CONFIRMATORY INVESTIGATION REPORT

GM POWERTRAIN GROUP
TOLEDO PLANT
TOLEDO, OHIO

JUNE 2001
REF. NO. 12609 (22)
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1.0 INTRODUCTION

1.1 GENERAL

The purpose of this report is to present the results of the confirmatory analysis for the remedial activities that were completed by Conestoga-Rovers & Associates (CRA) between August 1, 2000 and February 6, 2001. Remedial activities were performed based on the findings of the study area (Site) investigations performed by CRA between May 1997 and December 2000. Investigations were conducted to evaluate the extent of contamination in selected Areas of Interest (AOIs) at the General Motors (GM Powertrain Group – Toledo Plant) located at 1455 West Alexis Road in Toledo, Ohio. The plant location is presented on Figure 1.1. The plant is located on approximately 186 acres, including 33 acres of REALM property. The Site consists of approximately 45 acres (33 acres of REALM property and 18 acres of GM property) of plant property south of the main manufacturing buildings. The Site includes the areas adjacent to Silver Creek and its tributaries. The Site plan is presented on Figure 1.2.

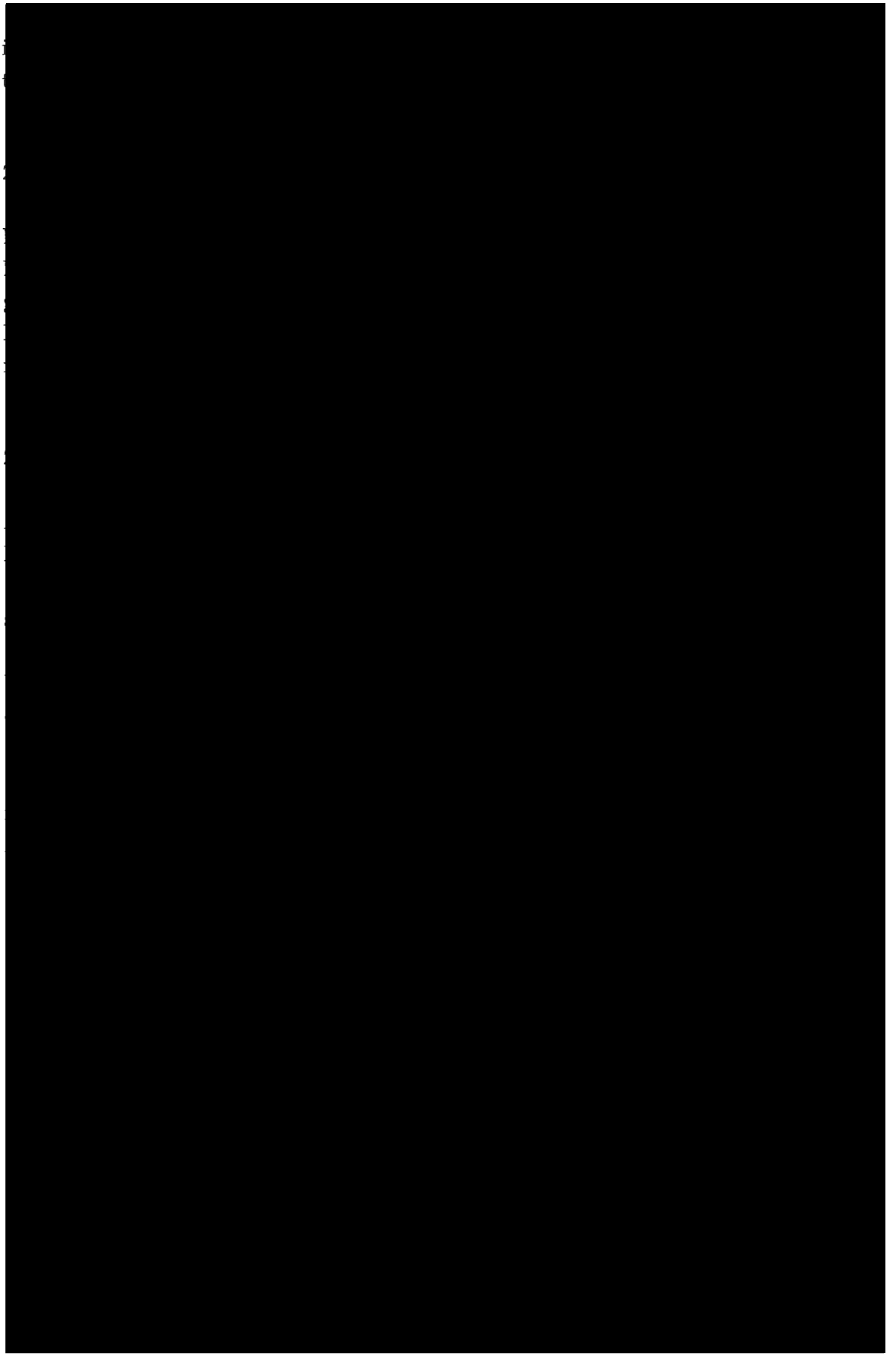
1.2 SITE BACKGROUND

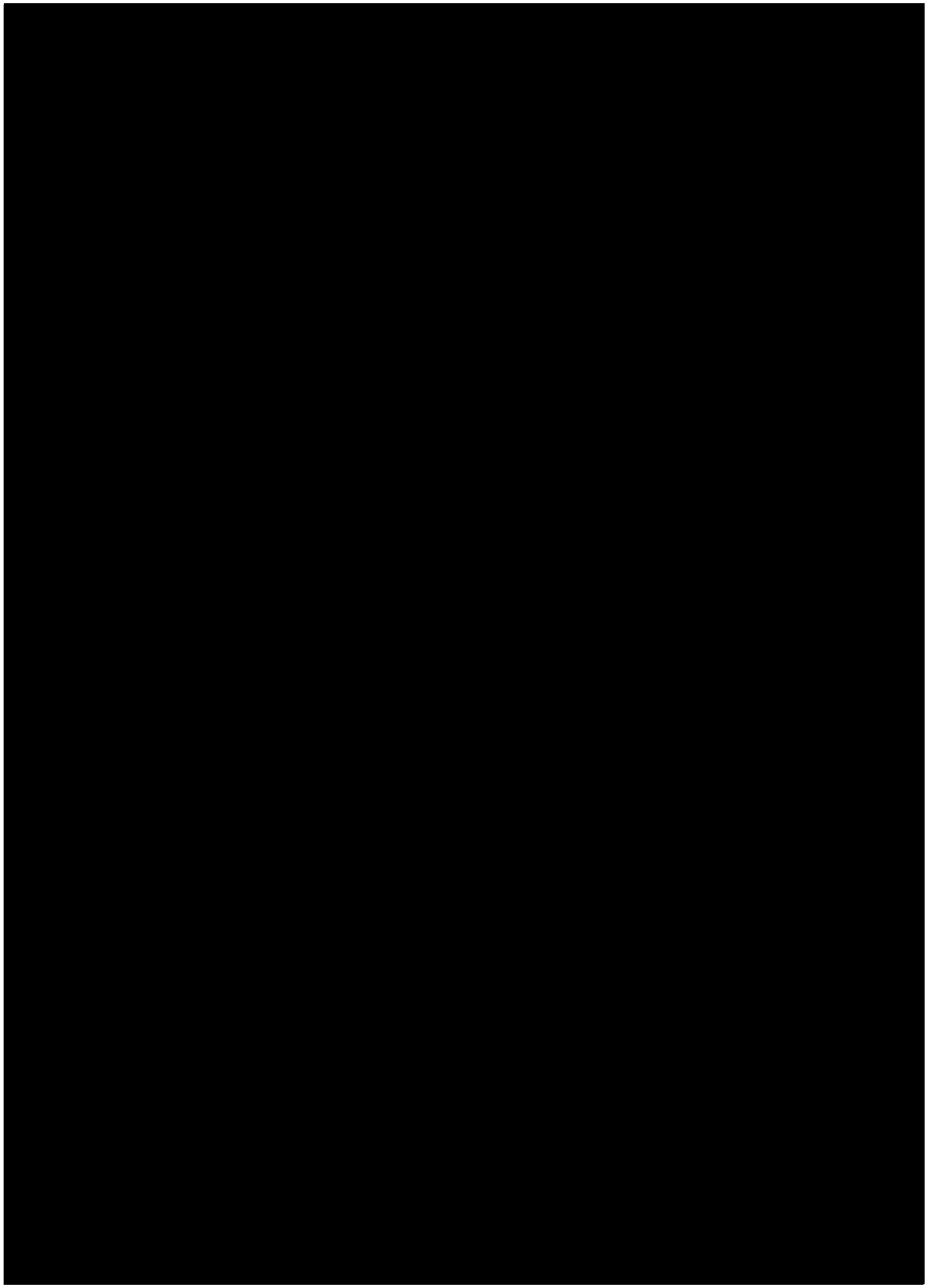
The United States government originally built the plant in 1941. GM acquired the plant in 1956. Areas of the Site appear to have been disturbed prior to GM's ownership. Certain areas of the Site have been filled over time.

The Site has been separated into remedial areas. The REALM property boundary and the AOIs are presented on Figures 1.1 and 1.2, respectively. Silver Creek and its tributaries are presented on Figure 1.3.

2.0 AREAS OF INTEREST

[redacted]





2.5 FORMER STORMWATER POND

Prior to 1981, stormwater and non-contact cooling water collected in the Former Stormwater Pond (FSP). The FSP was removed from service and backfilled (i.e., sludge left in place) in 1981. The location of the FSP is presented on Figure 1.2.

2.5.1 RESULTS OF SITE INVESTIGATION

During the Site investigation, soil and groundwater samples were collected from the FSP Area. All samples were analyzed for PBCs. Select samples were also analyzed for VOCs, SVOCs, metals, and pesticides. The Summary of Site Investigations Report, dated December 2000, found that remedial action should be considered due to PCB results.

2.5.2 REMEDIAL ACTIVITIES

Remedial activities for the FSP are presented in the CRA report titled "Operation and Maintenance Plan", dated January 2001.

2.6 FORMER DISPOSAL AREA

In late 1988, GM discovered that a portion of their Toledo plant Site, approximately 5 acres in size, was used as a disposal area in the 1950s and 1960s. The FDA is bounded

by railroad tracks to the north and east and by Silver Creek to the south. The location of the FDA is presented on Figure 1.2.

2.6.1 RESULTS OF SITE INVESTIGATION

During the Site investigation, soil and groundwater samples were collected from the FDA. All samples were analyzed for PBCs. Select samples were also analyzed for VOCs, SVOCs, metals, pesticides, and dioxin furans. The Summary of Site Investigations Report, dated December 2000, found that based on the PCB results in the vicinity of the FDA, remedial action should be considered.

2.6.2 REMEDIAL ACTIVITIES

Remedial activities for the FDA are presented in the CRA report titled "Operation and Maintenance Plan", dated January 2001.

2.7 AREA SOUTH OF SILVER CREEK/AREA WEST OF FORMER DISPOSAL AREA

The area south of Silver Creek (ASC) is a large undeveloped portion of the Site, bounded by Silver Creek to the north and to the west, the Site boundary to the south, and the Site boundary/railway tracks to the east. The area west of the FDA (AWFD) is another, smaller, undeveloped portion of the Site, bounded to the north by railway tracks, to the east by the west ditch of the FDA, to the south by Silver Creek, and by the Site boundary to the west. Figure 1.2 presents the location of the ASC/AWFD.

2.7.1 RESULTS OF SITE INVESTIGATION

During the Site investigation, soil and groundwater samples were collected from the ASC/AWFD. All samples were analyzed for PBCs. Select samples were also analyzed for VOCs, SVOCs, and metals. The Summary of Site Investigations Report, dated December 2000, found that based on chromium results in the vicinity of the ASC/AWFD only one test pit area must be addressed.

2.7.2 REMEDIAL ACTIVITIES

Approximately 750 tons of chromium impacted soil in the ASC was excavated for off-site disposal. An 8 point composite verification soil sample was collected from the ASC November 18, 2000 to determine that all chromium impacted soil was removed. Figure 2.7.1 presents the locations of the verification sample. A summary of analytical detections are presented in Table 2.7.1. Complete analytical results, including non-detects, are presented in Appendix F. The data validation memo is presented in Appendix B.

2.8 SOUTHWEST AREA

During Phase I investigations of the FDA, PCBs were detected in the Southwest Area. Figure 1.2 presents the location of the Southwest Area.

2.8.1 RESULTS OF SITE INVESTIGATION

During the Site investigation, soil and groundwater samples were collected from the Southwest Area. All samples were analyzed for PBCs. The Summary of Site Investigations Report, dated December 2000, found that no remedial activity was required. After further consideration, remedial action was initiated in the Southwest Area.

2.8.2 REMEDIAL ACTIVITIES

Approximately 100 cubic yards of soil from the Southwest Area was excavated for disposal in the FDA.

Verification soil samples from the Southwest Area were collected November 1, 2000 to determine that all PCB-impacted soil was removed. Figure 2.8.1 presents the locations of the Southwest Area confirmatory sampling and analysis results. A summary of analytical detections are presented in Table 2.8.1. Complete analytical results, including non-detects, are presented in Appendix G. The data validation is presented in Appendix B.

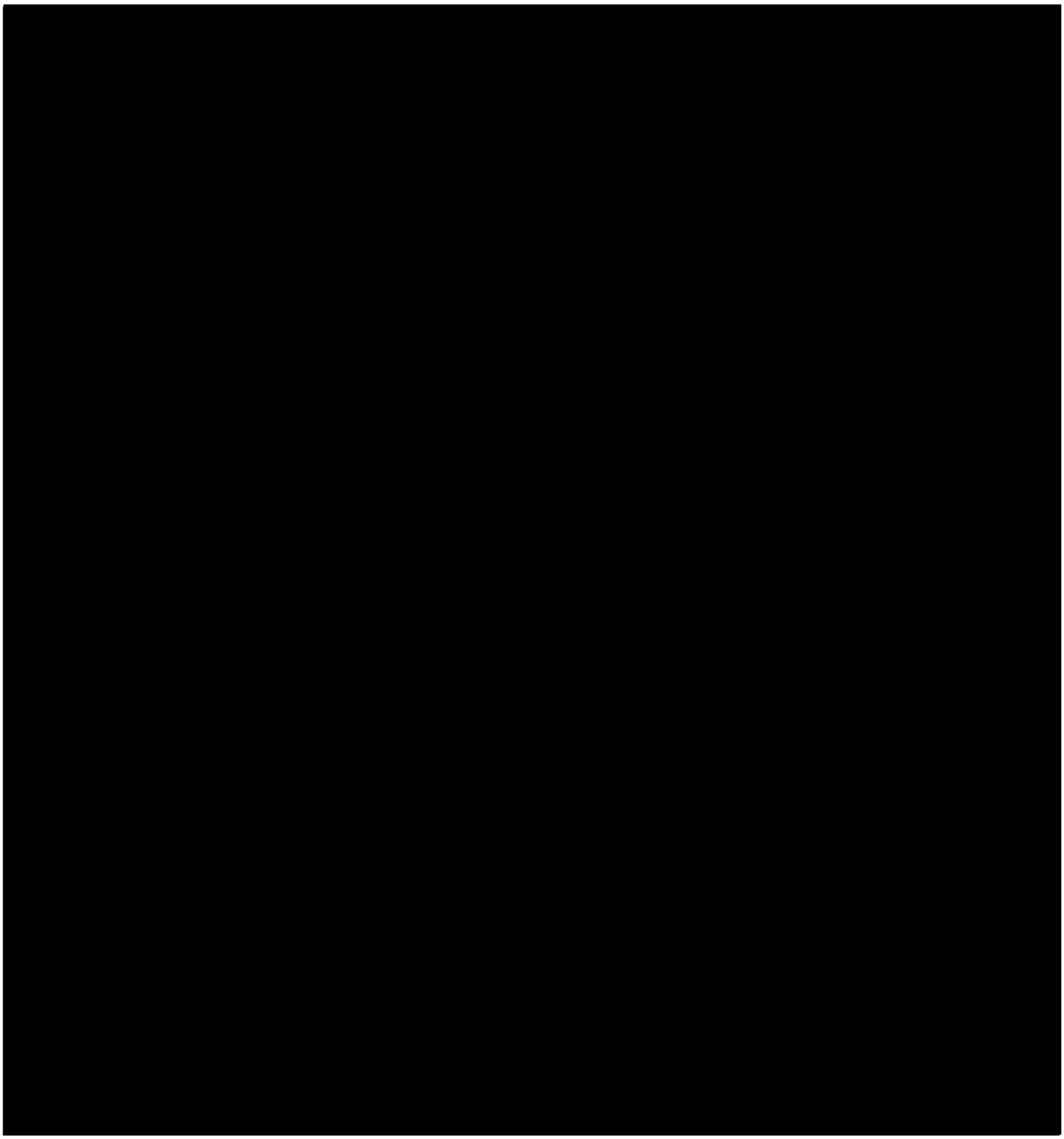
2.9 SILVER CREEK AND TRIBUTARY DITCHES

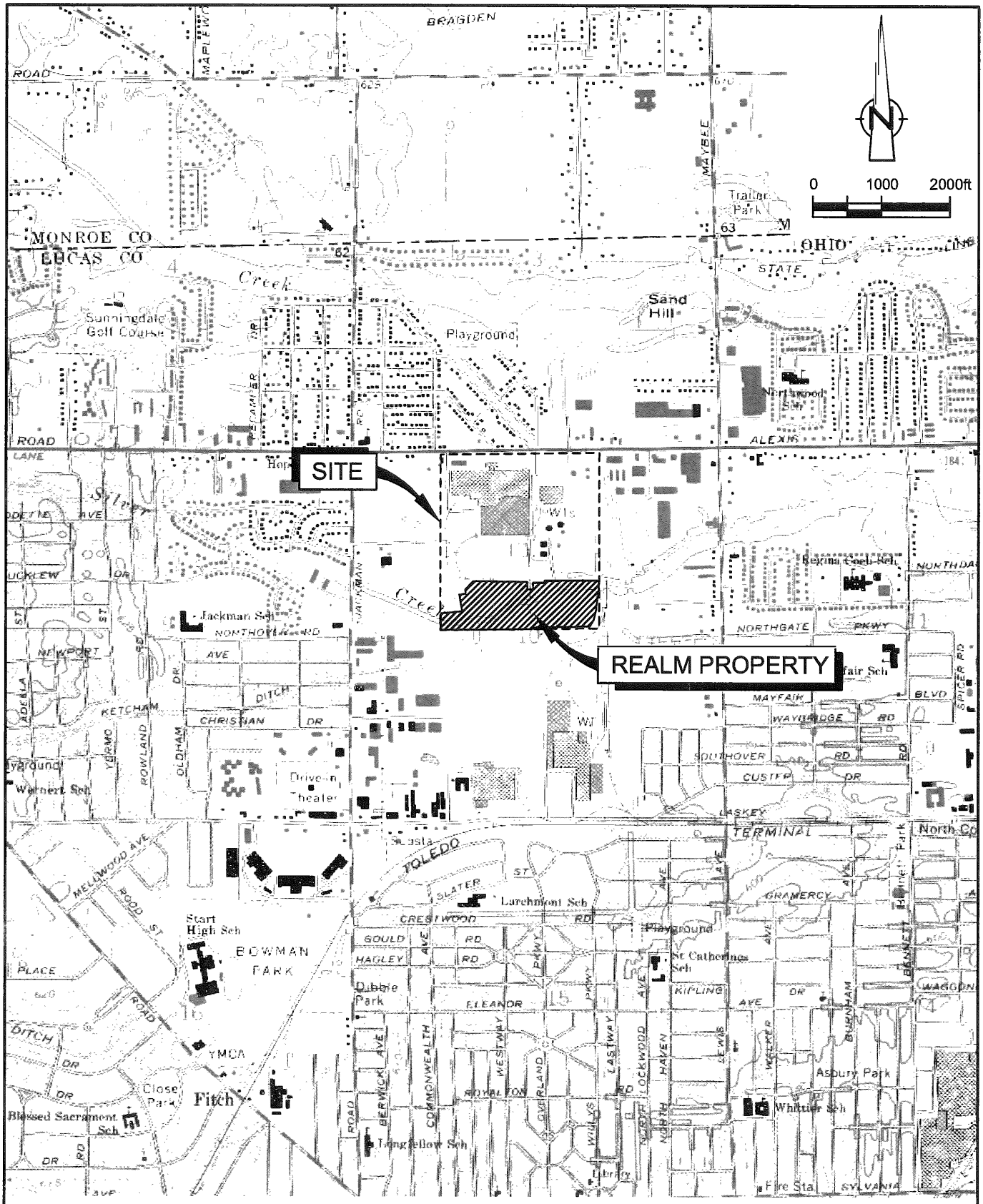
Silver Creek passes through the southern section of the Site and enters Halfway Creek approximately 4 miles east of the Site. Silver Creek, presented on Figure 1.3, is approximately 7 miles in length, approximately 10 to 15 feet wide in the vicinity of the Site, and up to 2 feet deep during normal conditions.

Five on-Site ditches flow intermittently into Silver Creek. The locations of the ditches are presented on Figure 1.3.

2.9.1 RESULTS OF SITE INVESTIGATION

During the Site investigation, sediment and surface water samples were collected from Silver Creek and its tributary ditches. Select samples were also analyzed for PBCs, general chemistry, VOCs, and metals. The Summary of Site Investigations Report, dated December 2000, found that no remedial activity was required.



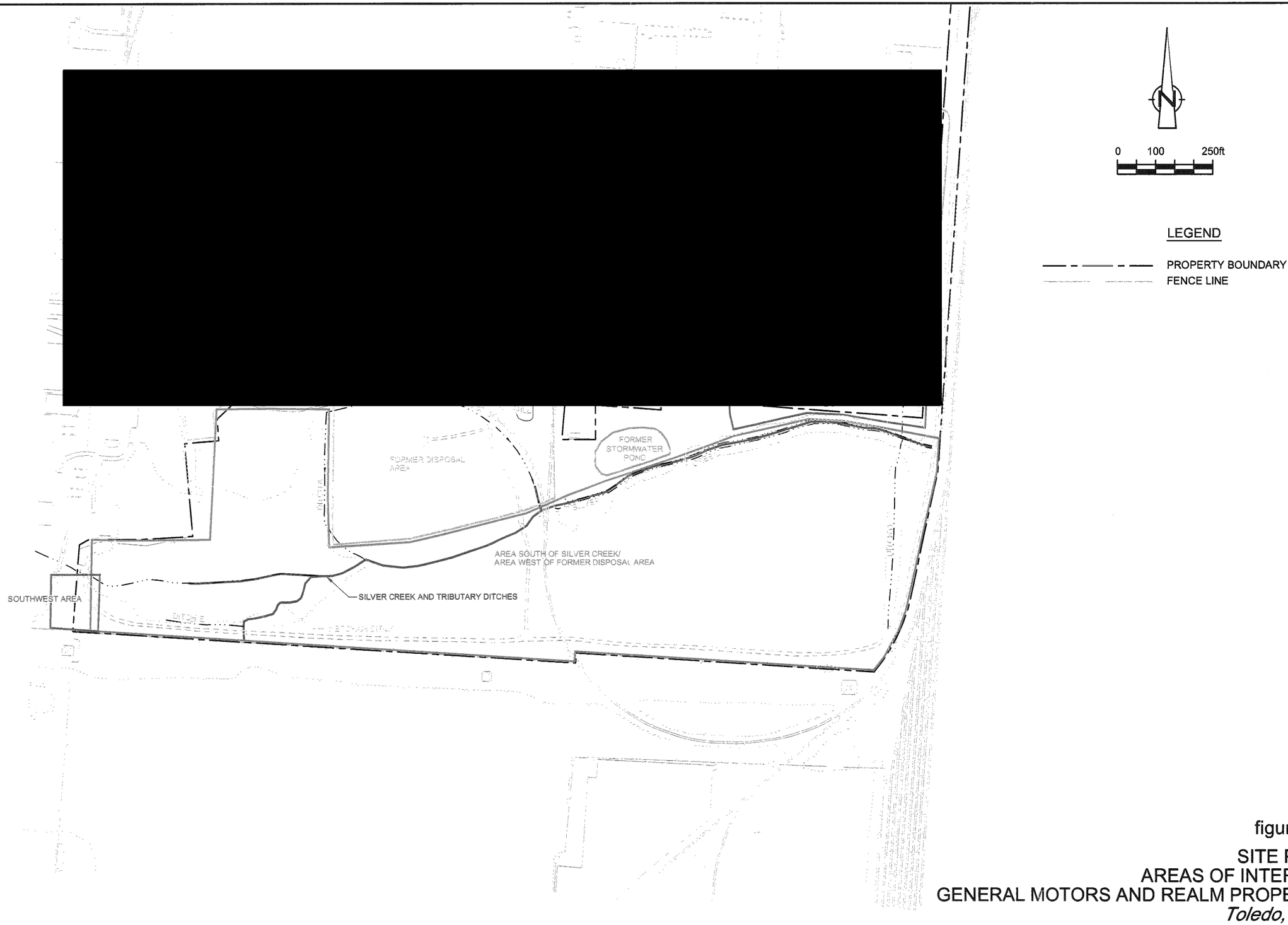


SOURCE: USGS QUADRANGLE MAP:
TOLEDO, OHIO-MICHIGAN

figure 1.1

PLANT LOCATION
REALM PROPERTY
Toledo, Ohio

12609-10(022)GN-WA001 MAR 05/2001



LEGEND

PROPERTY BOUNDARY

FENCE LINE

figure 1.2

SITE PLAN
AREAS OF INTEREST
GENERAL MOTORS AND REALM PROPERTY
Toledo, Ohio

12609-10(022)GN-WA002 MAR 20/2001

DRAFT
PRIVILEGED & CONFIDENTIAL

N

0 50 150ft

DITCH A

FORMER
DISPOSAL AREA

DITCH B

WEIR

DITCH C

WEIR

SILVER CREEK

WEIR

DITCH D

WEIR

SILVER CREEK

DITCH E

WEIR

KETCHAM DITCH

DITCH F

LEGEND

REALM PROPERTY BOUNDARY

figure 1.3

SILVER CREEK AND ON-SITE TRIBUTARY DITCHES
GENERAL MOTORS & REALM PROPERTY
Toledo, Ohio

12609-10(022)GN-WA013 MAR 15/2001

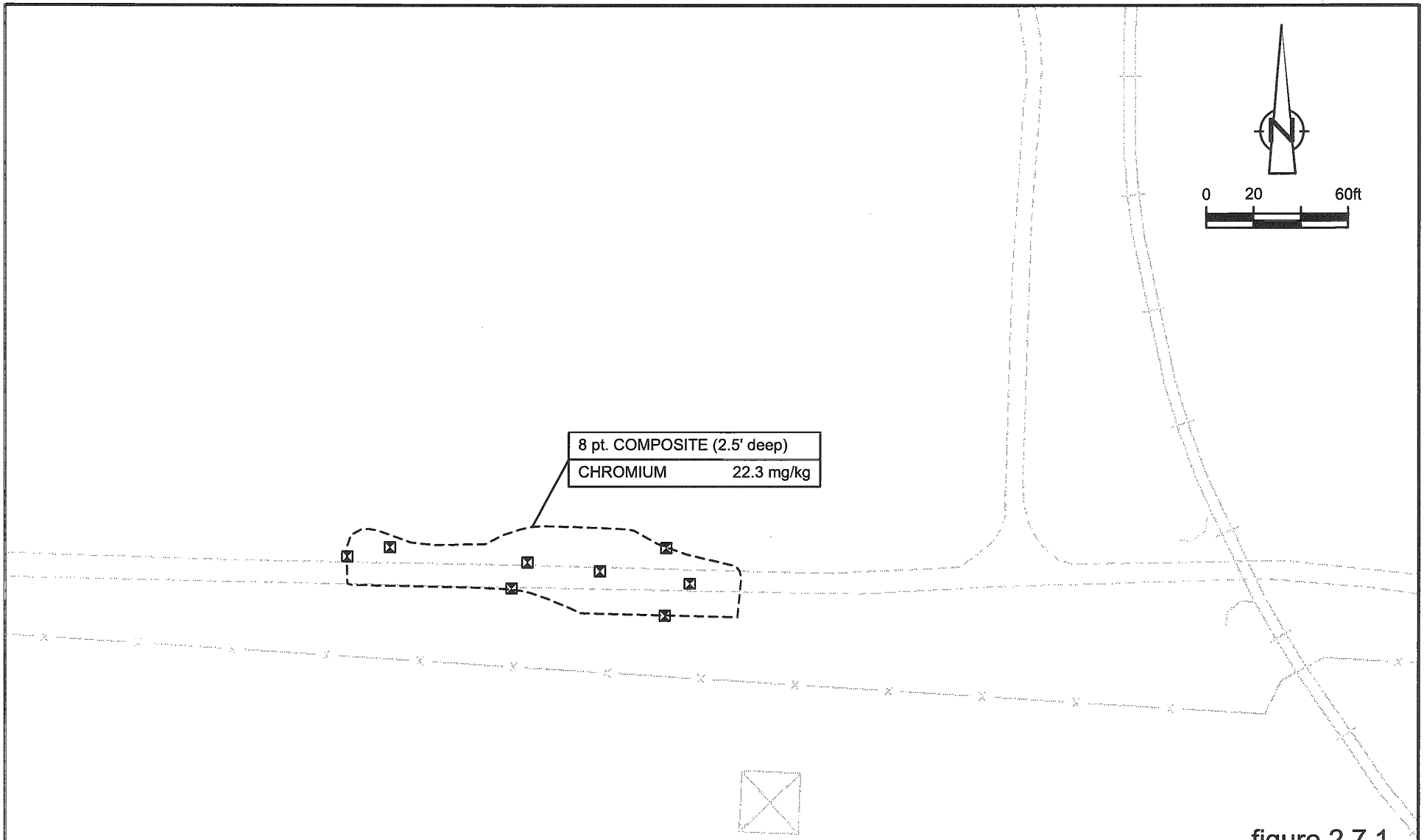


figure 2.7.1

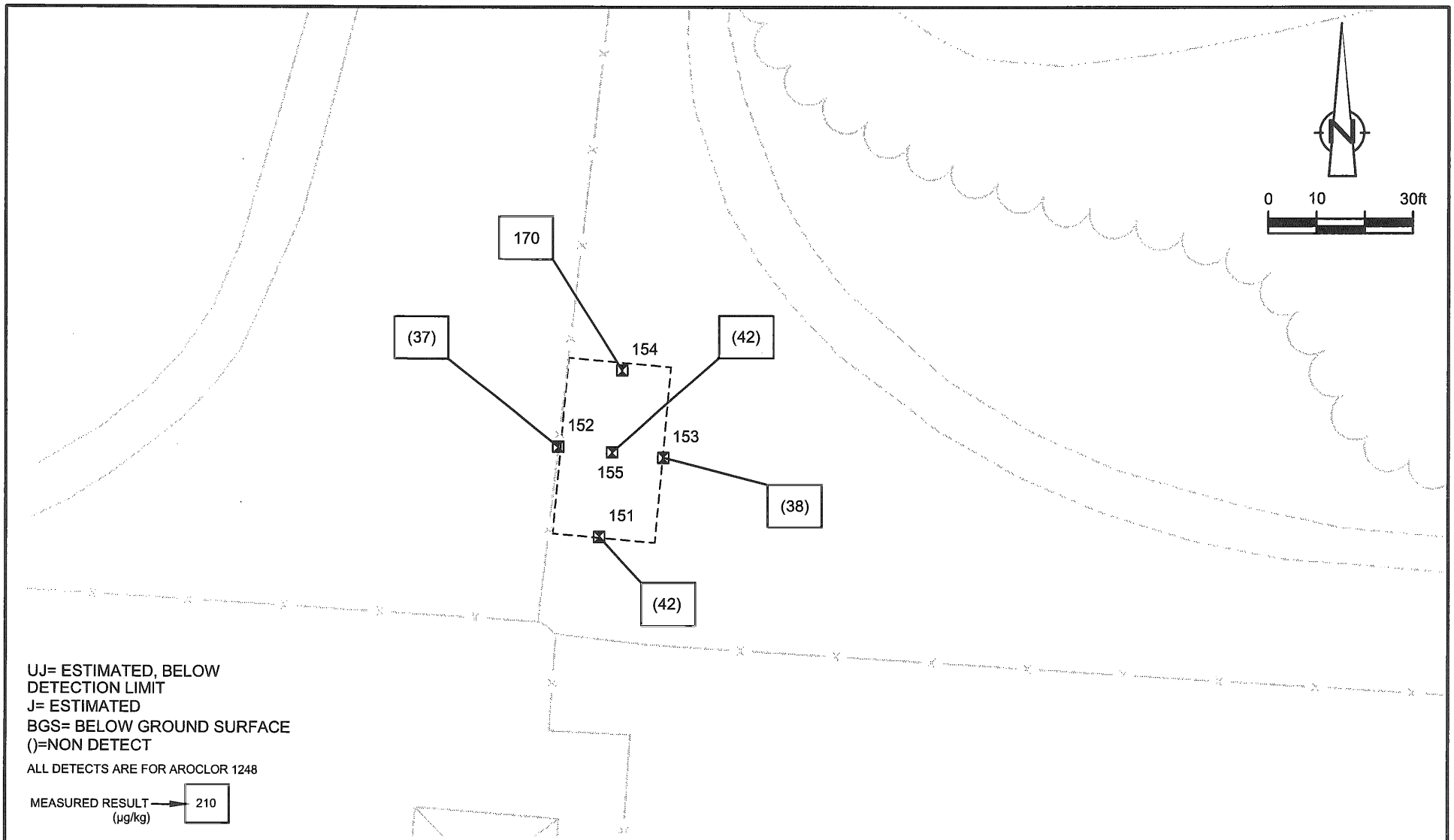
LEGEND

⊠ SOIL SAMPLE LOCATION

EXCAVATION VERIFICATION SAMPLE RESULTS
AREA SOUTH OF SILVER CREEK/AREA WEST OF FORMER DISPOSAL AREA
REALM PROPERTY
Toledo, Ohio

SOURCE: ABRAMS AERIAL SURVEY CORP., NOVEMBER 24, 1997 PHOTOGRAPHY

12609-10(022)GN-WA010 MAY 14/2001



UJ= ESTIMATED, BELOW DETECTION LIMIT
J= ESTIMATED
BGS= BELOW GROUND SURFACE
()=NON DETECT

ALL DETECTS ARE FOR AROCLOR 1248

MEASURED RESULT → 210 (µg/kg)

SOURCES:
ABRAMS AERIAL SURVEY CORP., NOVEMBER 24, 1997 PHOTOGRAPHY
LEWANDOWSKI ENGINEERS, TOLEDO, OHIO DRAWING NO. 35010-GM 9/07/99

LEGEND

- - - - EXCAVATION TO 4 FT BGS

⊠ SOIL SAMPLE LOCATION

figure 2.8.1

EXCAVATION VERIFICATION SAMPLE RESULTS SOUTHWEST AREA REALM PROPERTY

Toledo, Ohio

12609-10(022)GN-WA009 MAY 14/2001

TABLE 2.7.1

SUMMARY OF ANALYTICAL DETECTIONS
AREA SOUTH OF SILVER CREEK/AREA WEST OF FORMER DISPOSAL AREA
TOLEDO, OHIO

Sample Location:		*Chromium Area-8 pt. Composite*
Sample ID:		*S-12609-111800-KMB-1182*
Sample Date:		*11/18/2000*
Parameter	*Unit*	
Metals		
Aluminum	mg/Kg	3970
Arsenic	mg/Kg	4.4
Barium	mg/Kg	28.2
Calcium	mg/Kg	2050
Chromium	mg/Kg	22.3
Copper	mg/Kg	12.7
Iron	mg/Kg	6940
Lead	mg/Kg	3.5
Magnesium	mg/Kg	1310
Manganese	mg/Kg	63.0
Nickel	mg/Kg	7.4
Vanadium	mg/Kg	11.1
Zinc	mg/Kg	18.3
General Chemistry		
Total Solids	%	88.5

TABLE 2.8.1

SUMMARY OF ANALYTICAL DETECTIONS
SOUTHWEST AREA
TOLEDO, OHIO

Sample Location:		*SW CORNER-151*	*SW CORNER-152*	*SW CORNER-153*	*SW CORNER-155*	*SW CORNER-154*	*SW CORNER-waste composite*
Sample ID:		*S-12609-110100-KMB-1125*	*S-12609-110100-KMB-1126*	*S-12609-110100-KMB-1127*	*S-12609-110100-KMB-1128*	*S-12609-110100-KMB-1129*	*S-12609-110100-KMB-1130*
Sample Date:		*11/1/2000*	*11/1/2000*	*11/1/2000*	*11/1/2000*	*11/1/2000*	*11/1/2000*
Parameter	*Unit*						
PCBs							
Aroclor-1248	ug/Kg	-	-	-	-	170	-
General Chemistry							
Total Solids	%	78.3	89.8	86.2	78.4	84.5	76.5

APPENDIX F

SUMMARY OF ANALYTICAL RESULTS - AREA SOUTH OF SILVER CREEK/AREA WEST OF FORMER DISPOSAL AREA

APPENDIX F

SUMMARY OF ANALYTICAL RESULTS
AREA SOUTH OF SILVER CREEK/AREA WEST OF FORMER DISPOSAL AREA
TOLEDO,OHIO

Sample Location:		*Chromium Area-8 pt. Composite*
Sample ID:		*S-12609-111800-KMB-1182*
Sample Date:		*11/18/2000*
Parameter	*Unit*	
Metals		
Aluminum	mg/Kg	3970
Antimony	mg/Kg	ND (6.8) U
Arsenic	mg/Kg	4.4
Barium	mg/Kg	28.2
Beryllium	mg/Kg	ND (0.56) U
Cadmium	mg/Kg	ND (0.56) U
Calcium	mg/Kg	2050
Chromium	mg/Kg	22.3
Cobalt	mg/Kg	ND (5.6) U
Copper	mg/Kg	12.7
Iron	mg/Kg	6940
Lead	mg/Kg	3.5
Magnesium	mg/Kg	1310
Manganese	mg/Kg	63.0
Nickel	mg/Kg	7.4
Potassium	mg/Kg	ND (565) U
Selenium	mg/Kg	ND (0.56) U
Silver	mg/Kg	ND (1.1) U
Sodium	mg/Kg	ND (565) U
Thallium	mg/Kg	ND (1.1) U
Vanadium	mg/Kg	11.1
Zinc	mg/Kg	18.3
Mercury	mg/Kg	ND (0.11) U
General Chemistry		
Total Solids	%	88.5

Notes:

ND - Non-detect at associated value.
U - Non-detect at associated value.

APPENDIX G
SUMMARY OF ANALYTICAL RESULTS - SOUTHWEST AREA

APPENDIX G

SUMMARY OF ANALYTICAL RESULTS
SOUTHWEST AREA
TOLEDO, OHIO

Sample Location:		*SW CORNER-151*	*SW CORNER-152*	*SW CORNER-153*	*SW CORNER-155*	*SW CORNER-154*	*SW CORNER-waste composite*
Sample ID:		*S-12609-110100-KMB-1125*	*S-12609-110100-KMB-1126*	*S-12609-110100-KMB-1127*	*S-12609-110100-KMB-1128*	*S-12609-110100-KMB-1129*	*S-12609-110100-KMB-1130*
Sample Date:		*11/1/2000*	*11/1/2000*	*11/1/2000*	*11/1/2000*	*11/1/2000*	*11/1/2000*
Parameter	*Unit*						
PCBs							
Aroclor-1016	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	ND (39)	ND (43)
Aroclor-1221	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	ND (39)	ND (43)
Aroclor-1232	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	ND (39)	ND (43)
Aroclor-1242	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	ND (39)	ND (43)
Aroclor-1248	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	170	ND (43)
Aroclor-1254	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	ND (39)	ND (43)
Aroclor-1260	ug/Kg	ND (42)	ND (37)	ND (38)	ND (42)	ND (39)	ND (43)
General Chemistry							
Total Solids	%	78.3	89.8	86.2	78.4	84.5	76.5