The electronic version of this document(s) should have the name: Report.HW.932019A.1989-11-01.Update on Underground Utilities Investigation Program

Entered

Occidental Chemical Corporation

# UPDATE OF THE UNDERGROUND UTILITIES INVESTIGATION PROGRAM

## S-Area Remedial Program



PRINTED ON
NOV 3 1989

Occidental Chemical Corporation

# UPDATE OF THE UNDERGROUND UTILITIES INVESTIGATION PROGRAM

## S-Area Remedial Program

November 1989
Ref. No. 1769 (74)

CONESTOGA-ROVERS & ASSOCIATES

# TABLE OF CONTENTS

## LIST OF TABLES



## LIST OF FIGURES



## LIST OF PLANS

## 1.0 INTRODUCTION

As required by the Stipulation and Judgment Approving Settlement Agreement, Addendum I, Paragraph B(6)(e), an underground utility bedding investigation was completed for utilities in and around the S-Area Landfill Site including the 003 Outfall, the Industrial Intake Trench and the bedding of 53rd Street and the Robert Moses Parkway. Procedures followed during the excavations are outlined in the report entitled "Information Summary Report, S-Area Remedial Program". The purpose of this report is to update the status of the underground utilities investigation.

The area of the study is outlined on Figure 1 and includes the utilities in the immediate vicinity of the Site Barrier Wall, Northern System Barrier Wall and the utilities along the Robert Moses Parkway extending from the eastern property line of the City of Niagara Falls Water Treatment Plant (WTP) to a point approximately 800 feet west of the S-Area Landfill Site.

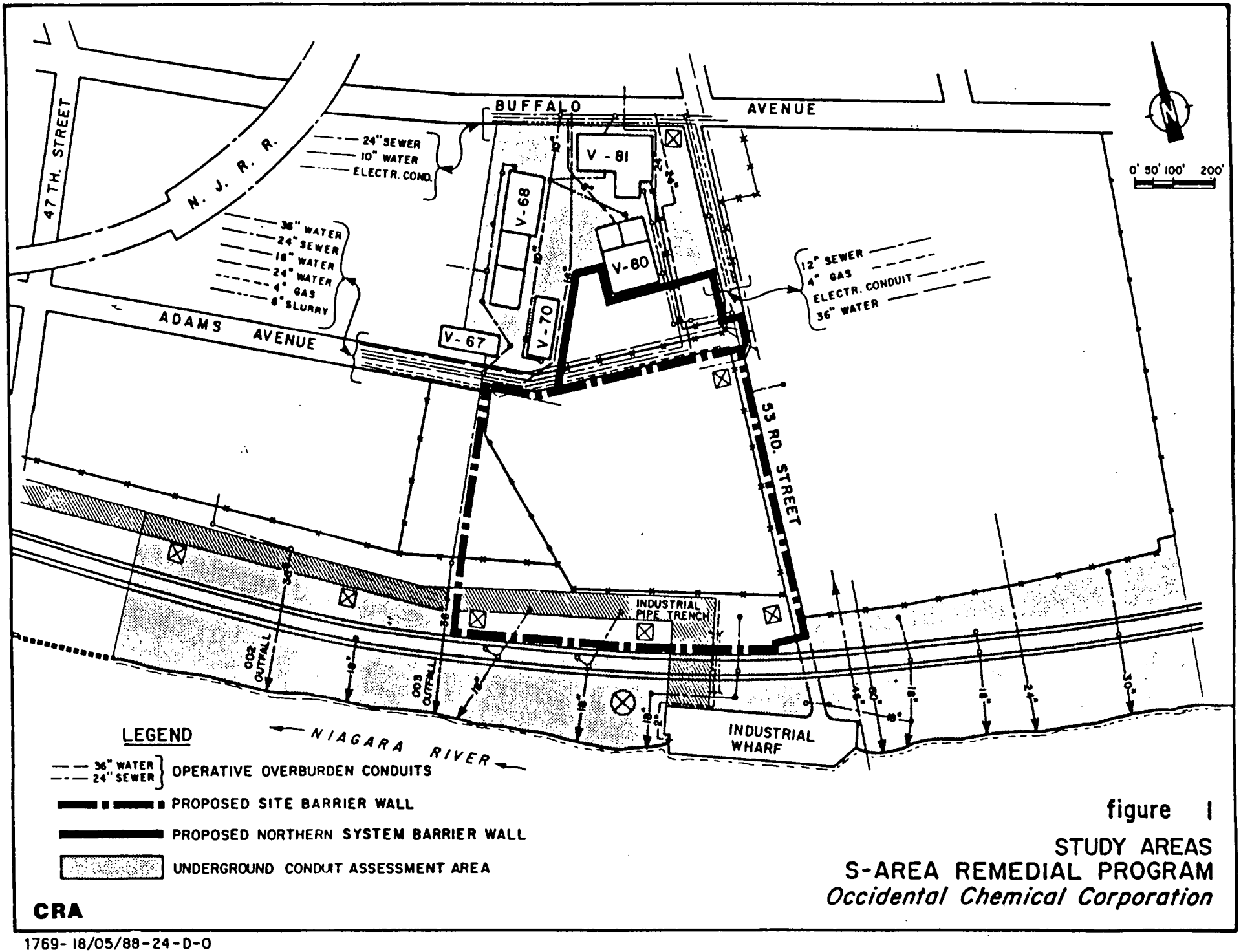



figure 1

STUDY AREAS
S-AREA REMEDIAL PROGRAM
*Occidental Chemical Corporation*

1769- 18/05/88-24-D-0

## 2.0 WORK COMPLETED

A total of 30 excavations and boreholes were completed as part of this investigation (Table 1). The locations of these excavations are shown on the enclosed plans. Excavation procedures and protocols including methodology or preparation, excavation and trenching, backfilling, waste disposal, health and safety and air monitoring are presented in the Information Summary Report referenced in Section 1.0.

Excavations were conducted to assess the influence of the utility and roadway beddings on NAPL migration. Excavations consisted of digging with a backhoe, perpendicular to the utility of concern, to a depth below the pipe invert elevation. The utility bedding material at each location was then sampled, photographed and examined for visual and olfactory indications of the presence of NAPL. Excavated materials were backfilled and compacted. Imported fill material was placed in each excavation for the last 6-12 inches of backfill and the area was restored to its original condition.

Boreholes were installed in lieu of excavations at B-9, B-32, C-4a and C-4b due to anticipated high groundwater levels in those areas. A truck-mounted drill rig was used to complete the boreholes. In conjunction with the augering of the boreholes, continuous split spoon samples of the materials encountered were collected from the ground surface to the bottom of the bedding material.

Test excavations located within the WTP property have yet to be completed and are therefore not discussed as part of this report. The

**TABLE 1**

**UTILITY INVESTIGATION SUMMARY**
**S-AREA SUBSURFACE INVESTIGATION**

| *Excavation Number* | *Utility Investigated* | *Bedding Material* | *NAPL Presence* | *Sampled Depth* | *Total Excavated Depth* |
|---|---|---|---|---|---|
| | **Roadway** | | | | |
| A-1 | 53rd Street | Fill-Gravel/Sand | No | 2.0 ft. | 2.0 ft. |
| A-2 | 53rd Street | Fill-Gravel/Sand/Silt | No | 2.0 ft. | 2.0 ft. |
| A-3 | Adams Avenue | Fill-Silt/Sand/Gravel | No | 0.8 ft. | 0.8 ft. |
| | **Pipes** | | | | |
| B-1 | 24" diameter watermain east of V-80 | Fill-Silt/Sand/Gravel | (6 - 8 ft.) | 8.0 ft. | 8.0 ft. |
| B-1A | 24" diameter watermain east of V-80 | Fill-Gravel/Sand/Silt | No | 7.0 ft. | 7.0 ft. |
| B-2 | 24" diameter wastewater sewer east of V-80 (Outfall 003) | Fill-Silt/Sand/Gravel | (6 - 8 ft.) | 8.0 ft. | 8.0 ft. |
| B-2A | 24" diameter wastewater sewer east of V-80 (Outfall 003) | Fill-Gravel/Sand/Silt | No | 7.0 ft. | 7.0 ft. |
| B-2AR | 24" diameter wastewater sewer east of V-80 (Outfall 003) | Fill-Sand/Gravel | (8 - 9 ft.) | 10.0 ft. | 10.0 ft |
| B-2B | 24" diameter wastewater sewer east of V-80 (Outfall 003) | Fill-Sand/Gravel | No | 10.0 ft. | 10.0 ft. |
| B-3 | 6" diameter sanitary sewer east of V-80 | Fill-Silt/Sand/Gravel | No | 8.0 ft. | 8.0 ft. |
| B-5 | 4" diameter gas main on 53rd Street | Fill-Gravel/Sand | No | 3.5 ft. | 4.5 ft. |
| B-6 | 36" diameter watermain at 53rd Street and Adams Avenue | Fill-Clay/Gravel | No | 6.5 ft. | 6.5 ft. |
| B-8 | 42" diameter high service discharge line (west pipe) | Fill-Gravel/Clay | No | 10.5 ft. | 10.5 ft. |
| B-9 | 18" diameter storm sewer on Robert Moses Parkway | Bedding Gravel | No | 0-10.5 ft. | 10.5 ft. |
| B-12 | 18" diameter storm sewer | Bedding Gravel | No | 12.0 ft. | 12.0 ft. |
| B-13 | 24" diameter storm sewer | Bedding Gravel | No | 11.5 ft. | 14.0 ft. |
| B-14 | 42" diameter storm sewer | Fill-Sand | No | 14.5 ft. | 14.5 ft. |
| B-16 | 10" daimeter wastewater sewer from S-Area Lagoons | Fill-Gravel/Sand/Clay | No | 4.5 ft. | 4.5 ft. |
| B-18 | 6" diameter slurry line to S-Area Lagoons | Fill-Gravel/Sand/Clay | No | 4.5 ft. | 4.5 ft. |
| B-19 | 4" diameter gas main on Adams Avenue | Fill-Gravel/Sand/Clay | No | 4.0 ft. | 4.0 ft. |
| B-21 | 16" diameter U.W.F. watermain on Adams Avenue | Fill-Sand/Clay/Gravel | (5-6.5 ft.) | 7.0 ft. | 7.0 ft. |
| B-22 | 24" diameter wastewater sewer on Adams Avenue (Outfall 003) | Fill-Clay/Gravel | (5-6.5 ft.) | 6.5 ft. | 6.5 ft. |
| B-24 | 16" diameter U.W.F. watermain east of V-70 | Fill-Gravel/Sand | No | 8.0 ft. | 8.0 ft. |
| B-25 | 30" diameter storm sewer | Bedding Gravel | No | 10.5 ft. | 10.5 ft. |
| B-26 | 24" diameter City of Niagara Falls Water Treatment Plant discharge | Fill-Gravel/Sand | No | 10.5 ft. | 10.5 ft. |
| B-27 | 18" diameter storm sewer | Bedding Gravel | No | 6.5 ft. | 6.5 ft. |
| B-28 | 24" diameter storm sewer | Bedding Gravel | No | 6.0 ft. | 6.0 ft. |
| B-31 | 18" diameter storm sewer | Fill-Gravel/Silt | No | 9.5 ft. | 9.5 ft. |
| B-32 | 36" diameter storm sewer (Outfall 002) | Fill-Sand/Gravel | No | 0-16.0 ft. | 16.0 ft. |
| B-33 | 24" diameter storm sewer | Bedding Gravel | No | 9.5 ft. | 11.0 ft. |

**TABLE 1**

**UTILITY INVESTIGATION SUMMARY**
**S-AREA SUBSURFACE INVESTIGATION**

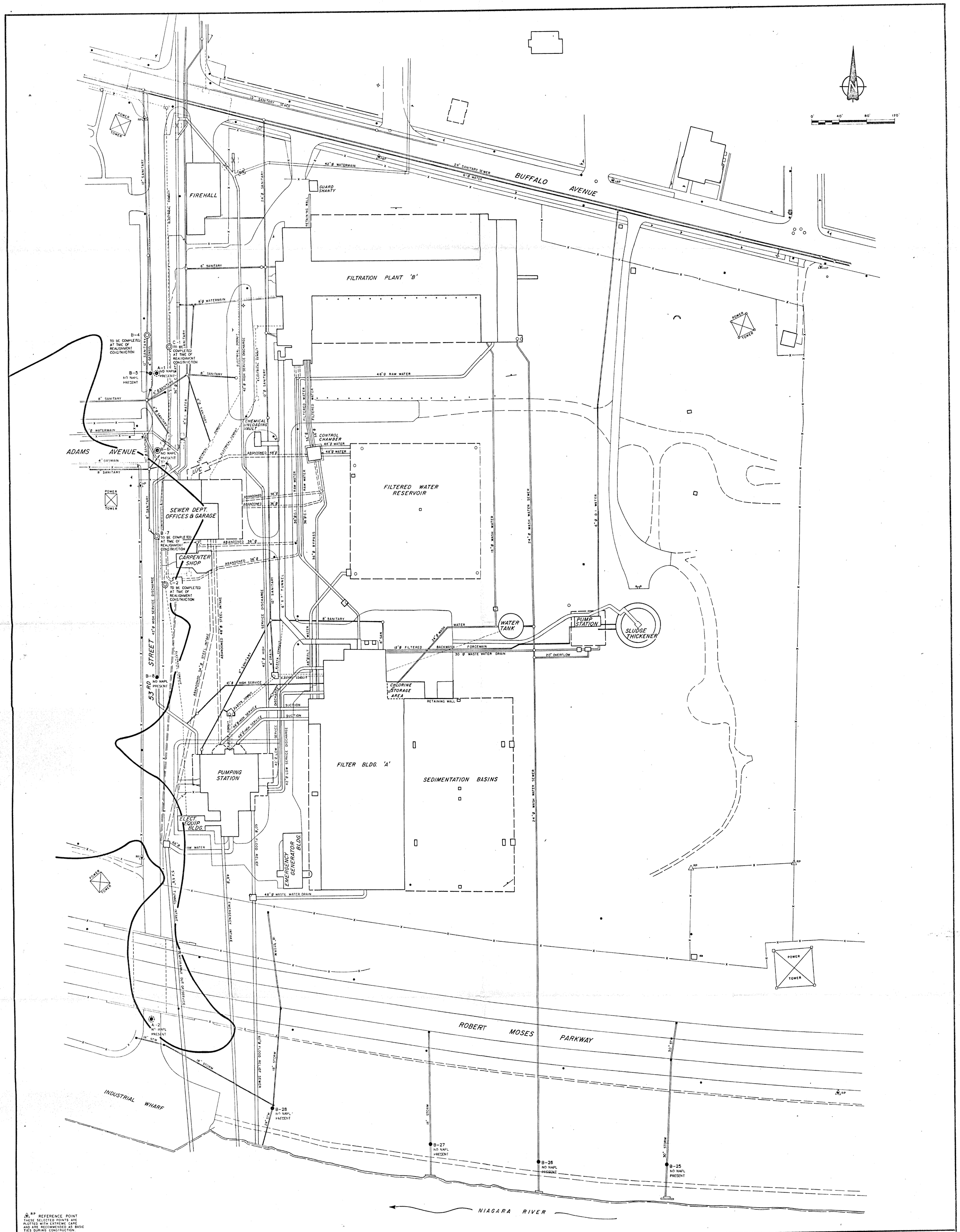
| *Excavation Number* | *Utility Investigated* | *Bedding Material* | *NAPL Presence* | *Sampled Depth* | *Total Excavated Depth* |
|---|---|---|---|---|---|
| | **Utility Trench** | | | | |
| C-4A | Utility Trench of Industrial Intake Pipes | Fill-Sand/Gravel | No | 0-28.0 ft. | 28.0 ft. |
| C-4B | Utility Trench of Industrial Intake Pipes | Fill-Sand/Silt | No | 0-28.0 ft. | 28.0 ft. |
| OW269 | Utility Trench of Industrial Intake Pipes | | No | --- | 33.2 ft. |
| BHW270 | Utility Trench of Industrial Intake Pipes | | No | --- | 29.8 ft. |
| BHW273 | Utility Trench of Industrial Intake Pipes | | No | --- | 26.7 ft. |

WTP test excavations are planned to be completed at a later date. In addition, some of the shallow excavations in the vicinity of the Industrial Intake Pipe Trench have been postponed (i.e. B-10, B-11, B-15, C-3 and C-5), although the Subsurface Investigation boreholes (BH181, 182, 184, 185 and 187) were installed within the trench limits to the bedding depth. The completion of all of the remaining excavations is contingent on the EPA/State approval of the S-Area's Solid Waste Management Plan; the City of Niagara Falls Contingency Plan for the WTP; OCC's completion of all utility relocations and OCC's development of methods for excavation of critical service lines. Table 2 lists the remaining excavations to be completed.

## TABLE 2

## UTILITY INVESTIGATION SUMMARY
## UNCOMPLETE EXCAVATIONS

| *Excavation Number* | *Utility to be Investigated* | *Remarks* |
|---|---|---|
| B-4 | 12-inch diameter sanitary sewer | To be completed at time of realignment construction. |
| B-7 | 8-inch diameter sanitary sewer | To be completed at time of realignment construction. |
| B-10 | 2-inch diameter gas main | To be completed at time of realignment construction. |
| B-11 | 8-inch diameter caustic line | To be completed when line is out of service. |
| B-15 | 8-inch diameter caustic line | To be completed when line is out of service. |
| B-17 | 2-inch diameter gas main | To be completed at time of realignment construction. |
| B-10 | 24-inch diameter water main | To be completed at time of realignment construction. |
| B-23 | 36-inch diameter water main | To be completed at time of realignment construction. |
| C-1 | electrical conduit | To be completed at time of realignment construction. |
| C-2 | electrical conduit | To be completed at time of realignment construction. |
| C-3 | electrical conduit | To be completed at time of realignment construction. |
| C-5 | electrical conduit | To be completed at time of realignment construction. |
| TE1 thru 11 | City of Niagara Falls Water Treatment Plant lines | To be completed subsequent to necessary plan approvals, relocation and development of excavation procedures for critical service lines. |




RP REFERENCE POINT
THESE SELECTED POINTS ARE PLOTTED WITH EXTREME CARE AND ARE RECOMMENDED AS BASIC TIES DURING CONSTRUCTION.

*BASE COMPILED FROM 1" = 300' AIR PHOTOS TAKEN APRIL 30, 1982.

LEGEND
- UTILITY BEDDING EXCAVATION
- ROADWAY BEDDING EXCAVATION
- UTILITY TRENCH BOREHOLE
- UTILITY TRENCH BOREHOLE/OVERBURDEN SURVEY WELL
- UTILITY EXCAVATION/BOREHOLE TO BE COMPLETED
- BOUNDARY OF NAPL PLUME

| Nº | Revision | Date | Initial |
|---|---|---|---|

Approved

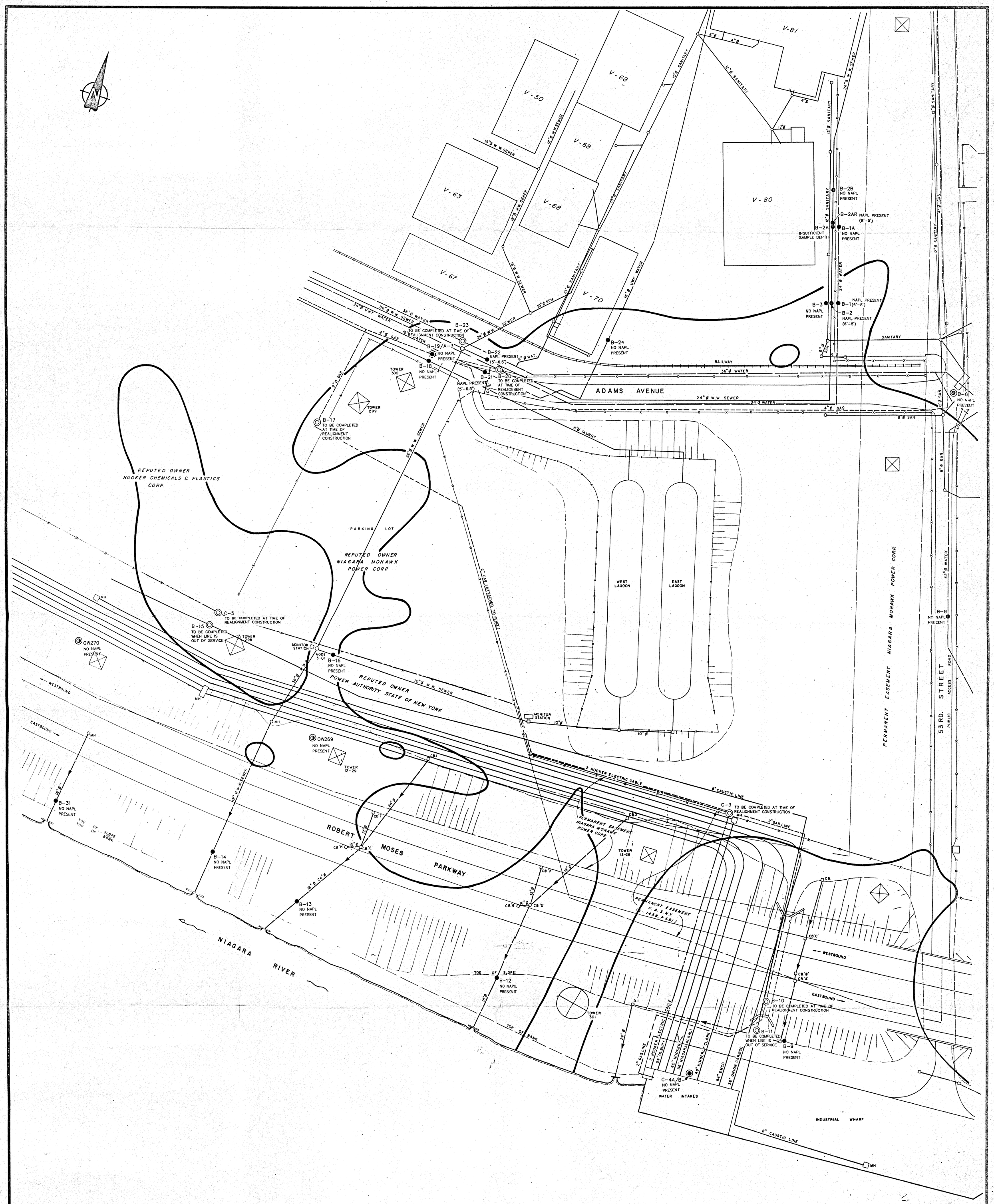
OCCIDENTAL CHEMICAL CORPORATION
NIAGARA PLANT

S-AREA REMEDIAL PROGRAM

NAPL PRESENCE AND UTILITY LOCATIONS

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES

| | | | | |
|---|---|---|---|---|
| Drawn by: ZMP | Scale: 1" = 40' | Date: OCTOBER, 1989 | File Nº: OS2 | Rev Nº: 0 |
| Designed by: J.K. | | | | |
| Checked by: FAR | Field Book: | Project Nº: 1769 | Drawing Nº: 89 PLAN 1 | |




LEGEND

- UTILITY BEDDING EXCAVATION
- ROADWAY BEDDING EXCAVATION
- UTILITY TRENCH BOREHOLE
- UTILITY TRENCH BOREHOLE/OVERBURDEN SURVEY WELL
- UTILITY EXCAVATION/BOREHOLE TO BE COMPLETED
- BOUNDARY OF NAPL PLUME

| No. | Revision | Date | Initial |
|---|---|---|---|
| | | | |

OCCIDENTAL CHEMICAL CORPORATION
NIAGARA PLANT

S-AREA REMEDIAL PROGRAM

NAPL PRESENCE AND UTILITY LOCATIONS

**CRA** Consulting Engineers
**CONESTOGA-ROVERS & ASSOCIATES**

| Designed By: | Checked By: | Scale: | Date: |
|---|---|---|---|
| J.K. | FAR | 1" = 40' | OCTOBER, 1989 |
| Drawn By: | Checked By: | Project No. | Drawing No. 90 |
| ZMP | FAR | 1769 | PLAN 2 |

052
OCC. 6-4