-of-custody procedures required for sampling during design activities and will include previously approved Site protocols where applicable and appropriate.

The QAPP will comply with the EPA documents entitled "Test Methods for Solid Waste Physical/Chemical Methods", SW-846, 3rd Edition, September 1986 (with all subsequent revisions); USEPA Guidance for Quality Assurance Project Plans, EPA QA/G-5, December 2002; and Region II CERCLA Quality Assurance Manual, Revision 1, EPA Region II, October 1989. The QAPP will provide for submission of the analytical results as well as the quality assurance and quality control evaluation of the laboratory data, and sampling and analytical procedures used for each sample obtained.

Samples will be analyzed by those methods presented in the document "Test Methods for Solid Waste, Physical/Chemical Methods, SW-846, 3rd Edition, September 1986 (with all subsequent revisions). The analytical laboratory chosen to perform the analyses will be certified by the New York State Department of Health (NYSDOH) through the environmental laboratory approval program for the appropriate categories of analysis. The name of the analytical laboratory and the laboratory QA/QC manual will be

submitted to NYSDEC for review and approval prior to sample collection. The laboratories will analyze any samples that the NYSDEC may submit to those laboratories for purposes of insuring that the laboratories meet NYSDEC-approved QA/QC requirements.

### 3.5 MATERIALS HANDLING AND MANAGEMENT PLAN

A Materials Handling and Management Plan (MHP) for ICM activities will be developed to ensure proper handling of water and excavated site materials and other generated solids (e.g., tyvek suits, other disposable PPE) to address short-term health risks and releases to the environment.

### 3.6 CONSTRUCTION MANAGEMENT PLAN

A Construction Management Plan (CMP) will be developed and will include the selection method of contractor(s) for the ICM, provisions for a pre-construction conference between the parties' Project Coordinators and their contractors, and provisions for such meetings periodically during the construction of the ICM.

### 3.7 CONSTRUCTION QUALITY ASSURANCE PLAN

A Construction Quality Assurance Plan (CQAP) will be developed and implemented to ensure, with a reasonable degree of certainty, that the completed ICM meets or exceeds all design criteria, plans and specifications. The CQAP will include requirements for data collection during the construction of the ICM to validate the completion of such construction.

### 3.8 ICM TEAM

A ICM Team will be assembled when the ICM contractor has been selected.

### 3.9 OPERATIONS AND MAINTENANCE PLAN

A Draft O&M Plan outlining the procedures to be followed subsequent to the completion of construction of the ICM will be developed.

The Draft O&M Plan will contain the procedures and requirements for all operation and maintenance of the ICM as constructed and will conform to the EPA's guidelines contained in "Considerations for Preparation of Operation and Maintenance Manuals", EPA 68-01-0341 (and all subsequent revisions). The Draft O&M Plan will be submitted simultaneously with the Final Design. The Final O&M Plan will be submitted subsequent to construction of the ICM.

### 3.10 FINAL DESIGN DOCUMENTS

Due to the nature of the ICM, the Final (100%) Design Document will be the only design document submitted to the NYSDEC in accordance with the schedule set out herein.

This design document will include the following items:

- i) Statement of Work;
- ii) final design plans and specifications;
- iii) data collection methods to be used during construction of the ICM;
- iv) a HASP;
- v) a CQAP;
- vi) A MHP;
- vii) A field sampling plan directed toward meeting the performance standards of the CQAP;
- viii) Draft Operations and Maintenance (O&M) Plan; and
- ix) Preliminary CMI Schedule.

Upon approval by the NYSDEC, the final design document shall be deemed to be the Interim Corrective Measure Design Report (ICMD Report). The approved final design documents will be certified and stamped by a professional engineer licensed and registered to practice in New York State.

### 3.11 PUBLIC PARTICIPATION

Public participation and support will be provided to NYSDEC consistent with the relevant portions of "The New York State Inactive Hazardous Waste Site Citizen Participation Plan" (dated August 30, 1988) (and all subsequent revisions).



### 3.12 ICM IMPLEMENTATION

Upon approval by the NYSDEC of the Final Design documents, contractor(s) will be procured and implementation of the ICM Plan will be initiated. It is planned to start construction of the ICM in Spring 2004.

After completion of construction of the ICM, a final inspection will be conducted by the NYSDEC. The final inspection will include an inspection tour of the entire project to determine project completeness and operational testing of all equipment. Thereafter, the Final ICM Implementation Report (ICMI Report) will be prepared.

The Final ICMI Report will fully describe the construction of the ICM and include the record engineering drawings of the ICM depicting the remedy, as constructed.

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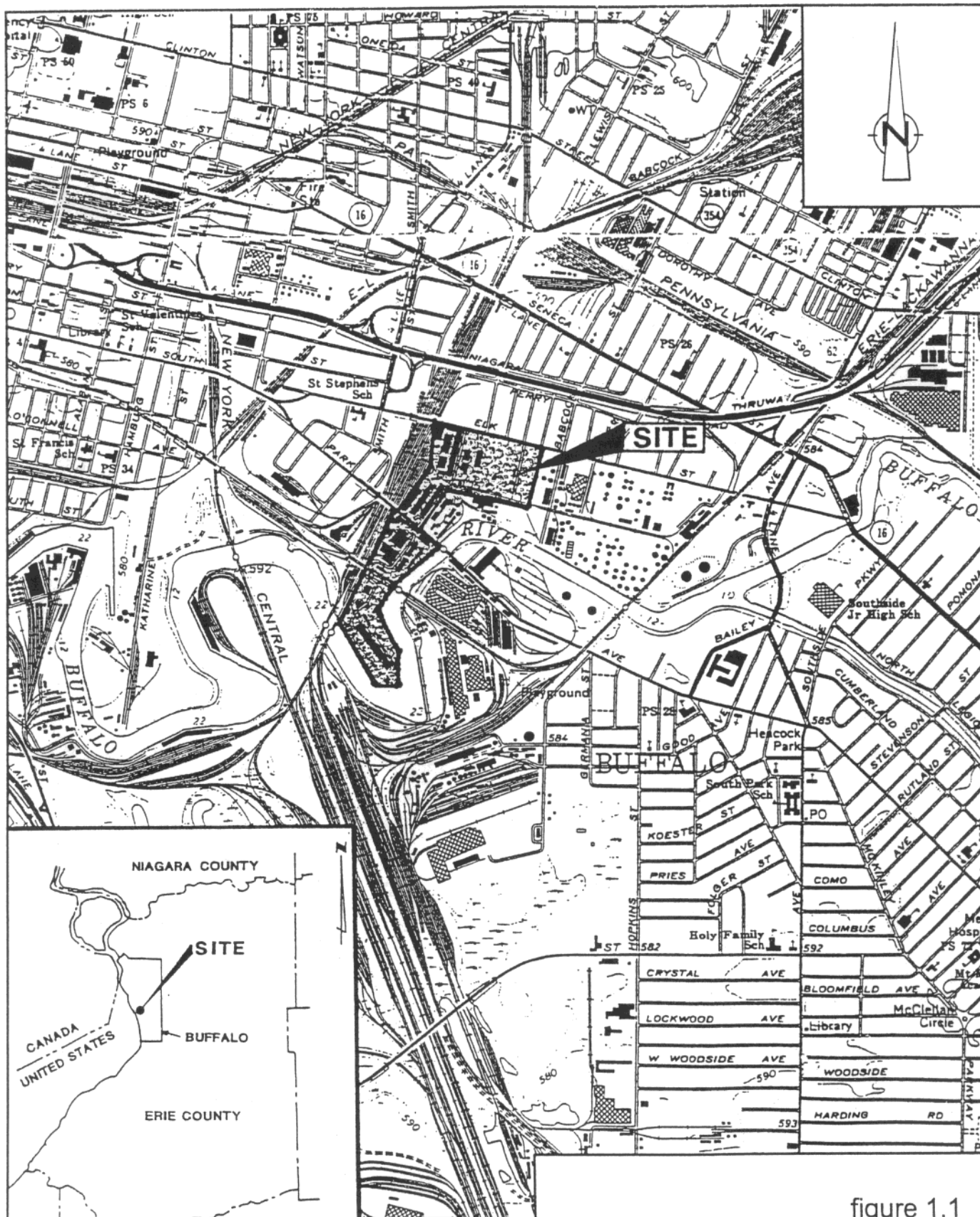


figure 1.1

SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)



INTERIM CORRECTIVE MEASURE DESIGN / IMPLEMENTATION  
*Buffalo Color Site, Buffalo, New York*

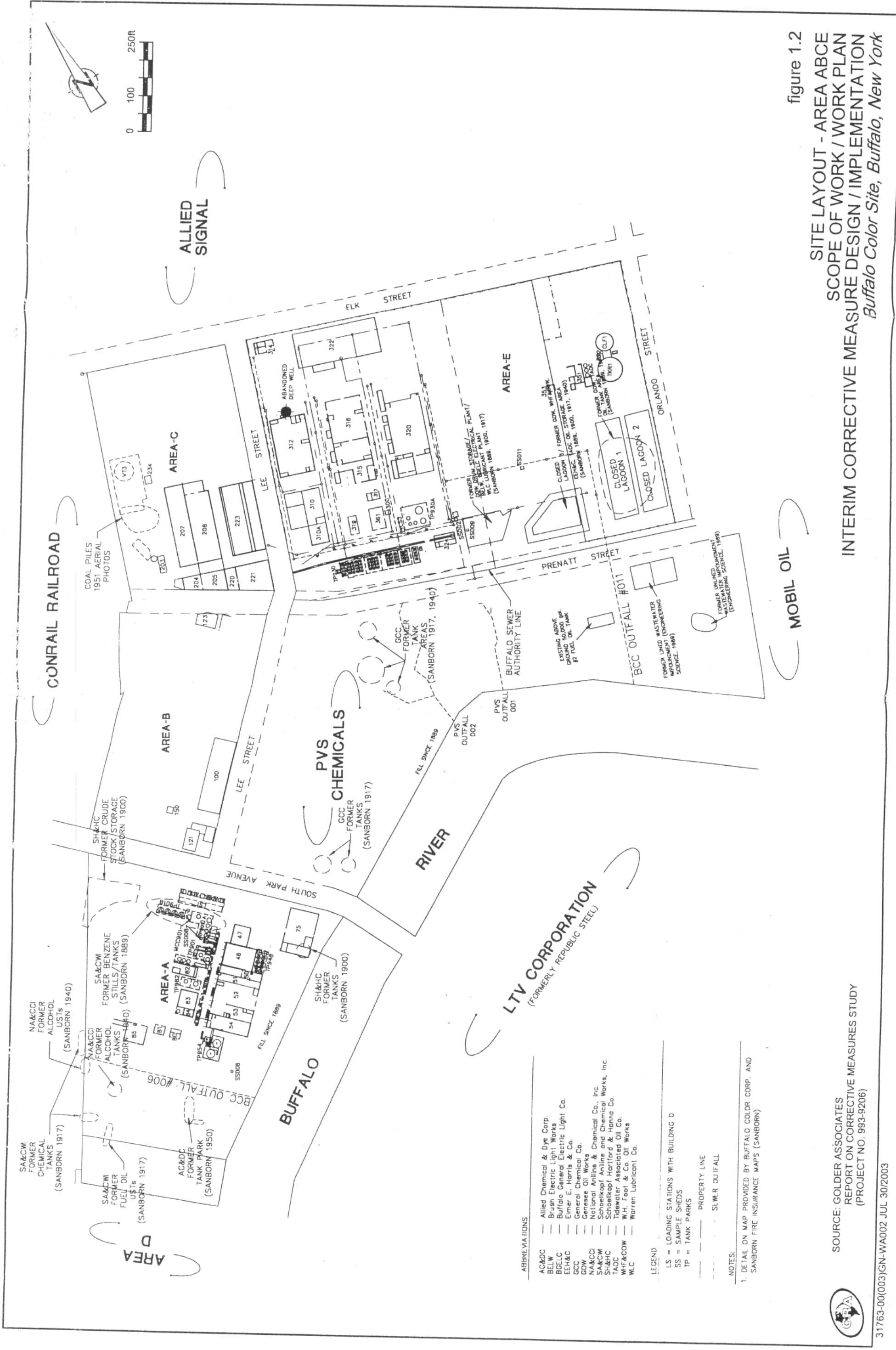


figure 1.2  
SITE LAYOUT - AREA ABCE  
SCOPE OF WORK / WORK PLAN  
INTERIM CORRECTIVE MEASURE DESIGN / IMPLEMENTATION  
Buffalo Color Site, Buffalo, New York

ABBREVIATIONS

- AC&DC
- BELW
- BGLC
- EEH&C
- GCC
- GOW
- NA&CCI
- SA&CW
- SH&HC
- TAOC
- WH&COW
- WLC

LEGEND

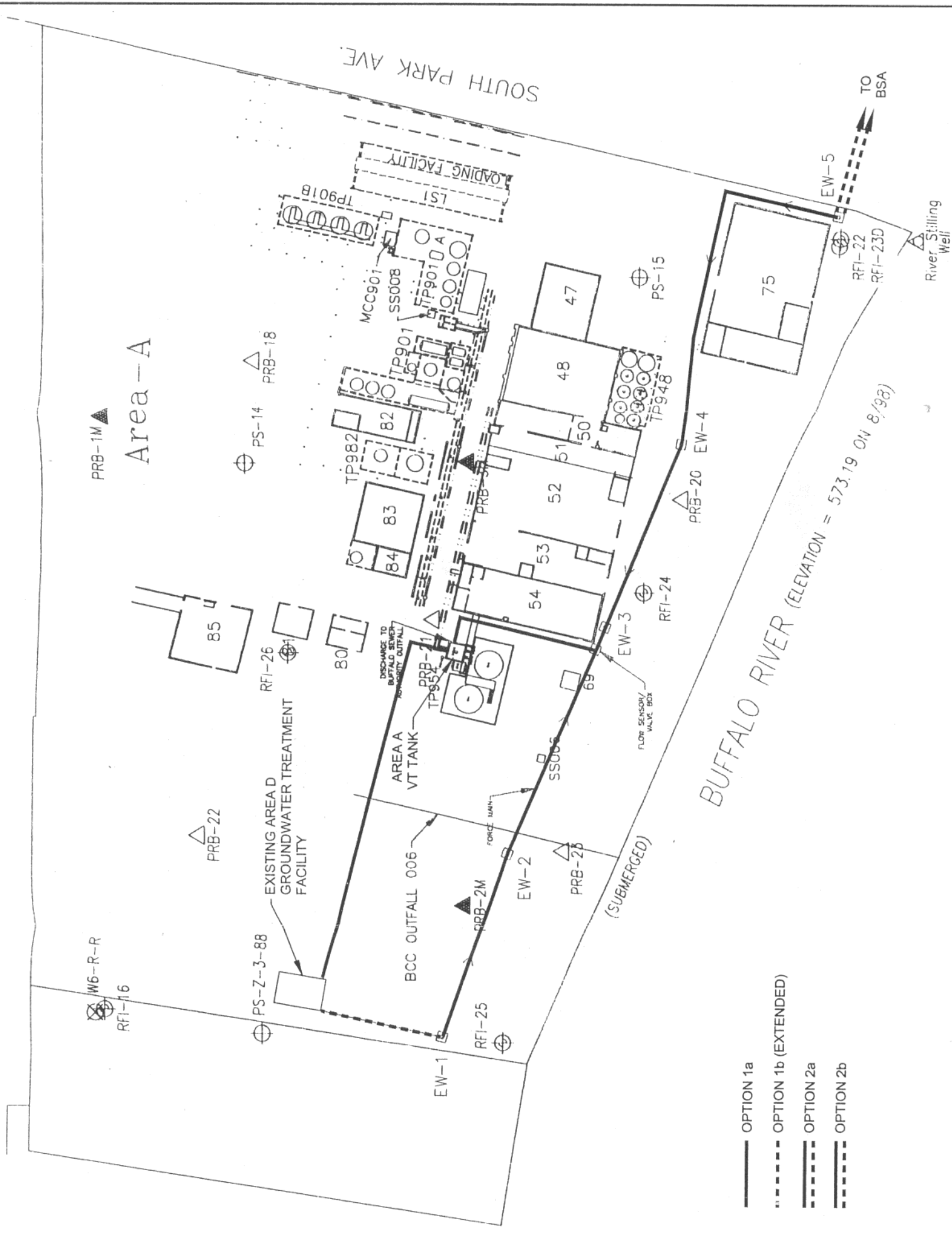
- LS = LOADING STATIONS WITH BUILDING D
- SS = SAMPLE SHEDS
- TP = TANK PARKS
- = PROPERTY LINE
- - - = SEWER OUTFALL

NOTES:

1. DETAIL ON MAP PROVIDED BY BUFFALO COLOR CORP. AND SANBORN FIRE INSURANCE MAPS (SANBORN)

SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)

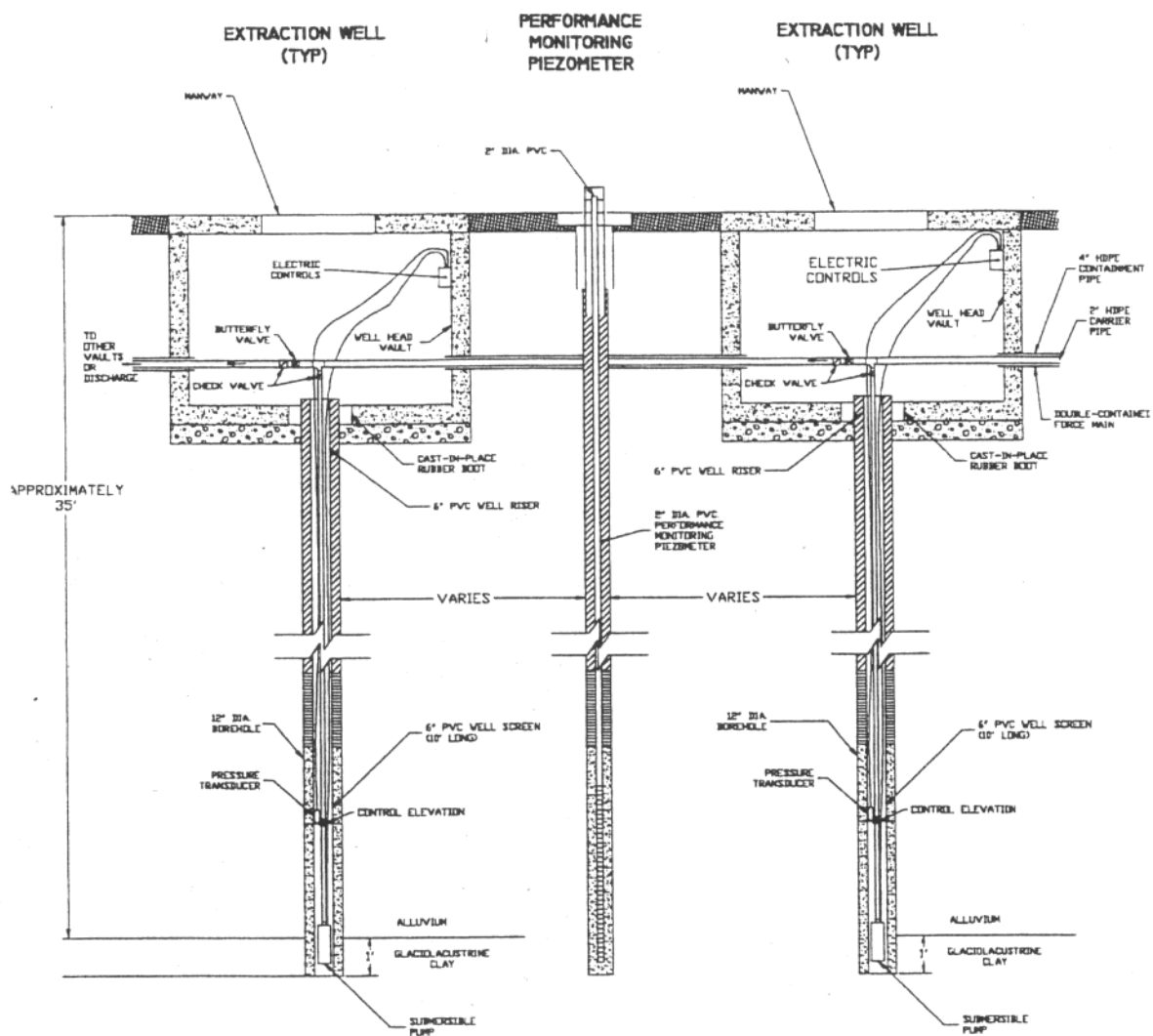




SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)

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LENGE



#### LEGEND

- ASPHALT
- STONE BEDDING
- CEMENT/BENTONITE GROUT
- BENTONITE SEAL
- SAND

#### NOTES:

1. SEE FIG. 2.1 FOR PROPOSED EXTRACTION WELL LAYOUT.



SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)

figure 2.2

## CONCEPTUAL DESIGN AREA A EXTRACTION WELL SYSTEM SCOPE OF WORK / WORK PLAN INTERIM CORRECTIVE MEASURES DESIGN / IMPLEMENTATION *Buffalo Color Site, Buffalo, New York*





figure 2.3

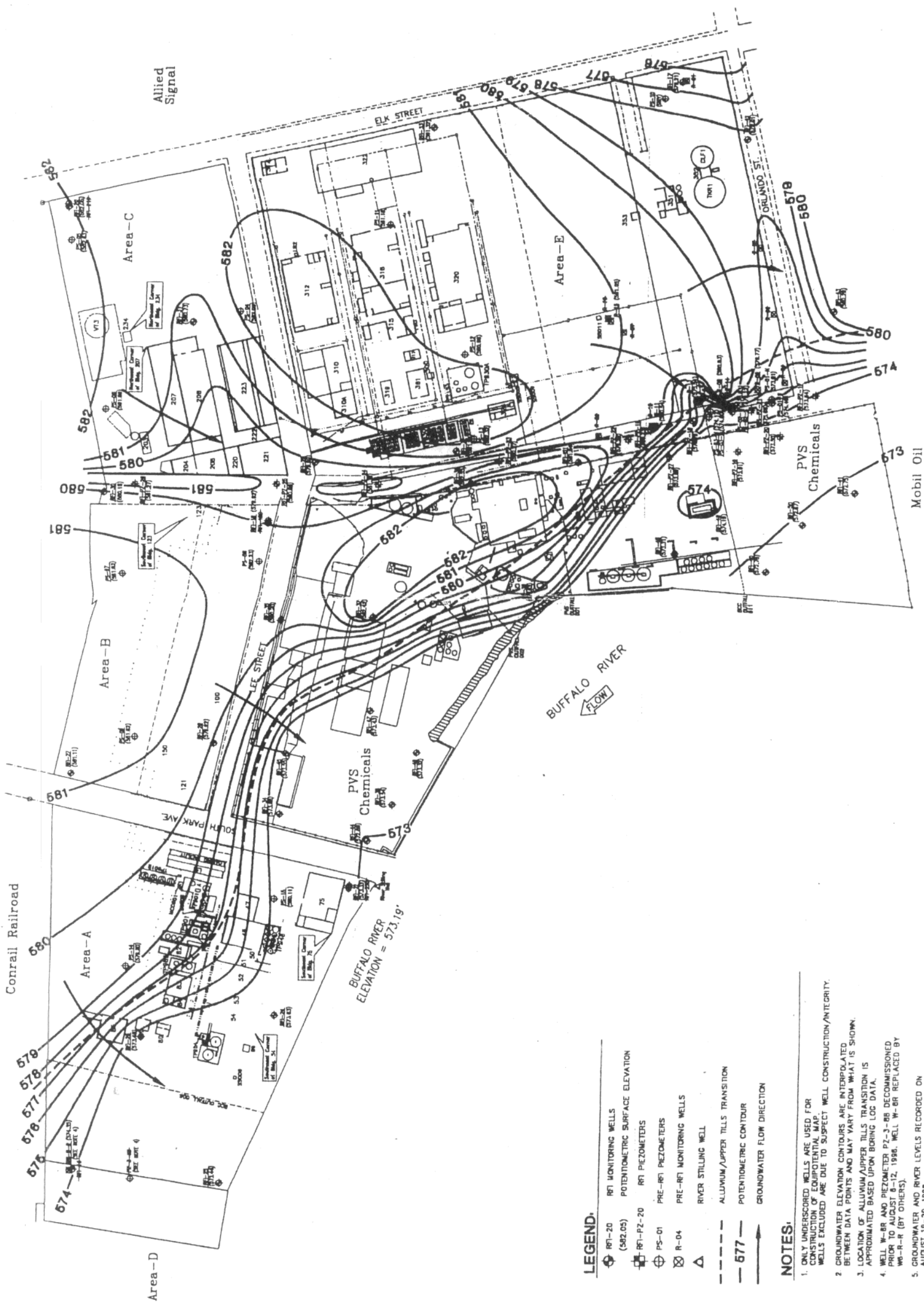
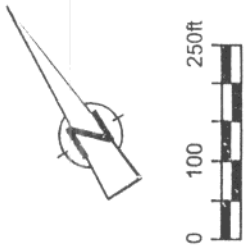
MONITORING WELL NETWORK - AREA ABCE  
SCOPE OF WORK / WORK PLAN  
INTERIM CORRECTIVE MEASURE DESIGN / IMPLEMENTATION

*Buffalo Color Site, Buffalo, New York*

SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)







LEGEND:

- RFI-20 RFI MONITORING WELLS
- (582.05) POTENTIOMETRIC SURFACE ELEVATION
- RFI-P2-20 RFI PIEZOMETERS
- PS-01 PRE-RFI PIEZOMETERS
- R-04 PRE-RFI MONITORING WELLS
- RIVER STILLING WELL
- ALLUVIUM/UPPER TILLS TRANSITION
- POTENTIOMETRIC CONTOUR
- GROUNDWATER FLOW DIRECTION

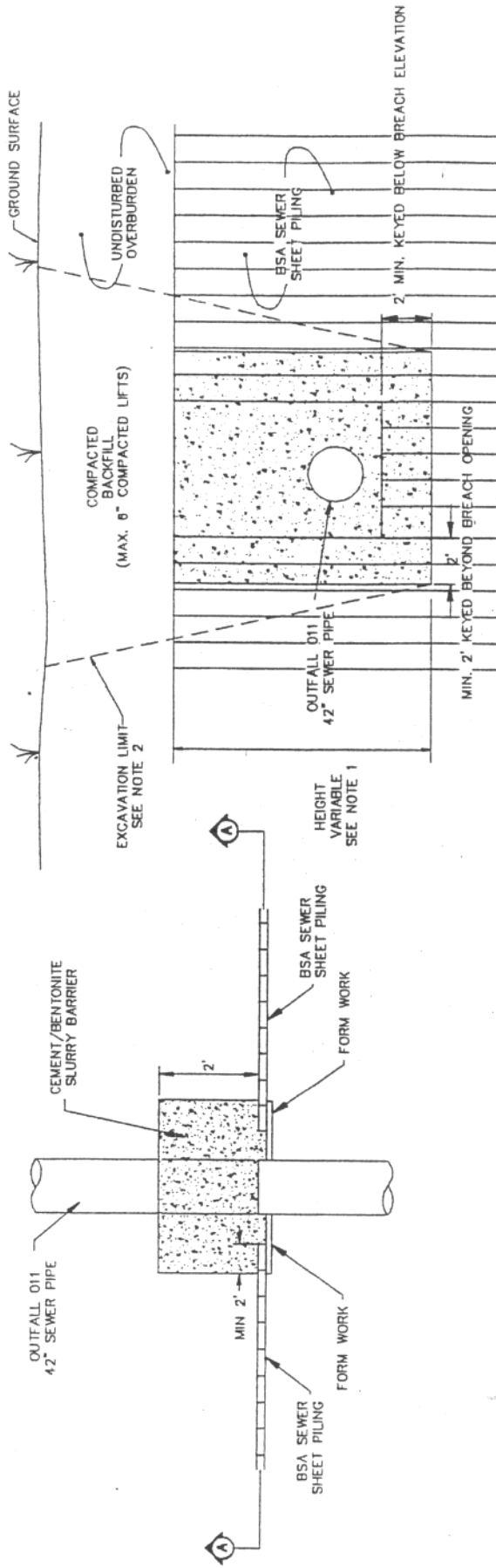
NOTES:

- ONLY UNDISCLOSED WELLS ARE USED FOR CONSTRUCTION OF EQUIPMENT. WELLS EXCLUDED ARE DUE TO SUSPECT WELL CONSTRUCTION/INTEGRITY.
- GROUNDWATER ELEVATION CONTOURS ARE INTERPOLATED BETWEEN DATA POINTS AND MAY VARY FROM WHAT IS SHOWN.
- LOCATION OF ALLUVIUM/UPPER TILLS TRANSITION IS APPROXIMATED BASED UPON BORING LOG DATA.
- WELL W-88 AND PIEZOMETER PZ-3-88 DECOMMISSIONED PRIOR TO AUGUST 8-12, 1998. WELL W-88 REPLACED BY W-8-R (BY OTHERS).
- GROUNDWATER AND RIVER LEVELS RECORDED ON AUGUST 18-20, 1998.
- THOSE WELLS WITH A LINE THROUGH (e.g., R-05) INDICATE DEEP AQUIFER MONITORING WELLS AND NOT USED IN THIS MAP DEVELOPMENT.

figure 2.4  
SHALLOW AQUIFER POTENTIOMETRIC SURFACE AUGUST 1998  
SCOPE OF WORK / WORK PLAN  
INTERIM CORRECTIVE MEASURE DESIGN / IMPLEMENTATION  
Buffalo Color Site, Buffalo, New York

SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)





**BREACH BARRIER PLAN VIEW**

NOT TO SCALE

**BREACH BARRIER - SECTION A**

NOT TO SCALE

**NOTES**

1. ACTUAL HEIGHT OF SLURRY BARRIER SHALL BE DETERMINED IN THE FIELD BASED ON THE ELEVATION OF THE TOP OF SHEET PILING ABOVE THE STORM SEWER.
2. EXCAVATIONS SHALL BE SLOPED/BENCHED/SUPPORTED IN ACCORDANCE WITH OSHA REGULATIONS.  
A TRENCH BOX OR SHORING AND BRACING MAY ALSO BE USED SUBJECT TO THE SAME REGULATIONS.
3. TWO BARRIERS TO BE INSTALLED.  
ONE ON UPGRADE SHEETING, ONE ON DOWNGRADE SHEETING.

**figure 2.5**

**CONCEPTUAL AREA E BREACH REPAIR  
SCOPE OF WORK / WORK PLAN  
INTERIM CORRECTIVE MEASURE DESIGN / IMPLEMENTATION**  
*Buffalo Color Site, Buffalo, New York*

SOURCE: GOLDER ASSOCIATES  
REPORT ON CORRECTIVE MEASURES STUDY  
(PROJECT NO. 993-9206)





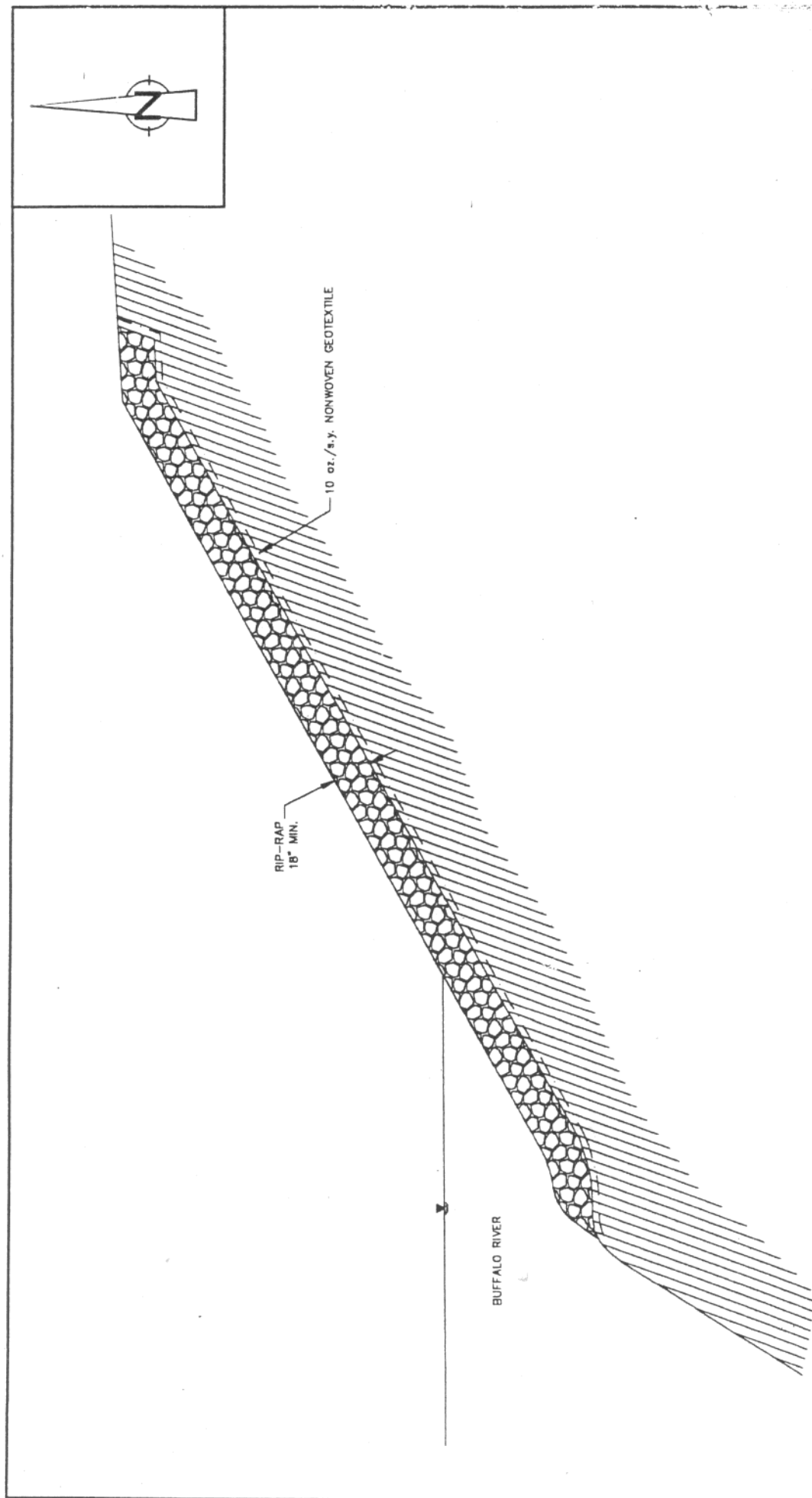


figure 2.6

CONCEPTUAL AREA A BANK EROSION CONTROL DESIGN  
 SCOPE OF WORK / WORK PLAN  
 INTERIM CORRECTIVE MEASURE DESIGN / IMPLEMENTATION  
*Buffalo Color Site, Buffalo, New York*

SOURCE: GOLDER ASSOCIATES  
 REPORT ON CORRECTIVE MEASURES STUDY  
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