



April 5, 2005  
(1311.003 – new work)

Mr. Keld Lauridsen  
Wisconsin Department of Natural Resources  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

RE: Annual Sampling Proposal for Spring, 2005 Event at Better Brite Site, DePere, Wisconsin

Dear Keld:

Enclosed please find our proposal for the above site. The sampling requirements are discussed in Section 7.0 of the Spring 2004 Monitoring Report, and are summarized below:

Groundwater elevations (33) will be taken at 16 Chrome Shop Monitor Wells (Sec. 2.1 of Spring 2004 Monitoring Report (S2004MR), 16 Zinc Shop Monitor Wells (Sec. 2.2 of S2004MR), and the Zinc Shop Sump.

16 Monitor Wells at the Zinc Shop, the Zinc Shop Sump, and MW-107, MW-110, MW-111, MW-115, and MW-116 at the Chrome Shop will be measured for indicator parameters of pH, temperature, conductivity, color, odor, and turbidity.

16 Monitor Wells and the Sump at the Zinc Shop will be sampled for analyses of Total Chromium and Hexavalent Chromium, with one duplicate sample collected.

MW-107, MW-110, MW-111, MW-115, and MW-116 at the Chrome Shop will be sampled for analyses of Total Chromium, Hexavalent Chromium, Sulfate, and Iron, with one duplicate sample collected.

All samples will be analyzed by a Wisconsin-certified laboratory. Unfiltered samples will be submitted for analyses. The Zinc Shop Sump will be sampled for volatile organic compounds (VOCs), as it is to be sampled on an every-other-year basis (2003 and 2005). MW-116 will also be sampled for VOCs. All purge water will be disposed of and treated using the existing pretreatment system at the Zinc Shop.

Grounds at both shops and the treatment system exterior will be evaluated to determine if any maintenance is required. The foundation drain sump manhole access will be observed to determine.

if any maintenance is required. Bob Kennedy of the City of DePere will be contacted about treatment system performance. A report will be prepared which summarizes the sampling activities, compares the results to NR140 ground water standards, makes recommendations for future sampling modifications, if warranted, and summarizes the results of the shop and treatment system inspection. The report will also include data tables and water table and potentiometric surface maps. **The VOC results of past sampling events are tabulated in this report beginning in May, 2004.**

Costs

The annual sampling event cost for the above scope of work is **\$4,991.00**.

The field representative for GeoTrans will be Todd Thomson.

GeoTrans will continue to comply with all WDNR contract provisions, including insurance requirements, if awarded this work. We appreciate this opportunity to provide professional services to the WDNR.

I trust this information meets your needs. If you have any questions, please do not hesitate to call (262) 792-1282.

Sincerely,  
GEOTRANS, INC.



Daniel L. Morgan, P. E.  
Senior Engineer

**Lauridsen, Keld B.**

---

**From:** Lauridsen, Keld B.  
**Sent:** Monday, May 02, 2005 2:42 PM  
**To:** 'Dan Morgan'  
**Subject:** RE: Confirmation to proceed with 2005 Better Brite sampling

Dan,

I have received your cost proposal for the Spring sampling event at Better Brite. This email serves as Department approval of \$4,991 to complete the scope of work outlined in the "Annual Sampling Proposal for Spring 2005 Event at Better Brite site, De Pere, Wisconsin" received on April 12, 2005.

I never received the first email you sent. Very strange as my email address has not changed.

Let me know if you need anything else,

-Keld

Keld B. Lauridsen  
Hydrogeologist  
Wisconsin Department of Natural Resources  
2984 Shawano Avenue.  
P.O. Box 10448  
Green Bay, WI 54307-0448

Phone (920) 662-5420  
Fax (920) 662-5197  
E-mail [Keld.Lauridsen@dnr.state.wi.us](mailto:Keld.Lauridsen@dnr.state.wi.us)  
Visit us on the web -----> [www.dnr.state.wi.us/org/aw/rr](http://www.dnr.state.wi.us/org/aw/rr)

-----Original Message-----

**From:** Dan Morgan [<mailto:dmorgan@geotransinc.com>]  
**Sent:** Friday, April 29, 2005 4:12 PM  
**To:** Lauridsen, Keld B.  
**Cc:** Dan Morgan  
**Subject:** Fwd: Confirmation to proceed with 2005 Better Brite sampling

I sent this to your old email address.

It didn't come back as undeliverable, so it must be on some server somewhere.

Anyway, hope you get this Monday, May 2. Let me know if there are any problems.

Thanks.

**Lauridsen, Keld B.**

---

**From:** Dan Morgan [dmorgan@geotransinc.com]  
**Sent:** Friday, April 29, 2005 4:12 PM  
**To:** Lauridsen, Keld B.  
**Cc:** Dan Morgan  
**Subject:** Fwd: Confirmation to proceed with 2005 Better Brite sampling



Confirmation to  
proceed with 2...

I sent this to your old email address.

It didn't come back as undeliverable, so it must be on some server  
somewhere.

Anyway, hope you get this Monday, May 2. Let me know if there are any  
problems.

Thanks.

**Lauridsen, Keld B.**

---

**From:** Dan Morgan [dmorgan@geotransinc.com]  
**Sent:** Wednesday, April 27, 2005 9:27 AM  
**To:** Keld.Lauridsne@dnr.state.wi.us  
**Cc:** Dan Morgan  
**Subject:** Confirmation to proceed with 2005 Better Brite sampling

Please reply to this email so I have a paper document (copy of email) indicating your approval of the \$4,991 amount to proceed with the Spring 2005 event. I need this to have my accounting people open a GeoTrans charge number.

Also, I will assume you want only one invoice at the conclusion of the report.

Thank you.



175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

262-792-1282 FAX 262-792-1310

**LETTER OF TRANSMITTAL**

TO: WDNR  
Attn: K. Lauridsen  
2984 Shawano Avenue PO Box 10448  
Green Bay, WI 54307-0448

DATE: June 14, 2004  
RE: Better Brite  
JOB NO: 1311.007



We are sending you the following:

No. Of Copies	Description
2	Spring 2005 Groundwater Monitoring Report

**These are Transmitted as checked below:**

- For approval
- For your use
- As requested
- For review and comment
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: One for WDNR, one for City of DePere library.

Transmitted by:

- First Class Mail
- Federal Express
- Courier
- Registered Mail
- UPS
- Other \_\_\_\_\_

Signed: David L. Morgan

cc:

6/22/05  
Discussed sampling results w/ Mr. Morgan. I suggested to have MW 111 MW 115 & MW 116 resampled in August or September. Mr. Morgan will submit proposal. KBL

**SPRING 2005 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**



June 14, 2005

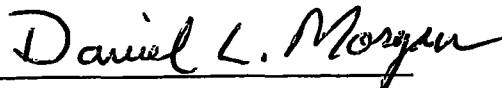
Prepared For:

Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
2984 Shawano Avenue  
P.O. Box 10448  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. 1311.007.01



Daniel L. Morgan, P.E.  
Senior Engineer

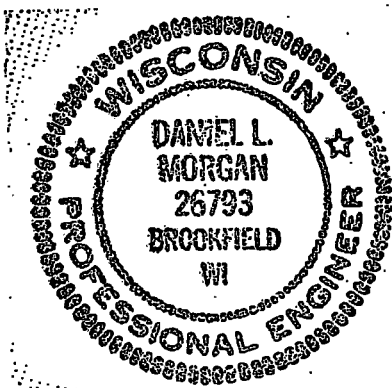
**CERTIFICATION**

This report,  
**SPRING 2005 MONITORING REPORT**  
**BETTER BRITE PLATING, INC.**  
**DE PERE, WISCONSIN**

dated June 14, 2005

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional engineer as defined in s. NR712.03(2), and that to the best of my knowledge, all information contained in this document is correct.



*Daniel L. Morgan*

Daniel L. Morgan, P.E.  
Senior Engineer



# TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfates/Sulfides	3-2
3.1.5 VOCs	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-2

## **TABLE OF CONTENTS (CONTINUED)**

### **FIGURES**

- 4-1 Water Table Map (May 2005) Chrome Shop
- 4-2 Potentiometric Surface Map (May 2005) Chrome Shop
- 4-3 Water Table Map (May 2005) Zinc Shop
- 4-4 Potentiometric Surface Map (May 2005) Zinc Shop
- 4-5 Extent of Hexavalent Chromium Impacts (May 2005) Zinc Shop

### **TABLES**

- 4-1 Groundwater Analytical Results
- 4-2 VOC Groundwater Analytical Summary

### **APPENDIX**

- 1. Water Elevation Measurements
- 2. Field Water Quality Data Sheets
- 3. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located approximately 2,000 feet apart in Sections 21 and 28 in De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October 1989 and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the Fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium-contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. The Spring 2005 sampling event took place on May 11<sup>th</sup> and 12<sup>th</sup>, and the following report summarizes the findings.

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Spring 2005 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 15 wells and sample collection and analysis from five existing wells (MW-107, MW-110, MW-111, and MW-115, and MW-116). The following wells had groundwater elevations measured:

B-104A	MW-107A	MW-110A	MW-115
MW-106	MW-108	MW-111	MW-115A
MW-106A	MW-108A	MW-112	MW-116
MW-107	MW-110	MW-113	

### 2.2 Zinc Shop

Spring 2005 post remedial action groundwater monitoring at the Zinc Shop included 14 existing wells and the extraction sump (Zinc Sump; Figure 2-2). Monitoring wells MW-2 and MW-10 could not be located, and therefore sampled, as the area had been repaved with crushed gravel. Groundwater samples and water table elevations were taken at all locations. The wells in the monitoring plan include:

MW-3	MW-5A	MW-7A	MW-10
MW-4	MW-6	MW-8	MW-11
MW-4A	MW-6A	MW-8A	MW-12
MW-5	MW-7	MW-9	Zinc Sump

MW-10 will be sampled in the future if located.

## 3.0 SAMPLE ANALYSIS PARAMETERS

### 3.1 Groundwater

Six groups of parameters were included in the groundwater analysis. These are groundwater elevation, field measurements (annotated below), hexavalent chromium, total chromium, iron, and sulfate. Iron and sulfate were analyzed at five wells at the Chrome shop site. The groundwater samples were collected following GeoTrans' Standard Operating Procedures.

#### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points indicated in Sections 2.1 and 2.2. Elevation was measured to 0.01 ft. using an electronic water level probe.

#### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and clarity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and clarity were determined by visual and olfactory examination.

#### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Pace Analytical Services, Inc. of Green Bay, Wisconsin. Pace Analytical is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

#### 3.1.4 Iron and Sulfates

Per the request of Keld Lauridson, WDNR, groundwater samples from three monitoring wells at the former Chrome shop site were analyzed for iron and sulfate beginning in June 2001 (increased to five wells in 2004). The results will be used to determine whether the reagents used to stabilize the chromium have leached into the ground water. Due to a printing error on the chain of custody, sulfides were run instead of sulfates for the Fall 2001 and Spring 2002 sampling events. Samples from these wells were analyzed for both sulfide and sulfate during the Fall 2002 and Spring 2003 sampling event. This was done to see if any correlation may be made between the two parameters. One additional well (MW-111) at the Chrome Shop site was analyzed for these parameters during the Fall 2002 and Spring 2003 sampling events. Iron and sulfate only were analyzed in samples collected during the Spring 2004 and 2005 events.

#### 3.1.5 VOCs

VOCs were sampled during the Spring 2005 event at the Zinc Shop Sump and MW-116. They are next scheduled to be sampled in Spring 2007.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

No significant presampling activities occurred between the Spring 2004 and Spring 2005 sampling events.

### 4.2 Chrome Shop Monitoring Results

The water table and potentiometric surface maps for the Chrome Shop site are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table is primarily to the west. This flow pattern follows local topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. There is one well, B-104A, that has had water table measurements inconsistent with general topography for the past sampling rounds. This well is in the treatment area and therefore may have subsurface conditions that prohibit the free movement of water in and out of the well screen. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and clarity, were measured and the results are reported on the field water quality data sheets included as Appendix B. A yellow color was noted in the MW-116 sample.

Hexavalent and total chromium concentrations were measured at MW-107, MW-110, MW-111, MW-115 and MW-116. MW-116 had a hexavalent chromium impact of 52000 ppb, and MW-111 had a hexavalent chromium impact of 250 ppb, both of which exceed the ES for hexavalent chromium. Hexavalent chromium was not detected in MW-107, MW-110 or MW-115.

Total chromium was detected above the PAL in wells MW-111, and MW-116, with both wells exceeding the ES. Monitoring well MW-115 had total chromium impacts of 1.1 ppb and MW-110 had total chromium impacts of 0.89 ppb, both of which are below the PAL. These values are consistent with previous measurements at this site.



The analysis of iron and sulfates from Spring 2001 to Spring 2005 indicates no consistent relationship between iron and chromium concentrations in MW-116. As the concentrations of hexavalent chromium have increased (4400 to 52000 ppb) in MW-116, iron concentrations first dropped (840 ppb in 2001 to 280 ppb (43 ppb in a duplicated sample) in 2004 before increasing back to 950 ppb (710 ppb in a duplicate sample) in 2005.

Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," three wells, MW-107, MW-115 and MW-116 exceeded the Enforcement Standard (ES), and one well, MW-111, exceeded the Preventive Action Limit (PAL) for iron.

Sulfate concentrations in MW-116 decreased by one order of magnitude from 2004 to 2005 as chromium and hexavalent chromium doubled. There does not seem to be a consistent relationship between sulfate and chromium.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Spring 2005 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows significant draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is little-changed from 2004 with flow predominantly to the north, east and west. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and clarity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Yellow color was noted in the groundwater at the sump and MW-6. A light reddish-brown color was noted at MW-7.

Hexavalent and total chromium concentrations were measured at 15 locations. Hexavalent chromium was detected at five sample points, MW-5, MW-6, MW-9 and MW-10, and the sump. Maximum hexavalent chromium concentrations were detected at the sump and MW-6, with concentrations of 15,000 ppb and 12,000 ppb, respectively. Concentrations of hexavalent chromium decrease or remained stable across the site. Total chromium was detected above the PAL at eight locations including the zinc sump, MW-3, MW-5, MW-6, MW-6A, MW-7, MW-9 and MW-10, with MW-5, MW-6, MW-10 and the sump exceeding the ES. Concentrations of total chromium ranged from 0.65 to 13,000 ppb. The extent of hexavalent chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

Historical VOC data is tabulated in Table 4-2. For the Spring 2005 sampling event, 1,1 - Dichloroethene slightly exceeds the ~~PAL~~<sup>ES</sup> at MW-116; this is the first VOC to exceed an ES at the site.

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

### 5.2 Zinc Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

Chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the increasing concentration of hexavalent chromium in ground water within the stabilization area (MW-116) at the Chrome Shop at concentrations above the 100 ppb ES and 2) the increase of hexavalent chromium and total chromium in MW-111 outside of the stabilization area at the Chrome Shop site. Due to the effectiveness of the remediation system in place at the Zinc Shop of preventing the expansion of the contamination plume, there are no concerns regarding the conditions at the Zinc Shop site.

Due to the overall stable conditions at Zinc Shop and portions of the Chrome Shop, several wells should be considered for elimination from the sampling program or reduced sampling frequency for the next contract period.

### 6.1 Chrome Shop Recommendations

Sampling results at MW-116 show concentrations increasing in both hexavalent and total chromium. The steady increase in hexavalent chromium concentration at this well along with the decrease in iron concentrations indicate that the treatment performed in the Fall of 1999 may be losing its ability to stabilize the hexavalent chromium at the Chrome Shop site. Based on these observations, the WDNR may want to begin consideration of additional treatment options at the Chrome Shop site.

Biannual sampling was originally proposed for the wells at the Chrome Shop. Due to the increasing concentrations of hexavalent chromium in ground water in MW-116, annual sampling at MW-116 and the two downgradient wells (MW-111 and MW-115) should continue to determine whether there is any migration of chromium off-site. In addition to hexavalent chromium and total chromium analysis, analysis of iron and sulfate at these wells may provide useful information pertaining to the ability of the groundwater to stabilize chromium at the site. Iron and sulfate analysis should continue an annual basis during the next contract period.

Due to the detection of a VOC in MW-116, at a level above the ES, VOC sampling should occur annually to monitor possible future increases.

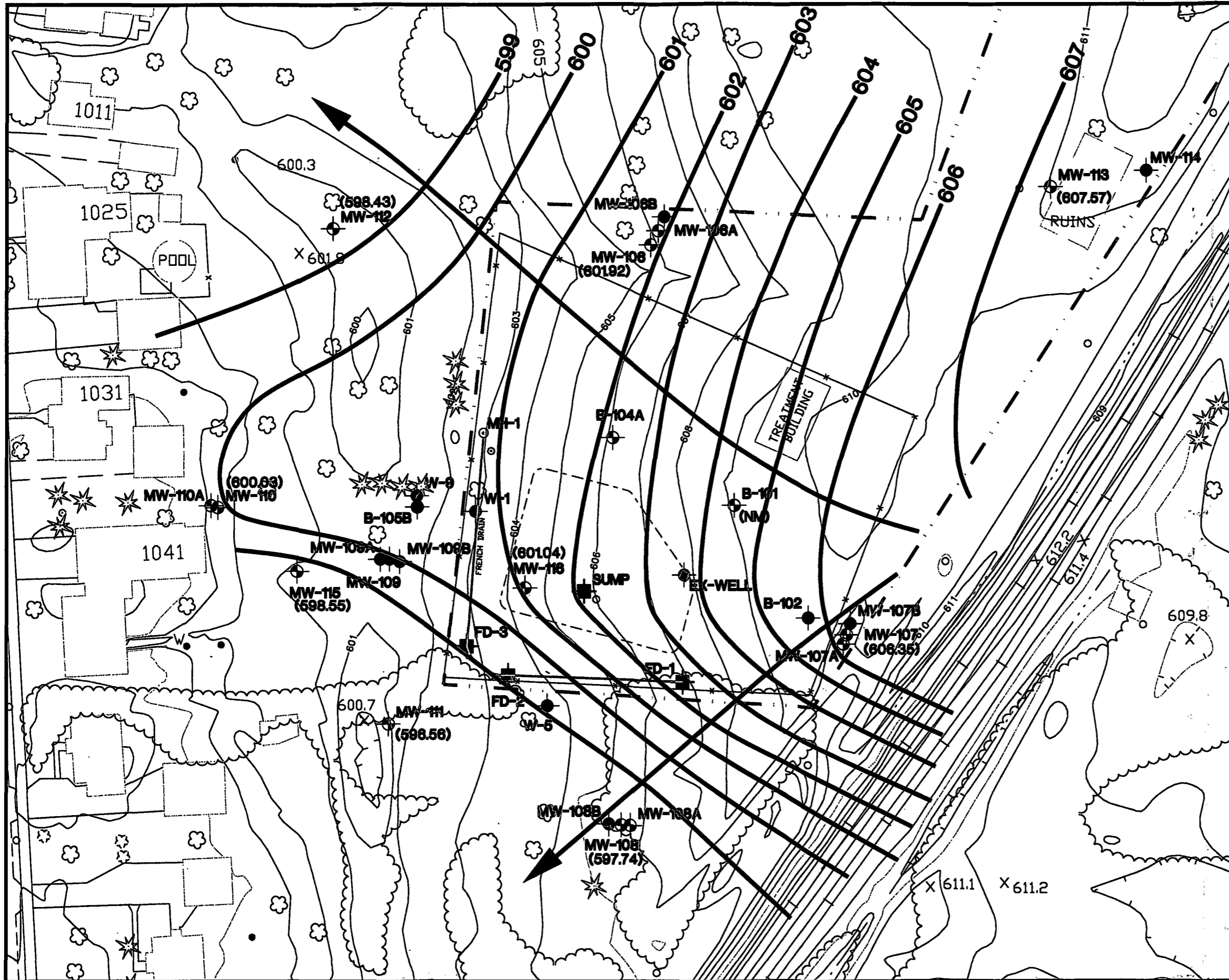
## 6.2 Zinc Shop Recommendations

The Zinc shop hexavalent chromium results indicate that the treatment system at the Zinc sump has been effective at containing the contamination and may be reducing contaminant levels in contaminated wells. Due to the stable nature of the chromium concentrations and limited nature of the contamination plume a reduction in the sampling plan at the Zinc shop should be considered.




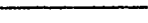




Wells that have not shown the presence of total or hexavalent chromium above the PAL should be considered for elimination. Three wells that meet these criteria are: MW-8, MW-11, and MW-12.

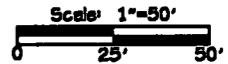
The remaining wells that have had hexavalent chromium impacts above the PAL or those that are immediately downgradient of the contamination plume should continue to be sampled on an annual basis. Nine wells that fit these criteria are: MW-3, MW-4, MW-5, MW-6, MW-7A, MW-8A, MW-9, MW-10, and the zinc sump.

## FIGURES



### EXPLANATION

-  MW-113 MONITOR WELL LOCATION AND DESIGNATION
-  MW-11 ABANDONED WELL (any filled in well symbol)
-  MH-1 MANHOLE LOCATION
-  SUMP BOUNDARY
-  PROPERTY LINE
-  WATER TABLE CONTOURS (Dashed where Inferred)
-  (607.57) WATER TABLE ELEVATION
-  (NM) NOT MEASURED



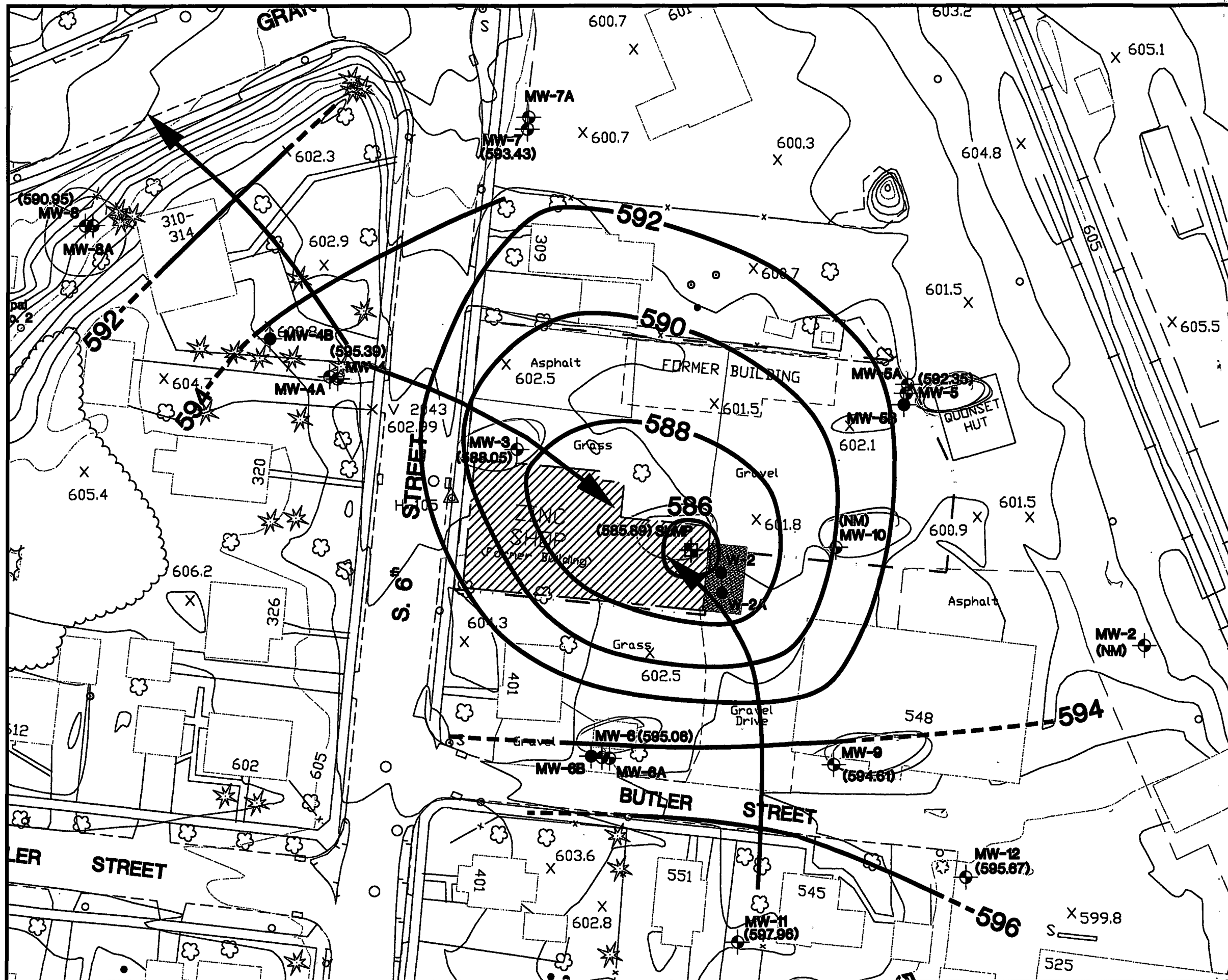
Basemap from Aero-Metric Engineering, Inc. 11/7/91

BETTER BRITE DePERE, WISCONSIN	DATE: 8-10-05
<b>WATER TABLE MAP (MAY 2005) CHROME SHOP</b>	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.006









 **Geotrans, Inc.** Figure 4-1  
A TETRA TECH COMPANY

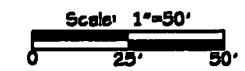






### EXPLANATION

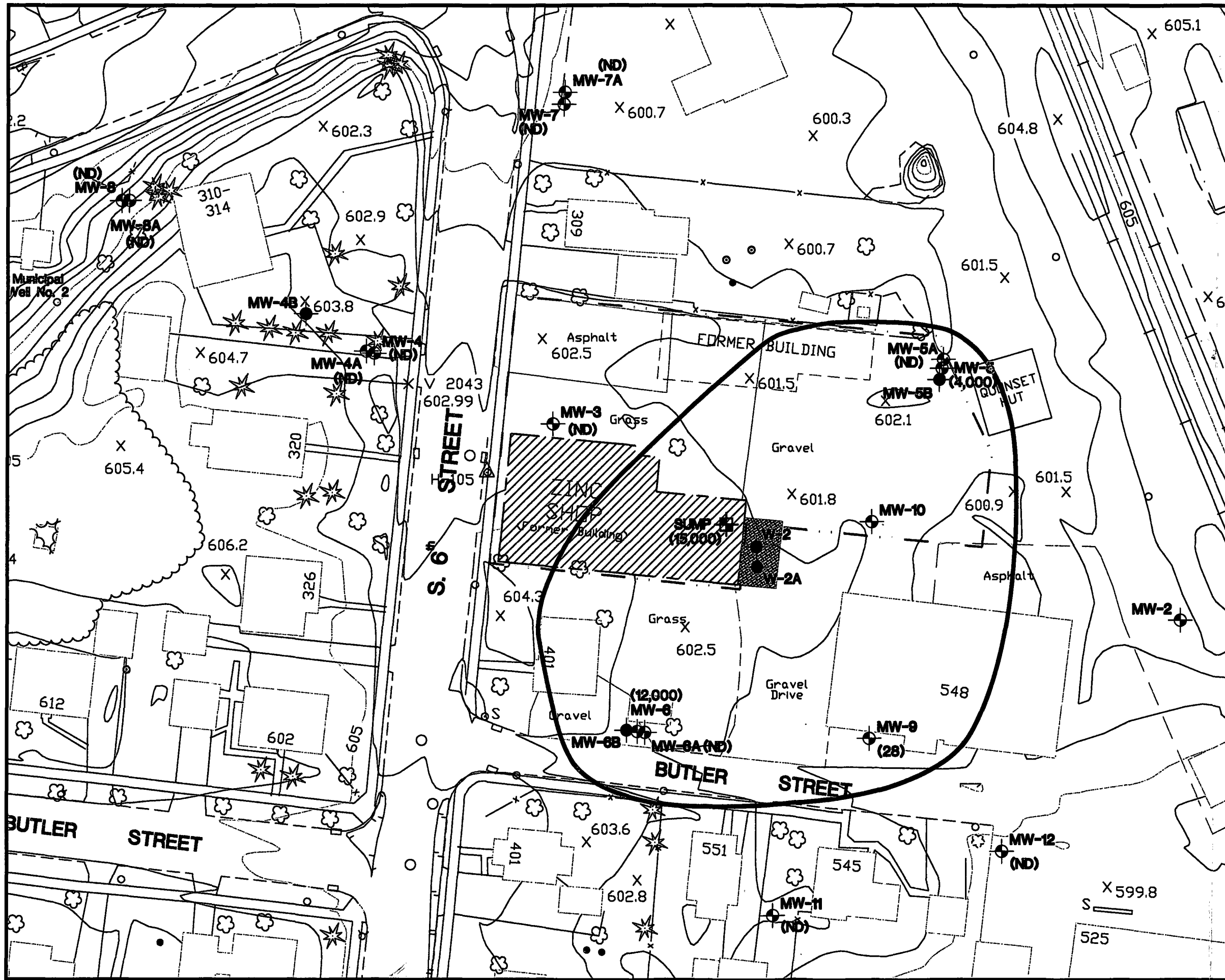
-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **WATER TABLE CONTOURS (Dashed where inferred)**
- (588.05)** **WATER TABLE ELEVATION**
- (NM)** **NOT MEASURED**



Basemap from Aero-Metric Engineering, Inc. 11/7/91

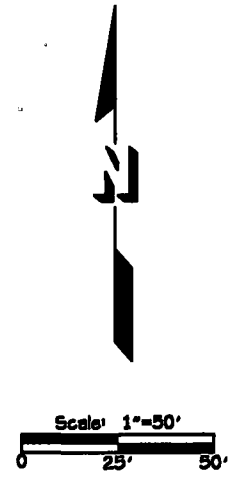
BETTER BRITE DePERE, WISCONSIN	DATE: 6-13-05
<b>WATER TABLE MAP (MAY 2005) ZINC SHOP</b>	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.006





**EXPLANATION**

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where Inferred
- (12,000) HEXAVALENT CHROMIUM CONCENTRATION (ppb)
- (ND) NOT DETECTED



Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 6-13-05
EXTENT OF HEXAVALENT CHROMIUM IMPACTS (MAY 2005) ZINC SHOP	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.006

**Geotrans, Inc.**  
A TETRA TECH COMPANY

Figure 4-5

## TABLES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
CHROME SHOP	Chrome Sump	Aug-94	<u>620000</u>	<u>694000</u>	NA	NA	NA
		Oct-94	<u>300200</u>	<u>297000</u>	NA	NA	NA
		Apr-98	<u>195000</u>	<u>192000</u>	NA	NA	NA
		Jul-98	<u>132000</u>		NA	NA	NA
	French Drain	Aug-94	<u>25800</u>	<u>22000</u>	NA	NA	NA
		Oct-94	<u>32000</u>	<u>31700</u>	NA	NA	NA
		Apr-98	<u>1060</u>	<u>1010</u>	NA	NA	NA
		Jul-98	<u>336</u>	<u>312</u>	NA	NA	NA
	B-101	Aug-94	<10	<3.4	NA	NA	NA
		Oct-94	<10		NA	NA	NA
	MW-106	Aug-94	7	<2.8	NA	NA	NA
		DUP.	<10	<2.8	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		DUP.	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		DUP	<10	<5	NA	NA	NA
		May-00	<4.2	4	NA	NA	NA
	MW-106A	Aug-94	<10	<2.8	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	9.4	NA	NA	NA
	MW-106B	Aug-94	<10	NA	NA	NA	NA
	MW-107	Aug-94	<10	4.1 BJ	NA	NA	NA
		Oct-94	<10 J	<3.4	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.2	NA	NA	NA
		Jun-01	NA	NA	530	50	NA
		Nov-01	<4.2	26	3900	NA	1800
May-02		7.8	1.2	230	NA	2300	
DUP		100	1.9	490	NA	2800	
Nov-02		NA	NA	8200	140000	2300	
May-03		<4.2	1.6	490	95000	1700	
May-04		6.5	1.7	260	100000	NA	
May-05		<5.0	0.89	380	97000	NA	
MW-107A		Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10 J	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	16	NA	NA	NA	
MW-107B	Aug-94	<10	NA	NA	NA	NA	
MW-108	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	NA	NA	NA	NA	
	DUP	<10	<5	NA	NA	NA	
MW-108A	Aug-94	<10	3.0 BJ	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	55	NA	NA	NA	
MW-108B	Aug-94	<10	NA	NA	NA	NA	
MW-109	Aug-94	6780	9570	NA	NA	NA	
	Oct-94	2400	1980	NA	NA	NA	
	DUP.	3100	1700	NA	NA	NA	
	Apr-98	16500	18600	NA	NA	NA	
	Jul-98	12200	11100	NA	NA	NA	
MW-109A	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10	1.3 B	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	Jul-98	<10	7	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
CHROME SHOP CONT'D	MW-109B	Aug-94	<10	NA	NA	NA	
		Oct-94	<10	NA	NA	NA	
	MW-110	Aug-94	<10	3.6 BJ	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	37	NA	NA	NA
		May-04	<2.5	11	3400	230000	NA
	May-05	<5.0	0.89	82	70000	NA	
	MW-110A	Aug-94	<10	<2.8	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	25	NA	NA	NA
	MW-111	Aug-94	<10	<3.4	NA	NA	NA
		DUP.	<10	<3.4	NA	NA	NA
		Oct-94	<10	<0.70	NA	NA	NA
		Apr-98	226	<5	NA	NA	NA
		Jul-98	22	27	NA	NA	NA
		Nov-98	<0.5	<0.5	NA	NA	NA
		May-00	<4.2	36	NA	NA	NA
		Nov-02	<4.2	43	4400	130000	2600
		DUP	<4.2	38	3400	100000	280
		May-03	5.2	33	2700	98000	1400
		May-04	50	150	5000	93000	NA
		May-05	250	260	200	87000	NA
		MW-112	Oct-94	<10	<0.70	NA	NA
	Nov-94		<10	<2.5	NA	NA	NA
	Apr-98		<10	<5	NA	NA	NA
	May-00		<4.2	4.1	NA	NA	NA
	MW-113	Aug-94	140	99.7	NA	NA	NA
		Oct-94	<10 J	8.6 B	NA	NA	NA
		May-95	43	20.3	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		Jul-98	<10	12	NA	NA	NA
	May-00	<4.2	22	NA	NA	NA	
	MW-114	Mar-95	<10 J	<2.9	NA	NA	NA
		DUP.	<10 J	<2.9	NA	NA	NA
		May-95	<10 J	<1.0	NA	NA	NA
		DUP.	<10 J	<1.0	NA	NA	NA
	MW-115	Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	6.0	NA	NA	NA
		Jun-01	<4.2	<0.52	160	92	NA
		Nov-01	<4.2	12	1100	NA	3000
		DUP	<4.2	10	3300	NA	3300
		May-02	<4.2	38	19000	NA	2800
		Nov-02	<4.2	38	7000	130000	3100
		May-03	<4.2	260	9700	90000	1400
		DUP	<4.2	56	3600	89000	1400
		May-04	<2.5	1.3	130	34000	NA
	May-05	<5.0	1.1	320	44000	NA	
	MW-115A	May-00	<4.2	12.0	NA	NA	NA
MW-116	May-00	1600	470	NA	NA	NA	
	DUP.	1500	460	NA	NA	NA	
	Nov-00	37	23	NA	NA	NA	
	DUP	46	24	NA	NA	NA	
	Jun-01	4400	2300	840	2100	NA	
	Nov-01	3300	2100	690	NA	2400	
	May-02	12000	7300	530	NA	2500	
	Nov-02	5100	3200	720	20000	2900	
	May-03	8900	6000	410	2700000	1700	
	May-04	28000	22000	43	19000	NA	
	DUP	28000	22000	280	24000	NA	
	May-05	52000	52000	950	1900	NA	
	DUP	54000	53000	710	1800	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
	NR 140 PAL	10	10	150	125000	NO PAL	
	NR 140 ES	100	100	300	250000	NO ES	
ZINC SHOP	PF-MW-2	May-00	<4.2	7.8	NA	NA	NA
		Jun-01	<4.2	7.1	NA	NA	NA
		Nov-01	<4.2	10	NA	NA	NA
		May-02	<4.2	<0.52	NA	NA	NA
		Nov-02	<4.2	2.4	NA	NA	NA
	May-03	<4.2	49	NA	NA	NA	
	MW-3	May-00	230	330	NA	NA	NA
		Nov-00	50	130	NA	NA	NA
		Jun-01	3500	2200	NA	NA	NA
		Nov-01	38	1700	NA	NA	NA
		May-02	<4.2	220	NA	NA	NA
		Nov-02	<4.2	18	NA	NA	NA
		May-03	110	55	NA	NA	NA
		Dup	83	49	NA	NA	NA
		May-04	89	190	NA	NA	NA
		May-05	<5.0	17	NA	NA	NA
	MW-4	Aug-94	<10	<3.4	NA	NA	NA
		DUP	<10	<3.4	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		DUP	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.6	NA	NA	NA
		Nov-00	<4.2	2.4	NA	NA	NA
		Jun-01	<4.2	12	NA	NA	NA
		Nov-01	<4.2	7.4	NA	NA	NA
		May-02	<4.2	1.4	NA	NA	NA
		Nov-02	<4.2	15	NA	NA	NA
		May-03	<4.2	27	NA	NA	NA
		May-04	<2.5	1.8	NA	NA	NA
		May-05	<5.0	9	NA	NA	NA
	MW-4A	Aug-94	<10	<3.4	NA	NA	NA
		Oct-94	<10 J	6.0 B	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	8.7	NA	NA	NA
		Nov-00	<4.2	3.7	NA	NA	NA
		Jun-01	<4.2	3.7	NA	NA	NA
		Nov-01	<4.2	13	NA	NA	NA
		May-02	<4.2	38	NA	NA	NA
		Nov-02	<4.2	28	NA	NA	NA
		May-03	<4.2	32	NA	NA	NA
		May-04	<2.5	0.75	NA	NA	NA
	May-05	<5.0	2	NA	NA	NA	
	MW-4B	Oct-94	<10	<0.70	NA	NA	NA
		Nov-94	<10	<2.5	NA	NA	NA
	MW-5	Aug-94	1590	827	NA	NA	NA
		Oct-94	460 J	299 J	NA	NA	NA
		DUP	510 J	763 J	NA	NA	NA
		Apr-98	212	631	NA	NA	NA
		DUP	207	667	NA	NA	NA
		Jul-98	1420	1230	NA	NA	NA
May-00		120	190	NA	NA	NA	
Nov-00		<4.2	6.6	NA	NA	NA	
Jun-01		590	450	NA	NA	NA	
Nov-02		2200	2200	NA	NA	NA	
DUP		2200	2200	NA	NA	NA	
May-03		4900	3600	NA	NA	NA	
May-04		4700	3100	NA	NA	NA	
May-05	4000	3200	NA	NA	NA		

Concentrations in ug/L  
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 NA - Compound not analyzed  
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 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
ZINC SHOP CONT'D	MW-5A	Aug-94	<10	<3.4	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	6.5	NA	NA	NA
		Nov-00	340	380	NA	NA	NA
		Jun-01	<4.2	3.9	NA	NA	NA
		Nov-02	<4.2	34	NA	NA	NA
		May-03	<4.2	22	NA	NA	NA
		DUP	<4.2	49	NA	NA	NA
		May-04	<2.5	2.7	NA	NA	NA
	May-05	<5.0	7.6	NA	NA	NA	
	MW-5B	Aug-94	NA	NA	NA	NA	NA
		Oct-94	<10	<5	NA	NA	NA
	MW-6	Aug-94	15900	39200	NA	NA	NA
		Oct-94	47000	41,900 J	NA	NA	NA
		Apr-98	7650	4560	NA	NA	NA
		May-00	23000	26000	NA	NA	NA
		Nov-00	26000	23000	NA	NA	NA
		Jun-01	14000	15000	NA	NA	NA
		Nov-01	25000	29000	NA	NA	NA
		May-02	13000	13000	NA	NA	NA
		Nov-02	21000	22000	NA	NA	NA
		May-03	11000	9300	NA	NA	NA
		May-04	13000	15000	NA	NA	NA
		May-05	12000	11000	NA	NA	NA
		DUP	12000	11000	NA	NA	NA
	MW-6A	Aug-94	<10	4.9 B	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	6.6	22	NA	NA	NA
		Nov-00	<4.2	13	NA	NA	NA
		6/01	<4.2	11	NA	NA	NA
		Nov-01	<4.2	7.1	NA	NA	NA
		May-02	<4.2	51	NA	NA	NA
		Nov-02	<4.2	83	NA	NA	NA
		May-03	<4.2	59	NA	NA	NA
	May-04	<2.5	3.4	NA	NA	NA	
	May-05	<5.0	12	NA	NA	NA	
	MW-6B	Aug-94	<10	NA	NA	NA	NA
	MW-7	Aug-94	<10	6.6 BJ	NA	NA	NA
		DUP	<10	<2.8	NA	NA	NA
		Oct-94	<10 J	36.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		DUP	<10	<5	NA	NA	NA
		May-00	<4.2	3.9	NA	NA	NA
		Nov-00	<4.2	1.1	NA	NA	NA
		Jun-01	<4.2	2.7	NA	NA	NA
		Nov-01	<4.2	9.7	NA	NA	NA
		May-02	<4.2	3.2	NA	NA	NA
		Nov-02	<4.2	1.9	NA	NA	NA
		May-03	<4.2	0.91	NA	NA	NA
		May-04	<2.5	0.88	NA	NA	NA
		May-05	<5.0	32	NA	NA	NA
		MW-7A	Aug-94	<10	<2.8	NA	NA
	Oct-94		<10 J	<3.4 J	NA	NA	NA
	Apr-98		<10	<5	NA	NA	NA
	May-00		<4.2	4.7	NA	NA	NA
	Nov-00		7.9	5	NA	NA	NA
	Jun-01		<4.2	2.5	NA	NA	NA
	Nov-01		<4.2	<.52	NA	NA	NA
	May-02		<4.2	1.4	NA	NA	NA
	Nov-02		<4.2	0.98	NA	NA	NA
	May-03		<4.2	0.85	NA	NA	NA
	May-04		3.9	2.2	NA	NA	NA
	May-05		<5.0	0.65	NA	NA	NA

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES



Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide		
NR 140 PAL		10	10	150	125000	NO PAL		
NR 140 ES		100	100	300	250000	NO ES		
ZINC SHOP CONT'D	MW-8	Oct-94	<10	<0.70	NA	NA	NA	
		Nov-94	<10	<2.5	NA	NA	NA	
		DUP.	<10	<2.5	NA	NA	NA	
		Apr-98	<10	<5	NA	NA	NA	
		May-00	<4.2	15	NA	NA	NA	
		Nov-00	13	13	NA	NA	NA	
		Jun-01	5.3	2	NA	NA	NA	
		Nov-01	<4.2	2.3	NA	NA	NA	
		DUP	<4.2	6.7	NA	NA	NA	
		May-02	<4.2	4	NA	NA	NA	
		Nov-02	<4.2	23	NA	NA	NA	
		May-03	<4.2	2.2	NA	NA	NA	
		May-04	<2.5	1.7	NA	NA	NA	
		May-05	<5.0	1.1	NA	NA	NA	
		MW-8A	Oct-94	<10	<0.70	NA	NA	NA
	Nov-94		<10	<2.5	NA	NA	NA	
	Apr-98		<10	<5	NA	NA	NA	
	May-00		<4.2	16	NA	NA	NA	
	Nov-00		<4.2	34	NA	NA	NA	
	Jun-01		<4.2	3.7	NA	NA	NA	
	Nov-01		<4.2	14	NA	NA	NA	
	May-02		<4.2	2.5	NA	NA	NA	
	DUP		<4.2	11	NA	NA	NA	
	Nov-02		<4.2	20	NA	NA	NA	
	May-03		<4.2	13	NA	NA	NA	
	May-04		3.9	0.59	NA	NA	NA	
	May-05		<5.0	2.6	NA	NA	NA	
	MW-9		Aug-94	400	697	NA	NA	NA
			Oct-94	470 J	442 J	NA	NA	NA
		Apr-98	209	<5	NA	NA	NA	
		Jul-98	60	75	NA	NA	NA	
		Nov-00	13	15	NA	NA	NA	
		DUP	19	51	NA	NA	NA	
		Jun-01	28	180	NA	NA	NA	
		Nov-01	35	76	NA	NA	NA	
		May-02	75	72	NA	NA	NA	
		Nov-02	67	80	NA	NA	NA	
		May-03	32	53	NA	NA	NA	
		May-04	54	63	NA	NA	NA	
		Dup	50	46	NA	NA	NA	
	May-05	28	41	NA	NA	NA		
	MW-10	Aug-94	60300	53100	NA	NA	NA	
		Oct-94	60800 J	43,500 J	NA	NA	NA	
		Nov-00	20000	18000	NA	NA	NA	
		Jun-01	<4.2	20	NA	NA	NA	
Nov-02		35000	38000	NA	NA	NA		
May-04		25000	22000	NA	NA	NA		
MW-11	May-95	<10	<1.0	NA	NA	NA		
	Apr-98	<10	<5	NA	NA	NA		
	May-00	<4.2	7.0	NA	NA	NA		
	Nov-00	<4.2	4.1	NA	NA	NA		
	Jun-01	<4.2	3.6	NA	NA	NA		
	Nov-01	<4.2	7.8	NA	NA	NA		
	May-02	17	<20	NA	NA	NA		
	Nov-02	<4.2	27	NA	NA	NA		
	May-03	<4.2	12	NA	NA	NA		
	May-04	<2.5	2.3	NA	NA	NA		
May-05	<5.0	2.8	NA	NA	NA			

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
ZINC SHOP CONT'D	MW-12	Mar-95	<10 J	<2.9	NA	NA
		May-95	<10	<1.0	NA	NA
		Apr-98	<10	<5	NA	NA
		May-00	<4.2	4.8	NA	NA
		Nov-00	<4.2	6	NA	NA
		Jun-01	<4.2	6.4	NA	NA
		Nov-01	<4.2	<0.52	NA	NA
		May-02	<4.2	4.8	NA	NA
		Nov-02	<4.2	1.3	NA	NA
		May-03	<4.2	1.3	NA	NA
	May-04	<2.5	1.8	NA	NA	
	May-05	<5.0	8.1	NA	NA	
	MW-13	Mar-95	<10 J	<2.9	NA	NA
		May-95	<10	<1.0	NA	NA
	Zinc Sump	Aug-94	89000	209000	NA	NA
		Oct-94	144900	277000	NA	NA
		Apr-98	66000	38300	NA	NA
		Jul-98	131000	131000	NA	NA
		May-00	1800	1700	NA	NA
		Nov-00	41000	27000	NA	NA
		Jun-01	40000	110000	NA	NA
		Nov-01	23000	56000	NA	NA
		May-02	43000	14000	NA	NA
		Nov-03	23000	30000	NA	NA
		May-03	8400	6800	NA	NA
	May-04	24000	8400	NA	NA	
	May-05	15000	13000	NA	NA	
	Private	Aug-94	<10	<10	NA	NA
	Municipal	Aug-94	<10	<10	NA	NA
		DUP.	<10	<10	NA	NA
		Oct-94	<10	<10	NA	NA
		DUP.	<10	<10	NA	NA
USGS	Oct-94	<10	0.75 B	NA	NA	
USGS-A	Oct-94	<10	11.9	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-2  
 Better Brite  
 DePere, Wisconsin

VOC Groundwater Analytical Summary

		Benzene	sec-butylbenzene	Chloroethane	Chloroform	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Ethylbenzene	Isopropylbenzene	Methylene Chloride	MTBE	n-Propylbenzene	Tetrachloroethane	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Fluorotrichloromethane	1,3,5-Trimethylbenzene	Vinyl Chloride	Xylenes
		Volatile Organic Compounds (VOC)																					
NR140 PAL		0.5	None	80	0.6	200	85	0.5	0.7	140	None	0.5	12	None	0.5	0.2	40	0.5	0.5	None	96	0.02	1
NR140 ES		5	None	400	6	1000	850	5	7	700	None	5	60	None	5	1	200	5	5	None	480	0.2	10
Sample Location	Sample Date																						
Zinc Sump	5/4/2000	<0.25	<0.25	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.10	1.4	<0.25	<0.25	<0.25	<0.10	<0.25	<0.25
Zinc Sump	11/30/2000	<0.25	<0.25	<1.2	<1.2	<0.50	<1.2	<1.2	<1.2	<1.2	<0.25	<1.2	<1.2	<0.25	<1.2	<0.50	50	<1.2	<1.2	<0.25	<0.50	<1.2	<1.2
Zinc Sump	11/7/2002	<0.25	<0.25	<0.25	0.38	<0.50	2.4	<0.25	2.7	<0.25	<0.25	<0.25	<0.25	<0.25	0.64	<0.10	64	<0.25	<0.25	<0.25	<0.10	<0.25	<0.25
Zinc Sump	5/7/2003	<0.25	<0.25	<1.0	<0.25	<0.50	<0.50	<0.50	<0.50	<0.50	<0.25	<1.0	<0.50	<0.25	<0.50	<0.25	1.0	<0.25	<0.25	<0.25	<0.25	<0.50	<0.50
Zinc Sump	5/12/2005	<0.41	<0.89	<0.97	0.49	<0.99	2.7	0.52	3.2	<0.54	<0.59	<0.43	<0.61	<0.61	0.6	<0.67	84	<0.42	<0.48	<0.79	<0.63	<0.18	<2.63
MW-2	5/4/2000	1.3	1	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	0.37	2.6	<0.25	34	0.53	<0.25	0.12	<0.25	<0.25	<0.25	<0.25	<0.10	<0.25	<0.25
MW-116	6/5/2000	<0.10	<0.25	<0.25	<0.25	5.8	1.6	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	1.7	<0.10	3.2	<0.25	<0.25	4.4	<0.10	<0.25	<0.25
MW-116(D)	6/5/2000	<0.10	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	1.5	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
MW-116	5/12/2005	<0.41	<0.89	<0.97	<0.37	1.9	20	<0.38	9.6	<0.54	<0.59	<0.43	<0.61	<0.61	3	<0.64	37	<0.42	0.89	<0.79	<0.63	<0.18	<2.63
MW-116DUP	5/12/2005	<0.41	<0.89	<0.97	<0.37	1.9	22	<0.38	11	<0.54	<0.59	<0.43	<0.61	<0.61	3.4	<0.67	39	<0.42	0.77	<0.79	<0.63	<0.18	<2.63

NOTES:  
 Units reported are micrograms per liter (ug/L) which is approximately equal to parts per billion (ppb) unless otherwise noted.  
 PAL- Preventive Action Limit  
 ES - Enforcement Standard  
 NS - No Sample  
 - Not available or Not analyzed  
 VOC data prior to 2000 are contained in the "Remedial Action Documentation Report, February 21, 2000" and the "Final Design Report, January 14, 1999".  
*italic* - compound meets or exceeds PAL  
 < - Indicates less than.

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

# APPENDIX A: GROUNDWATER LEVELS

May 12, 2005

## CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85	Not Measured	
B-104A	606.08	5.29	600.79
MW-106	606.21	4.29	601.92
MW-106A	606.36	11.59	594.77
MW-107	608.41	2.06	606.35
MW-107A	608.33	18.53	589.8
MW-108	604.22	6.48	597.74
MW-108A	604.44	15.54	588.9
MW-110	603.05	3.02	600.03
MW-110A	603.31	12.4	590.91
MW-111	600.76	4.2	596.56
MW-112	600.61	2.18	598.43
MW-113	611.08	3.51	607.57
MW-115	601.04	2.49	598.55
MW-115A	601.01	12.65	588.36
MW-116	604.28	3.24	601.04

## ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-2	602.45	Not Measured	
MW-3	602.52	14.47	588.05
MW-4	602.99	7.6	595.39
MW-4A	603.29	7.31	595.98
MW-5	600.81	8.46	592.35
MW-5A	600.81	13.16	587.65
MW-6	602.33	7.27	595.06
MW-6A	605.19	10.55	594.64
MW-7	600.6	7.17	593.43
MW-7A	600.51	12.56	587.95
MW-8	598.18	7.23	590.95
MW-8A	598.59	15.75	582.84
MW-9	601.66	7.05	594.61
MW-10	601.53	Could not locate	
MW-11	602.41	4.45	597.96
MW-12	599.87	4.2	595.67
Sump	604.09	18.2	585.89

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

## CHROME SHOP

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: BETTER BRTE Chrome Shop  
 PROJECT #: 1311-007-01  
 LOCATION: DE PERE, WI.  
 PERSONNEL: JOHN M. THOMAS

INSTRUMENTS  
 TEMPERATURE: YSI model 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: WQ: HIRON

GENERAL:		SAMPLE POINT	MWS-107	MWS-111	MWS-115	MWS-110	MWS-116
WATER TYPE			<u>GROUND WATER</u>				→
DATE			<u>5-12-05</u>	<u>5-12-05</u>	<u>5-12-05</u>	<u>5-12-05</u>	<u>5-12-05</u>
CLOCK TIME			<u>08:20</u>	<u>08:30</u>	<u>08:40</u>	<u>08:50</u>	<u>09:00</u>
DEPTH TO WATER*			<u>2.06</u>	<u>4.20</u>	<u>2.49</u>	<u>3.02</u>	<u>3.24</u>
MEASURED WELL DEPTH			<u>15.54</u>	<u>14.53</u>	<u>14.61</u>	<u>14.61</u>	<u>19.01</u>
PURGE VOL/CASING VOL (g)			<u>9.224</u>	<u>7</u>	<u>8</u>	<u>8</u>	<u>10</u>
DEPTH SAMPLE TAKEN			<u>12</u>	<u>10</u>	<u>10</u>	<u>10</u>	<u>10</u>
SAMPLING DEVICE			<u>DECONTAMINATED</u>				→
FIELD TEMPERATURE (°C)			<u>10.0</u>	<u>8.1</u>	<u>10.1</u>	<u>9.3</u>	<u>10.5</u>
ELEC. COND. (µmhos/cm)	MEASURED		<u>145</u>	<u>524</u>	<u>728</u>	<u>1090</u>	<u>2355</u>
	AT 25°C		<u>904</u>	<u>763</u>	<u>984</u>	<u>1524</u>	<u>3205</u>
PH			<u>6.53</u>	<u>6.90</u>	<u>6.62</u>	<u>6.69</u>	<u>7.03</u>
ALKALINITY			<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
COLOR			<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>	<u>YELLOW</u>
ODOR			<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
CLARITY			<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>
SAMPLING PARAMETERS			# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
HEX. CR.			<u>1, 250ml, P</u> <u>N, No</u>				→
SULFATE			<u>1, 250ml, P</u> <u>N, No</u>				→
TOTAL CR.			<u>1, 250ml, P</u> <u>L, No</u>				→
IRON			<u>1, 250ml, P</u> <u>L, No</u>				→
VOC'S							<u>3, 40ml, G</u> <u>L, No</u>
LABORATORY: SENT TO:			<u>ENCHEM/PICK</u>				→
DATE SENT:			<u>5-12-05</u>				→
SAMPLED BY:			<u>JOHN M. THOMAS</u>				→

\*Measured from top of well riser.



## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: BETTER BETTE CHROME SHOP  
 PROJECT #: 1311007-01  
 LOCATION: DEPERE, WI.  
 PERSONNEL: JOHN M. THOMPSON

INSTRUMENTS  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: YSI MODEL 123  
 pH: \_\_\_\_\_  
 OTHER: YSI: HERON

GENERAL: SAMPLE POINT		<u>MUS-116-DUP</u>			
WATER TYPE		<u>GROUND WATER</u>			
DATE		<u>5-12-05</u>			
CLOCK TIME		<u>09:10</u>			
DEPTH TO WATER*		<u>3.24</u>			
MEASURED WELL DEPTH		<u>19.01</u>			
PURGE VOL/CASING VOL(g)		<u>10</u>			
DEPTH SAMPLE TAKEN		<u>10</u>			
SAMPLING DEVICE		<u>DIAPHRAGM BOLLER</u>			
FIELD TEMPERATURE (°C)		<u>NA</u>			
ELEC. COND. (umhos/cm)	MEASURED	<u>NA</u>			
	AT 25°C	<u>NA</u>			
pH		<u>NA</u>			
ALKALINITY		<u>NA</u>			
COLOR		<u>YELLOW</u>			
ODOR		<u>NONE</u>			
CLARITY		<u>CLEAR</u>			
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)			
<u>HEX CR.</u>		<u>1, 250ml, P</u> <u>N, No</u>			
<u>SULFATE</u>		<u>1, 250ml, P</u> <u>N, No</u>			
<u>TOTAL CR.</u>		<u>1, 250ml, P</u>			
<u>HNO3</u>		<u>2, No</u>			
<u>IRON</u>		<u>1, 250ml, P</u>			
<u>HNO3</u>		<u>2, No</u>			
<u>VOC'S</u>		<u>3, 40ml, G</u> <u>2, No</u>			
LABORATORY: SENT TO:		<u>ENVIROM/PAVE</u>			
DATE SENT:		<u>5-12-05</u>			
SAMPLED BY:		<u>JOHN M. THOMPSON</u>			

\*Measured from top of well riser.

DATE: 5-11-05

WATER LEVEL DATA

PROJECT: BETTER BRITE CHROME SHOP  
 PROJECT #: 1211.007.01  
 LOCATION: DE PERE, WI.

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-107	11:00	HEERON			2.06	TMT	
MW-107A	09:30				18.53		
MW-108	09:45				6.48		
MW-108A	09:40				15.54		
MW-111	11:30				4.20		
MW-115	12:05				2.49		
MW-115A	12:00				12.65		
MW-110	12:30				3.02		
MW-110A	10:05				12.40		
MW-110	10:25				3.24		
B-104A	10:20				5.29		
MW-112	13:00				2.18		
MW-106	13:05				4.29		
MW-106A	10:35				11.59		
MW-113	10:55	∇			3.51	∇	

## ZINC SHOP

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: BETTER BETE ZINC SHOP  
 PROJECT #: 1311.007.01  
 LOCATION: DEPERE, WI.  
 PERSONNEL: JOHN M. THOMPSON

INSTRUMENTS  
 TEMPERATURE: YSI MODEL 103  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: WSP: HEPON

GENERAL:		SAMPLE POINT	MW-4A	MW-7	MW-7A	MW-5	MW-5A
WATER TYPE			<u>GROUND WATER</u>				→
DATE			<u>5-12-05</u>	<u>5-12-05</u>	<u>5-12-05</u>	<u>5-12-05</u>	<u>5-12-05</u>
CLOCK TIME			<u>11:10</u>	<u>14:10</u>	<u>14:20</u>	<u>14:30</u>	<u>14:40</u>
DEPTH TO WATER*			<u>7.31</u>	<u>7.17</u>	<u>12.56</u>	<u>8.46</u>	<u>13.16</u>
MEASURED WELL DEPTH			<u>28.77</u>	<u>15.70</u>	<u>26.57</u>	<u>15.44</u>	<u>29.56</u>
PURGE VOL/CASING VOL (g)			<u>17 DRY</u>	<u>6</u>	<u>7 DRY</u>	<u>5 DRY</u>	<u>16 DRY</u>
DEPTH SAMPLE TAKEN			<u>26</u>	<u>12</u>	<u>20</u>	<u>12</u>	<u>25</u>
SAMPLING DEVICE			<u>WELLER/DEDICATED BULK DEDICATED BULK</u>				→
FIELD TEMPERATURE (°C)			<u>10.0</u>	<u>9.8</u>	<u>10.1</u>	<u>8.7</u>	<u>9.8</u>
ELEC. COND. (µmhos/cm)	MEASURED		<u>569</u>	<u>765</u>	<u>251</u>	<u>5.8</u>	<u>335</u>
	AT 25°C		<u>796</u>	<u>1078</u>	<u>352</u>	<u>8.4</u>	<u>475</u>
PH			<u>7.02</u>	<u>7.01</u>	<u>7.85</u>	<u>7.08</u>	<u>8.27</u>
ALKALINITY			<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>	<u>NA</u>
COLOR			<u>CLEAR</u>	<u>LIGHT REDDISH BROWN</u>	<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>
ODOR			<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>	<u>NONE</u>
CLARITY			<u>CLEAR</u>	<u>SLIGHTLY CLOUDY</u>	<u>CLEAR</u>	<u>CLEAR</u>	<u>CLEAR</u>
SAMPLING PARAMETERS			# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
HEX CR.			<u>1, 250ml, P</u>				→
			<u>N, NO</u>				
TOTAL CR.			<u>1, 250ml, P</u>				→
			<u>LN03</u>				
VOC'S							
LABORATORY: SENT TO:			<u>ENCHEM/PAC</u>				→
DATE SENT:			<u>5-12-05</u>				→
SAMPLED BY:			<u>JOHN M. THOMPSON</u>				→

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: BETTER BETS, ZINC SHOP  
 PROJECT #: 1311.007.01  
 LOCATION: DEPERE, WI.  
 PERSONNEL: JOHN M. HARRIS

INSTRUMENTS

TEMPERATURE: YSI model 103  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: 100: HIRON

(MWS-6 DUP)

GENERAL:		SAMPLE POINT	MWS-3	MWS-6 +	MWS-6A	MWS-9	ZINC SUMP
WATER TYPE			GROUND WATER				→
DATE			5-12-05	5-12-05	5-12-05	5-12-05	5-12-05
CLOCK TIME			15:30	15:00 + 15:10	14:50	15:20	10:00
DEPTH TO WATER*			14.47	7.27	10.55	7.05	18.20
MEASURED WELL DEPTH			28.38	15.60	28.62	16.45	20.61
PURGE VOL/CASING VOL (g)			5 DRY	5	6 DRY	6	GRAB
DEPTH SAMPLE TAKEN			26	12	25	12	20.5
SAMPLING DEVICE			PERISTALTIC PUMPED BLOWER				→
FIELD TEMPERATURE (°C)			10.4	7.6	10.3	10.2	8.4
ELEC. COND. (µmhos/cm)	MEASURED		5.4	891	319	587	1290
	AT 25°C		7.7	1337	442	841	1895
PH			6.96	6.70	7.52	7.14	7.24
ALKALINITY			NA	NA	NA	NA	NA
COLOR			CLEAR	LIGHT YELLOW	CLEAR	CLEAR	YELLOW
ODOR			NONE	NONE	NONE	NONE	NONE
CLARITY			CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
SAMPLING PARAMETERS			# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Hex CR.			1, 25ml, P N, No				→
TOTAL CR. HNO3			1, 25ml, P L, No				→
VOC'S							3, 4ml, G L, No
LABORATORY: SENT TO:			ENCLER/PAE				→
DATE SENT:			5-12-05				→
SAMPLED BY:			JOHN M. HARRIS				→

\*Measured from top of well riser.



DATE: 5-11-05  
5-12-05

WATER LEVEL DATA

PROJECT: BETTER BATE ZINC SHOP  
 PROJECT #: 1311.007.01  
 LOCATION: DEPERE, WI.

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-12	14:20	HERON			4.20	Tmj	
MW-11	14:15				4.45		
MW-8	15:30				7.23		
MW-8A	15:35				15.75		
MW-4	16:20				7.10		
MW-4A	16:25				7.31		
MW-7	17:40				7.17		
MW-7A	17:45				12.56		
MW-5	18:30				8.46		
MW-5A	18:35				13.16		
MW-3	11:45				14.47		BENT 5-12-05
MW-6	12:00				7.27		
MW-6A	12:05				10.55		
MW-9	12:50				7.05		
MW-10	NA				NA		UNABLE TO LOCATE
Sump	10:00	↓			18.20	↓	↓

**APPENDIX C**

**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**





1241 Bellevue Street, Suite 9  
Green Bay, WI 54302  
920-469-2436, Fax: 920-469-8827

**Analytical Report Number: 859209**

Client: GEOTRANS, INC

Lab Contact: Tom Trainor

Project Name: BETTER BRITE

Project Number: 1311.007.01

Lab Sample Number	Field ID	Matrix	Collection Date
859209-001	MW-107	GW	05/12/05
859209-002	MW-111	GW	05/12/05
859209-003	MW-115	GW	05/12/05
859209-004	MW-110	GW	05/12/05
859209-005	MW-116	GW	05/12/05
859209-006	MW-116DUP	GW	05/12/05
859209-007	TRIP BLANK	WATER	05/12/05
859209-008	ZINC SHOP SUMP	GW	05/12/05
859209-009	MW-12	GW	05/12/05
859209-010	MW-11	GW	05/12/05
859209-011	MW-8	GW	05/12/05
859209-012	MW-8A	GW	05/12/05
859209-013	MW-4	GW	05/12/05
859209-014	MW-4A	GW	05/12/05

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc. The sample results relate only to the analytes of interest tested.

Approval Signature

Date

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-107

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-001

**INORGANICS**

Test	Result	LOD	LOQ	EQL	DIL.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	0.89	0.65	2.2		1	ug/L	Q	05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B
Iron	380	18	61		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Sulfate	97	4.2	14		5	mg/L		05/23/05	EPA 300.0	EPA 300.0

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-111

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-002

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	260	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	250	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B
Iron	200	18	61		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Sulfate	87	4.2	14		5	mg/L		05/24/05	EPA 300.0	EPA 300.0

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-115

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-003

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	1.1	0.65	2.2		1	ug/L	Q	05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B
Iron	320	18	61		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Sulfate	44	4.2	14		5	mg/L		05/24/05	EPA 300.0	EPA 300.0

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-110

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-004

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	0.89	0.65	2.2		1	ug/L	Q	05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B
Iron	82	18	61		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Sulfate	70	4.2	14		5	mg/L		05/24/05	EPA 300.0	EPA 300.0

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-116

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-005

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	52000	6.5	22		10	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	52000	500	1700		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B
Iron	950	18	61		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Sulfate	1900	83	280		100	mg/L		05/24/05	EPA 300.0	EPA 300.0

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	< 0.92	0.92	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	37	0.90	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	< 0.20	0.20	0.67		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	< 0.42	0.42	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethane	20	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethene	9.6	0.57	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloropropene	< 0.75	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	< 0.99	0.99	3.3		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromoethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloroethane	< 0.36	0.36	1.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloropropane	< 0.46	0.46	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichloropropane	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	< 0.95	0.95	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2,2-Dichloropropane	< 0.62	0.62	2.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2-Chlorotoluene	< 0.85	0.85	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Chlorotoluene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Benzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromobenzene	< 0.82	0.82	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromochloromethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromodichloromethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromoform	< 0.94	0.94	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromomethane	< 0.91	0.91	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Carbon Tetrachloride	< 0.49	0.49	1.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorobenzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorodibromomethane	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroform	< 0.37	0.37	1.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloromethane	< 0.24	0.24	0.80		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dibromomethane	< 0.60	0.60	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	1.9	0.99	3.3		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
Diisopropyl Ether	< 0.76	0.76	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Ethylbenzene	< 0.54	0.54	1.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-116

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-005

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Fluorotrichloromethane	< 0.79	0.79	2.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Hexachlorobutadiene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Isopropylbenzene	< 0.59	0.59	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methylene Chloride	< 0.43	0.43	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Naphthalene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
N-Butylbenzene	< 0.93	0.93	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
n-Propylbenzene	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
p-Isopropyltoluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
sec-Butylbenzene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Styrene	< 0.86	0.86	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
tert-Butylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Tetrachloroethene	3.0	0.45	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Toluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Trichloroethene	0.89	0.48	1.6		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
Vinyl Chloride	< 0.18	0.18	0.60		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylene, o	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylenes, m + p	< 1.8	1.8	6.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Bromofluorobenzene	101				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Toluene-d8	102				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Dibromofluoromethane	105				1	%Recov		05/16/05	SW846 5030B	SW846 8260B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-116DUP

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-006

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	53000	6.5	22		10	ug/L.		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	54000	500	1700		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B
Iron	710	18	61		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Sulfate	1800	83	280		100	mg/L		05/24/05	EPA 300.0	EPA 300.0

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	< 0.92	0.92	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	39	0.90	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	< 0.20	0.20	0.67		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	< 0.42	0.42	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethane	22	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethene	11	0.57	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloropropene	< 0.75	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	< 0.99	0.99	3.3		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromoethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloroethane	< 0.36	0.36	1.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloropropane	< 0.46	0.46	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichloropropane	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	< 0.95	0.95	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2,2-Dichloropropane	< 0.62	0.62	2.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2-Chlorotoluene	< 0.85	0.85	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Chlorotoluene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Benzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromobenzene	< 0.82	0.82	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromochloromethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromodichloromethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromoform	< 0.94	0.94	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromomethane	< 0.91	0.91	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Carbon Tetrachloride	< 0.49	0.49	1.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorobenzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorodibromomethane	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroform	< 0.37	0.37	1.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloromethane	< 0.24	0.24	0.80		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dibromomethane	< 0.60	0.60	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	1.9	0.99	3.3		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
Diisopropyl Ether	< 0.76	0.76	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Ethylbenzene	< 0.54	0.54	1.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B



Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-116DUP

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-006

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	DIL.	Units	Code	Anl Date	Prep Method	Anl Method
Fluorotrichloromethane	< 0.79	0.79	2.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Hexachlorobutadiene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Isopropylbenzene	< 0.59	0.59	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methylene Chloride	< 0.43	0.43	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Naphthalene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
N-Butylbenzene	< 0.93	0.93	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
n-Propylbenzene	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
p-Isopropyltoluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
sec-Butylbenzene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Styrene	< 0.86	0.86	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
tert-Butylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Tetrachloroethene	3.4	0.45	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Toluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Trichloroethene	0.77	0.48	1.6		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
Vinyl Chloride	< 0.18	0.18	0.60		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylene, o	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylenes, m + p	< 1.8	1.8	6.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Bromofluorobenzene	102				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Toluene-d8	103				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Dibromofluoromethane	109				1	%Recov		05/16/05	SW846 5030B	SW846 8260B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : TRIP BLANK

Matrix Type : WATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-007

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	< 0.92	0.92	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	< 0.90	0.90	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	< 0.20	0.20	0.67		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	< 0.42	0.42	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethane	< 0.75	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethene	< 0.57	0.57	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloropropene	< 0.75	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	< 0.99	0.99	3.3		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromoethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloroethane	< 0.36	0.36	1.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloropropane	< 0.46	0.46	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichloropropane	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	< 0.95	0.95	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2,2-Dichloropropane	< 0.62	0.62	2.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2-Chlorotoluene	< 0.85	0.85	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Chlorotoluene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Benzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromobenzene	< 0.82	0.82	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromochloromethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromodichloromethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromoform	< 0.94	0.94	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromomethane	< 0.91	0.91	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Carbon Tetrachloride	< 0.49	0.49	1.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorobenzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorodibromomethane	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroform	< 0.37	0.37	1.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloromethane	< 0.24	0.24	0.80		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dibromomethane	< 0.60	0.60	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	< 0.99	0.99	3.3		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Diisopropyl Ether	< 0.76	0.76	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Ethylbenzene	< 0.54	0.54	1.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Fluorotrichloromethane	< 0.79	0.79	2.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Hexachlorobutadiene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Isopropylbenzene	< 0.59	0.59	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methylene Chloride	< 0.43	0.43	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Naphthalene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
N-Butylbenzene	< 0.93	0.93	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B

**Pace Analytical  
Services, Inc.**

**Analytical Report Number: 859209**

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : TRIP BLANK

Matrix Type : WATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-007

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
n-Propylbenzene	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
p-Isopropyltoluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
sec-Butylbenzene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Styrene	< 0.86	0.86	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
tert-Butylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Tetrachloroethene	< 0.45	0.45	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Toluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Trichloroethene	< 0.48	0.48	1.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Vinyl Chloride	< 0.18	0.18	0.60		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylene, o	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylenes, m + p	< 1.8	1.8	6.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Bromofluorobenzene	104				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Toluene-d8	103				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Dibromofluoromethane	109				1	%Recov		05/16/05	SW846 5030B	SW846 8260B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : ZINC SHOP SUMP

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-008

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	13000	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	15000	500	1700		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
1,1,1,2-Tetrachloroethane	< 0.92	0.92	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,1-Trichloroethane	84	0.90	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2,2-Tetrachloroethane	< 0.20	0.20	0.67		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1,2-Trichloroethane	< 0.42	0.42	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethane	2.7	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloroethene	3.2	0.57	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,1-Dichloropropene	< 0.75	0.75	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichlorobenzene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,3-Trichloropropane	< 0.99	0.99	3.3		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trichlorobenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2,4-Trimethylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromo-3-chloropropane	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dibromoethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichlorobenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloroethane	0.52	0.36	1.2		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
1,2-Dichloropropane	< 0.46	0.46	1.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3,5-Trimethylbenzene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichlorobenzene	< 0.87	0.87	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,3-Dichloropropane	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
1,4-Dichlorobenzene	< 0.95	0.95	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2,2-Dichloropropane	< 0.62	0.62	2.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
2-Chlorotoluene	< 0.85	0.85	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Chlorotoluene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Benzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromobenzene	< 0.82	0.82	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromochloromethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromodichloromethane	< 0.56	0.56	1.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromoform	< 0.94	0.94	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Bromomethane	< 0.91	0.91	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Carbon Tetrachloride	< 0.49	0.49	1.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorobenzene	< 0.41	0.41	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chlorodibromomethane	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroethane	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Chloroform	0.49	0.37	1.2		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
Chloromethane	< 0.24	0.24	0.80		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,2-Dichloroethene	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
cis-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dibromomethane	< 0.60	0.60	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Dichlorodifluoromethane	< 0.99	0.99	3.3		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Diisopropyl Ether	< 0.76	0.76	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Ethylbenzene	< 0.54	0.54	1.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Fluorotrichloromethane	< 0.79	0.79	2.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Hexachlorobutadiene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : ZINC SHOP SUMP

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-008

**VOLATILES**

Prep Date: 05/16/05

Analyte	Result	LOD	LOQ	EQL	DIL.	Units	Code	Anl Date	Prep Method	Anl Method
Isopropylbenzene	< 0.59	0.59	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methylene Chloride	< 0.43	0.43	1.4		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Methyl-tert-butyl-ether	< 0.61	0.61	2.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Naphthalene	< 0.74	0.74	2.5		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
N-Butylbenzene	< 0.93	0.93	3.1		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
n-Propylbenzene	< 0.81	0.81	2.7		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
p-Isopropyltoluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
sec-Butylbenzene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Styrene	< 0.86	0.86	2.9		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
tert-Butylbenzene	< 0.97	0.97	3.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Tetrachloroethene	0.80	0.45	1.5		1	ug/L	Q	05/16/05	SW846 5030B	SW846 8260B
Toluene	< 0.67	0.67	2.2		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,2-Dichloroethene	< 0.89	0.89	3.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
trans-1,3-Dichloropropene	< 0.19	0.19	0.63		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Trichloroethene	< 0.48	0.48	1.6		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Vinyl Chloride	< 0.18	0.18	0.60		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylene, o	< 0.83	0.83	2.8		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
Xylenes, m + p	< 1.8	1.8	6.0		1	ug/L		05/16/05	SW846 5030B	SW846 8260B
4-Bromofluorobenzene	103				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Toluene-d8	102				1	%Recov		05/16/05	SW846 5030B	SW846 8260B
Dibromofluoromethane	105				1	%Recov		05/16/05	SW846 5030B	SW846 8260B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-12

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-009

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	8.1	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B

**Pace Analytical  
Services, Inc.**

**Analytical Report Number: 859209**

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-11

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-010

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	2.8	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-8

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-011

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	1.1	0.65	2.2		1	ug/L	Q	05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B



Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-8A

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-012

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	2.6	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-4

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-013

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	9.0	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B

**Pace Analytical  
Services, Inc.**

**Analytical Report Number: 859209**

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-4A

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/26/05  
Lab Sample Number : 859209-014

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	2.0	0.65	2.2		1	ug/L	Q	05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/12/05	SM 3500 Cr-B	SM 3500 Cr-B

Test Group Name	859209-001	859209-002	859209-003	859209-004	859209-005	859209-006	859209-007	859209-008	859209-009	859209-010	859209-011	859209-012	859209-013	859209-014
CHROMIUM	B	B	B	B	B	B		B	B	B	B	B	B	B
CHROMIUM, HEXAVALENT	B	B	B	B	B	B		B	B	B	B	B	B	B
IRON	B	B	B	B	B	B								
SULFATE	B	B	B	B	B	B								
VOLATILES						G	G	G	G					

Code	Facility	Address	WI Certification
B	Green Bay Lab (Bellevue St)	1241 Bellevue Street, Suite 9 Green Bay, WI 54302	405132750 / DATCP: 105-444
G	Green Bay Lab (Industrial Dr)	1795 Industrial Drive Green Bay, WI 54302	405132750

## Qualifier Codes

Flag	Applies To	Explanation
A	Inorganic	Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
B	Inorganic	The analyte has been detected between the method detection limit and the reporting limit.
B	Organic	Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
C	All	Elevated detection limit.
D	All	Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.
E	Inorganic	Estimated concentration due to matrix interferences. During the metals analysis the serial dilution failed to meet the established control limits of 0-10%. The sample concentration is greater than 50 times the IDL for analysis done on the ICP or 100 times the IDL for analysis done on the ICP-MS. The result was flagged with the E qualifier to indicate that a physical interference was observed.
E	Organic	Analyte concentration exceeds calibration range.
F	Inorganic	Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.
F	Organic	Surrogate results outside control criteria.
G	All	The result is estimated because the concentration is less than the lowest calibration standard concentration utilized in the initial calibration. The method detection limit is less than the reporting limit specified for this project.
H	All	Preservation, extraction or analysis performed past holding time.
HF	Inorganic	This test is considered a field parameter, and the recommended holding time is 15 minutes from collection. The analysis was performed in the laboratory beyond the recommended holding time.
J	All	Concentration detected equal to or greater than the method detection limit but less than the reporting limit.
K	Inorganic	Sample received unpreserved. Sample was either preserved at the time of receipt or at the time of sample preparation.
K	Organic	Detection limit may be elevated due to the presence of an unrequested analyte.
L	All	Elevated detection limit due to low sample volume.
M	Organic	Sample pH was greater than 2
N	All	Spiked sample recovery not within control limits.
O	Organic	Sample received overweight.
P	Organic	The relative percent difference between the two columns for detected concentrations was greater than 40%.
Q	All	The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.
S	Organic	The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.
T	All	Inadequate sample volume received to perform the method required MS/MSD.
U	All	The analyte was not detected at or above the reporting limit.
V	All	Sample received with headspace.
W	All	A second aliquot of sample was analyzed from a container with headspace.
X	All	See Sample Narrative.
&	All	Laboratory Control Spike recovery not within control limits.
*	All	Precision not within control limits.
<	All	The analyte was not detected at or above the reporting limit.
1	Inorganic	Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.
2	Inorganic	Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.
3	Inorganic	BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion.
4	Inorganic	BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
5	Inorganic	BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
6	Inorganic	BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
7	Inorganic	BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.

En Chem, Inc. Cooler Receipt Log

Batch No. 859209

Project Name or ID Better Brite No. of Coolers: 1 Temps: RO1

A. Receipt Phase: Date cooler was opened: 5-12-05 By: S Falu

- 1: Were samples received on ice? (Must be ≤ 6 C).....  YES NO<sup>2</sup> NA
- 2: Was there a Temperature Blank?.....  YES NO
- 3: Were custody seals present and intact on cooler? (Record on COC)..... YES  NO
- 4: Are COC documents present?.....  YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?..... YES  NO
- 6: Is there any sub-work?..... YES  NO
- 7: Are there any short hold time tests?.....  YES NO
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....  YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_
- 9: Do any samples need to be Filtered or Preserved in the lab?..... YES<sup>1</sup>  NO Contacted by/Who \_\_\_\_\_

B. Check-in Phase: Date samples were Checked-In: 5-12-05 By: S Falu

- 1: Were all sample containers listed on the COC received and intact?.....  YES NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....  YES NO
- 3: Do sample labels match the COC? .....  YES NO<sup>2</sup>
- 4: Completed pH check on preserved samples..  YES NO NA  
*(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)*
- 5: Do samples have correct chemical preservation?.....  YES NO<sup>2</sup> NA  
*(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)*
- 6: Are dissolved parameters field filtered?..... YES NO<sup>2</sup>  NA
- 7: Are sample volumes adequate for tests requested? .....  YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm .....  YES NO<sup>2</sup> NA
- 9: Enter samples into logbook. Completed.....  YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....  YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed..... YES NO  NA
- 12: Start Nonconformance form. .... YES NO  NA
- 13: Initiate Subcontracting procedure. Completed..... YES NO  NA
- 14: Check laboratory sample number on all containers and COC. .... ALV  YES NO NA

Short Hold-time tests:

24 Hours or less Coliform Corrosivity = pH Dissolved Oxygen <u>Hexavalent Chromium</u> HPC Ferrous Iron Eh Odor Residual Chlorine Sulfite	48 Hours BOD Color Nitrite or Nitrate Ortho Phosphorus Surfactants Turbidity En Core Preservation Power stop preservation	7 days Ash Aqueous Extractable Organics- ALL Flashpoint Free Liquids Sulfide TDS TSS Total Solids TVS TVSS Unpreserved VOC's	Footnotes 1 Notify proper lab group immediately. 2 Complete nonconformance memo.
---	---	---	--

Rev. 2/05/04, Attachment to 1-REC-5.  
Subject to QA Audit.

Reviewed by/date TJF 5/13/05

(Please Print Legibly)

Company Name: GEOTRANS

Branch or Location: BROOKFIELD

Project Contact: DAN MORGAN

Telephone: (262) 792-1282

Project Number: 1311.007.01

Project Name: BETTER BRIDE

Project State: WI.

Sampled By (Print): Jordan Thompson

PO #: \_\_\_\_\_



A Division of Pace Analytical Services, Inc.

1241 Bellevue St., Suite 9  
Green Bay, WI 54302  
920-469-2436  
Fax 920-469-8827

# CHAIN OF CUSTODY No. 143782

Page 1 of 2

Quote #: \_\_\_\_\_

Mail Report To: DAN MORGAN

Company: GEOTRANS

Address: 175 N. Cassville Dr. Suite 100  
Brookfield, WI 53045

Invoice To: Same as Above

Company: \_\_\_\_\_

Address: \_\_\_\_\_

Mail Invoice To: \_\_\_\_\_

\*Preservation Codes  
A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH  
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED? (YES/NO) No/No/No/No/No  
PRESERVATION (CODE) A/A/D/D/B

Data Package Options - (please circle if requested)  
Sample Results Only (no QC)  
EPA Level II (Subject to Surcharge)  
EPA Level III (Subject to Surcharge)  
EPA Level IV (Subject to Surcharge)

Regulatory Program  
UST  
RCRA  
SDWA  
NPDES  
CERCLA  
Matrix Codes  
GW=Ground Water  
W=Water  
S=Soil  
A=Air  
C=Charcoal  
B=Blots  
SI=Sludge  
WP=Wipe

ANALYSES REQUESTED  
HEX CR  
SULFATE  
TOTAL CR  
IRON  
VOCS

TOTAL # OF BOTTLES SENT

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION DATE & TIME	MATRIX	ANALYSES REQUESTED	TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
001	MW-107	5-12-05 08:20	GW	✓	2		2 250ml vials
002	MW-111	5-12-05 08:30	GW	✓	2		
003	MW-115	5-12-05 08:40	GW	✓	2		
004	MW-110	5-12-05 08:50	GW	✓	2		
005	MW-116	5-12-05 09:00	GW	✓	2		3 40ml vials
006	MW-116 Dup	5-12-05 09:10	GW	✓	2		↓ ↓
007	TRIP BLANK	- - -	BT	✓	2	LAB PREPARED	2 40ml vials

Rush Turnaround Time Requested (TAT) - Prelim (Rush TAT subject to approval/surcharge)  
Date Needed: STANDARD  
Transmit Prelim Rush Results by (circle):  
Phone Fax E-mail  
Phone #: \_\_\_\_\_  
Fax #: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_  
Samples on HOLD are subject to special pricing and release of liability

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

En Chem Project No: 859209  
Sample Receipt Temp: Room  
Sample Receipt pH: OK  
Cooler Custody Seal: Present  
Present / Not Present  
Intact / Not Intact

(Please Print Legibly)

Company Name: GEOTRANS

Branch or Location: BRADFELD

Project Contact: DAN MORGAN

Telephone: (612) 792-1282

Project Number: 131100101

Project Name: BETTER BRITE

Project State: WI

Sampled By (Print): Fred M. Thomson

PO #:

Data Package Options - (please circle if requested)  
Sample Results Only (no QC)  
EPA Level II (Subject to Surcharge)  
EPA Level III (Subject to Surcharge)  
EPA Level IV (Subject to Surcharge)

Regulatory Program  
UST  
RCRA  
SDWA  
NPDES  
CERCLA  
Matrix Codes  
GW=Ground Water  
W=Water  
S=Soil  
A=Air  
C=Charcoal  
B=Biota  
Sl=Sludge  
WP=Wipe



1241 Bellevue St., Suite 9  
Green Bay, WI 54302  
920-469-2436  
Fax 920-469-8827

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# CHAIN OF CUSTODY No. 143783

Page 2 of 2

Quote #:

Mail Report To: DAN MORGAN

Company: GEOTRANS

Address: 75 N CORPORATE DR. SUITE 100

BRADFELD, WI 53415

Invoice To: Same AS ABOVE

Company:

Address:

Mail Invoice To:

\*Preservation Codes  
A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH  
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other  
FILTERED? (YES/NO) No No No  
PRESERVATION (CODE)\* A B

ANALYSES REQUESTED  
HEX CR  
TOTAL CR  
VOCs

TOTAL # OF BOTTLES SENT

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION		MATRIX	ANALYSES REQUESTED			TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
		DATE	TIME		HEX CR	TOTAL CR	VOCs			
008	ZINC STATION	5-12	10:00	GL	✓	✓	✓	5		2.250ml @ 3-40ml @
009	MWS-12	5-12	10:20		✓	✓		2		
010	MWS-11	5-12	10:30		✓	✓		2		
011	MWS-8	5-12	10:40		✓	✓		2		
012	MWS-8A	5-12	10:50		✓	✓		2		
013	MWS-4	5-12	11:00		✓	✓		2		
014	MWS-4A	5-12	11:10		✓	✓		2		

Rush Turnaround Time Requested (TAT) - Prelim  
(Rush TAT subject to approval/surcharge)  
Date Needed: STANDARD  
Transmit Prelim Rush Results by (circle):  
Phone Fax E-mail  
Phone #:  
Fax #:  
E-Mail Address:

Relinquished By: [Signature] Date/Time: 5-12-05 11:25  
Relinquished By: [Signature] Date/Time: 5/12/05 11:50  
Relinquished By:  
Relinquished By:

Received By: [Signature] Date/Time: 5/12/05 11:25  
Received By: [Signature] Date/Time: 5-12-05 1150  
Received By:  
Received By:

En Chem Project No: 859709  
Sample Receipt Temp: 20  
Sample Receipt pH: OK  
Cooler Custody Seal: Present / Not Present  
Present / Not Present

Samples on HOLD are subject to  
:al p nd re if lial





1241 Bellevue Street, Suite 9  
Green Bay, WI 54302  
920-469-2436, Fax: 920-469-8827

**Analytical Report Number: 859239**

Client: GEOTRANS, INC

Lab Contact: Tom Trainor

Project Name: BETTER BRITE

Project Number: 1311.007.01

Lab Sample Number	Field ID	Matrix	Collection Date
859239-001	MW-7	GW	05/12/05
859239-002	MW-7A	GW	05/12/05
859239-003	MW-5	GW	05/12/05
859239-004	MW-5A	GW	05/12/05
859239-005	MW-6A	GW	05/12/05
859239-006	MW-6	GW	05/12/05
859239-007	MW-6DUP	GW	05/12/05
859239-008	MW-9	GW	05/12/05
859239-009	MW-3	GW	05/12/05

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. This report shall not be reproduced, except in full, without the written consent of Pace Analytical Services, Inc. The sample results relate only to the analytes of interest tested.

Approval Signature

Date

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-7

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-001

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	< 32	32	110		50	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-7A

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-002

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	0.65	0.65	2.2		1	ug/L	Q	05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-5

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-003

**INORGANICS**

Test	Result	LOD	LOQ	EQL	DIL.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	3200	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	4000	120	420		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

**Pace Analytical  
Services, Inc.**

**Analytical Report Number: 859239**

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-5A

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-004

**INORGANICS**

Test	Result	LOD	LOQ	EQL	DII.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	7.6	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

**Pace Analytical  
Services, Inc.**

**Analytical Report Number: 859239**

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-6A

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-005

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	12	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-6

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-006

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	11000	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	12000	250	830		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-6DUP

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-007

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	11000	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	12000	250	830		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B



Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-9

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-008

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	41	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	28	5.0	17		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

Client : GEOTRANS, INC  
Project Name : BETTER BRITE  
Project Number : 1311.007.01  
Field ID : MW-3

Matrix Type : GROUNDWATER  
Collection Date : 05/12/05  
Report Date : 05/20/05  
Lab Sample Number : 859239-009

**INORGANICS**

Test	Result	LOD	LOQ	EQL	Dil.	Units	Code	Anl Date	Prep Method	Anl Method
Chromium	17	0.65	2.2		1	ug/L		05/18/05	SW846 3010A	SW846 6010B
Chromium, Hexavalent	< 5.0	5.0	17		1	ug/L		05/13/05	SM 3500 Cr-B	SM 3500 Cr-B

## Qualifier Codes

### Flag Applies To Explanation

Flag	Applies To	Explanation
A	Inorganic	Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
B	Inorganic	The analyte has been detected between the method detection limit and the reporting limit.
B	Organic	Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.
C	All	Elevated detection limit.
D	All	Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.
E	Inorganic	Estimated concentration due to matrix interferences. During the metals analysis the serial dilution failed to meet the established control limits of 0-10%. The sample concentration is greater than 50 times the IDL for analysis done on the ICP or 100 times the IDL for analysis done on the ICP-MS. The result was flagged with the E qualifier to indicate that a physical interference was observed.
E	Organic	Analyte concentration exceeds calibration range.
F	Inorganic	Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.
F	Organic	Surrogate results outside control criteria.
G	All	The result is estimated because the concentration is less than the lowest calibration standard concentration utilized in the initial calibration. The method detection limit is less than the reporting limit specified for this project.
H	All	Preservation, extraction or analysis performed past holding time.
HF	Inorganic	This test is considered a field parameter, and the recommended holding time is 15 minutes from collection. The analysis was performed in the laboratory beyond the recommended holding time.
J	All	Concentration detected equal to or greater than the method detection limit but less than the reporting limit.
K	Inorganic	Sample received unpreserved. Sample was either preserved at the time of receipt or at the time of sample preparation.
K	Organic	Detection limit may be elevated due to the presence of an unrequested analyte.
L	All	Elevated detection limit due to low sample volume.
M	Organic	Sample pH was greater than 2
N	All	Spiked sample recovery not within control limits.
O	Organic	Sample received overweight.
P	Organic	The relative percent difference between the two columns for detected concentrations was greater than 40%.
Q	All	The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.
S	Organic	The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.
T	All	Inadequate sample volume received to perform the method required MS/MSD.
U	All	The analyte was not detected at or above the reporting limit.
V	All	Sample received with headspace.
W	All	A second aliquot of sample was analyzed from a container with headspace.
X	All	See Sample Narrative.
&	All	Laboratory Control Spike recovery not within control limits.
*	All	Precision not within control limits.
<	All	The analyte was not detected at or above the reporting limit.
1	Inorganic	Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.
2	Inorganic	Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.
3	Inorganic	BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion:
4	Inorganic	BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
5	Inorganic	BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
6	Inorganic	BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.
7	Inorganic	BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.

Test Group Name	859239-001	859239-002	859239-003	859239-004	859239-005	859239-006	859239-007	859239-008	859239-009
CHROMIUM	B	B	B	B	B	B	B	B	B
CHROMIUM, HEXAVALENT	B	B	B	B	B	B	B	B	B

Code	Facility	Address	WI Certification
B	Green Bay Lab (Bellevue St)	1241 Bellevue Street, Suite 9 Green Bay, WI 54302	405132750 / DATCP: 105-444

# En Chem, Inc. Cooler Receipt Log

Batch No. 869239

Project Name or ID Better Britz

No. of Coolers: 1 Temps: 201

A. Receipt Phase: Date cooler was opened: 5-12-05 By: AB

- 1: Were samples received on ice? (Must be ≤ 6 C).....YES NO<sup>2</sup> NA
- 2: Was there a Temperature Blank?.....YES NO
- 3: Were custody seals present and intact on cooler? (Record on COC).....YES NO
- 4: Are COC documents present?.....YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?.....YES NO
- 6: Is there any sub-work?.....YES NO
- 7: Are there any short hold time tests?.....YES NO
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....YES NO Contacted by/Who GBWC
- 9: Do any samples need to be Filtered or Preserved in the lab?.....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_

B. Check-in Phase: Date samples were Checked-in: 5-12-05 By: AB

- 1: Were all sample containers listed on the COC received and intact?.....YES NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....YES NO
- 3: Do sample labels match the COC? .....YES NO<sup>2</sup>
- 4: Completed pH check on preserved samples. ....YES NO NA  
*(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)*
- 5: Do samples have correct chemical preservation?.....YES NO<sup>2</sup> NA  
*(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)*
- 6: Are dissolved parameters field filtered?.....YES NO<sup>2</sup> NA
- 7: Are sample volumes adequate for tests requested? .....YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm .....YES NO<sup>2</sup> NA
- 9: Enter samples into logbook. Completed.....YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed.....YES NO NA
- 12: Start Nonconformance form. ....YES NO NA
- 13: Initiate Subcontracting procedure. Completed.....YES NO NA
- 14: Check laboratory sample number on all containers and COC. ....SF YES NO NA

**Short Hold-time tests:**

24 Hours or less	48 Hours	7 days	Footnotes
Coliform	BOD	Ash	1 Notify proper lab group immediately.
Corrosivity = pH	Color	Aqueous Extractable Organics- ALL	2 Complete nonconformance memo.
Dissolved Oxygen	Nitrite or Nitrate	Flashpoint	
<del>Hexavalent Chromium</del>	Ortho Phosphorus	Free Liquids	
HPC	Surfactants	Sulfide	
Ferrous Iron	Turbidity	TDS	
Eh	En Core Preservation	TSS	
Odor	Power stop preservation	Total Solids	
Residual Chlorine		TVS	
Sulfite		TVSS	
		Unpreserved VOC's	

Rev. 2/05/04, Attachment to 1-REC-5.  
Subject to QA Audit.

Reviewed by/date TJT 5/13/05

(Please Print Legibly)

Company Name: CESTRANS

Branch or Location: Brookfield

Project Contact: Dan Morgan

Telephone: (912) 792-1282

Project Number: 1311-007.01

Project Name: BETTER BRIDGE

Project State: IL

Sampled By (Print): Todd R. Hammond

PO #:



1241 Bellevue St., Suite 9  
Green Bay, WI 54302  
920-469-2436  
Fax 920-469-8827

A Division of Pace Analytical Services, Inc.

# CHAIN OF CUSTODY No. 143784

Page 1 of 1

Quote #:

Mail Report To: Dan Morgan

Company: CESTRANS

Address: 145 N. EXP. STATE DR. SUITE 100

Brookfield, IL 60015

Invoice To: Same as Above

Company:

Address:

Mail Invoice To:

\*Preservation Codes  
A=None B=HCL C=H2SO4 D=HNO3 E=EnCore F=Methanol G=NaOH  
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED? (YES/NO)

PRESERVATION (CODE)\*

None None None None None None None  
A/B

ANALYSES REQUESTED:  
HEX CR  
LEAD CR

TOTAL # OF BOTTLES SENT

Data Package Options - (please circle if requested)  
Sample Results Only (no QC)  
EPA Level II (Subject to Surcharge)  
EPA Level III (Subject to Surcharge)  
EPA Level IV (Subject to Surcharge)

Regulatory Program  
UST  
RCRA  
SDWA  
NPDES  
CERCLA  
Matrix Codes  
GW=Ground Water  
W=Water  
S=Soil  
A=Air  
C=Charcoal  
B=Biota  
Sl=Sludge  
WP=Wipe

LABORATORY ID (Lab Use Only)	FIELD ID	COLLECTION		MATRIX	ANALYSES REQUESTED	PRESERVATION (CODE)*	TOTAL # OF BOTTLES SENT	CLIENT COMMENTS	LAB COMMENTS (Lab Use Only)
		DATE	TIME						
001	MWS-7	5-12	14:10	GW	✓	✓	2	250 ml AD	
002	MWS-7A	5-12	14:20		✓	✓	2		
003	MWS-5	5-12	14:30		✓	✓	2		
004	MWS-5A	5-12	14:40		✓	✓	2		
005	MWS-6A	5-12	14:50		✓	✓	2		
006	MWS-6	5-12	15:00		✓	✓	2		
007	MWS-6 Dup	5-12	15:10		✓	✓	2		
008	MWS-9	5-12	15:20		✓	✓	2		
009	MWS-3	5-12	15:30		✓	✓	2		

Rush Turnaround Time Requested (TAT) - Prelim  
(Rush TAT subject to approval/surcharge)  
Date Needed: 5/12/05  
Transmit Prelim Rush Results by (circle):  
Phone Fax E-mail  
Phone #: \_\_\_\_\_  
Fax #: \_\_\_\_\_  
E-Mail Address: \_\_\_\_\_  
Samples on HOLD are subject to al pr id re f ilab

Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Relinquished By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

En Chem Project No: 85A239  
Sample Receipt Temp: 20  
Sample Receipt pH: 0.1  
Cooler Custody Seal: Present / Not Present  
In \_\_\_\_\_ of In \_\_\_\_\_  
Ven \_\_\_\_\_ /04



175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

262-792-1282 FAX 262-792-1310

**LETTER OF TRANSMITTAL**

TO: WDNR  
Attn: K. Lauridsen  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

DATE: August 11, 2004  
RE: Better Brite  
JOB NO: F150 1311.003



We are sending you the following:

No. Of Copies	Description
2	Spring 2004 Groundwater Monitoring Report

**These are Transmitted as checked below:**

- For approval
- For your use
- As requested
- For review and comment
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: One for WDNR, one for City of DePere library. Including the VOC data – Table 4-2 required extra reporting time.

Transmitted by:

- First Class Mail
- Federal Express
- Courier
- Registered Mail
- UPS
- Other \_\_\_\_\_

Signed: Daniel L. Morgan  
cc:

**SPRING 2004 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**



August 11, 2004

Prepared For:

Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150  
1311.006

*Daniel L. Morgan*

Daniel L. Morgan, P.E.  
Senior Engineer

*Kathryn M. Schoephoester*

Kathryn M. Schoephoester  
Project Environmental Scientist

*DM*



CERTIFICATION

This report,  
SPRING 2004 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated August 11, 2004

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional  
engineer as defined in s. NR712.03(2), and that to the best of my  
knowledge, all information contained in this document is correct.



*Daniel L. Morgan*  
Daniel L. Morgan, P.E.  
Senior Engineer

## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfates/Sulfides	3-2
3.1.5 VOC's	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-2

## **TABLE OF CONTENTS (CONTINUED)**

### **FIGURES**

- 4-1 Water Table Map (May 6, 2004) - Chrome Shop
- 4-2 Potentiometric Surface Map (May 6, 2004) - Chrome Shop
- 4-3 Water Table Map (May 6, 2004) - Zinc Shop
- 4-4 Potentiometric Surface Map (May 6, 2004) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLES**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium
- 4-2 VOC Groundwater Analytical Summary

### **APPENDIX**

- 1. Water Elevation Measurements
- 2. Field Water Quality Data Sheets
- 3. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October 1989 and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the Fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium-contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. The Spring 2004 sampling event took place on May 6<sup>th</sup> and 7<sup>th</sup>, and the following report summarizes the findings.

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Spring 2004 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 15 wells and sample collection and analysis from five existing wells (MW-107, MW-110, MW-111, and MW-115, and MW-116). The following wells had groundwater elevations measured:

B-104A	MW-107A	MW-110A	MW-115
MW-106	MW-108	MW-111	MW-115A
MW-106A	MW-108A	MW-112	MW-116
MW-107	MW-110	MW-113	

### 2.2 Zinc Shop

Spring 2004 post remedial action groundwater monitoring at the Zinc Shop included 15 existing wells and the extraction sump (Zinc Sump; Figure 2-2). ~~Monitoring well MW-2 could not be located, and therefore sampled, as the area had been repaved with crushed gravel.~~ Groundwater samples and water table elevations were taken at all locations. The wells in the monitoring plan include:

MW-3	MW-5A	MW-7A	MW-10
MW-4	MW-6	MW-8	MW-11
MW-4A	MW-6A	MW-8A	MW-12
MW-5	MW-7	MW-9	Zinc Sump

## 3.0 SAMPLE ANALYSIS PARAMETERS

### 3.1 Groundwater

Six groups of parameters were included in the groundwater analysis. These are groundwater elevation, field measurements (annotated below), hexavalent chromium, total chromium, iron, and sulfate. Iron and sulfate were analyzed at five wells at the Chrome shop site. The groundwater samples were collected following GeoTrans' Standard Operating Procedures.

#### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points indicated in Sections 2.1 and 2.2. Elevation was measured to 0.01 ft. using an electronic water level probe.

#### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and clarity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and clarity were determined by visual and olfactory examination.

#### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Iron and Sulfates

Per the request of Keld Lauridson, WDNR, groundwater samples from three monitoring wells at the former Chrome shop site were analyzed for iron and sulfate beginning in June 2001. The results will be used to determine whether the reagents used to stabilize the chromium have leached into the ground water. Due to a printing error on the chain of custody, sulfides were run instead of sulfates for the Fall 2001 and Spring 2002 sampling events. Samples from these wells were analyzed for both sulfide and sulfate during the Fall 2002 and Spring 2003 sampling event. This was done to see if any correlation may be made between the two parameters. One additional well (MW-111) at the Chrome Shop site was analyzed for these parameters during the Fall 2002 and Spring 2003 sampling events. Iron and sulfate only were analyzed in samples collected during the Spring 2004 event.

### 3.1.5 VOCs

VOCs were not sampled during the Spring 2004 event. They are scheduled to be sampled in Spring 2005.



## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

No significant presampling activities occurred between the Spring 2003 and Spring 2004 sampling events.

### 4.2 Chrome Shop Monitoring Results

The water table and potentiometric surface maps for the Chrome Shop site are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table is primarily to the south and west, with western portion of the site flowing to the South and East. This flow pattern follows local topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. There is one well, B-104A, that has had water table measurements inconsistent with general topography for the past two sampling rounds. This well is in the treatment area and therefore may have subsurface conditions that prohibit the free movement of water in and out of the well screen. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and clarity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-107, MW-110, MW-111, MW-115 and MW-116. MW-116 had a hexavalent chromium impact of 28000 ppb, and MW-111 had a hexavalent chromium impact of 50 ppb, both of which exceeds the ES for hexavalent chromium. MW-107 had a low hexavalent chromium concentration of 6.5 ppb, which is below both the Enforcement Standard and the Preventive Action Limit. Hexavalent chromium was not detected in either MW-110 or MW-115.

Total chromium was detected above the PAL in wells MW-110, MW-111, and MW-116, with MW-111 and MW-116 exceeding the ES. Monitoring well MW-115 had total chromium impacts of 1.3 ppb, which is below the PAL. These values are consistent with previous measurements at this site.

The analysis of iron and sulfates from Spring 2001 to Spring 2004 as indicator parameters do show a relationship between iron and chromium concentrations in MW-116. As the concentrations of hexavalent chromium have increased (4400 to 28000 ppb) in MW-116, iron concentrations have dropped (840 to 280 ppb) over the three-year period that the indicator parameters were tested. Additionally, the high concentrations of chromium in MW-116 translate into much lower iron concentrations in MW-116 (average conc.= 501 ppb) when compared to the other wells (average conc.= 3,796 ppb). Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," three wells, MW-107, MW-115 and MW-116 exceeded the Preventive Action Limit (PAL), and two wells, MW-110 and MW-111, exceeded the Enforcement Standard (ES) for iron.

Sulfate concentrations in MW-116 seem to show a possible relationship with chromium, with the sulfate concentration (2.1 to 2,700 ppb) increasing with increasing chromium concentrations (4400 to 8900 ppb). However, since the wells with low to non-detect chromium concentrations do not have correspondingly low sulfate concentrations (average conc.= 114 ppm), there does not seem to be a consistent relationship between sulfate and chromium.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Spring 2004 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows significant draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface has changed from previous

measurements with flow predominantly to the north, east and west. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and clarity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 16 locations. Hexavalent chromium was detected at eight sample points, MW-3, MW-5, MW-6, MW-7A, MW-8A, MW-9 and MW-10, and the sump. Maximum hexavalent chromium concentrations were detected at MW-10 and MW-6, with concentrations of 25,000 ppb and 13,000 ppb, respectively. Concentrations of hexavalent chromium remained relatively stable across the site with the exception of MW-7A, which yielded a detection of hexavalent chromium for the first time since November of 2000 and MW-8A, which yielded a detection of hexavalent chromium for the first time. Total chromium was detected above the PAL at six locations including the zinc sump, MW-3, MW-5, MW-6, MW-9 and MW-10, with MW-3, MW-5, MW-6, MW-10 and the sump exceeding the ES. Concentrations of total chromium ranged from non-detect to 22,000 ppb. The extent of hexavalent chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C. Historical VOC data is tabulated in Table 4-2.

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

### 5.2 Zinc Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the increasing concentration of hexavalent chromium in ground water within the stabilization area (MW-116) at the chrome shop at concentrations above the 100 ppb ES for total chromium and 2) the increase of total chrome in MW-111 outside of the stabilization area at the chrome shop. Due to the effectiveness of the remediation system in place at the zinc shop of preventing the expansion of the contamination plume, there are no concerns regarding the conditions at the zinc shop site.

Due to the overall stable conditions at zinc shop and portions of the chrome shop, several wells should be considered for elimination from the sampling program or reduced sampling frequency for the next contract period. It is recommended that the next contract period be two years, after which further reductions in the sampling should be considered based on the stability of the contaminant concentrations at the chrome and zinc shop.

### 6.1 Chrome Shop Recommendations

Sampling results at MW-116 show concentrations increasing in both hexavalent and total chromium. The steady increase in hexavalent chromium concentration at this well along with the decrease in iron concentrations indicate that the treatment performed in the Fall of 1999 may be losing its ability to stabilize the hexavalent chromium at the Chrome Shop site. Based on these observations, the WDNR may want to begin consideration of additional treatment options at the Chrome Shop site.

Biannual sampling was originally proposed for the wells at the Chrome Shop. Due to the increasing concentrations of hexavalent chromium in ground water in MW-116, annual sampling at MW-116 and the two downgradient wells (MW-111 and MW-115) should continue to determine whether there is any migration of chromium off-site. In addition to hexavalent chromium and total chromium analysis, analysis of iron and sulfate at these wells may provide useful information pertaining to the ability of the groundwater to stabilize chromium at the site.

Iron and sulfate analysis at MW-116, MW-115, and MW-111 should be performed on an annual basis during the next contract period.

## 6.2 Zinc Shop Recommendations

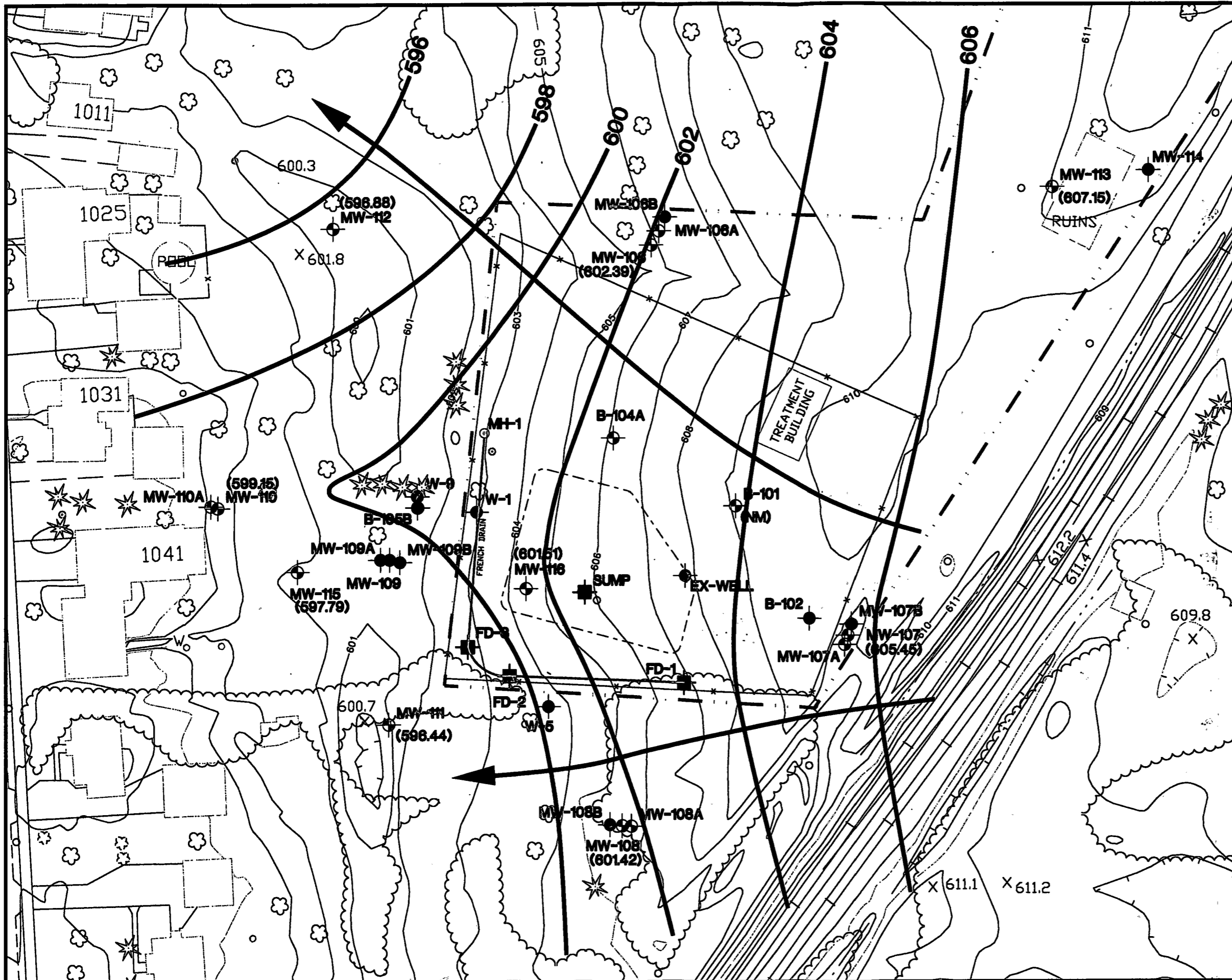
The Zinc shop hexavalent chromium results indicate that the treatment system at the Zinc sump has been effective at containing the contamination, but has not been able to reduce the concentrations in the contaminated wells. Due to the stable nature of the chromium concentrations and limited nature of the contamination plume, ~~a reduction in the sampling plan at the Zinc shop should be considered.~~

Wells that have not shown the presence of total or hexavalent chromium above the PAL should be considered for elimination. Three wells that meet these criteria are: ~~MW-7, MW-8, and MW-12.~~

The remaining wells that have had hexavalent chromium impacts above the PAL or those that are immediately downgradient of the contamination plume should continue to be sampled on an annual basis. Nine wells that fit these criteria are: ~~MW-3, MW-4, MW-5, MW-6, MW-7A, MW-8A, MW-9, MW-10, and the zinc sump.~~

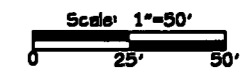
One additional option the WDNR may want to consider is to analyze for dissolved chromium instead of total chromium at the zinc shop wells. Dissolved chromium samples may help to determine if high total chromium concentrations in some wells are due to high sedimentation in the sample bottles.

## FIGURES



### EXPLANATION

- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- MW-11 ABANDONED WELL (any filled in well symbol)
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- WATER TABLE CONTOURS (Dashed where Inferred)
- (607.63) WATER TABLE ELEVATION
- (NM) NOT MEASURED

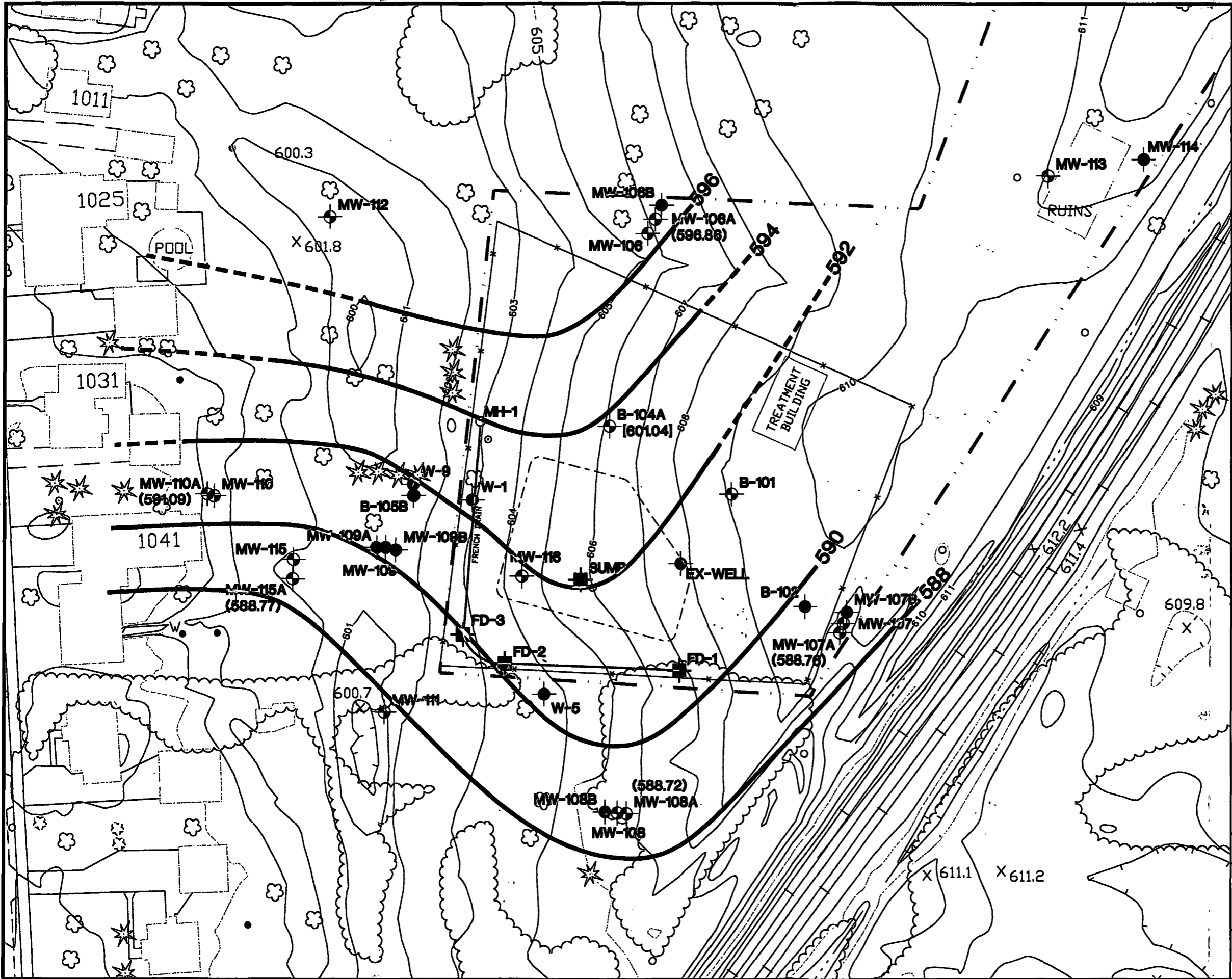


Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 7-30-04
<b>WATER TABLE MAP (MAY 2004) CHROME SHOP</b>	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.006

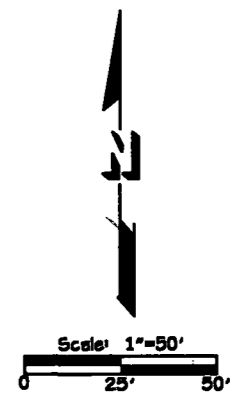
**Geotrans, Inc.** A TETRA TECH COMPANY **Figure 4-1**





### EXPLANATION

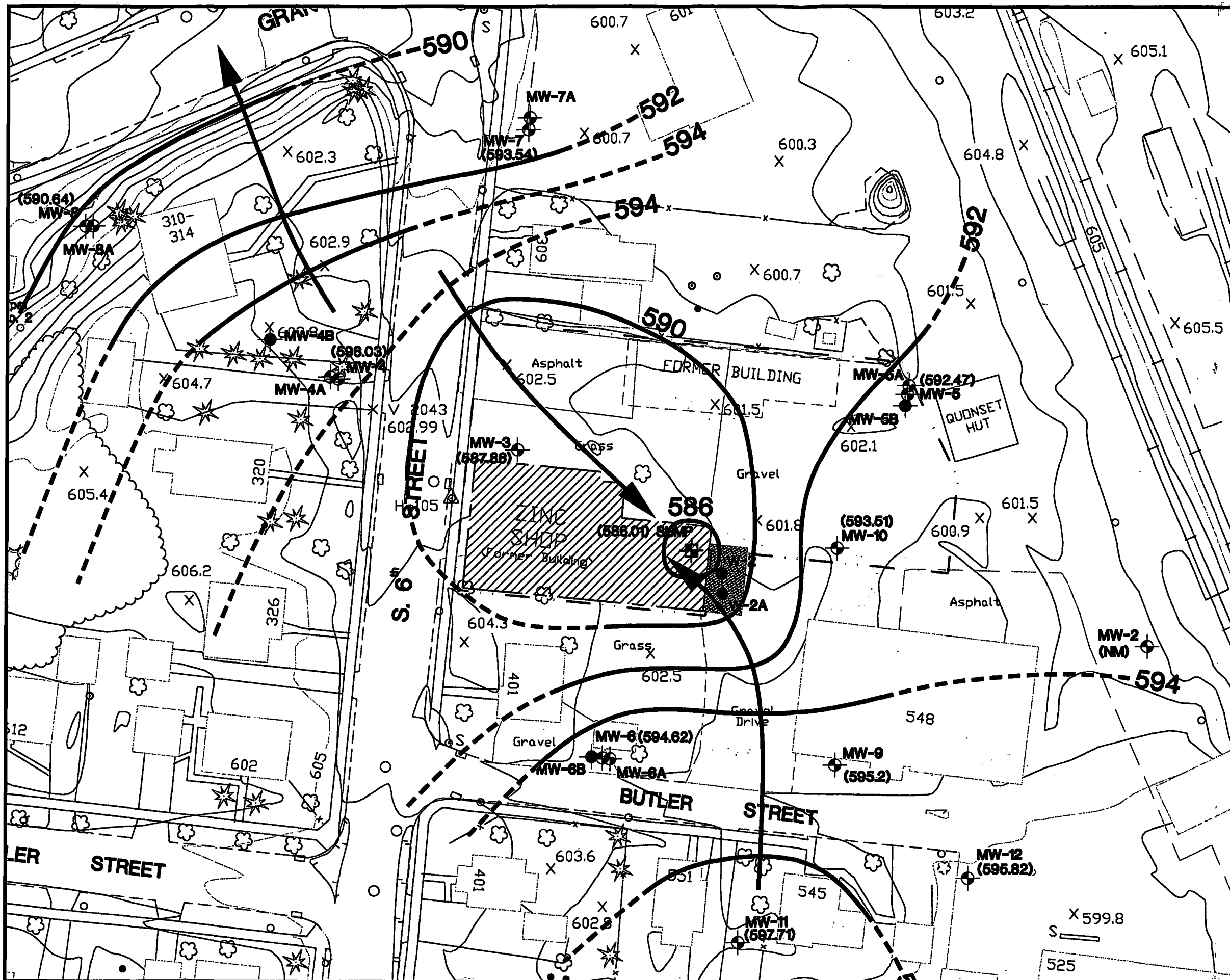
- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- B-101 MONITOR WELL LOCATION AND DESIGNATION
- W-5 MONITOR WELL LOCATION AND DESIGNATION
- SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
- FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
- EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- SOIL STABILIZATION AREA
- MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- 590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where Inferred)
- (589.51) POTENTIOMETRIC SURFACE ELEVATION
- [601.04] INCONSISTENT ELEVATION NOT USED FOR CONTOURING



Basemap from Aero-Metric Engineering, Inc. 11/17/81

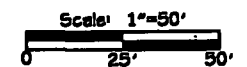
BETTER BRITE DePERE, WISCONSIN	DATE: 7-8-04
POTENTIOMETRIC SURFACE MAP (MAY 2004) CHROME SHOP	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.006

Figure 4-2



### EXPLANATION

- MW-Ø MONITOR WELL LOCATION AND DESIGNATION
- SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- WATER TABLE CONTOURS (Dashed where Inferred)
- (595.17) WATER TABLE ELEVATION
- (NM) NOT MEASURED

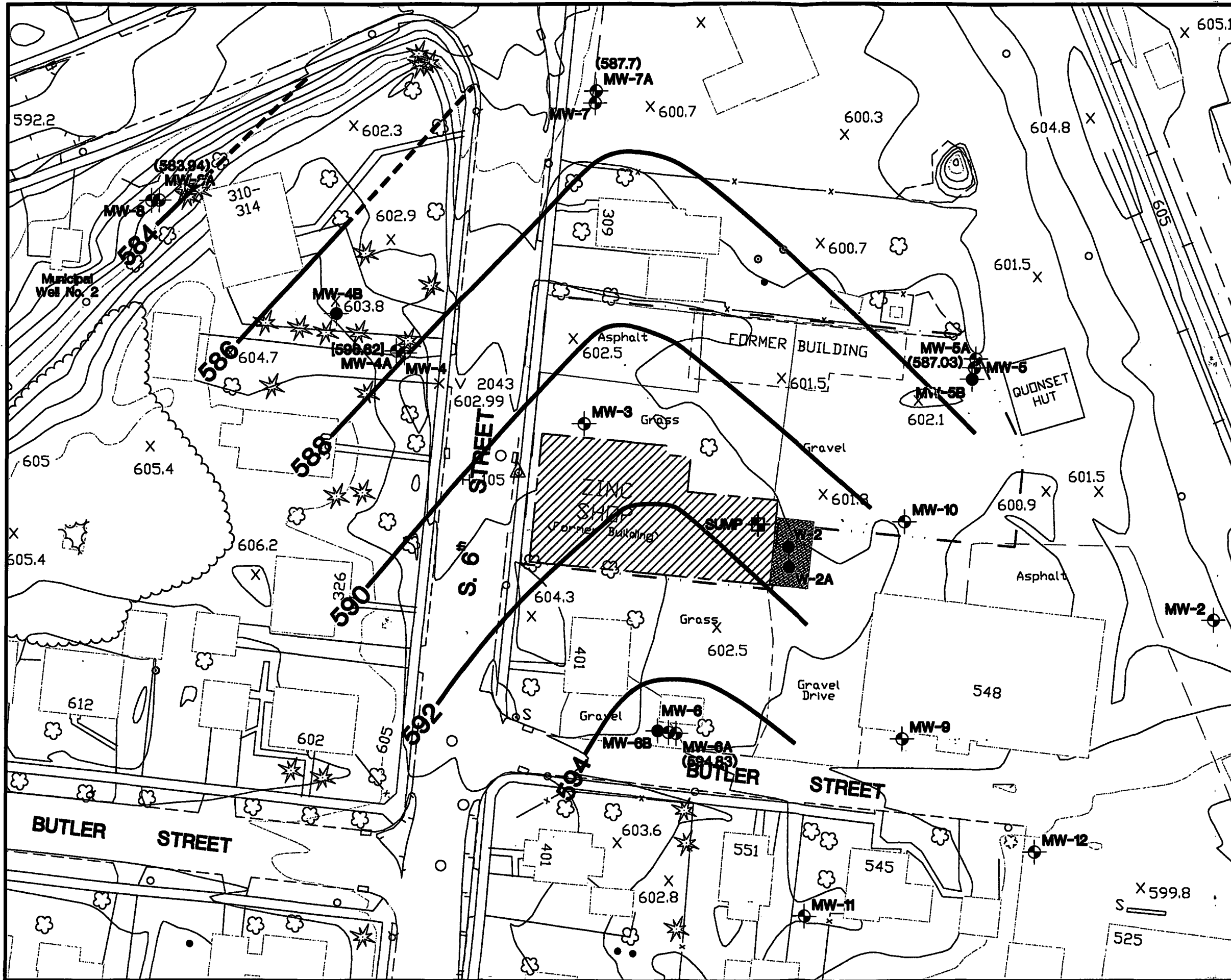


Basemap from Aero-Metric Engineering, Inc. 11/17/91











BETTER BRITE DePERE, WISCONSIN	DATE: 7-8-04
<b>WATER TABLE MAP (MAY 2004) ZINC SHOP</b>	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.008

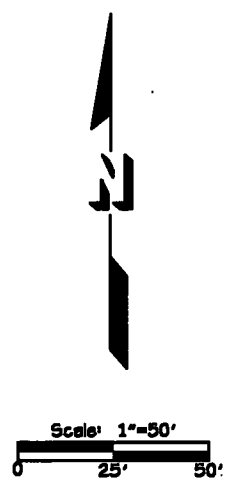


Figure 4-3



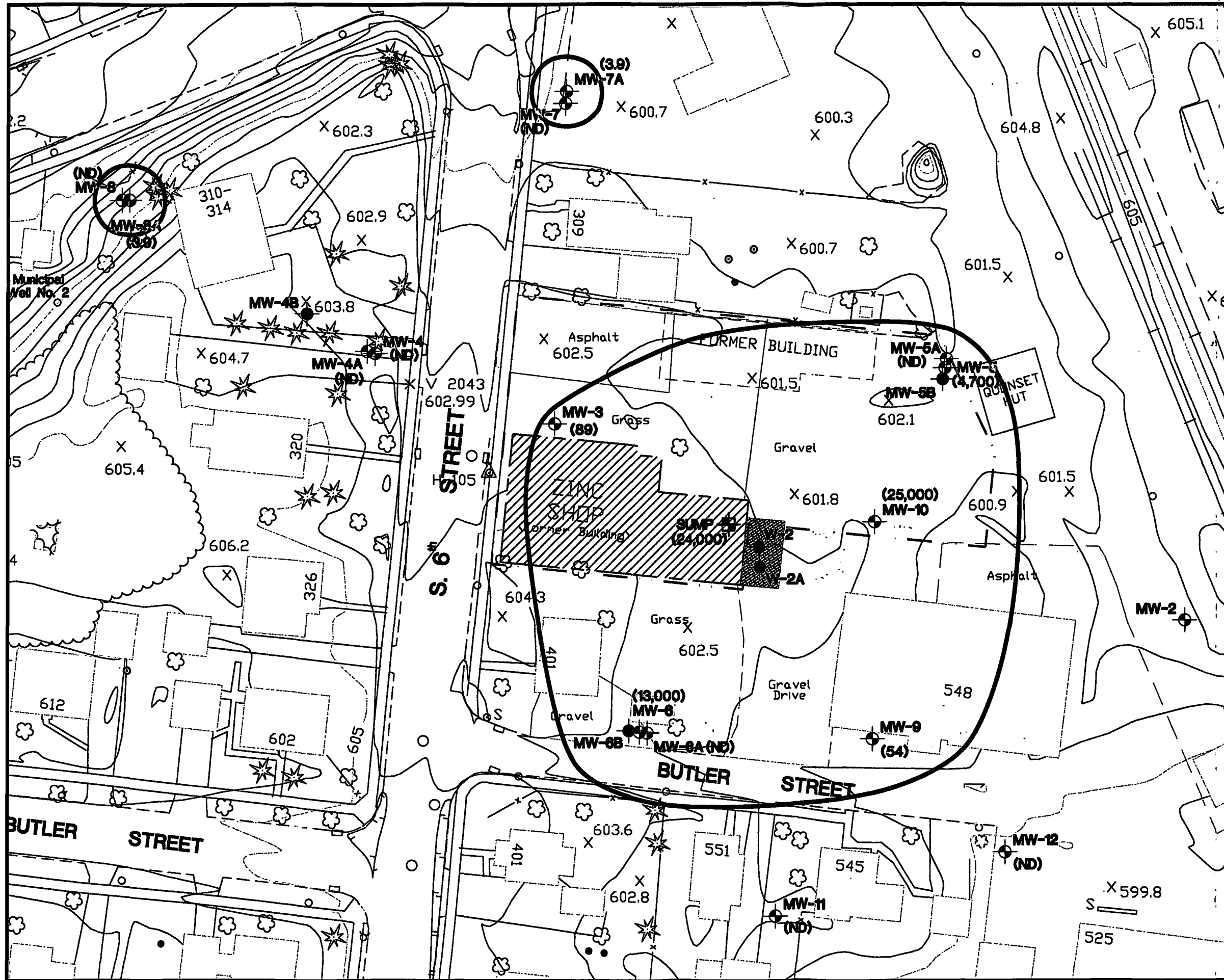
### EXPLANATION

-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3A** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1980**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **592** POTENTIOMETRIC SURFACE CONTOUR (Dashed where Inferred)
-  **(589.94)** POTENTIOMETRIC SURFACE ELEVATION
-  **[598.62]** INCONSISTENT ELEVATION NOT USED FOR CONTOURING




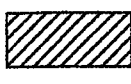






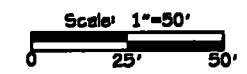
Basemap from Aero-Metric Engineering, Inc. 11/7/91

BETTER BRITE DePERE, WISCONSIN	DATE: 7-8-04
POTENTIOMETRIC SURFACE MAP (MAY 2004) ZINC SHOP	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.008



### EXPLANATION

-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where Inferred**
- (25,000)** **HEXAVALENT CHROMIUM CONCENTRATION (ppb)**
- (ND)** **NOT DETECTED**



Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 7-8-04
EXTENT OF HEXAVALENT CHROMIUM IMPACTS (MAY 2004) ZINC SHOP	DESIGNED: DLM
	CHECKED: KMS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.006

 **Geotrans, Inc.** **Figure 4-5**

## TABLES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
CHROME SHOP	Chrome Sump	Aug-94	620000	694000	NA	NA	NA
		Oct-94	300200	297000	NA	NA	NA
		Apr-98	195000	192000	NA	NA	NA
		Jul-98	132000		NA	NA	NA
	French Drain	Aug-94	25800	22000	NA	NA	NA
		Oct-94	32000	31700	NA	NA	NA
		Apr-98	1060	1010	NA	NA	NA
		Jul-98	336	312	NA	NA	NA
	B-101	Aug-94	<10	<3.4	NA	NA	NA
		Oct-94	<10		NA	NA	NA
	MW-106	Aug-94	7	<2.8	NA	NA	NA
		DUP.	<10	<2.8	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		DUP.	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		DUP	<10	<5	NA	NA	NA
	MW-106A	Aug-94	<10	<2.6	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	9.4	NA	NA	NA
	MW-106B	Aug-94	<10	NA	NA	NA	NA
	MW-107	Aug-94	<10	4.1 BJ	NA	NA	NA
		Oct-94	<10 J	<3.4	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.2	NA	NA	NA
		Jun-01	NA	NA	530	50	NA
		Nov-01	<4.2	26	3900	NA	1800
		May-02	7.8	1.2	230	NA	2300
		DUP	100	1.9	490	NA	2800
		Nov-02	NA	NA	8200	140000	2300
		May-03	<4.2	1.6	490	95000	1700
	May-04	6.5	1.7	260	100000	NA	
MW-107A	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	16	NA	NA	NA	
MW-107B	Aug-94	<10	NA	NA	NA	NA	
MW-108	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	NA	NA	NA	NA	
	DUP	<10	<5	NA	NA	NA	
MW-108A	Aug-94	<10	3.0 BJ	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	55	NA	NA	NA	
MW-108B	Aug-94	<10	NA	NA	NA	NA	
MW-109	Aug-94	6780	9570	NA	NA	NA	
	Oct-94	2400	1980	NA	NA	NA	
	DUP.	3100	1700	NA	NA	NA	
	Apr-98	16500	18600	NA	NA	NA	
	Jul-98	12200	11100	NA	NA	NA	
MW-109A	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10	1.3 B	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	Jul-98	<10	7	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
CHROME SHOP CONT'D	MW-109B	Aug-94	<10	NA	NA	NA	
		Oct-94	<10	NA	NA	NA	
	MW-110	Aug-94	<10	3.6 BJ	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	37	NA	NA	NA
		May-04	<2.5	11	3400	230000	NA
	MW-110A	Aug-94	<10	<2.8	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	25	NA	NA	NA
	MW-111	Aug-94	<10	<3.4	NA	NA	NA
		DUP.	<10	<3.4	NA	NA	NA
		Oct-94	<10	<0.70	NA	NA	NA
		Apr-98	226	<5	NA	NA	NA
		Jul-98	22	27	NA	NA	NA
		Nov-98	<0.5	<0.5	NA	NA	NA
		May-00	<4.2	36	NA	NA	NA
		Nov-02	<4.2	43	4400	130000	2600
		DUP	<4.2	38	3400	100000	280
		May-03	5.2	33	2700	98000	1400
	May-04	50	150	5000	93000	NA	
	MW-112	Oct-94	<10	<0.70	NA	NA	NA
		Nov-94	<10	<2.5	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.1	NA	NA	NA
	MW-113	Aug-94	140	99.7	NA	NA	NA
		Oct-94	<10 J	8.6 B	NA	NA	NA
		May-95	43	20.3	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		Jul-98	<10	12	NA	NA	NA
		May-00	<4.2	22	NA	NA	NA
	MW-114	Mar-95	<10 J	<2.9	NA	NA	NA
		DUP.	<10 J	<2.9	NA	NA	NA
		May-95	<10 J	<1.0	NA	NA	NA
		DUP.	<10 J	<1.0	NA	NA	NA
	MW-115	Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	6.0	NA	NA	NA
		Jun-01	<4.2	<0.52	160	92	NA
		Nov-01	<4.2	12	1100	NA	3000
DUP		<4.2	10	3300	NA	3300	
May-02		<4.2	38	19000	NA	2800	
Nov-02		<4.2	38	7000	130000	3100	
May-03		<4.2	260	9700	90000	1400	
DUP	<4.2	56	3600	89000	1400		
May-04	<2.5	1.3	130	34000	NA		
MW-115A	May-00	<4.2	12.0	NA	NA	NA	
MW-116	May-00	1600	470	NA	NA	NA	
	DUP.	1500	460	NA	NA	NA	
	Nov-00	37	23	NA	NA	NA	
	DUP	46	24	NA	NA	NA	
	Jun-01	4400	2300	840	2100	NA	
	Nov-01	3300	2100	690	NA	2400	
	May-02	12000	7300	530	NA	2500	
	Nov-02	5100	3200	720	20000	2900	
	May-03	8900	6000	410	2700000	1700	
	May-04	28000	22000	43	19000	NA	
May-04	28000	22000	280	24000	NA		

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

	Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
	NR 140 PAL		10	10	150	125000	NO PAL
	NR 140 ES		100	100	300	250000	NO ES
ZINC SHOP	PF-MW-2	May-00	<4.2	7.6	NA	NA	NA
		Jun-01	<4.2	7.1	NA	NA	NA
		Nov-01	<4.2	10	NA	NA	NA
		May-02	<4.2	<0.52	NA	NA	NA
		Nov-02	<4.2	2.4	NA	NA	NA
		May-03	<4.2	49	NA	NA	NA
	MW-3	May-00	230	330	NA	NA	NA
		Nov-00	50	130	NA	NA	NA
		Jun-01	3500	2200	NA	NA	NA
		Nov-01	38	1700	NA	NA	NA
May-02		<4.2	220	NA	NA	NA	
Nov-02		<4.2	18	NA	NA	NA	
May-03		110	55	NA	NA	NA	
Dup		83	49	NA	NA	NA	
MW-4	May-04	89	190	NA	NA	NA	
	Aug-94	<10	<3.4	NA	NA	NA	
	DUP	<10	<3.4	NA	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	NA	
	DUP	<10 J	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	4.6	NA	NA	NA	
	Nov-00	<4.2	2.4	NA	NA	NA	
	Jun-01	<4.2	12	NA	NA	NA	
	Nov-01	<4.2	7.4	NA	NA	NA	
	May-02	<4.2	1.4	NA	NA	NA	
	Nov-02	<4.2	15	NA	NA	NA	
	May-03	<4.2	27	NA	NA	NA	
	May-04	<2.5	1.8	NA	NA	NA	
MW-4A	Aug-94	<10	<3.4	NA	NA	NA	
	Oct-94	<10 J	6.0 B	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	8.7	NA	NA	NA	
	Nov-00	<4.2	3.7	NA	NA	NA	
	Jun-01	<4.2	3.7	NA	NA	NA	
	Nov-01	<4.2	13	NA	NA	NA	
	May-02	<4.2	38	NA	NA	NA	
	Nov-02	<4.2	28	NA	NA	NA	
	May-03	<4.2	32	NA	NA	NA	
MW-4B	May-04	<2.5	0.75	NA	NA	NA	
	Oct-94	<10	<0.70	NA	NA	NA	
MW-5	Nov-94	<10	<2.5	NA	NA	NA	
	Aug-94	1590	827	NA	NA	NA	
	Oct-94	460 J	299 J	NA	NA	NA	
	DUP	510 J	763 J	NA	NA	NA	
	Apr-98	212	631	NA	NA	NA	
	DUP	207	667	NA	NA	NA	
	Jul-98	1420	1230	NA	NA	NA	
	May-00	120	190	NA	NA	NA	
	Nov-00	<4.2	6.6	NA	NA	NA	
	Jun-01	590	450	NA	NA	NA	
	Nov-02	2200	2200	NA	NA	NA	
	DUP	2200	2200	NA	NA	NA	
	May-03	4900	3600	NA	NA	NA	
	May-04	4700	3100	NA	NA	NA	
MW-5A	Aug-94	<10	<3.4	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	6.5	NA	NA	NA	
	Nov-00	340	380	NA	NA	NA	
	Jun-01	<4.2	3.9	NA	NA	NA	
	Nov-02	<4.2	34	NA	NA	NA	
	May-03	<4.2	22	NA	NA	NA	
	DUP	<4.2	49	NA	NA	NA	
	May-04	<2.5	2.7	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES



Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

		Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
		NR 140 PAL		10	10	150	125000	NO PAL
		NR 140 ES		100	100	300	250000	NO ES
ZINC SHOP CONT'D	MW-5B	Aug-94		NA	NA	NA	NA	NA
		Oct-94		<10	<5	NA	NA	NA
	MW-6	Aug-94		15900	39200	NA	NA	NA
		Oct-94		47000	41,900 J	NA	NA	NA
		Apr-98		7650	4560	NA	NA	NA
		May-00		23000	26000	NA	NA	NA
		Nov-00		26000	23000	NA	NA	NA
		Jun-01		14000	15000	NA	NA	NA
		Nov-01		25000	29000	NA	NA	NA
		May-02		13000	13000	NA	NA	NA
		Nov-02		21000	22000	NA	NA	NA
		May-03		11000	9300	NA	NA	NA
	May-04		13000	15000	NA	NA	NA	
	MW-6A	Aug-94		<10	4.9 B	NA	NA	NA
		Oct-94		<10	<3.4 J	NA	NA	NA
		Apr-98		<10	<5	NA	NA	NA
		May-00		6.6	22	NA	NA	NA
		Nov-00		<4.2	13	NA	NA	NA
		6/01		<4.2	11	NA	NA	NA
		Nov-01		<4.2	7.1	NA	NA	NA
		May-02		<4.2	51	NA	NA	NA
		Nov-02		<4.2	83	NA	NA	NA
	May-03		<4.2	59	NA	NA	NA	
	May-04		<2.5	3.4	NA	NA	NA	
	MW-6B	Aug-94		<10	NA	NA	NA	NA
	MW-7	Aug-94		<10	6.6 BJ	NA	NA	NA
		DUP.		<10	<2.8	NA	NA	NA
		Oct-94		<10 J	36.4 J	NA	NA	NA
		Apr-98		<10	<5	NA	NA	NA
		DUP		<10	<5	NA	NA	NA
		May-00		<4.2	3.9	NA	NA	NA
		Nov-00		<4.2	1.1	NA	NA	NA
		Jun-01		<4.2	2.7	NA	NA	NA
		Nov-01		<4.2	9.7	NA	NA	NA
		May-02		<4.2	3.2	NA	NA	NA
		Nov-02		<4.2	1.9	NA	NA	NA
	May-03		<4.2	0.91	NA	NA	NA	
	May-04		<2.5	0.88	NA	NA	NA	
	MW-7A	Aug-94		<10	<2.8	NA	NA	NA
		Oct-94		<10 J	<3.4 J	NA	NA	NA
		Apr-98		<10	<5	NA	NA	NA
		May-00		<4.2	4.7	NA	NA	NA
		Nov-00		7.9	5	NA	NA	NA
		Jun-01		<4.2	2.5	NA	NA	NA
		Nov-01		<4.2	<5.2	NA	NA	NA
		May-02		<4.2	1.4	NA	NA	NA
		Nov-02		<4.2	0.98	NA	NA	NA
		May-03		<4.2	0.85	NA	NA	NA
	May-04		3.9	2.2	NA	NA	NA	
	MW-8	Oct-94		<10	<0.70	NA	NA	NA
Nov-94			<10	<2.5	NA	NA	NA	
DUP.			<10	<2.5	NA	NA	NA	
Apr-98			<10	<5	NA	NA	NA	
May-00			<4.2	15	NA	NA	NA	
Nov-00			13	13	NA	NA	NA	
Jun-01			5.3	2	NA	NA	NA	
Nov-01			<4.2	2.3	NA	NA	NA	
DUP			<4.2	6.7	NA	NA	NA	
May-02			<4.2	4	NA	NA	NA	
Nov-02			<4.2	23	NA	NA	NA	
May-03		<4.2	2.2	NA	NA	NA		
May-04		<2.5	1.7	NA	NA	NA		

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
ZINC SHOP CONT'D	MW-8A	Oct-94	<10	<0.70	NA	NA	NA
		Nov-94	<10	<2.5	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	16	NA	NA	NA
		Nov-00	<4.2	34	NA	NA	NA
		Jun-01	<4.2	3.7	NA	NA	NA
		Nov-01	<4.2	14	NA	NA	NA
		May-02	<4.2	2.5	NA	NA	NA
		DUP	<4.2	11	NA	NA	NA
		Nov-02	<4.2	20	NA	NA	NA
	May-03	<4.2	13	NA	NA	NA	
	May-04	3.9	0.59	NA	NA	NA	
	MW-9	Aug-94	400	697	NA	NA	NA
		Oct-94	470 J	442 J	NA	NA	NA
		Apr-98	209	<5	NA	NA	NA
		Jul-98	60	75	NA	NA	NA
		Nov-00	13	15	NA	NA	NA
		DUP	19	51	NA	NA	NA
		Jun-01	28	180	NA	NA	NA
		Nov-01	35	76	NA	NA	NA
		May-02	75	72	NA	NA	NA
		Nov-02	67	80	NA	NA	NA
	May-03	32	53	NA	NA	NA	
	May-04	54	63	NA	NA	NA	
	Dup	50	46	NA	NA	NA	
	MW-10	Aug-94	60300	53100	NA	NA	NA
		Oct-94	60800 J	43,500 J	NA	NA	NA
		Nov-00	20000	18000	NA	NA	NA
		Jun-01	<4.2	20	NA	NA	NA
		Nov-02	35000	38000	NA	NA	NA
		May-03	38000	37000	NA	NA	NA
	May-04	25000	22000	NA	NA	NA	
	MW-11	May-95	<10	<1.0	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	7.0	NA	NA	NA
		Nov-00	<4.2	4.1	NA	NA	NA
		Jun-01	<4.2	3.6	NA	NA	NA
		Nov-01	<4.2	7.8	NA	NA	NA
		May-02	17	<20	NA	NA	NA
		Nov-02	<4.2	27	NA	NA	NA
	May-03	<4.2	12	NA	NA	NA	
	May-04	<2.5	2.3	NA	NA	NA	
	MW-12	Mar-95	<10 J	<2.9	NA	NA	NA
		May-95	<10	<1.0	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.8	NA	NA	NA
		Nov-00	<4.2	6	NA	NA	NA
		Jun-01	<4.2	6.4	NA	NA	NA
		Nov-01	<4.2	<0.52	NA	NA	NA
		May-02	<4.2	4.8	NA	NA	NA
		Nov-02	<4.2	1.3	NA	NA	NA
		May-03	<4.2	1.3	NA	NA	NA
	May-04	<2.5	1.8	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
<b>ZINC SHOP CONT'D</b>	MW-13	Mar-95	<10 J	<2.9	NA	NA	
		May-95	<10	<1.0	NA	NA	
	Zinc Sump	Aug-94	89000	209000	NA	NA	NA
		Oct-94	<b>144900</b>	<b>277000</b>	NA	NA	NA
		Apr-98	<b>66000</b>	<b>38300</b>	NA	NA	NA
		Jul-98	<b>131000</b>	<b>131000</b>	NA	NA	NA
		May-00	1800	1700	NA	NA	NA
		Nov-00	41000	27000	NA	NA	NA
		Jun-01	40000	110000	NA	NA	NA
		Nov-01	23000	56000	NA	NA	NA
		May-02	43000	14000	NA	NA	NA
		Nov-03	23000	30000	NA	NA	NA
		May-03	8400	6800	NA	NA	NA
		May-04	24000	6400	NA	NA	NA
	Private	Aug-94	<10	<10	NA	NA	NA
	Municipal	Aug-94	<10	<10	NA	NA	NA
		DUP.	<10	<10	NA	NA	NA
		Oct-94	<10	<10	NA	NA	NA
		DUP.	<10	<10	NA	NA	NA
	USGS	Oct-94	<10	0.75 B	NA	NA	NA
USGS-A	Oct-94	<10	11.9	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-2  
 Better Brite  
 DePere, Wisconsin

VOC Groundwater Analytical Summary

		Benzene	sec-butylbenzene	Chloroethane	Chloroform	Dichlorodifluoromethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	Ethylbenzene	Isopropylbenzene	Methylene Chloride	MTBE	n-Propylbenzene	Tetrachloroethene	Toluene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	1,3,5-Trimethylbenzene	Vinyl Chloride	Xylenes
		Volatile Organic Compounds (VOC)																					
NR140 PAL		0.5	None	80	0.6	200	85	0.5	0.7	140	None	0.5	12	None	0.5	0.2	40	0.5	0.5	None	96	0.02	1
NR140 ES		5	None	400	6	1000	850	6	7	700	None	5	60	None	5	1	200	6	5	None	480	0.2	10
Sample Location	Sample Date																						
Zinc Sump	5/4/2000	<0.25	<0.25	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.10	1.4	<0.25	<0.25	<0.25	<0.10	<0.25	<0.25
Zinc Sump	11/30/2000	<0.25	<0.25	<1.2	<1.2	<0.50	<1.2	<1.2	<1.2	<1.2	<0.25	<1.2	<1.2	<0.25	<1.2	<0.50	50	<1.2	<1.2	<0.25	<0.50	<1.2	<1.2
Zinc Sump	11/7/2002	<0.25	<0.25	<0.25	0.36	<0.50	2.4	<0.25	2.7	<0.25	<0.25	<0.25	<0.25	<0.25	0.64	<0.10	64	<0.25	<0.25	<0.25	<0.10	<0.25	<0.25
Zinc Sump	5/7/2003	<0.25	<0.25	<1.0	<0.25	<0.50	<0.50	<0.50	<0.50	<0.25	<1.0	<0.50	<0.25	<0.50	<0.25	1.0	<0.25	<0.25	<0.25	<0.25	<0.25	<0.50	<0.50
MW-2	5/4/2000	1.3	1	<0.25	<0.25	<0.50	<0.25	<0.25	<0.25	0.37	2.6	<0.25	34	0.53	<0.25	0.12	<0.25	<0.25	<0.25	<0.25	<0.10	<0.25	<0.25
MW-116	6/5/2000	<0.10	<0.25	<0.25	<0.25	5.8	1.6	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	1.7	<0.10	3.2	<0.25	<0.25	4.4	<0.10	<0.25	<0.25
MW-116(D)	6/5/2000	<0.10	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	1.5	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25

NOTES:

Units reported are micrograms per liter (ug/L) which is approximately equal to parts per billion (ppb) unless otherwise noted.

PAL- Preventive Action Limit

ES - Enforcement Standard

NS - No Sample

- Not available or Not analyzed

VOC data prior to 2000 are contained in the "Remedial Action Documentation Report, February 21, 2000" and the "Final Design Report, January 14, 1999".

*Italic* - compound meets or exceeds PAL

< - Indicates less than.

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

## APPENDIX A: GROUNDWATER LEVELS

May 6, 2004

### CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85		608.85
B-104A	606.08	5.04	601.04
MW-106	606.21	3.82	602.39
MW-106A	606.36	9.5	596.86
MW-107	608.41	2.96	605.45
MW-107A	608.33	19.57	588.76
MW-108	604.22	2.8	601.42
MW-108A	604.44	15.72	588.72
MW-110	603.05	3.9	599.15
MW-110A	603.31	12.22	591.09
MW-111	600.76	4.32	596.44
MW-112	600.61	3.73	596.88
MW-113	611.08	3.93	607.15
MW-115	601.04	3.25	597.79
MW-115A	601.01	12.24	588.77
MW-116	604.28	2.77	601.51

### ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-2	602.45		602.45
MW-3	602.52	14.66	587.86
MW-4	602.99	6.96	596.03
MW-4A	603.29	6.67	596.62
MW-5	600.81	8.34	592.47
MW-5A	600.81	13.78	587.03
MW-6	602.33	7.71	594.62
MW-6A	605.19	10.36	594.83
MW-7	600.6	7.06	593.54
MW-7A	600.51	12.81	587.7
MW-8	598.18	7.54	590.64
MW-8A	598.59	14.65	583.94
MW-9	601.66	6.46	595.2
MW-10	601.53	8.02	593.51
MW-11	602.41	4.7	597.71
MW-12	599.87	4.05	595.82
Sump	604.09	18.08	586.01

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Br. Le  
 PROJECT #: 1311.DX-01  
 LOCATION: DePue, WI  
 PERSONNEL: KMS

INSTRUMENTS  
 TEMPERATURE: HO Horiba U-22  
 CONDUCTIVITY: ↓  
 PH: ↓  
 OTHER: Solinst WLP

GENERAL:	SAMPLE POINT	MW-8	MW-8A	MW-4	MW-4A	MW-7
WATER TYPE		5-7-04	5-7-04	5-7-04	5-7-04	5-7-04
DATE		GW	GW	GW	GW	GW
CLOCK TIME		10:10	10:15	11:55	12:35	10:30
DEPTH TO WATER*		7.54	14.65	6.96	6.67	7.06
MEASURED WELL DEPTH		16.38	27.23	14.92	28.64	15.60
PURGE VOL/CASING VOL(g)		5 gal	6 gal	15 gal	50 gal	5 gal
DEPTH SAMPLE TAKEN		3.0				
SAMPLING DEVICE						
FIELD TEMPERATURE (°C)		9.35	10.25	9.59	10.80	9.01
ELEC. COND. (µmhos/cm)	MEASURED AT 25°C	097 mS	450	1610	1470	1260
PH		7.50	8.14	7.32	7.49	7.73
ALKALINITY						
COLOR		tan	tan	clear	clear	clear
ODOR		none	none	none	none	none
CLARITY		cloudy	cloudy	clear	clear	clear
SAMPLING PARAMETERS	# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Hex		X	X	X	X	X
Total		X	X	X	X	X
Sulfate						
IRON						
Turb. NTU		447	74	20.0	4.5	19.1
LABORATORY: SENT TO:	DATE SENT:	Test America				
		5-6-04				
SAMPLED BY:		KMS				

\*Measured from top of well riser.



**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Britc  
 PROJECT #: 1311-006-01  
 LOCATION: Dr. Perc. WI  
 PERSONNEL: KMS

INSTRUMENTS  
 TEMPERATURE: Hanna U-22  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Satinst WLP

GENERAL:		SAMPLE POINT	MW-7A	MW-5A	MW-5	MW-12	MW-11
WATER TYPE			GW	GW	GW	GW	GW
DATE			5-7-04	5-7-04	5-7-04	5-7-04	5-7-04
CLOCK TIME			10:35	10:45	10:50	11:00	11:05
DEPTH TO WATER*			12.81	13.78	8.34	4.05	4.70
MEASURED WELL DEPTH			22.40	29.48	15.35	14.55	15.36
PURGE VOL/CASING VOL (g)			5 gal	8 gal	5 gal	5 gal	5 gal
DEPTH SAMPLE TAKEN			202.0				
SAMPLING DEVICE			havy.				
FIELD TEMPERATURE (°C)			10.31	11.27	8.78	8.98	7.95
ELEC. COND. (µmhos/cm)	MEASURED						
	AT 25°C		379	360	4160	2110	1950
PH			8.28	8.32	7.61	7.56	7.48
ALKALINITY							
COLOR			clear	clear	yellow	clear	clear
ODOR			none	none	none	none	none
CLARITY			clear	cloudy	sl. yellow	clear	clear
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME, CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Total Chrom		_____					
Hex		_____					
Sulfate		_____					
Iron		_____					
Turb. NTU			55.4	127	23.2	32.5	37.7
LABORATORY: SENT TO:		TEST America					
DATE SENT:		5-6-04					
SAMPLED BY:		KMS					

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Bride  
 PROJECT #: 1311-DD6-01  
 LOCATION: De Pere, WI  
 PERSONNEL: KMS

INSTRUMENTS  
 TEMPERATURE: Horiba 11-22  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Salinst

GENERAL:		SAMPLE POINT	MW-6A	MW-6	MW-9	MW-3	MW-115
WATER TYPE			GW	GW	GW	GW	GW
DATE			5-7-04	5-7-04	5-7-04	5-7-04	5-7-04
CLOCK TIME			11:15	11:20	11:30	12:15	13:05
DEPTH TO WATER*			10.36	7.71	6.46	<del>14.36</del>	3.25
MEASURED WELL DEPTH			22.40	15.60	16.36	28.05	14.60
PURGE VOL/CASING VOL(g)			6 gal	4 gal	5 gal	7.5 gal	5 gal
DEPTH SAMPLE TAKEN			22.0	15.0	16.0		
SAMPLING DEVICE			hang				
FIELD TEMPERATURE (°C)			11.03	8.90	11.13	12.51	10.47
ELEC. COND. (µmhos/cm)	MEASURED						
	AT 25°C		534	1460	875	<del>531</del>	930
PH			8.24	7.67	7.80	7.55	7.83
ALKALINITY							
COLOR			brown	clear		<del>clear</del> tan	tan
ODOR			none	none		none	none
CLARITY			cloudy	yellow		cloudy	cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & COM. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Hex			X	X	X	X	X
Total			X	X	X	X	X
Sulfate							X
Iron							X
Turb.			maxed	32.9	119.0	66.3	68.0
LABORATORY: SENT TO:		Test America					
DATE SENT:		5-7-04					
SAMPLER BY:		KMS					

\*Measured from top of well riser.

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Brite  
 PROJECT #: 1311.006.01  
 LOCATION: Pe Per, WI  
 PERSONNEL: KMS

INSTRUMENTS  
 TEMPERATURE: Hanna U-22  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Salinst W.L.P.

GENERAL:		SAMPLE POINT	MW-116	MW-111	MW-110	MW-107	MW-10
WATER TYPE			GW	GW	GW	GW	GW
DATE			5-7-04	5-7-04	5-7-04	5-7-04	5-7-04
CLOCK TIME			12:55	13:35	13:20/12:45	12:45	11:45
DEPTH TO WATER*			2.77	4.32	3.90	2.96	8.02
MEASURED WELL DEPTH			19.39	14.5	14.96	15.88	14.69
PURGE VOL/CASING VOL(g)			8gal	5gal	6gal	5gal	4gal
DEPTH SAMPLE TAKEN							
SAMPLING DEVICE			rod bailer	hand bailer	hand		
FIELD TEMPERATURE (°C)			9.60	9.27	10.72	9.42	9.38
ELEC. COND. (µmhos/cm)	MEASURED AT 25°C		3820	879	1700	1170	1670
PH			7.23	8.05	7.58	7.77	7.42
ALKALINITY							
COLOR			yellow	lt. orange	lt. orange	clear	yellow
ODOR			none	none	none	none	none
CLARITY			clear	cloudy	cloudy	clear	cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Hex			X	X	X	X	X
Total			X	X	X	X	X
Sulf.			X	X	X	X	
Iron			X	X	X	X	
Turb.			57.6	max'd	270	43.3	204
			Duf 6:00 13:00				
LABORATORY: SENT TO:		Test America					
DATE SENT:		5-6-04					
SAMPLED BY:		KMS					

\*Measured from top of well riser.

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Brute  
 PROJECT #: 1311-AD6  
 LOCATION: Die Here, WI  
 PERSONNEL: KMS

INSTRUMENTS  
 TEMPERATURE: Horiba U-22  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Salmst W.L.P.

GENERAL: SAMPLE POINT		<u>Zinc Sump</u>			
WATER TYPE					
DATE		<u>5-7-04</u>			
CLOCK TIME		<u>13:55</u>			
DEPTH TO WATER*		<u>18.08</u>			
MEASURED WELL DEPTH		<u>—</u>			
PURGE VOL/CASING VOL(g)					
DEPTH SAMPLE TAKEN					
SAMPLING DEVICE					
FIELD TEMPERATURE (°C)		<u>10.51</u>			
ELEC. COND. (µmhos/cm)	MEASURED AT 25°C	<u>1720</u>			
PH		<u>7.55</u>			
ALKALINITY					
COLOR		<u>yellow</u>			
ODOR		<u>none</u>			
CLARITY		<u>clear</u>			
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)			
<u>Hex</u>		<u>X</u>			
<u>TOTAL</u>		<u>X</u>			
<u>Turb.</u>		<u>5.7</u>			
LABORATORY: SENT TO:		<u>Test America</u>			
DATE SENT:		<u>5-6-04</u>			
SAMPLED BY:		<u>KMS</u>			

\*Measured from top of well riser.





**APPENDIX C**

**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

RECEIVED

MAY 19 2004

HSI GeoTrans  
Milwaukee

**ANALYTICAL REPORT**

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2004

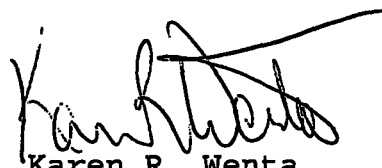
Job No: 04.04261

Page 1 of 9

The following samples were received by TestAmerica for analysis:

1311.006 Better Brite

Sample Number	Sample Description	Date Taken	Date Received
569787	MW-8	05/06/2004	05/07/2004
569788	MW-8A	05/06/2004	05/07/2004
569789	MW-4	05/06/2004	05/07/2004
569790	MW-4A	05/06/2004	05/07/2004
569791	MW-7	05/06/2004	05/07/2004
569792	MW-7A	05/06/2004	05/07/2004
569793	MW-5	05/06/2004	05/07/2004
569794	MW-5A	05/06/2004	05/07/2004
569795	MW-12	05/06/2004	05/07/2004
569796	MW-11	05/06/2004	05/07/2004
569797	MW-6	05/06/2004	05/07/2004
569798	MW-6A	05/06/2004	05/07/2004
569799	MW-9	05/06/2004	05/07/2004
569800	MW-9 Dup	05/06/2004	05/07/2004
569801	MW-3	05/06/2004	05/07/2004
569802	MW-115	05/06/2004	05/07/2004
569803	MW-116	05/06/2004	05/07/2004
569804	MW-111	05/06/2004	05/07/2004
569805	MW-110	05/06/2004	05/07/2004
569806	MW-107	05/06/2004	05/07/2004



Karen R. Wenta  
Inorganic Operations Manager



**ANALYTICAL REPORT**

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2004

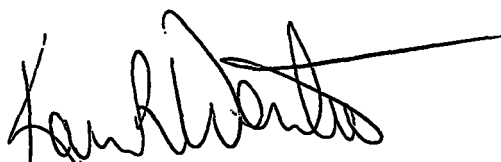
Job No: 04.04261

Page 2 of 9

The following samples were received by TestAmerica for analysis:

1311.006 Better Brite

Sample Number	Sample Description	Date Taken	Date Received
569807	MW-10	05/06/2004	05/07/2004
569808	Zinc Sump	05/06/2004	05/07/2004
569809	MW-116 Dup	05/06/2004	05/07/2004



Karen R. Wenta  
Inorganic Operations Manager

GEOTRANS, INC.  
Job No: 04.04261

05/18/2004  
Page 3 of 9

### KEY TO DATA FLAGS

The attached sample(s) may have a result flag shown on the report. The following are the result flag definitions:

- |  |  |
|--|--|
| A = Analyzed/extracted past hold time                            | B = Blank is contaminated              |
| C = Standard outside of control limits                           | D = Diluted for analysis               |
| E = TCLP extraction outside of method required temperature range | G = Received past hold time            |
| F = Sample filtered in lab                                       | I = Improperly handled sample          |
| H = Late eluting hydrocarbons present                            | L = Common lab solvent and contaminant |
| J = Estimated concentration                                      | P = Improperly preserved sample        |
| M = Matrix interference  | S = Sediment present                   |
| Q = Result confirmed via re-analysis                             | W = BOD re-set due to missed dilution  |
| T = Does not match typical pattern                               | Z = Internal standard outside limits   |
| X = Unidentified compound(s) present                             |  |
| * = See Case Narrative   |  |

### KEY TO ANALYST INITIALS

The attached sample(s) may have been analyzed by another certified laboratory. If a number appears in the Analyst Initials field, the following are the appropriate certifications (if the lab code does not appear below, that means that certification is not required for the work performed):

Lab Code	Certification Number
008	WDNR - 999766900
009	WDNR - 241293690
020	WDNR - 999447680
030	ILNELAC - 100230; WDNR - 998294430
060	ILNELAC - 100221; WDNR - 999447130
070	IA - 007; ILNELAC - 000668; MDH - 019-999-319; WDNR - 999917270
130	WDNR - 632021390
147	WDNR - 721026460
300	FLNELAC - 87358; IA - 131; MDH - 047-999-345; WDNR - 998020430
400	WDNR - 113133790
510	WDNR - 241249360
520	WDNR - 999518190; ILNELAC - 100439
700	WDNR - 113289110

TestAmerica Watertown Certifications: WI DNR - 128053530; IA DNR - 294; MN DoH - 055-999-366; ND DoH R-046; AR DEQ - 88-0808

Unless sub-contracted (see above), volatiles analyses (including VOC, PVOC, GRO, BTEX and TPH Gasoline) performed by TestAmerica Watertown at 1101 Industrial Drive, Units 9&10

Results reported between the Method Detection Limit (MDL) and Limit of Quantitation (LOQ) are less certain than results at or above the LOQ.

For questions regarding this report, please contact Dan Milewsky or Warren Topel.

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2004  
 Job No: 04.04261  
 Account No: 39150  
 Purchase Order:  
 Page 4 of 9

Job Description: 1311.006 Better Brite  
 DePere, WI  
 Rec'd on ice

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
569787 MW-8 Date/Time Taken: 05/06/2004 10:10								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0017	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569788 MW-8A Date/Time Taken: 05/06/2004 10:15								
Chromium, hexavalent	0.0039	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.00059	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569789 MW-4 Date/Time Taken: 05/06/2004 11:55								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0018	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569790 MW-4A Date/Time Taken: 05/06/2004 12:35								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.00075	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569791 MW-7 Date/Time Taken: 05/06/2004 10:30								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.00088	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569792 MW-7A Date/Time Taken: 05/06/2004 10:35								
Chromium, hexavalent	0.0039	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0022	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2004  
 Job No: 04.04261  
 Account No: 39150  
 Purchase Order:  
 Page 5 of 9

Job Description: 1311.006 Better Brite  
 DePere, WI  
 Rec'd on ice

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
569793 MW-5 Date/Time Taken: 05/06/2004 10:50								
Chromium, hexavalent	4.7	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, AA	3.1	mg/L	0.020	0.067	EPA 218.1	05/17/2004	gaf	1147
569794 MW-5A Date/Time Taken: 05/06/2004 10:45								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0027	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569795 MW-12 Date/Time Taken: 05/06/2004 11:00								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0018	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569796 MW-11 Date/Time Taken: 05/06/2004 11:05								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0023	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1436 860
569797 MW-6 Date/Time Taken: 05/06/2004 11:20								
Chromium, hexavalent	13	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, AA	15	mg/L	0.020	0.067	EPA 218.1	05/17/2004	gaf	1147
569798 MW-6A Date/Time Taken: 05/06/2004 11:15								
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.0034	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2004  
 Job No: 04.04261  
 Account No: 39150  
 Purchase Order:  
 Page 6 of 9

Job Description: 1311.006 Better Brite  
 DePere, WI  
 Rec'd on ice

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
569799 MW-9						Date/Time Taken: 05/06/2004 11:30		
Chromium, hexavalent	0.054	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.063	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
569800 MW-9 Dup						Date/Time Taken: 05/06/2004 11:35		
Chromium, hexavalent	0.050	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.046	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
569801 MW-3						Date/Time Taken: 05/06/2004 12:15		
Chromium, hexavalent	0.089	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	0.19	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
569802 MW-115						Date/Time Taken: 05/06/2004 13:05		
Chromium, hexavalent	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Sulfate, IC	34	mg/L	2.0	6.7	EPA 300.0	05/13/2004	tds	1759
Chromium, GFAA	0.0013	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
Iron, AA	0.13	mg/L	0.042	0.14	EPA 236.1	05/18/2004	gaf	2953 2230
Prep, Totals - 3010 Liquids	c				SW 3010	05/13/2004	lak	2953
569803 MW-116						Date/Time Taken: 05/06/2004 12:55		
Chromium, hexavalent	28	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Sulfate, IC	19	mg/L	2.0	6.7	EPA 300.0	05/17/2004	tds	1761
Chromium, AA	22	mg/L	0.020	0.067	EPA 218.1	05/17/2004	gaf	2953 1147
Iron, AA	0.043	mg/L	0.042	0.14	EPA 236.1	05/18/2004	gaf	2953 2230
Prep, Totals - 3010 Liquids	c				SW 3010	05/13/2004	lak	2953

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2004  
Job No: 04.04261  
Account No: 39150  
Purchase Order:  
Page 7 of 9

Job Description: 1311.006 Better Brite  
DePere, WI  
Rec'd on ice

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
569804 MW-111		Date/Time Taken: 05/06/2004 13:35						
Chromium, hexavalent Sulfate, IC	0.050	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	93	mg/L	2.0	6.7	EPA 300.0	05/13/2004	tds	1760
Iron, AA	0.15	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
Prep, Totals - 3010 Liquids	5.0	mg/L	0.042	0.14	EPA 236.1	05/18/2004	gaf	2953 2230
	c				SW 3010	05/13/2004	lak	2953
569805 MW-110		Date/Time Taken: 05/06/2004 13:20						
Chromium, hexavalent Sulfate, IC	<0.0025	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	230	mg/L	2.0	6.7	EPA 300.0	05/17/2004	tds	1761
Iron, AA	0.011	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
Prep, Totals - 3010 Liquids	3.4	mg/L	0.042	0.14	EPA 236.1	05/18/2004	gaf	2953 2230
	c				SW 3010	05/13/2004	lak	2953
569806 MW-107		Date/Time Taken: 05/06/2004 12:45						
Chromium, hexavalent Sulfate, IC	0.0065	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, GFAA	100	mg/L	2.0	6.7	EPA 300.0	05/17/2004	tds	1761
Iron, AA	0.0017	mg/L	0.00019	0.00068	EPA 218.2	05/17/2004	gaf	1437 860
Prep, Totals - 3010 Liquids	0.26	mg/L	0.042	0.14	EPA 236.1	05/18/2004	gaf	2953 2230
	c				SW 3010	05/13/2004	lak	2953
569807 MW-10		Date/Time Taken: 05/06/2004 11:45						
Chromium, hexavalent	25	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, AA	22	mg/L	0.020	0.067	EPA 218.1	05/17/2004	gaf	1147

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2004  
 Job No: 04.04261  
 Account No: 39150  
 Purchase Order:  
 Page 8 of 9

Job Description: 1311.006 Better Brite  
 DePere, WI  
 Rec'd on ice

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
569808 Zinc Sump	Date/Time Taken: 05/06/2004 13:55							
Chromium, hexavalent	24	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Chromium, AA	6.4	mg/L	0.020	0.067	EPA 218.1	05/18/2004	gaf	1148
569809 MW-116 Dup	Date/Time Taken: 05/06/2004 13:00							
Chromium, hexavalent	28	mg/L	0.0025	0.0088	SM 3500CrD	05/07/2004	ksp	1070
Sulfate, IC	24	mg/L	2.0	6.7	EPA 300.0	05/17/2004	tds	1761
Chromium, AA	22	mg/L	0.020	0.067	EPA 218.1	05/17/2004	gaf	2953 1147
Iron, AA	0.28	mg/L	0.042	0.14	EPA 236.1	05/18/2004	gaf	2953 2230
Prep, Totals - 3010 Liquids	c				SW 3010	05/13/2004	lak	2953

## QUALITY CONTROL REPORT BLANKS

05/18/2004

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 04.04261  
Account No: 39150

Page 9 of 9

Job Description: 1311.006 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		1070	<0.0025	0.0025	0.0088	mg/L
Chromium, hexavalent		1070	<0.0025	0.0025	0.0088	mg/L
Sulfate, IC		1759	<2.0	2.0	6.7	mg/L
Sulfate, IC		1759	<2.0	2.0	6.7	mg/L
Sulfate, IC		1760	<2.0	2.0	6.7	mg/L
Sulfate, IC		1761	<2.0	2.0	6.7	mg/L
Chromium, AA		1147	<0.020	0.020	0.067	mg/L
Chromium, AA	2953	1147	<0.020	0.020	0.067	mg/L
Chromium, AA		1148	<0.020	0.020	0.067	mg/L
Chromium, GFAA	1436	859	<0.00019	0.00019	0.00068	mg/L
Chromium, GFAA		860	<0.00019	0.00019	0.00068	mg/L
Chromium, GFAA	1437	860	<0.00019	0.00019	0.00068	mg/L
Iron, AA	2953	2230	<0.042	0.042	0.14	mg/L
Iron, AA		2230	<0.042	0.042	0.14	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d











**GeoTrans, Inc.**  
A TETRA TECH COMPANY

175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

262-792-1282 FAX 262-792-1310

Date: 11-10-2003

Project/Task #: Better Brite

**FAX COVER SHEET**

To: Keld Lauridsen  
WDNR

Fax #: 1-920-492-5859

Subject: Authorization for 2004 May sampling

Attached is a copy of the proposal letter with lines added for a signature and date. Please sign and date this page and fax it back so I have a document to give to my accounting people to show we have obtained your permission to do the work. I will send only one invoice once the report is submitted. Thanks and please call with any questions.

From: Dan Morgan

Number of pages including cover sheet: 3

Please call if you have any trouble receiving this transmission or if you did not receive the number of pages shown above (262-792-1282).



175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

www.geotransinc.com

262-792-1282 FAX 262-792-1310

October 28, 2003  
(1311.003 – new work)

Mr. Keld Lauridsen  
Wisconsin Department of Natural Resources  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

RE: Annual Sampling Proposal for Spring, 2004 Event at Better Brite Site, DePere, Wisconsin

Dear Keld:

Enclosed please find our proposal for the above site. The sampling requirements are discussed in Section 7.0 of the Spring 2003 Monitoring Report, revised to annual by WDNR per a telephone conversation, and are summarized below:

Groundwater elevations (33) will be taken at 16 Chrome Shop Monitor Wells (Sec. 2.1 of Spring 2003 Monitoring Report (S2003MR), 16 Zinc Shop Monitor Wells (Sec. 2.2 of S2003MR), and the Zinc Shop Sump.

16 Monitor Wells at the Zinc Shop, the Zinc Shop Sump, and MW-107, MW-110, MW-111, MW-115, and MW-116 at the Chrome Shop will be measured for indicator parameters of pH, temperature, conductivity, color, odor, and turbidity.

16 Monitor Wells and the Sump at the Zinc Shop will be sampled for analyses of Total Chromium and Hexavalent Chromium, with one duplicate sample collected.

MW-107, MW-110, MW-111, MW-115, and MW-116 at the Chrome Shop will be sampled for analyses of Total Chromium, Hexavalent Chromium, Sulfate, and Iron, with one duplicate sample collected.

All samples will be analyzed by a Wisconsin-certified laboratory. Unfiltered samples will be submitted for analyses. The Zinc Shop Sump will be sampled for volatile organic compounds (VOCs) on an every-other-year basis. As a Sump VOCs sample was collected on 5-7-2003, the next VOC sample will be collected in May, 2005. All purge water will be disposed of and treated using the existing pretreatment system at the Zinc Shop.

ATTN: DAN MORGAN

Grounds at both shops and the treatment system exterior will be evaluated to determine if any maintenance is required. The foundation drain sump manhole access will be observed to determine if any maintenance is required. Bob Kennedy of the City of DePere will be contacted about treatment system performance. A report will be prepared which summarizes the sampling activities, compares the results to NR140 ground water standards, makes recommendations for future sampling modifications, if warranted, and summarizes the results of the shop and treatment system inspection. The report will also include data tables and water table and potentiometric surface maps. The VOC results of past sampling events will be tabulated in this report beginning in May, 2004.

Costs

The annual sampling event cost for the above scope of work is \$4,892.00.

The field representative for GeoTrans will be Richard Sawall. Mr. Sawall has performed the last several field semi-annual sampling events and is familiar with the site issues.

GeoTrans will continue to comply with all WDNR contract provisions, including insurance requirements, if awarded this work. We appreciate this opportunity to provide professional services to the WDNR.

I trust this information meets your needs. If you have any questions, please do not hesitate to call (262) 792-1282.

Sincerely,  
GEOTRANS, INC.

*Daniel L. Morgan*

Daniel L. Morgan, P. E.  
Senior Engineer

OK by WDNR

*Richard Sawall*

11/11/2003  
Date

# MESSAGE CONFIRMATION

11/11/2003 12:05  
ID=WI DNR NER SOLID WASTE

DATE	S.R-TIME	DISTANT STATION ID	MODE	PAGES	RESULT
11/11	00'29"	262 792 1310	CALLING	01	OK 0000

11/11/2003 12:04 WI DNR NER SOLID WASTE → 812627921310 NO.574 001  
NOV-10-2003 10:49 GEOTRANS INC 262 792 1310 P.03/03

*ATTN: DAN MORGAN*

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October 28, 2003  
(1311.003 – new work)

Mr. Keld Lauridsen  
Wisconsin Department of Natural Resources  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

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#### Costs

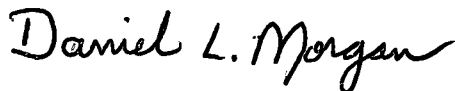
The annual sampling event cost for the above scope of work is **\$4,892.00**.

The field representative for GeoTrans will be Richard Sawall. Mr. Sawall has performed the last several field semi-annual sampling events and is familiar with the site issues.

GeoTrans will continue to comply with all WDNR contract provisions, including insurance requirements, if awarded this work. We appreciate this opportunity to provide professional services to the WDNR.

I trust this information meets your needs. If you have any questions, please do not hesitate to call (262) 792-1282.

Sincerely,  
GEOTRANS, INC.



Daniel L. Morgan, P. E.  
Senior Engineer

## Lauridsen, Keld B

---

**From:** Peterson.Jon@epamail.epa.gov  
**Sent:** Friday, October 03, 2003 4:00 PM  
**To:** Lauridsen, Keld B  
**Subject:** Re: Better Brite

sounds fine to me keld, you're the boss. jp

"Lauridsen, Keld B"  
<Keld.Lauridsen@dnr.state.wi.us>  
To: Jon Peterson/R5/USEPA/US@EPA  
cc:  
10/03/2003 02:48 PM cc:  
bcc:  
Fax to:  
Subject: Better Brite

Jon,

I was wondering if you see any problems with me modifying the current groundwater sampling schedule at the Better Brite site. Currently we sample select key monitoring wells semiannually. We have done that for three years and I feel comfortable with the baseline we now have established. From now on I would like to sample the wells annually. Let me know what you think.

Hope all is well,

-Keld

Keld B. Lauridsen  
Hydrogeologist  
Wisconsin Department of Natural Resources  
1125 N. Military Ave.  
P.O. Box 10448  
Green Bay, WI 54307-0448

Phone (920) 492-5921  
Fax (920) 492-5859  
E-mail Keld.Lauridsen@dnr.state.wi.us  
Visit us on the web -----> [www.dnr.state.wi.us/org/aw/rr](http://www.dnr.state.wi.us/org/aw/rr)



**GeoTrans, Inc.**  
A TETRA TECH COMPANY



175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

262-792-1282 FAX 262-792-1310

**LETTER OF TRANSMITTAL**

TO: WDNR  
Attn: K. Lauridsen  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

DATE: July 1, 2003  
RE: Better Brite  
JOB NO: F150 1311.003

We are sending you the following:

No. Of Copies	Description
2	Spring 2003 Groundwater Monitoring Report

**These are Transmitted as checked below:**

- |  |   |
|--|---|
| <input type="checkbox"/> For approval            | <input type="checkbox"/> Approved as submitted    |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Approved as noted        |
| <input type="checkbox"/> As requested            | <input type="checkbox"/> Returned for corrections |
| <input type="checkbox"/> For review and comment  | <input type="checkbox"/> Other _____              |

REMARKS: One for WDNR, one for City of DePere library.

Transmitted by:

- First Class Mail
- Federal Express
- Courier
- Registered Mail
- UPS
- Other \_\_\_\_\_

Signed: Daniel L. Morgan

cc:



**SPRING 2003 MONITORING REPORT**  
**BETTER BRITE PLATING, INC**  
**DE PERE, WISCONSIN**

June 30, 2003


Prepared For:

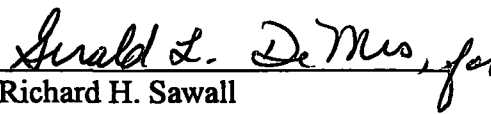
Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150  
1311.003

  
Daniel L. Morgan, P.E.  
Senior Engineer

  
Richard H. Sawall  
Staff Engineer

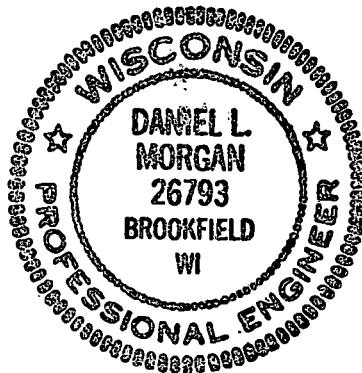
CERTIFICATION

This report,  
SPRING 2003 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated June 30, 2003

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional  
engineer as defined in s. NR712.03(2), and that to the best of my  
knowledge, all information contained in this document is correct.



*Daniel L. Morgan*  
Daniel L. Morgan, P.E.  
Senior Engineer

## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfates/Sulfides	3-2
3.1.5 VOC's	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-2

## **TABLE OF CONTENTS (CONTINUED)**

### **FIGURES**

- 4-1 Water Table Map (May 6, 2003) - Chrome Shop
- 4-2 Potentiometric Surface Map (May 6, 2003) - Chrome Shop
- 4-3 Water Table Map (May 6, 2003) - Zinc Shop
- 4-4 Potentiometric Surface Map (May 6, 2003) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- 1. Water Elevation Measurements
- 2. Field Water Quality Data Sheets
- 3. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October 1989 and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the Fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium-contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.



This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. The Spring 2003 sampling event took place on May 6<sup>th</sup> and 7<sup>th</sup>, and the following report summarizes the findings.

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Spring 2003 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 16 wells and sample collection and analysis from four existing wells (MW-107, MW-111, and MW-115, and MW-116). The following wells had groundwater elevations measured:

B-101	MW-107	MW-110	MW-113
B-104A	MW-107A	MW-110A	MW-115
MW-106	MW-108	MW-111	MW-115A
MW-106A	MW-108A	MW-112	MW-116

### 2.2 Zinc Shop

Spring 2003 post remedial action groundwater monitoring at the Zinc Shop included 16 existing wells and the extraction sump (Zinc Sump; Figure 2-2). Groundwater samples and water table elevations were taken at all locations. The wells in the monitoring plan include:

MW-2	MW-5	MW-7	MW-9
MW-3	MW-5A	MW-7A	MW-10
MW-4	MW-6	MW-8	MW-11
MW-4A	MW-6A	MW-8A	MW-12
Zinc Sump			

## 3.0 SAMPLE ANALYSIS PARAMETERS

### 3.1 Groundwater

Eight groups of parameters were included in the groundwater analysis. These are groundwater elevation, field measurements (annotated below), hexavalent chromium, total chromium, iron, sulfate, sulfide, and VOCs. Iron, sulfate and sulfide were analyzed at four wells at the Chrome shop site, and VOCs were analyzed for at the Zinc shop sump. The groundwater samples were collected following GeoTrans' Standard Operating Procedures.

#### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points indicated in Sections 2.1 and 2.2. Elevation was measured to 0.01 ft. using an electronic water level probe.

#### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and clarity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and clarity were determined by visual and olfactory examination.

#### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Iron and Sulfates/Sulfides

Per the request of Keld Lauridson, WDNR, groundwater samples from three monitoring wells at the former Chrome shop site were analyzed for iron and sulfate beginning in June 2001. The results will be used to determine whether the reagents used to stabilize the chromium have leached into the ground water. Due to a printing error on the chain of custody, sulfides were run instead of sulfates for the Fall 2001 and Spring 2002 sampling events. Samples from these wells were analyzed for both sulfide and sulfate during the Fall 2002 and Spring 2003 sampling event. This was done to see if any correlation may be made between the two parameters. One additional well (MW-111) at the Chrome Shop site was analyzed for these parameters during the Fall 2002 and Spring 2003 sampling events.

### 3.1.5 VOCs

VOCs were sampled at the Zinc Shop sump during this sampling period to make comparisons with previous VOC measurements at the Zinc Sump.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

No significant presampling activities occurred between the Fall 2002 and Spring 2003 sampling events.

### 4.2 Chrome Shop Monitoring Results

The water table and potentiometric surface maps for the Chrome Shop site are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table is primarily to the south and west, with western portion of the site flowing to the South and East. This flow pattern follows local topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and clarity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-107, MW-115, MW-111 and MW-116. MW-116 had a hexavalent chromium impact of 8900 ppb, which exceeds the ES for hexavalent chromium. MW-111 had a low hexavalent chromium concentration of 5.2 ppb, which is below both the Enforcement Standard and the Preventive Action Limit. Hexavalent chromium was not detected in either MW-115 or MW-107.

Total chromium was detected above the PAL in wells MW-111, MW-115, and MW-116, with only MW-116 exceeding the ES. These values are consistent with previous measurements at this site.

The analysis of iron, sulfates and sulfides from spring 2001 to spring 2003 as indicator parameters do show a relationship between iron and chromium concentrations in MW-116. As the concentrations of hexavalent chromium have increased (4400 to 8900 ppb) in MW-116, iron concentrations have dropped (840 to 410 ppb) over the two-year period that the indicator parameters were tested. Additionally, the high concentrations of chromium in MW-116 translate into much lower iron concentrations in MW-116 (average conc.= 625 ppb) when compared to the other wells (average conc.= 4,616 ppb). Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," all four wells exceeded the Enforcement Standard (ES) for iron.

Sulfate concentrations in MW-116 seem to show a possible relationship with chromium, with the sulfate concentration (2.1 to 2,700 ppm) increasing with increasing chromium concentrations (4400 to 8900 ppb). However, since the wells with low to non-detect chromium concentrations do not have correspondingly low sulfate concentrations (average conc.= 109 ppm), there does not seem to be a consistent relationship between sulfate and chromium. Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," MW-116 exceeded the ES for sulfate, with no other wells having any exceedences.

There is no noticeable relationship between sulfides and chromium for any of the wells.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Spring 2003 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows significant draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is similar to previous measurements with flow also predominantly to the north and west, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and clarity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 17 locations. Hexavalent chromium was detected at six sample points, MW-6, MW-9 and MW-10, MW-5, MW-3, and the sump. Maximum hexavalent chromium concentrations were detected at MW-10 and MW-6, with concentrations of 38,000 ppb and 11,000 ppb, respectively. Concentrations of hexavalent chromium remained relatively stable across the site with the exception of MW-3, which yielded a detection of hexavalent chromium for the first time since November of 2001. Total chromium was detected above the PAL at 13 locations including the zinc sump, MW-2, MW-3, MW-4, MW-4A, MW-5, MW-5A, MW-6, MW-6A, MW-8A, and MW-9, MW-10, MW-11. Concentrations of total chromium ranged from non-detect to 37,000 ppb. The extent of hexavalent chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

VOC sampling done at the Zinc sump resulted in no exceedance of NR-140 Preventive Action Limits (PAL). 1,1,1-Trichloroethane was detected at 1.0 ug/L (under the PAL of 40 ug/L). None of these parameters exceeded the NR-140 Enforcement Standard.

Previous VOC sampling at the Zinc Shop sump on November 7, 2002 yielded several VOC detections above the PAL. The parameters that had exceedances were 1,1-Dichloroethene (2.7 ug/L over 0.7 ug/L), Tetrachloroethene (0.64 ug/L over 0.5 ug/L), and 1,1,1-Trichloroethane (64 ug/L over 40 ug/L). None of these parameters exceeded the NR-140 Enforcement Standard. Chloroform was also detected at 0.36 ug/L, below the PAL of 0.6 ug/L.

Historically, VOC sampling at the Zinc Shop sump did not occur during the Spring 2002, Fall 2001, or Spring 2001 events.

VOC sampling at the Zinc Shop sump on November 30, 2000 (Fall 2000) yielded a detection of 1,1,1-Trichloroethane at 50 ug/L (over the PAL of 40 ug/L).

VOC sampling at the Zinc Shop sump on May 4, 2000 (Spring 2000) yielded a detection of 1,1,1- Trichloroethane at 1.4 ug/L , below the PAL.

VOC sampling at the Zinc Shop sump in July of 1998 yielded detections of 1,1-Dichloroethane at 5.1 ug/L (below the PAL of 85 ug/L) and 1,1,1-Trichloroethane at 167 ug/L. VOC sampling at the Zinc Shop sump in April 1998 yielded detections of 1,1-Dichloroethene at 18 ug/L (above the ES of 7 ug/L) 1,1-Dichloroethane at 14 ug/L , 1,2- Dichloroethene at 5 ug/L (at the ES of 5 ug/L) and Carbon Tetrachloride at 380 ug/L (above the ES of 5 ug/L).

Minor footnoted detections of the above VOCs were noted in August and September 1994 sampling events (see Remedial Action Documentation Report, February 21, 2000).



## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

Local resident Marv Konrath (1041 S. 6<sup>th</sup> Street) voiced concerns over the drainage at the Chrome shop site. Mr. Konrath stated to field personnel during the May 2003 sampling event that runoff from the site still causes ponding of water in his backyard despite efforts to improve the drainage conditions in the spring of 2001.

### 5.2 Zinc Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the increasing concentration of hexavalent chromium in ground water within the stabilization area (MW-116) at the chrome shop at concentrations above the 100 ppb ES for total chromium and 2) the increase of total chrome in MW-115 outside of the stabilization area at the chrome shop. Due to the effectiveness of the remediation system in place at the zinc shop of preventing the expansion of the contamination plume, there are no concerns regarding the conditions at the zinc shop site.

Due to the overall stable conditions at zinc shop and portions of the chrome shop, several wells should be considered for elimination from the sampling program or reduced sampling frequency for the next contract period. It is recommended that the next contract period be two years, after which further reductions in the sampling should be considered based on the stability of the contaminant concentrations at the chrome and zinc shop.

### 6.1 Chrome Shop Recommendations

Sampling results at MW-116 show concentrations increasing in both hexavalent and total chromium. The steady increase in hexavalent chromium concentration at this well along with the decrease in iron concentrations indicate that the treatment performed in the Fall of 1999 may be losing its ability to stabilize the hexavalent chromium at the Chrome Shop site. Based on these observations, the WDNR may want to begin consideration of additional treatment options at the Chrome Shop site.

Biannual sampling was originally proposed for the wells at the Chrome Shop. Due to the increasing concentrations of hexavalent chromium in ground water in MW-116, sampling at MW-116 and the two downgradient wells (MW-111 and MW-115) should continue to be sampled on a semiannual basis to determine whether there is any migration of chromium off-site. In addition to hexavalent chromium and total chromium analysis, analysis of iron and sulfate at these wells may provide useful information pertaining to the ability of the groundwater to

stabilize chromium at the site. Iron and sulfate analysis at MW-116, 115, and 111 should be performed on an annual basis during the next contract period.

The high concentration (100 ppb) of hexavalent chromium in the May 2002 duplicate sample for MW-107 warrants further monitoring at this well on a semiannual basis for hexavalent chromium, total chromium, and iron for the next contract period. If the concentrations in MW-107 continue to show no NR 140 exceedences, it should be considered for removal from the sampling plan.

Sulfide have not shown to be useful as indicator parameters, so the analysis of this parameter in the Chrome Shop wells should be discontinued for the next contract period.

## 6.2 Zinc Shop Recommendations

The Zinc shop hexavalent chromium results indicate that the treatment system at the Zinc sump has been effective at containing the contamination, but has not been able to reduce the concentrations in the contaminated wells. Due to the stable nature of the chromium concentrations and limited nature of the contamination plume a reduction in the sampling plan at the Zinc shop should be considered.

Wells that have not shown the presence of total or hexavalent chromium above the PAL should be considered for elimination. Four wells that meet these criteria are: MW-7, MW-7A, MW-8, and MW-12.

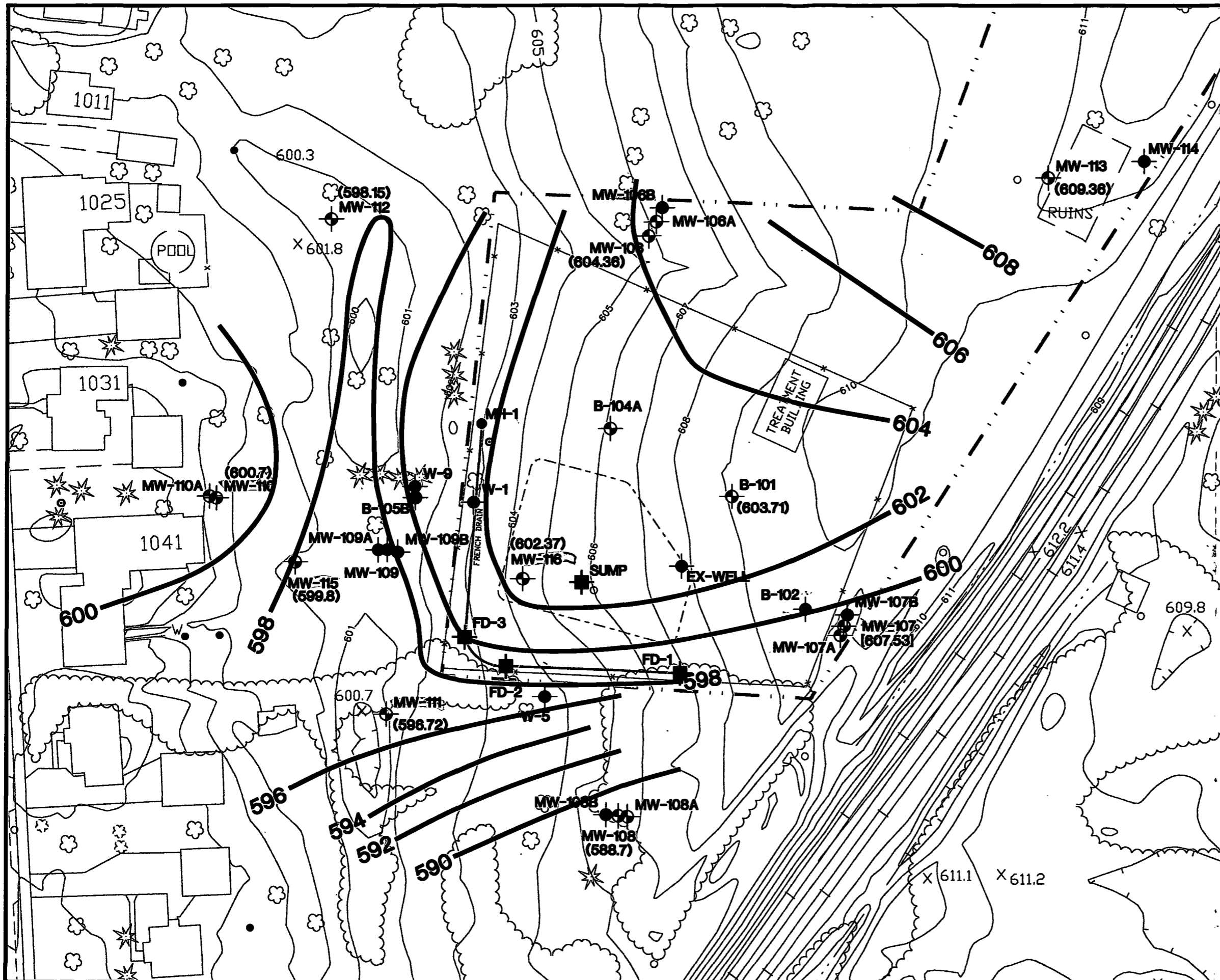
Wells that have not had any hexavalent chromium impacts, but have had total chrome concentrations above the PAL should be considered for annual sampling instead of semi-annual sampling. Six wells that fit these criteria are: MW-2, MW-4A, MW-5A, MW-6A, MW-8A, and MW-11.

The remaining wells that have had hexavalent chromium impacts above the PAL or those that are immediately downgradient of the contamination plume should continue to be sampled on a semi-annual basis. Seven wells that fit these criteria are: MW-3, MW-4, MW-5, MW-6, MW-9, MW-10, and the zinc sump.

One additional option the WDNR may want to consider is to analyze for dissolved chromium instead of total chromium at the zinc shop wells. Dissolved chrome samples may help to determine if high total chrome concentrations in some wells are due to high sedimentation in the sample bottles.

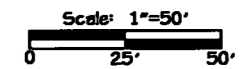
The low concentrations of 1,1,1-Trichloroethane found in the sump do not indicate a serious risk of VOC contamination at the site. Due to the low concentrations and intermittent basis of the VOC contamination, continued monitoring of VOCs in the sump is not needed on a semiannual basis. Annual sampling for VOCs should take place during the Fall sampling event, as VOC contaminant levels have historically been higher at this time.

## FIGURES



### EXPLANATION

- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- MW-11 ABANDONED WELL (any filled in well symbol)
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- 598 WATER TABLE CONTOURS (Dashed where inferred)
- (602.37) WATER TABLE ELEVATION
- [607.53] INCONSISTENT ELEVATION NOT USED FOR CONTOURING

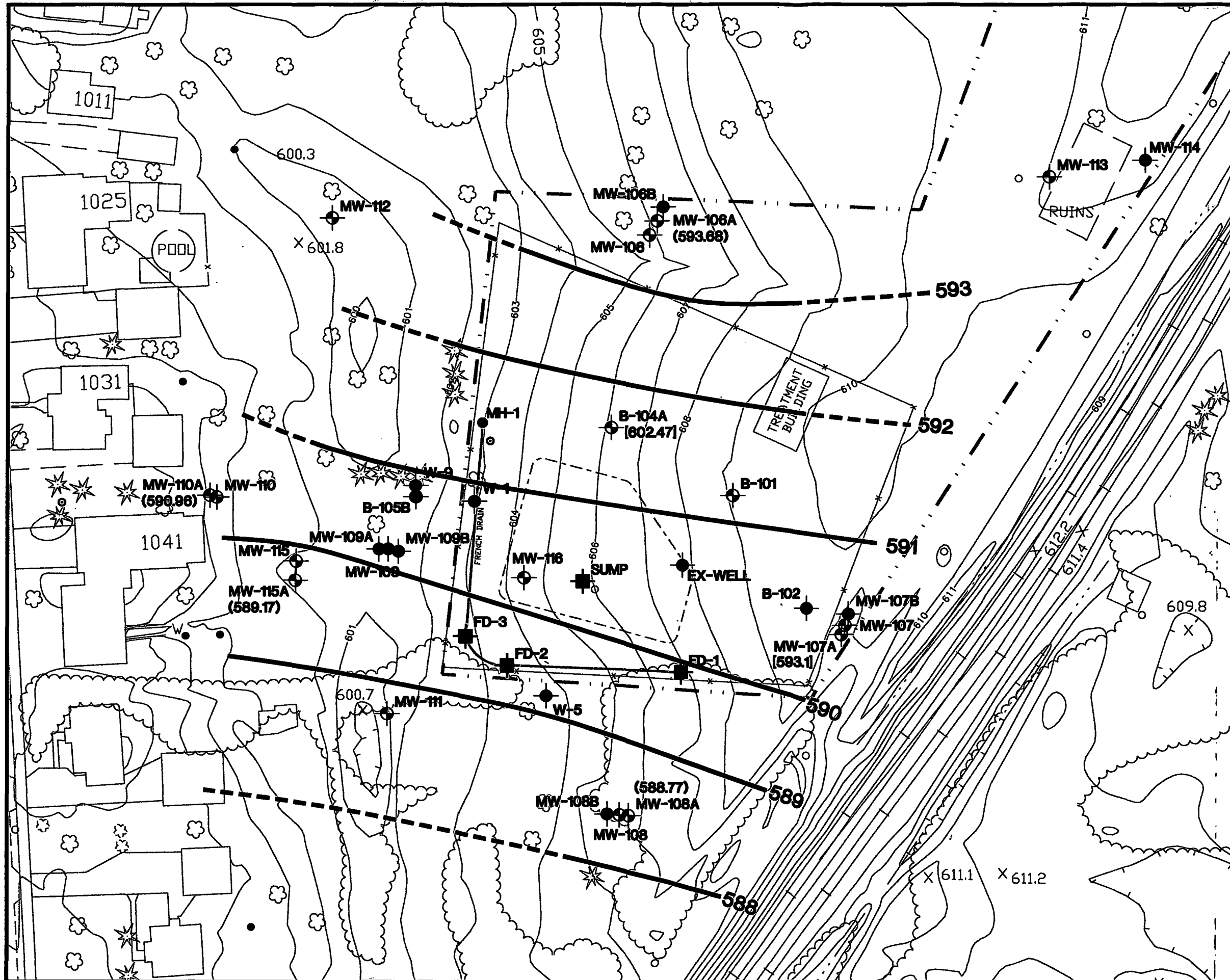


Basemap from Aero-Metric Engineering, Inc. 11/17/91















<b>BETTER BRITE</b> DePERE, WISCONSIN <b>WATER TABLE MAP</b> (MAY 6, 2003) <b>CHROME SHOP</b>	DATE: 6/16/03
	DESIGNED: DLM
	CHECKED: RRS
	APPROVED: DLM
	DRAWN: HJW
PROJ.: 1311.003	



Figure 4-1



### EXPLANATION

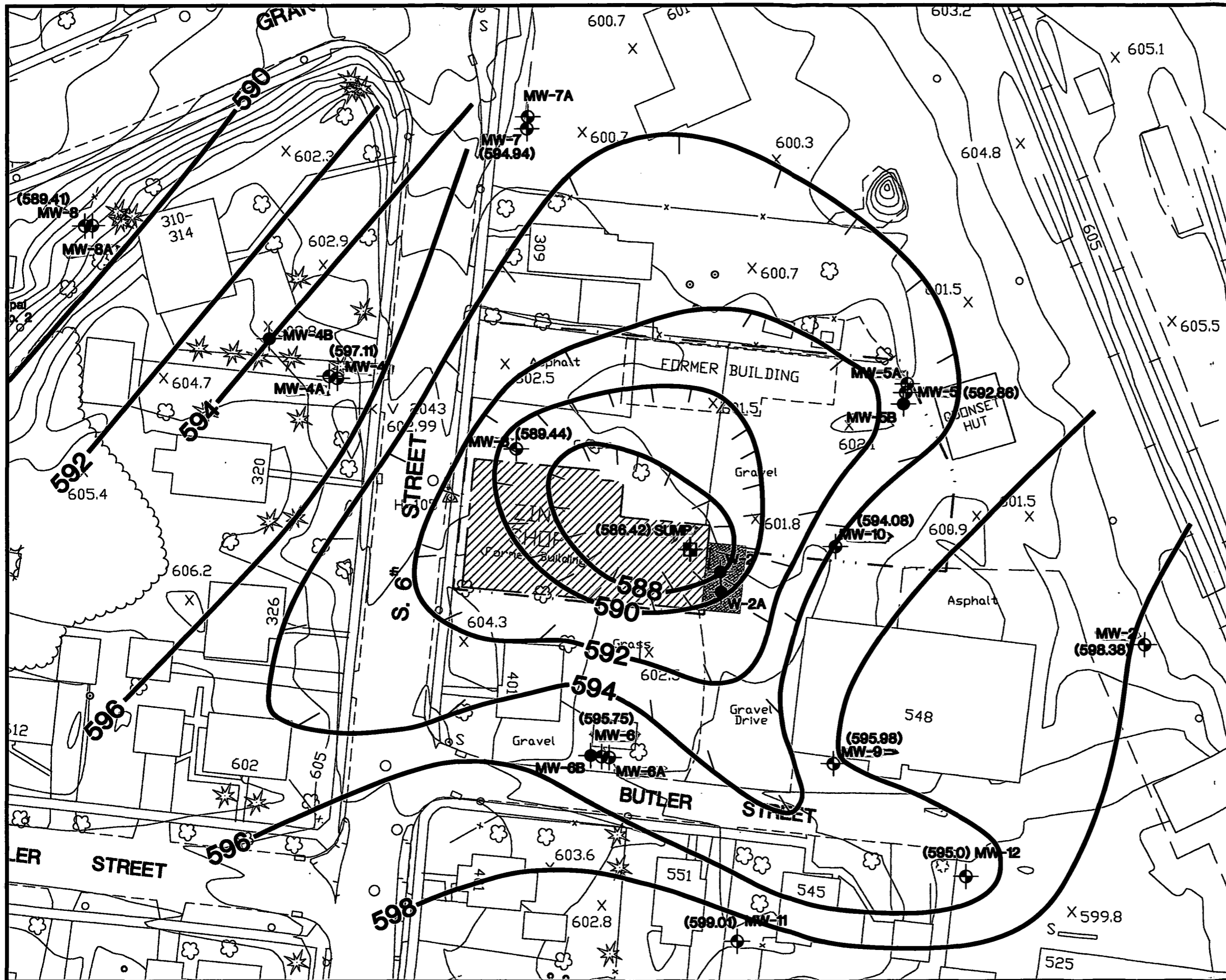
-  MW-113 MONITOR WELL LOCATION AND DESIGNATION
-  B-101 MONITOR WELL LOCATION AND DESIGNATION
-  W-5 MONITOR WELL LOCATION AND DESIGNATION
-  SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
-  FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
-  EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
-  MH-1 MANHOLE LOCATION
-  SUMP BOUNDARY
-  PROPERTY LINE
-  SOIL STABILIZATION AREA
-  MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
-  (593.68) POTENTIOMETRIC SURFACE ELEVATION
-  [602.47] INCONSISTENT ELEVATION NOT USED FOR CONTOURING












Scale: 1"=50'  
0 25' 50'

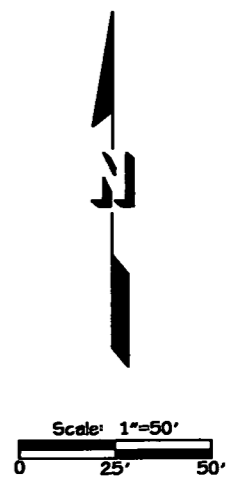
Basemap from Aero-Metric Engineering, Inc. 11/17/91

<b>BETTER BRITE</b> DePERE, WISCONSIN  <b>POTENTIOMETRIC SURFACE MAP</b> (MAY 6, 2003) CHROME SHOP	DATE: 5/12/03
	DESIGNED: DLM
	CHECKED: RRS
	APPROVED: DLM
	DRAWN: HJW
PROJ.: 1311.003	



### EXPLANATION

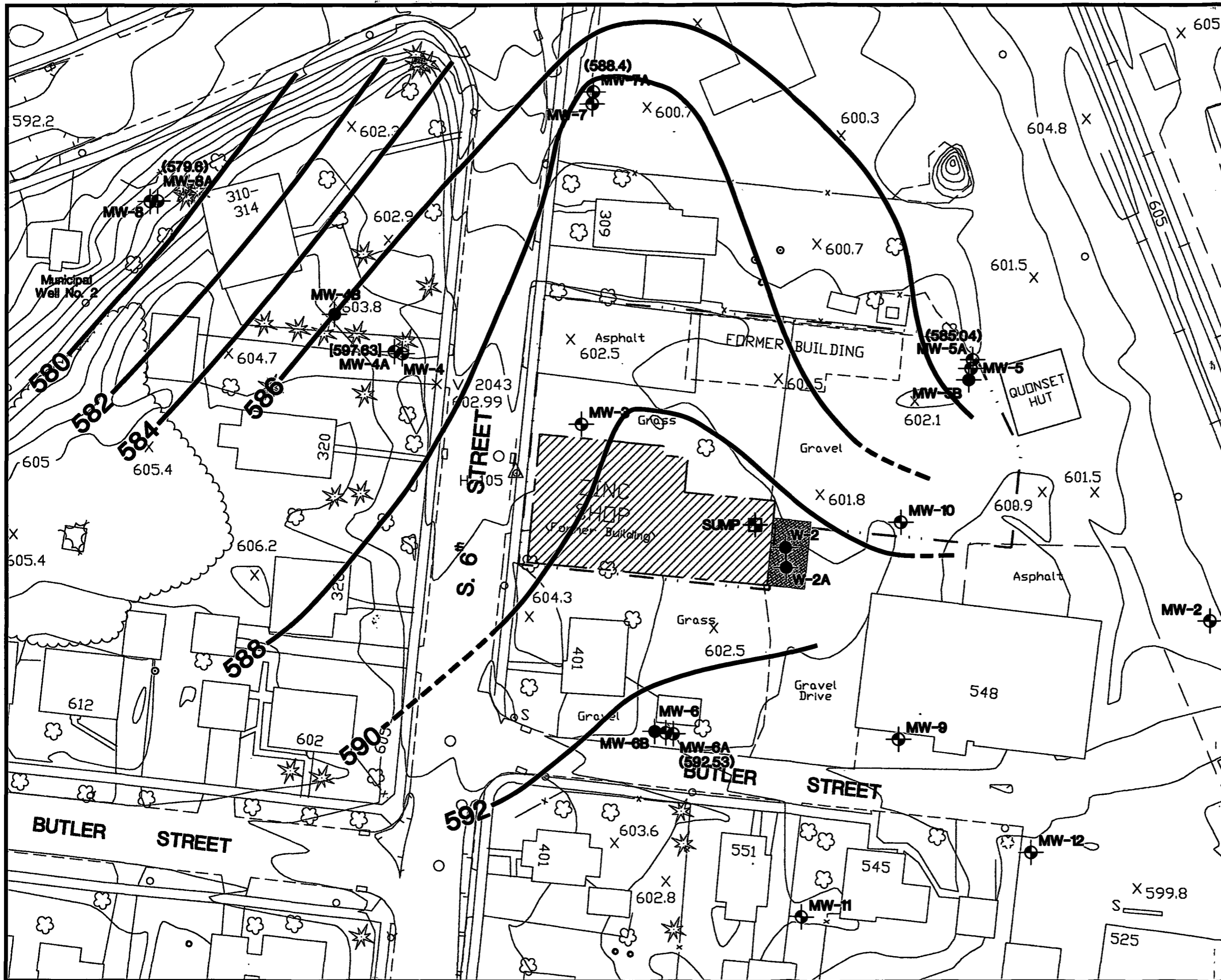
-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **592** **WATER TABLE CONTOURS (Dashed where inferred)**
-  **(592.86)** **WATER TABLE ELEVATION**













Basemap from Aero-Metric Engineering, Inc. 11/17/91

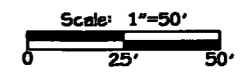
BETTER BRITE DePERE, WISCONSIN	DATE: 5/12/03
<b>WATER TABLE MAP (MAY 6, 2003) ZINC SHOP</b>	DESIGNED: DLM
	CHECKED: RRS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.003



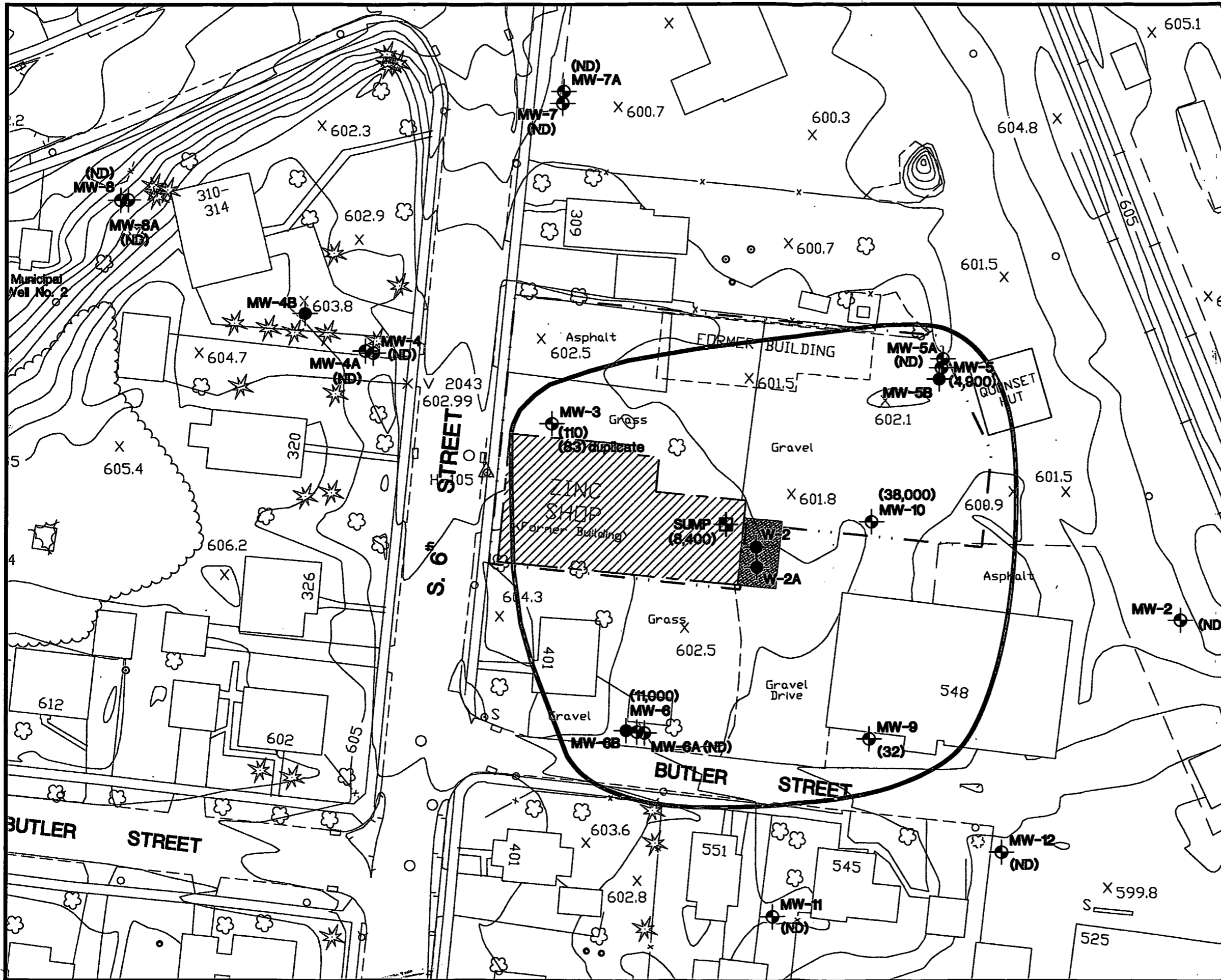


### EXPLANATION

-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3A** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **592** POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
-  **(592.53)** POTENTIOMETRIC SURFACE ELEVATION
-  **[597.63]** INCONSISTENT ELEVATION NOT USED FOR CONTOURING

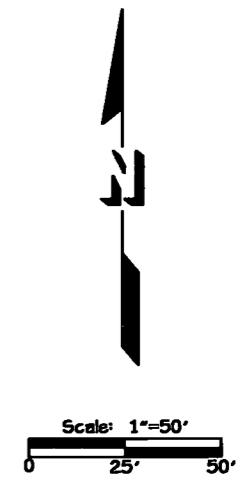


Basemap from Aero-Metric Engineering, Inc. 11/17/91	
BETTER BRITE DePERE, WISCONSIN	DATE: 5/12/03
<b>POTENTIOMETRIC SURFACE MAP</b> (MAY 6, 2003) ZINC SHOP	DESIGNED: DLM
	CHECKED: RRS
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: 1311.003



**EXPLANATION**

- MW-9** MONITOR WELL LOCATION AND DESIGNATION
- SUMP** SUMP ACCESS LOCATION AND DESIGNATION
- W-3** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
- PROPERTY LINE**
- SUMP BOUNDARY**
- EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where inferred**
- (11,000)** **HEXAVALENT CHROMIUM CONCENTRATION (ppb)**
- (ND)** **NOT DETECTED**



Basemap from Aero-Metric Engineering, Inc. 11/17/91

<b>BETTER BRITE</b> DePERE, WISCONSIN	DATE: 6/16/03
	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
<b>EXTENT OF HEXAVALENT CHROMIUM IMPACTS (MAY 2003) ZINC SHOP</b>	PROJ.: 1311.003

**TABLE**

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
CHROME SHOP	Chrome Sump	Aug-94	620000	694000	NA	NA	NA
		Oct-94	300200	297000	NA	NA	NA
		Apr-98	195000	192000	NA	NA	NA
		Jul-98	132000		NA	NA	NA
	French Drain	Aug-94	25800	22000	NA	NA	NA
		Oct-94	32000	31700	NA	NA	NA
		Apr-98	1060	1010	NA	NA	NA
		Jul-98	336	312	NA	NA	NA
	B-101	Aug-94	<10	<3.4	NA	NA	NA
		Oct-94	<10		NA	NA	NA
	MW-106	Aug-94	7	<2.8	NA	NA	NA
		DUP.	<10	<2.8	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		DUP.	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		DUP	<10	<5	NA	NA	NA
	MW-106A	May-00	<4.2	4	NA	NA	NA
		Aug-94	<10	<2.8	NA	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
	MW-106B	May-00	<4.2	9.4	NA	NA	NA
		Aug-94	<10	NA	NA	NA	NA
	MW-107	Aug-94	<10	4.1 BJ	NA	NA	NA
		Oct-94	<10 J	<3.4	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.2	NA	NA	NA
		Jun-01	NA	NA	530	50	NA
		Nov-01	<4.2	<u>26</u>	<u>3900</u>	NA	1800
		May-02	7.8	1.2	230	NA	2300
		DUP	100	1.9	490	NA	2800
		Nov-02	NA	NA	8200	<u>140000</u>	2300
	MW-107A	May-03	<4.2	1.6	490	95000	1700
Aug-94		<10	<2.8	NA	NA	NA	
Oct-94		<10 J	<3.4 J	NA	NA	NA	
Apr-98		<10	<5	NA	NA	NA	
MW-107B	May-00	<4.2	16	NA	NA	NA	
	Aug-94	<10	NA	NA	NA	NA	
MW-108	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	NA	NA	NA	NA	
	DUP	<10	<5	NA	NA	NA	
MW-108A	Aug-94	<10	3.0 BJ	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	55	NA	NA	NA	
MW-108B	Aug-94	<10	NA	NA	NA	NA	
MW-109	Aug-94	6780	9570	NA	NA	NA	
	Oct-94	2400	1980	NA	NA	NA	
	DUP.	3100	1700	NA	NA	NA	
	Apr-98	16500	18600	NA	NA	NA	
	Jul-98	12200	11100	NA	NA	NA	
MW-109A	Aug-94	<10	<2.8	NA	NA	NA	
	Oct-94	<10	1.3 B	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	Jul-98	<10	7	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
CHROME SHOP CONT'D	MW-109B	Aug-94	<10	NA	NA	NA	NA
		Oct-94	<10	NA	NA	NA	NA
	MW-110	Aug-94	<10	3.6 BJ	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	<u>37</u>	NA	NA	NA
	MW-110A	Aug-94	<10	<2.8	NA	NA	NA
		Oct-94	<10	<3.4 J	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	<u>25</u>	NA	NA	NA
	MW-111	Aug-94	<10	<3.4	NA	NA	NA
		DUP.	<10	<3.4	NA	NA	NA
		Oct-94	<10	<0.70	NA	NA	NA
		Apr-98	226	<5	NA	NA	NA
		Jul-98	<u>22</u>	<u>27</u>	NA	NA	NA
		Nov-98	<0.5	<0.5	NA	NA	NA
		May-00	<4.2	<u>36</u>	NA	NA	NA
		Nov-02	<4.2	<u>43</u>	4400	<u>130000</u>	2600
		DUP	<4.2	<u>38</u>	3400	100000	280
	May-03	5.2	<u>33</u>	2700	98000	1400	
	MW-112	Oct-94	<10	<0.70	NA	NA	NA
		Nov-94	<10	<2.5	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.1	NA	NA	NA
	MW-113	Aug-94	140	<u>99.7</u>	NA	NA	NA
		Oct-94	<10 J	8.6 B	NA	NA	NA
		May-95	<u>43</u>	<u>20.3</u>	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		Jul-98	<10	<u>12</u>	NA	NA	NA
		May-00	<4.2	<u>22</u>	NA	NA	NA
	MW-114	Mar-95	<10 J	<2.9	NA	NA	NA
		DUP.	<10 J	<2.9	NA	NA	NA
		May-95	<10 J	<1.0	NA	NA	NA
		DUP.	<10 J	<1.0	NA	NA	NA
	MW-115	Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	6.0	NA	NA	NA
		Jun-01	<4.2	<0.52	<u>160</u>	92	NA
		Nov-01	<4.2	<u>12</u>	1100	NA	3000
		DUP	<4.2	<u>10</u>	3300	NA	3300
		May-02	<4.2	<u>38</u>	19000	NA	2800
		Nov-02	<4.2	<u>38</u>	7000	<u>130000</u>	3100
		May-03	<4.2	260	9700	90000	1400
DUP	<4.2	<u>56</u>	3600	89000	1400		
MW-115A	May-00	<4.2	<u>12.0</u>	NA	NA	NA	
MW-116	May-00	1600	470	NA	NA	NA	
	DUP.	1500	460	NA	NA	NA	
	Nov-00	<u>37</u>	<u>23</u>	NA	NA	NA	
	DUP	46	<u>24</u>	NA	NA	NA	
	Jun-01	4400	2300	840	2100	NA	
	Nov-01	3300	2100	690	NA	2400	
	May-02	12000	7300	530	NA	2500	
	Nov-02	5100	3200	720	20000	2900	
	May-03	8900	6000	410	2700000	1700	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
ZINC SHOP	PF-MW-2	May-00	<4.2	7.6	NA	NA	NA
		Jun-01	<4.2	7.1	NA	NA	NA
		Nov-01	<4.2	<u>10</u>	NA	NA	NA
		May-02	<4.2	<u>&lt;0.52</u>	NA	NA	NA
		Nov-02	<4.2	2.4	NA	NA	NA
		May-03	<4.2	<u>49</u>	NA	NA	NA
	MW-3	May-00	230	330	NA	NA	NA
		Nov-00	<u>50</u>	130	NA	NA	NA
		Jun-01	3500	2200	NA	NA	NA
		Nov-01	<u>38</u>	1700	NA	NA	NA
May-02		<4.2	<u>220</u>	NA	NA	NA	
Nov-02		<4.2	<u>18</u>	NA	NA	NA	
May-03		110	<u>55</u>	NA	NA	NA	
Dup	83	<u>49</u>	NA	NA	NA		
MW-4	Aug-94	<10	<3.4	NA	NA	NA	
	DUP	<10	<3.4	NA	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	NA	
	DUP	<10 J	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	4.6	NA	NA	NA	
	Nov-00	<4.2	2.4	NA	NA	NA	
	Jun-01	<4.2	<u>12</u>	NA	NA	NA	
	Nov-01	<4.2	7.4	NA	NA	NA	
	May-02	<4.2	1.4	NA	NA	NA	
	Nov-02	<4.2	<u>15</u>	NA	NA	NA	
May-03	<4.2	<u>27</u>	NA	NA	NA		
MW-4A	Aug-94	<10	<3.4	NA	NA	NA	
	Oct-94	<10 J	6.0 B	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	8.7	NA	NA	NA	
	Nov-00	<4.2	3.7	NA	NA	NA	
	Jun-01	<4.2	3.7	NA	NA	NA	
	Nov-01	<4.2	<u>13</u>	NA	NA	NA	
	May-02	<4.2	<u>38</u>	NA	NA	NA	
	Nov-02	<4.2	<u>28</u>	NA	NA	NA	
May-03	<4.2	<u>32</u>	NA	NA	NA		
MW-4B	Oct-94	<10	<0.70	NA	NA	NA	
	Nov-94	<10	<2.5	NA	NA	NA	
MW-5	Aug-94	1590	827	NA	NA	NA	
	Oct-94	460 J	299 J	NA	NA	NA	
	DUP	510 J	763 J	NA	NA	NA	
	Apr-98	212	631	NA	NA	NA	
	DUP	207	667	NA	NA	NA	
	Jul-98	1420	1230	NA	NA	NA	
	May-00	120	190	NA	NA	NA	
	Nov-00	<4.2	6.6	NA	NA	NA	
	Jun-01	590	450	NA	NA	NA	
	Nov-02	2200	2200	NA	NA	NA	
	DUP	2200	2200	NA	NA	NA	
May-03	4900	3600	NA	NA	NA		
MW-5A	Aug-94	<10	<3.4	NA	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	NA	
	Apr-98	<10	<5	NA	NA	NA	
	May-00	<4.2	6.5	NA	NA	NA	
	Nov-00	340	380	NA	NA	NA	
	Jun-01	<4.2	3.9	NA	NA	NA	
	Nov-02	<4.2	<u>34</u>	NA	NA	NA	
	May-03	<4.2	<u>22</u>	NA	NA	NA	
DUP	<4.2	<u>49</u>	NA	NA	NA		

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
ZINC SHOP CONT'D	MW-5B	Aug-94	NA	NA	NA	NA
		Oct-94	<10	<5	NA	NA
	MW-6	Aug-94	15900	39200	NA	NA
		Oct-94	47000	41,900 J	NA	NA
		Apr-98	7650	4560	NA	NA
		May-00	23000	26000	NA	NA
		Nov-00	26000	23000	NA	NA
		Jun-01	14000	15000	NA	NA
		Nov-01	25000	29000	NA	NA
		May-02	13000	13000	NA	NA
		Nov-02	21000	22000	NA	NA
		May-03	11000	9300	NA	NA
	MW-6A	Aug-94	<10	4.9 B	NA	NA
		Oct-94	<10	<3.4 J	NA	NA
		Apr-98	<10	<5	NA	NA
		May-00	6.6	22	NA	NA
		Nov-00	<4.2	13	NA	NA
		6/01	<4.2	11	NA	NA
		Nov-01	<4.2	7.1	NA	NA
		May-02	<4.2	51	NA	NA
		Nov-02	<4.2	83	NA	NA
		May-03	<4.2	59	NA	NA
	MW-6B	Aug-94	<10	NA	NA	NA
	MW-7	Aug-94	<10	6.6 BJ	NA	NA
		DUP.	<10	<2.8	NA	NA
		Oct-94	<10 J	36.4 J	NA	NA
		Apr-98	<10	<5	NA	NA
		DUP	<10	<5	NA	NA
		May-00	<4.2	3.9	NA	NA
		Nov-00	<4.2	1.1	NA	NA
		Jun-01	<4.2	2.7	NA	NA
		Nov-01	<4.2	9.7	NA	NA
		May-02	<4.2	3.2	NA	NA
	Nov-02	<4.2	1.9	NA	NA	
	May-03	<4.2	0.91	NA	NA	
	MW-7A	Aug-94	<10	<2.8	NA	NA
		Oct-94	<10 J	<3.4 J	NA	NA
		Apr-98	<10	<5	NA	NA
		May-00	<4.2	4.7	NA	NA
		Nov-00	7.9	5	NA	NA
		Jun-01	<4.2	2.5	NA	NA
		Nov-01	<4.2	<5.2	NA	NA
		May-02	<4.2	1.4	NA	NA
	Nov-02	<4.2	0.98	NA	NA	
	May-03	<4.2	0.85	NA	NA	
	MW-8	Oct-94	<10	<0.70	NA	NA
		Nov-94	<10	<2.5	NA	NA
		DUP.	<10	<2.5	NA	NA
		Apr-98	<10	<5	NA	NA
		May-00	<4.2	15	NA	NA
Nov-00		13	13	NA	NA	
Jun-01		5.3	2	NA	NA	
Nov-01		<4.2	2.3	NA	NA	
DUP		<4.2	6.7	NA	NA	
May-02		<4.2	4	NA	NA	
Nov-02	<4.2	23	NA	NA		
May-03	<4.2	2.2	NA	NA		

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
ZINC SHOP CONT'D	MW-8A	Oct-94	<10	<0.70	NA	NA	NA
		Nov-94	<10	<2.5	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	16	NA	NA	NA
		Nov-00	<4.2	<u>34</u>	NA	NA	NA
		Jun-01	<4.2	3.7	NA	NA	NA
		Nov-01	<4.2	14	NA	NA	NA
		May-02	<4.2	2.5	NA	NA	NA
		DUP	<4.2	11	NA	NA	NA
		Nov-02	<4.2	<u>20</u>	NA	NA	NA
		May-03	<4.2	13	NA	NA	NA
	MW-9	Aug-94	400	697	NA	NA	NA
		Oct-94	470 J	442 J	NA	NA	NA
		Apr-98	209	<5	NA	NA	NA
		Jul-98	<u>60</u>	<u>75</u>	NA	NA	NA
		Nov-00	13	15	NA	NA	NA
		DUP	<u>19</u>	<u>51</u>	NA	NA	NA
		Jun-01	<u>28</u>	180	NA	NA	NA
		Nov-01	<u>35</u>	<u>76</u>	NA	NA	NA
		May-02	<u>75</u>	<u>72</u>	NA	NA	NA
		Nov-02	<u>67</u>	<u>80</u>	NA	NA	NA
		May-03	<u>32</u>	<u>53</u>	NA	NA	NA
	MW-10	Aug-94	60300	53100	NA	NA	NA
		Oct-94	60800 J	43,500 J	NA	NA	NA
		Nov-00	20000	18000	NA	NA	NA
		Jun-01	<4.2	20	NA	NA	NA
		Nov-02	35000	38000	NA	NA	NA
		May-03	38000	37000	NA	NA	NA
	MW-11	May-95	<10	<1.0	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	7.0	NA	NA	NA
		Nov-00	<4.2	4.1	NA	NA	NA
		Jun-01	<4.2	3.6	NA	NA	NA
		Nov-01	<4.2	7.8	NA	NA	NA
		May-02	17	<20	NA	NA	NA
		Nov-02	<4.2	<u>27</u>	NA	NA	NA
		May-03	<4.2	<u>12</u>	NA	NA	NA
	MW-12	Mar-95	<10 J	<2.9	NA	NA	NA
		May-95	<10	<1.0	NA	NA	NA
		Apr-98	<10	<5	NA	NA	NA
		May-00	<4.2	4.8	NA	NA	NA
		Nov-00	<4.2	6	NA	NA	NA
Jun-01		<4.2	6.4	NA	NA	NA	
Nov-01		<4.2	<0.52	NA	NA	NA	
May-02		<4.2	4.8	NA	NA	NA	
Nov-02		<4.2	1.3	NA	NA	NA	
May-03	<4.2	1.3	NA	NA	NA		

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES



**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide	
NR 140 PAL		10	10	150	125000	NO PAL	
NR 140 ES		100	100	300	250000	NO ES	
<b>ZINC SHOP CONT'D</b>	MW-13	Mar-95	<10 J	<2.9	NA	NA	NA
		May-95	<10	<1.0	NA	NA	NA
	Zinc Sump	Aug-94	89000	209000	NA	NA	NA
		Oct-94	144900	277000	NA	NA	NA
		Apr-98	66000	38300	NA	NA	NA
		Jul-98	131000	131000	NA	NA	NA
		May-00	1800	1700	NA	NA	NA
		Nov-00	41000	27000	NA	NA	NA
		Jun-01	40000	110000	NA	NA	NA
		Nov-01	23000	56000	NA	NA	NA
		May-02	43000	14000	NA	NA	NA
		Nov-03	23000	30000	NA	NA	NA
	May-03	8400	6800	NA	NA	NA	
	Private	Aug-94	<10	<10	NA	NA	NA
	Municipal	Aug-94	<10	<10	NA	NA	NA
		DUP.	<10	<10	NA	NA	NA
		Oct-94	<10	<10	NA	NA	NA
DUP.		<10	<10	NA	NA	NA	
USGS	Oct-94	<10	0.75 B	NA	NA	NA	
USGS-A	Oct-94	<10	11.9	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

## APPENDIX A: GROUNDWATER LEVELS

May 6, 2003

### CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85	5.14	603.71
B-104A	606.08	3.61	602.47
MW-106	606.21	1.85	604.36
MW-106A	606.36	12.68	593.68
MW-107	608.41	0.88	607.53
MW-107A	608.33	15.23	593.1
MW-108	604.22	15.52	588.7
MW-108A	604.44	15.67	588.77
MW-110	603.05	2.35	600.7
MW-110A	603.31	12.35	590.96
MW-111	600.76	4.04	596.72
MW-112	600.61	2.46	598.15
MW-113	611.08	1.72	609.36
MW-115	601.04	1.23	599.81
MW-115A	601.01	11.84	589.17
MW-116	604.28	1.91	602.37

### ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-2	602.45	4.07	598.38
MW-3	602.52	13.08	589.44
MW-4	602.99	5.88	597.11
MW-4A	603.29	5.66	597.63
MW-5	600.81	7.95	592.86
MW-5A	600.81	15.77	585.04
MW-6	602.33	6.58	595.75
MW-6A	605.19	12.66	592.53
MW-7	600.6	5.66	594.94
MW-7A	600.51	12.11	588.4
MW-8	598.18	8.77	589.41
MW-8A	598.59	18.99	579.6
MW-9	601.66	5.68	595.98
MW-10	601.53	7.45	594.08
MW-11	602.41	3.4	599.01
MW-12	599.87	4.87	595
Sump	604.09	17.67	586.42

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

## **CHROME SHOP**

**GEOTRANS, INC. FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM**

PROJECT INFORMATION		INSTRUMENTS				
PROJECT	Better Brite		Temp. & pH	YSI model #63		
PROJECT NO.			Conductivity			
LOCATION	DePere WI		ORP			
PERSONNEL	RHS		DO			
SAMPLE POINT	MW-107	MW-111 *	MW-115 *	MW-115 Dup *	MW-116 *	
WATER TYPE	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	
DATE (month/day/year)	5-7-03	5-7-03	5-7-03	5-7-03	5-7-03	
CLOCK TIME (Military)	1335	1345	1355	181400	1410	
DEPTH TO WATER (ft)*	0.88	4.04	1.23	1.23	1.91	
MEASURED WELL DEPTH (ft)*	15.41	14.5	14.6	14.6	13.19	
CASING VOLUME (gallons)						
PURGE VOLUME (gallons)	7gal	5gal	6.5	→ 6.5	6gal	
DEPTH SAMPLE TAKEN (ft)*						
SAMPLING DEVICE						
FIELD TEMPERATURE (°C)	6.7	6.4	6.9	6.9	7.2	
ph	7.23	7.29	7.07	7.07	6.77	
ELEC. COND. (uS/cm)	Measured	671	527	656	656	2377
	at 25° C	1029	819	1002	1002	3603
ORP (mV)						
DISSOLVED OXYGEN (ppm)						
DISSOLVED OXYGEN (% Sat.)						
COLOR	brown	brown	brown	brown	yellow	
ODOR	none	none	none	none	none	
CLARITY	cloudy	cloudy	cloudy	cloudy	sl. cloudy	
SAMPLING PARAMETERS	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)					
NAME OF LABORATORY	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	
DATE SENT TO LAB						
SAMPLER'S NAME						

\*Measured from top of well casing.

## ZINC SHOP

**GEOTRANS, INC. FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM**

PROJECT INFORMATION		INSTRUMENTS			
PROJECT	Better Brite	Temp. & pH	YSI model 63		
PROJECT NO.		Conductivity			
LOCATION	DePere WF	ORP			
PERSONNEL	RHS	DO			
SAMPLE POINT	MW-4A *	MW-3 *	MW-3 Dup *	Zinc Sump	
WATER TYPE	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
DATE (month/day/year)	5-7-03	5-7-03	5-7-03	5-7-03	
CLOCK TIME (Military)	1140	1045	1050	1015	
DEPTH TO WATER (ft)*	5.66	13.06	13.06	17.67	
MEASURED WELL DEPTH (ft)*	28.64	28.5	28.5	20.0	
CASING VOLUME (gallons)					
PURGE VOLUME (gallons)	9555 gal	756 gal		NA	
DEPTH SAMPLE TAKEN (ft)*					
SAMPLING DEVICE					
FIELD TEMPERATURE (°C)	9.5	9.9		9.4 78.4	
ph	7.20	6.85		7.22	
ELEC. COND. (uS/cm)	Measured	907	2368	1226	
	at 25° C	1288	3318	1795	
ORP (mV)					
DISSOLVED OXYGEN (ppm)					
DISSOLVED OXYGEN (% Sat.)					
COLOR	clear	clear		clear yellow	
OOOR	none	none		none	
CLARITY	clear	clear		clear	
SAMPLING PARAMETERS	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
NAME OF LABORATORY	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.
DATE SENT TO LAB					
SAMPLER'S NAME					

\*Measured from top of well casing.  
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**GEOTRANS, INC. FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM**

PROJECT INFORMATION		INSTRUMENTS				
PROJECT	Better Brite	Temp. & pH	YSI model 63			
PROJECT NO.		Conductivity	↓			
LOCATION	DePue WI	ORP				
PERSONNEL	RHS	DO				
<b>SAMPLE POINT</b>	MW-6 *	MW-6A *	MW-11	MW-9 †	MW-12	
WATER TYPE	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	
DATE (month/day/year)	5-7-03	5-7-03	5-7-03	5-7-03	5-7-03	
CLOCK TIME (Military)	1155	1200	1210	1215	1220	
DEPTH TO WATER (ft)*	6.58	12.66	3.40	5.68	4.87	
MEASURED WELL DEPTH (ft)*	15.5	22.4	15.36	16.36	14.55	
CASING VOLUME (gallons)	5gal	5gal	6gal	5.5	5gal	
PURGE VOLUME (gallons)						
DEPTH SAMPLE TAKEN (ft)*						
SAMPLING DEVICE						
FIELD TEMPERATURE (°C)	26	10.4	6.3	9.4	8.5	
ph	6.93	7.41	7.05	7.24	7.01	
ELEC. COND. (uS/cm)	Measured	900	341.9	1129	578	1465
	at 25° C	1348	472.9	1761	824	2128
ORP (mV)	NA	NA				
DISSOLVED OXYGEN (ppm)	NA					
DISSOLVED OXYGEN (% Sat.)	NA					
COLOR	yellow brown	brown	brown	brown	brown	
ODOR	none	none	none	none	none	
CLARITY	clary	cloudy	cloudy	cloudy	cloudy	
SAMPLING PARAMETERS	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)					
Total Chrome						
Hex Chrome						
NAME OF LABORATORY	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	
DATE SENT TO LAB						
SAMPLER'S NAME						

\*Measured from top of well casing.

**GEOTRANS, INC. FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM**

PROJECT INFORMATION			INSTRUMENTS			
PROJECT	Better Brite		Temp. & pH	PSI model #63		
PROJECT NO.			Conductivity			
LOCATION	DePere WF		ORP			
PERSONNEL	RHS		DO			
<b>SAMPLE POINT</b>	MW-7	MW-7A	MW-8 *	MW-8A *	MW-4 *	
WATER TYPE	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	
DATE (month/day/year)	MW-7 5-7-03	5-7-03	5-7-03	5-7-03	5-7-03	
CLOCK TIME (Military)	1305	1310	1320	1325	1120	
DEPTH TO WATER (ft)*	5.66	12.11	8.77	18.99	5.88	
MEASURED WELL DEPTH (ft)*	15.60	22.40	16.38	27.23	14.92	
CASING VOLUME (gallons)			4gal		1	
PURGE VOLUME (gallons)	5gal	5gal	4gal	4.5gal	16gal	
DEPTH SAMPLE TAKEN (ft)*						
<b>SAMPLING DEVICE</b>						
FIELD TEMPERATURE (°C)	7.8	10.3	7.4	9.7	9.7	
ph	7.12	7.52	7.16	7.67	6.77	
ELEC. COND. (uS/cm)	Measured	754	263.0	730	280.3	1050
	at 25° C	1122	365.7	1100	395.0	1525
ORP (mV)						
DISSOLVED OXYGEN (ppm)						
DISSOLVED OXYGEN (% Sat.)						
COLOR	brown	brown	brown	brown	clear	
ODOR	none	none	none	none	none	
CLARITY	cloudy	cloudy	cloudy	cloudy	clear	
<b>SAMPLING PARAMETERS</b>	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)					
NAME OF LABORATORY	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	
DATE SENT TO LAB						
SAMPLER'S NAME						

\*Measured from top of well casing.  
P:\Field\_Forms\Fld\_Water\_Form.doc

**GEOTRANS, INC. FIELD WATER QUALITY SAMPLING AND ANALYSIS FORM**

PROJECT INFORMATION		INSTRUMENTS			
PROJECT	Better Brite	Temp. & pH	YSI model #63		
PROJECT NO.		Conductivity			
LOCATION	DePere WI	ORP			
PERSONNEL	RHS	DO			
SAMPLE POINT	MW-2	MW-10 *	MW-5 *	MW-5A *	MW-5A Dup
WATER TYPE	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater
DATE (month/day/year)	5-7-03	5-7-03	5-7-03	5-7-03	5-7-03
CLOCK TIME (Military)	1230	1240	1250	1255	1300
DEPTH TO WATER (ft)*	4.07	7.45	7.95	15.77	
MEASURED WELL DEPTH (ft)*	14.5	14.64	15.35	29.48	29.48
CASING VOLUME (gallons)		4 gal			
PURGE VOLUME (gallons)	5 gal	4 gal	4 gal	7 gal	
DEPTH SAMPLE TAKEN (ft)*					
SAMPLING DEVICE					
FIELD TEMPERATURE (°C)	7.3	9.3	11.6	11.2	
ph	6.90	6.96	7.05	7.76	
ELEC. COND. (uS/cm)	Measured	2263	1045	1377	256.9
	at 25° C	3425	1445	1850	348.8
ORP (mV)					
DISSOLVED OXYGEN (ppm)					
DISSOLVED OXYGEN (% Sat.)					
COLOR	brown	yellow	brown	brown	
ODOR	none	none	none	none	
CLARITY	cloudy	cloudy	cloudy	cloudy	
SAMPLING PARAMETERS	# OF CONTAINERS & VOLUME; CONTAINER TYPE (A = AMBER GLASS; G = GLASS; P = PLASTIC); PRESERVATIVE TYPE (L = LAB ADDED; F = FIELD ADDED) OR NEUTRAL; FILTERED (YES or NO)				
NAME OF LABORATORY	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.	En Chem, Inc.
DATE SENT TO LAB					
SAMPLER'S NAME					

\*Measured from top of well casing.

**APPENDIX C**  
**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

## ANALYTICAL REPORT

Spring 2003

MASTERFILE COPY

PROJECT # F150

CC: DLM, HAROY

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003

Job No: 03.03975

Page 1 of 35

The following samples were received by TestAmerica for analysis:

Better Brite

Sample Number	Sample Description	Date Taken	Date Received
523402	Zinc Sump	05/07/2003	05/08/2003
523403	MW-3	05/07/2003	05/08/2003
523404	MW-3 Dup	05/07/2003	05/08/2003
523405	MW-4	05/07/2003	05/08/2003
523406	MW-4A	05/07/2003	05/08/2003
523407	MW-6	05/07/2003	05/08/2003
523408	MW-6A	05/07/2003	05/08/2003
523409	MW-11	05/07/2003	05/08/2003
523410	MW-9	05/07/2003	05/08/2003
523411	MW-12	05/07/2003	05/08/2003
523412	MW-2	05/07/2003	05/08/2003
523413	MW-10	05/07/2003	05/08/2003
523414	MW-5	05/07/2003	05/08/2003
523415	MW-5A	05/07/2003	05/08/2003
523416	MW-5A Dup	05/07/2003	05/08/2003
523417	MW-7	05/07/2003	05/08/2003
523418	MW-7A	05/07/2003	05/08/2003
523419	MW-8	05/07/2003	05/08/2003
523420	MW-8A	05/07/2003	05/08/2003
523421	MW-107	05/07/2003	05/08/2003



Brian D. DeJong  
Organic Operations Manager

*JLH*

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003

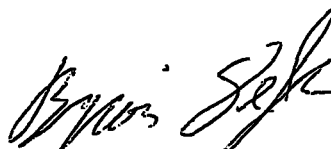
Job No: 03.03975

Page 2 of 35

The following samples were received by TestAmerica for analysis:

Better Brite

Sample Number	Sample Description	Date Taken	Date Received
523422	MW-111	05/07/2003	05/08/2003
523423	MW-115	05/07/2003	05/08/2003
523424	MW-115 Dup	05/07/2003	05/08/2003
523425	MW-116	05/07/2003	05/08/2003



Brian D. DeJong  
Organic Operations Manager

## KEY TO DATA FLAGS

The attached sample(s) may have a result flag shown on the report. The following are the result flag definitions:

- A = Analyzed/extracted past hold time
- B = Blank is contaminated
- C = Standard outside of control limits
- D = Diluted for analysis
- E = TCLP extraction outside of method required temperature range
- F = Sample filtered in lab
- G = Received past hold time
- H = Late eluting hydrocarbons present
- I = Improperly handled sample
- J = Estimated concentration
- L = Common lab solvent and contaminant
- M = Matrix interference
- P = Improperly preserved sample
- Q = Result confirmed via re-analysis
- S = Sediment present
- T = Does not match typical pattern
- W = BOD re-set due to missed dilution
- X = Unidentified compound(s) present
- Z = Internal standard outside limits
- \* = See Case Narrative

## KEY TO ANALYST INITIALS

The attached sample(s) may have been analyzed by another certified laboratory. If a number appears in the Analyst Initials field, the following are the appropriate certifications (if the lab code does not appear below, that means that WDNR certification is not required for the work performed):

Lab Code	Certification Number
008	WDNR - 999766900
009	WDNR - 241293690
020	WDNR - 999447680
030	ILNELAC - 100230; WDNR - 998294430
060	ILNELAC - 100221; WDNR - 999447130
070	IA - 007; ILNELAC - 000668; MDH - 019-999-319; WDNR - 999917270
130	WDNR - 632021390
147	WDNR - 721026460
300	FLNELAC - 87358; IA - 131; MDH - 047-999-345; WDNR - 998020430
400	WDNR - 113133790
510	WDNR - 241249360
520	WDNR - 999518190; ILNELAC - 100439
700	WDNR - 113289110

TestAmerica Watertown WDNR - 128053530; IDNR - 294; MDH - 055-999-366; ND - R-046

For questions regarding this report, please contact Dan Milewsky or Warren Topel.

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523402  
 Account No: 39150  
 Page 4 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Zinc Sump  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 10:15

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
Chromium, hexavalent	8.4	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, AA	6.8	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	1086
VOC - AQUEOUS - EPA 8260B								
Benzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Bromochloromethane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Carbon Tetrachloride	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Chloroethane	<1.0	ug/L	1.0	3.3	SW 8260B	05/13/2003	mae	4914
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
2-Chlorotoluene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,2-Dibromo-3-Chloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Dichlorodifluoromethane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,2-Dichloroethane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,1-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
cis-1,2-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
trans-1,2-Dichloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,2-Dichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
2,2-Dichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,1-Dichloropropene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Di-isopropyl ether	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914



## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523402  
 Account No: 39150  
 Page 5 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Zinc Sump  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 10:15

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst Batch	
Ethylbenzene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Hexachlorobutadiene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Methylene Chloride	<1.0	ug/L	1.0	3.3	SW 8260B	05/13/2003	mae	4914
Methyl-t-butyl ether	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
n-Propylbenzene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Tetrachloroethene	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Toluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,1,1-Trichloroethane	1.0	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Trichlorofluoromethane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,2,3-Trichloropropane	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
1,2,4-Trimethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
1,3,5-Trimethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/13/2003	mae	4914
Vinyl Chloride	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Xylenes, Total	<0.50	ug/L	0.50	1.7	SW 8260B	05/13/2003	mae	4914
Surr: Dibromofluoromethane	105	%		88-112	SW 8260B	05/13/2003	mae	4914
Surr: Toluene-d8	104	%		89-112	SW 8260B	05/13/2003	mae	4914
Surr: Bromofluorobenzene	102	%		90-114	SW 8260B	05/13/2003	mae	4914

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523403  
 Account No: 39150  
 Page 6 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-3  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 10:45

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	0.11	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, AA	0.055	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	1086

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523404  
Account No: 39150  
Page 7 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-3 Dup  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 10:50

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	0.083	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, AA	0.049	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	1086

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523405  
Account No: 39150  
Page 8 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-4  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 11:20

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp		940
Chromium, GFAA	0.027	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341	807

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523406  
Account No: 39150  
Page 9 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-4A  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 11:40

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp		940
Chromium, GFAA	0.032	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341	807

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523407  
Account No: 39150  
Page 10 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 11:55

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	11	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, AA	9.3	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	1086

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523408  
Account No: 39150  
Page 11 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6A  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:00

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp		940
Chromium, GFAA	0.059	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341	807

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523409  
Account No: 39150  
Page 12 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-11  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:10

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.012	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341 807



## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523410  
Account No: 39150  
Page 13 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-9  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:15

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
Chromium, hexavalent	0.032	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.053	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/21/2003  
Job No: 03.03975  
Sample No: 523411  
Account No: 39150  
Page 14 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-12  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:20

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.0013	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523412  
Account No: 39150  
Page 15 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-2  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:30

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.049	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1341 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523413  
Account No: 39150  
Page 16 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-10  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:40

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	38	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, AA	37	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	1086

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523414  
Account No: 39150  
Page 17 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-5  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:50

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
Chromium, hexavalent	4.9	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, AA	3.6	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	1086

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523415  
Account No: 39150  
Page 18 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-5A  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 12:55

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.022	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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 Suite 100  
 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523416  
 Account No: 39150  
 Page 19 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-5A Dup  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 13:00

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	
Chromium, hexavalent	A <0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/12/2003	ksp		942
Chromium, GFAA	0.049	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342	807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523417  
Account No: 39150  
Page 20 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 13:05

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date	Analyst	Prep/Run
						Analyzed		Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.00091	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807



## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523418  
Account No: 39150  
Page 21 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7A  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 13:10

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run	
						Analyzed	Analyst	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.00085	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523419  
Account No: 39150  
Page 22 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-8  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 13:20

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.0022	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
Job No: 03.03975  
Sample No: 523420  
Account No: 39150  
Page 23 of 35

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-8A  
DePere, WI  
Rec'd on ice

Date/Time Taken: 05/07/2003 13:25

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run	
						Analyzed	Analyst	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Chromium, GFAA	0.013	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
 Job No: 03.03975  
 Sample No: 523421  
 Account No: 39150  
 Page 24 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-107  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 13:35

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Sulfate, IC	95	mg/L	2.0	6.7	EPA 300.0	05/16/2003	tds	1505
Sulfide	1.7	mg/L	0.20	0.60	SM 4500SE	05/13/2003	mmn	568
Chromium, GFAA	0.0016	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807
Iron, AA	0.49	mg/L	0.042	0.14	EPA 236.1	05/19/2003	gaf	2663 2086

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/21/2003  
 Job No: 03.03975  
 Sample No: 523422  
 Account No: 39150  
 Page 25 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-111  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 13:45

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	
Chromium, hexavalent	0.0052	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp		940
Sulfate, IC	98	mg/L	2.0	6.7	EPA 300.0	05/16/2003	tds		1505
Sulfide	1.4	mg/L	0.20	0.60	SM 4500SE	05/13/2003	mmm		568
Chromium, GFAA	0.033	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342	807
Iron, AA	2.7	mg/L	0.042	0.14	EPA 236.1	05/19/2003	gaf	2663	2086

## ANALYTICAL REPORT

Mr. Dan Morgan  
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 Suite 100  
 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523423  
 Account No: 39150  
 Page 26 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-115  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 13:55

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Sulfate, IC	90	mg/L	2.0	6.7	EPA 300.0	05/16/2003	tds	1505
Sulfide	1.4	mg/L	0.20	0.60	SM 4500SE	05/13/2003	mmm	568
Chromium, GFAA	0.026	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807
Iron, AA	9.7	mg/L	0.042	0.14	EPA 236.1	05/19/2003	gaf	2663 2086

## ANALYTICAL REPORT

Mr. Dan Morgan  
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 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523424  
 Account No: 39150  
 Page 27 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-115 Dup  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 14:00

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp	940
Sulfate, IC	89	mg/L	2.0	6.7	EPA 300.0	05/16/2003	tds	1505
Sulfide	1.4	mg/L	0.20	0.60	SM 4500SE	05/13/2003	mmm	568
Chromium, GFAA	0.056	mg/L	0.00019	0.00068	EPA 218.2	05/19/2003	gaf	1342 807
Iron, AA	3.6	mg/L	0.042	0.14	EPA 236.1	05/19/2003	gaf	2663 2086

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
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 Brookfield, WI 53045

05/21/2003  
 Job No: 03.03975  
 Sample No: 523425  
 Account No: 39150  
 Page 28 of 35

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-116  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 05/07/2003 14:10

Date Received: 05/08/2003

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	Batch
Chromium, hexavalent	8.9	mg/L	0.0042	0.015	SM 3500CrD	05/08/2003	ksp		940
Sulfate, IC	2,700	mg/L	2.0	6.7	EPA 300.0	05/20/2003	tds		1507
Sulfide	1.7	mg/L	0.20	0.60	SM 4500SE	05/13/2003	mmm		568
Chromium, AA	6.0	mg/L	0.020	0.067	EPA 218.1	05/19/2003	gaf	2663	1086
Iron, AA	0.41	mg/L	0.042	0.14	EPA 236.1	05/19/2003	gaf	2663	2086



## QUALITY CONTROL REPORT

### CONTINUING CALIBRATION VERIFICATION

05/21/2003

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 03.03975  
 Account No: 39150

Page 29 of 35

Job Description: Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits
Chromium, hexavalent	940	0.500	0.506	101	90 - 110
Chromium, hexavalent	940	0.500	0.502	100	90 - 110
Chromium, hexavalent	942	0.500	0.517	103	90 - 110
Chromium, hexavalent	942	0.500	0.504	101	90 - 110
Sulfate, IC	1505	40.0	37.2	93	90 - 110
Sulfate, IC	1505	40.0	38.5	96	90 - 110
Sulfate, IC	1507	40.0	38.0	95	90 - 110
Sulfate, IC	1507	40.0	37.7	94	90 - 110
Sulfide	568	6.75	6.60	98	90 - 110
Chromium, AA	1086	0.500	0.498	100	90 - 110
Chromium, AA	1086	0.500	0.513	103	90 - 110
Chromium, GFAA	807	0.0100	0.0107	107	90 - 110
Chromium, GFAA	807	0.0100	0.0109	109	90 - 110
Iron, AA	2086	0.500	0.520	104	90 - 110
Iron, AA	2086	0.500	0.518	104	90 - 110
VOC - AQUEOUS - EPA 8260B					
Benzene	4914	50.0	46.8	94	80 - 120
Bromoform	4914	50.0	46.4	93	80 - 120
Chlorobenzene	4914	50.0	43.5	87	80 - 120
Chloroform	4914	50.0	49.8	100	80 - 120
Chloromethane	4914	50.0	41.5	83	80 - 120
1,1-Dichloroethane	4914	50.0	48.3	97	80 - 120
1,1-Dichloroethene	4914	50.0	49.2	98	80 - 120
1,2-Dichloropropane	4914	50.0	48.1	96	80 - 120
Ethylbenzene	4914	50.0	43.1	86	80 - 120
Methyl-t-butyl ether	4914	50.0	49.1	98	80 - 120
1,1,2,2-Tetrachloroethane	4914	50.0	48.3	97	80 - 120
Toluene	4914	50.0	45.4	91	80 - 120
Trichloroethene	4914	50.0	43.9	88	80 - 120
1,2,4-Trimethylbenzene	4914	50.0	44.7	89	80 - 120
1,3,5-Trimethylbenzene	4914	50.0	43.4	87	80 - 120
Vinyl Chloride	4914	50.0	43.8	88	80 - 120
Xylenes, Total	4914	150	132	88	80 - 120
Surr: Dibromofluoromethane	4914	50.0	52.5	105	88 - 112
Surr: Toluene-d8	4914	50.0	51.4	103	89 - 112
Surr: Bromofluorobenzene	4914	50.0	50.5	101	90 - 114

## QUALITY CONTROL REPORT BLANKS

05/21/2003

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 03.03975  
 Account No: 39150

Page 30 of 35

Job Description: Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		940	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		940	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		942	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent Sulfate, IC		942	<0.0042	0.0042	0.015	mg/L
Sulfate, IC		1505	<2.0	2.0	6.7	mg/L
Sulfate, IC		1507	<2.0	2.0	6.7	mg/L
Chromium, AA		1086	<0.020	0.020	0.067	mg/L
Chromium, AA	2663	1086	<0.020	0.020	0.067	mg/L
Chromium, GFAA	1341	806	<0.00019	0.00019	0.00068	mg/L
Chromium, GFAA		807	<0.00019	0.00019	0.00068	mg/L
Chromium, GFAA	1342	806	<0.00019	0.00019	0.00068	mg/L
Iron, AA	2663	2086	<0.042	0.042	0.14	mg/L
Iron, AA		2086	<0.042	0.042	0.14	mg/L
VOC - AQUEOUS - EPA 8260B						
Benzene		4914	<0.25	0.25	0.83	ug/L
Bromobenzene		4914	<0.25	0.25	0.83	ug/L
Bromochloromethane		4914	<0.50	0.50	1.7	ug/L
Bromodichloromethane		4914	<0.25	0.25	0.83	ug/L
Bromoform		4914	<0.25	0.25	0.83	ug/L
Bromomethane		4914	<0.25	0.25	0.83	ug/L
n-Butylbenzene		4914	<0.25	0.25	0.83	ug/L
sec-Butylbenzene		4914	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		4914	<0.25	0.25	0.83	ug/L
Carbon Tetrachloride		4914	<0.50	0.50	1.7	ug/L
Chlorobenzene		4914	<0.25	0.25	0.83	ug/L
Chlorodibromomethane		4914	<0.25	0.25	0.83	ug/L
Chloroethane		4914	<1.0	1.0	3.3	ug/L
Chloroform		4914	<0.25	0.25	0.83	ug/L
Chloromethane		4914	<0.25	0.25	0.83	ug/L
2-Chlorotoluene		4914	<0.50	0.50	1.7	ug/L
4-Chlorotoluene		4914	<0.25	0.25	0.83	ug/L
1,2-Dibromo-3-Chloropropane		4914	<0.50	0.50	1.7	ug/L
1,2-Dibromoethane (EDB)		4914	<0.25	0.25	0.83	ug/L
Dibromomethane		4914	<0.25	0.25	0.83	ug/L
1,2-Dichlorobenzene		4914	<0.25	0.25	0.83	ug/L
1,3-Dichlorobenzene		4914	<0.25	0.25	0.83	ug/L
1,4-Dichlorobenzene		4914	<0.25	0.25	0.83	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

05/21/2003

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 03.03975  
 Account No: 39150

Page 31 of 35

Job Description: Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Dichlorodifluoromethane		4914	<0.50	0.50	1.7	ug/L
1,1-Dichloroethane		4914	<0.50	0.50	1.7	ug/L
1,2-Dichloroethane		4914	<0.50	0.50	1.7	ug/L
1,1-Dichloroethene		4914	<0.50	0.50	1.7	ug/L
cis-1,2-Dichloroethene		4914	<0.50	0.50	1.7	ug/L
trans-1,2-Dichloroethene		4914	<0.50	0.50	1.7	ug/L
1,2-Dichloropropane		4914	<0.50	0.50	1.7	ug/L
1,3-Dichloropropane		4914	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		4914	<0.50	0.50	1.7	ug/L
1,1-Dichloropropene		4914	<0.50	0.50	1.7	ug/L
cis-1,3-Dichloropropene		4914	<0.25	0.25	0.83	ug/L
trans-1,3-Dichloropropene		4914	<0.25	0.25	0.83	ug/L
Di-isopropyl ether		4914	<0.50	0.50	1.7	ug/L
Ethylbenzene		4914	<0.50	0.50	1.7	ug/L
Hexachlorobutadiene		4914	<0.50	0.50	1.7	ug/L
Isopropylbenzene		4914	<0.25	0.25	0.83	ug/L
p-Isopropyltoluene		4914	<0.25	0.25	0.83	ug/L
Methylene Chloride		4914	<1.0	1.0	3.3	ug/L
Methyl-t-butyl ether		4914	<0.50	0.50	1.7	ug/L
Naphthalene		4914	<0.25	0.25	0.83	ug/L
n-Propylbenzene		4914	<0.50	0.50	1.7	ug/L
Styrene		4914	<0.25	0.25	0.83	ug/L
1,1,1,2-Tetrachloroethane		4914	<0.25	0.25	0.83	ug/L
1,1,2,2-Tetrachloroethane		4914	<0.25	0.25	0.83	ug/L
Tetrachloroethene		4914	<0.50	0.50	1.7	ug/L
Toluene		4914	<0.25	0.25	0.83	ug/L
1,2,3-Trichlorobenzene		4914	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		4914	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		4914	<0.50	0.50	1.7	ug/L
1,1,2-Trichloroethane		4914	<0.25	0.25	0.83	ug/L
Trichloroethene		4914	<0.25	0.25	0.83	ug/L
Trichlorofluoromethane		4914	<0.50	0.50	1.7	ug/L
1,2,3-Trichloropropane		4914	<0.50	0.50	1.7	ug/L
1,2,4-Trimethylbenzene		4914	<0.25	0.25	0.83	ug/L
1,3,5-Trimethylbenzene		4914	<0.25	0.25	0.83	ug/L
Vinyl Chloride		4914	<0.50	0.50	1.7	ug/L
Xylenes, Total		4914	<0.50	0.50	1.7	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149:14 (3)d

## QUALITY CONTROL REPORT BLANKS

05/21/2003

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 03.03975  
Account No: 39150

Page 32 of 35

Job Description: Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Surr: Dibromofluoromethane		4914	105.4		88-112	%
Surr: Toluene-d8		4914	100.8		89-112	%
Surr: Bromofluorobenzene		4914	100.0		90-114	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

05/21/2003

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 03.03975  
 Account No: 39150

Page 33 of 35

Job Description: Better Brite

Analyte	Prep	Run	LCS		LCS	LCSD	LCS	LCSD	Relative Percent Control Limits	Relative Percent Difference
	Batch Number	Batch Number	Amount	Units	Result	Result	Percent Recovery	Percent Recovery		
Chromium, AA	2663	1086	0.500	mg/L	0.461		92		76 - 106	
Chromium, GFAA	1341	806	0.0100	mg/L	0.0110		110		87 - 116	
Chromium, GFAA	1342	806	0.0100	mg/L	0.0108		108		87 - 116	
Iron, AA	2663	2086	0.500	mg/L	0.554		111		81 - 122	

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

05/21/2003

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 03.03975  
 Account No: 39150

Page 34 of 35

Job Description: Better Brite

Analyte	Prep	Run	Sample Result	Spike Amount	Units	Matrix	MSD Result	MS	MSD	Control Limits	Relative
	Batch Number	Batch Number				Spike Result		Percent Recovery	Percent Recovery		Percent Difference
Chromium, hexavalent Sulfate, IC		940	0.083	0.500	mg/L	0.626	0.635	109	110	70 - 116	1.4
		1505	11	25.0	mg/L	36.3	38.0	101	108	68 - 129	4.6
Chromium, GFAA	1341	807	0.00050	0.0100	mg/L	0.0117	0.0119	112	114	80 - 131	1.7
Iron, AA	2663	2086	5.1	0.500	mg/L	5.61	5.62	102	104	63 - 136	0.2
VOC - AQUEOUS - EPA 8260B											
Benzene		4914	<0.25	50.0	ug/L	47.8	51.0	96	102	80 - 121	6.5
Chlorobenzene		4914	<0.25	50.0	ug/L	45.6	49.4	91	99	85 - 116	8.0
1,1-Dichloroethene		4914	<0.50	50.0	ug/L	52.8	52.2	106	104	72 - 131	1.1
Ethylbenzene		4914	<0.50	50.0	ug/L	44.4	49.0	89	98	83 - 118	9.9
Methyl-t-butyl ether		4914	<0.50	50.0	ug/L	49.3	52.3	99	105	71 - 127	5.9
Toluene		4914	<0.25	50.0	ug/L	47.3	50.7	95	101	82 - 116	6.9
Trichloroethene		4914	<0.25	50.0	ug/L	45.5	48.4	91	97	80 - 117	6.2
1,2,4-Trimethylbenzene		4914	<0.25	50.0	ug/L	48.1	52.4	96	105	80 - 122	8.6
1,3,5-Trimethylbenzene		4914	<0.25	50.0	ug/L	46.5	51.2	93	102	83 - 122	9.6
Xylenes, Total		4914	<0.50	150	ug/L	139	150	93	100	84 - 119	7.6
Surr: Dibromofluoromethane		4914	51.5	50.0	ug/L	51.7	51.4	103	103	88 - 112	0.6
Surr: Toluene-d8		4914	51.6	50.0	ug/L	52.0	52.0	104	104	89 - 112	0.0
Surr: Bromofluorobenzene		4914	50.7	50.0	ug/L	51.4	52.0	103	104	90 - 114	1.2

## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/21/2003

Job No: 03.03975  
 Account No: 39150

Page 35 of 35

Job Description: Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		940	0.11	0.106	mg/L	3.7	23
Chromium, hexavalent		942	<0.0042	<0.0042	mg/L		23
Sulfate, IC		1505	4.4	4.5	mg/L	2.2	22
Sulfate, IC		1507	30	31.1	mg/L	3.6	22
Chromium, AA	2663	1086	0.040	0.0408	mg/L	2.0	12
Chromium, GFAA	1341	807	0.053	0.0535	mg/L	0.9	20
Chromium, GFAA	1342	807	0.049	0.0440	mg/L	11	20









175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

262-792-1282 FAX 262-792-1310

### LETTER OF TRANSMITTAL

TO: WDNR  
Attn: K. Lauridsen  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

DATE: February 4, 2003

RE: Better Brite

JOB NO: F150

We are sending you the following:

No. Of Copies	Description
2	Fall 2002 Groundwater Monitoring Report

#### These are Transmitted as checked below:

- |  |   |
|--|---|
| <input type="checkbox"/> For approval            | <input type="checkbox"/> Approved as submitted    |
| <input checked="" type="checkbox"/> For your use | <input type="checkbox"/> Approved as noted        |
| <input type="checkbox"/> As requested            | <input type="checkbox"/> Returned for corrections |
| <input type="checkbox"/> For review and comment  | <input type="checkbox"/> Other _____              |

REMARKS: One for WDNR, one for City of DePere library.

Transmitted by:

- First Class Mail
- Federal Express
- Courier
- Registered Mail
- UPS
- Other \_\_\_\_\_

Signed: David L. Morgan

cc:

**FALL 2002 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**



February 4, 2003

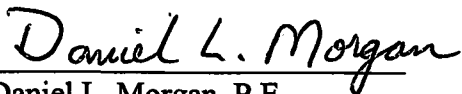
Prepared For:

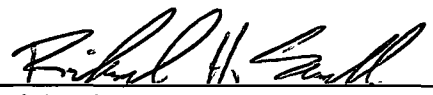
Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150

  
Daniel L. Morgan, P.E.  
Senior Engineer

  
Richard H. Sawall  
Staff Engineer

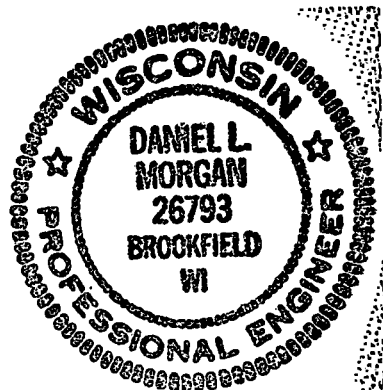
CERTIFICATION

This report,  
FALL 2002 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated February 4, 2003

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional engineer as defined in s. NR712.03(2), and that to the best of my knowledge, all information contained in this document is correct.



*Daniel L. Morgan*  
Daniel L. Morgan, P.E.  
Senior Engineer

## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfates/Sulfides	3-2
3.1.5 VOC's	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-1

## **TABLE OF CONTENTS (CONTINUED)**

### **FIGURES**

- 4-1 Water Table Map (November 6, 2002) - Chrome Shop
- 4-2 Potentiometric Surface Map (November 6, 2002) - Chrome Shop
- 4-3 Water Table Map (November 6, 2002) - Zinc Shop
- 4-4 Potentiometric Surface Map (November 6, 2002) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- 1. Water Elevation Measurements
- 2. Field Water Quality Data Sheets
- 3. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October 1989 and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. The Fall 2002 sampling event took place November 6<sup>th</sup> and 7<sup>th</sup>, and the following report summarizes the findings.



## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Fall 2002 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 16 wells and sample collection and analysis from four existing wells (MW-116, MW-107, and MW-115, and MW-111). The following wells had groundwater elevations measured:

MW-106	MW-106A	MW-107	MW-107A
MW-108	MW-108A	MW-110	MW-110A
MW-111	MW-113	MW-115	MW-115A
MW-116	B-101	B-104A	MW-112

### 2.2 Zinc Shop

Fall 2002 post remedial action groundwater monitoring at the Zinc Shop included 16 existing wells and the extraction sump (Zinc Sump; Figure 2-2). Groundwater samples and water table elevations were taken at all locations. The wells in the monitoring plan include:

MW-2	MW-3	MW-4	MW-4A
MW-6	MW-6A	MW-7	MW-7A
MW-8	MW-8A	MW-9	MW-11
MW-12	MW-5	MW-5A	MW-10
Zinc Sump			

## 3.0 SAMPLE ANALYSIS PARAMETERS

### 3.1 Groundwater

Eight groups of parameters were included in the groundwater analysis. These are groundwater elevation, field measurements (annotated below), hexavalent chromium, total chromium, iron, sulfate, sulfide, and VOCs. Sulfate and sulfide were analyzed at four wells at the Chrome shop site, and VOCs were analyzed for at the Zinc shop sump. The groundwater samples were collected following GeoTrans' Standard Operating Procedures.

#### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points indicated in Sections 2.1 and 2.2. Elevation was measured to 0.01 ft. using an electronic water level probe.

#### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and turbidity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and turbidity were determined by visual and olfactory examination.

#### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

#### 3.1.4 Iron and Sulfates/Sulfides

Per the request of Keld Lauridson, WDNR, groundwater samples from three monitoring wells at the former Chrome shop site were analyzed for iron and sulfate. The results will be used to determine whether the reagents used to stabilize the chromium have leached into the ground water. Due to a printing error on the chain of custody, sulfides were run instead of sulfates for the fall 2001 and spring 2002 sampling events. Samples from these wells were analyzed for both sulfide and sulfate during the fall 2002 sampling event. This was done to see if any correlation may be made between the two parameters. One additional well (MW-111) at the Chrome shop site was analyzed for these parameters during the fall sampling event.

#### 3.1.5 VOCs

VOCs were sampled at the Zinc Shop sump during this sampling period to make comparisons with previous VOC measurements at the Zinc Sump.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

Monitoring Wells MW-10, MW-5, and MW-5A were re-located and marked by the WDNR.

### 4.2 Chrome Shop Monitoring Results

The water table and potentiometric surface maps for the Chrome Shop site are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table differs slightly from the June 2002 observations. Ground water flow at the water table is primarily to the west, with diverging flow to the northwest and southwest in the western portion of the site. This flow pattern follows local topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-115, MW-111 and MW-116. MW-116 had a hexavalent chromium impact of 5100 ppm, which exceeds the ES for hexavalent chromium. MW-111 was sampled for the first time in several years per the request of Keld Lauridsen. Hexavalent chromium was not detected in either MW-115 and MW-111.

Total chromium was detected above the PAL in all three wells, with MW-116 exceeding the ES. These values are consistent with previous measurements at this site.

Iron and sulfide levels were evaluated in MW-111, MW-116, MW-115 and MW-107. Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards,"

all four wells exceeded the PAL for iron. Results for sulfide remained stable in relation to previous measurements. Sulfate values are significantly higher than values recorded in June of 2001. All analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Fall 2002 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows significant draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is similar to previous measurements with flow also predominantly to the north and west, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 17 locations. Hexavalent chromium was detected at five sample points, MW-6, MW-9 and MW-10, MW-5, and the sump. Maximum hexavalent chromium concentrations were detected at MW-10 and the sump, with concentrations of 35,000 ppb and 23,000 ppb, respectively. Concentrations of hexavalent chromium remained stable across the site. Total chromium was detected above the PAL at 13 locations including the zinc sump, MW-3, MW-4, MW-4A, MW-5, MW-5A, MW-6, MW-6A, MW-8, MW-8A, and MW-9, MW-10, MW-11. Concentrations of total chromium ranged from non-detect to 38,000 ppb. The extent of hexavalent chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

VOC sampling done at the Zinc sump resulted in three exceedances of NR-140 Preventive Action Limits (PAL). The parameters that posted exceedances were 1,1-Dichloroethene (2.7 ug/L over 0.7 ug/L), Tetrachloroethene (0.64 ug/L over 0.5 ug/L), and 1,1,1-Trichloroethane (64 ug/L over 40 ug/L). None of these parameters exceeded the NR-140 Enforcement Standard. Chloroform was also detected at 0.36 ug/L, below the PAL of 0.6 ug/L.

Historically, VOC sampling at the Zinc Shop sump did not occur during the Spring 2002, Fall 2001, or Spring 2001 events.

VOC sampling at the Zinc Shop sump on November 30, 2000 (Fall 2000) yielded a detection of 1,1,1-Trichloroethane at 50 ug/L (over the PAL of 40 ug/L).

VOC sampling at the Zinc Shop sump on May 4, 2000 (Spring 2000) yielded a detection of 1,1,1-Trichloroethane at 1.4 ug/L, below the PAL.

VOC sampling at the Zinc Shop sump in July of 1998 yielded detections of 1,1-Dichloroethane at 5.1 ug/L (below the PAL of 85 ug/L) and 1,1,1-Trichloroethane at 167 ug/L. VOC sampling at the Zinc Shop sump in April 1998 yielded detections of 1,1-Dichloroethane at 18 ug/L (above the ES of 7 ug/L) 1,1-Dichloroethane at 14 ug/L, 1,2-Dichloroethane at 5 ug/L (at the ES of 5 ug/L) and Carbon Tetrachloride at 380 ug/L (above the ES of 5 ug/L).

Minor footnoted detections of the above VOCs were noted in August and September 1994 sampling events (see Remedial Action Documentation Report, February 21, 2000).

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

### 5.2 Zinc Shop

System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the increasing concentration of hexavalent chromium in ground water within the stabilization area at the chrome shop at concentrations above the 100 ppb ES for total chromium.

### 6.1 Chrome Shop Recommendations

Biannual sampling was originally proposed for the wells at the Chrome Shop. Hexavalent chromium in ground water as measured at MW-116 may warrant more frequent groundwater sampling. Currently, Fall and Spring events both show increasing trends in both hexavalent and total chromium. A resampling of MW-116 in May, 2003 is planned to continue monitoring of hexavalent and total chromium at this location. The sampling frequency may be adjusted prior to or following this event, based on the need to more closely monitor the MW-116 hexavalent chromium levels. Should hexavalent chromium levels climb at this well, WDNR may wish to revisit treatment options.

The combined analysis of sulfates and sulfides during the Fall 2002 sampling event did not show a direct correlation to each other or chromium levels in the wells. Due to low analytical cost, it is recommended that these three parameters continue to be sampled to verify that the iron levels are stabilizing or increasing, the sulfate levels are increasing, and the sulfide levels are stable.

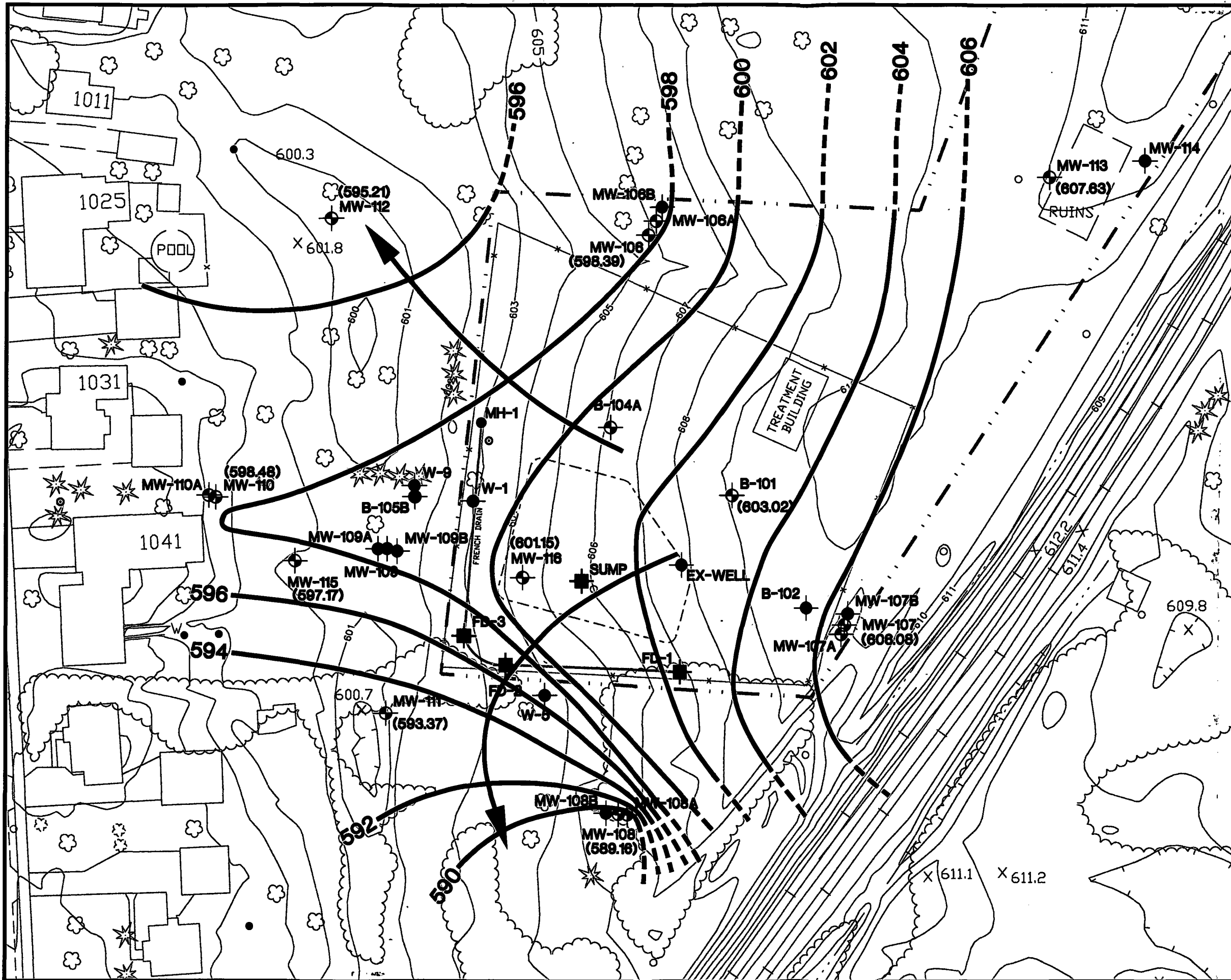
### 6.2 Zinc Shop Recommendations

The low concentrations found in the sump should not pose a serious concern for extensive VOC contamination across the site. For this reason, no additional wells need to be sampled for VOCs. However, the presence of VOCs in the Zinc sump should be monitored further by sampling for VOCs at the sump during the next sampling event in the spring of 2003. If concentrations above NR-140 PALs persist, long-term monitoring of VOCs in the sump should be considered for the next contract period.



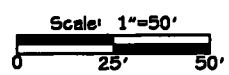
No further modifications to the original monitoring plan are recommended for the Zinc Shop at this time. Semi-annual monitor well sampling of the groundwater through May 2002 is currently authorized, with contract provisions in place to continue semi-annual sampling for one additional year. This sampling frequency will provide adequate information to document the progress of remediation with time following installation of the treatment system at the site. At the end of this contract next year, a complete review of the extent and frequency of the groundwater sampling will be done.

## FIGURES



### EXPLANATION

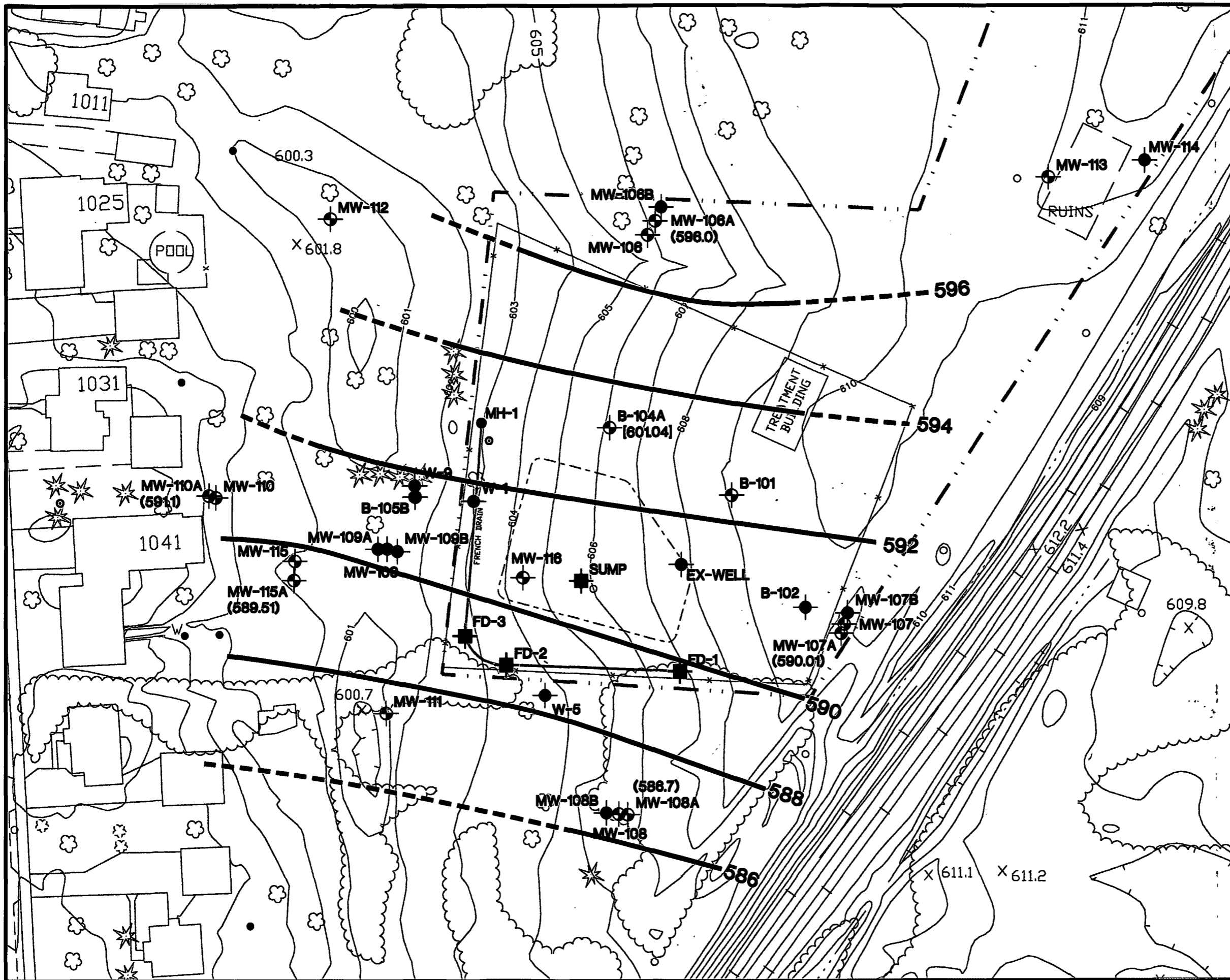
- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- MW-11 ABANDONED WELL (any filled in well symbol)
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- 598 WATER TABLE CONTOURS (Dashed where inferred)
- (607.63) WATER TABLE ELEVATION



Basemap from Aero-Metric Engineering, Inc. 11/7/91

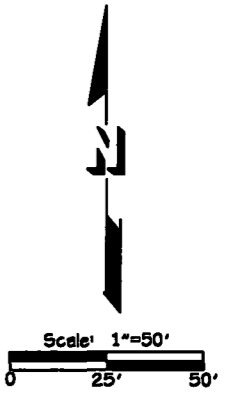
BETTER BRITE DePERE, WISCONSIN	DATE: 11/20/02
<b>WATER TABLE MAP (NOVEMBER 2002) CHROME SHOP</b>	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HWJ
PROJ.: F150-102	

Figure 4-1



**EXPLANATION**

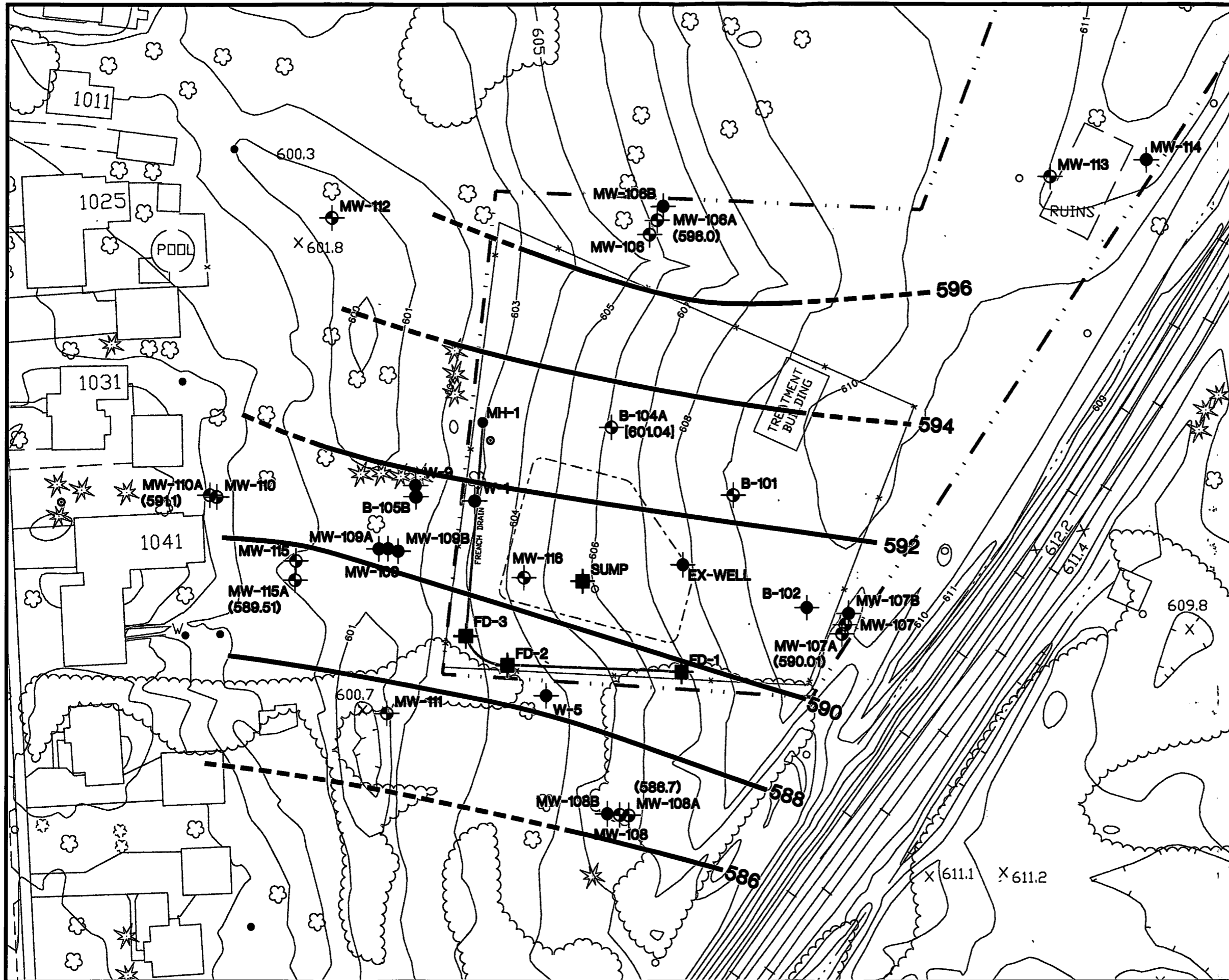
- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- B-101 MONITOR WELL LOCATION AND DESIGNATION
- W-5 MONITOR WELL LOCATION AND DESIGNATION
- SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
- FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
- EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- SOIL STABILIZATION AREA
- MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- 590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
- (589.51) POTENTIOMETRIC SURFACE ELEVATION
- [601.04] INCONSISTENT ELEVATION NOT USED FOR CONTOURING



Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 11/20/02
POTENTIOMETRIC SURFACE MAP (NOVEMBER 2002) CHROME SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

**GeoTrans, Inc.** A TERRA TECH COMPANY **Figure 4-2**



### EXPLANATION

- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- B-101 MONITOR WELL LOCATION AND DESIGNATION
- W-5 MONITOR WELL LOCATION AND DESIGNATION
- SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
- FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
- EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- SOIL STABILIZATION AREA
- MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- 590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where Inferred)
- (589.5) POTENTIOMETRIC SURFACE ELEVATION
- [601.04] INCONSISTENT ELEVATION NOT USED FOR CONTOURING



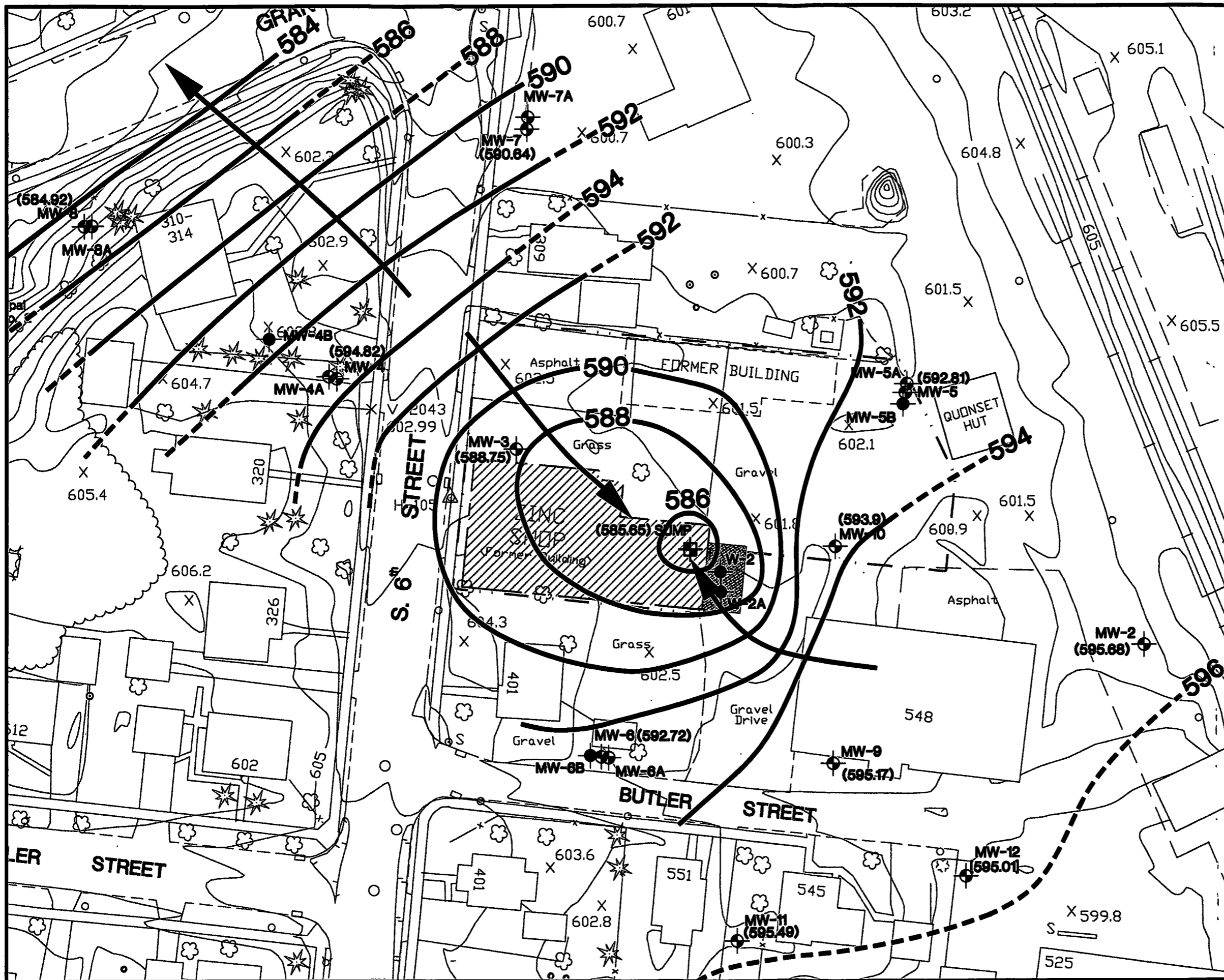
Scale: 1"=50'  
0 25' 50'

Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 11/20/02
POTENTIOMETRIC SURFACE MAP (NOVEMBER 2002) CHROME SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HWY
	PROJ.: F150-102

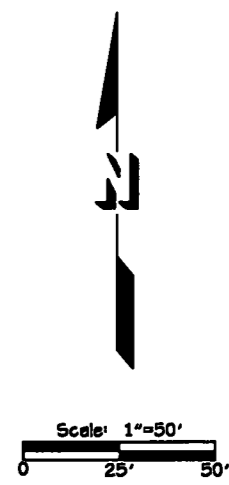


Figure 4-2



**EXPLANATION**

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- WATER TABLE CONTOURS (Dashed where Inferred)
- (595.17) WATER TABLE ELEVATION
- [601.04] INCONSISTENT ELEVATION NOT USED FOR CONTOURING

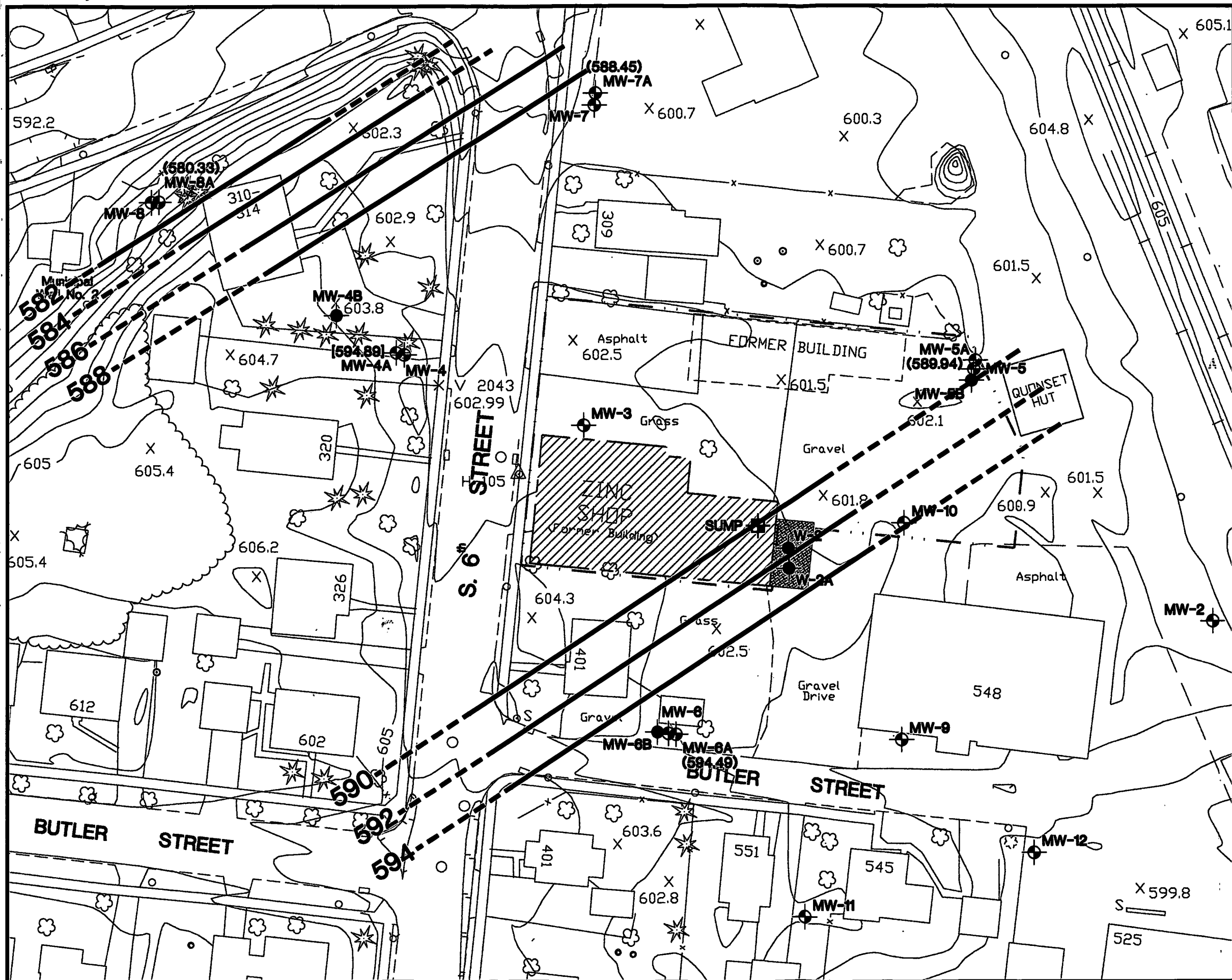


Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 11/20/02
<b>WATER TABLE MAP (NOVEMBER 2002) ZINC SHOP</b>	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HWY
	PROJ.: F150-102

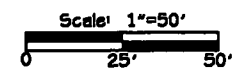
**GeoTrans, Inc.**  
A TERRA TECH COMPANY

**Figure 4-3**



### EXPLANATION

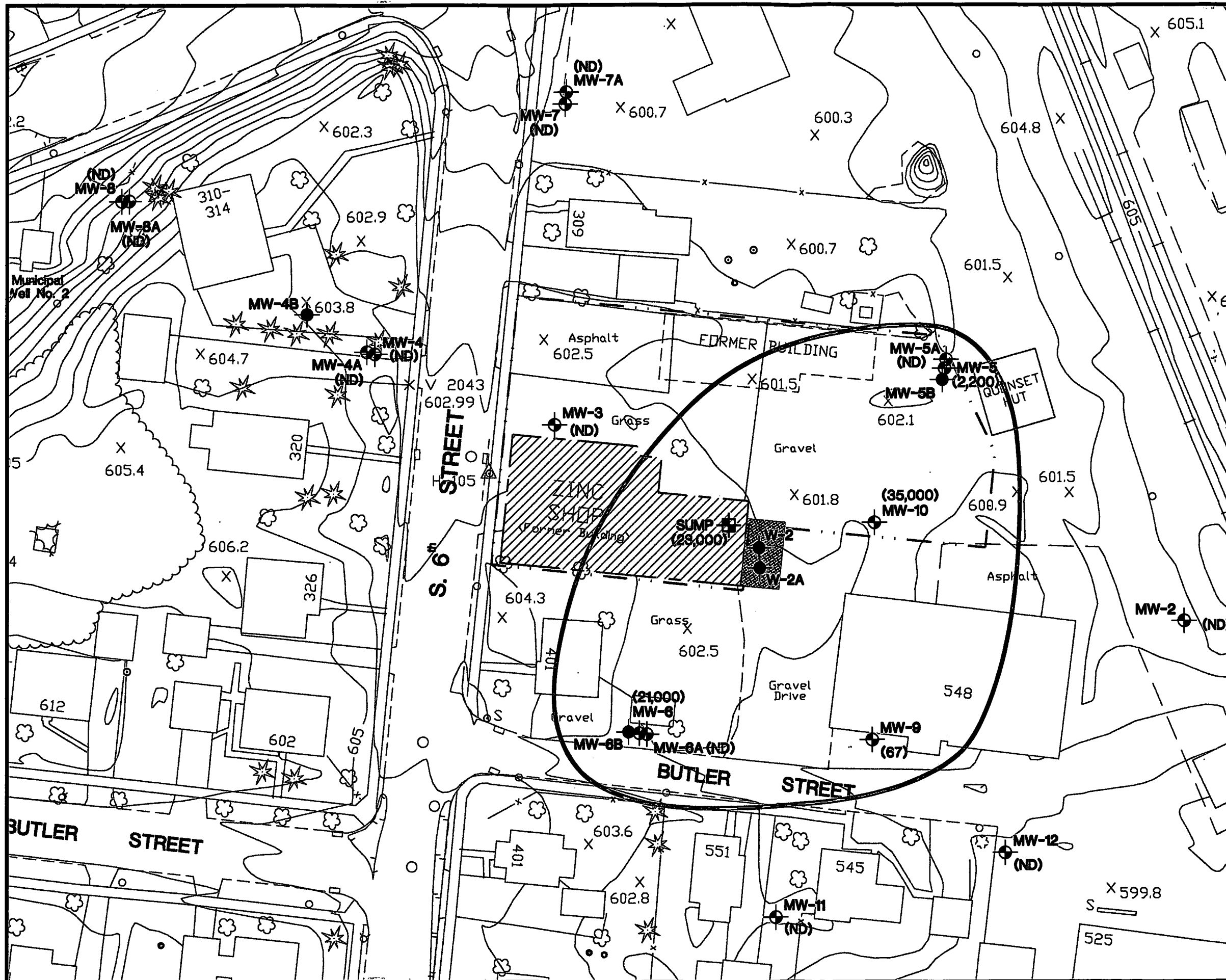
- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3A ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- 592 POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
- (589.94) POTENTIOMETRIC SURFACE ELEVATION
- [594.89] INCONSISTENT ELEVATION NOT USED FOR CONTOURING



Basemap from Aero-Metric Engineering, Inc. 11/17/91

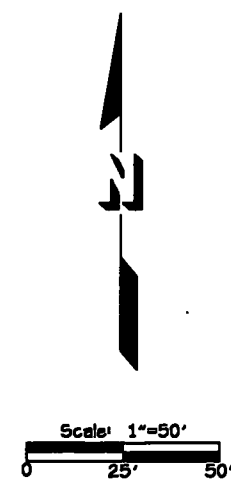
BETTER BRITE DePERE, WISCONSIN	DATE: 11/20/02
POTENTIOMETRIC SURFACE MAP (NOVEMBER 2002) ZINC SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

Figure 4-4



### EXPLANATION

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where Inferred
- (21,000) HEXAVALENT CHROMIUM CONCENTRATION (ppb)
- (ND) NOT DETECTED



Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 11/20/02
EXTENT OF HEXAVALENT CHROMIUM IMPACTS (NOVEMBER 2002) ZINC SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HWY
	PROJ.: F150-102



Figure 4-5



**TABLE**

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
Chrome Sump	Aug-94	620000	694000	NA	NA	NA
	Oct-94	300200	297000	NA	NA	NA
	Apr-98	195000	192000	NA	NA	NA
	Jul-98	132000		NA	NA	NA
French Drain	Aug-94	25800	22000	NA	NA	NA
	Oct-94	32000	31700	NA	NA	NA
	Apr-98	1060	1010	NA	NA	NA
	Jul-98	336	312	NA	NA	NA
B-101	Aug-94	<10	<3.4	NA	NA	NA
	Oct-94	<10		NA	NA	NA
MW-106	Aug-94	7	<2.8	NA	NA	NA
	DUP.	<10	<2.8	NA	NA	NA
	Oct-94	<10 J	<3.4 J	NA	NA	NA
	DUP.	<10 J	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	DUP	<10	<5	NA	NA	NA
MW-106A	Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10 J	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	9.4	NA	NA	NA
MW-106B	Aug-94	<10	NA	NA	NA	NA
MW-107	Aug-94	<10	4.1 BJ	NA	NA	NA
	Oct-94	<10 J	<3.4	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	4.2	NA	NA	NA
	Jun-01	NA	NA	530	50	NA
	Nov-01	<4.2	26	3900	NA	1800
	May-02	7.8	1.2	230	NA	2300
	DUP	100	1.9	490	NA	2800
MW-107A	Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10 J	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	16	NA	NA	NA
MW-107B	Aug-94	<10	NA	NA	NA	NA
MW-108	Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10	<3.4 J	NA	NA	NA
	Apr-98	<10	NA	NA	NA	NA
	DUP	<10	<5	NA	NA	NA
MW-108A	Aug-94	<10	3.0 BJ	NA	NA	NA
	Oct-94	<10	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	55	NA	NA	NA
MW-108B	Aug-94	<10	NA	NA	NA	NA
MW-109	Aug-94	6780	9570	NA	NA	NA
	Oct-94	2400	1980	NA	NA	NA
	DUP.	3100	1700	NA	NA	NA
	Apr-98	16500	18600	NA	NA	NA
	Jul-98	12200	11100	NA	NA	NA
MW-109A	Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10	1.3 B	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	Jul-98	<10	7	NA	NA	NA

Concentrations in ug/L  
ES - NR140 Enforcement Standard  
PAL - NR140 Preventive Action Limit  
NA - Compound not analyzed  
Underlined - Concentration exceeds PAL  
Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brte  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-109B	Aug-94	<10	NA	NA	NA	NA
	Oct-94	<10	NA	NA	NA	NA
MW-110	Aug-94	<10	3.6 BJ	NA	NA	NA
	Oct-94	<10	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	<u>37</u>	NA	NA	NA
MW-110A	Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	<u>25</u>	NA	NA	NA
MW-111	Aug-94	<10	<3.4	NA	NA	NA
	DUP.	<10	<3.4	NA	NA	NA
	Oct-94	<10	<0.70	NA	NA	NA
	Apr-98	226	<5	NA	NA	NA
	Jul-98	<u>22</u>	<u>27</u>	NA	NA	NA
	Nov-98	<0.5	<0.5	NA	NA	NA
	May-00	<4.2	<u>36</u>	NA	NA	NA
	Nov-02	<4.2	<u>43</u>	4400	130000	2600
DUP	<4.2	<u>38</u>	3400	100000	280	
MW-112	Oct-94	<10	<0.70	NA	NA	NA
	Nov-94	<10	<2.5	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	4.1	NA	NA	NA
MW-113	Aug-94	140	99.7	NA	NA	NA
	Oct-94	<10 J	8.6 B	NA	NA	NA
	May-95	43	20.3	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	Jul-98	<10	<u>12</u>	NA	NA	NA
	May-00	<4.2	<u>22</u>	NA	NA	NA
MW-114	Mar-95	<10 J	<2.9	NA	NA	NA
	DUP.	<10 J	<2.9	NA	NA	NA
	May-95	<10 J	<1.0	NA	NA	NA
	DUP.	<10 J	<1.0	NA	NA	NA
MW-115	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	6.0	NA	NA	NA
	Jun-01	<4.2	<0.52	160	92	NA
	Nov-01	<4.2	12	1100	NA	3000
	DUP	<4.2	10	3300	NA	3300
	May-02	<4.2	<u>38</u>	19000	NA	2800
Nov-02	<4.2	<u>38</u>	7000	130000	3100	
MW-115A	May-00	<4.2	<u>12.0</u>	NA	NA	NA
MW-116	May-00	1600	470	NA	NA	NA
	DUP.	1500	460	NA	NA	NA
	Nov-00	37	23	NA	NA	NA
	DUP	46	24	NA	NA	NA
	Jun-01	4400	2300	840	2100	NA
	Nov-01	3300	2100	690	NA	2400
	May-02	12000	7300	530	NA	2500
	Nov-02	5100	3200	720	20000	2900
PF-MW-2	May-00	<4.2	7.6	NA	NA	NA
	Jun-01	<4.2	7.1	NA	NA	NA
	Nov-01	<4.2	10	NA	NA	NA
	May-02	<4.2	<0.52	NA	NA	NA
	Nov-02	<4.2	2.4	NA	NA	NA
MW-3	May-00	230	330	NA	NA	NA
	Nov-00	50	130	NA	NA	NA
	Jun-01	3500	2200	NA	NA	NA
	Nov-01	38	1700	NA	NA	NA
	May-02	<4.2	220	NA	NA	NA
	Nov-02	<4.2	<u>18</u>	NA	NA	NA

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

Table 4-1: Groundwater Analytical Results  
 Better Brite  
 De Pere, Wisconsin

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-4	Aug-94	<10	<3.4	NA	NA	NA
	DUP	<10	<3.4	NA	NA	NA
	Oct-94	<10 J	<3.4 J	NA	NA	NA
	DUP	<10 J	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	4.6	NA	NA	NA
	Nov-00	<4.2	2.4	NA	NA	NA
	Jun-01	<4.2	12	NA	NA	NA
	Nov-01	<4.2	7.4	NA	NA	NA
	May-02	<4.2	1.4	NA	NA	NA
Nov-02	<4.2	15	NA	NA	NA	
MW-4A	Aug-94	<10	<3.4	NA	NA	NA
	Oct-94	<10 J	6.0 B	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	8.7	NA	NA	NA
	Nov-00	<4.2	3.7	NA	NA	NA
	Jun-01	<4.2	3.7	NA	NA	NA
	Nov-01	<4.2	13	NA	NA	NA
	May-02	<4.2	38	NA	NA	NA
Nov-02	<4.2	28	NA	NA	NA	
MW-4B	Oct-94	<10	<0.70	NA	NA	NA
	Nov-94	<10	<2.5	NA	NA	NA
MW-5	Aug-94	1590	827	NA	NA	NA
	Oct-94	460 J	299 J	NA	NA	NA
	DUP	510 J	763 J	NA	NA	NA
	Apr-98	212	631	NA	NA	NA
	DUP	207	667	NA	NA	NA
	Jul-98	1420	1230	NA	NA	NA
	May-00	120	190	NA	NA	NA
	Nov-00	<4.2	6.6	NA	NA	NA
	Jun-01	590	450	NA	NA	NA
	Nov-02	2200	2200	NA	NA	NA
DUP	2200	2200	NA	NA	NA	
MW-5A	Aug-94	<10	<3.4	NA	NA	NA
	Oct-94	<10	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	6.5	NA	NA	NA
	Nov-00	340	380	NA	NA	NA
	Jun-01	<4.2	3.9	NA	NA	NA
Nov-02	<4.2	34	NA	NA	NA	
MW-5B	Aug-94	NA	NA	NA	NA	NA
	Oct-94	<10	<5	NA	NA	NA
MW-6	Aug-94	15900	39200	NA	NA	NA
	Oct-94	47000	41,900 J	NA	NA	NA
	Apr-98	7650	4560	NA	NA	NA
	May-00	23000	26000	NA	NA	NA
	Nov-00	26000	23000	NA	NA	NA
	Jun-01	14000	15000	NA	NA	NA
	Nov-01	25000	29000	NA	NA	NA
	May-02	13000	13000	NA	NA	NA
Nov-02	21000	22000	NA	NA	NA	
MW-6A	Aug-94	<10	4.9 B	NA	NA	NA
	Oct-94	<10	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	6.6	22	NA	NA	NA
	Nov-00	<4.2	13	NA	NA	NA
	6/01	<4.2	11	NA	NA	NA
	Nov-01	<4.2	7.1	NA	NA	NA
	May-02	<4.2	51	NA	NA	NA
Nov-02	<4.2	83	NA	NA	NA	
MW-6B	Aug-94	<10	NA	NA	NA	NA

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-7	Aug-94	<10	6.6 BJ	NA	NA	NA
	DUP.	<10	<2.8	NA	NA	NA
	Oct-94	<10 J	36.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	DUP	<10	<5	NA	NA	NA
	May-00	<4.2	3.9	NA	NA	NA
	Nov-00	<4.2	1.1	NA	NA	NA
	Jun-01	<4.2	2.7	NA	NA	NA
	Nov-01	<4.2	9.7	NA	NA	NA
	May-02	<4.2	3.2	NA	NA	NA
Nov-02	<4.2	1.9	NA	NA	NA	
MW-7A	Aug-94	<10	<2.8	NA	NA	NA
	Oct-94	<10 J	<3.4 J	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	4.7	NA	NA	NA
	Nov-00	7.9	5	NA	NA	NA
	Jun-01	<4.2	2.5	NA	NA	NA
	Nov-01	<4.2	<.52	NA	NA	NA
	May-02	<4.2	1.4	NA	NA	NA
	Nov-02	<4.2	0.98	NA	NA	NA
MW-8	Oct-94	<10	<0.70	NA	NA	NA
	Nov-94	<10	<2.5	NA	NA	NA
	DUP.	<10	<2.5	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	15	NA	NA	NA
	Nov-00	13	13	NA	NA	NA
	Jun-01	5.3	2	NA	NA	NA
	Nov-01	<4.2	2.3	NA	NA	NA
	DUP	<4.2	6.7	NA	NA	NA
	May-02	<4.2	4	NA	NA	NA
Nov-02	<4.2	23	NA	NA	NA	
MW-8A	Oct-94	<10	<0.70	NA	NA	NA
	Nov-94	<10	<2.5	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	16	NA	NA	NA
	Nov-00	<4.2	34	NA	NA	NA
	Jun-01	<4.2	3.7	NA	NA	NA
	Nov-01	<4.2	14	NA	NA	NA
	May-02	<4.2	2.5	NA	NA	NA
	DUP	<4.2	11	NA	NA	NA
Nov-02	<4.2	20	NA	NA	NA	
MW-9	Aug-94	400	697	NA	NA	NA
	Oct-94	470 J	442 J	NA	NA	NA
	Apr-98	209	<5	NA	NA	NA
	Jul-98	60	75	NA	NA	NA
	Nov-00	13	15	NA	NA	NA
	DUP	19	51	NA	NA	NA
	Jun-01	28	180	NA	NA	NA
	Nov-01	35	76	NA	NA	NA
	May-02	75	72	NA	NA	NA
Nov-02	67	80	NA	NA	NA	
MW-10	Aug-94	60300	53100	NA	NA	NA
	Oct-94	60800 J	43,500 J	NA	NA	NA
	Nov-00	20000	18000	NA	NA	NA
	Jun-01	<4.2	20	NA	NA	NA
	Nov-02	35000	38000	NA	NA	NA

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-11	May-95	<10	<1.0	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	7.0	NA	NA	NA
	Nov-00	<4.2	4.1	NA	NA	NA
	Jun-01	<4.2	3.6	NA	NA	NA
	Nov-01	<4.2	7.8	NA	NA	NA
	May-02	17	<20	NA	NA	NA
	Nov-02	<4.2	27	NA	NA	NA
MW-12	Mar-95	<10 J	<2.9	NA	NA	NA
	May-95	<10	<1.0	NA	NA	NA
	Apr-98	<10	<5	NA	NA	NA
	May-00	<4.2	4.8	NA	NA	NA
	Nov-00	<4.2	6	NA	NA	NA
	Jun-01	<4.2	6.4	NA	NA	NA
	Nov-01	<4.2	<0.52	NA	NA	NA
	May-02	<4.2	4.8	NA	NA	NA
Nov-02	<4.2	1.3	NA	NA	NA	
MW-13	Mar-95	<10 J	<2.9	NA	NA	NA
	May-95	<10	<1.0	NA	NA	NA
Zinc Sump	Aug-94	89000	209000	NA	NA	NA
	Oct-94	144900	277000	NA	NA	NA
	Apr-98	66000	38300	NA	NA	NA
	Jul-98	131000	131000	NA	NA	NA
	May-00	1800	1700	NA	NA	NA
	Nov-00	41000	27000	NA	NA	NA
	Jun-01	40000	110000	NA	NA	NA
	Nov-01	23000	56000	NA	NA	NA
	May-02	43000	14000	NA	NA	NA
Nov-02	23000	30000	NA	NA	NA	
Private	Aug-94	<10	<10	NA	NA	NA
Municipal	Aug-94	<10	<10	NA	NA	NA
	DUP.	<10	<10	NA	NA	NA
	Oct-94	<10	<10	NA	NA	NA
	DUP.	<10	<10	NA	NA	NA
USGS	Oct-94	<10	0.75 B	NA	NA	NA
USGS-A	Oct-94	<10	11.9	NA	NA	NA

Concentrations in ug/L  
ES - NR140 Enforcement Standard  
PAL - NR140 Preventive Action Limit  
NA - Compound not analyzed  
Underlined - Concentration exceeds PAL  
Bolted - Concentration exceeds ES

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

# APPENDIX A: GROUNDWATER LEVELS

November 6, 2002

## CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85	5.83	603.02
B-104A	606.08	5.04	601.04
MW-106	606.21	7.82	598.39
MW-106A	606.36	10.36	596
MW-107	608.41	2.33	606.08
MW-107A	608.33	18.32	590.01
MW-108	604.22	15.06	589.16
MW-108A	604.44	17.74	586.7
MW-110	603.05	4.57	598.48
MW-110A	603.31	12.21	591.1
MW-111	600.76	7.39	593.37
MW-112	600.61	5.4	595.21
MW-113	611.08	3.45	607.63
MW-115	601.04	3.87	597.17
MW-115A	601.01	11.5	589.51
MW-116	604.28	3.13	601.15

## ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-2	602.45	6.77	595.68
MW-3	602.52	13.77	588.75
MW-4	602.99	8.17	594.82
MW-4A	603.29	8.4	594.89
MW-5	600.81	8	592.81
MW-5A	600.81	10.87	589.94
MW-6	602.33	9.61	592.72
MW-6A	605.19	10.7	594.49
MW-7	600.6	9.96	590.64
MW-7A	600.51	12.06	588.45
MW-8	598.18	13.26	584.92
MW-8A	598.59	18.26	580.33
MW-9	601.66	6.49	595.17
MW-10	601.53	7.63	593.9
MW-11	602.41	6.92	595.49
MW-12	599.87	4.86	595.01
Sump	604.09	18.44	585.65



**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Brite  
 PROJECT #: F150  
 LOCATION: DePere WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL:		SAMPLE POINT	MW-107	MW- <del>108</del> <sup>111</sup> Dup	MW-111	MW-115	MW-116
WATER TYPE			GW	GW	GW	GW	GW
DATE			11-6-02	<del>11-7-02</del>			
CLOCK TIME			1100	0815	0810	0845	0910
DEPTH TO WATER*			2.33	7.34	7.34	3.87	3.13
MEASURED WELL DEPTH			15.41	<del>12.14</del> 14.5	14.5	14.6	13.19
PURGE VOL/CASING VOL (g)			6gal	6gal	3.5gal	5gal	5gal
DEPTH SAMPLE TAKEN							
SAMPLING DEVICE			hang boiler	hang boiler →		ded boiler →	
FIELD TEMPERATURE (°C)			7.1	5.6	5.6	12.3	7.9
ELEC. COND. (µmhos/cm)	MEASURED		704	532	532	758	2349
	AT 25°C		624	480	482	614	2043
PH			7.04	7.33	7.33	7.19	7.07
ALKALINITY							
COLOR			brown		brown	brown	Yellow
ODOR			none		cloudy none	none	none
CLARITY			cloudy		cloudy	cloudy	etc sl. cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
LABORATORY: SENT TO:							
DATE SENT:							
SAMPLED BY:							

\*Measured from top of well riser.

920/336-6454

Konradh, Marvin & Elaine  
 1041 S. 6th  
 DePere 54115

115, 116, 111  
 GeoTrans, Inc.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brite  
 PROJECT #: F150  
 LOCATION: Rt 6 DePere WI  
 PERSONNEL: BHS

INSTRUMENTS

TEMPERATURE: YSI 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL:		SAMPLE POINT	MW-6	MW-6A	MW-11	MW-9	MW-12	
WATER TYPE			GW	GW	GW	GW	GW	
DATE			11-7-02					
CLOCK TIME			0945	0940	0955	1000	1025	
DEPTH TO WATER*			9.61	10.70	6.42	6.49	24.86	
MEASURED WELL DEPTH			15.5	22.4	15.36	16.36	14.55	
PURGE VOL/CASING VOL (g)			3gal	6gal	5gal	2.5gal		
DEPTH SAMPLE TAKEN								
SAMPLING DEVICE			hang bailer					
FIELD TEMPERATURE (°C)			6.5	6.8	7.7	10.1	9.2	
ELEC. COND. (µmhos/cm)	MEASURED		1142	285.6	1093	612	1421	
	AT 25°C		1016	252.8	952	513	1210	
PH			6.99	7.86	7.25	7.44	7.21	
ALKALINITY								
COLOR			brn yellow	brown	clear	clear	clear	
ODOR			none	none	none	none	none	
CLARITY			cloudy clear	cloudy	clear	clear	clear	
SAMPLING PARAMETERS			# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
LABORATORY: SENT TO:								
DATE SENT:								
SAMPLED BY:								

\*Measured from top of well riser.

5, 3, 6, 9, 10

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brite  
 PROJECT #: FISD  
 LOCATION: DePue WE  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: ↓  
 pH: ↓  
 OTHER: \_\_\_\_\_

GENERAL:		SAMPLE POINT	MW-2	MW-10	MW-5	MW-5 Dup	MW-5A
WATER TYPE			GW	GW	GW	GW	GW
DATE			11-7-02				→
CLOCK TIME			1015	1035	1045	1050	1055
DEPTH TO WATER*			6.77	7.63	8.0	8.0	10.87
MEASURED WELL DEPTH			14.15	14.69	15.35	24.98 15.35	29.48
PURGE VOL/CASING VOL (g)			4 gal	3.5 gal	4.0 gal	4.0 gal	10.0 gal
DEPTH SAMPLE TAKEN							
SAMPLING DEVICE			Added bailer	hang bailer			→
FIELD TEMPERATURE (°C)			4.9	10.00	9.0	9.88	8.9 7.8
ELEC. COND. (µmhos/cm)	MEASURED		1300	1049	951	950	1300 208
	AT 25°C		1112	882	813	812	1112 181
PH			7.07	7.15	7.24	7.25	7.07 7.86
ALKALINITY							
COLOR			clear	yellow	clear	clear	clear
ODOR			none	none	none	none	none
CLARITY			clear	clear	clear	clear	clear
SAMPLING PARAMETERS			# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
LABORATORY: SENT TO:							
DATE SENT:							
SAMPLED BY:							

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brite  
 PROJECT #: F150  
 LOCATION: DePue WE  
 PERSONNEL: RUS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: ↓  
 PH: ↓  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-7	MW-7A	MW-8	MW-8A	MW-4
WATER TYPE		GW	GW	GW	GW	GW
DATE		11-7-02				7
CLOCK TIME		1105	1110	1120	1125	1205
DEPTH TO WATER*		9.96	12.06	13.26	18.26	8.17
MEASURED WELL DEPTH		15.60	22.40	16.38	27.23	14.92
PURGE VOL/CASING VOL (g)		3gal	5gal	1.5	5gal	16gal
DEPTH SAMPLE TAKEN						
SAMPLING DEVICE		hang bailer				del. bailer
FIELD TEMPERATURE (°C)		8.2	8.3	8.8	8.8	10.2
ELEC. COND. (µmhos/cm)	MEASURED	732	2208	594	284.9	1027
	AT 25°C	634	1908	510	244.3	860
PH		7.15	7.64	7.34	7.66	7.09
ALKALINITY						
COLOR		clear	clear	very cloudy	clear	clear
ODOR		none	none	none	none	none
CLARITY		clear	clear	cloudy	clear	clear
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
LABORATORY: SENT TO:						
DATE SENT:						
SAMPLED BY:						

\*Measured from top of well riser.



**APPENDIX C**

**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

# TestAmerica

INCORPORATED

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002

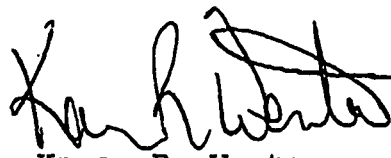
Job No: 02.10983

Page 1 of 18

The following samples were received by TestAmerica for analysis:

F150 Better Brite

Sample Number	Sample Description	Date Taken	Date Received
504459	MW-107	11/06/2002	11/07/2002
504460	MW-3	11/06/2002	11/07/2002
504461	MW-111	11/07/2002	11/07/2002
504462	MW-111 Dup	11/07/2002	11/07/2002
504463	MW-115	11/07/2002	11/07/2002
504464	MW-116	11/07/2002	11/07/2002
504465	MW-6	11/07/2002	11/07/2002
504466	MW-6A	11/07/2002	11/07/2002
504467	MW-11	11/07/2002	11/07/2002
504468	MW-9	11/07/2002	11/07/2002
504469	MW-12	11/07/2002	11/07/2002
504470	MW-2	11/07/2002	11/07/2002
504471	MW-10	11/07/2002	11/07/2002
504472	MW-5	11/07/2002	11/07/2002
504473	MW-5 Dup	11/07/2002	11/07/2002
504474	MW-5A	11/07/2002	11/07/2002
504475	MW-7	11/07/2002	11/07/2002
504476	MW-7A	11/07/2002	11/07/2002
504477	MW-8	11/07/2002	11/07/2002
504478	MW-8A	11/07/2002	11/07/2002



Karen R. Wenta  
 Inorganic Operations Manager



## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

11/21/2002


Job No: 02.10983

Page 2 of 18

The following samples were received by TestAmerica for analysis:

F150 Better Brite

Sample Number	Sample Description	Date Taken	Date Received
504479	MW-4	11/07/2002	11/07/2002
504480	MW-4A	11/07/2002	11/07/2002
504482	Zinc Sump	11/07/2002	11/07/2002



Karen R. Wenta  
Inorganic Operations Manager  
11/21

GEOTRANS, INC.  
Job No: 02.10983

11/21/2002  
Page 3 of 18

## KEY TO DATA FLAGS

The attached sample(s) may have a result flag shown on the report. The following are the result flag definitions:

- A = Analyzed/extracted past hold time
- B = Blank is contaminated
- C = Standard outside of control limits
- D = Diluted for analysis
- E = TCLP extraction outside of method required temperature range
- F = Sample filtered in lab
- G = Received past hold time
- H = Late eluting hydrocarbons present
- I = Improperly handled sample
- J = Estimated concentration
- L = Common lab solvent and contaminant
- M = Matrix interference
- P = Improperly preserved sample
- Q = Result confirmed via re-analysis
- S = Sediment present
- T = Does not match typical pattern
- W = BOD re-set due to missed dilution
- X = Unidentified compound(s) present
- Z = Internal standard outside limits
- \* = See Case Narrative

## KEY TO ANALYST INITIALS

The attached sample(s) may have been analyzed by another certified laboratory. If a number appears in the Analyst Initials field, the following are the appropriate certifications (if the lab code does not appear below, that means that WDNR certification is not required for the work performed):

Lab Code	Certification Number
008	WDNR - 999766900
009	WDNR - 241293690
020	WDNR - 999447680
030	ILNELAC - 100230; WDNR - 998294430
060	ILNELAC - 100221; WDNR - 999447130
070	IA - 007; MDH - 019-999-319; WDNR - 999917270
130	WDNR - 632021390
147	WDNR - 721026460
300	FLNELAC - 87358; IA - 131; MDH - 047-999-345; WDNR - 998020430
400	WDNR - 113133790
510	WDNR - 241249360
700	WDNR - 113289110

TestAmerica Watertown WDNR - 128053530; IDNR - 294; MDH - 055-999-366; ND - R-046

For questions regarding this report, please contact Dan Milewsky or Warren Topel.

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 4 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
504459 MW-107		11/06/2002 11:00						
Sulfate, IC	140	mg/L	2.0	6.7	EPA 300.0	11/19/2002	eds	1387
Sulfide	2.3	mg/L	0.20	0.60	SM 4500SE	11/12/2002	mmm	560
Iron, AA	5.2	mg/L	0.042	0.14	EPA 236.1	11/15/2002	gaf	2474 1997
504460 MW-3		11/06/2002 17:20						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.018	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504461 MW-111		11/07/2002 08:10						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Sulfate, IC	130	mg/L	2.0	6.7	EPA 300.0	11/19/2002	eds	1387
Sulfide	2.6	mg/L	0.20	0.60	SM 4500SE	11/12/2002	mmm	560
Chromium, GFAA	0.043	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
Iron, AA	4.4	mg/L	0.042	0.14	EPA 236.1	11/15/2002	gaf	2474 1997
504462 MW-111 Dup		11/07/2002 08:15						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Sulfate, IC	100	mg/L	2.0	6.7	EPA 300.0	11/19/2002	eds	1387
Sulfide	0.28	mg/L	0.20	0.60	SM 4500SE	11/12/2002	mmm	560
Chromium, GFAA	0.038	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
Iron, AA	3.4	mg/L	0.042	0.14	EPA 236.1	11/15/2002	gaf	2474 1997

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 5 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW SEE BELOW Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
504463 MW-115		11/07/2002 08:45						
Chromium, hexavalent Sulfate, IC	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Sulfide	130	mg/L	2.0	6.7	EPA 300.0	11/19/2002	tds	1387
Chromium, GFAA	3.1	mg/L	0.20	0.60	SM 4500SE	11/12/2002	mmm	560
Iron, AA	0.038	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
	7.0	mg/L	0.042	0.14	EPA 236.1	11/15/2002	gaf	2474 1997
504464 MW-116		11/07/2002 09:10						
Chromium, hexavalent Sulfate, IC	5.1	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Sulfide	20	mg/L	2.0	6.7	EPA 300.0	11/19/2002	tds	1387
Chromium, AA	2.9	mg/L	0.20	0.60	SM 4500SE	11/12/2002	mmm	560
Iron, AA	3.2	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043
	0.72	mg/L	0.042	0.14	EPA 236.1	11/15/2002	gaf	2476 1997
504465 MW-6		11/07/2002 09:45						
Chromium, hexavalent	21	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, AA	22	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043
504466 MW-6A		11/07/2002 09:40						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.083	mg/L	0.00052	0.0016	EPA 218.2	11/18/2002	mmm	1290 778
504467 MW-11		11/07/2002 09:55						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.027	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 6 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
504468 MW-9      11/07/2002 10:00								
Chromium, hexavalent	0.067	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, AA	0.090	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043
504469 MW-12      11/07/2002 10:25								
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.0013	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504470 MW-2      11/07/2002 10:15								
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.0024	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504471 MW-10      11/07/2002 10:35								
Chromium, hexavalent	35	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, AA	35	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043
504472 MW-5      11/07/2002 10:45								
Chromium, hexavalent	2.2	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, AA	2.2	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043
504473 MW-5 Dup      11/07/2002 10:50								
Chromium, hexavalent	2.2	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, AA	2.2	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 7 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
504474 MW-5A		11/07/2002 10:55						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.034	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504475 MW-7		11/07/2002 11:05						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.0019	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504476 MW-7A		11/07/2002 11:10						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.00098	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504477 MW-8		11/07/2002 11:20						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.023	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504478 MW-8A		11/07/2002 11:25						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.020	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777
504479 MW-4		11/07/2002 12:05						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, GFAA	0.015	mg/L	0.00052	0.0018	EPA 218.2	11/13/2002	mmm	1290 777

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 8 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
504480 MW-4A		11/07/2002 12:10						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	kep	880
Chromium, GFAA	0.028	mg/L	0.00052	0.0019	EPA 218.2	11/18/2002	mmm	1291 778
504482 Zinc Sump		11/07/2002 12:30						
Chromium, hexavalent	23	mg/L	0.0042	0.015	SM 3500CrD	11/07/2002	ksp	880
Chromium, AA	30	mg/L	0.020	0.067	EPA 218.1	11/18/2002	gaf	2476 1043
VOC - AQUEOUS - EPA 8260B								
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	11/17/2002	mac	4367
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Chloroform	0.35	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	11/17/2002	mae	4367
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae	4367
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
1,1-Dichloroethane	2.4	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367

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## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
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11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 9 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW SEE BELOW Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Analyst Batch
504482 Zinc Sump						11/07/2002 12:30	
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,1-Dichloroethane	2.7	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Tetrachloroethane	0.64	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	11/17/2002	mae 4367
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,1,1-Trichloroethane	64	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mae 4367
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	11/17/2002	mae 4367
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	11/17/2002	mae 4367



## ANALYTICAL REPORT

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11/21/2002  
 Job No: 02.10983  
 Account No: 39150  
 Purchase Order:  
 Page 10 of 18

Job Description: F150 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW    SEE BELOW    Date Received: 11/07/2002

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	
504482 Zinc Sump						11/07/2002 12:30		
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	11/17/2002	mac	4367
Surr: Dibromofluoromethane	101	‡		80-120	SW 8260B	11/17/2002	mac	4367
Surr: Toluene-d8	99	‡		86-112	SW 8260B	11/17/2002	mac	4367
Surr: Bromofluorobenzene	99	‡		91-110	SW 8260B	11/17/2002	mac	4367

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

11/21/2002

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 02.10983  
Account No: 39150

Page 11 of 18

Job Description: F150 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits
Chromium, hexavalent	880	0.500	0.497	99	90 - 110
Chromium, hexavalent	880	0.500	0.511	102	90 - 110
Sulfate, IC	1387	40.0	36.8	92	90 - 110
Sulfate, IC	1387	40.0	36.9	92	90 - 110
Sulfide	560	6.75	6.40	95	90 - 110
Chromium, AA	1043	0.500	0.505	101	90 - 110
Chromium, AA	1043	0.500	0.487	97	90 - 110
Chromium, GFAA	777	0.0100	0.0106	106	90 - 110
Chromium, GFAA	777	0.0100	0.0106	106	90 - 110
Chromium, GFAA	778	0.0100	0.0105	105	90 - 110
Chromium, GFAA	778	0.0100	0.0109	109	90 - 110
Iron, AA	1997	0.500	0.502	100	90 - 110
Iron, AA	1997	0.500	0.514	103	90 - 110
VOC - AQUEOUS - EPA 8260B					
Benzene	4367	50.0	47.0	94	80 - 120
Bromoform	4367	50.0	50.5	101	80 - 120
Chlorobenzene	4367	50.0	48.1	96	80 - 120
Chloroform	4367	50.0	47.5	95	80 - 120
Chloromethane	4367	50.0	44.2	88	80 - 120
1,1-Dichloroethane	4367	50.0	46.7	93	80 - 120
1,1-Dichloroethene	4367	50.0	47.9	96	80 - 120
1,2-Dichloropropane	4367	50.0	47.7	95	80 - 120
Ethylbenzene	4367	50.0	48.2	96	80 - 120
Methyl-t-butyl ether	4367	50.0	47.5	95	80 - 120
1,1,2,2-Tetrachloroethane	4367	50.0	49.3	99	80 - 120
Toluene	4367	50.0	48.0	96	80 - 120
Trichloroethene	4367	50.0	48.3	97	80 - 120
1,2,4-Trimethylbenzene	4367	50.0	48.7	97	80 - 120
1,3,5-Trimethylbenzene	4367	50.0	48.0	96	80 - 120
Vinyl Chloride	4367	50.0	45.8	92	80 - 120
Xylenes, Total	4367	150	142	95	80 - 120
Surr: Dibromofluoromethane	4367	50.0	49.4	99	87 - 116
Surr: Toluene-d8	4367	50.0	50.3	101	89 - 109
Surr: Bromofluorobenzene	4367	50.0	50.5	101	87 - 112

# Test America

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## QUALITY CONTROL REPORT BLANKS

11/21/2002

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 02.10983  
Account No: 39150

Page 12 of 18

Job Description: F150 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		880	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent Sulfate, IC		880	<0.0042	0.0042	0.015	mg/L
Chromium, AA	2476	1387	<2.0	2.0	6.7	mg/L
Chromium, AA		1043	<0.020	0.020	0.067	mg/L
Chromium, AA		1043	<0.020	0.020	0.067	mg/L
Chromium, GFAA	1290	777	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		777	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		778	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA	1291	778	<0.00052	0.00052	0.0018	mg/L
Iron, AA	2474	1997	<0.042	0.042	0.14	mg/L
Iron, AA		1997	<0.042	0.042	0.14	mg/L
Iron, AA	2476	1997	<0.042	0.042	0.14	mg/L
VOC - AQUEOUS - EPA 8260B						
Benzene		4367	<0.10	0.10	0.33	ug/L
Bromobenzene		4367	<0.25	0.25	0.83	ug/L
Bromochloromethane		4367	<0.25	0.25	0.83	ug/L
Bromodichloromethane		4367	<0.25	0.25	0.83	ug/L
Bromoform		4367	<0.25	0.25	0.83	ug/L
Bromomethane		4367	<0.25	0.25	0.83	ug/L
n-Butylbenzene		4367	<0.25	0.25	0.83	ug/L
sec-Butylbenzene		4367	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		4367	<0.25	0.25	0.83	ug/L
Carbon Tetrachloride		4367	<0.25	0.25	0.83	ug/L
Chlorobenzene		4367	<0.25	0.25	0.83	ug/L
Chlorodibromomethane		4367	<0.25	0.25	0.83	ug/L
Chloroethane		4367	<0.25	0.25	0.83	ug/L
Chloroform		4367	<0.25	0.25	0.83	ug/L
Chloromethane		4367	<0.25	0.25	0.83	ug/L
2-Chlorotoluene		4367	<0.10	0.10	0.33	ug/L
4-Chlorotoluene		4367	<0.25	0.25	0.83	ug/L
1,2-Dibromo-3-Chloropropane		4367	<0.25	0.25	0.83	ug/L
1,2-Dibromoethane (EDB)		4367	<0.25	0.25	0.83	ug/L
Dibromomethane		4367	<0.25	0.25	0.83	ug/L
1,2-Dichlorobenzene		4367	<0.25	0.25	0.83	ug/L
1,3-Dichlorobenzene		4367	<0.25	0.25	0.83	ug/L
1,4-Dichlorobenzene		4367	<0.25	0.25	0.83	ug/L
Dichlorodifluoromethane		4367	<0.25	0.25	0.83	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

11/21/2002

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 02.10983  
 Account No: 39150

Page 13 of 18

Job Description: F150 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
1,1-Dichloroethane		4367	<0.25	0.25	0.83	ug/L
1,2-Dichloroethane		4367	<0.25	0.25	0.83	ug/L
1,1-Dichloroethene		4367	<0.25	0.25	0.83	ug/L
cis-1,2-Dichloroethene		4367	<0.25	0.25	0.83	ug/L
trans-1,2-Dichloroethene		4367	<0.25	0.25	0.83	ug/L
1,2-Dichloropropane		4367	<0.25	0.25	0.83	ug/L
1,3-Dichloropropane		4367	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		4367	<0.25	0.25	0.83	ug/L
1,1-Dichloropropene		4367	<0.25	0.25	0.83	ug/L
cis-1,3-Dichloropropene		4367	<0.25	0.25	0.83	ug/L
trans-1,3-Dichloropropene		4367	<0.25	0.25	0.83	ug/L
Di-isopropyl ether		4367	<0.25	0.25	0.83	ug/L
Ethylbenzene		4367	<0.25	0.25	0.83	ug/L
Hexachlorobutadiene		4367	<0.25	0.25	0.83	ug/L
Isopropylbenzene		4367	<0.25	0.25	0.83	ug/L
p-Isopropyltoluene		4367	<0.25	0.25	0.83	ug/L
Methylene Chloride		4367	<0.25	0.25	0.83	ug/L
Methyl-t-butyl ether		4367	<0.25	0.25	0.83	ug/L
Naphthalene		4367	<0.25	0.25	0.83	ug/L
n-Propylbenzene		4367	<0.25	0.25	0.83	ug/L
Styrene		4367	<0.25	0.25	0.83	ug/L
1,1,1,2-Tetrachloroethane		4367	<0.25	0.25	0.83	ug/L
1,1,2,2-Tetrachloroethane		4367	<0.25	0.25	0.83	ug/L
Tetrachloroethene		4367	<0.25	0.25	0.83	ug/L
Toluene		4367	<0.10	0.10	0.33	ug/L
1,2,3-Trichlorobenzene		4367	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		4367	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		4367	<0.25	0.25	0.83	ug/L
1,1,2-Trichloroethane		4367	<0.25	0.25	0.83	ug/L
Trichloroethene		4367	<0.25	0.25	0.83	ug/L
Trichlorofluoromethane		4367	<0.25	0.25	0.83	ug/L
1,2,3-Trichloropropane		4367	<0.25	0.25	0.83	ug/L
1,2,4-Trimethylbenzene		4367	<0.10	0.10	0.33	ug/L
1,3,5-Trimethylbenzene		4367	<0.10	0.10	0.33	ug/L
Vinyl Chloride		4367	<0.25	0.25	0.83	ug/L
Xylenes, Total		4367	<0.25	0.25	0.83	ug/L
Surr: Dibromofluoromethane		4367	104.4		80-120	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

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## QUALITY CONTROL REPORT

### BLANKS

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

11/21/2002

Job No: 02.10983  
Account No: 39150

Page 14 of 18

Job Description: F150 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Surr: Toluene-d8		4367	103.4		86-112	%
Surr: Bromofluorobenzene		4367	96.8		91-110	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002

Job No: 02.10983  
 Account No: 39150

Page 15 of 18

Job Description: F150 Better Brite

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	LCSD Result	LCS Percent Recovery	LCSD Percent Recovery	Control Limits	Relative Percent Difference
Chromium, AA	2476	1043	0.500	mg/L	0.485		97		76 - 106	
Chromium, GFAA	1290	777	0.0100	mg/L	0.0112		112		87 - 116	
Chromium, GFAA	1291	778	0.0100	mg/L	0.0109		109		87 - 116	
Iron, AA	2474	1997	0.500	mg/L	0.556		111		81 - 122	
Iron, AA	2476	1997	0.500	mg/L	0.545		109		81 - 122	

# TestAmerica

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## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

11/21/2002

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 02.10983  
 Account No: 39150

Page 16 of 18

Job Description: F150 Better Brite

Analyte	Prep	Run	Sample Result	Spike Amount	Units	Matrix	MSD Result	MS	MSD	Control Limits	Relative Percent Difference
	Batch Number	Batch Number				Spike Result		Percent Recovery	Percent Recovery		
Chromium, hexavalent		380	5.1	5.000	mg/L	9.95	9.90	97	96	70 - 116	0.5
Sulfate, IC		1387	11	25.0	mg/L	34.6	34.7	94	95	68 - 129	0.3
Chromium, AA	2476	1043	<0.020	0.500	mg/L	0.433	0.446	87	89	62 - 122	3.0
Iron, AA		1997	<0.042	0.500	mg/L	0.501	0.510	100	102	63 - 136	1.8
VOC - AQUEOUS - EPA 8260B											
Benzene		4367	<0.10	50.0	ug/L	38.8	50.0	78	100	80 - 121	25
Chlorobenzene		4367	<0.25	50.0	ug/L	39.3	50.0	79	100	85 - 116	24
1,1-Dichloroethene		4367	<0.25	50.0	ug/L	39.5	52.4	79	105	72 - 131	28
Ethylbenzene		4367	<0.25	50.0	ug/L	39.0	49.5	78	99	83 - 118	24
Methyl-t-butyl ether		4367	<0.25	50.0	ug/L	39.1	51.4	78	103	71 - 127	27
Toluene		4367	<0.10	50.0	ug/L	38.7	50.1	77	100	82 - 116	26
Trichloroethene		4367	0.43	50.0	ug/L	39.7	50.9	78	101	80 - 117	25
1,2,4-Trimethylbenzene		4367	<0.10	50.0	ug/L	38.9	50.5	78	101	80 - 122	26
1,3,5-Trimethylbenzene		4367	<0.10	50.0	ug/L	38.5	49.6	77	99	83 - 122	25
Xylenes, Total		4367	<0.25	150	ug/L	118	146	79	97	84 - 119	21
Surr: Dibromofluoromethane		4367	50.9	50.0	ug/L	50.0	50.7	100	101	91 - 111	1.4
Surr: Toluene-d8		4367	50.6	50.0	ug/L	49.6	49.8	99	100	85 - 115	0.4
Surr: Bromofluorobenzene		4367	49.7	50.0	ug/L	51.1	49.3	102	99	87 - 111	3.6

# TestAmerica

INCORPORATED

## QUALITY CONTROL REPORT

### SPIKES

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

11/21/2002

Job No: 02.10983  
 Account No: 39150

Page 17 of 18

Job Description: F150 Better Brite

Analyte	Prep Batch Number	Run Batch Number	Sample Result	Spike Amount	Units	Spike Result	Percent Recovery	Control Limits
Chromium, GFAA	1291	778	0.0019	0.0100	mg/L	0.0136	117	80 - 131



# TestAmerica

INCORPORATED

## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

11/21/2002

Job No: 02.10983  
Account No: 39150

Page 18 of 18

Job Description: F150 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		880	21	20.7	mg/L	1.4	23
Sulfate, IC		1387	130	132	mg/L	1.5	22
Chromium, AA	2476	1043	30	30.0	mg/L	0.0	12









LETTER OF TRANSMITTAL

175 N. Corporate Drive, Suite 100, Brookfield, WI 53045 ■ (262) 792-1282 ■ (262) 792-1310 (FAX)

TO: WDNR  
Attn: K. Lauridsen  
1125 N. Military Avenue  
Green Bay, WI

DATE: 7-11-02  
RE: Better Brite  
JOB NO: F150

54 307-0448



We are sending you the following:

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These are Transmitted as checked below:

- For approval
- For your use
- As requested
- For review and comment
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- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: ONE FOR WDNR, ONE FOR CITY OF DEPERE

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- Transmitted by:
- First Class Mail
  - Federal Express
  - Courier
  - Registered Mail
  - UPS
  - Other \_\_\_\_\_

Signed: David L. Morgan

cc: \_\_\_\_\_



**SPRING 2002 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**

July 11, 2002

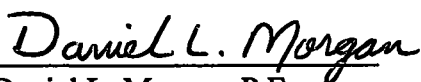
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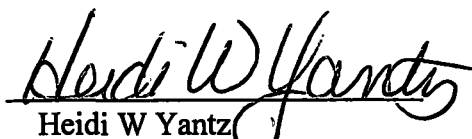
Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150

  
Daniel L. Morgan, P.E.  
Senior Engineer

  
Heidi W Yantz  
Project Hydrogeologist

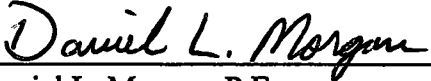
CERTIFICATION

This report,  
SPRING 2002 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated July 11, 2002

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional engineer  
as defined in s. NR712.03(2), and that to the best of my knowledge,  
all information contained in this document is correct.

  
Daniel L. Morgan, P.E.  
Senior Engineer

## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfides	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-1



## **TABLE OF CONTENTS (CONT'D)**

### **FIGURES**

- 4-1 Water Table Map (May 13, 2002) - Chrome Shop
- 4-2 Potentiometric Surface Map (May 13, 2002) - Chrome Shop
- 4-3 Water Table Map (May 13, 2002) - Zinc Shop
- 4-4 Potentiometric Surface Map (May 13, 2002) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- A. Water Elevation Measurements
- B. Field Water Quality Data Sheets
- C. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October 1989 and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing. This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions

conducted at the sites. The Spring 2002 sampling event took place May 13<sup>th</sup> and 14<sup>th</sup>, and the following report summarizes the findings.

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Spring 2002 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 15 wells and sample collection and analysis from three existing wells (MW-116, MW-107, and MW-115). The following wells had groundwater elevations measured:

MW-106	MW-106A	MW-107	MW-107A
MW-108	MW-108A	MW-110	MW-110A
MW-111	MW-113	MW-115	MW-115A
MW-116	B-101	B-104A	

Well MW-112 could not be located during this monitoring event. It is believed to have been buried under a residential brush pile.

### 2.2 Zinc Shop

Spring 2002 post remedial action groundwater monitoring at the Zinc Shop included 13 existing wells and the extraction sump (Zinc Sump; Figure 2-2). Groundwater samples and water table elevations were taken at all locations. The wells in the monitoring plan include:

MW-2	MW-3	MW-4	MW-4A
MW-6	MW-6A	MW-7	MW-7A
MW-8	MW-8A	MW-9	MW-11
MW-12	Zinc Sump		

## 3.0 SAMPLE ANALYSIS PARAMETERS

### 3.1 Groundwater

Six groups of parameters were included in the groundwater analysis. These are groundwater elevation, field measurements (annotated below), hexavalent chromium, total chromium, iron, and sulfate/sulfide. The groundwater samples were collected following GeoTrans' Standard Operating Procedures.

#### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points indicated in Sections 2.1 and 2.2. Elevation was measured to 0.01 ft. using an electronic water level probe.

#### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and turbidity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and turbidity were determined by visual and olfactory examination.

#### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Iron and Sulfates/Sulfides

Per the request of Keld Lauridson, WDNR, groundwater samples from three monitoring wells at the former Chrome shop site were analyzed for iron and sulfate. The results will be used to determine whether the reagents used to stabilize the chromium have leached into the ground water. Due to a printing error on the chain of custody, ~~sulfides were run instead of sulfates for the fall 2001 and spring 2002 sampling events.~~

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

There were no presampling activities to report.

### 4.2 Chrome Shop Monitoring Results

The water table and potentiometric surface maps for the Chrome Shop site are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table differs slightly from the November 2001 observations. Ground water flow at the water table is primarily to the west and southwest, following existing topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-115, MW-107 and MW-116. MW-107 and MW-116 both had hexavalent chromium impacts (7.8 and 12,000 ppb, respectively). This is the first sampling event in which MW-107 has shown detections. The detection is below the NR 140 Preventive Action Limit (PAL); however, the duplicate sample exceeds the NR 140 Enforcement Standard (ES). Given this difference in hexavalent chromium concentrations between the sample and the duplicate sample, and the fact that this is an upgradient well, we recommend waiting for the next sampling event results before pursuing action on this impact.

Well MW-116, at 12,000 ppb hexavalent chromium, exceeds the ES. It should be noted that this concentration is more than 2.5 times greater than the next highest concentration detected in this well.

since monitoring began in May 2000. Total chromium was detected in all three wells, with MW-115 exceeding the PAL and MW-116 exceeding the ES.

Iron and sulfide levels were evaluated in MW-116, MW-115 and MW-107. Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," all three wells exceeded the PAL for iron. Results for sulfide increased marginally over the fall 2001 results and are two orders of magnitude below the sulfate ES and PAL. All analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Fall 2001 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows significant draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is similar to previous measurements with flow also predominantly to the north and west, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 14 locations. Hexavalent chromium was detected at four sample points, MW-6, MW-9 and MW-3, and the sump. Maximum hexavalent chromium concentrations were detected at MW-6 and the sump, with a concentration of 25,000 ppb and 23,000 ppb, respectively. The number of wells impacted with hexavalent



chromium is down as well as the concentration of hexavalent chromium at most locations. Total chromium was detected above the PAL at seven locations including the zinc sump, MW-3, MW-4A, MW-6, MW-6A, MW-8A, and MW-9. Concentrations of total chromium ranged from non-detect to 14,000 ppb. The extent of hexavalent chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

### 5.2 Zinc Shop

System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the increasing concentration of hexavalent chromium in ground water within the stabilization area at the chrome shop at concentrations above the 100 ppb ES for total chromium and 2) the loss of three monitoring wells at the zinc shop. General decreases in chromium concentrations are notable at both shops and further reduction is anticipated as a result of the ongoing remedial action.

### 6.1 Chrome Shop Recommendations

Biannual sampling was originally proposed for the wells at the Chrome Shop. Hexavalent chromium in ground water as measured at MW-116 warrants more frequent ground water sampling. A resampling of MW-116 in November 2002 is planned to continue monitoring of hexavalent and total chromium at this location. The sampling frequency may be adjusted prior to or following this event, based on the need to more closely monitor the MW-116 hexavalent chromium levels. The decrease in iron and stability of sulfate/sulfide at MW-116 may suggest that the stabilization capability at this location complete. Should hexavalent chromium levels climb at this well, WDNR may wish to revisit treatment options.

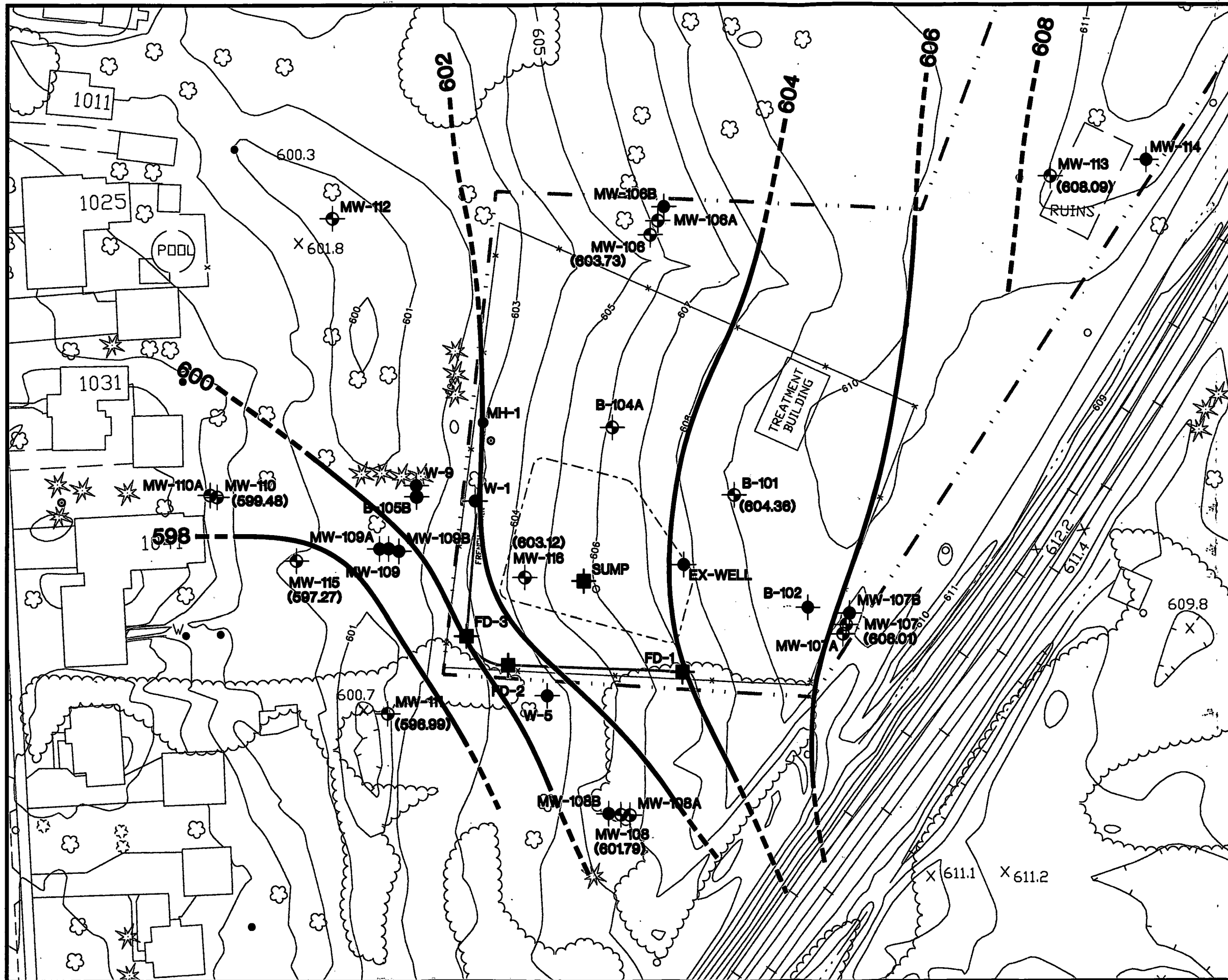
At the November 2002 sampling event, care will be taken to analyze for both sulfate and sulfides, to confirm that the sulfate/sulfide samples thus far show a reliable trend. Contract provisions allow authorization of semi-annual sampling and groundwater elevation measurement of all wells listed in Section 2.1 for one additional year following the May 2002 event.

### 6.2 Zinc Shop Recommendations

No modifications to the original monitoring plan are recommended for the Zinc Shop. Semi-annual monitor well sampling of the groundwater through May 2002 is currently authorized, with contract provisions in place to continue semi-annual sampling for one additional year. This sampling frequency will provide adequate information to document the progress of remediation with time following installation of the treatment system at the site.

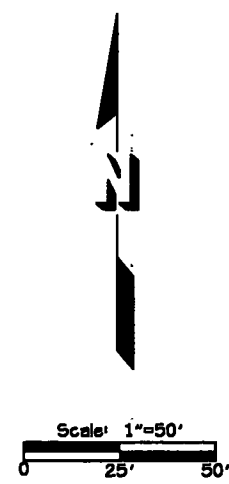
The loss of MW-5, MW-5A, and MW-10 should be evaluated and replacement of these wells should be considered. All three of these wells have had chromium impacts and provide information on the extent and severity of the contamination at the Zinc shop site. It is believed that WDNR has already made arrangements to replace these wells.

## FIGURES



**EXPLANATION**

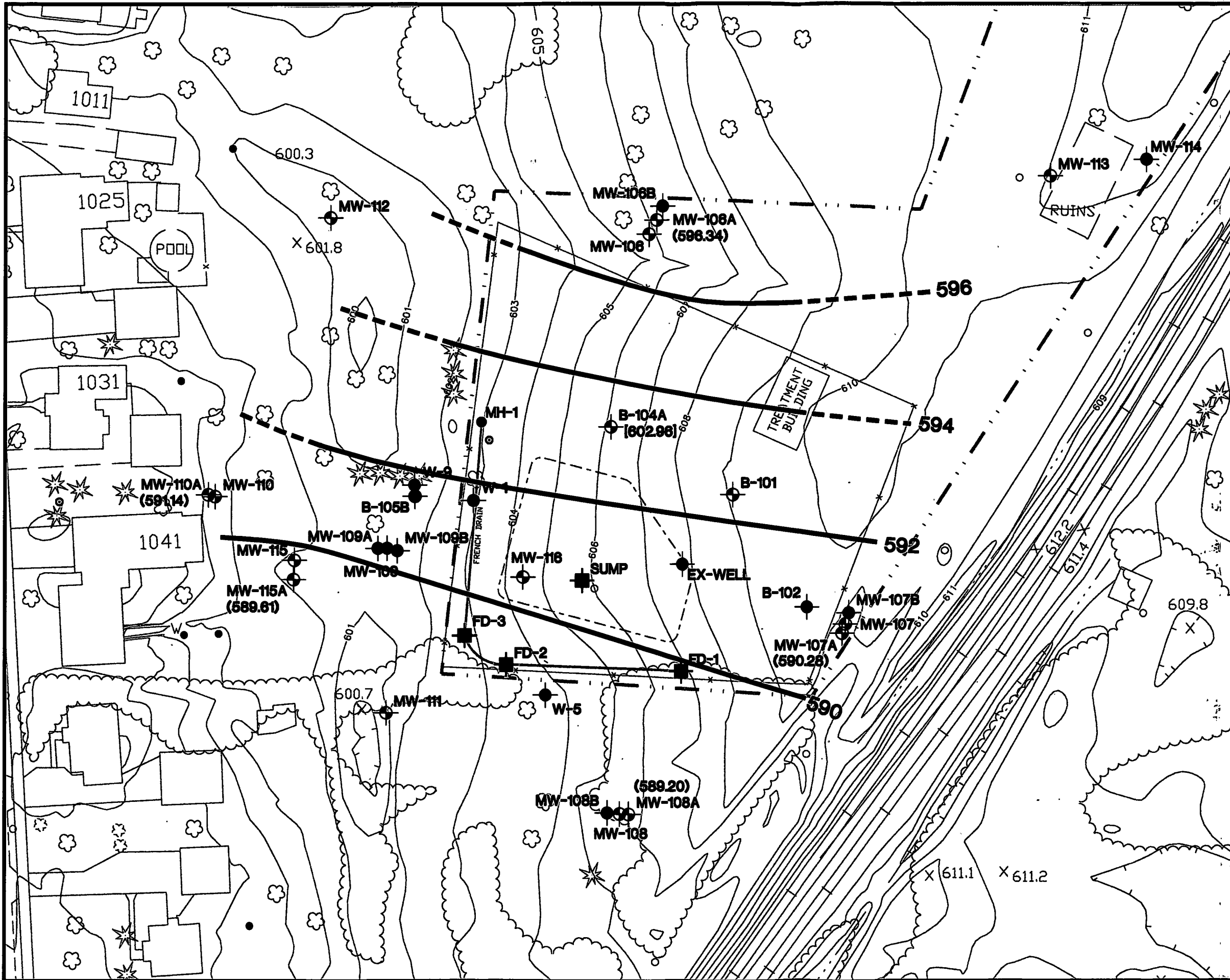
- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- MW-11 ABANDONED WELL (any filled in well symbol)
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- - - - - WATER TABLE CONTOURS (Dashed where inferred)
- (608.01) WATER TABLE ELEVATION



Basemap from Aero-Metric Engineering, Inc. 11/17/91	
BETTER BRITE DePERE, WISCONSIN	DATE: 6/5/02
<b>WATER TABLE MAP (MAY 2002) CHROME SHOP</b>	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

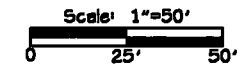
**GeoTrans, Inc.**  
A TERRACON COMPANY

**Figure 4-1**



### EXPLANATION

- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- B-101 MONITOR WELL LOCATION AND DESIGNATION
- W-5 MONITOR WELL LOCATION AND DESIGNATION
- SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
- FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
- EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- SOIL STABILIZATION AREA
- MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- 590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where Inferred)
- (588.58) POTENTIOMETRIC SURFACE ELEVATION
- [602.91] INCONSISTENT ELEVATION NOT USED FOR CONTOURING

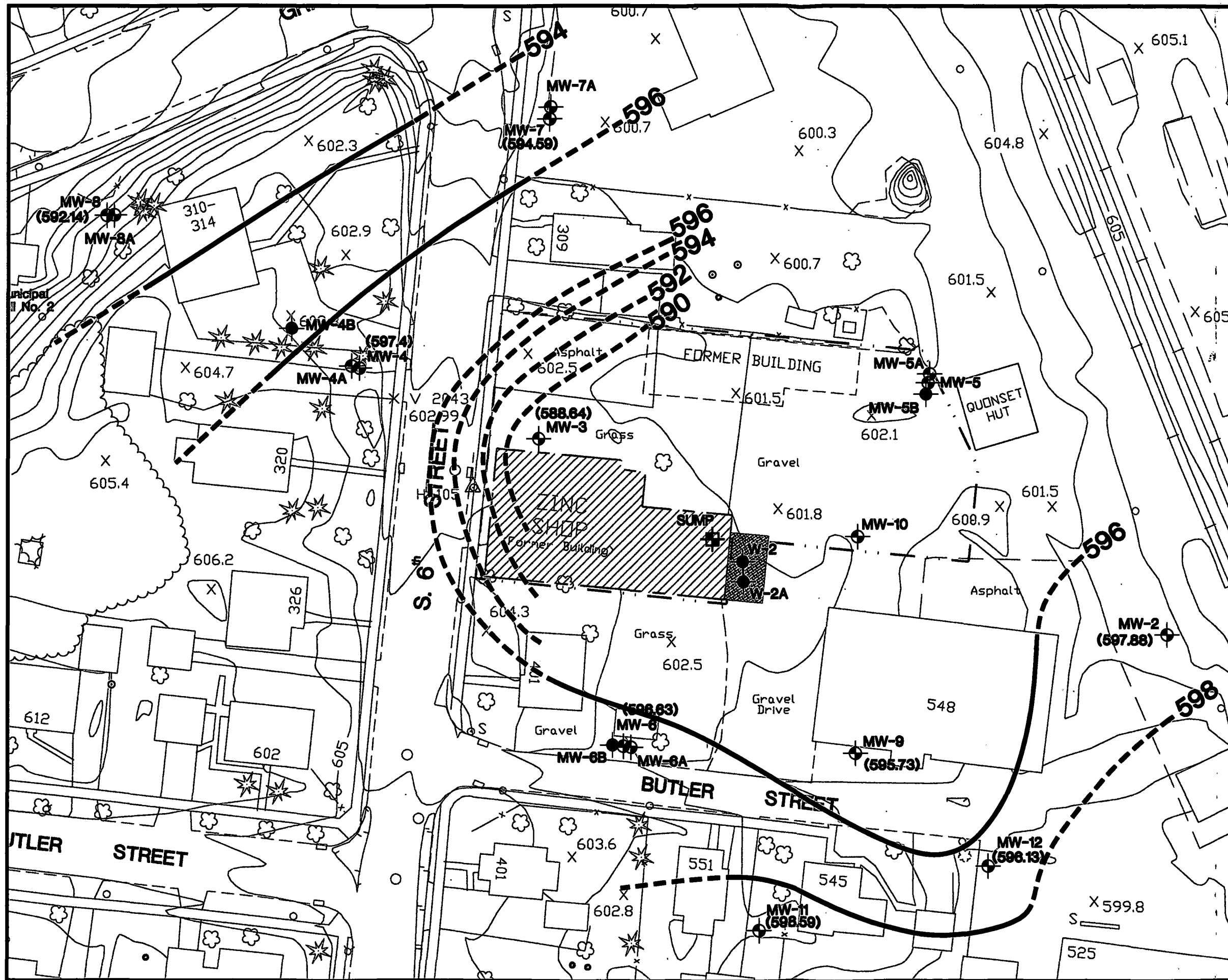


Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 6/5/02
POTENTIOMETRIC SURFACE MAP (MAY 2002) CHROME SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

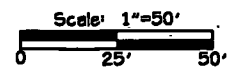


Figure 4-2



### EXPLANATION

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- WATER TABLE CONTOURS (Dashed where Inferred)
- (597.88) WATER TABLE ELEVATION



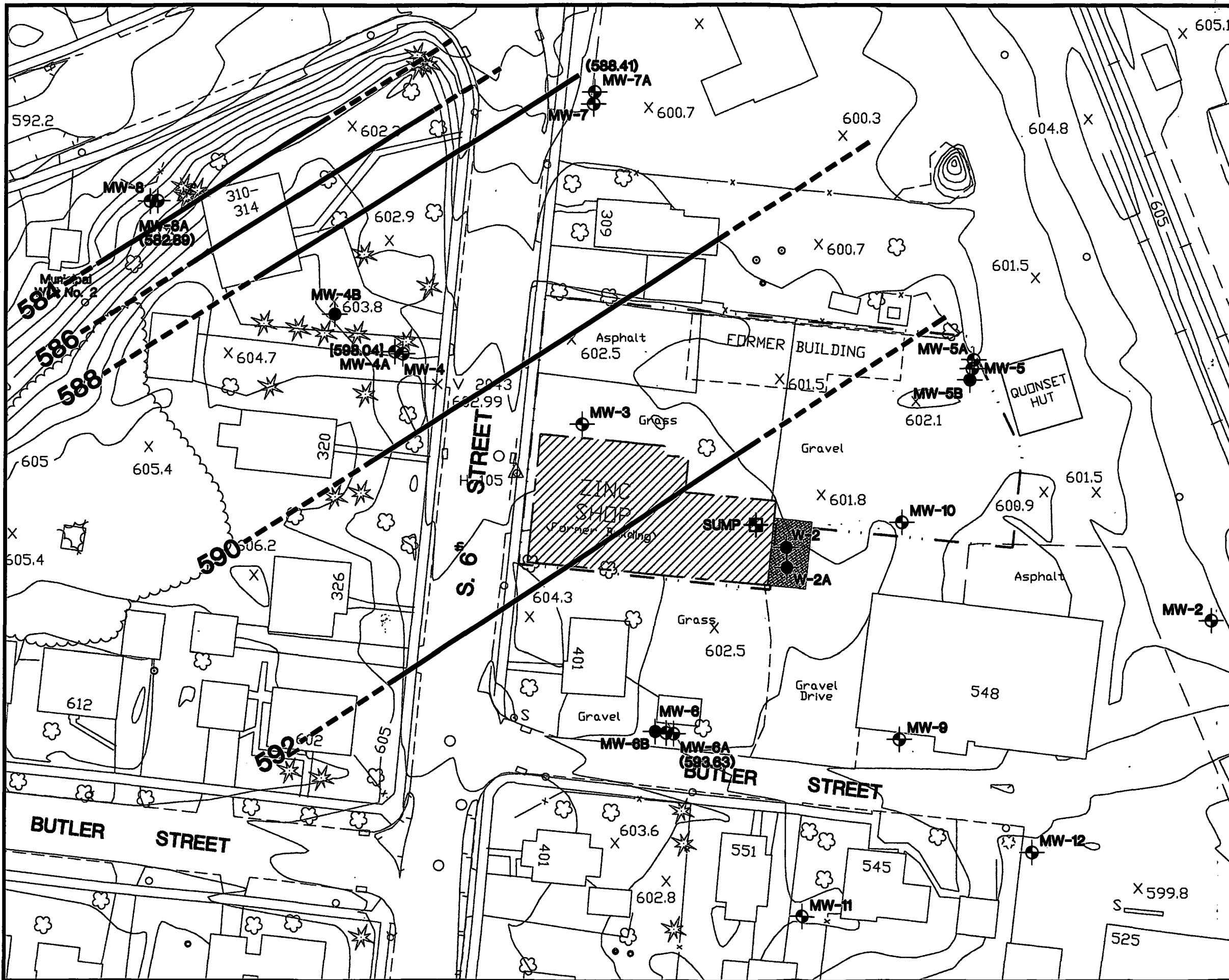
Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 6/5/02
<b>WATER TABLE MAP (MAY 2002) ZINC SHOP</b>	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102













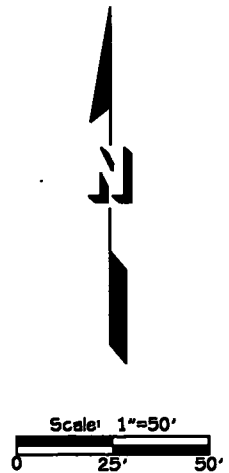
Figure 4-3





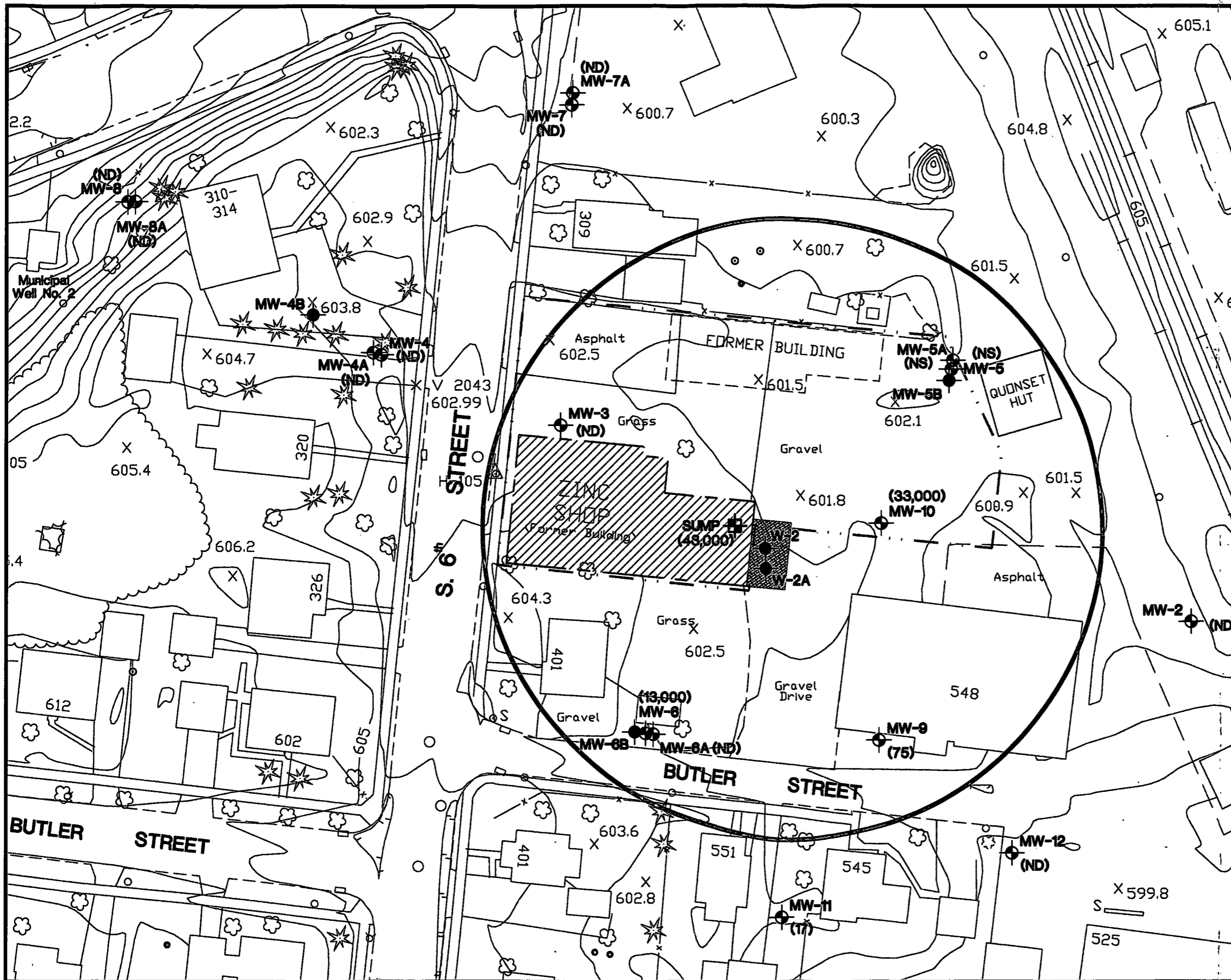
### EXPLANATION

-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3A** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **592** POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
-  **(594.13)** POTENTIOMETRIC SURFACE ELEVATION
-  **[598.04]** INCONSISTENT ELEVATION NOT USED FOR CONTOURING



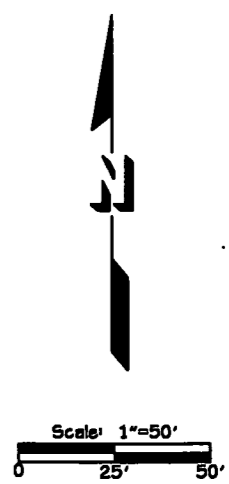
Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 6/5/02
POTENTIOMETRIC SURFACE MAP (MAY 2002) ZINC SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102



**EXPLANATION**

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where Inferred
- (13,000) HEXAVALENT CHROMIUM CONCENTRATION (ppb)
- (ND) NOT DETECTED
- (NS) NOT SAMPLED



Basemap from Aero-Metric Engineering, Inc. 11/7/91

BETTER BRITE DePERE, WISCONSIN	DATE: 6/5/02
EXTENT OF HEXAVALENT CHROMIUM IMPACTS (MAY 2002) ZINC SHOP	DESIGNED: DLM
	CHECKED: HWY
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

**Geotrans, Inc.** Figure 4-5

**TABLE**

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
Chrome Sump	Aug-94	620000	694000	NA	NA	
	Oct-94	300200	297000	NA	NA	
	Apr-98	195000	192000	NA	NA	
	Jul-98	132000		NA	NA	
French Drain	Aug-94	25800	22000	NA	NA	
	Oct-94	32000	31700	NA	NA	
	Apr-98	1060	1010	NA	NA	
	Jul-98	336	312	NA	NA	
B-101	Aug-94	<10	<3.4	NA	NA	
	Oct-94	<10		NA	NA	
MW-106	Aug-94	7	<2.8	NA	NA	
	DUP.	<10	<2.8	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	
	DUP.	<10 J	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	DUP	<10	<5	NA	NA	
MW-106A	Aug-94	<10	<2.8	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	9.4	NA	NA	
MW-106B	Aug-94	<10	NA	NA	NA	
MW-107	Aug-94	<10	4.1 BJ	NA	NA	
	Oct-94	<10 J	<3.4	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	4.2	NA	NA	
	Jun-01			530	50	
	Nov-01	<4.2	26	3900	NA	1800
	May-02	7.8	1.2	230	NA	2300
DUP	100	1.9	490	NA	2800	
MW-107A	Aug-94	<10	<2.8	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	16	NA	NA	
MW-107B	Aug-94	<10	NA	NA	NA	
MW-108	Aug-94	<10	<2.8	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	
	Apr-98	<10	NA	NA	NA	
	DUP	<10	<5	NA	NA	
MW-108A	Aug-94	<10	3.0 BJ	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	55	NA	NA	
MW-108B	Aug-94	<10	NA	NA	NA	
MW-109	Aug-94	6780	9570	NA	NA	
	Oct-94	2400	1980	NA	NA	
	DUP.	3100	1700	NA	NA	
	Apr-98	16500	18600	NA	NA	
	Jul-98	12200	11100	NA	NA	
MW-109A	Aug-94	<10	<2.8	NA	NA	
	Oct-94	<10	1.3 B	NA	NA	
	Apr-98	<10	<5	NA	NA	
	Jul-98	<10	7	NA	NA	

Concentrations in ug/L  
ES - NR140 Enforcement Standard  
PAL - NR140 Preventive Action Limit  
NA - Compound not analyzed  
Underlined - Concentration exceeds PAL  
Boided - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-109B	Aug-94	<10	NA	NA	NA	
	Oct-94	<10	NA	NA	NA	
MW-110	Aug-94	<10	3.6 BJ	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	37	NA	NA	
MW-110A	Aug-94	<10	<2.8	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	25	NA	NA	
MW-111	Aug-94	<10	<3.4	NA	NA	
	DUP.	<10	<3.4	NA	NA	
	Oct-94	<10	<0.70	NA	NA	
	Apr-98	226	<5	NA	NA	
	Jul-98	22	27	NA	NA	
	Nov-98	<0.5	<0.5	NA	NA	
	May-00	<4.2	36	NA	NA	
MW-112	Oct-94	<10	<0.70	NA	NA	
	Nov-94	<10	<2.5	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	4.1	NA	NA	
MW-113	Aug-94	140	99.7	NA	NA	
	Oct-94	<10 J	8.6 B	NA	NA	
	May-95	43	20.3	NA	NA	
	Apr-98	<10	<5	NA	NA	
	Jul-98	<10	12	NA	NA	
	May-00	<4.2	22	NA	NA	
MW-114	Mar-95	<10 J	<2.9	NA	NA	
	DUP.	<10 J	<2.9	NA	NA	
	May-95	<10 J	<1.0	NA	NA	
	DUP.	<10 J	<1.0	NA	NA	
	Apr-98	<10	<5	NA	NA	
MW-115	May-00	<4.2	6.0	NA	NA	
	Jun-01	<4.2	<0.52	160	92	
	Nov-01	<4.2	12	1100	NA	3000
	DUP	<4.2	10	3300	NA	3300
	May-02	<4.2	38	19000	NA	2800
MW-115A	May-00	<4.2	12.0	NA	NA	
MW-116	May-00	1600	470	NA	NA	
	DUP.	1500	460	NA	NA	
	Nov-00	37	23	NA	NA	
	DUP	46	24	NA	NA	
	Jun-01	4400	2300	840	2100	
	Nov-01	3300	2100	690	NA	2400
	May-02	12000	7300	530	NA	2500
PF-MW-2	May-00	<4.2	7.6	NA	NA	
	Jun-01	<4.2	7.1	NA	NA	
	Nov-01	<4.2	10	NA	NA	
	May-02	<4.2	<0.52	NA	NA	
MW-3	May-00	230	330	NA	NA	
	Nov-00	50	130	NA	NA	
	Jun-01	3500	2200	NA	NA	
	Nov-01	38	1700	NA	NA	
	May-02	<4.2	220	NA	NA	

Concentrations in ug/L  
ES - NR140 Enforcement Standard  
PAL - NR140 Preventive Action Limit  
NA - Compound not analyzed  
Underlined - Concentration exceeds PAL  
Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-4	Aug-94	<10	<3.4	NA	NA	
	DUP	<10	<3.4	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	
	DUP	<10 J	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	4.6	NA	NA	
	Nov-00	<4.2	2.4	NA	NA	
	Jun-01	<4.2	12	NA	NA	
	Nov-01	<4.2	7.4	NA	NA	
May-02	<4.2	1.4	NA	NA		
MW-4A	Aug-94	<10	<3.4	NA	NA	
	Oct-94	<10 J	6.0 B	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	8.7	NA	NA	
	Nov-00	<4.2	3.7	NA	NA	
	Jun-01	<4.2	3.7	NA	NA	
	Nov-01	<4.2	13	NA	NA	
May-02	<4.2	38	NA	NA		
MW-4B	Oct-94	<10	<0.70	NA	NA	
	Nov-94	<10	<2.5	NA	NA	
MW-5	Aug-94	1590	827	NA	NA	
	Oct-94	460 J	299 J	NA	NA	
	DUP	510 J	763 J	NA	NA	
	Apr-98	212	631	NA	NA	
	DUP	207	667	NA	NA	
	Jul-98	1420	1230	NA	NA	
	May-00	120	190	NA	NA	
	Nov-00	<4.2	6.6	NA	NA	
Jun-01	590	450	NA	NA		
MW-5A	Aug-94	<10	<3.4	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	6.5	NA	NA	
	Nov-00	340	380	NA	NA	
	Jun-01	<4.2	3.9	NA	NA	
MW-5B	Aug-94	NA	NA	NA	NA	
	Oct-94	<10	<5	NA	NA	
MW-6	Aug-94	15900	39200	NA	NA	
	Oct-94	47000	41,900 J	NA	NA	
	Apr-98	7650	4560	NA	NA	
	May-00	23000	26000	NA	NA	
	Nov-00	26000	23000	NA	NA	
	Jun-01	14000	15000	NA	NA	
	Nov-01	25000	29000	NA	NA	
	May-02	13000	13000	NA	NA	
MW-6A	Aug-94	<10	4.9 B	NA	NA	
	Oct-94	<10	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	6.6	22	NA	NA	
	Nov-00	<4.2	13	NA	NA	
	6/01	<4.2	11	NA	NA	
	Nov-01	<4.2	7.1	NA	NA	
May-02	<4.2	51	NA	NA		
MW-6B	Aug-94	<10	NA	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-7	Aug-94	<10	6.6 BJ	NA	NA	
	DUP.	<10	<2.8	NA	NA	
	Oct-94	<10 J	<u>36.4 J</u>	NA	NA	
	Apr-98	<10	<5	NA	NA	
	DUP	<10	<5	NA	NA	
	May-00	<4.2	3.9	NA	NA	
	Nov-00	<4.2	1.1	NA	NA	
	Jun-01	<4.2	2.7	NA	NA	
	Nov-01	<4.2	9.7	NA	NA	
May-02	<4.2	3.2	NA	NA		
MW-7A	Aug-94	<10	<2.8	NA	NA	
	Oct-94	<10 J	<3.4 J	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	4.7	NA	NA	
	Nov-00	7.9	5	NA	NA	
	Jun-01	<4.2	2.5	NA	NA	
	Nov-01	<4.2	<52	NA	NA	
	May-02	<4.2	1.4	NA	NA	
MW-8	Oct-94	<10	<0.70	NA	NA	
	Nov-94	<10	<2.5	NA	NA	
	DUP.	<10	<2.5	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	<u>15</u>	NA	NA	
	Nov-00	13	<u>13</u>	NA	NA	
	Jun-01	5.3	2	NA	NA	
	Nov-01	<4.2	2.3	NA	NA	
	DUP	<4.2	6.7	NA	NA	
May-02	<4.2	4	NA	NA		
MW-8A	Oct-94	<10	<0.70	NA	NA	
	Nov-94	<10	<2.5	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	<u>16</u>	NA	NA	
	Nov-00	<4.2	<u>34</u>	NA	NA	
	Jun-01	<4.2	3.7	NA	NA	
	Nov-01	<4.2	<u>14</u>	NA	NA	
	May-02	<4.2	2.5	NA	NA	
DUP	<4.2	<u>11</u>	NA	NA		
MW-9	Aug-94	400	<u>697</u>	NA	NA	
	Oct-94	470 J	<u>442 J</u>	NA	NA	
	Apr-98	209	<5	NA	NA	
	Jul-98	<u>60</u>	<u>75</u>	NA	NA	
	Nov-00	<u>13</u>	<u>15</u>	NA	NA	
	DUP	19	<u>51</u>	NA	NA	
	Jun-01	<u>28</u>	<u>180</u>	NA	NA	
	Nov-01	<u>35</u>	<u>76</u>	NA	NA	
	May-02	<u>75</u>	<u>72</u>	NA	NA	
MW-10	Aug-94	60300	53100	NA	NA	
	Oct-94	60800 J	43,500 J	NA	NA	
	Nov-00	20000	18000	NA	NA	
	Jun-01	<4.2	<u>20</u>	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES

**Table 4-1: Groundwater Analytical Results**  
**Better Brite**  
**De Pere, Wisconsin**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate	Sulfide
NR 140 PAL		10	10	150	125000	NO PAL
NR 140 ES		100	100	300	250000	NO ES
MW-11	May-95	<10	<1.0	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	7.0	NA	NA	
	Nov-00	<4.2	4.1	NA	NA	
	Jun-01	<4.2	3.6	NA	NA	
	Nov-01	<4.2	7.8	NA	NA	
	May-02	<u>17</u>	<20	NA	NA	
MW-12	Mar-95	<10 J	<2.9	NA	NA	
	May-95	<10	<1.0	NA	NA	
	Apr-98	<10	<5	NA	NA	
	May-00	<4.2	4.8	NA	NA	
	Nov-00	<4.2	6	NA	NA	
	Jun-01	<4.2	6.4	NA	NA	
	Nov-01	<4.2	<0.52	NA	NA	
MW-13	Mar-95	<10 J	<2.9	NA	NA	
	May-95	<10	<1.0	NA	NA	
Zinc Sump	Aug-94	<b>89000</b>	<b>209000</b>	NA	NA	
	Oct-94	<b>144900</b>	<b>277000</b>	NA	NA	
	Apr-98	<b>66000</b>	<b>38300</b>	NA	NA	
	Jul-98	<b>131000</b>	<b>131000</b>	NA	NA	
	May-00	<b>1800</b>	<b>1700</b>	NA	NA	
	Nov-00	<b>41000</b>	<b>27000</b>	NA	NA	
	Jun-01	<b>40000</b>	<b>110000</b>	NA	NA	
	Nov-01	<b>23000</b>	<b>56000</b>	NA	NA	
Private	Aug-94	<10	<10	NA	NA	
	Aug-94	<10	<10	NA	NA	
Municipal	DUP.	<10	<10	NA	NA	
	Oct-94	<10	<10	NA	NA	
	DUP.	<10	<10	NA	NA	
USGS	Oct-94	<10	0.75 B	NA	NA	
USGS-A	Oct-94	<10	<u>11.9</u>	NA	NA	

Concentrations in ug/L  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 NA - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Bolded - Concentration exceeds ES



**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

# APPENDIX A: GROUNDWATER LEVELS

May 13, 2002

## CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85	4.49	604.36
B-104A	606.08	3.12	602.96
MW-106	606.21	2.48	603.73
MW-106A	606.36	10.02	596.34
MW-107	608.41	2.4	606.01
MW-107A	608.33	18.05	590.28
MW-108	604.22	2.43	601.79
MW-108A	604.44	15.24	589.2
MW-110	603.05	3.57	599.48
MW-110A	603.31	12.17	591.14
MW-111	600.76	3.77	596.99
MW-112	600.61	couldn't locate	
MW-113	611.08	2.99	608.09
MW-115	601.04	3.77	597.27
MW-115A	601.01	11.4	589.61
MW-116	604.28	1.16	603.12

## ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-2	602.45	4.57	597.88
MW-3	602.52	13.88	588.64
MW-4	602.99	5.59	597.4
MW-4A	603.29	5.25	598.04
MW-5	600.81	-	buried well
MW-5A	600.81	-	buried well
MW-6	602.33	5.7	596.63
MW-6A	605.19	11.56	593.63
MW-7	600.6	6.01	594.59
MW-7A	600.51	12.1	588.41
MW-8	598.18	6.04	592.14
MW-8A	598.59	15.7	582.89
MW-9	601.66	5.93	595.73
MW-10	601.53	-	buried well
MW-11	602.41	3.82	598.59
MW-12	599.87	3.74	596.13
Sump	604.09	Didn't measure	

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Brice  
 PROJECT #: E150  
 LOCATION: Dr. Park W1  
 PERSONNEL: A. Gandy

INSTRUMENTS  
 TEMPERATURE: 451 63/10  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: against water level

GENERAL:	SAMPLE POINT	MW-7	MW-7A	MW-4A	MW-4	MW-11
WATER TYPE		gw	gw	gw	gw	gw
DATE		5-14-02	5-14-02	5-14-02	5-14-02	5-14-02
CLOCK TIME		7:40	7:43	8:05	8:00	9:45
DEPTH TO WATER*		6.01	17.10	5.75	5.59	382
MEASURED WELL DEPTH		16.02*	26.91*	29.08*	15.3*	15.70*
PURGE VOL/CASING VOL(g)		4* 5	4* 5 Dry	4* 19 Dry	4* 17 Dry	5* 6.5
DEPTH SAMPLE TAKEN		~19.5	~26	~28.5	~14.5	~15
SAMPLING DEVICE		hangbailer	hangbailer	water pump	water pump for sample	hangbailer
FIELD TEMPERATURE (°C)		8.6	10.2	9.9	9.1	9.3
ELEC. COND. (µmhos/cm)	MEASURED AT 25°C	634	197	779	837	963
PH		7.31	7.84	7.25	7.20	7.17
ALKALINITY		—	—	—	—	—
COLOR		med brown	dk brown	med brown	med brown	med brown
ODOR		none	none	none	none	none
CLARITY		cloudy	cloudy	cloudy	cloudy	cloudy
SAMPLING PARAMETERS	# OF CONTAINERS & CONT. VOLUME, CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
hexavalent Chromium		—	—	—	—	—
total Chromium		—	—	—	—	—
				went dry		
				4 times		
				stopped each time		
				for 5-10		
				min for recovery.		
				didn't help		
LABORATORY: SENT TO:	test Amer.					
DATE SENT:	5-14-02					
SAMPLED BY:	by					

\*Measured from top of well riser.





**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Brite  
 PROJECT #: F150  
 LOCATION: Dr. Park W1  
 PERSONNEL: W. Hardy

INSTRUMENTS  
 TEMPERATURE: 991 63/10  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: Salinity water level

GENERAL:		SAMPLE POINT	mw-115	mw-116	mw-107	mw-8	mw-8A
WATER TYPE			gw	gw	gw	gw	gw
DATE			5-14-02	5-14-02	5-14-02	5-14-02	5-14-02
CLOCK TIME			7:03	9:45	6:42	7:22	7:25
DEPTH TO WATER*			3.77	1.16	2.40	6.04	15.7
MEASURED WELL DEPTH			14.92*	13.2#	15.41#	16.82*	27.7*
PURGE VOL/CASING VOL(g)			5 6	5.9 6.5	4 7.0	5.5 Dry	5.9 4 Dry
DEPTH SAMPLE TAKEN			<del>3.2</del> ~14	~12.5	~15	~16	~2.7
SAMPLING DEVICE			ded bailer	ded bailer	hangbailer	hangbailer	hangbailer
FIELD TEMPERATURE (°C)			9.0	12.4	7.6	5.3	9.2
ELEC. COND. (µmhos/cm)	MEASURED		—	—	—	—	—
	AT 25°C		460	2083	474	493	233
pH			7.03	7.00	6.63	7.26	7.76
ALKALINITY			—	—	#6.0	—	—
COLOR			lt brown	yellow-green	lt brown	lt brown	med brown
ODOR			none	none	none	none	none
CLARITY			cloudy	clear	cloudy	lightly cloudy	cloudy
SAMPLING PARAMETERS			# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Hexavalent Chromium			1-100ml plastic notreat, not F				
total Chromium			1-250ml plastic HNO <sub>3</sub> not F				
Iron			with total Cr	✓	✓	not	sampled
Sulfide			1-100ml plastic NaOH not F	✓	✓	not	sampled
					Dup taken @ 6:45		Dup taken @ 7:28
LABORATORY: SENT TO:			Test Amer				
DATE SENT:			5-14-02				
SAMPLED BY:			WJ				

\*Measured from top of well riser.

**APPENDIX C**  
**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**



RECEIVED

## ANALYTICAL REPORT

RECEIVED FILE COPY  
F150  
*DLR*

MAY 30 2002  
HSI GeoTrans  
Milwaukee

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

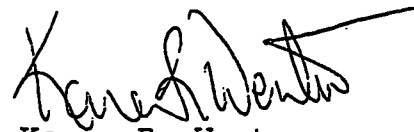
05/29/2002

Job No: 02.04379

Page 1 of 11

The following samples were received by TestAmerica for analysis:is:

Sample Number	Sample Description	Date Taken	Date Received
481201	MW-2 F150 Better Brite	05/14/2002	05/14/2002
481202	MW-3 F150 Better Brite	05/14/2002	05/14/2002
481203	MW-4 F150 Better Brite	05/14/2002	05/14/2002
481204	MW-4A F150 Better Brite	05/14/2002	05/14/2002
481205	MW-6 F150 Better Brite	05/14/2002	05/14/2002
481206	MW-6A F150 Better Brite	05/14/2002	05/14/2002
481207	MW-7 F150 Better Brite	05/14/2002	05/14/2002
481208	MW-7A F150 Better Brite	05/14/2002	05/14/2002
481209	MW-8 F150 Better Brite	05/14/2002	05/14/2002
481210	MW-8A F150 Better Brite	05/14/2002	05/14/2002
481211	MW-8A Dup F150 Better Brite	05/14/2002	05/14/2002
481212	MW-9 F150 Better Brite	05/14/2002	05/14/2002
481213	MW-11 F150 Better Brite	05/14/2002	05/14/2002
481214	MW-12 F150 Better Brite	05/14/2002	05/14/2002
481215	MW-107 F150 Better Brite	05/14/2002	05/14/2002
481216	MW-107 Dup F150 Better Brite	05/14/2002	05/14/2002
481217	MW-115 F150 Better Brite	05/14/2002	05/14/2002
481218	MW-116 F150 Better Brite	05/14/2002	05/14/2002
481219	Zinc Sump F150 Better Brite	05/14/2002	05/14/2002



Karen R. Wenta  
Inorganic Operations Manager

GEOTRANS, INC.  
Job No: 02.04379

05/29/2002  
Page 2 of 11

## KEY TO DATA FLAGS

The attached sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time  
B = Blank is contaminated  
C = Standard outside of control limits  
D = Diluted for analysis  
E = TCLP extraction outside of method required temperature range  
F = Sample filtered in lab  
G = Received past hold time  
H = Late eluting hydrocarbons present  
I = Improperly handled sample  
J = Estimated concentration  
L = Common lab solvent and contaminant  
M = Matrix interference  
P = Improperly preserved sample  
Q = Result confirmed via re-analysis  
S = Sediment present  
T = Does not match typical pattern  
W = BOD re-set due to missed dilution  
X = Unidentified compound(s) present  
Z = Internal standard outside limits  
\* = See Case Narrative

## KEY TO ANALYST INITIALS

The attached sample(s) may have been analyzed by another certified laboratory. If a number appears in the Analyst Initials field, the following are the appropriate certifications (if the lab code does not appear below, that means that WDNR certification is not required for the work performed):

Lab Code	Certification Number
008	WDNR - 999766900
009	WDNR - 241293690
060	ILNELAC - 100221; WDNR - 999447130
070	IA - 007; MDH - 019-999-319; WDNR - 999917270
130	WDNR - 632021390
147	WDNR - 721026460
300	FLNELAC - 87358; IA - 131; MDH - 047-999-345; WDNR - 998020430
400	WDNR - 113133790
510	WDNR - 241249360
700	WDNR - 113289110

TestAmerica Watertown WDNR ID: 128053530; IDNR ID: 294; MDH ID: 055-999-366

For questions regarding this report, please contact Dan Milewsky or Warren Topel.

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/29/2002  
 Job No: 02.04379  
 Account No: 39150  
 Purchase Order:  
 Page 3 of 11

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 05/14/2002

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	
481201 MW-2 F150 Better Brite		05/14/2002 08:25							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, GFAA	<0.00052	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227	729
481202 MW-3 F150 Better Brite		05/14/2002 09:25							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, AA	0.22	mg/L	0.020	0.067	EPA 218.1	05/22/2002	gaf	2261	1001
481203 MW-4 F150 Better Brite		05/14/2002 08:00							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, GFAA	0.0014	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227	729
481204 MW-4A F150 Better Brite		05/14/2002 08:05							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, GFAA	0.038	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227	729
481205 MW-6 F150 Better Brite		05/14/2002 10:02							
Chromium, hexavalent	13	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, AA	13	mg/L	0.020	0.067	EPA 218.1	05/22/2002	gaf	2261	1001
481206 MW-6A F150 Better Brite		05/14/2002 08:55							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, GFAA	0.051	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227	729

## ANALYTICAL REPORT

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05/29/2002  
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 Account No: 39150  
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 Page 4 of 11

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 05/14/2002

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
481207 MW-7 F150 Better Brite		05/14/2002 07:40						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, GFAA	0.0032	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
481208 MW-7A F150 Better Brite		05/14/2002 07:43						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, GFAA	0.0014	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
481209 MW-8 F150 Better Brite		05/14/2002 07:22						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, GFAA	0.0040	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
481210 MW-8A F150 Better Brite		05/14/2002 07:25						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, GFAA	0.0025	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
481211 MW-8A Dup F150 Better Brite		05/14/2002 07:28						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, GFAA	0.011	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
481212 MW-9 F150 Better Brite		05/14/2002 09:05						
Chromium, hexavalent	0.075	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, AA	0.072	mg/L	0.020	0.067	EPA 218.1	05/22/2002	gaf	2261 1001

## ANALYTICAL REPORT

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05/29/2002  
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 Account No: 39150  
 Purchase Order:  
 Page 5 of 11

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 05/14/2002

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run
						Analyzed	Analyst	Batch
481213 MW-11 F150 Better Brite		05/14/2002 08:45						
Chromium, hexavalent	0.017	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, AA	<0.020	mg/L	0.020	0.067	EPA 218.1	05/22/2002	gaf	2261 1001
481214 MW-12 F150 Better Brite		05/14/2002 08:35						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Chromium, GFAA	0.0048	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
481215 MW-107 F150 Better Brite		05/14/2002 06:42						
Chromium, hexavalent	0.0078	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Sulfide	2.3	mg/L	0.20	0.60	SM 4500SE	05/20/2002	mmm	548
Chromium, GFAA	0.0012	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
Iron, AA	0.23	mg/L	0.042	0.14	EPA 236.1	05/21/2002	gaf	2258 1922
481216 MW-107 Dup F150 Better Brite		05/14/2002 06:45						
Chromium, hexavalent	0.10	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Sulfide	2.8	mg/L	0.20	0.60	SM 4500SE	05/20/2002	mmm	548
Chromium, GFAA	0.0019	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
Iron, AA	0.49	mg/L	0.042	0.14	EPA 236.1	05/21/2002	gaf	2258 1922
481217 MW-115 F150 Better Brite		05/14/2002 07:03						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts	814
Sulfide	2.8	mg/L	0.20	0.60	SM 4500SE	05/20/2002	mmm	548
Chromium, GFAA	0.038	mg/L	0.00052	0.0018	EPA 218.2	05/28/2002	mmm	1227 729
Iron, AA	19	mg/L	0.042	0.14	EPA 236.1	05/21/2002	gaf	2258 1922

## ANALYTICAL REPORT

Mr. Dan Morgan  
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 Suite 100  
 Brookfield, WI 53045

05/29/2002  
 Job No: 02.04379  
 Account No: 39150  
 Purchase Order:  
 Page 6 of 11

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW SEE BELOW Date Received: 05/14/2002

Parameter	Results	Units	MDL	LOQ	Method	Date		Prep/Run	
						Analyzed	Analyst	Batch	Batch
481218 MW-116 F150 Better Brite		05/14/2002 09:45							
Chromium, hexavalent	12	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Sulfide	2.5	mg/L	0.20	0.60	SM 4500SE	05/20/2002	mmm		548
Chromium, AA	7.3	mg/L	0.020	0.067	EPA 218.1	05/22/2002	gaf	2258	1001
Iron, AA	0.53	mg/L	0.042	0.14	EPA 236.1	05/21/2002	gaf	2258	1922
481219 Zinc Sump F150 Better Brite		05/14/2002 10:20							
Chromium, hexavalent	43	mg/L	0.0042	0.015	SM 3500CrD	05/14/2002	jts		814
Chromium, AA	Q 14	mg/L	0.020	0.067	EPA 218.1	05/29/2002	gaf	2261	1003

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Mr. Dan Morgan  
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 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/29/2002

Job No: 02.04379  
 Account No: 39150

Page 7 of 11

Job Description: F150 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits
Chromium, hexavalent	814	0.500	0.50	100.0	90 - 110
Chromium, hexavalent	814	0.500	0.48	96.0	90 - 110
Sulfide	548	6.75	6.54	96.9	90 - 110
Chromium, AA	1001	0.500	0.497	99.4	90 - 110
Chromium, AA	1001	0.500	0.540	108.0	90 - 110
Chromium, AA	1003	0.500	0.510	102.0	90 - 110
Chromium, AA	1003	0.500	0.497	99.4	90 - 110
Chromium, GFAA	729	0.0100	0.0103	103.0	90 - 110
Chromium, GFAA	729	0.0100	0.0103	103.0	90 - 110
Iron, AA	1922	0.500	0.499	99.8	90 - 110
Iron, AA	1922	0.500	0.524	104.8	90 - 110

## QUALITY CONTROL REPORT

### BLANKS

05/29/2002

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 02.04379  
 Account No: 39150

Page 8 of 11

Job Description: F150 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		814	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		814	<0.0042	0.0042	0.015	mg/L
Chromium, AA	2258	1001	<0.020	0.020	0.067	mg/L
Chromium, AA		1001	<0.020	0.020	0.067	mg/L
Chromium, AA	2261	1001	<0.020	0.020	0.067	mg/L
Chromium, AA		1003	<0.020	0.020	0.067	mg/L
Chromium, GFAA	1227	729	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		729	<0.00052	0.00052	0.0018	mg/L
Iron, AA	2258	1922	<0.042	0.042	0.14	mg/L
Iron, AA		1922	<0.042	0.042	0.14	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d



## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

05/29/2002

Mr. Dan Morgan  
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175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 02.04379  
Account No: 39150

Page 9 of 11

Job Description: F150 Better Brite

Analyte	Prep	Run	LCS		LCS	LCS	LCS	LCS	Relative
	Batch	Batch	Amount	Units	Result	Result	Percent	Percent	Control
	Number	Number					Recovery	Recovery	Limits
									Difference
Chromium, AA	2258	1001	0.500	mg/L	0.495		99.0		76 - 106
Chromium, AA	2261	1001	0.500	mg/L	0.495		99.0		76 - 106
Chromium, GFAA	1227	729	0.0100	mg/L	0.0103		103.0		87 - 116
Iron, AA	2258	1922	0.500	mg/L	0.506		101.2		81 - 122

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

05/29/2002

Mr. Dan Morgan  
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 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 02.04379  
 Account No: 39150

Page 10 of 11

Job Description: F150 Better Brite

Analyte	Prep	Run	Sample Result	Spike Amount	Units	Matrix	MSD Result	MS	MSD	Relative Control Limits	Relative Percent Difference
	Batch Number	Batch Number				Spike		Percent Recovery	Percent Recovery		
Chromium, hexavalent		814	<0.0042	0.500	mg/L	0.47	0.47	94.0	94.0	70 - 116	0.0
Chromium, AA	2258	1001	<0.020	0.500	mg/L	0.463	0.486	92.6	97.2	62 - 122	4.8
Chromium, AA	2261	1001	<0.020	0.500	mg/L	0.425	0.438	85.0	87.6	62 - 122	3.0
Chromium, GFAA	1227	729	0.0014	0.0100	mg/L	0.00996	0.0106	85.6	92.0	80 - 131	6.2
Iron, AA		1922	0.41	0.500	mg/L	0.884	0.889	94.8	95.8	63 - 136	0.6
Iron, AA	2258	1923	0.74	0.500	mg/L	1.27	1.28	106.0	108.0	63 - 136	0.8

## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/29/2002

Job No: 02.04379  
 Account No: 39150

Page 11 of 11

Job Description: F150 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		814	<0.0042	<0.0042	mg/L		23
Chromium, AA	2261	1001	2.3	2.27	mg/L	1.3	12
Chromium, GFAA	1227	729	0.0048	0.0049	mg/L	2.1	20
Iron, AA		1922	0.13	0.124	mg/L	4.7	26







LETTER OF TRANSMITTAL

175 N. Corporate Drive, Suite 100, Brookfield, WI 53045 ■ (262) 792-1282 ■ (262) 792-1310 (FAX)

TO: WDNR DATE: 1-15-02  
Attn: K. Lauridsen RE: Better Brite  
1125 N. Military Ave. JOB NO: F150  
Green Bay, WI  
54307-0448

We are sending you the following:

No. Of Copies	Description
2	Fall 2001 GW Monitoring Report

These are Transmitted as checked below:

- For approval
- For your use
- As requested
- For review and comment
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: ONE FOR WDNR, ONE FOR CITY OF DEPERE LIBRARY.

NOTE: CITY PARKING LOT PAVING NOW COVERS MW-5, MW-5A, and MW-10

- Transmitted by:
- First Class Mail
  - Federal Express
  - Courier
  - Registered Mail
  - UPS
  - Other \_\_\_\_\_

Signed: Daniel L. Morgan  
 cc: \_\_\_\_\_

**FALL 2001 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**

January 15, 2002

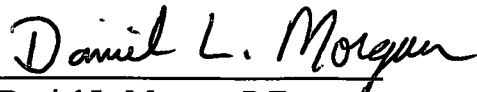
Prepared For:

Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

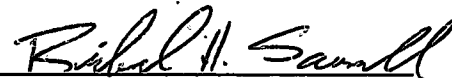
Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150



Daniel L. Morgan, P.E.  
Senior Engineer



Richard H. Sawall  
Staff Engineer

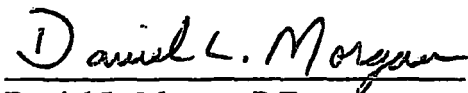
CERTIFICATION

This report,  
FALL 2001 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated January 15, 2002

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional engineer  
as defined in s. NR712.03(2), and that to the best of my knowledge,  
all information contained in this document is correct.



Daniel L. Morgan, P.E.  
Senior Engineer



## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfides	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-1

## **TABLE OF CONTENTS (CONT'D)**

### **FIGURES**

- 4-1 Water Table Map (November 28, 2001) - Chrome Shop
- 4-2 Potentiometric Surface Map (November 28, 2001) - Chrome Shop
- 4-3 Water Table Map (November 28, 2001) - Zinc Shop
- 4-4 Potentiometric Surface Map (November 28, 2001) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- A. Water Elevation Measurements
- B. Field Water Quality Data Sheets
- C. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin (Figure 1-1). The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in the De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with Chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October, 1989, and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. The Fall 2001 sampling event took place November 27<sup>th</sup> and 28<sup>th</sup>, and the following report summarizes the findings.

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Fall 2001 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 16 wells and sample collection and analysis from three existing wells (MW-116, MW-107, and MW-115). The following wells had groundwater elevations measured:

MW-106	MW-106A	MW-107	MW-107A
MW-108	MW-108A	MW-110	MW-110A
MW-111	MW-112	MW-113	MW-115
MW-115A	MW-116	B-101	B-104A

### 2.2 Zinc Shop

Fall 2001 post remedial action groundwater monitoring at the Zinc Shop included 13 existing wells and the extraction sump (Zinc Sump; Figure 2-2). Groundwater samples and water table elevations were taken at all locations. The wells in the monitoring plan include:

MW-3	MW-4	MW-4A	MW-6
MW-6A	MW-7	MW-7A	MW-8
MW-8A	MW-9	MW-11	MW-12
Zinc Sump	MW-2		

### 3.0 SAMPLE ANALYSIS PARAMETERS

#### 3.1 Groundwater

Six groups of parameters were included in the groundwater analysis. These are water level elevation, field measurements (annotated below), hexavalent chromium, total chromium, Iron, and Sulfides. The groundwater samples were collected following the GeoTrans' Standard Operating Procedures.

##### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points included in the monitoring plan. Elevation was measured to 0.01 ft. using an electronic water level probe.

##### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and turbidity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and turbidity were determined by visual and olfactory examination.

##### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Iron and Sulfides

Per the request of Keld Lauridson, WDNR, groundwater samples from three monitoring wells at the former Chrome shop site were analyzed for Iron and Sulfides. The results will be used to determine whether the agents used to stabilize the Chromium have leached into the ground water.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

There were several significant activities that occurred prior to the November 2001 sampling event. In October, a representative of GeoTrans, Inc. performed maintenance on well MW-116. The PVC well piping was shortened so that the well cover for MW-116 could once again be put in place. The well cover could not be put in place due to the settling of ground around MW-116. Due to budgetary constraints, the new PVC elevation was not surveyed in. For this reason, the groundwater elevation from MW-116 was omitted from water table maps. In addition, there was some landscaping work done at the Chrome shop site to fill in some low lying spots at the western edge of the property which borders private residences.

Some time between the June and November sampling events there was substantial construction activity at the Zinc Shop site. Most significant was the construction of a large parking lot to the northeast of the remediation building. The new parking lot and associated fill covered up wells MW-5, MW-5A, and MW-10. As a result, these wells were not sampled, and will likely have to be abandoned and omitted from future sampling events.

### 4.2 Chrome Shop Monitoring Results

Ground water elevation was measured at all existing wells at the Chrome Shop during the Fall 2001 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table differs slightly from the June 2001 observations. Ground water flow at the water table is primarily to the west and south, following existing topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. Water table measurements are included as Appendix A.

P:\betterbrite\Reports\betterbrite.fall01.wpd



Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-115, MW-107 and MW-116. ~~MW-116 was the only well with a Hexavalent Chromium impact (3300 ppb).~~ This represents a slight decrease from the June sampling event, but still exceeds the NR 140 Enforcement Standards (ES). Total chromium was detected in concentrations above the Preventive Action Limit (PAL) in all three wells, but only MW-116 had concentrations above the ES.

Iron and Sulfate levels were also evaluated in MW-116, MW-115 and MW-107. Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," no well exceeded the PAL for Sulfides. All three wells exceeded the PAL for Iron. All analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Fall 2001 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows significant draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is similar to previous measurements with flow also predominantly to the north and west, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 14 locations. Hexavalent chromium was detected at four sample points, MW-6, MW-9 and MW-3, and the sump. Maximum hexavalent chromium concentrations were detected at MW-6 and the sump, with a concentration of 25,000 ppb and 23,000 ppb, respectively. The number of wells impacted with hexavalent chromium is down as well as the concentration of hexavalent chromium at most locations. Total chromium was detected above the PAL at seven locations including the zinc sump, MW-3, MW-4A, MW-6, MW-8A, MW-9, and MW-10. Concentrations of total chromium ranged from non-detect to 56,000 ppb. The extent of hexavalent chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Currently, all maintenance concerns have been met and the site is in satisfactory condition. The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

### 5.2 Zinc Shop

System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) ~~the presence of hexavalent chromium in ground water within the stabilization area at the chrome shop at concentrations above the 100 ppb ES for total chromium~~ and 2) ~~the loss of three monitoring wells at the zinc shop~~. General decreases in chromium concentrations are notable at both shops and further reduction is anticipated as a result of the ongoing remedial action.

### 6.1 Chrome Shop Recommendations

Biannual sampling was originally proposed for the wells at the Chrome Shop. Hexavalent chromium in ground water as measured at MW-116 warrants more frequent ground water sampling. A resampling of MW-116 in June 2002 is planned to continue monitoring of hexavalent and total chromium at this location. The sampling frequency may be adjusted following this event, however contract provisions allow authorization of semi-annual sampling and groundwater elevation measurement of all wells listed in Section 2.1 for two additional years following the June 2001 event. This sampling frequency will provide adequate information to document variation in the contaminant concentrations with time following stabilization of soils at the site.

### 6.2 Zinc Shop Recommendations

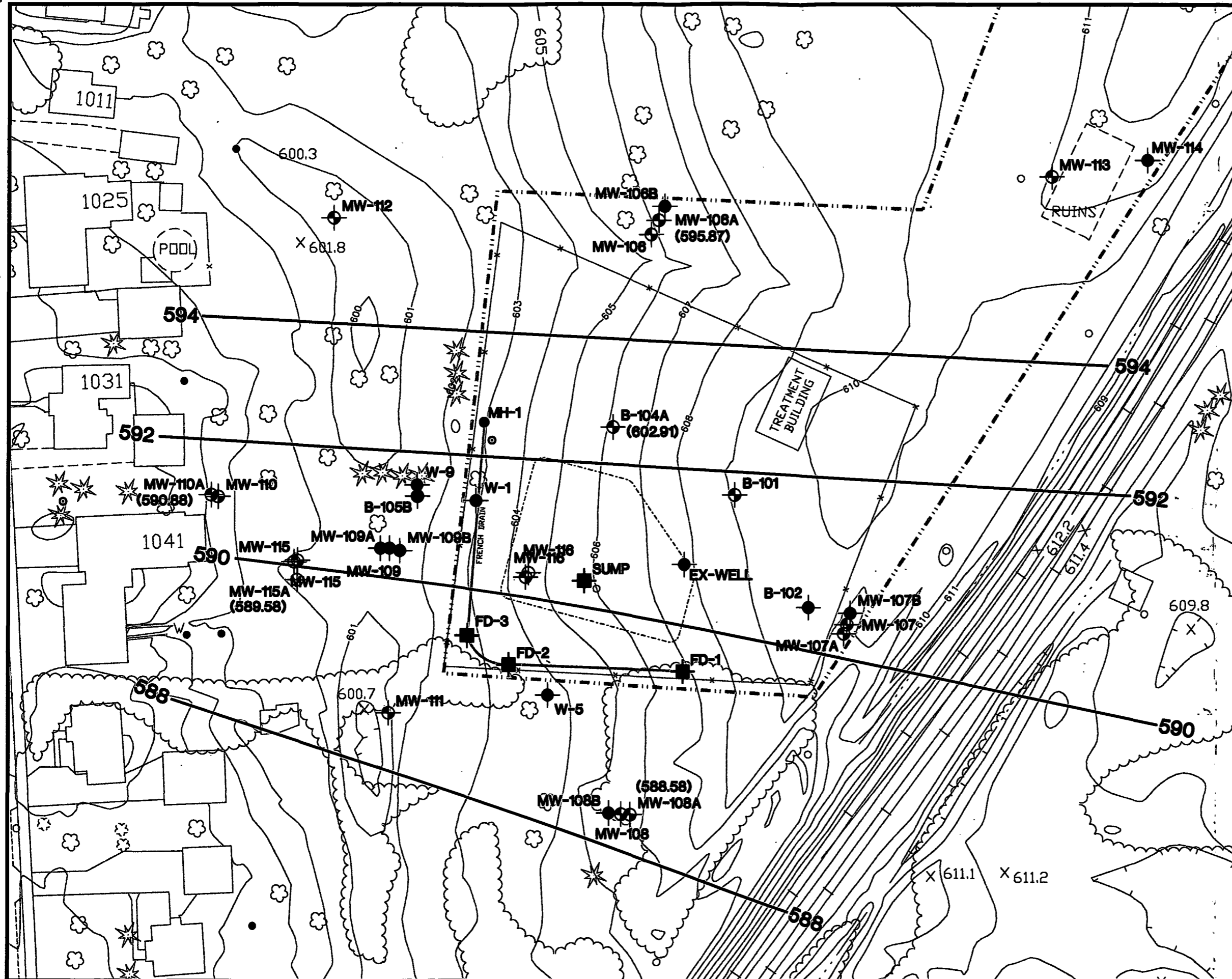
No modifications to the original monitoring plan are recommended for the Zinc Shop. Semi-annual monitor well sampling of the groundwater through June 2001 is currently authorized, with contract provisions in place to continue semi-annual sampling for two additional years. This sampling frequency will provide adequate information to document the progress of remediation with time following installation of the treatment system at the site.

Monitoring Report  
Section: 6  
Revision: 0  
Date: 1-03-02  
Page: 2 of 2















The loss of MW-5, MW-5A, and MW-10 should be evaluated and replacement of these wells should be considered. ~~All three of these wells have had chromium impacts and provide information on the extent and severity of the contamination at the Zinc shop site.~~

## FIGURES





### EXPLANATION

-  MW-113 MONITOR WELL LOCATION AND DESIGNATION
-  B-101 MONITOR WELL LOCATION AND DESIGNATION
-  W-5 MONITOR WELL LOCATION AND DESIGNATION
-  SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
-  FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
-  EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
-  MH-1 MANHOLE LOCATION
-  SUMP BOUNDARY
-  PROPERTY LINE
-  SOIL STABILIZATION AREA
-  MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
-  (588.58) POTENTIOMETRIC SURFACE ELEVATION
-  (802.91) INCONSISTENT ELEVATION

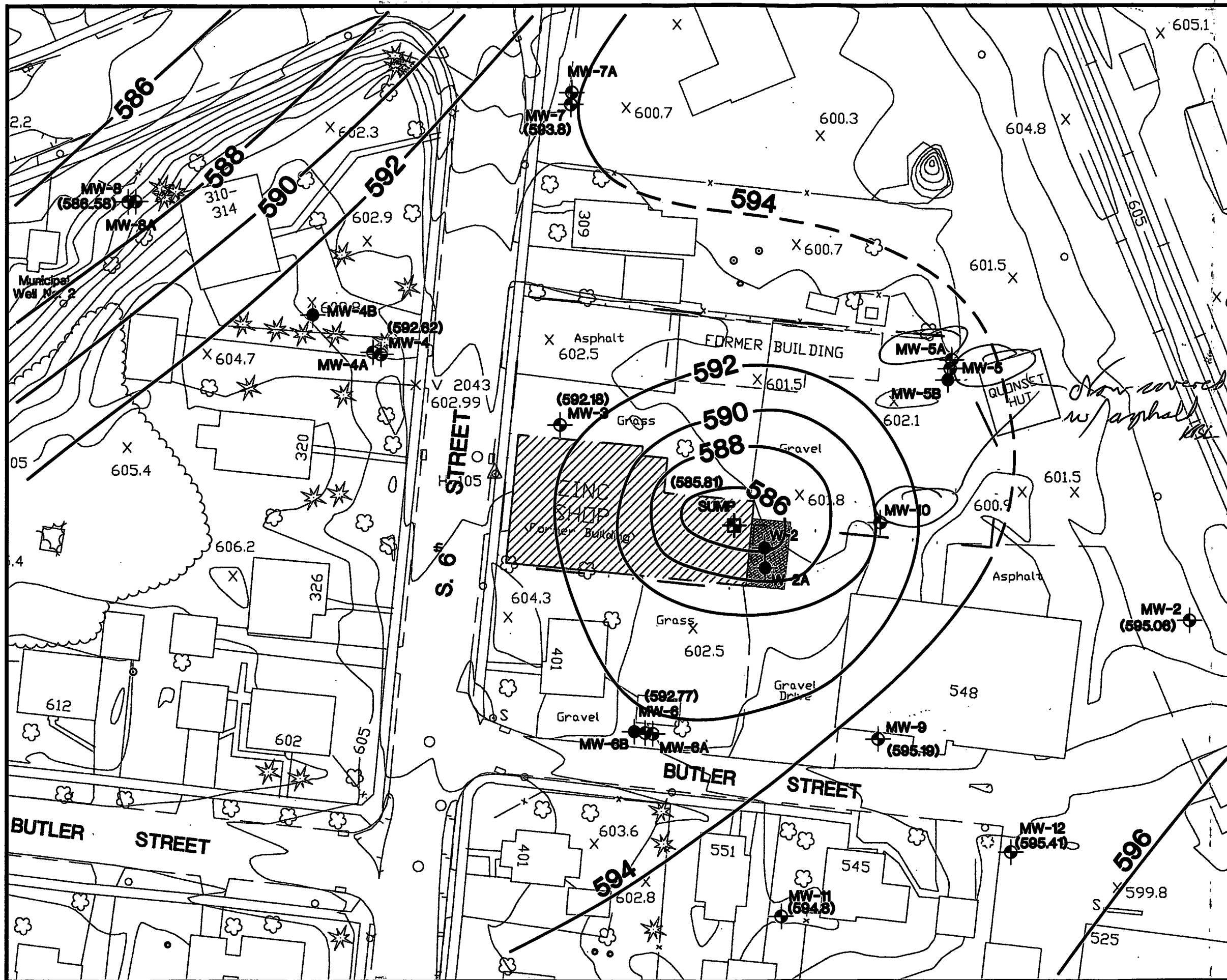
Basemap from Aero-Metric Engineering, Inc. 11/17/91

<b>BETTER BRITE</b> DePERE, WISCONSIN  <b>POTENTIOMETRIC SURFACE MAP</b> (NOVEMBER 2001) <b>CHROME SHOP</b>	DATE: 08/13/01
	DESIGNED: DLM
	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
PROJ.: F150-102	



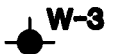
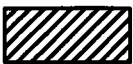


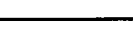

 **GeoTrans, Inc.**  
A TETRA TECH COMPANY

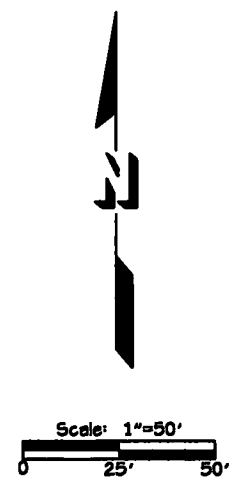
Figure 4-2



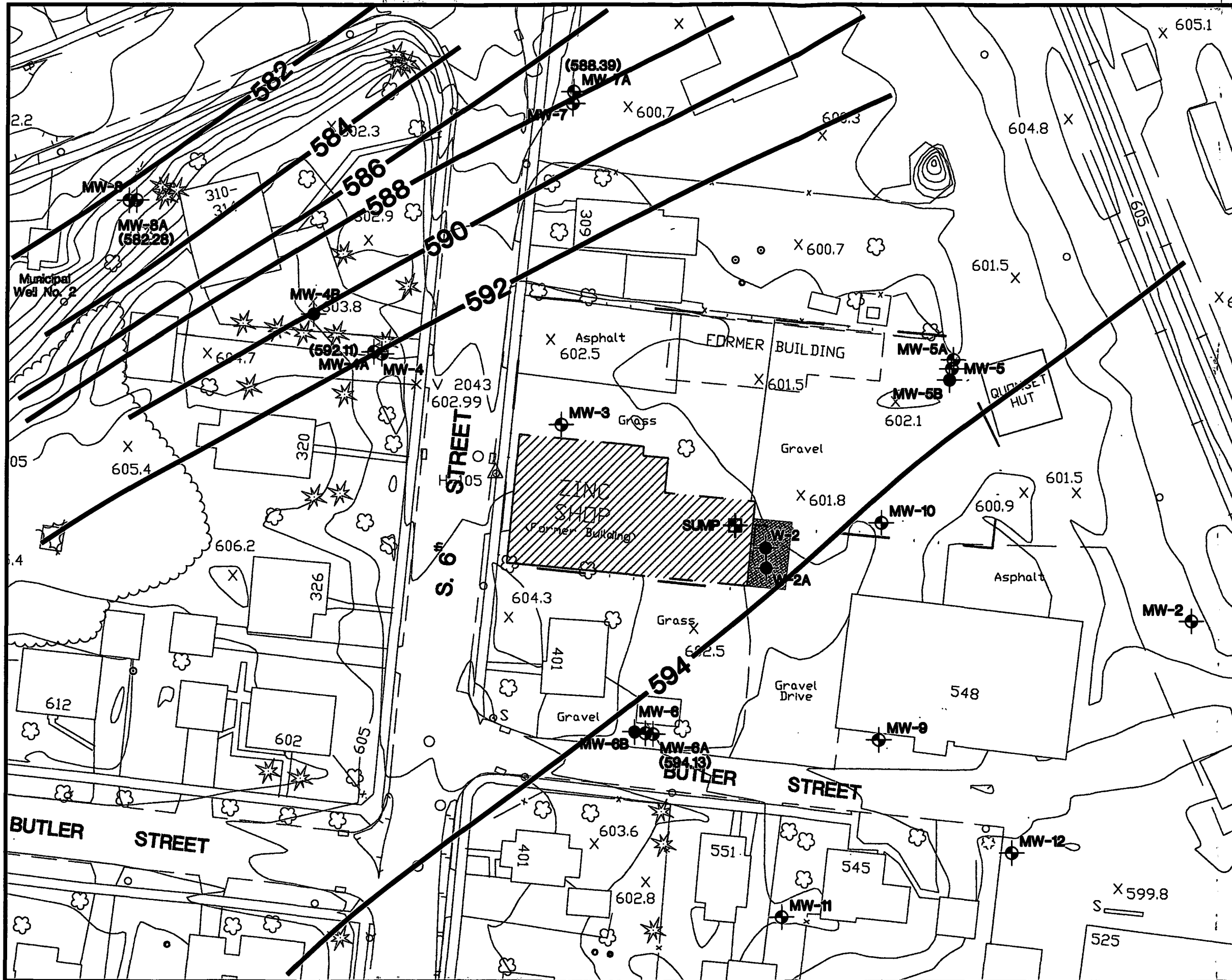


### EXPLANATION










-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **WATER TABLE CONTOURS (Dashed where inferred)**
- (592.18)** **WATER TABLE ELEVATION**

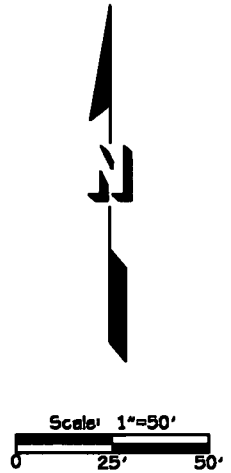


Basemap from Aero-Metric Engineering, Inc. 11/17/91	
BETTER BRITE DePERE, WISCONSIN	DATE: 01/03/02
<b>WATER TABLE MAP (NOVEMBER 2001) ZINC SHOP</b>	DESIGNED: DLM
	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102



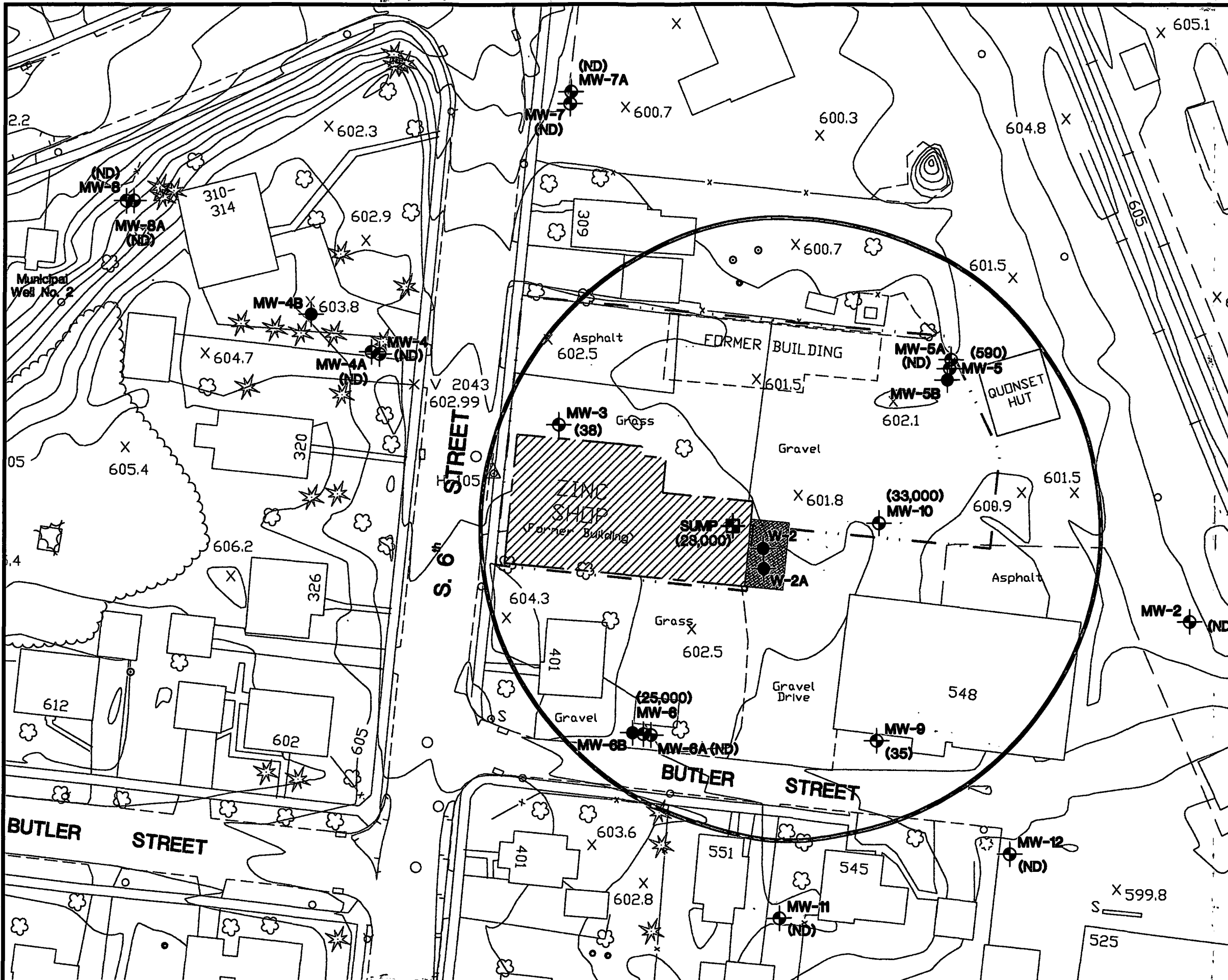
**EXPLANATION**

-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3A** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **592** POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
-  **(594.13)** POTENTIOMETRIC SURFACE ELEVATION



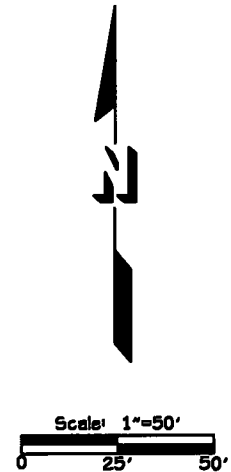
Basemap from Aero-Metric Engineering, Inc. 11/17/91

<b>BETTER BRITE</b> DePERE, WISCONSIN <b>POTENTIOMETRIC SURFACE MAP</b> (NOVEMBER 2001) <b>ZINC SHOP</b>	DATE: 01/03/02
	DESIGNED: DLM
	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
PROJ.: F150-102	



**EXPLANATION**

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where inferred
- (23,000)** HEXAVALENT CHROMIUM CONCENTRATION (ppb)
- (ND)** NOT DETECTED



Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 01/03/02
EXTENT OF HEXAVALENT CHROMIUM IMPACTS (NOVEMBER 2001) ZINC SHOP	DESIGNED: DLM
	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

**GeoTrans, Inc.** Figure 4-5  
A TOTAL TECH COMPANY

## TABLE

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
Chrome Sump	Aug-94	620000	694000	NS	NS
	Oct-94	360200	297000	NS	NS
	Apr-98	195000	192000	NS	NS
	Jul-98	132000		NS	NS
French Drain	Aug-94	25800	22000	NS	NS
	Oct-94	32000	31700	NS	NS
	Apr-98	1000	1010	NS	NS
	Jul-98	436	312	NS	NS
B-101	Aug-94	<10	<3.4	NS	NS
	Oct-94	<10		NS	NS
MW-106	Aug-94	7	<2.8	NS	NS
	DUP.	<10	<2.8	NS	NS
	Oct-94	<10 J	<3.4 J	NS	NS
	DUP.	<10 J	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	DUP	<10	<5	NS	NS
MW-106A	May-00	<4.2	4.0	NS	NS
	Aug-94	<10	<2.8	NS	NS
	Oct-94	<10 J	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
MW-106B	May-00	<4.2	9.4	NS	NS
	Aug-94	<10		NS	NS
	Aug-94	<10	4.1 BJ	NS	NS
	Oct-94	<10 J	<3.4	NS	NS
MW-107	Apr-98	<10	<5	NS	NS
	May-00	<4.2	4.2	NS	NS
	Jun-01			530	50
	Nov-01	<4.2	26	3900	1800
	Aug-94	<10	<2.8	NS	NS
MW-107A	Oct-94	<10 J	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	16.0	NS	NS
	Aug-94	<10		NS	NS
MW-107B	Aug-94	<10	<2.8	NS	NS
	Oct-94	<10	<3.4 J	NS	NS
	Apr-98	<10		NS	NS
	DUP	<10	<5	NS	NS
MW-108A	Aug-94	<10	3.0 BJ	NS	NS
	Oct-94	<10	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	55.0	NS	NS
MW-108B	Aug-94	<10		NS	NS
MW-109	Aug-94	6780	9570	NS	NS
	Oct-94	2400	1980	NS	NS
	DUP.	3100	1700	NS	NS
	Apr-98	16500	18600	NS	NS
	Jul-98	12250	11100	NS	NS

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
MW-109A	Aug-94	<10	<2.8	NS	NS
	Oct-94	<10	1.3 B	NS	NS
	Apr-98	<10	<5	NS	NS
	Jul-98	<10	7	NS	NS
MW-109B	Aug-94	<10		NS	NS
	Oct-94	<10		NS	NS
MW-110	Aug-94	<10	3.6 BJ	NS	NS
	Oct-94	<10	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	37.0	NS	NS
MW-110A	Aug-94	<10	<2.8	NS	NS
	Oct-94	<10	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	25.0	NS	NS
MW-111	Aug-94	<10	<3.4	NS	NS
	DUP.	<10	<3.4	NS	NS
	Oct-94	<10	<0.70	NS	NS
	Apr-98	22.5	<5	NS	NS
	Jul-98	22.0	27	NS	NS
	Nov-98	<0.5	<0.5	NS	NS
MW-112	May-00	<4.2	36.0	NS	NS
	Oct-94	<10	<0.70	NS	NS
	Nov-94	<10	<2.5	NS	NS
	Apr-98	<10	<5	NS	NS
MW-113	May-00	<4.2	4.1	NS	NS
	Aug-94	140	99.7	NS	NS
	Oct-94	<10 J	8.6 B	NS	NS
	May-95	43	20.3	NS	NS
	Apr-98	<10	<5	NS	NS
	Jul-98	<10	12	NS	NS
MW-114	May-00	<4.2	22.0	NS	NS
	Mar-95	<10 J	<2.9	NS	NS
	DUP.	<10 J	<2.9	NS	NS
	May-95	<10 J	<1.0	NS	NS
	DUP.	<10 J	<1.0	NS	NS
MW-115	Apr-98	<10	<5	NS	NS
	May-00	<4.2	6.0	NS	NS
	Jun-01	<4.2	<52	160	92
	Nov-01	<4.2	12	1100	3000
MW-115A	DUP	<4.2	10	3300	3300
	May-00	<4.2	12.0	NS	NS
MW-116	May-00	1600	470	NS	NS
	DUP.	1500	460	NS	NS
	Nov-00	37	23	NS	NS
	DUP	46	24	NS	NS
	Jun-01	4400	2300	840	2100
	Nov-01	3500	2100	690	2400
PF-MW-2	May-00	<4.2	7.6	NS	NS
	Jun-01	<4.2	7.1	NS	NS
	Nov-01	<4.2	10	NS	NS
MW-3	May-00	230.0	330	NS	NS
	Nov-00	50	130	NS	NS
	Jun-01	3500	2200	NS	NS
	Nov-01	38	1700	NS	NS

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
MW-4	Aug-94	<10	<3.4	NS	NS
	DUP	<10	<3.4	NS	NS
	Oct-94	<10 J	<3.4 J	NS	NS
	DUP	<10 J	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	4.6	NS	NS
	Nov-00	<4.2	2.4	NS	NS
	Nov-01	<4.2	7.4	NS	NS
MW-4A	Aug-94	<10	<3.4	NS	NS
	Oct-94	<10 J	6.0 B	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	8.7	NS	NS
	Nov-00	<4.2	3.7	NS	NS
	Jun-01	<4.2	3.7	NS	NS
	Nov-01	<4.2	13	NS	NS
MW-4B	Oct-94	<10	<0.70	NS	NS
	Nov-94	<10	<2.5	NS	NS
MW-5	Aug-94	1590	827	NS	NS
	Oct-94	450 J	295 J	NS	NS
	DUP	510 J	763 J	NS	NS
	Apr-98	212	631	NS	NS
	DUP	207	667	NS	NS
	Jul-98	1420	1230	NS	NS
	May-00	120	190	NS	NS
	Jun-01	590	450	NS	NS
MW-5A	Aug-94	<10	<3.4	NS	NS
	Oct-94	<10	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	6.5	NS	NS
	Nov-00	340	380	NS	NS
	Jun-01	<4.2	3.9	NS	NS
MW-5B	Aug-94			NS	NS
	Oct-94	<10	<5	NS	NS
MW-6	Aug-94	15900	39200	NS	NS
	Oct-94	47000	41,900 J	NS	NS
	Apr-98	7650	4560	NS	NS
	May-00	23000	26000	NS	NS
	Nov-00	26000	23000	NS	NS
	Jun-01	14000	15000	NS	NS
	Nov-01	25000	29000	NS	NS
MW-6A	Aug-94	<10	4.9 B	NS	NS
	Oct-94	<10	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	6.6	22.0	NS	NS
	Nov-00	<4.2	13	NS	NS
	6/01	<4.2	11	NS	NS
	Nov-01	<4.2	7.1	NS	NS
MW-6B	Aug-94	<10		NS	NS
MW-7	Aug-94	<10	6.6 BJ	NS	NS
	DUP	<10	<2.8	NS	NS
	Oct-94	<10 J	36.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	DUP	<10	<5	NS	NS
	May-00	<4.2	3.9	NS	NS
	Nov-00	<4.2	1.1	NS	NS
	Nov-01	<4.2	9.7	NS	NS

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
MW-7A	Aug-94	<10	<2.8	NS	NS
	Oct-94	<10 J	<3.4 J	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	4.7	NS	NS
	Nov-00	7.9	5	NS	NS
	Jun-01	<4.2	2.5	NS	NS
	Nov-01	<4.2	<5.2	NS	NS
MW-8	Oct-94	<10	<0.70	NS	NS
	Nov-94	<10	<2.5	NS	NS
	DUP.	<10	<2.5	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	15.0	NS	NS
	Nov-00	13	13	NS	NS
	Jun-01	5.3	2	NS	NS
	Nov-01	<4.2	2.3	NS	NS
DUP	<4.2	6.7	NS	NS	
MW-8A	Oct-94	<10	<0.70	NS	NS
	Nov-94	<10	<2.5	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	16.0	NS	NS
	Nov-00	<4.2	34	NS	NS
	Jun-01	<4.2	3.7	NS	NS
	Nov-01	<4.2	14	NS	NS
MW-9	Aug-94	200	697	NS	NS
	Oct-94	470 J	442 J	NS	NS
	Apr-98	200	<5	NS	NS
	Jul-98	60.0	75	NS	NS
	Nov-00	13	15	NS	NS
	DUP	19	51	NS	NS
	Nov-01	35	76	NS	NS
MW-10	Aug-94	60000	53100	NS	NS
	Oct-94	50000 J	43500 J	NS	NS
	Nov-00	20000	18000	NS	NS
	Jun-01	<4.2	20	NS	NS
MW-11	May-95	<10	<1.0	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	7.0	NS	NS
	Nov-00	<4.2	4.1	NS	NS
	Jun-01	<4.2	3.6	NS	NS
	Nov-01	<4.2	7.8	NS	NS
MW-12	Mar-95	<10 J	<2.9	NS	NS
	May-95	<10	<1.0	NS	NS
	Apr-98	<10	<5	NS	NS
	May-00	<4.2	4.8	NS	NS
	Nov-00	<4.2	6	NS	NS
	Jun-01	<4.2	6.4	NS	NS
	Nov-01	<4.2	<5.2	NS	NS
MW-13	Mar-95	<10 J	<2.9	NS	NS
	May-95	<10	<1.0	NS	NS
Zinc Sump	Aug-94	69000	209000	NS	NS
	Oct-94	144000	277000	NS	NS
	Apr-98	66000	36300	NS	NS
	Jul-98	133000	131000	NS	NS
	May-00	1800	1700	NS	NS
	Nov-00	41000	27000	NS	NS
	Jun-01	40000	110000	NS	NS
	Nov-01	23000	56000	NS	NS
Private	Aug-94	<10	<10	NS	NS
Municipal	Aug-94	<10	<10	NS	NS
	DUP.	<10	<10	NS	NS
	Oct-94	<10	<10	NS	NS

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES



**TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM**

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
	DUP.	<10	<10	NS	NS
USGS	Oct-94	<10	0.75 B	NS	NS
USGS-A	Oct-94	<10	<u>11.9</u>	NS	NS

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

DATE: 12-3-01

## WATER LEVEL DATA

OBJECT: Better BritePROJECT #: F150LOCATION: DePere WI

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-7				6.80			
1-7A				12.12			
MW-8				11.62			
1-8A				16.31			
MW-4				10.37			
4-4A				11.18			
MW-3				10.34			
11-11				7.61			
MW-6				9.56			
11-6A				11.06			
MW-9				6.47			
MW-10				buried			
MW-5				"			
MW-5A				"			
Sump				18.28			
MW-12				4.46			
MW-2				7.39			

DATE: 11-28-01

WATER LEVEL DATA

PROJECT: Better Brite  
 PROJECT #: FISO  
 LOCATION: Depue WI

Chrome Shop

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-106				7.62			
MW-106A				8.2 10.49			
MW-107				<del>3.07</del> 3.02			
MW-107A				3.07			
MW-108				14.50			
MW-108A				15.86			
MW-110				4.01			
MW-110A				12.43			
MW-111				6.46			
MW-112				6.32			
MW-113				4.54			
MW-115				3.35			
MW-115A				11.43			
MW-116				4.38			
B-104A				5.20			
B-101				3.48			

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

# MASTERFILE COPY

PROJECT # FISO

CC: RHS, DLM

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brite  
 PROJECT #: FISO  
 LOCATION: DePue WI  
 PERSONNEL: \_\_\_\_\_

INSTRUMENTS  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-6	MW-6A	MW-11	MW-9	MW-12
WATER TYPE						
DATE		11-28-01				→
CLOCK TIME		0920	0925	0935	0940	0950
DEPTH TO WATER*		9.56	11.06	7.61	6.47	4.46
MEASURED WELL DEPTH		15.5	22.4	15.36	16.36	14.55
PURGE VOL/CASING VOL(g)		5.5	5 gal	93	6.5	7
DEPTH SAMPLE TAKEN		15.0	22.0	15.0	16.0	14.0
SAMPLING DEVICE		hang boiler				
FIELD TEMPERATURE (°C)		12.1	11.3	11.9	13.7	11.9
ELEC. COND. (umhos/cm)	MEASURED	666	276.3	892	494	1186
	AT 25°C	824	336.5	1097	629	1465
pH		7.19	7.67	7.20	7.43	7.33
ALKALINITY						
COLOR		yellow	brown	clear	brown	clear
ODOR		none	none	none	none	none
CLARITY		clear	clear	clear	cloudy	clear
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Hex Chrome		1, 125 P, HIND				
Tot. Chrome		1, 125, P, ND				
W						
		dry e 4				
LABORATORY: SENT TO:						
DATE SENT:						
SAMPLED BY:						

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brite  
 PROJECT #: F150  
 LOCATION: DePue  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL:		SAMPLE POINT	MW-2	<del>MW-10</del>	<del>MW-5</del>	MW/SA	<del>MW/SA D/P</del>
WATER TYPE							
DATE			11-28-01				
CLOCK TIME			10 00				
DEPTH TO WATER*			7.39		10.34		
MEASURED WELL DEPTH			14.15	14.69	15.28 29	29.58	29.48
PURGE VOL/CASING VOL(g)			4.8 gal	5.5	10	9.8 gal	9.8 gal
DEPTH SAMPLE TAKEN			14.0	14.0	15.0	29.0	29.0
SAMPLING DEVICE							
FIELD TEMPERATURE (°C)			11.9				
ELEC. COND. (umhos/cm)	MEASURED		1050				
	AT 25°C		1294				
pH			7.14				
ALKALINITY							
COLOR			brown				
ODOR			none petro				
CLARITY			cloudy				
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Total chome			1,125ml, P, no				
# Hex chome			1,125ml, HC				
LABORATORY: SENT TO:							
DATE SENT:							
SAMPLED BY:							

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\*Measured from top of well riser.



# FIELD WATER QUALITY SAMPLING AND ANALYSIS

4874  
11.18

PROJECT: Better Brite  
 PROJECT #: F150  
 LOCATION: DePere WI  
 PERSONNEL: RHS

INSTRUMENTS

TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-7	MW-7A	MW-8 / Dup	MW-8A / Dup	MW-4
WATER TYPE						
DATE		11-28-01				→
CLOCK TIME		1100	1105	1120 / 1125	1130	0900
DEPTH TO WATER*		6.80	12.12	11.60	16.31	10.37
MEASURED WELL DEPTH		15.60	28.40	16.38	27.23	14.92
PURGE VOL/CASING VOL(g)		6	16	13	1685	100 2 gal
DEPTH SAMPLE TAKEN		15.0	28.0	16.0	27.0	14.0
SAMPLING DEVICE						
FIELD TEMPERATURE (°C)		12.1	11.4	10.9	10.2	11.5
ELEC. COND. (µmhos/cm)	MEASURED	621	201.3	523	224.5	450
	AT 25°C	766	245.1	631	268.6	1038
pH		7.50	7.96	7.56	7.85	7.21
ALKALINITY						
COLOR		brown	brown	clear	clear	
ODOR		none	none	none	none	
CLARITY		cloudy	cloudy	clear	clear	
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Total Chrome		1, 125 P, no				
Hex Chrome		1, 125 P, $\frac{1}{2}$ NO <sub>3</sub>				
LABORATORY: SENT TO:						
DATE SENT:						
SAMPLED BY:						

4A

11.18

\*Measured from top of well riser.



## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Betta Brite  
 PROJECT #: F150  
 LOCATION: Depee UE  
 PERSONNEL: RWS

INSTRUMENTS  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-4A	MW-3	Zinc Sump	MW-116	MW-116 <sup>5</sup> Pp
WATER TYPE						
DATE		11-28-01				→
CLOCK TIME		0905	1030	1035		
DEPTH TO WATER*		11.15	10.34	18.28	4.38	12.15
MEASURED WELL DEPTH		28.64	28.5	NA		
PURGE VOL/CASING VOL(g)		52 gal	10	20.0	5gal	
DEPTH SAMPLE TAKEN		28.0	28.00	dial. bailer	dial. bailer	
SAMPLING DEVICE		dial. bailer	peristaltic		dial. bailer	
FIELD TEMPERATURE (°C)		9.9	10.6	5.6	11.7	
ELEC. COND. (µmhos/cm)	MEASURED	710	381.4	684	2331	
	AT 25°C	845	444.8	963	2833	
pH		7.54	7.30	7.56	7.02	
ALKALINITY						
COLOR		light brown	clear	yellow	yellow-brown	
ODOR		none	none	none	none	
CLARITY		clear; cloudy	cloudy	clear	cloudy	
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Total Chrome		1,125ml P, no				
Hex Chrome		1,125P, HCl				
LABORATORY: SENT TO:						
DATE SENT:						
SAMPLED BY:						

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Water Brite  
 PROJECT #: F150  
 LOCATION: Dodge WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-115	MW-107	<del>MW-107</del>	
WATER TYPE					
DATE		11-28-01			
CLOCK TIME		<del>1210</del> 1210	1145		
DEPTH TO WATER*		11.43	3.02	<del>11.43</del>	
MEASURED WELL DEPTH			15.41		
PURGE VOL/CASING VOL(g)		6	<del>6</del> 6		
DEPTH SAMPLE TAKEN			15.00		
SAMPLING DEVICE		deck bailer	hang bailer		
FIELD TEMPERATURE (°C)		11.5	11.0		
ELEC. COND. (µmhos/cm)	MEASURED	581	565		
	AT 25°C	703	684		
pH		7.40	7.52		
ALKALINITY					
COLOR		brown	clear		
ODOR		none	none		
CLARITY		cloudy	clear		
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)			
Hex Chrome					
Total Chrome					
Iron					
Sulfide					
*			surface H <sub>2</sub> O in well		
LABORATORY: SENT TO:					
DATE SENT:					
SAMPLED BY:					

\*Measured from top of well riser.

**APPENDIX C**  
**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

## ANALYTICAL REPORT

RECEIVED

12/11/2001  
H&I GeoTrans  
Director

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/07/2001

Job No: 01.09638

Page 1 of 12

The following samples were received by TestAmerica for analysis:

Sample Number	Sample Description	Date Taken	Date Received
461121	MW-6 F150 Better Brite	11/28/2001	11/28/2001
461122	MW-6A F150 Better Brite	11/28/2001	11/28/2001
461123	MW-11 F150 Better Brite	11/28/2001	11/28/2001
461124	MW-9 F150 Better Brite	11/28/2001	11/28/2001
461125	MW-12 F150 Better Brite	11/28/2001	11/28/2001
461126	MW-2 F150 Better Brite	11/28/2001	11/28/2001
461127	MW-7 F150 Better Brite	11/28/2001	11/28/2001
461128	MW-7A F150 Better Brite	11/28/2001	11/28/2001
461129	MW-8 F150 Better Brite	11/28/2001	11/28/2001
461130	MW-8A F150 Better Brite	11/28/2001	11/28/2001
461131	MW-4 F150 Better Brite	11/28/2001	11/28/2001
461132	MW-4A F150 Better Brite	11/28/2001	11/28/2001
461133	Zinc Sump F150 Better Brite	11/28/2001	11/28/2001
461134	MW-116 F150 Better Brite	11/28/2001	11/28/2001
461135	MW-115 Dup F150 Better Brite	11/28/2001	11/28/2001
461136	MW-115 F150 Better Brite	11/28/2001	11/28/2001
461137	MW-107 F150 Better Brite	11/28/2001	11/28/2001
461138	MW-3 F150 Better Brite	11/28/2001	11/28/2001
461139	MW-8 Dup F150 Better Brite	11/28/2001	11/28/2001

*Karen R. Wenta*  
Karen R. Wenta  
Inorganic Operations Manager

GEOTRANS, INC.  
Job No: 01.09638

12/07/2001  
Page 2 of 12

## KEY TO DATA FLAGS

The attached sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time  
B = Blank is contaminated  
C = Standard outside of control limits  
D = Diluted for analysis  
E = TCLP extraction outside of method required temperature range  
F = Sample filtered in lab  
G = Received past hold time  
H = Late eluting hydrocarbons present  
I = Improperly handled sample  
J = Estimated concentration  
L = Common lab solvent and contaminant  
M = Matrix interference  
P = Improperly preserved sample  
Q = Result confirmed via re-analysis  
S = Sediment present  
T = Does not match typical pattern  
W = BOD re-set due to missed dilution  
X = Unidentified compound(s) present  
Z = Internal standard outside limits  
\* = See Case Narrative

## KEY TO ANALYST INITIALS

The attached sample(s) may have been analyzed by another certified laboratory. If a number appears in the Analyst Initials field, the following are the appropriate certifications (if the lab code does not appear below, that means that WDNR certification is not required for the work performed):

Lab Code	Certification Number
008	WDNR - 999766900
009	WDNR - 241293690
060	ILNELAC - 100221; WDNR - 999447130
070	IA - 007; MDH - 019-999-319; WDNR - 999917270
130	WDNR - 632021390
147	WDNR - 721026460
300	FLNELAC - 87358; IA - 131; MDH - 047-999-345; WDNR - 998020430
400	WDNR - 113133790
510	WDNR - 241249360
700	WDNR - 113289110

TestAmerica Watertown IDNR ID - 294; MDH ID - 055-999-366

For questions regarding this report, please contact Dan Milewsky or Warren Topel.

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/07/2001  
 Job No: 01.09638  
 Account No: 39150  
 Purchase Order:  
 Page 3 of 12

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/28/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
461121 MW-6 F150 Better Brite		11/28/2001 09:20						
Chromium, hexavalent	25	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, AA	29	mg/L	0.020	0.067	EPA 218.1	12/06/2001	gaf	2087 959
461122 MW-6A F150 Better Brite		11/28/2001 09:25						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.0071	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461123 MW-11 F150 Better Brite		11/28/2001 09:35						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.0078	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461124 MW-9 F150 Better Brite		11/28/2001 09:40						
Chromium, hexavalent	0.035	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.076	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461125 MW-12 F150 Better Brite		11/28/2001 09:50						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	<0.00052	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461126 MW-2 F150 Better Brite		11/28/2001 10:00						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.010	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/07/2001  
 Job No: 01.09638  
 Account No: 39150  
 Purchase Order:  
 Page 4 of 12

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/28/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Analyst	Prep/Run Batch
461127 MW-7 F150 Better Brite		11/28/2001 11:00						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.0097	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461128 MW-7A F150 Better Brite		11/28/2001 11:05						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.0078	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461129 MW-8 F150 Better Brite		11/28/2001 11:20						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.023	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461130 MW-8A F150 Better Brite		11/28/2001 11:30						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.014	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461131 MW-4 F150 Better Brite		11/28/2001 09:00						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.0074	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461132 MW-4A F150 Better Brite		11/28/2001 09:05						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.013	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/07/2001  
 Job No: 01.09638  
 Account No: 39150  
 Purchase Order:  
 Page 5 of 12

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/28/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
461133 Zinc Sump F150 Better Brite		11/28/2001 10:35						
Chromium, hexavalent	23	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, AA	56	mg/L	0.020	0.067	EPA 218.1	12/06/2001	gaf	2087 959
461134 MW-116 F150 Better Brite		11/28/2001 12:00						
Chromium, hexavalent	3.3	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Sulfide	2.4	mg/L	0.20	0.60	SM 4500SE	12/03/2001	mmm	534
Chromium, AA	2.1	mg/L	0.020	0.067	EPA 218.1	12/06/2001	gaf	2087 959
Iron, AA	0.69	mg/L	0.042	0.14	EPA 236.1	12/05/2001	gaf	2087 1839
461135 MW-115 Dup F150 Better Brite		11/28/2001 12:15						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Sulfide	3.0	mg/L	0.20	0.60	SM 4500SE	12/03/2001	mmm	534
Chromium, GFAA	0.012	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
Iron, AA	1.1	mg/L	0.042	0.14	EPA 236.1	12/05/2001	gaf	2087 1839
461136 MW-115 F150 Better Brite		11/28/2001 12:10						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Sulfide	3.3	mg/L	0.20	0.60	SM 4500SE	12/03/2001	mmm	534
Chromium, GFAA	0.010	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
Iron, AA	3.3	mg/L	0.042	0.14	EPA 236.1	12/05/2001	gaf	2087 1839
461137 MW-107 F150 Better Brite		11/28/2001 11:45						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Sulfide	1.8	mg/L	0.20	0.60	SM 4500SE	12/03/2001	mmm	534
Chromium, GFAA	0.026	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
Iron, AA	3.9	mg/L	0.042	0.14	EPA 236.1	12/05/2001	gaf	2087 1839



## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/07/2001  
 Job No: 01.09638  
 Account No: 39150  
 Purchase Order:  
 Page 6 of 12

Job Description: F150 Better Brite  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 11/28/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Analyst	Batch
461138 MW-3 F150 Better Brite		11/28/2001 10:30						
Chromium, hexavalent	0.038	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	1.7	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701
461139 MW-8 Dup F150 Better Brite		11/28/2001 11:25						
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	11/29/2001	jts	759
Chromium, GFAA	0.0067	mg/L	0.00052	0.0018	EPA 218.2	12/07/2001	mmm	1174 701

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

12/07/2001

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 01.09638  
Account No: 39150

Page 7 of 12

Job Description: F150 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits
Chromium, hexavalent	759	0.500	0.51	102.0	90 - 110
Chromium, hexavalent	759	0.500	0.50	100.0	90 - 110
Sulfide	534	6.10	6.10	100.0	90 - 110
Chromium, AA	959	0.500	0.544	108.8	90 - 110
Chromium, AA	959	0.500	0.518	103.6	90 - 110
Chromium, GFAA	701	0.0100	0.0106	106.0	90 - 110
Chromium, GFAA	701	0.0100	0.00926	92.6	90 - 110
Iron, AA	1839	0.500	0.502	100.4	90 - 110
Iron, AA	1839	0.500	0.493	98.6	90 - 110

## QUALITY CONTROL REPORT BLANKS

12/07/2001

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 01.09638  
 Account No: 39150

Page 8 of 12

Job Description: F150 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		759	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		759	<0.0042	0.0042	0.015	mg/L
Chromium, AA	2087	959	<0.020	0.020	0.067	mg/L
Chromium, AA		959	<0.020	0.020	0.067	mg/L
Chromium, GFAA	1174	701	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		701	<0.00052	0.00052	0.0018	mg/L
Iron, AA	2087	1838	<0.042	0.042	0.14	mg/L
Iron, AA		1839	<0.042	0.042	0.14	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

12/07/2001

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 01.09638  
 Account No: 39150

Page 9 of 12

Job Description: F150 Better Brite

Analyte	Prep	Run	LCS Amount	Units	LCS Result	LCSD Result	LCS	LCSD	Relative Control Limits	Relative Percent Difference
	Batch Number	Batch Number					Percent Recovery	Percent Recovery		
Chromium, AA	2087	959	0.500	mg/L	0.483		96.6		76 - 106	
Chromium, GFAA	1174	701	0.0100	mg/L	0.0103		103.0		87 - 116	
Iron, AA	2087	1838	0.500	mg/L	0.466		93.2		81 - 122	

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

12/07/2001

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 01.09638  
 Account No: 39150

Page 10 of 12

Job Description: F150 Better Brite

Analyte	Prep	Run	Sample	Spike	Matrix	MS	MSD	MS	MSD	Relative	
	Batch	Batch									MSD
	Number	Number	Result	Amount	Units	Result	Result	Recovery	Recovery	Limits	Percent
Chromium, hexavalent		759	<0.0042	0.500	mg/L	0.51	0.49	102.0	98.0	70 - 116	4.0
Iron, AA		1839	2.4	5.00	mg/L	6.96	7.22	91.2	96.4	63 - 136	3.7

## QUALITY CONTROL REPORT SPIKES

12/07/2001

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 01.09638  
Account No: 39150

Page 11 of 12

Job Description: F150 Better Brite

Analyte	Prep Batch Number	Run Batch Number	Sample Result	Spike Amount	Units	Spike Result	Percent Recovery	Control Limits
Chromium, GFAA	1174	701	0.0071	0.0100	mg/L	0.0180	109.0	80 - 131
Chromium, GFAA	1174	701	0.0078	0.0100	mg/L	0.0165	87.0	80 - 131

## QUALITY CONTROL REPORT DUPLICATES

12/07/2001

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 01.09638  
Account No: 39150

Page 12 of 12

Job Description: F150 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		759	0.035	0.033	mg/L	5.9	23
Chromium, AA	2087	959	0.18	0.184	mg/L	2.2	12
Chromium, GFAA	1174	701	0.0067	0.0050	mg/L	29.1	20









LETTER OF TRANSMITTAL

175 N. Corporate Drive, Suite 100, Brookfield, WI 53045 ■ (262) 792-0282 ■ (262) 792-1310 (FAX)

TO: WDNR DATE: 8-14-01  
Attn: K. Lauridsen RE: Better Britz  
1125 N. Military Ave. JOB NO: F150  
Green Bay, WI 54307-0448

We are sending you the following:

No. Of Copies	Description
2	SPRING 2001 GW MONITORING REPORT

These are Transmitted as checked below:

- For approval
- For your use
- As requested
- For review and comment
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: ONE FOR WDNR, ONE FOR CITY OF DEPERE LIBRARY.  
see sec. 5.1 on MW-116 concrete status.  
Are you going to renew our sampling/reporting  
contract?

Transmitted by:  
 First Class Mail  
 Federal Express  
 Courier  
 Registered Mail  
 UPS  
 Other \_\_\_\_\_

Signed: Daniel L. Morgan

cc: \_\_\_\_\_

**SPRING 2001 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**

August 13, 2001

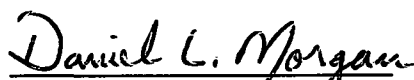
Prepared For:

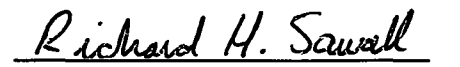
Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150

  
Daniel L. Morgan, P.E.  
Senior Engineer

  
Richard H. Sawall *D.H.S.*  
Staff Engineer

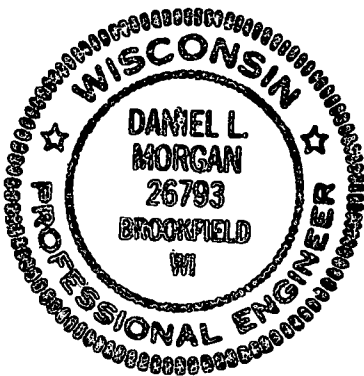
CERTIFICATION

This report,  
SPRING 2001 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated August 13, 2001

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional engineer  
as defined in s. NR712.03(2), and that to the best of my knowledge,  
all information contained in this document is correct.



*Daniel L. Morgan*  
Daniel L. Morgan, P.E.  
Senior Engineer

## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Iron and Sulfides	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-1

## **TABLE OF CONTENTS (CONT'D)**

### **FIGURES**

- 1-1 Site Location and Local Topography
- 4-1 Water Table Map (June 4, 2001) - Chrome Shop
- 4-2 Potentiometric Surface Map (June 4, 2001) - Chrome Shop
- 4-3 Water Table Map (June 4, 2001) - Zinc Shop
- 4-4 Potentiometric Surface Map (June 4, 2001) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- A. Water Elevation Measurements
- B. Field Water Quality Data Sheets
- C. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin (Figure 1-1). The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in the De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with Chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October, 1989, and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. Sampling for the Spring 2001 event occurred on June 4<sup>th</sup> and 5<sup>th</sup>. Future sampling events are contingent on additional funding.



## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Spring 2001 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 15 wells and sample collection and analysis from three existing wells (MW-116, MW-115, MW-107). The following wells had groundwater elevations measured:

MW-106	MW-106A	MW-107	MW-107A
MW-108	MW-108A	MW-110	MW-110A
MW-111	MW-112	MW-113	MW-115
MW-115A	MW-116	B-101	B-104A

### 2.2 Zinc Shop

Spring 2001 post remedial action groundwater monitoring at the Zinc Shop included 15 existing wells and the extraction sump (Zinc Sump). Groundwater samples and water table elevations were taken at all locations with the exception of the Zinc sump, where no water table elevation was taken. The wells in the monitoring plan include:

MW-3	MW-4	MW-4A	MW-5	MW-5A
MW-6	MW-6A	MW-7	MW-7A	MW-8
MW-8A	MW-9	MW-10	MW-11	MW-12
Zinc Sump	MW-2			

### 3.0 SAMPLE ANALYSIS PARAMETERS

#### 3.1 Groundwater

Five groups of parameters were included in the groundwater sampling. These are water level elevation, field measurements (annotated below), hexavalent chromium, total chromium, and VOCs. The groundwater samples were collected following the GeoTrans' Standard Operating Procedures.

##### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points included in the monitoring plan. Elevation was measured to 0.01 ft. using an electronic water level probe.

##### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and turbidity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and turbidity were determined by visual and olfactory examination.

##### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Iron and Sulfides

Per the request of Keld Lauridsen of the WDNR, three monitoring wells at the former Chrome shop site were analyzed for Iron and Sulfides. The analytical results will be used to evaluate whether the agents used to stabilize the Chromium have leached into the ground water.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

There were no significant site activities prior to the June 2001 sampling event.

### 4.2 Chrome Shop Monitoring Results

Ground water elevation was measured at all existing wells at the Chrome Shop during the Spring 2001 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table differs slightly from the November 2000 observations. Ground water flow at the water table is primarily to the west, following existing topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-115 and MW-116. Hexavalent Chromium was detected at MW-116 with 4400 ppb and 4500 ppb in the duplicate. Total chromium was detected at 2300 ppb in the MW-116 sample and 2100 ppb in the duplicate. These values show an increase over the Fall 2000 sampling results. Chromium and Hexavalent Chromium concentrations were below detection limits for MW-115.

Iron and Sulfate levels were also evaluated in MW-116, MW-115 and MW-107. Based on the values documented in NR 140 Table 2 "Public Welfare Ground Water Quality Standards," only

MW-116 exceeded the Enforcement Standard for Sulfate. MW-107 and MW-116 exceeded the Enforcement Standard and MW-115 exceeded the Preventive Action Limit for Iron. All analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Spring 2001 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is similar to previous measurements with flow also predominantly to the north and west, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 17 wells. Hexavalent chromium was detected at seven locations including the zinc sump, MW-3, MW-5, MW-6, MW-8, MW-9 and MW-10. Maximum concentrations were detected at the zinc sump and MW-10 with concentrations of 40,000 ppb and 33,000 ppb, respectively. Total chromium was detected above PALs at eight locations including the zinc sump, MW-3, MW-4, MW-5, MW-6, MW-6A, MW-9, and MW-10. Concentrations of total chromium ranged from 3.7 ppb to 110,000 ppb. The extent of chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Settling of areas in the stabilization zone continues. Specific areas requiring attention include the area surrounding MW-116. During this sampling event it was noted that the ground had settled to the point where the MW-116 well cover can no longer be bolted into place. This situation requires immediate attention and has already been discussed with Keld Lauridsen. All other site maintenance issues are being addressed.

The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site continues to require periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere. Some areas of the site could use reseeding.

On August 10, 2001, a conversation with the landscape contractor who had filled and leveled the Chrome Shop settled areas indicated that the MW-116 concrete anchor at the well head had been raised and leveled. He reported that the well cover plate could not be located, so it was not placed. If this cover cannot be located, a new one should be ordered and installed.

### 5.2 Zinc Shop

System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the apparent rebound of hexavalent chromium in ground water within the stabilization area at concentrations above the 100 ppb ES for total chromium and 2) the continued wide spread chromium impacts in ground water at the Zinc Shop. At the Chrome Shop, a five-foot increase in water table elevation may be a cause for the increase in chromium concentrations at MW-116.

### 6.1 Chrome Shop Recommendations

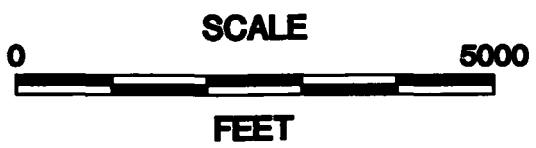
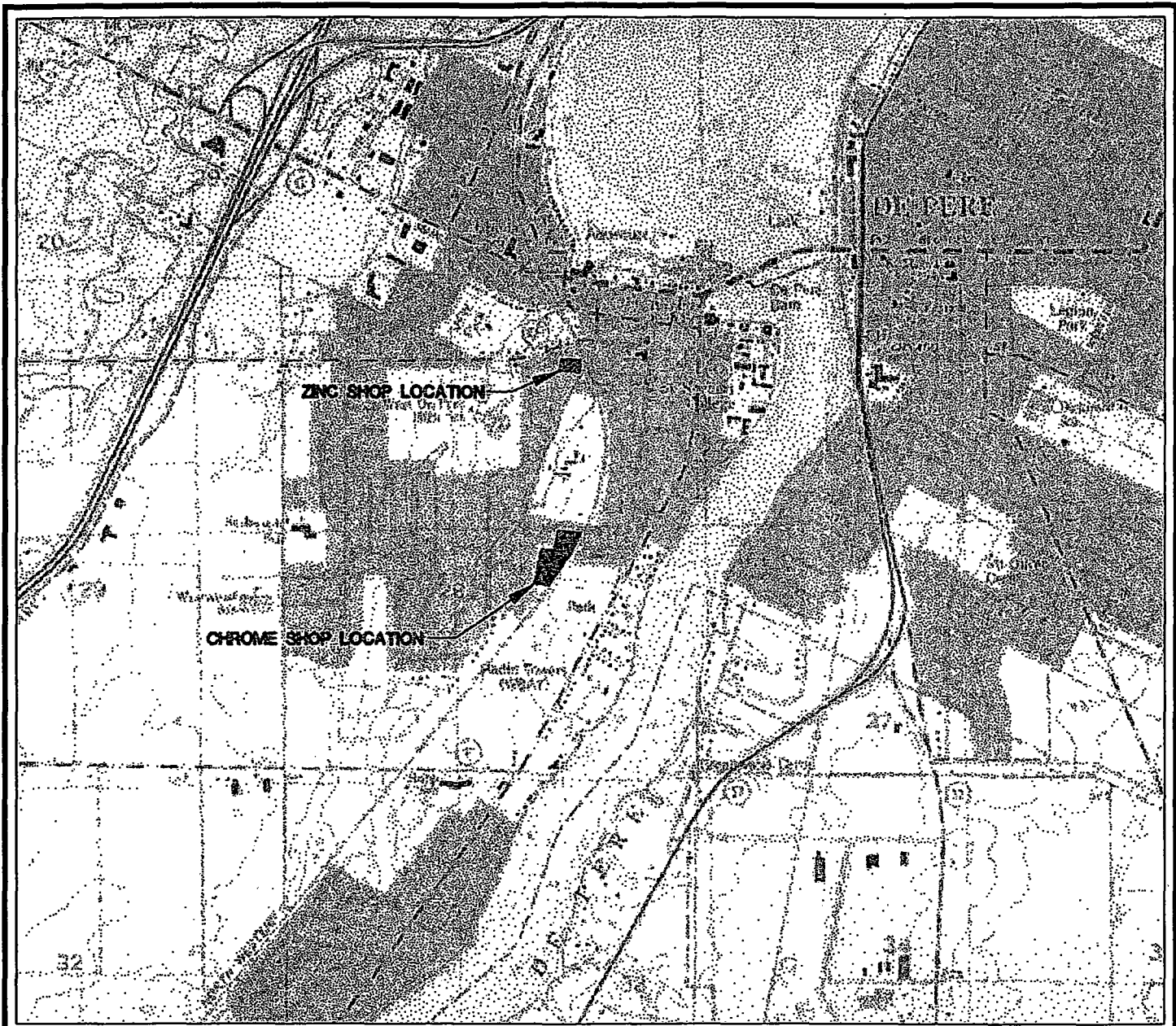
Biannual sampling was originally proposed for the wells at the Chrome Shop. Hexavalent chromium in ground water as measured at MW-116 may warrant more frequent ground water sampling. The sampling frequency may be adjusted following this event, however contract provisions allow authorization of semi-annual sampling and groundwater elevation measurement of all wells listed in Section 2.1 for two additional years following the June 2001 event. This sampling frequency will provide information to document variation in the contaminant concentrations with time following stabilization of soils at the site. It may also be prudent to sample MW-111 to determine if the increase in chromium levels at MW-116 is moving downgradient to this well.

### 6.2 Zinc Shop Recommendations

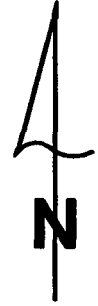
No modifications to the original monitoring plan are recommended for the Zinc Shop. Semi-annual monitor well sampling of the groundwater through June 2001 is currently authorized, with contract provisions in place to continue semi-annual sampling for two additional years. This sampling frequency will provide adequate information to document the progress of remediation with time following installation of the treatment system at the site.

## FIGURES





National Geodetic Vertical Datum of 1929  
 Contour Interval 10 Feet



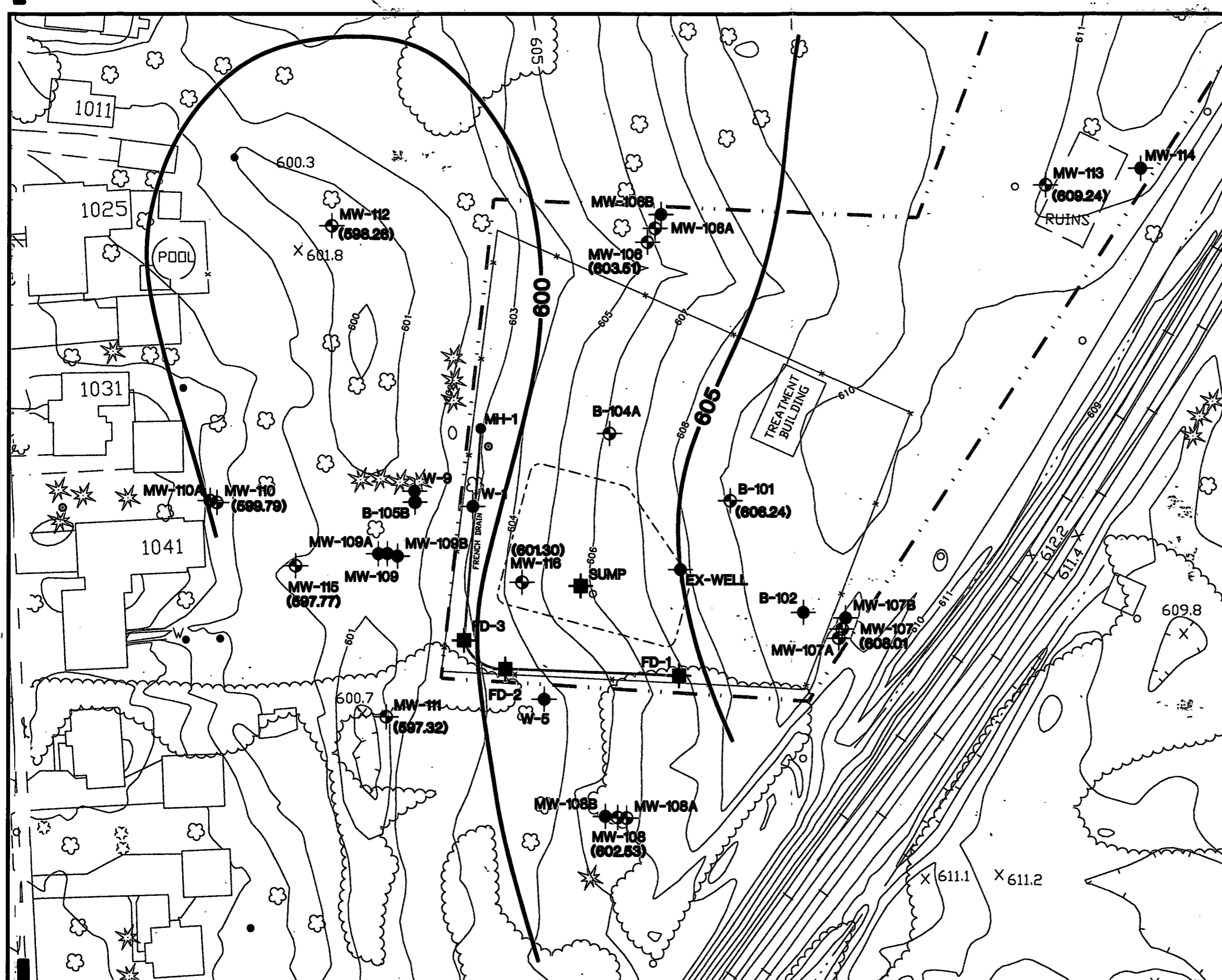
QUADRANGLE LOCATION

<b>BETTER BRITE</b> DePERE, WISCONSIN	DATE: 1/4/2000	
	DESIGNED:	BOB
<b>SITE LOCATION and</b> <b>LOCAL TOPOGRAPHY</b>	CHECKED:	JLF
	APPROVED:	JLF
	DRAWN:	BOB
	PROJ:	F119

BASE MAP FROM U.S.G.S. 7.5' DE PERE, WISCONSIN  
 TOPOGRAPHIC QUADRANGLE MAP, 1959, REVISED 1971.

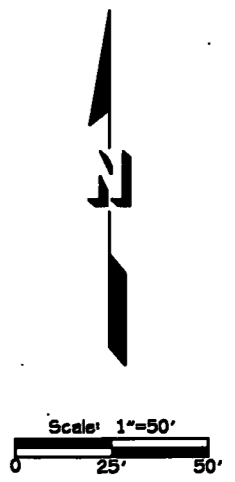


Figure 1-1



**EXPLANATION**

- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- MW-11 ABANDONED WELL (any filled in well symbol)
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- 600 WATER TABLE CONTOURS (Dashed where inferred)
- (597.14) WATER TABLE ELEVATION

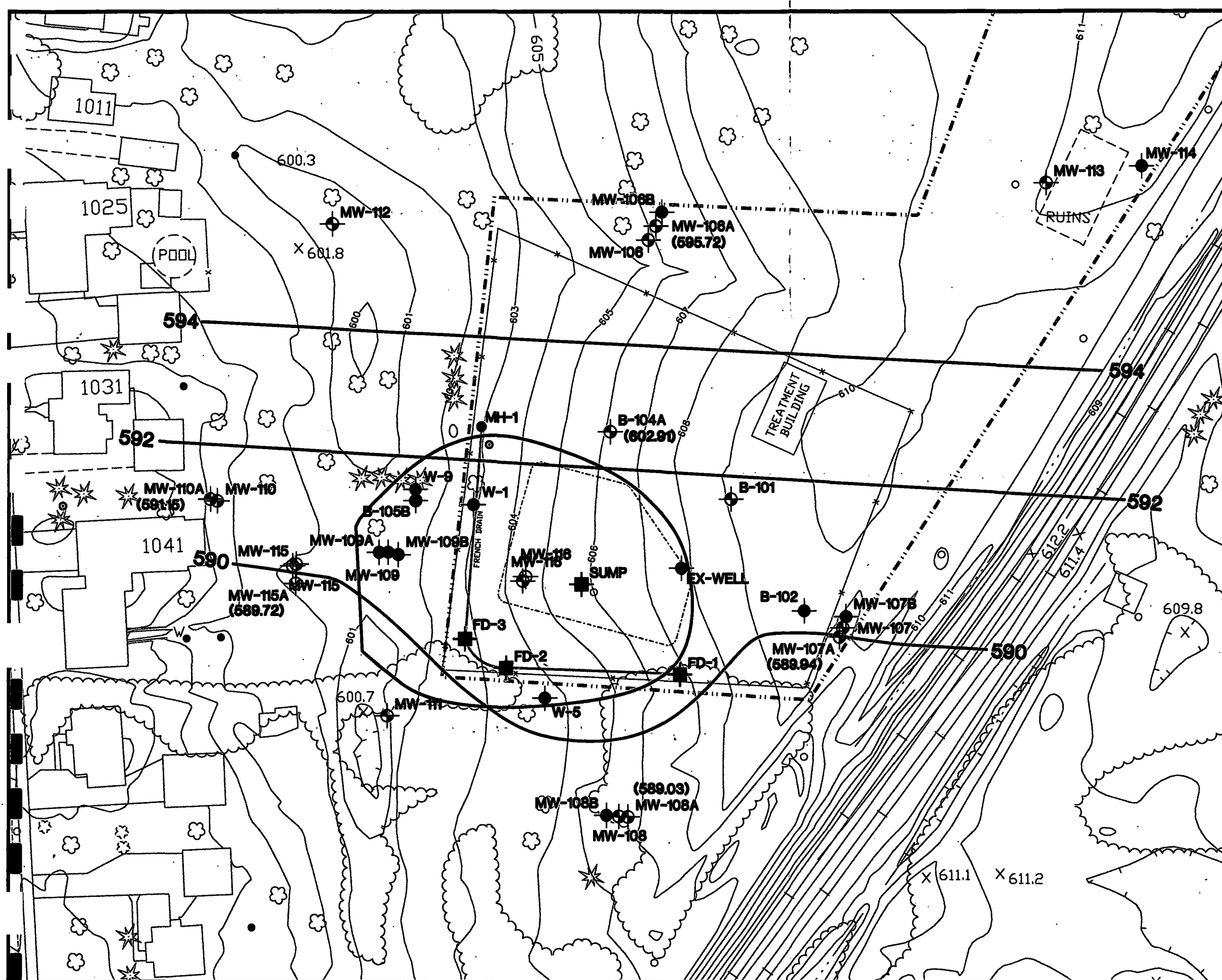


Basemap from Aero-Metric Engineering, Inc. 11/17/91
















BETTER BRITE DePERE, WISCONSIN	DATE: 08/13/01
<b>WATER TABLE MAP (JUNE, 2001) CHROME SHOP</b>	DESIGNED: DLM
	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
PROJ.: F150-102	

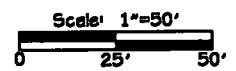
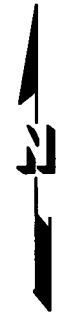
**GeoTrans, Inc.**  
A TRUSS FORM COMPANY

**Figure 4-1**



# EXPLANATION

-  MW-113 MONITOR WELL LOCATION AND DESIGNATION
-  B-101 MONITOR WELL LOCATION AND DESIGNATION
-  W-5 MONITOR WELL LOCATION AND DESIGNATION
-  SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
-  FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
-  EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
-  MH-1 MANHOLE LOCATION
-  SUMP BOUNDARY
-  PROPERTY LINE
-  SOIL STABILIZATION AREA
-  MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  MW-115 PROPOSED MONITOR WELL LOCATION AND DESIGNATION
-  590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
-  (588.81) POTENTIOMETRIC SURFACE ELEVATION
-  (598.57) INCONSISTENT ELEVATION

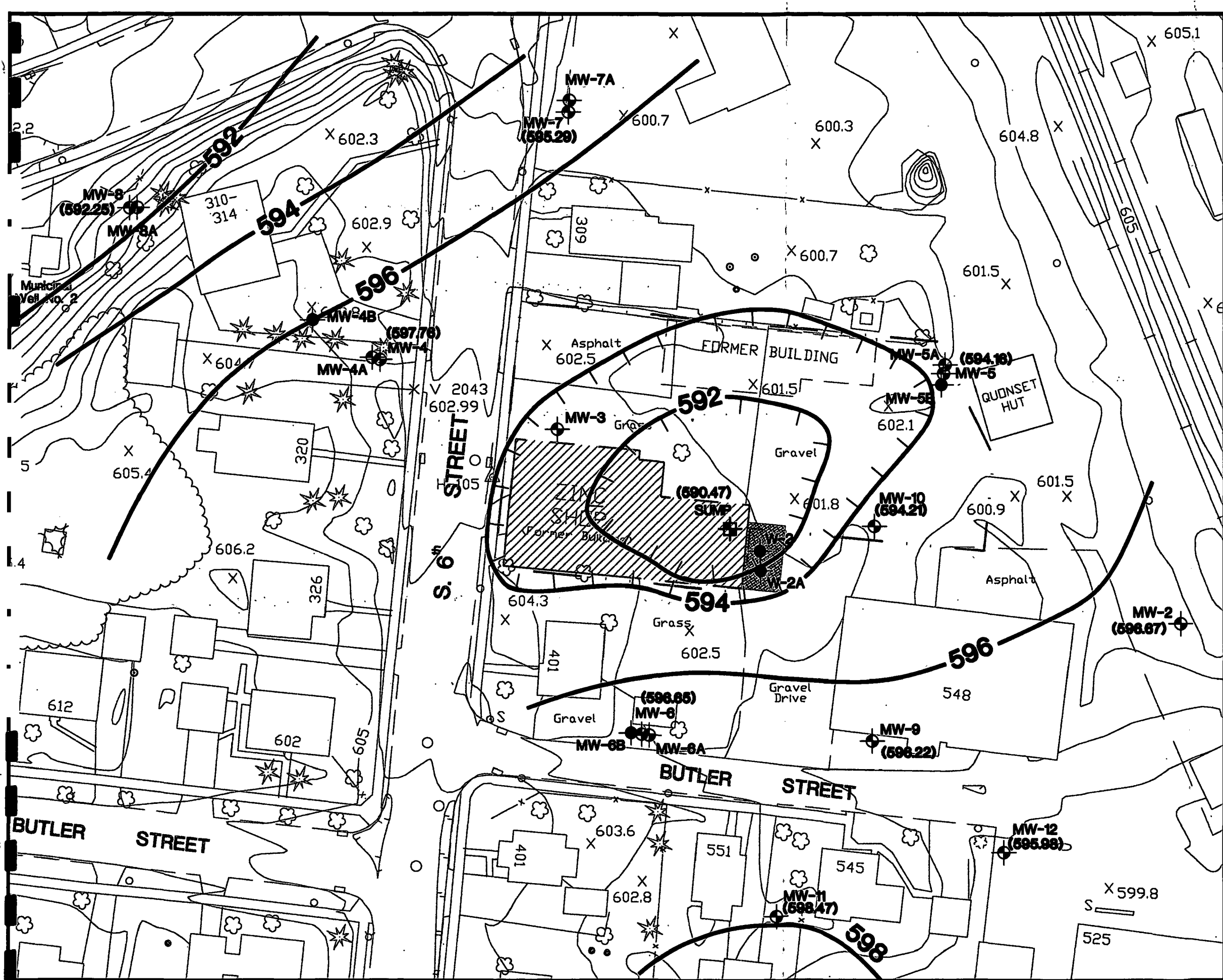


Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 08/13/01
	DESIGNED: DLM
POTENTIOMETRIC SURFACE MAP (JUNE, 2001) CHROME SHOP	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

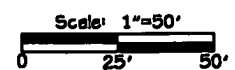
 **GeoTrans, Inc.**  
A TETRA TECH COMPANY

Figure 4-2



### EXPLANATION

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- MW-13 NON LOCATABLE LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- WATER TABLE CONTOURS (Dashed where inferred)
- (594.98) WATER TABLE ELEVATION



Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 08/13/01
	DESIGNED: DLM
WATER TABLE MAP (JUNE 2001) ZINC SHOP	CHECKED: DLM
	APPROVED: DLM
	DRAWN: HJW
	PROJ.: F150-102

**GeoTrans, Inc.**  
A TETRA TECH COMPANY

Figure 4-3





**TABLE**

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
Chrome Sump	8/94	620000	694000	NS	NS
	10/94	300200	297000	NS	NS
	4/98	195000	192000	NS	NS
	7/98	132000		NS	NS
French Drain	8/94	25800	22000	NS	NS
	10/94	32000	31700	NS	NS
	4/98	1060	1010	NS	NS
	7/98	336	312	NS	NS
B-101	8/94	<10	<3.4	NS	NS
	10/94	<10		NS	NS
MW-106	8/94	7	<2.8	NS	NS
	DUP.	<10	<2.8	NS	NS
	10/94	<10 J	<3.4 J	NS	NS
	DUP.	<10 J	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	DUP.	<10	<5	NS	NS
MW-106A	8/94	<10	<2.8	NS	NS
	10/94	<10 J	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	9.4	NS	NS
MW-106B	8/94	<10		NS	NS
MW-107	8/94	<10	4.1 BJ	NS	NS
	10/94	<10 J	<3.4	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	4.2	NS	NS
	6/01			530	50000
MW-107A	8/94	<10	<2.8	NS	NS
	10/94	<10 J	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	16.0	NS	NS
MW-107B	8/94	<10		NS	NS
MW-108	8/94	<10	<2.8	NS	NS
	10/94	<10	<3.4 J	NS	NS
	4/98	<10		NS	NS
	DUP.	<10	<5	NS	NS
MW-108A	8/94	<10	3.0 BJ	NS	NS
	10/94	<10	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	55.0	NS	NS
MW-108B	8/94	<10		NS	NS
MW-109	8/94	6780	9570	NS	NS
	10/94	2400	1980	NS	NS
	DUP.	3100	1700	NS	NS
	4/98	16500	18600	NS	NS
	7/98	12200	11100	NS	NS

All values in ug/L  
 NS - Not Sampled  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES



TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
MW-109A	8/94	<10	<2.8	NS	NS
	10/94	<10	1.3 B	NS	NS
	4/98	<10	<5	NS	NS
	7/98	<10	7	NS	NS
MW-109B	8/94	<10		NS	NS
	10/94	<10		NS	NS
MW-110	8/94	<10	3.6 BJ	NS	NS
	10/94	<10	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	37.0	NS	NS
MW-110A	8/94	<10	<2.8	NS	NS
	10/94	<10	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	25.0	NS	NS
MW-111	8/94	<10	<3.4	NS	NS
	DUP.	<10	<3.4	NS	NS
	10/94	<10	<0.70	NS	NS
	4/98	22.0	<5	NS	NS
	7/98	22.0	27	NS	NS
	11/98	<0.5	<0.5	NS	NS
MW-112	5/00	<4.2	36.0	NS	NS
	10/94	<10	<0.70	NS	NS
	11/94	<10	<2.5	NS	NS
	4/98	<10	<5	NS	NS
MW-113	5/00	<4.2	4.1	NS	NS
	8/94	140	99.7	NS	NS
	10/94	<10 J	8.6 B	NS	NS
	5/95	43	20.3	NS	NS
	4/98	<10	<5	NS	NS
	7/98	<10	12	NS	NS
MW-114	5/00	<4.2	22.0	NS	NS
	3/95	<10 J	<2.9	NS	NS
	DUP.	<10 J	<2.9	NS	NS
	5/95	<10 J	<1.0	NS	NS
	DUP.	<10 J	<1.0	NS	NS
MW-115	4/98	<10	<5	NS	NS
	5/00	<4.2	6.0	NS	NS
MW-115A	6/01	<4.2	<52	160	92000
	5/00	<4.2	12.0	NS	NS
MW-116	5/00	1600	470	NS	NS
	DUP.	1500	460	NS	NS
	11/00	37	23	NS	NS
	DUP.	46	24	NS	NS
	6/01	4400	2300	210	2000000
	DUP.	4500	2100	840	2100000
PF-MW-2	5/00	<4.2	7.6	NS	NS
	6/01	<4.2	7.1	NS	NS
MW-3	5/00	2300	330	NS	NS
	11/00	50	130	NS	NS
	6/01	3500	2200	NS	NS

All values in ug/L

NS - Not Sampled

ES - NR140 Enforcement Standard

PAL - NR140 Preventive Action Limit

Blacked out - Compound not analyzed

Underlined - Concentration exceeds PAL

Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
MW-4	8/94	<10	<3.4	NS	NS
	DUP	<10	<3.4	NS	NS
	10/94	<10 J	<3.4 J	NS	NS
	DUP	<10 J	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	4.6	NS	NS
	11/00	<4.2	2.4	NS	NS
6/01	<4.2	12	NS	NS	
MW-4A	8/94	<10	<3.4	NS	NS
	10/94	<10 J	6.0 B	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	8.7	NS	NS
	11/00	<4.2	3.7	NS	NS
	6/01	<4.2	3.7	NS	NS
MW-4B	10/94	<10	<0.70	NS	NS
	11/94	<10	<2.5	NS	NS
MW-5	8/94	1590	827	NS	NS
	10/94	460 J	299 J	NS	NS
	DUP	510 J	763 J	NS	NS
	4/98	212	631	NS	NS
	DUP	207	667	NS	NS
	7/98	1420	1230	NS	NS
	5/00	120	190	NS	NS
	11/00	<4.2	6.6	NS	NS
6/01	590	450	NS	NS	
MW-5A	8/94	<10	<3.4	NS	NS
	10/94	<10	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	6.5	NS	NS
	11/00	340	380	NS	NS
	6/01	<4.2	3.9	NS	NS
	DUP	<4.2	5.6	NS	NS
MW-5B	8/94			NS	NS
	10/94	<10	<5	NS	NS
MW-6	8/94	15900	39200	NS	NS
	10/94	47000	41900 J	NS	NS
	4/98	7850	4560	NS	NS
	5/00	23000	26000	NS	NS
	11/00	26000	23000	NS	NS
	6/01	14000	15000	NS	NS
MW-6A	8/94	<10	4.9 B	NS	NS
	10/94	<10	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	6.6	22.0	NS	NS
	11/00	<4.2	13	NS	NS
	6/01	<4.2	11	NS	NS
MW-6B	8/94	<10		NS	NS
MW-7	8/94	<10	6.6 BJ	NS	NS
	DUP	<10	<2.8	NS	NS
	10/94	<10 J	36.4 J	NS	NS
	4/98	<10	<5	NS	NS
	DUP	<10	<5	NS	NS
	5/00	<4.2	3.9	NS	NS
	11/00	<4.2	1.1	NS	NS
6/01	<4.2	2.7	NS	NS	

All values in ug/L  
 NS - Not Sampled  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium	Iron	Sulfate
ES		100	100	300	250000
PAL		10	10	150	125000
MW-7A	8/94	<10	<2.8	NS	NS
	10/94	<10 J	<3.4 J	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	4.7	NS	NS
	11/00	7.9	5	NS	NS
	6/01	<4.2	2.5	NS	NS
MW-8	10/94	<10	<0.70	NS	NS
	11/94	<10	<2.5	NS	NS
	DUP.	<10	<2.5	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	15.0	NS	NS
	11/00	13	13	NS	NS
MW-8A	6/01	5.3	2	NS	NS
	10/94	<10	<0.70	NS	NS
	11/94	<10	<2.5	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	16.0	NS	NS
	11/00	<4.2	34	NS	NS
MW-9	6/01	<4.2	3.7	NS	NS
	8/94	400	697	NS	NS
	10/94	470 J	442 J	NS	NS
	4/98	208	<5	NS	NS
	7/98	60.0	75	NS	NS
	11/00	13	15	NS	NS
MW-10	DUP	19	51	NS	NS
	6/01	28	180	NS	NS
	8/94	60300	53100	NS	NS
	10/94	60800 J	43500 J	NS	NS
MW-11	11/00	20000	18000	NS	NS
	6/01	33000	35000	NS	NS
	5/95	<10	<1.0	NS	NS
	4/98	<10	<5	NS	NS
	5/00	<4.2	7.0	NS	NS
MW-12	11/00	<4.2	4.1	NS	NS
	6/01	<4.2	3.6	NS	NS
	3/95	<10 J	<2.9	NS	NS
	5/95	<10	<1.0	NS	NS
	4/98	<10	<5	NS	NS
MW-13	5/00	<4.2	4.8	NS	NS
	11/00	<4.2	6	NS	NS
	6/01	<4.2	6.4	NS	NS
	3/95	<10 J	<2.9	NS	NS
	5/95	<10	<1.0	NS	NS
Zinc Sump	8/94	89000	209000	NS	NS
	10/94	144900	277000	NS	NS
	4/98	66000	38300	NS	NS
	7/98	131000	131000	NS	NS
	5/00	1800	1700	NS	NS
	11/00	41000	27000	NS	NS
Private	6/01	40000	110000	NS	NS
	8/94	<10	<10	NS	NS
Municipal	8/94	<10	<10	NS	NS
	DUP.	<10	<10	NS	NS
	10/94	<10	<10	NS	NS
	DUP.	<10	<10	NS	NS
USGS	10/94	<10	0.75 B	NS	NS
USGS-A	10/94	<10	11.9	NS	NS

All values in ug/L  
 NS - Not Sampled  
 ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**

# GROUNDWATER LEVELS

June 5, 2001

## CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85	2.61	606.24
B-104A	606.08	3.17	602.91
MW-106	606.21	2.7	603.51
MW-106A	606.36	10.64	595.72
MW-107	608.41	0.4	608.01
MW-107A	608.33	18.39	589.94
MW-108	604.22	1.69	602.53
MW-108A	604.44	15.41	589.03
MW-110	603.05	3.26	599.79
MW-110A	603.31	12.16	591.15
MW-111	600.76	3.44	597.32
MW-112	600.61	2.35	598.26
MW-113	611.08	1.84	609.24
MW-115	601.04	3.27	597.77
MW-115A	601.01	11.29	589.72
MW-116	604.28	2.98	601.3

## ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-12	599.87	3.89	595.98
MW-9	601.66	5.44	596.22
MW-5	600.81	6.65	594.16
MW-5A	600.81	10.34	590.47
MW-6	602.33	5.68	596.65
MW-6A	605.19	10.55	594.64
MW-4	602.99	5.23	597.76
MW-4A	603.29	5.95	597.34
MW-8	598.18	5.93	592.25
MW-8A	598.59	14.43	584.16
MW-7	600.6	5.31	595.29
MW-7A	600.51	11.92	588.59
MW-11	602.41	3.93	598.48
MW-3	602.52	12.59	589.93
MW-10	601.53	7.32	594.21
MW-2	602.45	5.78	596.67
Sump	604.09	13.62	590.47

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Georgia Dept of Transportation Better Brite  
 PROJECT #: File  
 LOCATION: Devere WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Hevan

GENERAL: SAMPLE POINT		MW-6	MW-6A	MW-11	MW-9	MW-12
WATER TYPE		GW				→
DATE		6-5-01				→
CLOCK TIME		10:55	11:00	11:15	11:20	11:35
DEPTH TO WATER*		5.68	10.55	3.93	5.44	3.89
MEASURED WELL DEPTH		15.5	22.4	15.36	16.36	14.55
PURGE VOL/CASING VOL (g)		5.5	11	7	6.5	7 gal
DEPTH SAMPLE TAKEN		15.0	22.0	15.0	16.0	14.0
SAMPLING DEVICE		hang bailer				→
FIELD TEMPERATURE (°C)		11.0	11.0	10.9	11.2	11.3
ELEC. COND. (µmhos/cm)	MEASURED	841	3274	1158	614	1515
	AT 25°C	1216	4448	1628	933	2013
PH		7.30	7.87	7.21	7.46	7.20
ALKALINITY						
COLOR		yellow	brown	H. brown	brown	brown
ODOR		none	none	none	none	none
CLARITY		sl. cloudy	v. cloudy	sl. cloudy	cloudy	cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Hex Chrom.		1 P 1100 L				→
Tot Chrom.		2 P				→
Notes			dry @ 5 gal			
LABORATORY: SENT TO: DATE SENT:		Test America				→
SAMPLED BY:		RHS				→

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Cooper Mountain Better Brite  
 PROJECT #: FLG  
 LOCATION: Dixie WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: ↓  
 PH: ↓  
 OTHER: Hein

GENERAL: SAMPLE POINT		MW-2	MW-10	MW 5	MW-5A	MW-5A Dup
WATER TYPE		GW				→
DATE		6-5-01				
CLOCK TIME		11:50	12:05	12:15	12:20	12:20
DEPTH TO WATER*		5.78	7.32	6.65	10.34	10.34
MEASURED WELL DEPTH		14.15	14.69	15.35	24.48	24.48
PURGE VOL/CASING VOL(g)		7 gal	5.5 gal	5 gal	9.8 gal	9.8 gal
DEPTH SAMPLE TAKEN		14.00	14.00	15.00	24.00	24.00
SAMPLING DEVICE						
FIELD TEMPERATURE (°C)		11.0	11.5	11.2	11.60	→
ELEC. COND. (µmhos/cm)	MEASURED	1426	1053	802	282.8	→
	AT 25°C	1440	1405	1084	379.3	→
PH		7.02	7.11	7.36	7.89	→
ALKALINITY		Clear				
COLOR		none clear	yellow	clear	brown	→
ODOR		none	none	none	none	→
CLARITY		cloudy	clear	clear	cloudy	→
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
Total Chrome		1 P #NO3				→
Hex. Chrome		1 P none				→
Notes					dry @ 5 gal	→
LABORATORY: SENT TO: DATE SENT:		Test America				→
SAMPLED BY:		RHS				→

\*Measured from top of well riser.



## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Water Pollution Better Brite  
 PROJECT #: File  
 LOCATION: Depue WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI-63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Heron

GENERAL:		SAMPLE POINT	MW-7	MW-7A	MW-8	MW-8A	MW-4
WATER TYPE			GW				→
DATE			6-5-01			→	6-5-01
CLOCK TIME			12:45	12:50	13:00	13:05	10:15
DEPTH TO WATER*			5.31	11.92	5.93	14.43	5.23
MEASURED WELL DEPTH			15.60	28.40	16.38	27.23	14.92
PURGE VOL/CASING VOL(g)			6	11	5	6.5	16
DEPTH SAMPLE TAKEN			15.00	28.0	16.00	27.00	14.00
SAMPLING DEVICE							
FIELD TEMPERATURE (°C)			11.2	11.7	10.3	11.3	10.5
ELEC. COND. (umhos/cm)	MEASURED		786	245	616	282.5	1122
	AT 25°C		1066	328	859	383.3	1547
PH			7.28	7.94	7.47	7.88	6.99
ALKALINITY							
COLOR			brown	clear	clear	clear	slight cloudy brown
ODOR			none	none	none	none	none
CLARITY			cloudy	sl. cloudy	S. cloudy	S. cloudy	slight cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Total Chrome			1P (HNO <sub>3</sub> )				→
Hex Chrome			1P (none)				→
Notes				dry @ 5			
LABORATORY: SENT TO:							
DATE SENT:			Test American				→
SAMPLED BY:			RHS				→

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Cooper ~~Abundant~~ Better Brite  
 PROJECT #: File  
 LOCATION: Depore WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI-63  
 CONDUCTIVITY: ↓  
 PH: ↓  
 OTHER: Hera

GENERAL:		SAMPLE POINT	MW-4A	MW-3	Zinc Sump	MW-116	MW- <del>116</del> <sup>116</sup> A.D.P
WATER TYPE			GW				→
DATE			6-5-01				→
CLOCK TIME			10:20	14:40	14:30	13:30	13:40 13:30
DEPTH TO WATER*			5.95	12.59	13.62		13.00
MEASURED WELL DEPTH			28.64	28.5	20.4		13.14
PURGE VOL/CASING VOL(g)			52 gal	10	-		-
DEPTH SAMPLE TAKEN			28.00	28.00	20.0		
SAMPLING DEVICE			ded. bailer	peristaltic	ded. Bailer		
FIELD TEMPERATURE (°C)			10.3	12.0	12.1	12.5	→
ELEC. COND. (umhos/cm)	MEASURED		978	822	1126	2886	→
	AT 25°C		1853	1095	1445	3793	→
PH			7.43	7.06	7.28	6.93	→
ALKALINITY							
COLOR			brown	brown	Strong yellow	Slight yellow	→
ODOR			none	none	none	none	→
CLARITY			clear	cloudy	clear	clear	→
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
Total Chrome			1P (HNO <sub>3</sub> )				→
Hex Chrome			1P (none)				→
Iron Sulfate							* 1P (HNO <sub>3</sub> ) 1P (none)
Notes:				dry e 2gal		* needs attention!	
LABORATORY:	SENT TO:		Test America				
	DATE SENT:						
SAMPLED BY:			RHS				

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Capitol Hill Better Brite  
 PROJECT #: FK  
 LOCATION: Depere WI  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI-63  
 CONDUCTIVITY: ↓  
 pH: \_\_\_\_\_  
 OTHER: HEMA

GENERAL: SAMPLE POINT		MW-115	MW-1107		
WATER TYPE		GW	GW		
DATE		6-5	6-5		
CLOCK TIME		13:40	13:55		
DEPTH TO WATER*					
MEASURED WELL DEPTH			15.41		
PURGE VOL/CASING VOL(g)		-	8.6		
DEPTH SAMPLE TAKEN			15.00		
SAMPLING DEVICE		dedicated bailer	hang bailer		
FIELD TEMPERATURE (°C)		12.6	13.6		
ELEC. COND. (µmhos/cm)	MEASURED	743	479		
	AT 25°C	673	612		
pH		7.38	7.46		
ALKALINITY					
COLOR		clear	clear		
ODOR		none	none		
CLARITY		clear	clear		
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)			
Fe & Sulfides		*	1 pl (none) 1 pl (HNO <sub>3</sub> )		
Sulfides		*	"		
LABORATORY: SENT TO:		Test America →			
DATE SENT:					
SAMPLED BY:		RHS →			

\*Measured from top of well riser.

DATE: 6-5-01

WATER LEVEL DATA

PROJECT: Better Brite

PROJECT #: F114

LOCATION: Depere WF

Zinc Shop

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-7	12:45	Heron	600.60	5.31	595.29	RHS	
MW-7A	12:50		600.51	11.92	588.59		
MW-8	<del>13:00</del> 13:00		598.18	5.93	592.25		
MW-8A	13:05		598.59	14.43	584.16		
MW-4	10:15		602.99	5.23	597.76		
MW-4A	10:20		603.29	5.95	597.34		
MW-3	14:40		602.52	12.59	589.93		
MW-11	11:15		602.4	3.93	598.47		
MW-6	10:55		602.33	5.68	596.65		
MW-6A	11:00		605.19	10.55	594.64		
MW-9	11:20		601.66	5.44	596.22		
MW-10	12:05		601.53	7.32	594.21		
MW-5	12:15		600.81	6.65	594.16		
MW-5A	12:20		600.81	10.34	590.47		
Sump	<del>14:00</del>		601.09				
MW-12	11:35		599.87	3.89	595.98		
MW-2	11:50		602.45	5.78	596.67		

DATE: 6-5-01

WATER LEVEL DATA

PROJECT: Better Bite  
 PROJECT #: FIG  
 LOCATION: Drape

**MASTER FILE COPY**  
 OLD PROJECT # \_\_\_\_\_  
 NEW PROJECT # FIG  
 CO. DLM, RHS

Chrome Shop

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-106	7:40	Itoron	606.21	2.70	603.51	RHS	
MW-106A	7:42		606.36	10.64	595.72	?	
MW-107	8:38		608.41	0.4	608.01		f surface H <sub>2</sub> O leaking into well
MW-107A	7:50		608.33	18.39	589.94		
MW-108	8:00		604.22	1.64	602.58		
MW-108A	7:58		604.44	15.41	589.03		
MW-110	8:12		603.05	3.26	599.79		
MW-110A	8:16		603.31	12.16	591.15		
MW-111	8:05		600.76	3.44	597.32		
MW-112	8:18		600.61	(2.35)	598.26		Verify this value w/ the original does not E data
MW-113	8:45		611.08	1.84	609.24		
MW-115	8:18		601.04	3.27	597.77		
MW-115A	8:15		601.01	11.29	589.72		
MW-116	8:55		604.28	2.98	601.3		
B-104A	8:30		606.08	3.17	602.91		
B-101	8:35	↓	608.85	2.61	606.24	↓	

**APPENDIX C**  
**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

## ANALYTICAL REPORT

**MASTERFILE COPY**  
**PROJECT #**                      **F150**  
**CC:** DLM, HAROY

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045


06/19/2001  
 Job No: 01.03957  
 Page 1 of 11

The following samples were received by TestAmerica for analysis:

Sample Number	Sample Description	Date Taken	Date Received
438905	MW-6 F119 Better Brite	06/05/2001	06/05/2001
438906	MW-6A F119 Better Brite	06/05/2001	06/05/2001
438907	MW-11 F119 Better Brite	06/05/2001	06/05/2001
438908	MW-9 F119 Better Brite	06/05/2001	06/05/2001
438909	MW-12 F119 Better Brite	06/05/2001	06/05/2001
438910	MW-2 F119 Better Brite	06/05/2001	06/05/2001
438911	MW-10 F119 Better Brite	06/05/2001	06/05/2001
438912	MW-5 F119 Better Brite	06/05/2001	06/05/2001
438913	MW-5A F119 Better Brite	06/05/2001	06/05/2001
438914	MW-5A Dup F119 Better Brite	06/05/2001	06/05/2001
438915	MW-7 F119 Better Brite	06/05/2001	06/05/2001
438916	MW-7A F119 Better Brite	06/05/2001	06/05/2001
438917	MW-8 F119 Better Brite	06/05/2001	06/05/2001
438918	MW-8A F119 Better Brite	06/05/2001	06/05/2001
438919	MW-4 F119 Better Brite	06/05/2001	06/05/2001

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

- |   |                                       |
|---|---------------------------------------|
| A = Analyzed/extracted past hold time     | B = Blank is contaminated             |
| C = Standard outside of control limits    | D = Diluted for analysis              |
| E = Extraction outside temperature limits | F = Sample filtered in lab            |
| G = Received past hold time               | H = Late eluting hydrocarbons present |
| I = Improperly handled sample             | J = Estimated concentration           |
| L = Common lab solvent and contaminant    | M = Matrix interference               |
| P = Improperly preserved sample           | Q = Result confirmed via re-analysis  |
| S = Sediment present                      | T = Does not match typical pattern    |
| W = BOD re-set due to missed dilution     | X = Unidentified compound(s) present  |
| Z = Internal standard outside limits      |                                       |

  
 Karen R. Wenta  
 Inorganic Operations Manager

## ANALYTICAL REPORT

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

06/19/2001

Job No: 01.03957

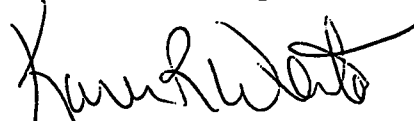
Page 2 of 11

The following samples were received by TestAmerica for analysis:

Sample Number	Sample Description	Date Taken	Date Received
438920	MW-4A F119 Better Brite	06/05/2001	06/05/2001
438921	Zinc Sump F119 Better Brite	06/05/2001	06/05/2001
438922	MW-116 F119 Better Brite	06/05/2001	06/05/2001
438923	MW-116 Dup F119 Better Brite	06/05/2001	06/05/2001
438924	MW-115 F119 Better Brite	06/05/2001	06/05/2001
438925	MW-107 F119 Better Brite	06/05/2001	06/05/2001
438926	MW-3 F119 Better Brite	06/05/2001	06/05/2001

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
E = Extraction outside temperature limits	F = Sample filtered in lab
G = Received past hold time	H = Late eluting hydrocarbons present
I = Improperly handled sample	J = Estimated concentration
L = Common lab solvent and contaminant	M = Matrix interference
P = Improperly preserved sample	Q = Result confirmed via re-analysis
S = Sediment present	T = Does not match typical pattern
W = BOD re-set due to missed dilution	X = Unidentified compound(s) present
Z = Internal standard outside limits	



Karen R. Wenta  
Inorganic Operations Manager



## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2001  
 Job No: 01.03957  
 Account No: 39150  
 Purchase Order:  
 Page 3 of 11

Job Description: F119 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 06/05/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
438905 MW-6 F119 Better Brite		06/05/2001	10:55				
Chromium, hexavalent	14	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, AA	15	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1927 918
438906 MW-6A F119 Better Brite		06/05/2001	11:00				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.011	mg/L	0.00052	0.0018	EPA 218.2	06/15/2001	1120 654
438907 MW-11 F119 Better Brite		06/05/2001	11:15				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0036	mg/L	0.00052	0.0018	EPA 218.2	06/15/2001	1120 654
438908 MW-9 F119 Better Brite		06/05/2001	11:20				
Chromium, hexavalent	0.028	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.18	mg/L	0.00052	0.0018	EPA 218.2	06/15/2001	1120 654
438909 MW-12 F119 Better Brite		06/05/2001	11:35				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0064	mg/L	0.00052	0.0018	EPA 218.2	06/15/2001	1120 654
438910 MW-2 F119 Better Brite		06/05/2001	11:50				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0071	mg/L	0.00052	0.0018	EPA 218.2	06/15/2001	1120 654

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2001  
 Job No: 01.03957  
 Account No: 39150  
 Purchase Order:  
 Page 4 of 11

Job Description: F119 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 06/05/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
438911 MW-10 F119 Better Brite							
Chromium, hexavalent	33	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, AA	35	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1927 918
438912 MW-5 F119 Better Brite							
Chromium, hexavalent	0.59	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, AA	0.45	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1927 918
438913 MW-5A F119 Better Brite							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0039	mg/L	0.00052	0.0018	EPA 218.2	06/15/2001	1120 654
438914 MW-5A Dup F119 Better Brite							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0056	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1120 655
438915 MW-7 F119 Better Brite							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0027	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655
438916 MW-7A F119 Better Brite							
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0025	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2001  
 Job No: 01.03957  
 Account No: 39150  
 Purchase Order:  
 Page 5 of 11

Job Description: F119 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 06/05/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
438917 MW-8 F119 Better Brite			06/05/2001 13:00				
Chromium, hexavalent	0.0053	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0020	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655
438918 MW-8A F119 Better Brite			06/05/2001 13:05				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0037	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655
438919 MW-4 F119 Better Brite			06/05/2001 10:15				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.012	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655
438920 MW-4A F119 Better Brite			06/05/2001 10:20				
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, GFAA	0.0037	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655
438921 Zinc Sump F119 Better Brite			06/05/2001 14:15				
Chromium, hexavalent	40	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, AA	110	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1927 918
438922 MW-116 F119 Better Brite			06/05/2001 13:30				
Chromium, hexavalent	4.4	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Sulfate, IC	2,000	mg/L	2.0	6.7	EPA 300.0	06/14/2001	993
Chromium, AA	2.3	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1922 918
Iron, AA	0.21	mg/L	0.042	0.14	EPA 236.1	06/12/2001	1922 1742

## ANALYTICAL REPORT

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2001  
 Job No: 01.03957  
 Account No: 39150  
 Purchase Order:  
 Page 6 of 11

Job Description: F119 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: SEE BELOW      SEE BELOW      Date Received: 06/05/2001

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
438923 MW-116 Dup F119 Better Brite		06/05/2001 13:30					
Chromium, hexavalent	4.5	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Sulfate, IC	2,100	mg/L	2.0	6.7	EPA 300.0	06/14/2001	993
Chromium, AA	2.3	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1922 918
Iron, AA	0.84	mg/L	0.042	0.14	EPA 236.1	06/12/2001	1922 1742
438924 MW-115 F119 Better Brite		06/05/2001 13:40					
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Sulfate, IC	92	mg/L	2.0	6.7	EPA 300.0	06/15/2001	994
Chromium, GFAA	<0.00052	mg/L	0.00052	0.0018	EPA 218.2	06/18/2001	1121 655
Iron, AA	0.16	mg/L	0.042	0.14	EPA 236.1	06/12/2001	1922 1742
438925 MW-107 F119 Better Brite		06/05/2001 13:55					
Sulfate, IC	50	mg/L	2.0	6.7	EPA 300.0	06/14/2001	993
Iron, AA	0.53	mg/L	0.042	0.14	EPA 236.1	06/12/2001	1922 1742
438926 MW-3 F119 Better Brite		06/05/2001 UNKNOWN					
Chromium, hexavalent	3.5	mg/L	0.0042	0.015	SM 3500CrD	06/06/2001	700
Chromium, AA	2.2	mg/L	0.020	0.067	EPA 218.1	06/13/2001	1927 918

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

06/19/2001

Job No: 01.03957  
Account No: 39150

Page 7 of 11

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	700	0.500	0.50	100.0	90 - 110	jts
Chromium, hexavalent	700	0.500	0.49	98.0	90 - 110	jts
Sulfate, IC	993	40.0	36.3	90.8	90 - 110	tds
Sulfate, IC	993	40.0	36.1	90.3	90 - 110	tds
Sulfate, IC	994	40.0	37.5	93.8	90 - 110	tds
Sulfate, IC	994	40.0	38.2	95.5	90 - 110	tds
Chromium, AA	918	0.500	0.549	109.8	90 - 110	gaf
Chromium, AA	918	0.500	0.533	106.6	90 - 110	gaf
Chromium, GFAA	654	0.0100	0.0107	107.0	90 - 110	mmm
Chromium, GFAA	654	0.0100	0.0103	103.0	90 - 110	mmm
Chromium, GFAA	655	0.0100	0.0106	106.0	90 - 110	mmm
Chromium, GFAA	655	0.0100	0.0106	106.0	90 - 110	mmm
Iron, AA	1742	0.500	0.492	98.4	90 - 110	gaf
Iron, AA	1742	0.500	0.499	99.8	90 - 110	gaf

## QUALITY CONTROL REPORT BLANKS

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

06/19/2001

Job No: 01.03957  
Account No: 39150

Page 8 of 11

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		700	<0.0042	0.0042	0.015	mg/L
Sulfate, IC		993	<2.0	2.0	6.7	mg/L
Sulfate, IC		994	<2.0	2.0	6.7	mg/L
Chromium, AA	1922	917	<0.020	0.020	0.067	mg/L
Chromium, AA		918	<0.020	0.020	0.067	mg/L
Chromium, AA	1927	918	<0.020	0.020	0.067	mg/L
Chromium, GFAA	1120	654	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		655	<0.00052	0.00052	1.8	mg/L
Chromium, GFAA	1121	655	<0.00052	0.00052	1.8	mg/L
Iron, AA	1922	1742	0.065	0.042	0.14	mg/L
Iron, AA		1742	<0.042	0.042	0.14	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2001

Job No: 01.03957  
 Account No: 39150

Page 9 of 11

Job Description: F119 Better Brite

Analyte	Prep	Run	LCS		LCS	LCS	LCS	LCS	Relative
	Batch	Batch	Amount	Units	Result	Result	Percent Recovery	Percent Recovery	Control Limits
Chromium, AA	1922	917	0.500	mg/L	0.536		107.2		76 - 106
Chromium, AA	1927	918	0.500	mg/L	0.489		97.8		76 - 106
Chromium, GFAA	1120	654	0.0100	mg/L	0.00984		98.4		87 - 116
Chromium, GFAA	1121	655	0.0100	mg/L	0.00993		99.3		87 - 116
Iron, AA	1922	1742	0.500	mg/L	0.553		110.6		81 - 122

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Mr. Dan Morgan  
 GEOTRANS, INC.  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2001

Job No: 01.03957  
 Account No: 39150

Page 10 of 11

Job Description: F119 Better Brite

Analyte	Prep	Run	Sample Result	Spike Amount	Units	Matrix	MSD Result	MS	MSD	Control Limits	Relative
	Batch Number	Batch Number				Spike Result		Percent Recovery	Percent Recovery		Percent Difference
Chromium, hexavalent		700	<0.0042	0.500	mg/L	0.49	0.48	98.0	96.0	70 - 116	2.1
Sulfate, IC		994	81	25.0	mg/L	114	120	132.0	156.0	71 - 117	5.1
Chromium, AA	1922	918	<0.020	0.500	mg/L	0.525	0.510	105.0	102.0	62 - 122	2.9
Chromium, AA	1927	919	<0.020	0.500	mg/L	0.376	0.368	75.2	73.6	62 - 122	2.2
Chromium, GFAA	1120	654	<0.52	10.0	ug/L	11.4	11.2	114.0	112.0	80 - 131	1.8
Chromium, GFAA	1121	655	<0.00052	0.0100	mg/L	0.0110	0.0112	110.0	112.0	80 - 131	1.8
Iron, AA	1922	1742	350	500	mg/L	669	700	63.8	70.0	63 - 136	4.5
Iron, AA		1742	3.8	5.00	mg/L	8.24	8.38	88.8	91.6	63 - 136	1.7



## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
GEOTRANS, INC.  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

06/19/2001

Job No: 01.03957  
Account No: 39150

Page 11 of 11

Job Description: F119 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		700	4.5	4.4	mg/L	2.2	23
Sulfate, IC		993	19	18.9	mg/L	0.5	24
Chromium, GFAA	1120	655	0.0056	0.0053	mg/L	5.5	20
Chromium, GFAA	1121	655	0.0027	0.0040	mg/L	38.8	20









LETTER OF TRANSMITTAL

175 N. Corporate Drive, Suite 100, Brookfield, WI 53045 ■ (262) 792-1282 ■ (262) 792-1310 (FAX)

TO: W DNR DATE: 2-6-01  
Attn: K. Lauridsen RE: Better Brite  
1125 N. Military Ave. JOB NO: F150  
Green Bay, WI 54307-0448



We are sending you the following:

No. Of Copies	Description
2	Fall 2000 GW Monitoring Report

These are Transmitted as checked below:

- For approval
- For your use
- As requested
- For review and comment
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: ONE FOR W DNR, ONE FOR CITY OF DEPERE

LIBRARY.

LAB COST

IRON IN GROUNDWATER WOULD BE \$13.20 per sample,

IF WE RUN IT ON ~~AN~~ <sup>THE MW-116</sup> SAMPLES AT THE

CHROME SHOP SITE IT WOULD ADD \$13.20.

- Transmitted by:
- First Class Mail
  - Federal Express
  - Courier
  - Registered Mail
  - UPS
  - Other \_\_\_\_\_

OTHER WELLS  
AT THE CHROME  
SHOP ARE NOT  
CURRENTLY LAB  
SAMPLED, SO SAMPLING  
FOR IRON WOULD ADD \$40 per well.

Signed: Daniel L. Morgan

cc: \_\_\_\_\_

BECAUSE THEY MIGHT BAIL DRY, WE WOULD RECOMMEND GRAB SAMPLING WITHOUT PURGING FOR IRON. YOU COULD SELECT A FEW WELLS TO TRY.

**FALL 2000 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**

February 6, 2001

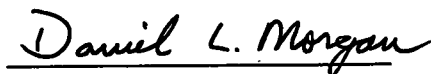
Prepared For:

Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
1125 N. Military Avenue  
Green Bay, WI 54307-0448

Prepared By:

GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F150

  
Daniel L. Morgan, P.E.  
Senior Engineer

  
Richard H. Sawall  
Staff Engineer

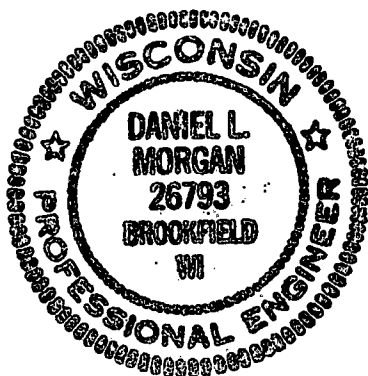
CERTIFICATION

This report,  
FALL 2000 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN

dated February 6, 2001

was prepared by  
registered professional engineers as  
defined in s. NR712.03 (2)

I, Daniel L. Morgan, hereby certify that I am a professional engineer  
as defined in s. NR712.03(2), and that to the best of my knowledge,  
all information contained in this document is correct.



*Daniel L. Morgan*

Daniel L. Morgan, P.E.  
Senior Engineer

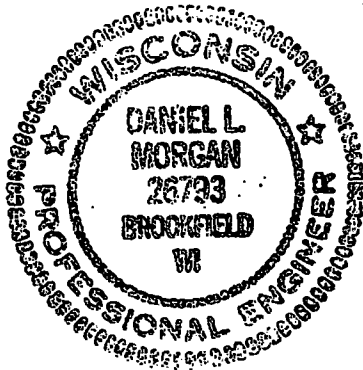
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all information contained in this document is correct.



*Daniel L. Morgan*

Daniel L. Morgan, P.E.  
Senior Engineer



## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-1
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Volatile Organic Compounds	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-1
4.3 Zinc Shop Monitoring Results	4-2
5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	5-1
5.1 Chrome Shop	5-1
5.2 Zinc Shop	5-1
6.0 CONCLUSIONS AND RECOMMENDATIONS	6-1
6.1 Chrome Shop Recommendations	6-1
6.2 Zinc Shop Recommendations	6-1

## **TABLE OF CONTENTS (CONT'D)**

### **FIGURES**

- 4-1 Water Table Map (May 3, 2000) - Chrome Shop
- 4-2 Potentiometric Surface Map (May 2, 2000) - Chrome Shop
- 4-3 Water Table Map (May 5, 2000) - Zinc Shop
- 4-4 Potentiometric Surface Map (May 3, 2000) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- A. Water Elevation Measurements
- B. Field Water Quality Data Sheets
- C. Analytical Laboratory Data and Chain of Custody Forms

## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin (Figure 1-1). The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in the De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are in primarily residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with Chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October, 1989, and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend™, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites. Sampling for the Fall 2000 event occurred on November 30 and December 1, 2000. The next sampling event is scheduled for June 1, 2001

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Fall 2000 post remedial action groundwater monitoring at the Chrome Shop included groundwater elevation measurements at 15 wells and sample collection and analysis from one existing well (MW-116). The following wells had groundwater elevations measured:

MW-106	MW-106A	MW-107	MW-107A
MW-108	MW-108A	MW-110	MW-110A
MW-111	MW-112	MW-113	MW-115
MW-116	B-101	B-104A	

### 2.2 Zinc Shop

Fall 2000 post remedial action groundwater monitoring at the Zinc Shop included 15 existing wells and the extraction sump (Zinc Sump; Figure 2-2). Groundwater samples and water table elevations were taken at all locations with the exception of the Zinc sump, where no water table elevation was taken. The wells in the monitoring plan include:

MW-3	MW-4	MW-4A	MW-5	MW-5A
MW-6	MW-6A	MW-7	MW-7A	MW-8
MW-8A	MW-9	MW-10	MW-11	MW-12
Zinc Sump				

### 3.0 SAMPLE ANALYSIS PARAMETERS

#### 3.1 Groundwater

Five groups of parameters were included in the groundwater sampling. These are water level elevation, field measurements (annotated below), hexavalent chromium, total chromium, and VOCs. The groundwater samples were collected following the GeoTrans' Standard Operating Procedures.

##### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points included in the monitoring plan. Elevation was measured to 0.01 ft. using an electronic water level probe.

##### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and turbidity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and turbidity were determined by visual and olfactory examination.

##### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Volatile Organic Compounds

A groundwater sample collected from the extraction sump at the Zinc Shop was analyzed for VOCs by method SW846-8260. Historical groundwater sampling results indicate that VOCs are not a significant concern in monitor wells at the Chrome Shop or the Zinc Shop, however, the Zinc Shop extraction sump contains VOCs at levels exceeding the NR140 groundwater standards. Elevated VOCs concentrations have been noted at the Chrome Shop sump and the french drain at the Chrome Shop. However, both of these sampling locations were located within the area to be stabilized. Thus, they could not be included in the monitoring plan. Samples were analyzed by Test America in Watertown which is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

During the month of July, 2000 the Chrome shop site was re-graded and re-seeded with grass.

### 4.2 Chrome Shop Monitoring Results

Ground water elevation was measured at all existing wells at the Chrome Shop during the Fall 2000 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table differs slightly from the May 2000 observations. Ground water flow at the water table is primarily to the west, following existing topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. B-104A has the highest overall value, which does not correlate with the rest of the data points. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at MW-116. Hexavalent Chromium was detected at MW-116 with 37 ppb and 46 ppb in the duplicate. Total chromium was detected at 23 ppb and 24 ppb in the MW-116 sample and duplicate respectively. The hexavalent chromium continues to indicate a two order of magnitude reduction with total chromium seeing a one order of magnitude loss since the completion of soil stabilization. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.



### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells and the extraction sump at the Zinc Shop during the Fall 2000 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table remains primarily to the north and west. The potentiometric surface is similar to previous measurements with flow also predominantly to the north and west, coincident with bedrock topography. Water table measurements are included as Appendix A.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix B. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 15 wells. Hexavalent chromium was detected at eight locations, including the zinc sump, MW-3, MW-5A, MW-6, MW-7, MW-8, MW-9 and MW-10. Hexavalent chromium was not detected at MW-5A, MW-7, or MW-8 previously, and was no longer detected at MW-6A or MW-5. Maximum concentrations were detected at the zinc sump and MW-6 with concentrations of 41,000 ppb and 26,000 ppb, respectively. Total chromium was detected above PALs at eight locations including the zinc sump, MW-3, MW-5A, MW-6, MW-6A, MW-8, MW-8A, and MW-9. Concentrations of total chromium ranged from 1.1 ppb to 23,000 ppb. The extent of chromium impacts in ground water is presented on Figure 4-5. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix C.

Only the Zinc Shop Sump was sampled for VOCs at the Zinc Shop. The Zinc Shop sump contained only 1,1,1-trichloroethane above detection limits with a concentration of 50 ppb. VOC analytical results and chain of custody forms are included as Appendix C.

## 5.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 5.1 Chrome Shop

Settling of areas in the stabilization zone continues. Specific areas requiring attention include the area surrounding MW-116 and the low lying areas on the western edge of the site (adjacent to the Konrath residence). Settling around MW116 prevents the flush mounted well box from being closed properly. The low lying areas adjacent to the Konrath residence are not draining properly and is a concern of the residents. Placement of topsoil, regrading and reseeding should be scheduled as soon as possible.

The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site requires periodic lawn mowing for optimum growth and development. The northern end of the site is apparently being mowed by the City of DePere.

### 5.2 Zinc Shop

System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the presence of hexavalent chromium in ground water within the stabilization area at concentrations above the 100 ppb ES for total chromium and 2) the wide spread chromium impacts in ground water at the Zinc Shop. Significant decreases in chromium concentrations are notable at both shops and further reduction is anticipated as a result of the reductant chemical introduced in fall 1999 at the Chrome Shop and continued ground water extraction at the Zinc Shop.

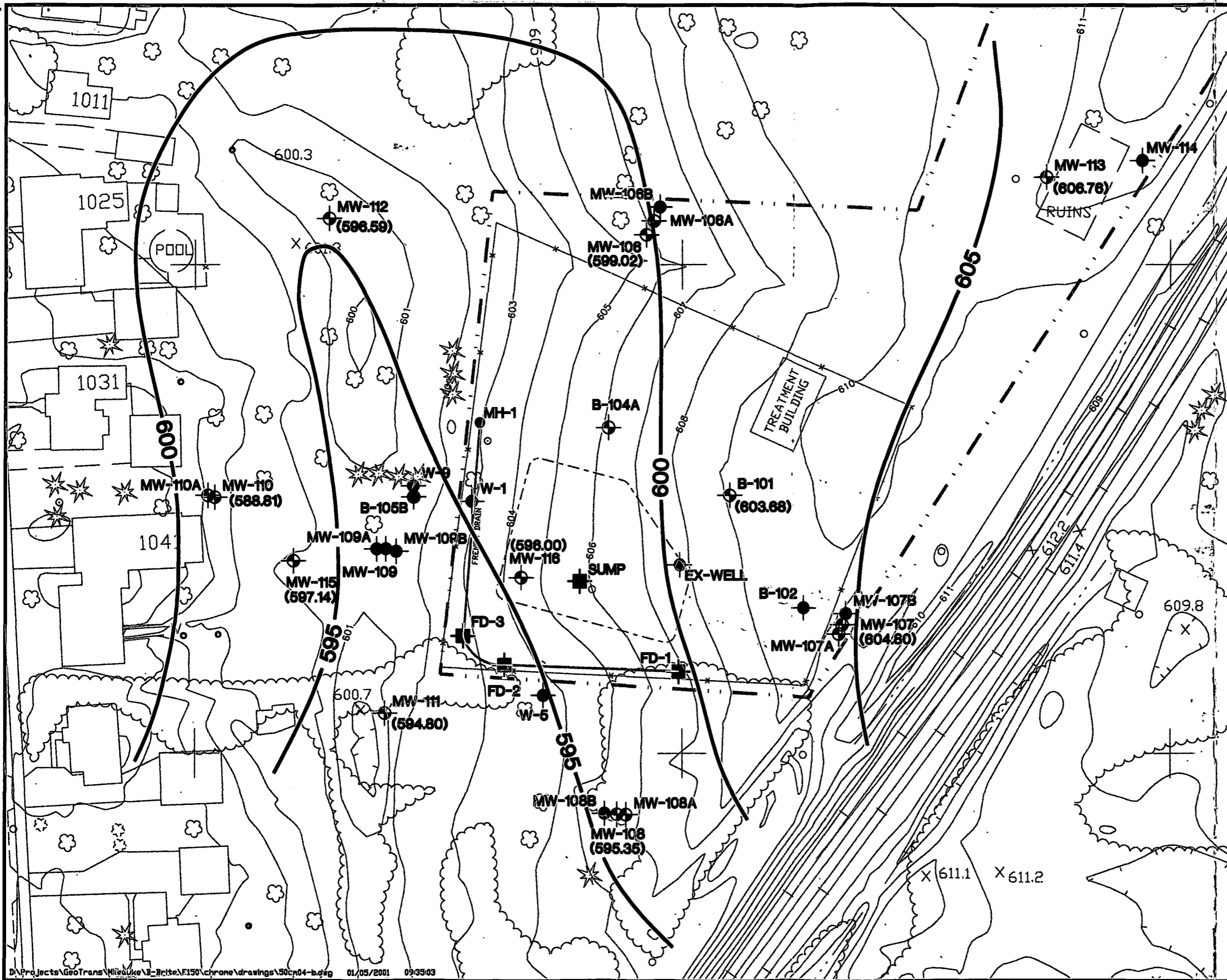
### 6.1 Chrome Shop Recommendations

Biannual sampling was originally proposed for the wells at the Chrome Shop. Hexavalent chromium in ground water as measured at MW-116 warrants more frequent ground water sampling. A resampling of MW-116 in June 2001 is planned to continue monitoring of hexavalent and total chromium at this location. The sampling frequency may be adjusted following this event, however contract provisions allow authorization of semi-annual sampling and groundwater elevation measurement of all wells listed in Section 2.1 for two additional years following the June 2001 event. This sampling frequency will provide adequate information to document variation in the contaminant concentrations with time following stabilization of soils at the site.

### 6.2 Zinc Shop Recommendations

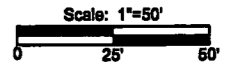
No modifications to the original monitoring plan are recommended for the Zinc Shop. Semi-annual monitor well sampling of the groundwater through June 2001 is currently authorized, with contract provisions in place to continue semi-annual sampling for two additional years. This sampling frequency will provide adequate information to document the progress of remediation with time following installation of the treatment system at the site.

## FIGURES



### EXPLANATION

- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- MW-11 ABANDONED WELL (any filled in well symbol)
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- 596 WATER TABLE CONTOURS (Dashed where Inferred)
- (597.14) WATER TABLE ELEVATION



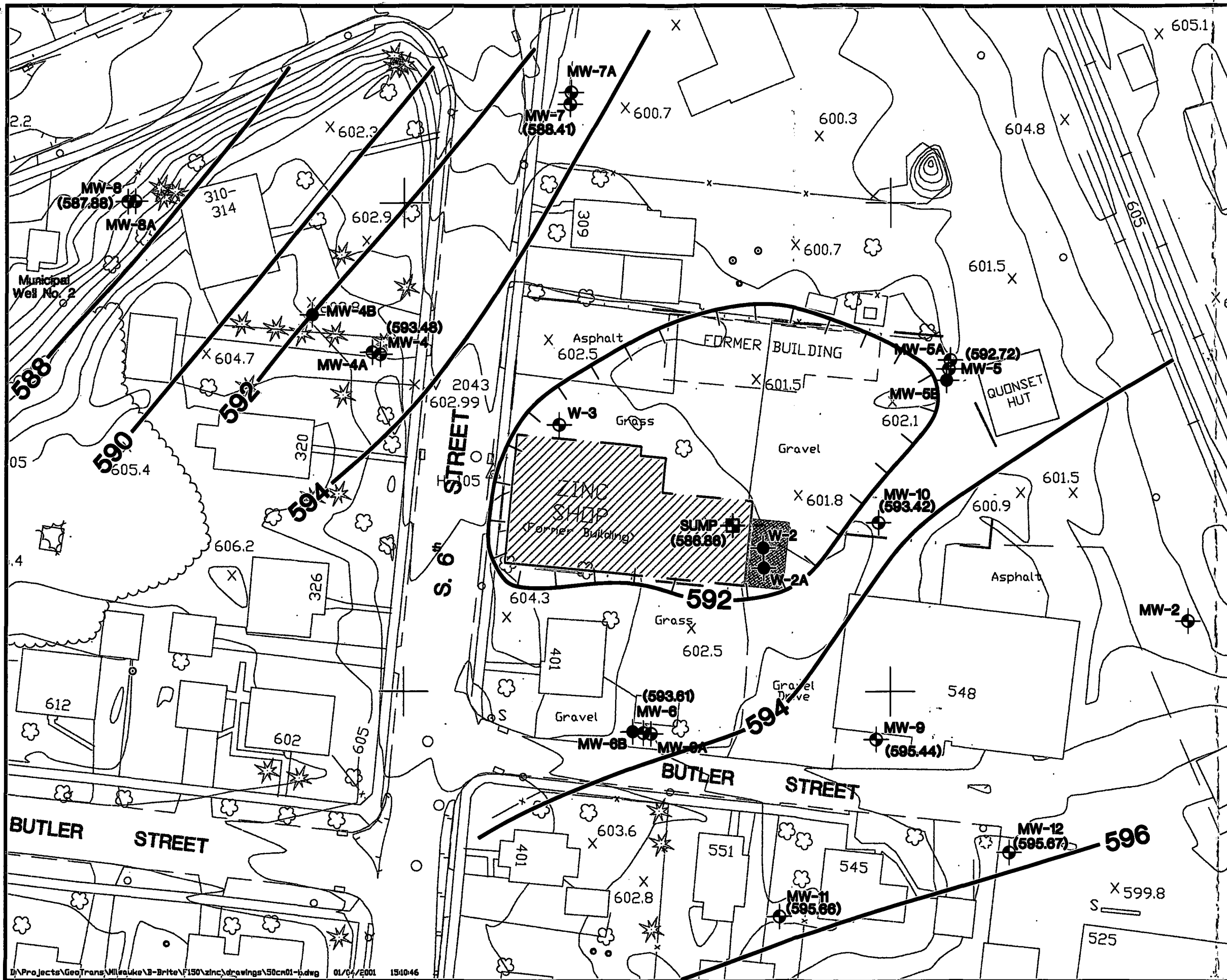
Basemap from Aero-Metric Engineering, Inc. 11/17/91.

BETTER BRITE DePERE, WISCONSIN	DATE: 01/05/01
WATER TABLE MAP (NOVEMBER 30, 2000) CHROME SHOP	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: RDH
	PROJ.: F150-102



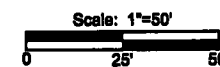
Figure 4-1





### EXPLANATION

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- MW-13 NON LOCATABLE LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- WATER TABLE CONTOURS (Dashed where Inferred)
- (594.96) WATER TABLE ELEVATION



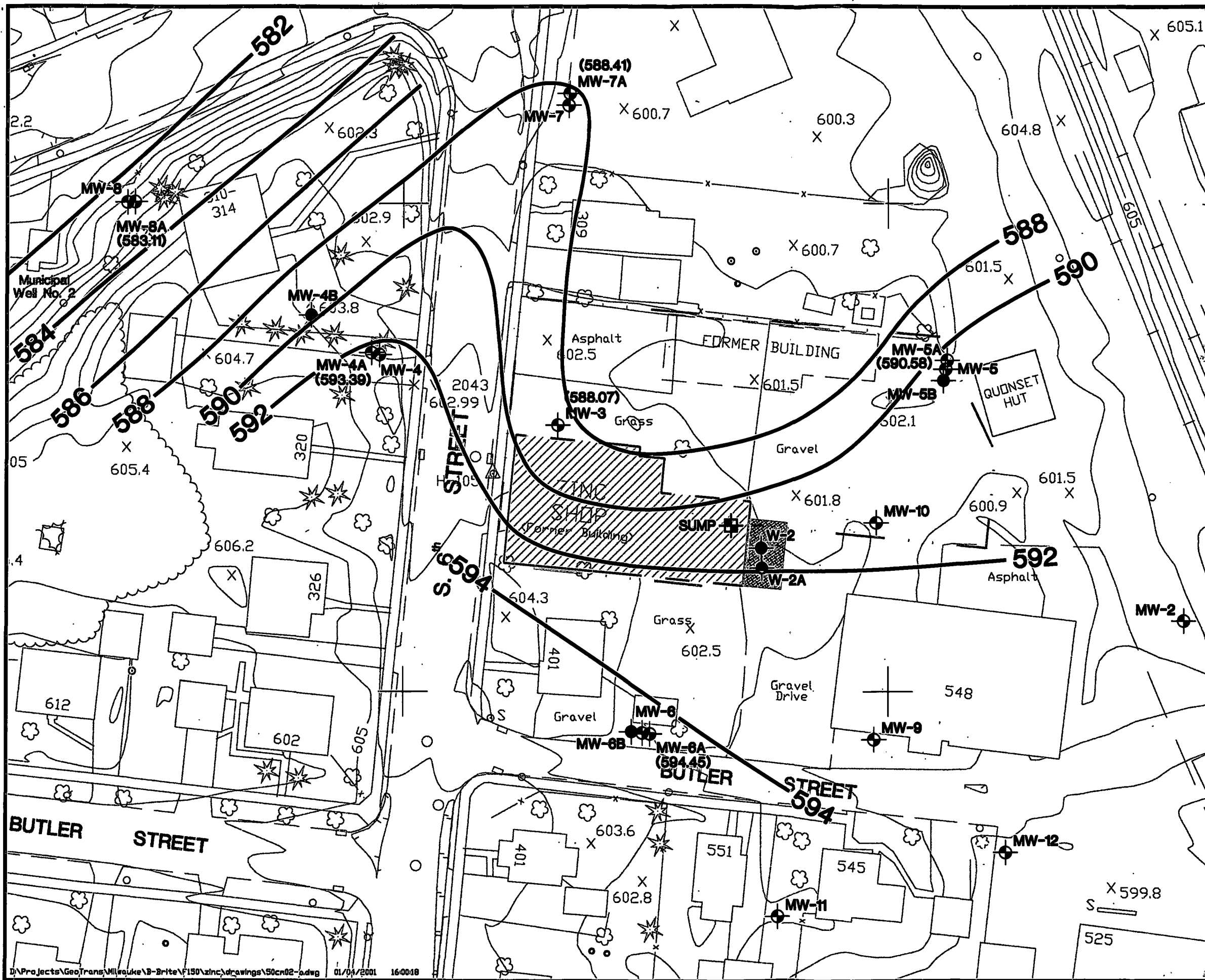
Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 01/04/01
WATER TABLE MAP (NOVEMBER 30, 2000) ZINC SHOP	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: RDH
	PROJ.: F150-102

**GeoTrans, Inc.**  
A TETRA TECH COMPANY

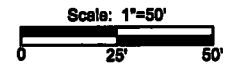
Figure 4-3





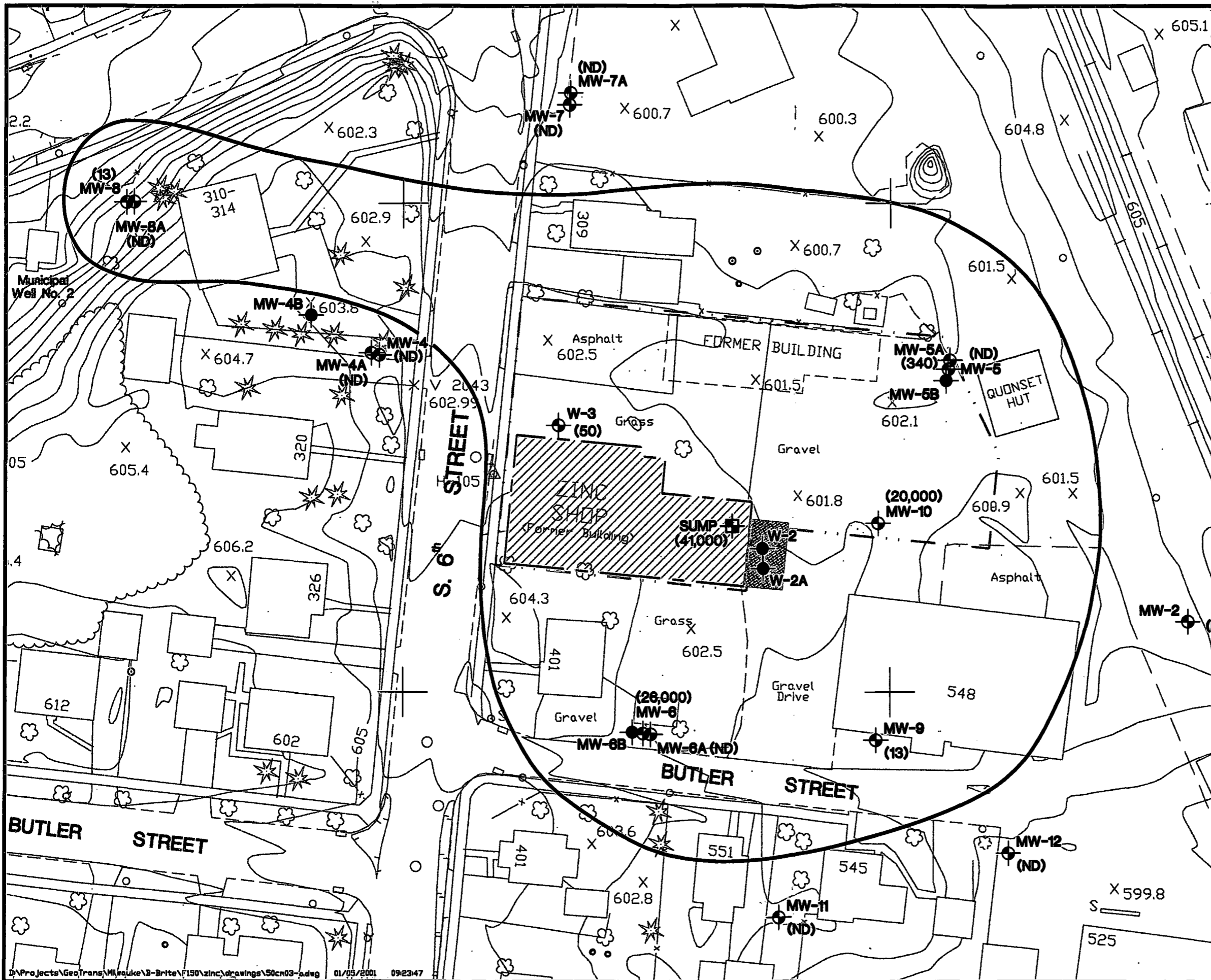
### EXPLANATION

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP ACCESS LOCATION AND DESIGNATION
- W-3A ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- MW-13 PROPOSED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- 592 POTENTIOMETRIC SURFACE CONTOUR (Dashed where Inferred)
- (594.08) POTENTIOMETRIC SURFACE ELEVATION





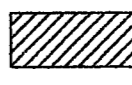








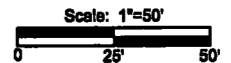
Basemap from Aero-Metric Engineering, Inc. 11/17/91

BETTER BRITE DePERE, WISCONSIN	DATE: 01/04/01
POTENTIOMETRIC SURFACE MAP (NOVEMBER 30, 2000)	DESIGNED:
ZINC SHOP	CHECKED:
	APPROVED:
	DRAWN: RDH
	PROJ.: F150-102



### EXPLANATION

-  **MW-9** MONITOR WELL LOCATION AND DESIGNATION
-  **SUMP** SUMP ACCESS LOCATION AND DESIGNATION
-  **W-3** ABANDONED MONITOR WELL LOCATION AND DESIGNATION
-  **MW-13** NON LOCATABLE LOCATION AND DESIGNATION
-  **GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993**
-  **GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990**
-  **PROPERTY LINE**
-  **SUMP BOUNDARY**
-  **EXTENT OF HEXAVALENT CHROMIUM (ppb) Dashed where Inferred**
-  **(23,000)** **HEXAVALENT CHROMIUM CONCENTRATION (ppb)**
-  **(ND)** **NOT DETECTED**



Basemap from Aero-Metric Engineering, Inc. 11/17/91	
BETTER BRITE DePERE, WISCONSIN	DATE: 01/04/01
EXTENT OF HEXAVALENT CHROMIUM IMPACTS (NOVEMBER, 2000) ZINC SHOP	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: RDH
	PROJ.: F150-102



Figure 4-5

**TABLE**

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium
ES			100
PAL			10
Chrome Sump	8/94	620000	694000
	10/94	300200	297000
	4/98	195000	192000
	7/98	132000	
French Drain	8/94	25800	22000
	10/94	32000	31700
	4/98	1060	1010
	7/98	336	312
B-101	8/94	<10	<3.4
	10/94	<10	
MW-106	8/94	7	<2.8
	DUP.	<10	<2.8
	10/94	<10 J	<3.4 J
	DUP.	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	4.0
MW-106A	8/94	<10	<2.8
	10/94	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	9.4
MW-106B	8/94	<10	
MW-107	8/94	<10	4.1 BJ
	10/94	<10 J	<3.4
	4/98	<10	<5
	5/00	<4.2	4.2
MW-107A	8/94	<10	<2.8
	10/94	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	16.0
MW-107B	8/94	<10	
MW-108	8/94	<10	<2.8
	10/94	<10	<3.4 J
	4/98	<10	
	DUP.	<10	<5
MW-108A	8/94	<10	3.0 BJ
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	55.0
MW-108B	8/94	<10	
MW-109	8/94	5760	9570
	10/94	2400	1980
	DUP.	3100	1700
	4/98	16500	18600
	7/98	12200	11100

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium
ES			100
PAL			10
MW-109A	8/94	<10	<2.8
	10/94	<10	1.3 B
	4/98	<10	<5
	7/98	<10	7
MW-109B	8/94	<10	
	10/94	<10	
MW-110	8/94	<10	3.6 BJ
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	37.0
MW-110A	8/94	<10	<2.8
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	25.0
MW-111	8/94	<10	<3.4
	DUP.	<10	<3.4
	10/94	<10	<0.70
	4/98	225	<5
	7/98	22.0	27
	11/98	<0.5	<0.5
MW-112	5/00	<4.2	36.0
	10/94	<10	<0.70
	11/94	<10	<2.5
	4/98	<10	<5
	5/00	<4.2	4.1
MW-113	8/94	140	99.7
	10/94	<10 J	8.6 B
	5/95	43	20.3
	4/98	<10	<5
	7/98	<10	12
	5/00	<4.2	22.0
MW-114	3/95	<10 J	<2.9
	DUP.	<10 J	<2.9
	5/95	<10 J	<1.0
	DUP.	<10 J	<1.0
	4/98	<10	<5
MW-115	5/00	<4.2	6.0
MW-115A	5/00	<4.2	12.0
MW-116	5/00	1600	470
	DUP.	1500	460
	11/00	37	23
	DUP	46	24
PF-MW-2	5/00	<4.2	7.6
MW-3	5/00	230.0	330
	11/00	50	130

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

w:\wpdata\project\newF119Chrom.TBL

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium
ES			100
PAL			10
MW-4	8/94	<10	<3.4
	DUP	<10	<3.4
	10/94	<10 J	<3.4 J
	DUP	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	4.6
	11/00	<4.2	2.4
MW-4A	8/94	<10	<3.4
	10/94	<10 J	6.0 B
	4/98	<10	<5
	5/00	<4.2	8.7
	11/00	<4.2	3.7
MW-4B	10/94	<10	<0.70
	11/94	<10	<2.5
MW-5	8/94	1590	827
	10/94	460 J	299 J
	DUP	510 J	763 J
	4/98	212	631
	DUP	207	667
	7/98	1420	1230
	5/00	120	190
	11/00	<4.2	6.6
MW-5A	8/94	<10	<3.4
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	6.5
	11/00	340	380
MW-5B	8/94		
	10/94	<10	<5
MW-6	8/94	15900	39200
	10/94	47000	41900 J
	4/98	7650	4560
	5/00	23000	26000
	11/00	26000	23000
MW-6A	8/94	<10	4.9 B
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	6.6	22.0
	11/00	<4.2	13
MW-6B	8/94	<10	
MW-7	8/94	<10	6.6 BJ
	DUP	<10	<2.8
	10/94	<10 J	36.4 J
	4/98	<10	<5
	DUP	<10	<5
	5/00	<4.2	3.9
	11/00	<4.2	1.1

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

TABLE 4-1 GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM

Parameter	Date	Hexavalent Chromium	Chromium
ES			100
PAL			10
MW-7A	8/94	<10	<2.8
	10/94	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	4.7
	11/00	7.9	5
MW-8	10/94	<10	<0.70
	11/94	<10	<2.5
	DUP.	<10	<2.5
	4/98	<10	<5
	5/00	<4.2	15.0
	11/00	13	13
MW-8A	10/94	<10	<0.70
	11/94	<10	<2.5
	4/98	<10	<5
	5/00	<4.2	16.0
	11/00	<4.2	34
MW-9	8/94	400	697
	10/94	470 J	442 J
	4/98	209	<5
	7/98	60.0	75
	11/00	13	15
	DUP	19	51
MW-10	8/94	60300	53100
	10/94	60800 J	43500 J
	11/00	20000	18000
MW-11	5/95	<10	<1.0
	4/98	<10	<5
	5/00	<4.2	7.0
	11/00	<4.2	4.1
MW-12	3/95	<10 J	<2.9
	5/95	<10	<1.0
	4/98	<10	<5
	5/00	<4.2	4.8
11/00	<4.2	6	
MW-13	3/95	<10 J	<2.9
	5/95	<10	<1.0
Zinc Sump	8/94	69000	209000
	10/94	144900	277000
	4/98	66000	38300
	7/98	131000	131000
	5/00	1800	1700
	11/00	41000	27000
Private	8/94	<10	<10
Municipal	8/94	<10	<10
	DUP.	<10	<10
	10/94	<10	<10
	DUP.	<10	<10
USGS	10/94	<10	0.75 B
USGS-A	10/94	<10	11.9

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

**APPENDIX A**  
**WATER ELEVATION MEASUREMENTS**



# GROUNDWATER LEVELS

November 30, 2000

## CHROME SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
B-101	608.85	5.17	603.68
B-104A	606.08	7.51	598.57
MW-106	606.21	7.19	599.02
MW-106A	606.36	10.11	596.25
MW-107	608.41	3.61	604.8
MW-107A	608.33	19.15	589.18
MW-108	604.22	8.87	595.35
MW-108A	604.44	16.78	587.66
MW-110	603.05	4.31	598.74
MW-110A	603.31	14.5	588.81
MW-111	600.76	5.96	594.8
MW-112	600.61	4.02	596.59
MW-113	611.08	4.32	606.76
MW-115	601.04	3.9	597.14
MW-116	604.28	8.28	596

## ZINC SHOP

Well Number	Top of Casing	Water Level in Feet	Water Elevation
MW-12	599.87	4.2	595.67
MW-9	601.66	6.22	595.44
MW-5	600.81	8.09	592.72
MW-5A	600.81	10.23	590.58
MW-6	602.33	8.72	593.61
MW-6A	605.19	10.74	594.45
MW-4	602.99	9.51	593.48
MW-4A	603.29	9.9	593.39
MW-8	598.18	10.3	587.88
MW-8A	598.59	15.48	583.11
MW-7	600.6	6.7	593.9
MW-7A	600.51	12.1	588.41
MW-11	602.41	6.74	595.67
MW-3	602.52	14.45	588.07
MW-10	601.53	8.11	593.42
Sump	604.09	17.23	586.86

**APPENDIX B**  
**FIELD WATER QUALITY DATA SHEETS**

# FIELD WATER QUALITY SAMPLING AND ANALYSIS

FISD  
PLM

PROJECT: Better Brite  
 PROJECT #: Fig  
 LOCATION: Depure wt  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-5	MW-5A	MW-10	Zinc Sump	MW-12
WATER TYPE		GW	GW	GW	GW	GW
DATE		11-30-00	11-30-00	11-30-00	11-30-00	11-30-00
CLOCK TIME		1545	1550	1505	1525	1455
DEPTH TO WATER*		8.09	10.23	8.11	17.35	6.22
MEASURED WELL DEPTH		15.35	29.48	14.69	20.4	16.36
PURGE VOL/CASING VOL(g)		5	9.8	5.5	5	7
DEPTH SAMPLE TAKEN		15.35	29.0	14	20	16
SAMPLING DEVICE		hangy bailer	hangy bailer	hangy bailer	dedicated bailer	hangy bailer
FIELD TEMPERATURE (°C)		6.1	8.0	8.0	9.2	9.6
ELEC. COND. (µmhos/cm)	MEASURED	775	231.8	964	1242	595
	AT 25°C	1202	345.0	1436	1820	854
PH		7.41	7.55	6.87	7.43	6.89
ALKALINITY		-	-	-	-	-
COLOR		clear	clear	yellow	sl. yellow	clear
ODOR		none	none	none	Slight	none
CLARITY		clear	sl. cloudy	clear	clear	clear
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
			dry @ 7gal	dry @ 4gal	did not purge	
LABORATORY: SENT TO: DATE SENT:		Test America				
SAMPLED BY:		RHS				

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brake  
 PROJECT #: F119  
 LOCATION: Depos. WE  
 PERSONNEL: RHS

INSTRUMENTS

TEMPERATURE: YSI 631  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-12	MW-6	MW-6A	MW-3	MW-7
WATER TYPE		GW				→
DATE		11-30-00				→
CLOCK TIME		14:45	14:30	14:25	16:10	15:55
DEPTH TO WATER*		4.20	8.72	10.74	14.5	6.7
MEASURED WELL DEPTH		14.55	15.5	28.4	28.56	15.6
PURGE VOL/CASING VOL(g)		6.5	5.5	11	10	6
DEPTH SAMPLE TAKEN		140	15	28	28	15
SAMPLING DEVICE		hang bailer	hang bailer	hang bailer	<del>periscope</del>	hang bailer
FIELD TEMPERATURE (°C)		9.8	9.0	7.9	8.6	9.5
ELEC. COND. (µmhos/cm)	MEASURED	1362	795	304.1	659	771
	AT 25°C	1967	1147	455.8	969	1117
pH		7.0	7.58	7.88	7.34	7.25
ALKALINITY		-	-	-	-	-
COLOR		clear	bright yellow	clear	clear	clear
ODOR		none	none	none	none	none
CLARITY		clear	clear	clear	clear	clear
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
				dry @ 6 gal.	long time to pump-dedicated tubing	
LABORATORY: SENT TO:		Test America				
DATE SENT:						
SAMPLED BY:		RHS →				

\*Measured from top of well riser.

FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Balte  
 PROJECT #: E 116  
 LOCATION: Depue  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL: SAMPLE POINT		MW-7A	MW-11	MW-8	MW-8A	MW-4
WATER TYPE		GW	GW	GW	GW	GW
DATE		11-30-00	11-30-00	12-01-00	12-01-00	12-01-00
CLOCK TIME		15:55 <del>00</del>	14:15	12:00	11:55	11:35
DEPTH TO WATER*		<del>12.1</del> 12.1	6.74	10.30	15.48	9.51
MEASURED WELL DEPTH		26.5	15.36	16.38	27.23	14.92
PURGE VOL/CASING VOL(g)		4.5	7.5	5	6.5	(16)
DEPTH SAMPLE TAKEN		26	15.0	16.00	27.0	14.00
SAMPLING DEVICE		hang bailer	hang bailer	hang bailer	hang bailer	hang bailer
FIELD TEMPERATURE (°C)		3.6	8.9	5.8	5.3	6.5
ELEC. COND. (umhos/cm)	MEASURED	2375	1044	631	261.2	1001
	AT 25°C	3486	1516	1017	422.2	1550
PH		7.74	7.40	7.22	7.61	7.00
ALKALINITY						
COLOR		clear	clear	clear	clear	clear
ODOR		none	none	none	none	none
CLARITY		clear	cloudy	clear	clear	clear
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
		dry after 6 gallons	dry after 6	dry after 4 gallons	dry after 5 gallons	dry after
LABORATORY: SENT TO: DATE SENT:		Test America				
SAMPLED BY:		RHS				

\*Measured from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Bricks  
 PROJECT #: FLG  
 LOCATION: Depue  
 PERSONNEL: RHS

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: \_\_\_\_\_

GENERAL:		SAMPLE POINT	MW-4A	MW-116	MW-116 #20		
WATER TYPE			GW	GW	GW		
DATE			12-01-00	12-01-00	12-01-00		
CLOCK TIME			11:30	12:10	12:15		
DEPTH TO WATER*			9.90	8.25	8.25		
MEASURED WELL DEPTH			28.64	-			
PURGE VOL/CASING VOL(g)			52	5	-		
DEPTH SAMPLE TAKEN			28.00				
SAMPLING DEVICE			dedicated bailer	dedicated bailer	dedicated bailer		
FIELD TEMPERATURE (°C)			5.7	7.0	8.5		
ELEC. COND. (µmhos/cm)	MEASURED		852	2774	3012		
	AT 25°C		1409	4431	4518		
pH			7.14	6.99	7.01		
ALKALINITY							
COLOR			clear	clear	clear		
ODOR			none	none	none		
CLARITY			clear	cloudy	cloudy		
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
			White	purple 5 gallons			
LABORATORY: SENT TO:			Test America				
DATE SENT:							
SAMPLED BY:			RHS				

\*Measured from top of well riser.

**APPENDIX C**  
**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

**ANALYTICAL AND QUALITY CONTROL REPORT**

PROJECT: F119  
 TO: DLM

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/12/2000

Job No: 00.10403

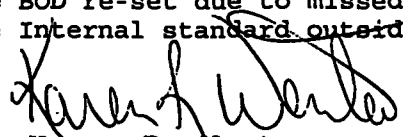
Page 1 of 21

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
420424	MW-11 F119 Better Brite	11/30/2000	12/01/2000
420425	MW-6 F119 Better Brite	11/30/2000	12/01/2000
420426	MW-6A F119 Better Brite	11/30/2000	12/01/2000
420427	MW-12 F119 Better Brite	11/30/2000	12/01/2000
420428	MW-9 F119 Better Brite	11/30/2000	12/01/2000
420429	MW-10 F119 Better Brite	11/30/2000	12/01/2000
420430	MW-5 F119 Better Brite	11/30/2000	12/01/2000
420431	MW-5A F119 Better Brite	11/30/2000	12/01/2000
420432	MW-7 F119 Better Brite	11/30/2000	12/01/2000
420433	MW-7A F119 Better Brite	11/30/2000	12/01/2000
420434	MW-3 F119 Better Brite	11/30/2000	12/01/2000
420435	Zinc Sump F119 Better Brite	11/30/2000	12/01/2000
420436	MW-9 Dupe F119 Better Brite	11/30/2000	12/01/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

- |  |  |
|--|--|
| A = Analyzed/extracted past hold time  | B = Blank is contaminated              |
| C = Standard outside of control limits | D = Diluted for analysis               |
| F = Sample filtered in lab             | G = Received past hold time            |
| H = Late eluting hydrocarbons present  | I = Improperly handled sample          |
| J = Estimated concentration            | L = Common lab solvent and contaminant |
| M = Matrix interference                | P = Improperly preserved sample        |
| Q = Result confirmed via re-analysis   | S = Sediment present                   |
| T = Does not match typical pattern     | W = BOD re-set due to missed dilution  |
| X = Unidentified compound(s) present   | Z = Internal standard outside limits   |

  
 Karen R. Wenta  
 Inorganic Operations Manager



## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420424  
Account No: 39150  
Page 2 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-11 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 14:15

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.0041	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420425  
Account No: 39150  
Page 3 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 14:30

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	26	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, AA	23	mg/L	0.026	0.091	EPA 218.1	12/08/2000	1776 878

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420426  
Account No: 39150  
Page 4 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6A F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 14:25

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.013	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420427  
Account No: 39150  
Page 5 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-12 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 14:45

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.0060	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420428  
Account No: 39150  
Page 6 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-9 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 14:55

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.013	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.015	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420429  
Account No: 39150  
Page 7 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-10 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 15:05

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	20	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, AA	18	mg/L	0.026	0.091	EPA 218.1	12/08/2000	1776 878

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420432  
Account No: 39150  
Page 10 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 15:55

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.0011	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420433  
Account No: 39150  
Page 11 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7A F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 15:55

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.0079	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.0050	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614



## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420434  
Account No: 39150  
Page 12 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-3 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 16:10

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.050	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.13	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/12/2000  
 Job No: 00.10403  
 Sample No: 420435  
 Account No: 39150  
 Page 13 of 21

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Zinc Sump F119 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 11/30/2000 15:25

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	41	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, AA	27	mg/L	0.026	0.091	EPA 218.1	12/08/2000	1776 878
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.50	ug/L	0.10	0.33	SW 8260B	12/12/2000	2233
Bromobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Bromochloromethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Bromodichloromethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Bromoform	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Bromomethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
n-Butylbenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
sec-Butylbenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
tert-Butylbenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Carbon Tetrachloride	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Chlorobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Chlorodibromomethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Chloroethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Chloroform	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Chloromethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
2-Chlorotoluene	<0.50	ug/L	0.10	0.33	SW 8260B	12/12/2000	2233
4-Chlorotoluene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2-Dibromo-3-Chloropropane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2-Dibromoethane (EDB)	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Dibromomethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2-Dichlorobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,3-Dichlorobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,4-Dichlorobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Dichlorodifluoromethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1-Dichloroethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2-Dichloroethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1-Dichloroethene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
cis-1,2-Dichloroethene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
trans-1,2-Dichloroethene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2-Dichloropropane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,3-Dichloropropane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
2,2-Dichloropropane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1-Dichloropropene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
cis-1,3-Dichloropropene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
trans-1,3-Dichloropropene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Di-isopropyl ether	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/12/2000  
 Job No: 00.10403  
 Sample No: 420435  
 Account No: 39150  
 Page 14 of 21

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Zinc Sump F119 Better Brite  
 DePere, WI  
 Rec'd on ice

Date/Time Taken: 11/30/2000 15:25

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Ethylbenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Hexachlorobutadiene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Isopropylbenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
p-Isopropyltoluene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Methylene Chloride	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Methyl-t-butyl ether	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Naphthalene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
n-Propylbenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Styrene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1,1,2-Tetrachloroethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1,2,2-Tetrachloroethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Tetrachloroethene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Toluene	<0.50	ug/L	0.10	0.33	SW 8260B	12/12/2000	2233
1,2,3-Trichlorobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2,4-Trichlorobenzene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1,1-Trichloroethane	50	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,1,2-Trichloroethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Trichloroethene	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Trichlorofluoromethane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2,3-Trichloropropane	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
1,2,4-Trimethylbenzene	<0.50	ug/L	0.10	0.33	SW 8260B	12/12/2000	2233
1,3,5-Trimethylbenzene	<0.50	ug/L	0.10	0.33	SW 8260B	12/12/2000	2233
Vinyl Chloride	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Xylenes, Total	<1.2	ug/L	0.25	0.83	SW 8260B	12/12/2000	2233
Surr: Dibromofluoromethane	102.4	‡		87-115	SW 8260B	12/12/2000	2233
Surr: Toluene-d8	98.2	‡		86-111	SW 8260B	12/12/2000	2233
Surr: Bromofluorobenzene	94.6	‡		90-109	SW 8260B	12/12/2000	2233

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000  
Job No: 00.10403  
Sample No: 420436  
Account No: 39150  
Page 15 of 21

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-9 Dupe F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 11/30/2000 15:00

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.019	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.051	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

12/12/2000

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 00.10403  
Account No: 39150

Page 16 of 21

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	652	0.500	0.51	102.0	90 - 110	jts
Chromium, hexavalent	652	0.500	0.49	98.0	90 - 110	jts
Chromium, AA	878	0.500	0.516	103.2	90 - 110	gaf
Chromium, AA	878	0.500	0.511	102.2	90 - 110	gaf
Chromium, GFAA	614	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	614	0.0100	0.0104	104.0	90 - 110	mmm
VOC - AQUEOUS - EPA 8260B						
Benzene	2233	50.0	53.6	107.2	80 - 120	mae
Bromoform	2233	50.0	52.6	105.2	80 - 120	mae
Chlorobenzene	2233	50.0	51.9	103.8	80 - 120	mae
Chloroform	2233	50.0	51.7	103.4	80 - 120	mae
Chloromethane	2233	50.0	58.2	116.4	80 - 120	mae
1,1-Dichloroethane	2233	50.0	53.9	107.8	80 - 120	mae
1,1-Dichloroethene	2233	50.0	52.1	104.2	80 - 120	mae
1,2-Dichloropropane	2233	50.0	51.6	103.2	80 - 120	mae
Ethylbenzene	2233	50.0	52.4	104.8	80 - 120	mae
Methyl-t-butyl ether	2233	50.0	51.8	103.6	80 - 120	mae
1,1,2,2-Tetrachloroethane	2233	50.0	50.3	100.6	80 - 120	mae
Toluene	2233	50.0	50.1	100.2	80 - 120	mae
Trichloroethene	2233	50.0	50.2	100.4	80 - 120	mae
1,2,4-Trimethylbenzene	2233	50.0	50.9	101.8	80 - 120	mae
1,3,5-Trimethylbenzene	2233	50.0	50.9	101.8	80 - 120	mae
Vinyl Chloride	2233	50.0	67.0	134.0	80 - 120	mae
Xylenes, Total	2233	150	157	104.7	80 - 120	mae
Surr: Dibromofluoromethane	2233	50.0	52.2	104.4	87 - 116	mae
Surr: Toluene-d8	2233	50.0	48.9	97.8	89 - 109	mae
Surr: Bromofluorobenzene	2233	50.0	48.4	96.8	87 - 112	mae

## QUALITY CONTROL REPORT

### BLANKS

12/12/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.10403  
 Account No: 39150

Page 17 of 21

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		652	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		652	<0.0042	0.0042	0.015	mg/L
Chromium, AA	1776	878	<0.026	0.026	0.091	mg/L
Chromium, AA		878	<0.026	0.026	0.091	mg/L
Chromium, GFAA	1064	614	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		614	<0.00052	0.00052	0.0018	mg/L
VOC - AQUEOUS - EPA 8260B						
Benzene		2233	<0.10	0.10	0.33	ug/L
Bromobenzene		2233	<0.25	0.25	0.83	ug/L
Bromochloromethane		2233	<0.25	0.25	0.83	ug/L
Bromodichloromethane		2233	<0.25	0.25	0.83	ug/L
Bromoform		2233	<0.25	0.25	0.83	ug/L
Bromomethane		2233	<0.25	0.25	0.83	ug/L
n-Butylbenzene		2233	<0.25	0.25	0.83	ug/L
sec-Butylbenzene		2233	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		2233	<0.25	0.25	0.83	ug/L
Carbon Tetrachloride		2233	<0.25	0.25	0.83	ug/L
Chlorobenzene		2233	<0.25	0.25	0.83	ug/L
Chlorodibromomethane		2233	<0.25	0.25	0.83	ug/L
Chloroethane		2233	<0.25	0.25	0.83	ug/L
Chloroform		2233	<0.25	0.25	0.83	ug/L
Chloromethane		2233	<0.25	0.25	0.83	ug/L
2-Chlorotoluene		2233	<0.10	0.10	0.33	ug/L
4-Chlorotoluene		2233	<0.25	0.25	0.83	ug/L
1,2-Dibromo-3-Chloropropane		2233	<0.25	0.25	0.83	ug/L
1,2-Dibromoethane (EDB)		2233	<0.25	0.25	0.83	ug/L
Dibromomethane		2233	<0.25	0.25	0.83	ug/L
1,2-Dichlorobenzene		2233	<0.25	0.25	0.83	ug/L
1,3-Dichlorobenzene		2233	<0.25	0.25	0.83	ug/L
1,4-Dichlorobenzene		2233	<0.25	0.25	0.83	ug/L
Dichlorodifluoromethane		2233	<0.25	0.25	0.83	ug/L
1,1-Dichloroethane		2233	<0.25	0.25	0.83	ug/L
1,2-Dichloroethane		2233	<0.25	0.25	0.83	ug/L
1,1-Dichloroethene		2233	<0.25	0.25	0.83	ug/L
cis-1,2-Dichloroethene		2233	<0.25	0.25	0.83	ug/L
trans-1,2-Dichloroethene		2233	<0.25	0.25	0.83	ug/L
1,2-Dichloropropane		2233	<0.25	0.25	0.83	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

12/12/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.10403  
 Account No: 39150

Page 18 of 21

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
1,3-Dichloropropane		2233	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		2233	<0.25	0.25	0.83	ug/L
1,1-Dichloropropene		2233	<0.25	0.25	0.83	ug/L
cis-1,3-Dichloropropene		2233	<0.25	0.25	0.83	ug/L
trans-1,3-Dichloropropene		2233	<0.25	0.25	0.83	ug/L
Di-isopropyl ether		2233	<0.25	0.25	0.83	ug/L
Ethylbenzene		2233	<0.25	0.25	0.83	ug/L
Hexachlorobutadiene		2233	<0.25	0.25	0.83	ug/L
Isopropylbenzene		2233	<0.25	0.25	0.83	ug/L
p-Isopropyltoluene		2233	<0.25	0.25	0.83	ug/L
Methylene Chloride		2233	<0.25	0.25	0.83	ug/L
Methyl-t-butyl ether		2233	<0.25	0.25	0.83	ug/L
Naphthalene		2233	<0.25	0.25	0.83	ug/L
n-Propylbenzene		2233	<0.25	0.25	0.83	ug/L
Styrene		2233	<0.25	0.25	0.83	ug/L
1,1,1,2-Tetrachloroethane		2233	<0.25	0.25	0.83	ug/L
1,1,2,2-Tetrachloroethane		2233	<0.25	0.25	0.83	ug/L
Tetrachloroethene		2233	<0.25	0.25	0.83	ug/L
Toluene		2233	<0.10	0.10	0.33	ug/L
1,2,3-Trichlorobenzene		2233	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		2233	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		2233	<0.25	0.25	0.83	ug/L
1,1,2-Trichloroethane		2233	<0.25	0.25	0.83	ug/L
Trichloroethene		2233	<0.25	0.25	0.83	ug/L
Trichlorofluoromethane		2233	<0.25	0.25	0.83	ug/L
1,2,3-Trichloropropane		2233	<0.25	0.25	0.83	ug/L
1,2,4-Trimethylbenzene		2233	<0.10	0.10	0.33	ug/L
1,3,5-Trimethylbenzene		2233	<0.10	0.10	0.33	ug/L
Vinyl Chloride		2233	<0.25	0.25	0.83	ug/L
Xylenes, Total		2233	<0.25	0.25	0.83	ug/L
Surr: Dibromofluoromethane		2233	102.4		87-115	%
Surr: Toluene-d8		2233	98.6		86-111	%
Surr: Bromofluorobenzene		2233	95.0		90-109	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000

Job No: 00.10403  
Account No: 39150

Page 19 of 21

Job Description: F119 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, AA	1776	878	23	23.7	mg/L	3.0	12
Chromium, GFAA	1064	614	0.0058	0.0056	mg/L	3.5	20



## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

12/12/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.10403  
 Account No: 39150

Page 20 of 21

Job Description: F119 Better Brite

Analyte	Prep	Run	Sample	Spike	Units	Matrix	MSD	MSD	Relative		
	Batch	Batch				Spike				MSD	Control
	Number	Number	Result	Amount		Result	Percent	Percent	Limits	Percent	
Chromium, hexavalent		652	0.050	0.500	mg/L	0.55	0.55	100.0	100.0	70 - 116	0.0
Chromium, GFAA	1064	614	0.0013	0.0100	mg/L	0.0110	0.0113	97.0	100.0	80 - 131	2.7
VOC - AQUEOUS - EPA 8260B											
Benzene		2233	<0.10	50.0	ug/L	52.0	50.0	104.0	100.0	80 - 121	3.9
Chlorobenzene		2233	<0.25	50.0	ug/L	51.5	49.2	103.0	98.4	85 - 116	4.6
1,1-Dichloroethene		2233	<0.25	50.0	ug/L	51.1	51.5	102.2	103.0	72 - 131	0.8
Ethylbenzene		2233	<0.25	50.0	ug/L	50.5	49.5	101.0	99.0	83 - 118	2.0
Methyl-t-butyl ether		2233	<0.25	50.0	ug/L	51.8	50.3	103.6	100.6	71 - 127	2.9
Toluene		2233	<0.10	50.0	ug/L	49.4	47.3	98.8	94.6	82 - 116	4.3
Trichloroethene		2233	1.6	50.0	ug/L	52.2	48.1	101.2	93.0	80 - 117	8.2
1,2,4-Trimethylbenzene		2233	0.77	50.0	ug/L	50.2	49.1	98.9	96.7	80 - 122	2.2
1,3,5-Trimethylbenzene		2233	<0.10	50.0	ug/L	50.2	48.8	100.4	97.6	83 - 122	2.8
Xylenes, Total		2233	<0.25	150	ug/L	155	148	103.3	98.7	84 - 119	4.6
Surr: Dibromofluoromethane		2233	51.3	50.0	ug/L	51.6	51.2	103.2	102.4	91 - 111	0.8
Surr: Toluene-d8		2233	49.2	50.0	ug/L	49.5	48.7	99.0	97.4	85 - 115	1.6
Surr: Bromofluorobenzene		2233	47.6	50.0	ug/L	49.0	49.1	98.0	98.2	87 - 111	0.2

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/12/2000

Job No: 00.10403  
Account No: 39150

Page 21 of 21

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	LCSD Result	LCS Percent Recovery	LCSD Percent Recovery	Control Limits	Relative Percent Difference
Chromium, AA	1776	878	0.500	mg/L	0.512		102.4		76 - 106	
Chromium, GFAA	1064	614	0.0100	mg/L	0.00955		95.5		87 - 116	





## ANALYTICAL AND QUALITY CONTROL REPORT

FILE  
# F150  
DLm

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/07/2000

Job No: 00.10428

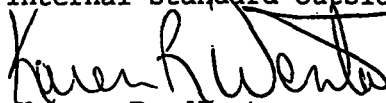
Page 1 of 13

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
420612	MW-4A F119 Better Brite	12/01/2000	12/01/2000
420613	MW-4 F119 Better Brite	12/01/2000	12/01/2000
420614	MW-8A F119 Better Brite	12/01/2000	12/01/2000
420615	MW-8 F119 Better Brite	12/01/2000	12/01/2000
420616	MW-116 F119 Better Brite	12/01/2000	12/01/2000
420617	MW-116 Dup F119 Better Brite	12/01/2000	12/01/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

  
Karen R. Wenta  
Inorganic Operations Manager

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/07/2000  
Job No: 00.10428  
Sample No: 420612  
Account No: 39150  
Page 2 of 13

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-4A F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 12/01/2000 11:30

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.0037	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/07/2000  
Job No: 00.10428  
Sample No: 420613  
Account No: 39150  
Page 3 of 13

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-4 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 12/01/2000 11:35

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.0024	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

12/07/2000  
Job No: 00.10428  
Sample No: 420614  
Account No: 39150  
Page 4 of 13

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-8A F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 12/01/2000 11:55

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.034	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1064 614



## ANALYTICAL REPORT

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Brookfield, WI 53045

12/07/2000  
Job No: 00.10428  
Sample No: 420615  
Account No: 39150  
Page 5 of 13

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-8 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 12/01/2000 12:00

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.013	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	M 0.013	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1065 614

## ANALYTICAL REPORT

Mr. Dan Morgan  
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Suite 100  
Brookfield, WI 53045

12/07/2000  
Job No: 00.10428  
Sample No: 420616  
Account No: 39150  
Page 6 of 13

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-116 F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 12/01/2000 12:15

Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.037	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.023	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1065 614

## ANALYTICAL REPORT

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Brookfield, WI 53045

12/07/2000  
Job No: 00.10428  
Sample No: 420617  
Account No: 39150  
Page 7 of 13

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-116 Dup F119 Better Brite  
DePere, WI  
Rec'd on ice

Date/Time Taken: 12/01/2000 UNKNOWN Date Received: 12/01/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent.	0.046	mg/L	0.0042	0.015	SM 3500CrD	12/01/2000	652
Chromium, GFAA	0.024	mg/L	0.00052	0.0018	EPA 218.2	12/06/2000	1065 614

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

12/07/2000

Mr. Dan Morgan  
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175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 00.10428  
Account No: 39150

Page 8 of 13

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	652	0.500	0.51	102.0	90 - 110	jts
Chromium, hexavalent	652	0.500	0.49	98.0	90 - 110	jts
Chromium, GFAA	614	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	614	0.0100	0.0104	104.0	90 - 110	mmm

## QUALITY CONTROL REPORT

### BLANKS

12/07/2000

Mr. Dan Morgan  
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175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 00.10428  
Account No: 39150

Page 9 of 13

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		652	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		652	<0.0042	0.0042	0.015	mg/L
Chromium, GFAA	1064	614	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		614	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA	1065	614	0.00056	0.00052	0.0018	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
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Suite 100  
Brookfield, WI 53045

12/07/2000

Job No: 00.10428  
Account No: 39150

Page 10 of 13

Job Description: F119 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, GFAA	1064	614	0.0058	0.0056	mg/L	3.5	20

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

12/07/2000

Job No: 00.10428  
 Account No: 39150

Page 11 of 13

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	Sample Result	Spike Amount	Units	Matrix Spike Result	MSD Result	MS Percent Recovery	MSD Percent Recovery	Relative Control Limits	Relative Percent Difference
Chromium, hexavalent		652	0.050	0.500	mg/L	0.55	0.55	100.0	100.0	70 - 116	0.0
Chromium, GFAA	1064	614	0.0013	0.0100	mg/L	0.0110	0.0113	97.0	100.0	80 - 131	2.7

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
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Brookfield, WI 53045

12/07/2000

Job No: 00.10428  
Account No: 39150

Page 12 of 13

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	LCSD Result	LCS Percent Recovery	LCSD Percent Recovery	Control Limits	Relative Percent Difference
Chromium, GFAA	1064	614	0.0100	mg/L	0.00955		95.5		87 - 116	
Chromium, GFAA	1065	614	0.0100	mg/L	0.0103		103.0		87 - 116	



## QUALITY CONTROL REPORT SPIKES

Mr. Dan Morgan  
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Brookfield, WI 53045

12/07/2000

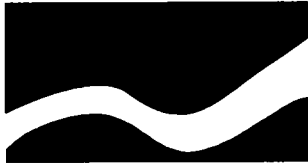
Job No: 00.10428  
Account No: 39150

Page 13 of 13

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	Sample Result	Spike Amount	Units	Spike Result	Percent Recovery	Control Limits
Chromium, GFAA	1065	614	0.013	0.0100	mg/L	0.0271	141.0	80 - 131





# HSI GEOTRANS

A TETRA TECH COMPANY

262-792-1282

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175 North Corporate Drive  
Suite 100  
Brookfield, Wisconsin  
53045

**DRAFT**

**SPRING 2000 MONITORING REPORT  
BETTER BRITE PLATING, INC.  
DE PERE, WISCONSIN**

July 10, 2000

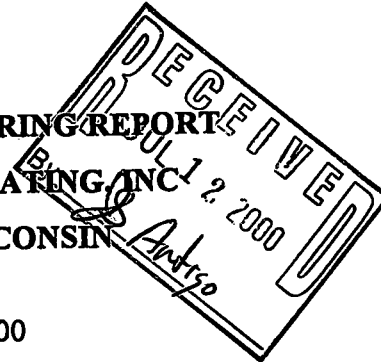
Prepared For:

Wisconsin Department of Natural Resources  
Remediation and Redevelopment Program  
Antigo Service Center  
223 East Steinfest Road  
P.O. Box 310  
Antigo, WI 544099-0310

Prepared By:

HSI GeoTrans, Inc.  
Brookfield Lakes Corporate Center XII  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045

Project No. F119





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GEOTRANS**

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262-792-1282 FAX 262-792-1310

**SPRING 2000 MONITORING REPORT  
BETTER BRITE PLATING, INC  
DE PERE, WISCONSIN**

July 10, 2000

Prepared For:

Wisconsin Department of Natural Resources  
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223 East Steinfest Road  
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Brookfield, Wisconsin 53045

Project No. F119

---

Daniel L. Morgan, P.E.  
Senior Engineer

---

Keith Becker  
Staff Scientist

**CERTIFICATION**

This report,  
**SPRING 2000 MONITORING REPORT**  
**BETTER BRITE PLATING, INC.**  
**DE PERE, WISCONSIN**

dated July 10, 2000

was prepared by  
certified hydrogeologists as  
defined in s. NR712.03 (1)

I, Judy L. Fassbender, hereby certify that I am a hydrogeologist as defined in s. NR712.03(1), and that to the best of my knowledge, all information contained in this document is correct.

---

Judy L. Fassbender, P.G.  
Hydrogeologist

## TABLE OF CONTENTS

	<u>Page</u>
1.0 INTRODUCTION	1-1
2.0 SAMPLE COLLECTION LOCATIONS	2-1
2.1 Chrome Shop	2-1
2.2 Zinc Shop	2-2
3.0 SAMPLE ANALYSIS PARAMETERS	3-1
3.1 Groundwater	3-1
3.1.1 Groundwater Elevation	3-1
3.1.2 Field Measurements	3-1
3.1.3 Total and Hexavalent Chromium	3-1
3.1.4 Volatile Organic Compounds	3-2
4.0 SAMPLING RESULTS	4-1
4.1 Presampling Activities	4-1
4.2 Chrome Shop Monitoring Results	4-2
4.3 Zinc Shop Monitoring Results	4-3
5.0 DATA VALIDATION	5-1
6.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE	6-1
6.1 Chrome Shop	6-1
6.2 Zinc Shop	6-2
7.0 CONCLUSIONS AND RECOMMENDATIONS	7-1
7.1 Chrome Shop Recommendations	7-1
7.2 Zinc Shop Recommendations	7-1

## **TABLE OF CONTENTS (Cont'd)**

### **FIGURES**

- 1-1 Site Location and Local Topography
- 2-1 Existing Conditions - Chrome Shop
- 2-2 Existing Conditions - Zinc Shop
- 4-1 Water Table Map (May 3, 2000) - Chrome Shop
- 4-2 Potentiometric Surface Map (May 2, 2000) - Chrome Shop
- 4-3 Water Table Map (May 5, 2000) - Zinc Shop
- 4-4 Potentiometric Surface Map (May 3, 2000) - Zinc Shop
- 4-5 Zinc Shop - Extent of Hexavalent Chromium Impacts

### **TABLE**

- 4-1 Groundwater Analytical Results - Hexavalent Chromium and Chromium

### **APPENDIX**

- A. WDNR Soil Boring Logs, Well Construction Forms, and Well Development Forms
- B. PF-MW-2 Well Construction Documentation
- C. Hydraulic Conductivity Testing Results
- D. Pro-Top Well Conversion Summary Table
- E. Survey Data
- F. Water Elevation Measurements
- G. Field Water Quality Data Sheets

## **APPENDIX (Cont'd)**

- H. Analytical Laboratory Data and Chain of Custody Forms
- I. Data Validation Results



## 1.0 INTRODUCTION

The Better Brite Chrome Shop and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin (Figure 1-1). The former Better Brite Plating Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. The sites are located about 2,000 feet apart in Sections 21 and 28 in the De Pere Township (T23N, R20E). Both sites are situated approximately 1/4 mile west of the Fox River, and are primarily in residential areas. The Grant Street water supply well, De Pere municipal well #2, is located about 250 feet generally downgradient from the Zinc Shop. Groundwater impacted with Chromium and VOCs was detected at both of the sites. The Better Brite sites were nominated for inclusion on the National Priority List (NPL) in October, 1989, and added to the list on August 28, 1990. Both plating shops are currently decommissioned and all buildings and manufacturing equipment have been removed from the sites.

The geology at the Better Brite sites is comprised of approximately 30 feet of unconsolidated glacial deposits overlying bedrock. The unconsolidated deposits are primarily silty clay to lean clay with very low hydraulic conductivity. The bedrock consists of approximately 150 feet of dolomite of the Ordovician-age Sinnipee Group, underlain by sandstone of the Ordovician-age St. Peter Formation. These bedrock formations are underlain by Cambrian-age sandstones and Precambrian-age crystalline bedrock at a depth of approximately 600 to 2,000 feet. The water table is located 5 to 10 feet below ground surface.

In the fall of 1999, the area with ground water impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant, EnviroBlend TM, into the soil to a depth of 20 feet below ground surface. The stabilization process resulted in the conversion of hexavalent chromium in soil and ground water to the trivalent state, thereby limiting the potential for contaminant migration. At the Zinc Shop, extraction of hexavalent chromium contaminated ground water and pretreatment of the ground water prior to discharge to the sanitary sewer is ongoing.

This document presents the results of groundwater monitoring at the Chrome and Zinc Shop sites. Data from continued monitoring is used to evaluate the effectiveness of the remedial actions conducted at the sites.

## 2.0 SAMPLE COLLECTION LOCATIONS

### 2.1 Chrome Shop

Spring 2000 post remedial action groundwater monitoring at the Chrome Shop included sample collection and analysis from 11 existing wells and three new monitor wells. The new wells include MW-115 and MW-115A, which were installed on the west side of the area to be stabilized, to replace MW-109 and MW-109A located within the stabilization area. The third new well, MW-116, was installed in the center of the stabilization area (Figure 2-1). The wells included in the spring 2000 post remedial action monitoring included:

MW-106	MW-106A	MW-107	MW-107A
MW-108	MW-108A	MW-110	MW-110A
MW-111	MW-112	MW-113	MW-115
MW-115A	MW-116		

Several wells were abandoned as a result of limited usefulness and/or stabilization and solidification processes. The abandoned wells included:

B-102	MW-106B	MW-107B	MW-108B
MW-109	MW-109A	MW-109B	MW-114
W-1	W-9	B-105B	

## 2.2 Zinc Shop

Spring 2000 post remedial action groundwater monitoring at the Zinc Shop included 15 existing wells, one well from the Progressive Farmer's Coop ( PF-MW-2, the replacement for MW-13), and the extraction sump (Zinc Sump; Figure 2-2). The wells included in the monitoring plan include:

MW-3	MW-4	MW-4A	MW-5	MW-5A
MW-6	MW-6A	MW-7	MW-7A	MW-8
MW-8A	MW-9	MW-10R	MW-11	MW-12
PF-MW-2	Zinc Sump			

MW-4B, MW-5B, and MW-6B were abandoned at the Zinc Shop. The bedrock wells did not produce enough water for sample collection or water level measurement. However, without proper abandonment, they could have presented a conduit for contaminant migration over time.

### 3.0 SAMPLE ANALYSIS PARAMETERS

#### 3.1 Groundwater

Five groups of parameters were included in the groundwater sampling. These are water level elevation, field measurements (annotated below), hexavalent chromium, total chromium, and VOCs. The groundwater samples were collected following the HSI GeoTrans' Standard Operating Procedures.

##### 3.1.1 Groundwater Elevation

Groundwater elevation was measured at all monitoring points included in the monitoring plan. Elevation was measured to 0.01 ft. using an electronic water level probe.

##### 3.1.2 Field Measurements

Groundwater samples were screened in the field to determine the temperature, pH, conductivity, color, odor, and turbidity. Temperature, pH, and conductivity were measured with field instruments and recorded as numerical values. Color, odor, and turbidity were determined by visual and olfactory examination.

##### 3.1.3 Total and Hexavalent Chromium

Groundwater samples were collected for analysis of hexavalent chromium and total chromium. Unfiltered samples were submitted for analysis of both hexavalent and total chromium. Samples were analyzed by Test America, Inc. in Watertown, Wisconsin. Test America is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

### 3.1.4 Volatile Organic Compounds

Groundwater samples collected from the extraction sump at the Zinc Shop, PF-MW-2 and MW-10 at the Zinc Shop and MW-116 at the Chrome Shop were analyzed for VOCs by method SW846-8260. Historical groundwater sampling results indicate that VOCs are not a significant concern in monitor wells at the Chrome Shop or the Zinc Shop, however, the Zinc Shop extraction sump contains VOCs at levels exceeding the NR140 groundwater standards. Elevated VOCs concentrations have been noted at the Chrome Shop sump and the french drain at the Chrome Shop. However, both of these sampling locations were located within the area to be stabilized. Thus, they could not be included in the monitoring plan. One round of VOCs was collected from MW-116 at the Chrome Shop to verify the level of VOCs in the new well. Samples were analyzed by Test America in Watertown which is an analytical laboratory certified to complete the required analyses by the State of Wisconsin.

## 4.0 SAMPLING RESULTS

### 4.1 Presampling Activities

During the week of May 1, 2000, three monitor wells including two water table wells, MW-115 and MW-116, and one piezometer, MW-115A, were installed at the Chrome Shop (Figure 2-1). All soil cuttings generated during well installation activities were spread along the vegetated perimeter of the Chrome Shop adjacent to the railroad tracks and the purge water (approximately 200 gallons) was contained and transported to the treatment building at the Zinc Shop for treatment. MW-115 and MW-115A were developed during the week of May 1, 2000. MW-116 was developed in late May, as the water did not enter the well until several weeks following well installation. Soil boring logs, well construction forms, and well development forms are included as Appendix A.

Use of MW-2 was negotiated from the Progressive Farmer's Coop near the Zinc Shop. The well is referenced as PF-MW-2 to differentiate this well from the former MW-2 well installed to the east of the former Zinc Shop facility. Well construction information for this well is included as Appendix B.

Hydraulic conductivity was calculated for PF-MW-2 and MW-115A. MW-115 and MW-116 did not have adequate recharge to calculate hydraulic conductivity accurately. Hydraulic conductivity testing results are included as Appendix C.

Seven wells with above grade protective casings were converted to flush mounted wells. The stick up pro-tops at B-104A, MW-106A, MW-107 and MW-107A were completely removed from the ground with minimal PVC pipe movement. The pro-tops for B-101, MW-106 and MW-113 could not be removed without damaging the PVC pipe. The pro-tops for these wells were cut off about one foot below grade so as not to interfere with the flush mount placement. Approximately 3 feet

of pro-top pipe remains below ground at these three locations. A well conversion summary table is included as Appendix D.

Carow Land Surveying from Appleton, Wisconsin surveyed the three newly constructed wells (MW-115, MW-115A and MW-116), and resurveyed the seven wells that were converted to flush mounts at the Chrome Shop and the top of the extraction sump at the Zinc Shop. The elevation of the top of the PVC casing and ground surface were measured at each location. The survey data is included as Appendix E.

#### 4.2 Chrome Shop Monitoring Results

Ground water elevation was measured at all existing wells at the Chrome Shop during the Spring 2000 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-1 and 4-2, respectively. Ground water flow at the water table differs significantly from previous observations. The cone of depression centered on the former sump area is completely absent as a result of the discontinuation of ground water extraction in the stabilization area. Ground water flow at the water table is primarily to the west, following existing topography. The potentiometric surface is similar to previous measurements with flow predominantly to the south, coincident with bedrock topography. Water table measurements are included as Appendix F.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix G. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 14 wells. Hexavalent Chromium was detected only at MW-116 with 1600 ppb and 1500 ppb in the duplicate. Total chromium was detected above the 10 ppb preventive action limit (PAL) but below the enforcement standard (ES) at MW-107A, MW-108A, MW-110A, MW-111, MW-113, and MW-115A. Only MW-116



contained total chromium at concentrations above the ES with 470 ppb. The extent of highly mobile hexavalent chromium in ground water is limited to the stabilization area. Hexavalent chromium concentrations in the stabilization area are approximately two orders of magnitude lower than previously measured in this area and further significant reduction is anticipated because of the stabilization conducted in the fall of 1999 in this area. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix H.

At the Chrome Shop, only MW-116 was sampled for VOCs. Several VOCs were detected in the sample and the duplicate including dichlorodifluoromethane (5.8 and 4.9 ppb), 1,1-dichloroethane (1.6 and 1.3 ppb), 1,1,1-trichloroethane (3.2 and 2.4 ppb), trichlorofluoromethane (4.4 and 3.5 ppb), and tetrachloroethene (1.7 and 1.5 ppb). All detected compounds were present at concentrations below WDNR ES s and all VOCs except tetrachloroethene were present below PALs. VOC analytical results and chain of custody forms are included as Appendix H.

#### 4.3 Zinc Shop Monitoring Results

Ground water elevation was measured at all existing site wells, PF-MW-2 and the extraction sump at the Zinc Shop during the Spring 2000 sampling event. The water table and potentiometric surface configurations are presented on Figure 4-3 and 4-4, respectively. Ground water flow at the water table shows draw down related to ground water extraction from the Zinc Shop sump as a result of continued ground water extraction. Ground water flow at the water table is primarily to the north and west. A ground water divide runs parallel to south 6<sup>th</sup> Street. The potentiometric surface is similar to previous measurements with flow predominantly to the north, coincident with bedrock topography. Water table measurements are included as Appendix F.

Field parameters, including temperature, pH, conductivity, color, odor and turbidity, were measured and the results are reported on the field water quality data sheets included as Appendix G. Nothing unusual was noted in the field parameter reporting.

Hexavalent and total chromium concentrations were measured at 17 wells. Hexavalent Chromium was detected at seven locations, including the zinc sump, MW-3, MW-5, MW-6, MW-6A, MW-9 and MW-10. Maximum concentrations were detected at MW-10 and MW-6 with concentrations of 30,000 ppb and 23,000 ppb, respectively. Total chromium was detected above PALs at nine locations including the seven locations with detectable hexavalent chromium, plus MW-8 and MW-8A. Concentrations of total chromium ranged from 1.6 ppb to 30,000 ppb. The extent of chromium impacts in ground water is presented on Figure 4-5. Chromium concentrations measured at the Zinc Shop sump are approximately two orders of magnitude lower than previously measured at this location. Analytical data is summarized on Table 4-1 and the analytical results and chain of custody forms are included as Appendix H.

Only the Zinc Shop Sump and PF-MW-2 were sampled for VOCs at the Zinc Shop. The Zinc Shop sump contained only 1,1,1-trichloroethane above detection limits with a concentration of 1.4 ppb. Seven petroleum hydrocarbon related VOCs were detected at PF-MW-2. All of the VOCs detected were present at concentrations below their respective ES and PAL with the exception of benzene at PF-MW-2. At PF-MW-2, benzene was detected at 1.3 ppb, which exceeds the PAL of 0.5 ppb but is less than the ES of 5.0 ppb. VOC analytical results and chain of custody forms are included as Appendix H.

## 5.0 DATA VALIDATION

Laboratory data from this sampling event was validated by comparing the contents of the data packages and QA/QC results to the requirements contained in the laboratory analytical methods. Data validation was completed by the M.A. Kuehl Company of Green Bay, Wisconsin, a third party validator which specializes in validation services.

CLP level data was collected so raw data such as GC/MS Total Ion Current Chromatograms, GC chromatograms, and mass spectra data reports and data station printouts could be examined to ensure that reported results comply with the established QC criteria based on spike, duplicate and blank results provided by the laboratory. The data review did not identify any out-of-control data points or data omissions. An evaluation of data accuracy, precision, sensitivity, and completeness was performed. Data validation results are included as Appendix I.

## 6.0 GROUNDS AND TREATMENT SYSTEM MAINTENANCE

### 6.1 Chrome Shop

The western edge of the stabilization area has settled over a foot in some areas. Placement of topsoil, regrading and reseeding are planned for mid July to bring the area back up to final grade.

The current vegetative cover installed over the stabilized and regraded soils as well as the remainder of the site requires periodic lawn mowing for optimum growth and development. The northern end of the site has been mowed by the city on at least one occasion in May 2000.

### 6.2 Zinc Shop

A row of landscape boulders have been placed to the north of the treatment building to prohibit motorized vehicle traffic across the site.

Areas of subsidence were noted above the extraction trenches and utility lines. The subsiding areas have been backfilled with top soil or gravel, depending on their location. Grass is well established in the areas that required seeding.

The groundwater treatment building is operational in its new location at the Zinc Shop. Some final reengineering of the discharge piping from the decant tank and filter press will be completed by the end of the July 2000. System operation and maintenance will continue to be conducted in accordance with the operation and maintenance plan.

## 7.0 CONCLUSIONS AND RECOMMENDATIONS

In conclusion, chromium concentrations in ground water continue to exceed NR140 standards at both the Chrome Shop and the Zinc Shop. Of primary concern are 1) the presence of hexavalent chromium in ground water within the stabilization area at concentrations above the 100 ppb ES for total chromium and 2) the wide spread chromium impacts in ground water at the Zinc Shop. Significant decreases in chromium concentrations are notable at both shops and further reduction is anticipated as a result of the reductant chemical introduced in fall 1999 at the Chrome Shop and continued ground water extraction at the Zinc Shop.

### 7.1 Chrome Shop Recommendations

Biannual sampling was originally proposed for the wells at the Chrome Shop. Following the original monitoring plan, the next sampling of the groundwater would be conducted in 2002. Hexavalent chromium in ground water as measured at MW-116 warrants more frequent ground water sampling. A resampling of MW-116 in July 2000 is recommended to confirm the initial sampling result, then the sampling schedule of MW-116 should be revised to semi annual sampling for the next two years or until hexavalent chromium concentrations drop to below 100 ppb, whichever occurs first. Biannual sampling through 2008 followed by sample collection once every four years for the next twelve years (2008, 2012, 2016, 2020) is still adequate for the remaining Chrome Shop wells. This sampling frequency will provide adequate information to document variation in the contaminant concentrations with time following stabilization of soils at the site.

### 7.2 Zinc Shop Recommendations

No modifications to the original monitoring plan are recommended for the Zinc Shop. Semi-annual Monitor well sampling of the groundwater for two years is proposed. After two years, monitor well sampling will be modified to collect samples annually. This sampling frequency will provide adequate

information to document the progress of remediation through variation in the contaminant concentrations with time following installation of the treatment system at the site.





LETTER OF TRANSMITTAL

J N. Corporate Drive, Suite 100, Brookfield, WI 53045 ■ (414) 792-1282 ■ (414) 792-1310 (FAX)

TO: John SAGER  
WDNR - ANTIGO Service Center  
223 EAST STEINFERT Rd  
Antigo WI 54409

DATE: July 11, 2000  
RE: BETTER SITE  
JOB NO.: F-119

RECEIVED  
JUL 12 2000  
By J. Aubrey

We are sending you the following:

No. Of Copies	Description
1	FIGURES for Spring 2000 MONITORING Report

These are Transmitted as checked below:

- For approval
- For your use
- As requested
- For review and comment
- Approved as submitted
- Approved as noted
- Returned for corrections
- Other \_\_\_\_\_

REMARKS: Please Call if you have Questions or Comments

As Always, its A PLEASURE working with you




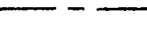
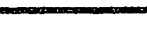


- Transmitted by:
- First Class Mail
  - Federal Express
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  - Registered Mail
  - UPS
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Signed: Judy  
cc: Keld LAURIDSEN, WDNR  
GREEN BAY

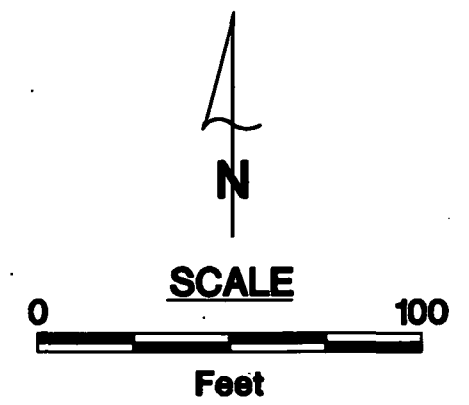



*J. B. Aubrey*

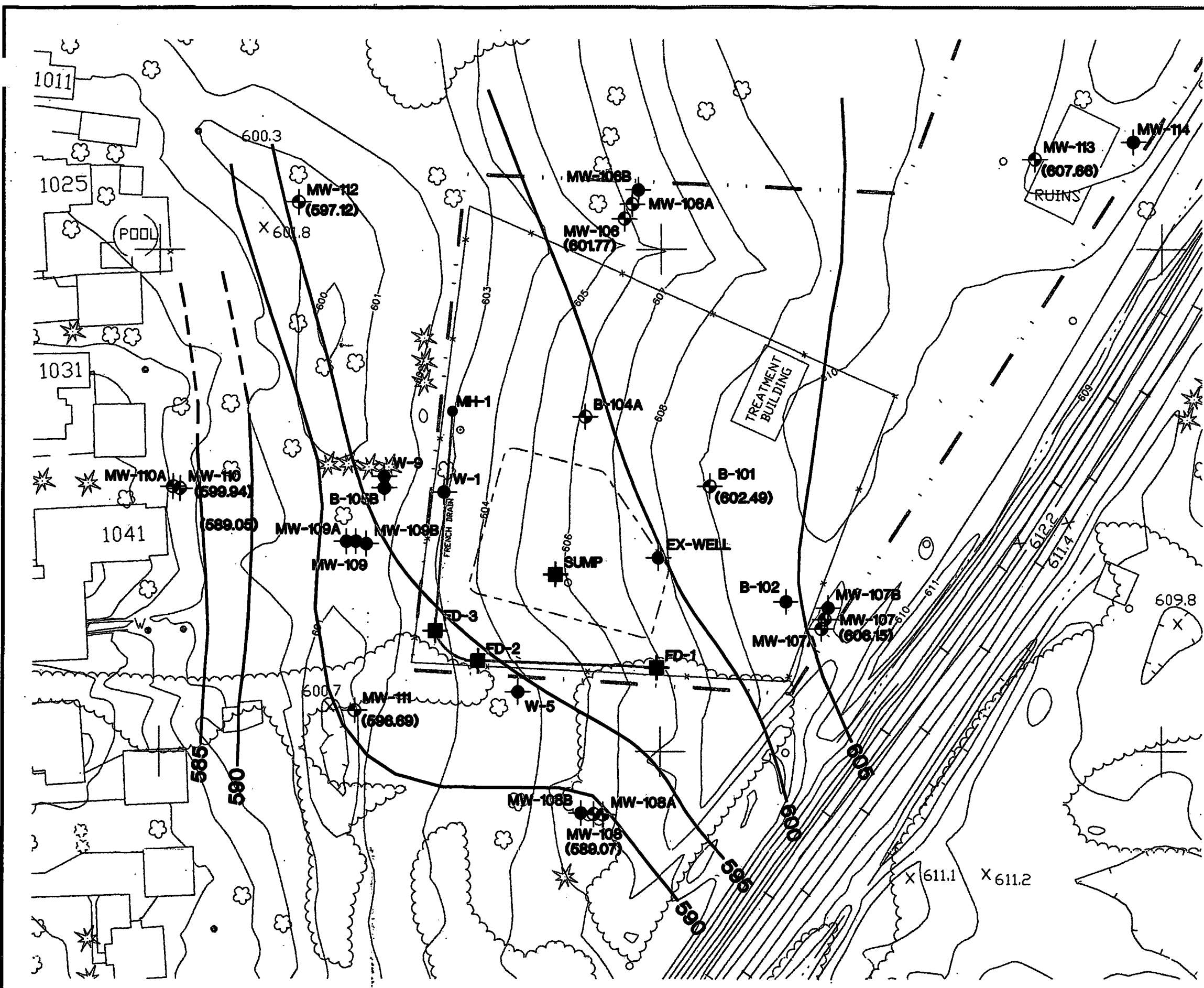
### EXPLANATION

-  MW-113 MONITOR WELL LOCATION AND DESIGNATION
-  MW-11 ABANDONED WELL (any filled in well symbol)
-  MH-1 MANHOLE LOCATION
-  SUMP BOUNDARY
-  PROPERTY LINE
-  596 WATER TABLE CONTOURS (Dashed where Inferred)
-  (596.69) WATER TABLE ELEVATION

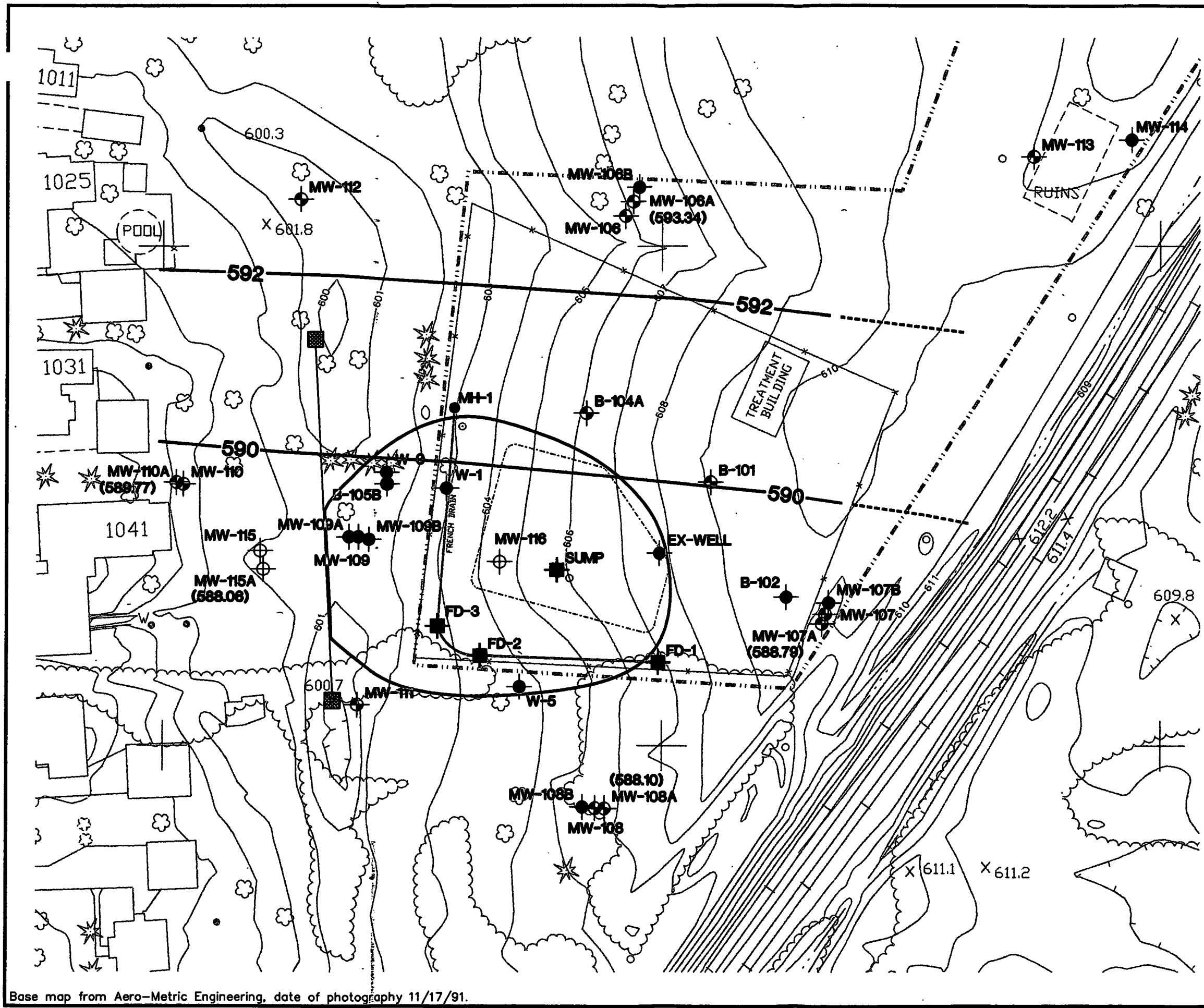
Note: Elevation from MW-116 was not available



<b>BETTER BRITE</b> DePERE, WISCONSIN	DATE: 7-11-00
	DESIGNED: BOB
<b>WATER TABLE MAP</b> (May 3, 2000) <b>CHROME SHOP</b>	CHECKED: JLF
	APPROVED: JLF
	DRAWN: BOB
	PROJ: F119
 <b>HSI</b> <b>GEOTRANS</b> <small>A TETRA TECH COMPANY</small>	<b>Figure 4-1</b>

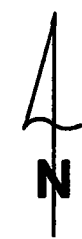


Base map from Aero-Metric Engineering, date of photography 11/17/91.



**EXPLANATION**

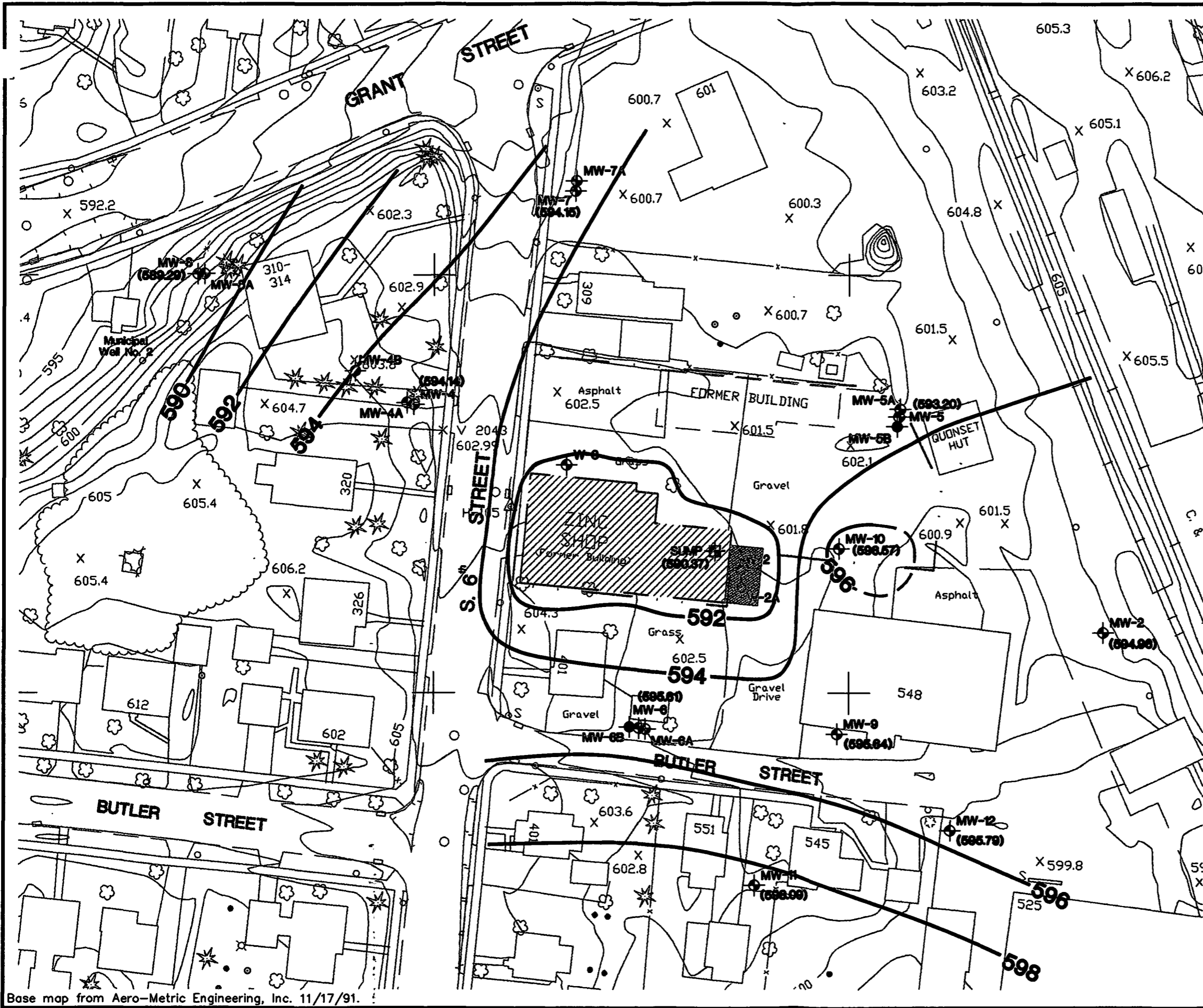
- MW-113 MONITOR WELL LOCATION AND DESIGNATION
- B-101 MONITOR WELL LOCATION AND DESIGNATION
- W-5 MONITOR WELL LOCATION AND DESIGNATION
- SUMP FORMER SUMP ACCESS LOCATION AND DESIGNATION
- FD-3 FORMER FRENCH DRAIN ACCESS LOCATION AND DESIGNATION
- EX-WELL FORMER EXTRACTION WELL LOCATION AND DESIGNATION
- MH-1 MANHOLE LOCATION
- SUMP BOUNDARY
- PROPERTY LINE
- SOIL STABILIZATION AREA
- MW-11 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- MW-115 PROPOSED MONITOR WELL LOCATION AND DESIGNATION
- 590 POTENTIOMETRIC SURFACE CONTOUR (Dashed where inferred)
- (588.06) POTENTIOMETRIC SURFACE ELEVATION



Base map from Aero-Metric Engineering, date of photography 11/17/91.

/cad/better brite/f119/f119-101

<b>BETTER BRITE</b> DePERE, WISCONSIN	DATE: 7-11-00
	DESIGNED: BOB
<b>POTENTIOMETRIC SURFACE MAP</b> (May 3, 2000) <b>CHROME SHOP</b>	CHECKED: JLF
	APPROVED: JLF
	DRAWN: BOB
	PROJ: F119
<b>Figure 4-2</b>	



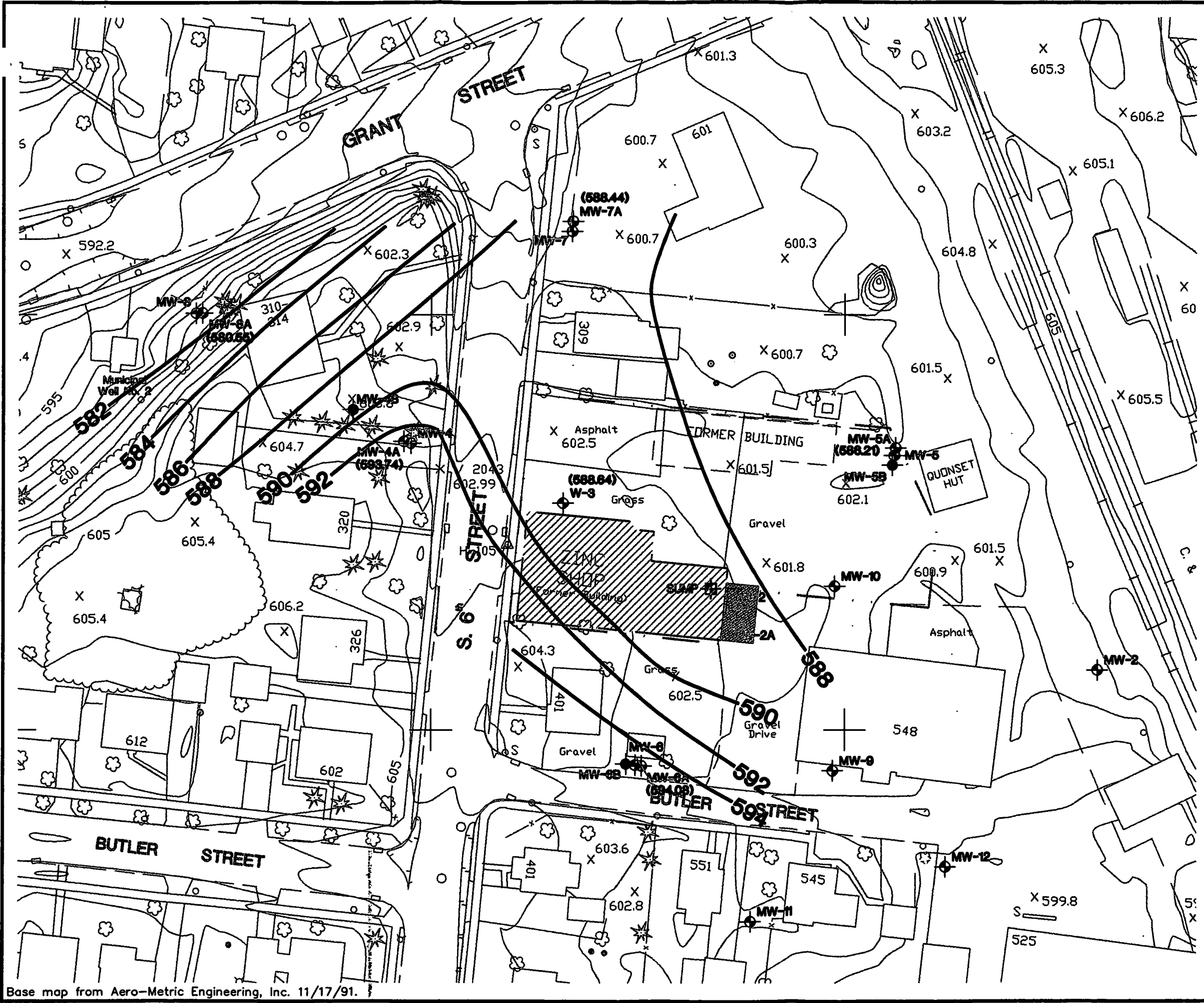
### EXPLANATION

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP SUMP ACCESS LOCATION AND DESIGNATION
- W-3 ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- MW-13 NON LOCATABLE LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1980
- PROPERTY LINE
- SUMP BOUNDARY
- WATER TABLE CONTOURS (Dashed where Inferred)
- (594.96) WATER TABLE ELEVATION



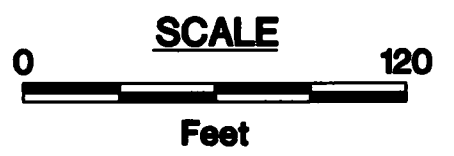
<b>BETTER BRITE</b> De PERE, WISCONSIN	DATE: 7-11-00 DESIGNED: BOB CHECKED: JLF APPROVED: JLF DRAWN: BOB PROJ: F119
<b>WATER TABLE MAP</b> (May 2, 2000) <b>ZINC SHOP</b>	
<b>HSI</b> <b>GEOTRANS</b> <small>A TETRA TECH COMPANY</small>	<b>Figure 4-3</b>

Base map from Aero-Metric Engineering, Inc. 11/17/91.



**EXPLANATION**

- MW-9 MONITOR WELL LOCATION AND DESIGNATION
- SUMP ACCESS LOCATION AND DESIGNATION
- W-3A ABANDONED MONITOR WELL LOCATION AND DESIGNATION
- MW-13 PROPOSED MONITOR WELL LOCATION AND DESIGNATION
- GROUND WATER COLLECTION SYSTEM EXCAVATION COMPLETED IN 1993
- GROUND WATER COLLECTION SUMP EXCAVATION COMPLETED IN 1990
- PROPERTY LINE
- SUMP BOUNDARY
- 592 POTENTIOMETRIC SURFACE CONTOUR (Dashed where Inferred)
- (594.08) POTENTIOMETRIC SURFACE ELEVATION



<b>BETTER BRITE</b> DePERE, WISCONSIN	DATE: 7-11-00
	DESIGNED: BOB
<b>POTENTIOMETRIC SURFACE MAP</b> (May 2, 2000) ZINC SHOP	CHECKED: JLF
	APPROVED: JLF
	DRAWN: BOB
	PROJ: F119
 <b>HSI GEOTRANS</b> A TETRA TECH COMPANY	
<b>Figure 4-4</b>	

Base map from Aero-Metric Engineering, Inc. 11/17/91.





**GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM**

Parameter	Date	Hexavalent Chromium	Chromium
ES			100
PAL			10
Chrome Sump	8/94	620000	694000
	10/94	300200	297000
	4/98	195000	192000
	7/98	132000	
French Drain	8/94	25800	22000
	10/94	32000	31700
	4/98	1060	1010
	7/98	336	312
B-101	8/94	<10	<3.4
	10/94	<10	
MW-106	8/94	7	<2.8
	DUP.	<10	<2.8
	10/94	<10 J	<3.4 J
	DUP.	<10 J	<3.4 J
	4/98	<10	<5
	DUP	<10	<5
MW-106A	8/94	<10	<2.8
	10/94	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	9.4
MW-106B	8/94	<10	
MW-107	8/94	<10	4.1 BJ
	10/94	<10 J	<3.4
	4/98	<10	<5
	5/00	<4.2	4.2
MW-107A	8/94	<10	<2.8
	10/94	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	16.0
MW-107B	8/94	<10	
MW-108	8/94	<10	<2.8
	10/94	<10	<3.4 J
	4/98	<10	
	DUP	<10	<5
MW-108A	8/94	<10	3.0 BJ
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	55.0
MW-108B	8/94	<10	
MW-109	8/94	6780	9570
	10/94	2400	1980
	DUP.	3100	1700
	4/98	16500	18600
	7/98	12200	11100

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

**GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM**

Parameter	Date	Hexavalent Chromium	Chromium
ES			100
PAL			10
MW-109A	8/94	<10	<2.8
	10/94	<10	1.3 B
	4/98	<10	<5
	7/98	<10	7
MW-109B	8/94	<10	
	10/94	<10	
MW-110	8/94	<10	3.6 BJ
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	37.0
MW-110A	8/94	<10	<2.8
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	25.0
MW-111	8/94	<10	<3.4
	DUP.	<10	<3.4
	10/94	<10	<0.70
	4/98	226	<5
	7/98	22.0	27
	11/98	<0.5	<0.5
	5/00	<4.2	36.0
MW-112	10/94	<10	<0.70
	11/94	<10	<2.5
	4/98	<10	<5
	5/00	<4.2	4.1
MW-113	8/94	140	<u>99.7</u>
	10/94	<10 J	8.6 B
	5/95	43	<u>20.3</u>
	4/98	<10	<5
	7/98	<10	12
	5/00	<4.2	22.0
MW-114	3/95	<10 J	<2.9
	DUP.	<10 J	<2.9
	5/95	<10 J	<1.0
	DUP.	<10 J	<1.0
	4/98	<10	<5
MW-115	5/00	<4.2	6.0
MW-115A	5/00	<4.2	<u>12.0</u>
MW-116	5/00	1600	470
	DUP.	1500	460
PF-MW-2	5/00	<4.2	7.6
MW-3	5/00	230.0	<u>330</u>
MW-4	8/94	<10	<3.4
	DUP	<10	<3.4
	10/94	<10 J	<3.4 J
	DUP	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	4.6

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES



**GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM**

Parameter	Date	Hexavalent Chromium	Chromium
<b>ES</b>			<b>100</b>
<b>PAL</b>			<b>10</b>
MW-4A	8/94	<10	<3.4
	10/94	<10 J	6.0 B
	4/98	<10	<5
	5/00	<4.2	8.7
MW-4B	10/94	<10	<0.70
	11/94	<10	<2.5
MW-5	8/94	1590	827
	10/94	460 J	299 J
	DUP	510 J	763 J
	4/98	212	631
	DUP	207	667
	7/98	1420	1230
	5/00	120	190
MW-5A	8/94	<10	<3.4
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	<4.2	6.5
MW-5B	8/94		
	10/94	<10	<5
MW-6	8/94	15900	39200
	10/94	47000	41900 J
	4/98	7650	4560
	5/00	23000	26000
MW-6A	8/94	<10	4.9 B
	10/94	<10	<3.4 J
	4/98	<10	<5
	5/00	6.6	22.0
MW-6B	8/94	<10	
MW-7	8/94	<10	6.6 BJ
	DUP	<10	<2.8
	10/94	<10 J	36.4 J
	4/98	<10	<5
	DUP	<10	<5
	5/00	<4.2	3.9
MW-7A	8/94	<10	<2.8
	10/94	<10 J	<3.4 J
	4/98	<10	<5
	5/00	<4.2	4.7
MW-8	10/94	<10	<0.70
	11/94	<10	<2.5
	DUP	<10	<2.5
	4/98	<10	<5
	5/00	<4.2	15.0
MW-8A	10/94	<10	<0.70
	11/94	<10	<2.5
	4/98	<10	<5
	5/00	<4.2	16.0

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

**GROUNDWATER ANALYTICAL RESULTS - HEXAVALENT CHROMIUM AND CHROMIUM**

Parameter	Date	Hexavalent Chromium	Chromium
<b>ES</b>			<b>100</b>
<b>PAL</b>			<b>10</b>
<b>MW-9</b>	8/94	400	697
	10/94	470 J	442 J
	4/98	209	<5
	7/98	60.0	75
<b>MW-10</b>	8/94	60300	53100
	10/94	60,800 J	43,500 J
<b>MW-11</b>	5/95	<10	<1.0
	4/98	<10	<5
	5/00	<4.2	7.0
<b>MW-12</b>	3/95	<10 J	<2.9
	5/95	<10	<1.0
	4/98	<10	<5
	5/00	<4.2	4.8
<b>MW-13</b>	3/95	<10 J	<2.9
	5/95	<10	<1.0
<b>Zinc Sump</b>	8/94	89000	209000
	10/94	144900	277000
	4/98	66000	38300
	7/98	131000	131000
	5/00	1800	1700
<b>Private</b>	8/94	<10	<10
<b>Municipal</b>	8/94	<10	<10
	DUP.	<10	<10
	10/94	<10	<10
	DUP.	<10	<10
<b>USGS</b>	10/94	<10	0.75 B
<b>USGS-A</b>	10/94	<10	11.9

ES - NR140 Enforcement Standard  
 PAL - NR140 Preventive Action Limit  
 Blacked out - Compound not analyzed  
 Underlined - Concentration exceeds PAL  
 Shaded - Concentration exceeds ES

w:\wpdata\project\new\F119Chrom.TBL





**APPENDIX A**  
**WDNR SOIL BORING LOGS, WELL CONSTRUCTION FORMS, AND WELL**  
**DEVELOPMENT FORMS**

Route To: Watershed/Wastewater  Waste Management   
Remediation/Revelopment  Other

Page 1 of 2

Facility/Project Name <u>Better Bride</u>		License/Permit/Monitoring Number -----		Boring Number <u>MW-115</u>	
Boring Drilled By: Name of crew chief (first, last) and firm First Name: <u>Jim</u> Last Name: <u>Berthold</u>		Date Drilling Started <u>05/01/2000</u> M M d d y y y y		Date Drilling Completed <u>05/01/2000</u> M M d d y y y y	
Firm: <u>Boart Longear</u>		Final Static Water Level <u>587.65 Feet MSL</u>		Surface Elevation <u>601.46 Feet MSL</u>	
WI Unique Well No.	DNR Well ID No.	Well Name <u>MW-115</u>	Borehole Diameter <u>8 inches</u>		
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/>			Local Grid Location		
State Plane <u>226347.12 N, 2470800.86 E S/CN</u>			Lat <u>0</u> ' "	<input type="checkbox"/> N	<input type="checkbox"/> E
<u>1/4 of 1/4 of Section 28, T23 N, R20 EW</u>			Long <u>0</u> ' "	<input type="checkbox"/> S	<input type="checkbox"/> W
Facility ID		County <u>Brown</u>	County Code <u>05</u>	Civil Town/City/Village <u>De Pere</u>	

Sample Number and Type	Length Alt. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	6/24	3 4 4 5	2	0-2.0' Topsoil, sandy silt, dark brown, med. moisture, 10YR 5/3	UA									
2	21/24	3 5 5 13	4	* sand seam 7" by 5"										
3	17/24	4 15 12 21	6	2-6.5' silty clay, 15 to 20% sand, low to med. plasticity, reddish brown 5YR 4/4 with gray (5YR 7/1) mottles	ML									
4	17/24	4 13 5 20	8	fractured, moist										
5	15/24	5 13 9 22	10	5-6.0' silty sand lense, olive gray	CL									
10	19/24	8 15 11 19	14											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Keith Becker Firm HSI Geotrans, Inc.



Route To:  Watershed/Wastewater  Waste Management   
 Remediation/Revelopment  Other

Page 1 of 2

Facility/Project Name <u>Better Brite</u>		License/Permit/Monitoring Number -----		Boring Number <u>MW-115A</u>	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: <u>Jim</u> Last Name: <u>Berthold</u>		Date Drilling Started <u>05/01/2000</u>		Date Drilling Completed <u>05/01/2000</u>	
Firm: <u>Boart Longuear</u>				Drilling Method <u>HSA</u>	
WI Unique Well No.	DNR Well ID No.	Well Name <u>MW-115A</u>		Final Static Water Level <u>588.06</u> Feet MSL	Surface Elevation <u>601.52</u> Feet MSL
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input type="checkbox"/>		State Plane <u>226342.78 N, 2470802.06 E S/C/N</u>		Local Grid Location <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
1/4 of <u>28</u> 1/4 of Section <u>28</u> , T <u>23</u> N, R <u>20</u> EW		County <u>BROWN</u>		County Code <u>05</u>	Civil Town/City or Village <u>De Pere</u>

Sample Number and Type	Length Alt. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	6/24	3 4 5	2	0-2' topsoil, sandy silt, dark brown, med. moisture, 10%R 5/3,	NA									
2	21/24	3 5 5 13	4	* sand seam 7" bgs.										
3	17/24	4 15 12 21	6	2-6.5' silty clay, 15 to 20% sand, low to med. plasticity, reddish brown 5YR 4/4	ML									
4	17/24	4 13 5 20	8	with gray mottles 5YR 7/1, fractured, moist, mottles at										
5	15/24	5 13 9 22	10	*5-6': silty sand lense, olive gray.										
6	19/24	8 15 11 19	12	6.5-19' lean clay with sand, < 10% gravel, yellow staining in fractures, reddish brown 5YR 5/4, low plasticity.	CL									

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Keith Beckin Firm HSI GEOTRANS, INC.





Route To: Watershed/Wastewater  Waste Management   
Remediation/Revelopment  Other

Facility/Project Name <b>Better Brite</b>			License/Permit/Monitoring Number -----		Boring Number <b>MW-110</b>	
Boring Drilled By: Name of crew chief (first, last) and Firm First Name: <b>JIM</b> Last Name: <b>Berthold</b> Firm: <b>Boart Longyear</b>			Date Drilling Started <b>05/01/2000</b>		Date Drilling Completed <b>05/01/2000</b>	
Drilling Method <b>HSA</b>		Final Static Water Level <b>dry</b> Feet MSL		Surface Elevation <b>604.88</b> Feet MSL		
Borehole Diameter <b>8</b> inches		Well Name <b>mw-110</b>		DNR Well ID No.		
Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/>		Local Grid Location		<input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W		
State Plane <b>226.337.11</b> N, <b>2470719.62</b> E SICN		Lat <b>0</b> ' "		Long <b>0</b> ' "		
1/4 of <b>28</b> 1/4 of Section <b>28</b> , T <b>23</b> N, R <b>20</b> EW		County <b>Brown</b>		County Code <b>05</b>		
Facility ID		Civil Town/City/Village <b>De Pere</b>				

Sample Number and Type	Length At. & Recovered (in)	Blow Counts	Depth in Feet (below ground surface)	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
1	7.5 / 24	3 / 3	0-1.5'	Topsoil, sandy silt, dark brown, moist. 7.5 YR 3/1, 30% clay, 40% silt, 30% sand.	NA									
2	12 / 24	6 / 8 / 14	1.5-6'	silty clay, 60% clay, 30% silt, 10% fine grained sand. 7.5 YR 4/4, med. plastic.	CL									
3	6 / 24	3 / 6 / 5 / 8	* 5.5'-6'	mottling with few cobbles 5 YR 4/3	CL									
4	11.5 / 24	5 / 19 / 7 / 20	6-12'	silty clay, 65% clay, 25% silt, 10% fine sand, low plasticity, dry, 5 YR 4/3 reddish brown.	ML									
5	11.5 / 24	4 / 24 / 4 / 30	* 11.5-12'	90% gravel sam	ML									
6	15 / 24	5 / 18 / 12 / 15												

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Keith E. Becker Firm HSI Geotrans, Inc.

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information.



Route to: Watershed/Wastewater  Waste Management   
Remediation/Redevelopment  Other

City/Project Name <u>Better Brite</u>	County Name <u>Brown</u>	Well Name <u>mw-115</u>
Facility License, Permit or Monitoring Number	County Code <u>05</u>	Wis. Unique Well Number _____
		DNR Well ID Number _____

1. Can this well be purged dry?  Yes  No

2. Well development method
- surged with bailer and bailed  41
  - surged with bailer and pumped  61
  - surged with block and bailed  42
  - surged with block and pumped  62
  - surged with block, bailed and pumped  70
  - compressed air  20
  - bailed only  10
  - pumped only  51
  - pumped slowly  50
  - Other  \_\_\_\_\_

3. Time spent developing well 180 min.

4. Depth of well (from top of well casing) 14.5 ft.

5. Inside diameter of well 2.05 in.

6. Volume of water in filter pack and well casing 0.5 gal.

7. Volume of water removed from well 2.3 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added?  Yes  No  
(If yes, attach results)

17. Additional comments on development: very slow to recharge. Not enough water to fully develop well.

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>14.48</u> ft.	<u>11.39</u> ft.
Date	b. <u>05/03/2000</u> m m d d y y y y	<u>05/05/2000</u> m m d d y y y y
Time	c. <u>10:00</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>10:50</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	<u>0.5</u> inches	<u>0.0</u> inches
13. Water clarity	Clear <input type="checkbox"/> 10	Clear <input type="checkbox"/> 20
	Turbid <input checked="" type="checkbox"/> 15	Turbid <input checked="" type="checkbox"/> 25
	(Describe) <u>brown color</u>	(Describe) <u>brown color</u>
	<u>no odor</u>	<u>no odor</u>
	<u>turbid</u>	<u>turbid</u>
	<u>only 250ml</u>	<u>2 gallons</u>

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids \_\_\_\_\_ mg/l \_\_\_\_\_ mg/l

15. COD \_\_\_\_\_ mg/l \_\_\_\_\_ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: KEITH Last Name: BECKER

Firm: HSI GeoTrans, INC.

Name and Address of Facility Contact /Owner/Responsible Party

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Facility Name: \_\_\_\_\_

Street: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Keith E. Becker

Print Name: KEITH E. BECKER

Firm: HSI GeoTrans, INC.

Facility/Project Name <b>Better Brite</b>	Local Grid Location of Well N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W. <input type="checkbox"/>	Well Name <b>MW-115</b>
Facility License, Permit or Monitoring No.	Local Grid Origin (estimated: <input type="checkbox"/> ) or Well Location <input checked="" type="checkbox"/> Lat. _____ Long. _____ or _____	Wis. Unique Well No. _____ DNR Well ID No. _____
Facility ID	St. Plane <b>226347.12</b> ft. N. <b>2470800.86</b> ft. E. <b>S/C/N</b>	Date Well Installed <b>05/01/2000</b> m m d d y y v v v
Type of Well Well Code <b>11 / MW</b>	Section Location of Waste/Source 1/4 of _____ 1/4 of Sec <b>28</b> , T. <b>23</b> N. R. <b>20</b> <input checked="" type="checkbox"/> E <input type="checkbox"/> W	Well Installed By: Name (first, last) and Firm <b>Jim Berthold</b>
Distance from Waste/Source _____ ft.	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	<b>Beart Longyear</b>

- A. Protective pipe, top elevation **- 601.48** ft. MSL
- B. Well casing, top elevation **- 601.04** ft. MSL
- C. Land surface elevation **- 601.46** ft. MSL
- D. Surface seal, bottom \_\_\_\_\_ ft. MSL or \_\_\_\_\_ ft.

12. USCS classification of soil near screen:  
 GP  GM  GC  GW  SW  SP   
 SM  SC  ML  MH  CL  CH   
 Bedrock

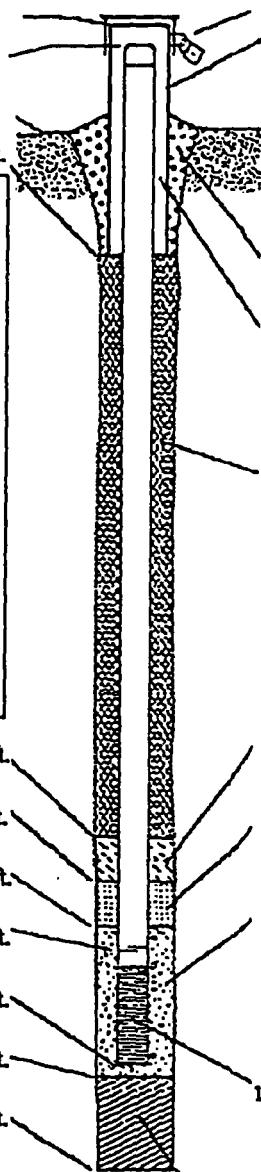
13. Sieve analysis performed?  Yes  No

14. Drilling method used:  
 Rotary  50  
 Hollow Stem Auger  41  
 Other

15. Drilling fluid used: Water  02 Air  01  
 Drilling Mud  03 None  99

16. Drilling additives used?  Yes  No  
 Describe \_\_\_\_\_

17. Source of water (attach analysis, if required):  
 \_\_\_\_\_



- 1. Cap and lock?  Yes  No
- 2. Protective cover pipe:
  - a. Inside diameter: \_\_\_\_\_ in.
  - b. Length: \_\_\_\_\_ ft.
  - c. Material: **Morrison Flush Mount** Steel  04 Other
  - d. Additional protection?  Yes  No  
If yes, describe: \_\_\_\_\_
- 3. Surface seal: Bentonite  30 Concrete  01 Other
- 4. Material between well casing and protective pipe: Bentonite  30  
**Red Flint sand/gravel #30** Other
- 5. Annular space seal:
  - a. Granular/Chipped Bentonite  33
  - b. \_\_\_\_\_ Lbs/gal mud weight... Bentonite-sand slurry  35
  - c. \_\_\_\_\_ Lbs/gal mud weight... Bentonite slurry  3
  - d. \_\_\_\_\_ % Bentonite... Bentonite-cement grout  5
  - e. \_\_\_\_\_ Ft<sup>3</sup> volume added for any of the above
  - f. How installed: Tremie  01 Tremie pumped  02 Gravity  08
- 6. Bentonite seal:
  - a. Bentonite granules  33
  - b.  1/4 in.  3/8 in.  1/2 in. Bentonite chips  32
  - c. **Wyoming Holeplug** Other
- 7. Fine sand material: Manufacturer, product name & mesh size  
 a. **Badger Mining #3 #7**  
 b. Volume added **1/2 bag** ft<sup>3</sup>
- 8. Filter pack material: Manufacturer, product name & mesh size  
 a. **Red Flint sand/gravel #30**  
 b. Volume added **6 bags** ft<sup>3</sup>
- 9. Well casing: Flush threaded PVC schedule 40  23  
 Flush threaded PVC schedule 80  24  
 Other
- 10. Screen material: **PVC schedule 40**  
 a. Screen type: Factory cut  11  
 Continuous slot  01  
 Other   
 b. Manufacturer **Beart Longyear**  
 c. Slot size: **0.020** in.  
 d. Slotted length: **10.0** ft.
- 11. Backfill material (below filter pack): None  14  
 Other

- E. Bentonite seal, top \_\_\_\_\_ ft. MSL or **1.0** ft.
- F. Fine sand, top \_\_\_\_\_ ft. MSL or **2.5** ft.
- G. Filter pack, top \_\_\_\_\_ ft. MSL or **3.5** ft.
- H. Screen joint, top \_\_\_\_\_ ft. MSL or **4.5** ft.
- I. Well bottom \_\_\_\_\_ ft. MSL or **14.5** ft.
- J. Filter pack, bottom \_\_\_\_\_ ft. MSL or **15.0** ft.
- K. Borehole, bottom \_\_\_\_\_ ft. MSL or **15.0** ft.
- L. Borehole, diameter **8.0** in.
- M. O.D. well casing **2.38** in.
- N. I.D. well casing **2.05** in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature **Keith Becker** Firm **HSI GeoTrans, Inc.**

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Project Name <u>Wetter Br. Fe</u>		Local Grid Location of Well N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W. <input type="checkbox"/>		Well Name <u>MW-115A</u>	
Facility License, Permit or Monitoring No.		Local Grid Origin (estimated: <input type="checkbox"/> ) or Well Location <input checked="" type="checkbox"/>		Wis. Unique Well No. DNR Well ID No.	
Facility ID		Lat. _____ Long. _____ or		Date Well Installed <u>2510112000</u> m m d d y y v v y	
Type of Well Well Code <u>12, PZ</u>		Section Location of Waste/Source 1/4 of _____ 1/4 of Sec <u>28</u> , T. <u>23</u> N., R. <u>20</u> <input checked="" type="checkbox"/> E. <input type="checkbox"/> W.		Well Installed By: Name (first, last) and Firm <u>Jim Berthold</u> <u>Boart Longyear</u>	
Distance from Waste/Source _____ ft.		Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number _____	

A. Protective pipe, top elevation - 601.53 ft. MSL

B. Well casing, top elevation - 601.0 ft. MSL

C. Land surface elevation - 601.52 ft. MSL

D. Surface seal, bottom \_\_\_\_\_ ft. MSL or \_\_\_\_\_ ft.

12. USCS classification of soil near screen:  
GP  GM  GC  GW  SW  SP   
SM  SC  ML  MH  CL  CH   
Bedrock

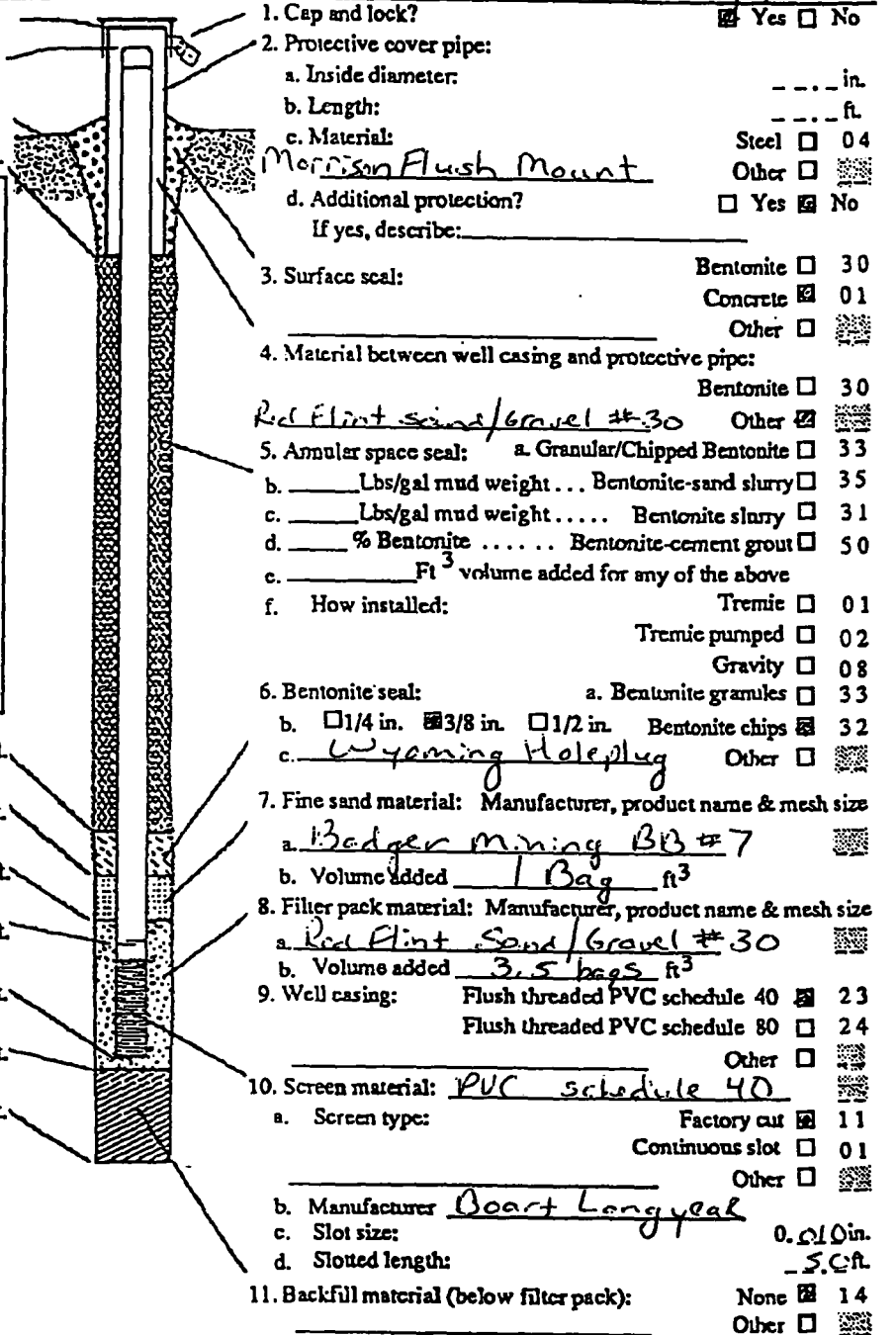
13. Sieve analysis performed?  Yes  No

14. Drilling method used: Rotary  50  
Hollow Stem Auger  41  
Other

15. Drilling fluid used: Water  02 Air  01  
Drilling Mud  03 None  99

16. Drilling additives used?  Yes  No  
Describe \_\_\_\_\_

17. Source of water (attach analysis, if required):  
\_\_\_\_\_



E. Bentonite seal, top \_\_\_\_\_ ft. MSL or 2.0 ft.

F. Fine sand, top \_\_\_\_\_ ft. MSL or 14.5 ft.

G. Filter pack, top \_\_\_\_\_ ft. MSL or 16.5 ft.

H. Screen joint, top \_\_\_\_\_ ft. MSL or 18.5 ft.

I. Well bottom \_\_\_\_\_ ft. MSL or 23.5 ft.

J. Filter pack, bottom \_\_\_\_\_ ft. MSL or 24.0 ft.

K. Borehole, bottom \_\_\_\_\_ ft. MSL or 24.0 ft.

L. Borehole, diameter - 8.0 in.

M. O.D. well casing - 2.38 in.

I.D. well casing - 2.05 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Keith Becker Firm HSI Geotechnics, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Route to: Watershed/Wastewater  Waste Management   
Remediation/Redevelopment  Other

Facility/Project Name <u>Better Brite</u>	County Name <u>Brown</u>	Well Name <u>MW-115A</u>
Facility License, Permit or Monitoring Number	County Code <u>05</u>	Wis. Unique Well Number -----
		DNR Well ID Number -----

1. Can this well be purged dry?  Yes  No
2. Well development method
- surged with bailer and bailed  41
  - surged with bailer and pumped  61
  - surged with block and bailed  42
  - surged with block and pumped  62
  - surged with block, bailed and pumped  70
  - compressed air  20
  - bailed only  10
  - pumped only  51
  - pumped slowly  50
  - Other
3. Time spent developing well 195 min.
4. Depth of well (from top of well casing) 23.5 ft.
5. Inside diameter of well 2.05 in.
6. Volume of water in filter pack and well casing 1.7 gal.
7. Volume of water removed from well 26 gal.
8. Volume of water added (if any) 0.0 gal.
9. Source of water added NA
10. Analysis performed on water added?  Yes  No  
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>13.12</u> ft.	<u>12.95</u> ft.
Date	b. <u>05/02/2000</u>	<u>05/05/2000</u>
Time	c. <u>10:05</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>10:55</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	<u>0.0</u> inches	<u>0.0</u> inches
13. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe) <u>brown color</u> <u>no odor</u> <u>turbid</u> <u>7 gal. then</u> <u>dry</u>	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe) <u>clear color</u> <u>no odor</u> <u>clear clarity</u> <u>7 gal. then</u> <u>dry</u>
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	----- mg/l	----- mg/l
15. COD	----- mg/l	----- mg/l
16. Well developed by: Name (first, last) and Firm		
First Name:	<u>Keith</u>	Last Name: <u>Becker</u>
Firm:	<u>HSI GeoTrans, Inc.</u>	

17. Additional comments on development:

Name and Address of Facility Contact/Owner/Responsible Party

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Facility/Firm: \_\_\_\_\_

Street: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Keith Becker

Print Name: KEITH BECKER

Firm: HSI GeoTrans, Inc.

NOTE: See instructions for more information including a list of county codes and well...

Project Name <u>Water Brite</u>	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. <input type="checkbox"/> S. <input type="checkbox"/> W.		Well Name <u>MW-116</u>
Facility License, Permit or Monitoring No.	Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Well Location <input checked="" type="checkbox"/>	Wis. Unique Well No.	DNR Well ID No.
Facility ID	Lat. _____ Long. _____ or _____	Date Well Installed <u>05/01/2000</u> m m d d y y v v	
Type of Well Well Code <u>1 LMW</u>	St. Plane <u>230337.11</u> ft. N, <u>2470919.62</u> ft. E. SIC/N	Well Installed By: Name (first, last) and Firm <u>Jim Berthold</u> <u>Boart Longyear</u>	
Distance from Waste/Source _____ ft.	Enf. Stds. Apply <input type="checkbox"/>	Section Location of Waste/Source 1/4 of _____ 1/4 of Sec <u>28</u> , T. <u>23</u> N, R. <u>20</u> <input checked="" type="checkbox"/> E <input type="checkbox"/> W	
	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input checked="" type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	Gov. Lot Number	

- A. Protective pipe, top elevation 604.90 ft. MSL
- B. Well casing, top elevation 604.28 ft. MSL
- C. Land surface elevation 604.88 ft. MSL
- D. Surface seal, bottom \_\_\_\_\_ ft. MSL or \_\_\_\_\_ ft.

12. USCS classification of soil near screen:  
 GP  GM  GC  GW  SW  SP   
 SM  SC  ML  MH  CL  CH   
 Bedrock

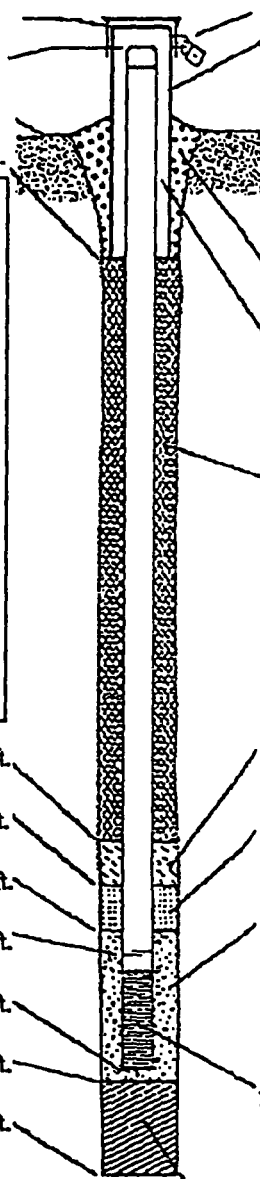
13. Sieve analysis performed?  Yes  No

14. Drilling method used: Rotary  50  
 Hollow Stem Auger  41  
 Other

15. Drilling fluid used: Water  02 Air  01  
 Drilling Mud  03 None  99

16. Drilling additives used?  Yes  No  
 Describe \_\_\_\_\_

17. Source of water (attach analysis, if required):  
 \_\_\_\_\_



- 1. Cap and lock?  Yes  No
- 2. Protective cover pipe:
  - a. Inside diameter: \_\_\_\_\_ in.
  - b. Length: \_\_\_\_\_ ft.
  - c. Material: Morrison Flush Mount Steel  04  
Other
  - d. Additional protection?  Yes  No  
If yes, describe: \_\_\_\_\_
- 3. Surface seal: Bentonite  30  
Concrete  01  
Other
- 4. Material between well casing and protective pipe: Bentonite  30  
Red Flint sand/gravel #30 Other
- 5. Annular space seal:
  - a. Granular/Chipped Bentonite  33
  - b. \_\_\_\_\_ Lbs/gal mud weight... Bentonite-sand slurry  35
  - c. \_\_\_\_\_ Lbs/gal mud weight... Bentonite slurry  31
  - d. \_\_\_\_\_ % Bentonite... Bentonite-cement grout  50
  - e. \_\_\_\_\_ Ft<sup>3</sup> volume added for any of the above
  - f. How installed: Tremie  01  
Tremie pumped  02  
Gravity  08
- 6. Bentonite seal:
  - a. Bentonite granules  33
  - b.  1/4 in.  3/8 in.  1/2 in. Bentonite chips  32
  - c. Warping Holeplug Other
- 7. Fine sand material: Manufacturer, product name & mesh size
  - a. Badger Mining B13 #7
  - b. Volume added 1 Bag ft<sup>3</sup>
- 8. Filter pack material: Manufacturer, product name & mesh size
  - a. Red Flint sand/gravel #30
  - b. Volume added 6 Bags ft<sup>3</sup>
- 9. Well casing: Flush threaded PVC schedule 40  23  
 Flush threaded PVC schedule 80  24  
 Other
- 10. Screen material: PVC schedule 40
  - a. Screen type: Factory cut  11  
Continuous slot  01  
Other
  - b. Manufacturer Boart Longyear
  - c. Slot size: 0.010 in.
  - d. Slotted length: 10.0 ft.
- 11. Backfill material (below filter pack): None  14  
Other

- E. Bentonite seal, top \_\_\_\_\_ ft. MSL or 1.0 ft.
- F. Fine sand, top \_\_\_\_\_ ft. MSL or 5.6 ft.
- G. Filter pack, top \_\_\_\_\_ ft. MSL or 7.6 ft.
- H. Screen joint, top \_\_\_\_\_ ft. MSL or 9.6 ft.
- I. Well bottom \_\_\_\_\_ ft. MSL or 19.6 ft.
- J. Filter pack, bottom \_\_\_\_\_ ft. MSL or 20.0 ft.
- K. Borehole, bottom \_\_\_\_\_ ft. MSL or 20.0 ft.
- L. Borehole, diameter 8.0 in.
- M. O.D. well casing 2.38 in.
- I. I.D. well casing 2.05 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Keith Becker Firm HSI Geotrans, Inc.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.



Route to: Watershed/Wastewater  Waste Management   
Remediation/Redevelopment  Other

Facility/Project Name <u>Better Brite</u>	County Name <u>Brown</u>	Well Name <u>MW-116</u>
Facility License, Permit or Monitoring Number	County Code <u>05</u>	Wis. Unique Well Number _____
		DNR Well ID Number _____

1. Can this well be purged dry?  Yes  No

2. Well development method

- surged with bailer and bailed  41
- surged with bailer and pumped  61
- surged with block and bailed  42
- surged with block and pumped  62
- surged with block, bailed and pumped  70
- compressed air  20
- bailed only  10
- pumped only  51
- pumped slowly  50
- Other No water in well

3. Time spent developing well 30 min.

4. Depth of well (from top of well casing) 19.6 ft.

5. Inside diameter of well 2.05 in.

6. Volume of water in filter pack and well casing 0.0 gal.

7. Volume of water removed from well 0.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added NA

10. Analysis performed on water added?  Yes  No  
(If yes, attach results)

11. Depth to Water Before Development After Development  
(from top of well casing) a. \_\_\_\_\_ ft. \_\_\_\_\_ ft.  
Date b. \_\_\_\_/\_\_\_\_/\_\_\_\_ m m d d y y y y m m d d y y y y  
Time c. \_\_\_\_:\_\_\_\_  a.m.  p.m. \_\_\_\_:\_\_\_\_  a.m.  p.m.

12. Sediment in well bottom \_\_\_\_\_ inches \_\_\_\_\_ inches

13. Water clarity Clear  10 Turbid  15 (Describe) \_\_\_\_\_  
Clear  20 Turbid  25 (Describe) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids \_\_\_\_\_ mg/l \_\_\_\_\_ mg/l

15. COD \_\_\_\_\_ mg/l \_\_\_\_\_ mg/l

16. Well developed by: Name (first, last) and Firm

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Firm: \_\_\_\_\_

17. Additional comments on development:

No water present to develop well 96 hours after construction.

Name and Address of Facility Contact/Owner/Responsible Party

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Facility/Firm: \_\_\_\_\_

Street: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Keith E. Becker

Print Name: KEITH E BECKER

Firm: HSI Geotrans, Inc.



**APPENDIX B**  
**PF-MW-2 WELL CONSTRUCTION DOCUMENTATION**

State of Wisconsin  
Department of Natural Resources

Route To:

- Solid Waste       Haz. Waste  
 Emergency Response       Underground Tanks  
 Wastewater       Water Resources  
 Superfund       Other

Soil Boring Log Information  
Form 4400-122 Rev. 5-92

Page 1 of 1

Facility/Project Name <b>Progressive Farmers Co-operative (Butler Street)</b>		License/Permit/Monitoring Number <b>05-2209</b>		Boring Number <b>MW-1</b>	
Boring Drilled By (Firm name and name of crew chief) <b>EDS, Inc. - STS 22102W</b>		Date Drilling Started <b>04/30/96</b>	Date Drilling Completed <b>04/30/96</b>	Drilling Method <b>Hollow-Stem Auger</b>	
DNR Facility Well No.	WI Unique Well No.	Common Well Name		Final Static Water Level Feet MSL	Surface Elevation <b>602.0 Feet MSL</b>
Boring Location State Plane <b>1/4 of NE 1/4 of Section 28 T 23 N.R 20</b>		Lat <b>01° N</b> Long <b>01° W</b>		Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
County <b>Brown</b>		DNR County Code <b>05</b>	Civil Town/City/ or Village <b>De Pere</b>		

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	
			2 4 6 8 10 12 14	Blind drill to 15.5 feet										HSA HSA HSA
				End of Boring Boring advanced from 0.0 feet to 15.5 feet with hollow-stem auger Installed 2-inch diameter Schedule 40 PVC monitoring well										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

*Robert J. Mottel*

Firm

**STS Consultants, Ltd.**  
1035 Kepler Drive Green Bay, Wisconsin  
Tel: 414-468-1978, Fax: 414-468-3312

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

City/Project Name <b>Progressive Farmers Co-operative (Butler Street)</b>	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name <b>MW-1</b>
City License, Permit or Monitoring Number <b>05-2209</b>	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. Unified Well Number: _____ DNR Well Number: _____
Type of Well Water Table Observation Well <input checked="" type="checkbox"/> 11 Piezometer <input type="checkbox"/> 12	Section Location of Waste/Source _____ 1/4 of NE 1/4 of Sec. 28 T. 23 N. R. 20 <input checked="" type="checkbox"/> E. <input type="checkbox"/> W.	Date Well Installed <b>04/30/96</b>
Distance Well Is From Waste/Source Boundary ft. _____	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input checked="" type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) <b>B. Repinski</b> <b>EDS, Inc.</b>
Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input type="checkbox"/> No		

Protective pipe, top elevation 602.05 ft. MSL  
Well casing, top elevation 601.67 ft. MSL  
Land surface elevation 602.0 ft. MSL  
Surface seal, bottom 600.5 ft. MSL or 1.5 ft.

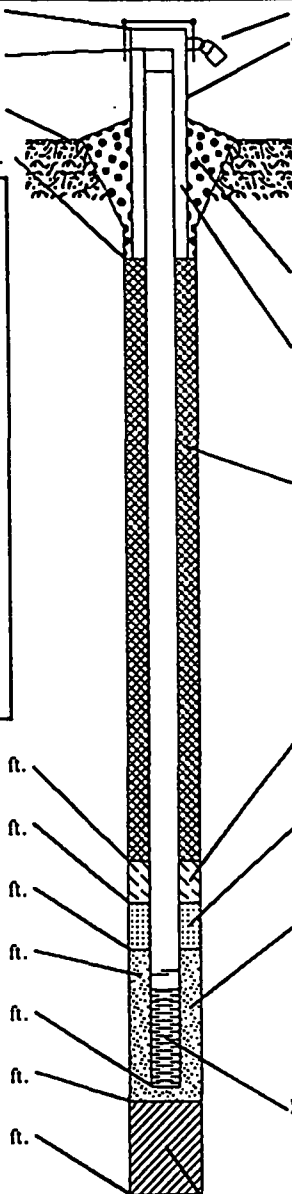
2. USCS classification of soil near screen:  
GP  GM  GC  GW  SW  SP   
SM  SC  ML  MH  CL  CH   
Bedrock

13. Sieve analysis attached?  Yes  No  
14. Drilling method used: Rotary  50  
Hollow Stem Auger  41  
Other

15. Drilling fluid used: Water  02 Air  01  
Drilling Mud  03 None  99

16. Drilling additives used?  Yes  No  
Describe N/A

17. Source of water (attach analysis):  
\_\_\_\_\_



1. Cap and lock?  Yes  No  
2. Protective cover pipe:  
a. Inside diameter: 8.0 in.  
b. Length: 1.0 ft.  
c. Material: Aluminum Steel  04  
Other   
d. Additional protection?  Yes  No  
If yes, describe: \_\_\_\_\_  
3. Surface seal: Bentonite  30  
Concrete  01  
Other   
4. Material between well casing and protective pipe:  
Bentonite  30  
Annular space seal   
Other   
5. Annular space seal: a. Granular Bentonite  33  
b. \_\_\_\_\_ Lbs/gal mud weight . . . Bentonite-sand slurry  35  
c. \_\_\_\_\_ Lbs/gal mud weight . . . Bentonite slurry  31  
d. \_\_\_\_\_ % Bentonite . . . Bentonite-cement grout  50  
e. \_\_\_\_\_ Ft<sup>3</sup> volume added for any of the above  
f. How installed: Tremie  01  
Tremie pumped  02  
Gravity  08  
6. Bentonite seal: a. Bentonite granules  33  
b.  1/4 in.  3/8 in.  1/2 in. Bentonite pellets  32  
c. \_\_\_\_\_ Other   
7. Fine sand material: Manufacturer, product name and mesh size  
a. N/A  
b. Volume added \_\_\_\_\_ ft<sup>3</sup>  
8. Filter pack material: Manufacturer, product name and mesh size  
a. Badger 40/60 Sand  
b. Volume added \_\_\_\_\_ ft<sup>3</sup>  
9. Well casing: Flush threaded PVC schedule 40  23  
Flush threaded PVC schedule 80  24  
Other   
10. Screen material: Schedule 40 PVC  
a. Screen Type: Factory cut  11  
Continuous slot  01  
Other   
b. Manufacturer Northern Air  
c. Slot size: 0.006 in.  
d. Slotted length: \_\_\_\_\_ ft.  
11. Backfill material (below filter pack): None  14  
Other

E. Bentonite seal, top 600.5 ft. MSL or 1.5 ft.  
F. Fine sand, top 598.0 ft. MSL or 4.0 ft.  
G. Filter pack, top 598.0 ft. MSL or 4.0 ft.  
H. Screen joint, top 597.0 ft. MSL or 5.0 ft.  
I. Well bottom 587.0 ft. MSL or 15.0 ft.  
J. Filter pack, bottom 586.5 ft. MSL or 15.5 ft.  
K. Borehole, bottom 586.5 ft. MSL or 15.5 ft.  
L. Borehole, diameter 2.0 in.  
M. O.D. well casing 2.37 in.  
N. I.D. well casing 2.04 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Robert J. North Firm **STS Consultants, Ltd.** Tel: (414) 468-1978  
1035 Kepler Drive Green Bay, Wisconsin Fax: (414) 468-3312

Please complete both sides of this form and return to the appropriate DNR office listed at the top of this form as required by chs. 144, 147 and 160, Wis. Stats., and ch. NR 141, Wis. Ad. Code. In accordance with ch. 144, Wis. Stats., failure to file this form may result in a forfeiture of not less than \$10, nor more than \$5000 for each day of violation. In accordance with ch. 147, Wis. Stats., failure to file this form may result in a forfeiture of not more than \$10,000 for each day of violation. NOTE: Shaded areas are for DNR use only. See instructions for more information including where the completed form

Route to: Solid Waste  Haz. Waste  Wastewater   
Env. Response & Repair  Underground Tanks  Other

Facility/Project Name <b>Progressive Farmers Co-operative (Butler Street)</b>	County Name <b>Brown</b>	Well Name <b>MW-1</b>
Facility License, Permit or Monitoring Number	County Code <b>05</b>	Wis. Block Well Number
		DNR Well Number

1. Can this well be purged dry?  Yes  No

2. Well development method:
- surged with bailer and bailed  41
  - surged with bailer and pumped  61
  - surged with block and bailed  42
  - surged with block and pumped  62
  - surged with block, bailed, and pumped  70
  - compressed air  20
  - bailed only  10
  - pumped only  51
  - pumped slowly  50
  - other

3. Time spent developing well 20 min.

4. Depth of well (from top of well casing) 15.5 ft.

Inside diameter of well 2.04 in.

6. Volume of water in filter pack and well casing \_\_\_\_\_ gal.

7. Volume of water removed from well 15.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added \_\_\_\_\_

10. Analysis performed on water added?  Yes  No  
(If yes, attach results)

16. Additional comments on development:

	Before Development	After Development
--	--------------------	-------------------

11. Depth to Water (from top of well casing)  
a. 9.50 ft. 14.06 ft.

Date b. 05/03/96 05/03/96

Time c. 10:30  a.m.  p.m. 10:50  a.m.  p.m.

12. Sediment in well bottom 1.0 inches 0.0 inches

13. Water clarity  
Clear  10  20  
Turbid  15  25  
(Describe) (Describe)

Fill in if drilling fluids were used and well is at solid waste facility:

14. Total suspended solids \_\_\_\_\_ mg/l \_\_\_\_\_ mg/l

15. COD \_\_\_\_\_ mg/l \_\_\_\_\_ mg/l

Well developed by: Person's Name and Firm

me: S. Lane  
Firm: EDS, Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Sham G. Keane  
Print Initials: SGK  
Firm: EDS, Inc.

State of Wisconsin  
Department of Natural Resources

Route To:  
 Solid Waste       Haz. Waste  
 Emergency Response       Underground Tanks  
 Wastewater       Water Resources  
 Superfund       Other

Soil Boring Log Informatic  
Form 4400-122      Rev. 5

Facility/Project Name <b>Progressive Farmers Co-operative (Butler Street)</b>			License/Permit/Monitoring Number <b>05-2209</b>		Boring Number <b>MW-2</b>	
Boring Drilled By (Firm name and name of crew chief) <b>EDS, Inc. - STS 22102W</b>			Date Drilling Started <b>04/30/96</b>		Date Drilling Completed <b>04/30/96</b>	
DNR Facility Well No.			WI Unique Well No.		Common Well Name	
Final Static Water Level Feet MSL			Surface Elevation <b>603.0 Feet MSL</b>		Borehole Diameter <b>8.0 Inches</b>	
Boring Location State Plane <b>1/4 of NE 1/4 of Section 28 T 23 N,R 20</b>			Lat <b>01 N</b> Long <b>01 W</b>		Local Grid Location (If applicable) <input type="checkbox"/> N <input type="checkbox"/> E <input type="checkbox"/> S <input type="checkbox"/> W	
County <b>Brown</b>			DNR County Code <b>05</b>		Civil Town/City/ or Village <b>De Pere</b>	

Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	U S C S	Graphic Log	Well Diagram	PID/FID	Soil Properties					RQD/ Comments	
									Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200		
			2	Blind drill to 15.5 feet										HSA	
			4												HS
			6												
			8												
			10												HSA
			12												
			14												
					End of Boring Boring advanced from 0.0 feet to 15.5 feet with hollow-stem auger Installed 2-inch diameter Schedule 40 PVC monitoring well										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature <i>Robert Mott</i>	Firm <b>STS Consultants, Ltd.</b> 1035 Kepler Drive Green Bay, Wisconsin Tel: 414-468-1978, Fax: 414-468-3312
---------------------------------	--

This form is authorized by Chapters 144, 147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Route to: Solid Waste  Haz. Waste  Wastewater   
Env. Response & Repair  Underground Tanks  Other

Facility/Project Name <b>Progressive Farmers Co-operative (Butler Street)</b>	County Name <b>Brown</b>	Well Name <b>MW-2</b>
Facility License, Permit or Monitoring Number	County Code <b>05</b>	Wisc. Logue Well Number
		DNR Well Number

1. Can this well be purged dry?  Yes  No

2. Well development method:

- surged with bailer and bailed  41
- surged with bailer and pumped  61
- surged with block and bailed  42
- surged with block and pumped  62
- surged with block, bailed, and pumped  70
- compressed air  20
- bailed only  10
- pumped only  51
- pumped slowly  50
- other  52

3. Time spent developing well 30 min.

4. Depth of well (from top of well casing) 15.5 ft.

inside diameter of well 2.04 in.

6. Volume of water in filter pack and well casing \_\_\_\_\_ gal.

7. Volume of water removed from well 45.0 gal.

8. Volume of water added (if any) 0.0 gal.

9. Source of water added \_\_\_\_\_

10. Analysis performed on water added?  Yes  No  
(If yes, attach results)

	Before Development	After Development
11. Depth to Water (from top of well casing)	a. <u>6.00</u> ft.	<u>9.00</u> ft.
Date	b. <u>05/03/96</u>	<u>05/03/96</u>
Time	c. <u>11:00</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.	<u>11:50</u> <input checked="" type="checkbox"/> a.m. <input type="checkbox"/> p.m.
12. Sediment in well bottom	<u>1.0</u> inches	<u>0.0</u> inches
13. Water clarity	Clear <input type="checkbox"/> 10 Turbid <input checked="" type="checkbox"/> 15 (Describe)	Clear <input checked="" type="checkbox"/> 20 Turbid <input type="checkbox"/> 25 (Describe)
Fill in if drilling fluids were used and well is at solid waste facility:		
14. Total suspended solids	_____ mg/l	_____ mg/l
15. COD	_____ mg/l	_____ mg/l

16. Additional comments on development:

Well developed by: Person's Name and Firm

N S. Lane

Firm: EDS, Inc.

I hereby certify that the above information is true and correct to the best of my knowledge.

Signature: Shawn G. Lane

Print Initials: SGL

Firm: EDS, Inc.



Facility/Project Name <b>Progressive Farmers Co-operative (Butler Street)</b>	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> E. ft. <input type="checkbox"/> S. <input type="checkbox"/> W.	Well Name <b>MW-2</b>
Facility License, Permit or Monitoring Number <b>05-2209</b>	Grid Origin Location Lat. _____ Long. _____ or St. Plane _____ ft. N. _____ ft. E.	Wis. DNR Well Number: _____ DNR Well Number: _____
Type of Well Water Table Observation Well <input checked="" type="checkbox"/> 11 Piezometer <input type="checkbox"/> 12	Section Location of Waste/Source _____ 1/4 of <b>NE</b> 1/4 of Sec. <b>28</b> , T. <b>23</b> N., R. <b>20</b> <input checked="" type="checkbox"/> E. <input type="checkbox"/> W.	Date Well Installed <b>04/30/96</b>
Distance Well Is From Waste/Source Boundary ft. _____	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input checked="" type="checkbox"/> Not Known	Well Installed By: (Person's Name and Firm) <b>B. Repinski</b> <b>EDS, Inc.</b>
Is Well A Point of Enforcement Std. Application? <input type="checkbox"/> Yes <input type="checkbox"/> No		

A. Protective pipe, top elevation 603.01 ft. MSL  
 B. Well casing, top elevation 602.45 ft. MSL  
 C. Land surface elevation 603.0 ft. MSL  
 D. Surface seal, bottom 601.5 ft. MSL or 1.5 ft.

12. USCS classification of soil near screen:  
 GP  GM  GC  GW  SW  SP   
 SM  SC  ML  MH  CL  CH   
 Bedrock

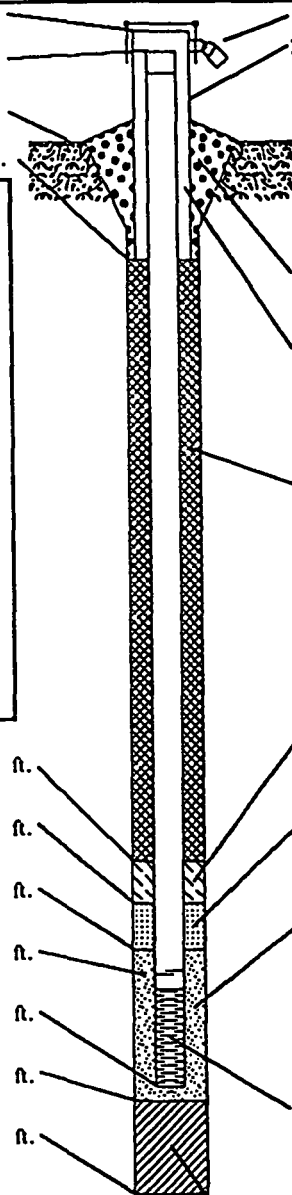
13. Sieve analysis attached?  Yes  No

14. Drilling method used: Rotary  50  
 Hollow Stem Auger  41  
 Other

15. Drilling fluid used: Water  02 Air  01  
 Drilling Mud  03 None  99

16. Drilling additives used?  Yes  No  
 Describe N/A

17. Source of water (attach analysis):



1. Cap and lock?  Yes  No

2. Protective cover pipe:  
 a. Inside diameter: 8.0 in.  
 b. Length: 1.0 ft.  
 c. Material: Aluminum Steel  04  
 Other

d. Additional protection?  Yes  No  
 If yes, describe: \_\_\_\_\_

3. Surface seal: Bentonite  30  
 Concrete  01  
 Other

4. Material between well casing and protective pipe:  
 Bentonite  30  
 Annular space seal   
 Other

5. Annular space seal:  
 a. Granular Bentonite  33  
 b. \_\_\_\_\_ Lbs/gal mud weight . . . Bentonite-sand slurry  35  
 c. \_\_\_\_\_ Lbs/gal mud weight . . . Bentonite slurry  31  
 d. \_\_\_\_\_ % Bentonite . . . Bentonite-cement grout  50  
 e. \_\_\_\_\_ Ft<sup>3</sup> volume added for any of the above  
 f. How installed: Tremie  01  
 Tremie pumped  02  
 Gravity  08

6. Bentonite seal:  
 a. Bentonite granules  33  
 b.  1/4 in.  3/8 in.  1/2 in. Bentonite pellets  32  
 c. \_\_\_\_\_ Other

7. Fine sand material: Manufacturer, product name and mesh size  
 a. N/A  
 b. Volume added \_\_\_\_\_ ft<sup>3</sup>

8. Filter pack material: Manufacturer, product name and mesh size  
 a. Badger 40/60 Sand  
 b. Volume added \_\_\_\_\_ ft<sup>3</sup>

9. Well casing: Flush threaded PVC schedule 40  23  
 Flush threaded PVC schedule 80  24  
 Other

10. Screen material: Schedule 40 PVC  
 a. Screen Type: Factory cut  11  
 Continuous slot  01  
 Other   
 b. Manufacturer Northern Air  
 c. Slot size: 0.006 in.  
 d. Slotted length: \_\_\_\_\_ ft.

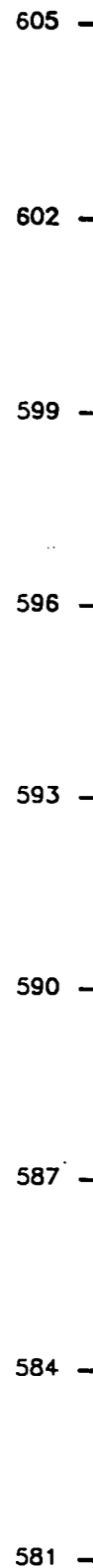
11. Backfill material (below filter pack): None  14  
 Other

E. Bentonite seal, top 601.5 ft. MSL or 1.5 ft.  
 F. Fine sand, top 599.0 ft. MSL or 4.0 ft.  
 G. Filter pack, top 599.0 ft. MSL or 4.0 ft.  
 H. Screen joint, top 598.0 ft. MSL or 5.0 ft.  
 I. Well bottom 588.0 ft. MSL or 15.0 ft.  
 J. Filter pack, bottom 587.5 ft. MSL or 15.5 ft.  
 K. Borehole, bottom 587.5 ft. MSL or 15.5 ft.  
 L. Borehole, diameter 2.0 in.  
 M. O.D. well casing 2.37 in.  
 N. I.D. well casing 2.04 in.

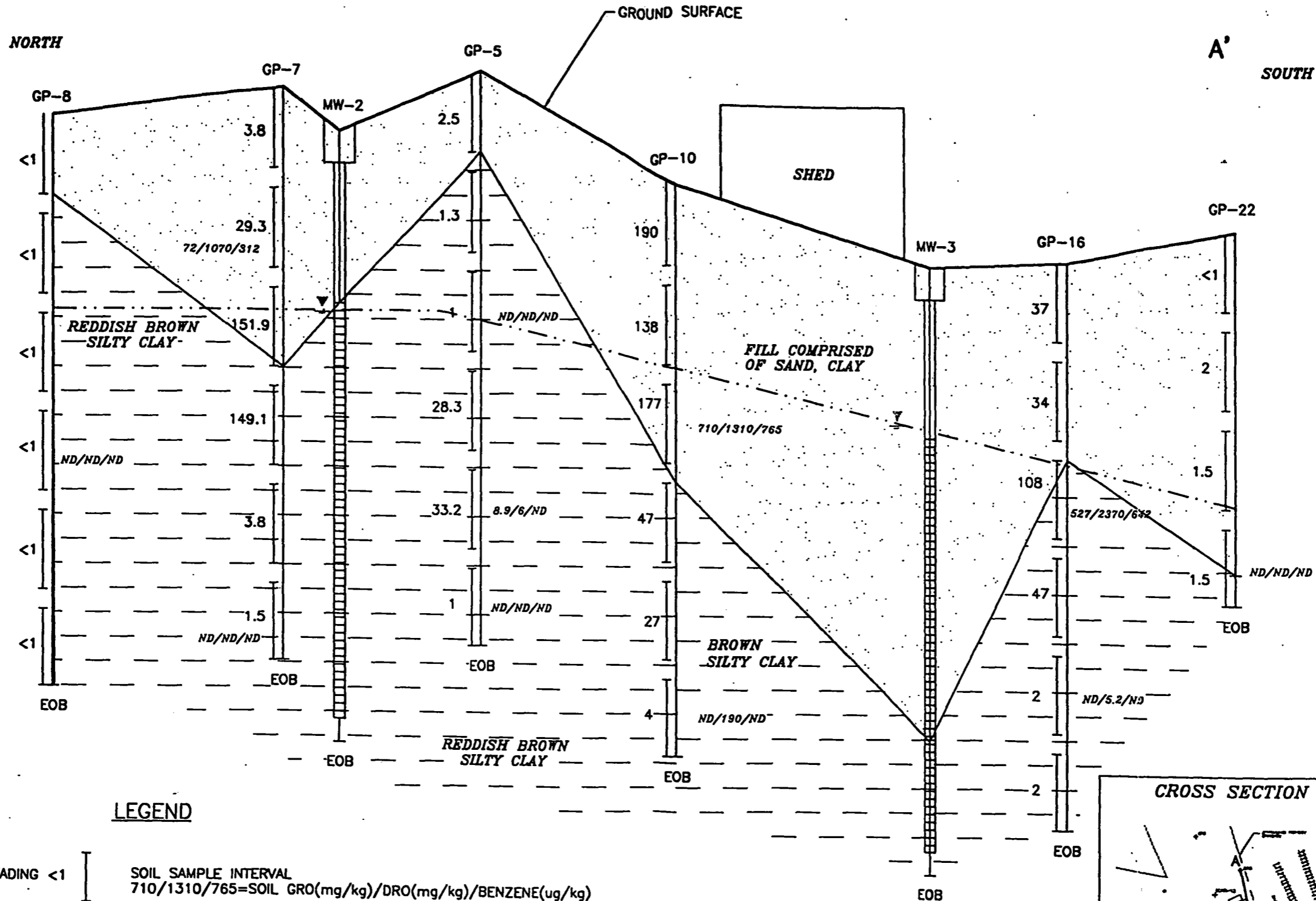
I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Randy Mottel Firm **STS Consultants, Ltd.** Tel: (414) 468-1978  
 lmn22102 1035 Kepler Drive Green Bay, Wisconsin Fax: (414) 468-3312

ELEVATION MEAN SEA LEVEL



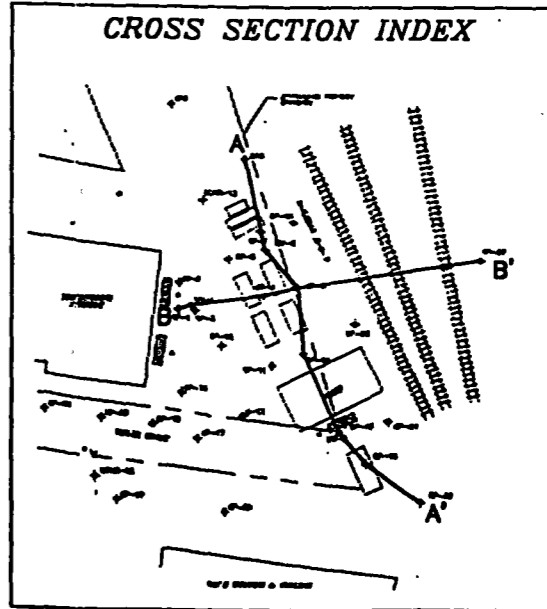
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**LEGEND**

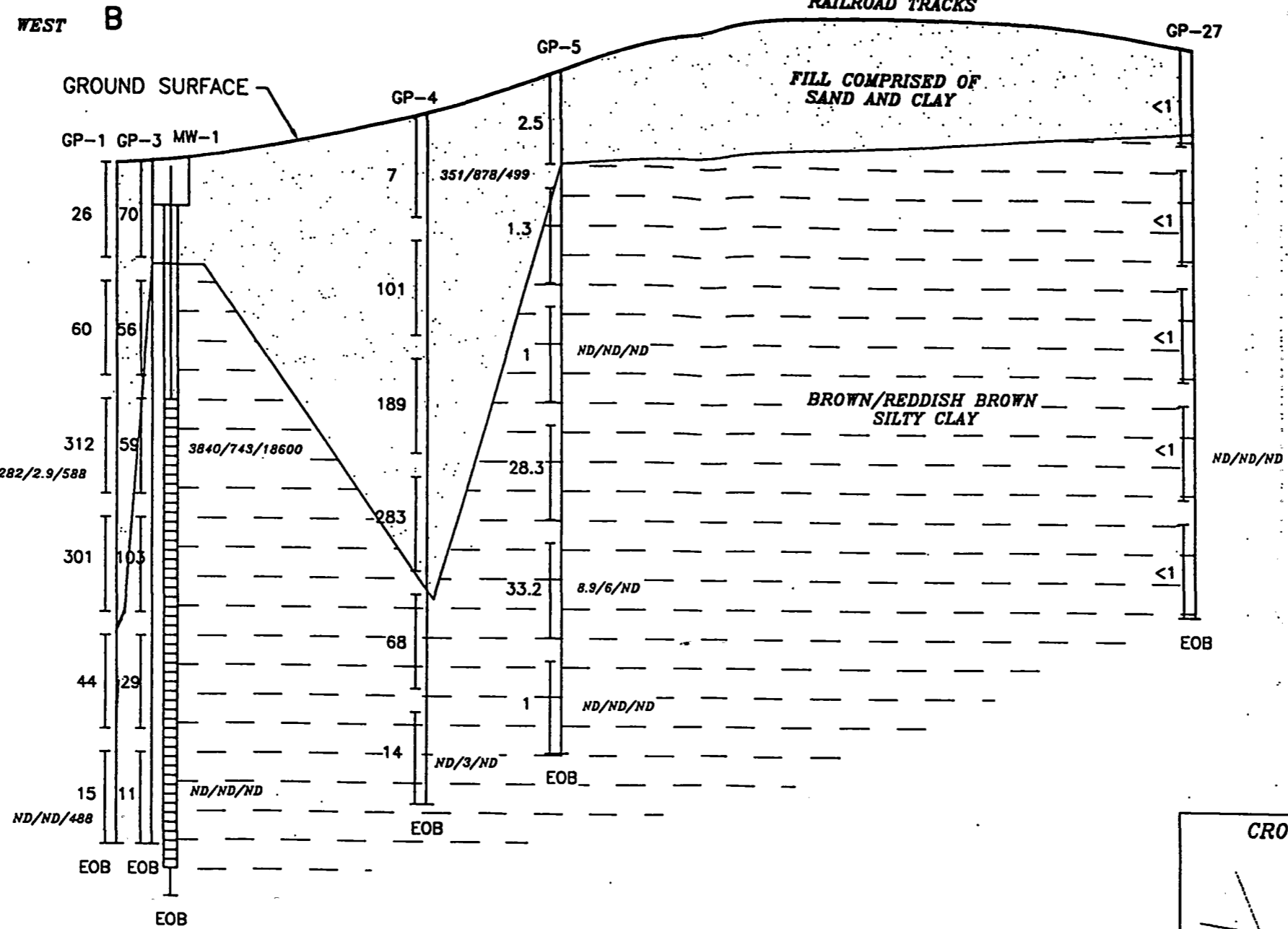
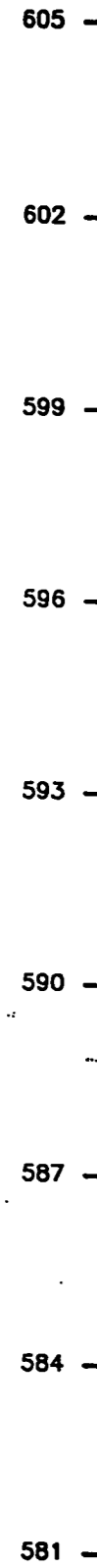
- PID READING <1
- SOIL SAMPLE INTERVAL  
710/1310/765=SOIL GRO(mg/kg)/DRO(mg/kg)/BENZENE(ug/kg)
- PROTECTOR PIPE
- PVC MONITORING WELL
- SCREENED PORTION OF WELL
- EOB END OF BORING
- ND NOT DETECTED
- ▼ GROUNDWATER TABLE ELEVATION IN MONITORING WELL
- GROUNDWATER TABLE OBSERVED 05-14-96

SCALE: HORIZ. 1" = 20'  
VERT. 1" = 3'



	DATE	6-11-96	DATE	6-25-96
	DRAWN BY	DJM	CHECKED BY	RJM
			APPROVED BY	
<p><b>CROSS SECTION A-A'</b>  <b>PROGRESSIVE FARMERS CO-OPERATIVE</b>  <b>548 BUTLER STREET</b>  <b>DEPERE, WISCONSIN</b></p>				
<p>STS Consultants Ltd. Consulting Engineers</p>				
STS PROJECT NO.				
22102W				
STS PROJECT FILE				
SCALE				
AS NOTED				
SHEET NO.				
3				

ELEVATION MEAN SEA LEVEL



**LEGEND**

PID READING <1

SOIL SAMPLE INTERVAL  
710/1310/765 SOIL GRO(mg/kg)/DRO(mg/kg)/BENZENE(ug/kg)

PROTECTOR PIPE

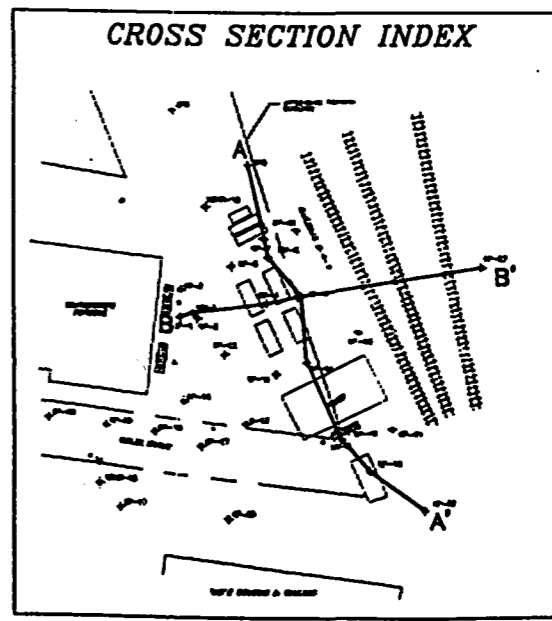
PVC MONITORING WELL

SCREENED PORTION OF WELL

EOB END OF BORING

ND NOT DETECTED

SCALE: HORIZ. 1" = 20'  
VERT. 1' = 3'

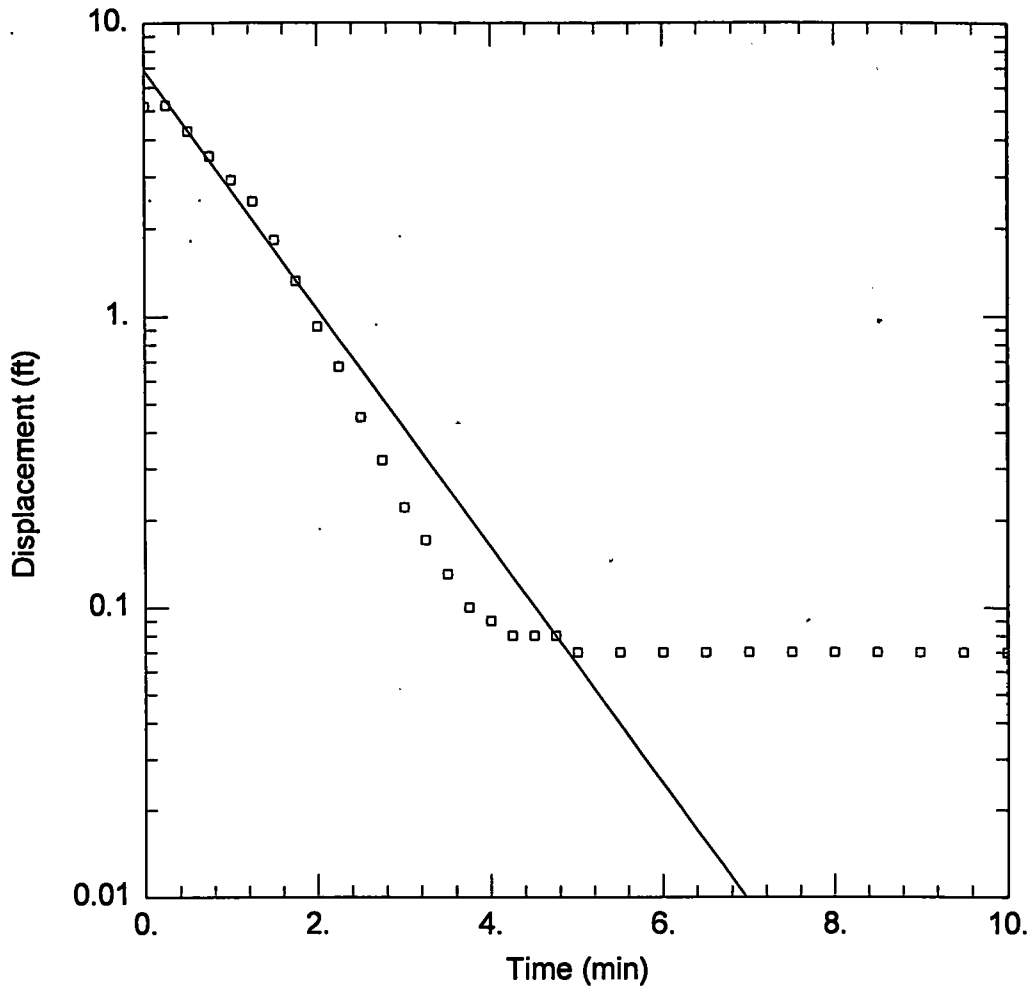


DATE	6-11-96
DRAWN BY	DJM
CHECKED BY	RJM
APPROVED BY	
CADFILE	W:\DWG96\22102W\RED08.DWG
CROSS SECTION B-B' PROGRESSIVE FARMERS CO-OPERATIVE 548 BUTLER STREET DEPERE, WISCONSIN	
 SIS Consultants Ltd. Consulting Engineers	
SIS PROJECT NO.	
22102W	
SIS PROJECT FILE	
SCALE	
AS NOTED	
SHEET NO.	
4	





**APPENDIX C**  
**HYDRAULIC CONDUCTIVITY TESTING RESULTS**



WELL TEST ANALYSIS

Data Set: P:\KEB\BETTERBRIK-TEST\MW-2.AQT

Date: 05/17/00

Time: 15:38:13

PROJECT INFORMATION

Company: HSI GeoTrans, Inc.

Client: Better Brite

Project: F119

Test Location: De Pere, WI

Test Well: MW-2

Test Date: 5/4/00

AQUIFER DATA

Saturated Thickness: 6.67 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 5.17 ft

Water Column Height: 6.67 ft

Casing Radius: 0.083 ft

Wellbore Radius: 0.25 ft

Screen Length: 10. ft

Gravel Pack Porosity: 0.3

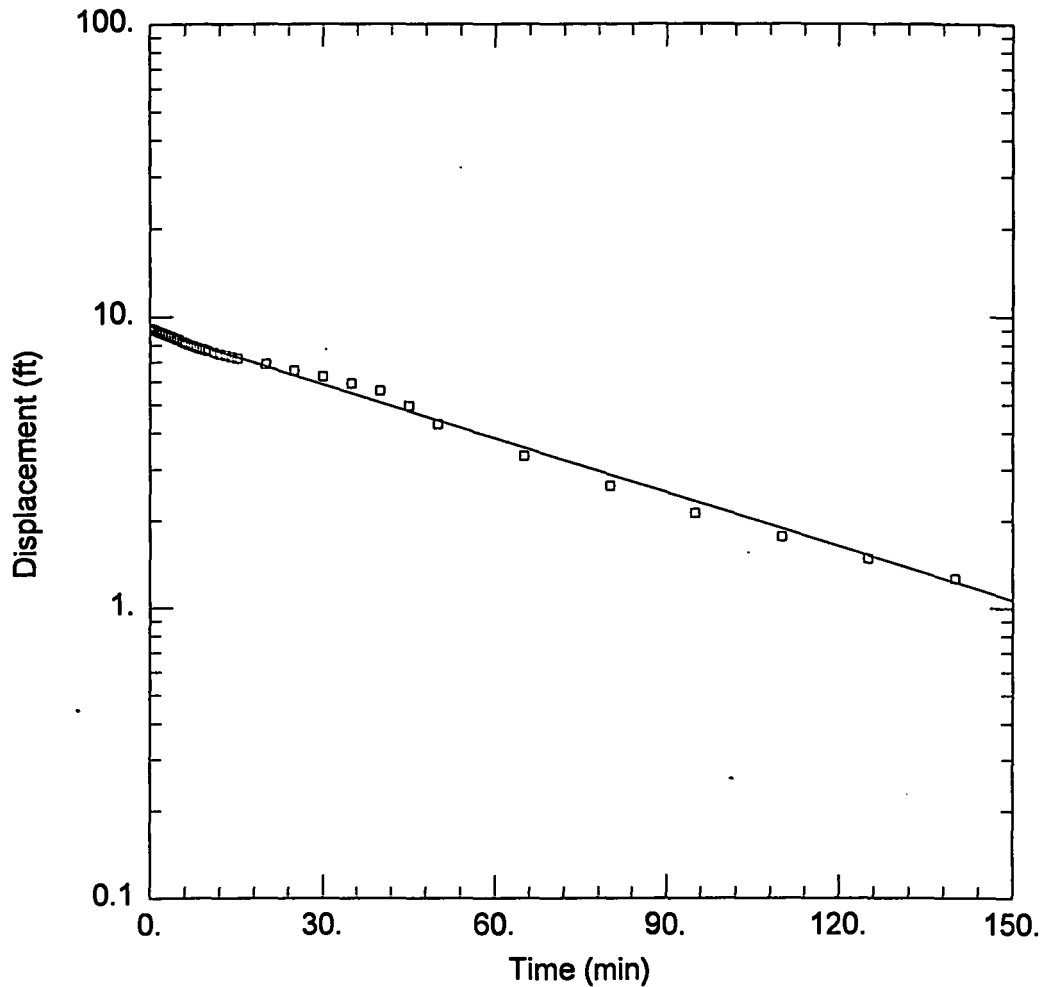
SOLUTION

Aquifer Model: Unconfined

K = 0.00143 cm/sec

Solution Method: Bower-Rice

y0 = 6.866 ft



WELL TEST ANALYSIS

Data Set: P:\KEB\BETTERBRK-TESTMW-115A.AQT

Date: 05/17/00

Time: 15:39:40

PROJECT INFORMATION

Company: HSI GeoTrans, Inc.

Client: Better Brite

Project: F119

Test Location: De Pere, WI

Test Well: MW-115A

Test Date: 5/4/00

AQUIFER DATA

Saturated Thickness: 9.34 ft

Anisotropy Ratio (Kz/Kr): 1.

WELL DATA

Initial Displacement: 9.13 ft

Water Column Height: 5. ft

Casing Radius: 0.083 ft

Wellbore Radius: 0.25 ft

Screen Length: 5. ft

Gravel Pack Porosity: 0.3

SOLUTION

Aquifer Model: Unconfined

K = 3.26E-05 cm/sec

Solution Method: Bower-Rice

y0 = 8.999 ft



2010-2011

2010-2011



**APPENDIX D**  
**PRO-TOP WELL CONVERSION SUMMARY TABLE**

**SUMMARY OF STICK UP PRO-TOP TO FLUSH MOUNT CONVERSION  
MAY, 2000**

Well ID	Result
B-101	Could not remove 100%. Left 3' of pipe cut below grade.
B-104A	Removed complete pro-top from ground.
MW-106	Could not remove 100%. Left 3' of pipe cut below grade.
MW-106A	Removed complete pro-top from ground.
MW-107	Removed complete pro-top from ground.
MW-107A	Removed complete pro-top from ground.
MW-113	Could not remove 100%. Left 3' of pipe cut below grade.





**APPENDIX E**  
**SURVEY DATA**

May 17, 2000

Keith Becker  
HSI Geotrans Inc.  
175 N. Corporate Drive, Suite 100  
Brookfield, Wisconsin 53045



1837 West Wisconsin Ave.  
P.O. Box 1297  
Appleton, Wisconsin 54912-1297  
Phone (920) 731-4168  
Fax (920) 731-5673

RE: Better Brite Chrome & Zinc Plating Site  
DePere, Wisconsin  
A949.13-00

Listed below are the locations and elevations for the additional wells and probes.

**Chrome Plating Site**

Well	Northing	Easting	Ground	Top of Casing	Top of PVC
B-101					608.85
B-104A					606.08
MW-106					606.21
MW-106A					606.36
MW-107					608.41
MW-107A					608.33
MW-113					611.08
MW-115	226,347.12	2,470,800.86	601.46	601.48	601.04
MW-115A	226,342.78	2,470,802.06	601.52	601.53	601.01
MW-116	226,337.11	2,470,919.62	604.88	604.90	604.28

**Zinc Plating Site**

SUMP 604.09







**APPENDIX F**  
**WATER ELEVATION MEASUREMENTS**

# GROUNDWATER LEVELS

May, 2000

CHROME SHOP			
Well Number	Top of Casing	Water Level in feet	Water Elevation
B-101	608.85	6.36	602.49
B-104A	606.08	6.85	599.23
MW-106	606.21	4.44	601.77
MW-106A	606.36	13.02	593.34
MW-107	608.41	2.26	606.15
MW-107A	608.33	19.54	588.79
MW-108	604.22	15.15	589.07
MW-108A	604.44	16.34	588.10
MW-110	603.05	3.11	599.94
MW-110A	603.31	13.54	589.77
MW-111	600.76	4.07	596.69
MW-112	600.61	3.49	597.12
MW-113	611.08	3.42	607.66
MW-115	601.04	13.99	587.05
MW-115A	601.01	12.95	588.06
MW-116	604.28	dry	NA

ZINC SHOP			
Well Number	Top of Casing	Water Level in feet	Water Elevation
MW-12	599.87	4.08	595.79
MW-9	601.66	6.02	595.64
MW-5	600.81	7.61	593.20
MW-5A	600.81	14.60	586.21
MW-6	602.33	6.72	595.61
MW-6A	605.19	11.11	594.08
MW-4	602.99	8.85	594.14
MW-4A	603.29	9.55	593.74
MW-8	598.18	8.89	589.29
MW-8A	598.59	18.04	580.55
MW-7	600.60	6.45	594.15
MW-7A	600.51	12.07	588.44
MW-11	602.40	4.31	598.09
MW-3	602.52	13.88	588.64
MW-10	601.53	4.96	596.57
MW-2	602.45	7.47	594.98
Sump	604.09	13.72	590.37



DATE: 5-2-00

WATER LEVEL DATA

PROJECT: Better Brine  
 PROJECT #: F119  
 LOCATION: G. De Pere

Zinc Shop

WELL:	TIME (MILITARY)	MEASURING INSTRUMENT	FIELD MEASUREMENT & SURVEY DATA			MEASURED BY	COMMENTS
			TOP OF PVC CASING ELEV. (ft. msl)	MEASURED DEPTH BELOW TOP PVC CASING (ft.)	WATER ELEVATION (ft. msl)		
MW-7	1040	salinst	600.60	6.45	594.15		
MW-7A	1042		600.51	12.07	588.44		
MW-8	1049		598.18	8.89	589.29		
MW-8A	1051		598.59	18.04	580.55		
MW-4	1055		602.99	8.85	594.14		
MW-4A	1057		603.29	9.55	593.74		
MW-3A	11:10		602.52	13.88	588.64		Buried Cap off / lock unlocked
MW-11	11:16		602.4	4.31	598.09		cover cap wait seal.
MW-6	11:30		602.33	6.72	595.61		
MW-6A	11:35		605.19	11.11	594.08		
MW-9	11:45		601.66	6.02	595.64		lock unlocked
MW-10	12:15		601.53	4.96	596.57		new lock
MW-5	12:20		600.81	7.61	593.2		
MW-5A	12:22		600.81	14.60	586.21		
sump	12:30		604.09	13.72	590.37		N. side of green top tank
MW-12	12:35		599.87	4.08	595.79		reading from new lock
MW-12	12:45			8.22			same sump 2.
MW-12	13:20		602.45	7.47	<del>594.98</del>		
					594.98		
letter A cure Piezometers							







**APPENDIX G**  
**FIELD WATER QUALITY DATA SHEETS**

119684404

FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: tot Chrome/Better Brick  
 PROJECT #: E119  
 LOCATION: Kaukauna, WI  
 PERSONNEL: KS, KB

INSTRUMENTS:  
 TEMPERATURE: YSI 68  
 CONDUCTIVITY: ↓  
 PH: ↓  
 OTHER: Selinst

GENERAL:		wt Chrome	Better Brick			
SAMPLE POINT		F-12	MW-110	MW-110A	MW-111	MW-108
WATER TYPE		GW	GW	GW	GW	GW
DATE		5-1-00	5-1-00	5-1-00	5-1-00	5-1-00
CLOCK TIME		09:05	1435	1400	13:51	
DEPTH TO WATER*		25.00	3.86 <sup>KS</sup>	13.54	4.07	15.15
MEASURED WELL DEPTH		30.19	14.50 <sup>KS</sup>	23.59	14.35	15.45
PURGE VOL/CASING VOL(g)			7g	6.5g	6.7g	.19
DEPTH SAMPLE TAKEN		30.00	14.00	23.00	14.00	15.00
SAMPLING DEVICE		ded. catl bailer	hang bailer	hang bailer	hang bailer	hang bailer
FIELD TEMPERATURE (°C)			14.1	17.0	18.8	
ELEC. COND. (µmhos/cm)	MEASURED		1429	948	637	
	AT 25°C		1811	1119	857	
PH			7.30	7.91	7.22	
ALKALINITY						
COLOR		brown (choc. milk)	lt. brown	lt. brown	lt.	
ODOR		none	none	none	none	
CLARITY		turbid	cloudy	cloudy	cloudy	
SAMPLING PARAMETERS	# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
		purged on man.	-waited for water to reach static DTW: 3.11	-purged dry after 5g		-purged dry - parameters and sample to proceed.
		-bailed 4 gallons out before well went dry.				
		well sample thurs. & Fri.				
		Total Cr				
		Hex Cr				
LABORATORY: SENT TO:		Test America				
DATE SENT:		5-1-00	5-1-00	5-1-00		
SAMPLED BY:		KB/KS				

\*Measured from top of well riser.

Apr. 22 check

Call bank & verify routing + account

Call Corporate in a.m. 703-444-7000 about deposit

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brute  
 PROJECT #: 1114  
 LOCATION: De Vries, WI  
 PERSONNEL: KS, KB

INSTRUMENTS  
 TEMPERATURE: YSI 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Selinst

GENERAL:		ZINC			
SAMPLE POINT		MW-5A	Zinc Sump	MW-10	MW-9
WATER TYPE		GW	GW	GW	GW
DATE		5/4/00	5/4/00	5-5-00	5-5-00
CLOCK TIME		16:55	16:30	10:05	16:20
DEPTH TO WATER*		14.46	13.62	6.68	6.15
MEASURED WELL DEPTH		29.48	20.40	14.69	16.36
PURGE VOL/CASING VOL(g)		9.8 gal	5 gal	5.5 g	6.5 g
DEPTH SAMPLE TAKEN		29.00	20.00	14.00	16.00
SAMPLING DEVICE		hang bailer	20% coated bailer	hang bailer	hang bailer
FIELD TEMPERATURE (°C)		16.8	18.0	14.2	15.1
ELEC. COND. (µmhos/cm)	MEASURED	259	242	1193	735
	AT 25°C	301	240.7	1506	902
PH		7.40	7.08	7.09	7.17
ALKALINITY		—	—	—	—
COLOR		lt. brown	clear	yellow	lt. brown
ODOR		none	none	none	none
CLARITY		cloudy	clear	clear	cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)			
		purged dry after 7g	did not purge	bailed dry @ 5.5 gal	well on verge of going dry after 6.5 g.
LABORATORY: SENT TO:					
DATE SENT:					
SAMPLED BY:					

\*Measured from top of well riser.

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Butter Brake  
 PROJECT #: 2119  
 LOCATION: 12 rd. e. w. 1  
 PERSONNEL: KS, KIS

INSTRUMENTS: YSI 63  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: 30.20 F

GENERAL:	SAMPLE POINT	MW-12	MW-2	MW-115A	MW-15	MW-5
WATER TYPE		GW	GW	GW	GW	GW
DATE		5/4/00	<del>5/4/00</del> 5/4/00	5/4/00	5-4-00	5-4-00
CLOCK TIME		14:50	1510	1555	1535	16:50
DEPTH TO WATER*		3.95	7.54	13.19	13.99	7.68
MEASURED WELL DEPTH		14.55	14.13	22.53	14.48	15.35
PURGE VOL/CASING VOL(g)		1 gal	4.5g	4.5	0.32	5 gal
DEPTH SAMPLE TAKEN		14.00	14.00	22.00	14.00	15.00
SAMPLING DEVICE		hang bailer	dedicated bailer	dedicated bailer	dedicated bailer	hang bailer
FIELD TEMPERATURE (°C)		17.6	19.02	15.2	18.6	15.3
ELEC. COND. (µmhos/cm)	MEASURED	1612	1671	565	627	838
	AT 25°C	1841	1826	703	715	1035
PH		6.91	6.79	7.19	7.02	7.21
ALKALINITY						
COLOR		brown	lt. yellow	clear	clear	lt. brown
ODOR		none	slight fuel smell	none	none	none
CLARITY		turbid	cloudy	clear	clear	clear
SAMPLING PARAMETERS	# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
		purged dry after 6.5g.			not developed	
LABORATORY: SENT TO:	Test America					
DATE SENT:						
SAMPLED BY:	KS, KIS					

\*Measured from top of well riser.

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better B-4e  
 PROJECT #: 1-117  
 LOCATION: McKeeville  
 PERSONNEL: KS, KB

INSTRUMENTS  
 TEMPERATURE: YSI 43  
 CONDUCTIVITY: ↓  
 pH: ↓  
 OTHER: Solimat

GENERAL:	SAMPLE POINT	<u>Zinc</u>	<u>Zinc</u>	<u>Zinc</u>		
	MW-7	MW-6.4	MW-6	MW-7-D	MW-7MS	MW-7MSD
WATER TYPE	GW	GW	GW	GW	GW	GW
DATE	5-4-80	5-4-06	5-4-00	5/4/06	5/4/00	5/4/00
CLOCK TIME	13:10	1440	14:25	13:20	13:10	
DEPTH TO WATER*	6.51	11.10	6.85	6.51	6.51	
MEASURED WELL DEPTH	15.60	28.40	15.50	15.60	15.60	
PURGE VOL/CASING VOL(g)	0	11	5.5	6	6	
DEPTH SAMPLE TAKEN	15.02	28.02	15.00	15	15	
SAMPLING DEVICE	<sup>hand</sup> bailer	<sup>hand</sup> bailer	<sup>hand</sup> bailer	<sup>hand</sup> bailer	<sup>hand</sup> bailer	
FIELD TEMPERATURE (°C)	18.00	18.3	20.1			
ELEC. COND. (µmhos/cm)	MEASURED	956	1110 365	1116		
	AT 25°C	1106	1205 414	1205		
pH	6.95	7.22	7.07			
ALKALINITY						
COLOR	light brown	Brown	yellow			
ODOR	none	none	none			
CLARITY	clear	turbid	clear			
SAMPLING PARAMETERS	# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
		- purged 7.5g then vented clear				
LABORATORY: SENT TO:	Test America					
DATE SENT:						
LED BY:	KS KB					

↓ from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: W1 Better Bridge  
 PROJECT #: F-119  
 LOCATION: Green Bay trail  
 PERSONNEL: KS, KB

INSTRUMENTS  
 TEMPERATURE: YSI-63  
 CONDUCTIVITY: \_\_\_\_\_  
 pH: \_\_\_\_\_  
 OTHER: Selinst

GENERAL:		SAMPLE POINT	MW-108A	MW-107	MW-107A	VW-107D	MW-106A
WATER TYPE			GW	GW	GW	GW	GW
DATE			5-1-00	5-2-00	5-2-00	5/2/00	5/2/00
CLOCK TIME			1645	1600	1550	1605	1705
DEPTH TO WATER*			16.34	2.262.82	19.54	2.26	13.02
MEASURED WELL DEPTH			32.95	15.41	39.04	15.41	31.82
PURGE VOL/CASING VOL(g)			11g	8.6g	12.7g	8.6g	12g
DEPTH SAMPLE TAKEN			32.00	15.00	39.00	15	31.00
SAMPLING DEVICE			hang bailer	hang bailer	hang bailer	hang bailer	hang bailer
FIELD TEMPERATURE (°C)			12.1	16.5	15.9		16.0
ELEC. COND. (µmhos/cm)	MEASURED		309	892	306.5		346
	AT 25°C		407	1008	319.5		408
pH			8.19	7.39	7.65		7.42
ALKALINITY			—	—	—	—	—
COLOR			lt. brown	lt. brown	lt. brown		lt. orange
ODOR			none	none	none		none
CLARITY			cloudy	cloudy	turbid		cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)					
			- purged dry after 7g.		temp = 15.9		- purged dry after 7g.
Total Cr							→
Hex Cr							→
LABORATORY: SENT TO:		Test Ann					
DATE SENT:		5-1-00					
SAMPLED BY:		KS / KB					

\*Measured from top of well riser.

**FIELD WATER QUALITY SAMPLING AND ANALYSIS**

PROJECT: Better Brink  
 PROJECT #: 5114  
 LOCATION: 1/2 KCR, WI  
 PERSONNEL: KS, KJ

INSTRUMENTS  
 TEMPERATURE: YSI Model 63  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Solinst # 7

GENERAL:		ZINC	ZINC	ZINC	ZINC	ZINC
SAMPLE POINT		MW-4A	MW-4	MW-4A	MW-3	MW-7A
WATER TYPE		GW	GW	GW	GW	GW
DATE		5-3-00	5-3-00	5-3-00	5-3-00	5-4-00
CLOCK TIME		1425	1540	1608	0945	1300
DEPTH TO WATER*		15.17	8.82	9.53	14.6907	12.21
MEASURED WELL DEPTH		27.23	14.92	28.64	28.56	26.50
PURGE VOL/CASING VOL (g)		6.5	110	52	10	9.5
DEPTH SAMPLE TAKEN		27.00	19.00	28.00	28.00	26.00
SAMPLING DEVICE		hang bailer	dedicated bailer	dedicated bailer	peristaltic pump	hang bailer
FIELD TEMPERATURE (°C)		17.2	16.9	14.2	17.0	20.2
ELEC. COND. (umhos/cm)	MEASURED	298	1171	963	1057	344
	AT 25°C	343	1370	1214	1251	380
PH		7.33	7.01	7.11	7.10	7.24
ALKALINITY		—	—	—	—	—
COLOR		lt. brown	lt. brown	lt. brown	clear	lt. brown
ODOR		none	none	none	none	none
CLARITY		cloudy	clear	clear	clear	cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC) PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
		- bailer dry after 4/2g.	4" well - purged dry	4" well - purged dry	- 11 inches down piping separated.	- purged 8 g. then went dry
			- purged 9 g with water	- purged 10 g with water	need to use peristaltic pump.	
					- 2" schedule 80 pipe	
					- cap won't go tight	
					- purged 3.5 g. then went dry.	
LABORATORY:	SENT TO:	Test America				
	DATE SENT:					
LEAD BY:		KS, KJ				

red from top of well riser.

## FIELD WATER QUALITY SAMPLING AND ANALYSIS

PROJECT: Better Brk  
 PROJECT #: 6119  
 LOCATION: Lawrence, Ok. RR  
 PERSONNEL: KB, KS

INSTRUMENTS: ISI 63  
 TEMPERATURE: \_\_\_\_\_  
 CONDUCTIVITY: \_\_\_\_\_  
 PH: \_\_\_\_\_  
 OTHER: Solinst

GENERAL:		MW-106	MW-112	MW-113	ZINC	ZINC
SAMPLE POINT		MW-106	MW-112	MW-113	MW-11	MW-8
WATER TYPE		GW	GW	GW	GW	GW
DATE		5/2/00	5/3/00	5-3-00	5-3-00	5-3-00
CLOCK TIME		1710	1255	12:45	13:36	1410
DEPTH TO WATER*		4.44	3.49	3.42	4.31	8.89
MEASURED WELL DEPTH		14.30	15.00	14.83	15.30	16.38
PURGE VOL/CASING VOL(g)		6.5	8	7	7	5
DEPTH SAMPLE TAKEN		14.00	15.00	14.00	15.00	16.00
SAMPLING DEVICE		hang bailer	hang bailer	hang bailer	hang bailer	hang bailer
FIELD TEMPERATURE (°C)		15.1	15.9	15.7	18.3	15.8
ELEC. COND. (µmhos/cm)	MEASURED	720	659	811	1336	846
	AT 25°C	886	799	2046	1501	1027
PH		7.38	7.31	7.18	7.11	7.20
ALKALINITY		—	—	—	—	—
COLOR		Tan	clear	lt. Brown	lt. brown	lt. Brown
ODOR		none	none	none	none	none
CLARITY		cloudy	clear	cloudy	cloudy	cloudy
SAMPLING PARAMETERS		# OF CONTAINERS & CONT. VOLUME; CONTAINER TYPE (A=AMBER GLASS; G=GLASS; P=PLASTIC); PRESERVATIVE TYPE - (L=LAB ADDED; F=FIELD ADDED) OR NEUTRAL; FILTERED (YES OR NO)				
		- purge dry after 7g	- new 100k			
Total Cr						→
Hex Cr						→
LABORATORY: SENT TO:		Test America				→
DATE SENT:						→
SAMPLED BY:		KS, KB				→

\*Measured from top of well riser.





**APPENDIX H**  
**ANALYTICAL LABORATORY DATA AND CHAIN OF CUSTODY FORMS**

## ANALYTICAL AND QUALITY CONTROL REPORT

RECEIVED

MAY 12 2000

MASTER FILE COPY  
PROJECT # \_\_\_\_\_  
CO: \_\_\_\_\_

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

HP Geotrans  
Milwaukee

05/10/2000

Job No: 00.03531

Page 1 of 10

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
393390	MW-108A F116 Better Brite	05/01/2000	05/02/2000
393391	MW-110A F116 Better Brite	05/01/2000	05/02/2000
393392	MW-110 F116 Better Brite	05/01/2000	05/02/2000
393393	MW-111 F116 Better Brite	05/01/2000	05/02/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

*Karen R. Wenta*  
Karen R. Wenta  
Inorganic Operations Manager

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03531  
Sample No: 393390  
Account No: 39150  
Page 2 of 9

JOB DESCRIPTION: F116 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-108A F116 Better Brite  
Rec'd on ice

Date/Time Taken: 05/01/2000 16:45

Date Received: 05/02/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/02/2000	596
Chromium, GFAA	0.055	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03531  
Sample No: 393391  
Account No: 39150  
Page 3 of 9

JOB DESCRIPTION: F116 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-110A F116 Better Brite  
Rec'd on ice

Date/Time Taken: 05/01/2000 14:00

Date Received: 05/02/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/02/2000	596
Chromium, GFAA	0.025	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03531  
Sample No: 393392  
Account No: 39150  
Page 4 of 9

JOB DESCRIPTION: F116 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-110 F116 Better Brite  
Rec'd on ice

Date/Time Taken: 05/01/2000 14:35

Date Received: 05/02/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/02/2000	596
Chromium, GFAA	0.037	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03531  
Sample No: 393393  
Account No: 39150  
Page 5 of 9

JOB DESCRIPTION: F116 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-111 F116 Better Brite  
Rec'd on ice

Date/Time Taken: 05/01/2000 15:51

Date Received: 05/02/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/02/2000	596
Chromium, GFAA	0.036	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03531  
Account No: 39150

Page 6 of 9

Job Description: F116 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	596	0.500	0.50	100.0	90 - 110	jts
Chromium, hexavalent	596	0.500	0.48	96.0	90 - 110	jts
Chromium, GFAA	574	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	574	0.0100	0.0106	106.0	90 - 110	mmm



## QUALITY CONTROL REPORT BLANKS

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03531  
Account No: 39150

Page 7 of 9

Job Description: F116 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		596	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		596	<0.0042	0.0042	0.015	mg/L
Chromium, GFAA	988	574	0.00089	0.00052	0.0018	mg/L
Chromium, GFAA		574	<0.00052	0.00052	0.0018	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03531  
Account No: 39150

Page 8 of 9

Job Description: F116 Better Brite

Analyte	Prep	Run	LCS		LCSD		Relative		
	Batch	Batch	Amount	Units	Result	Result	Percent	Percent	
	Number	Number					Recovery	Recovery	
							Control	Control	
							Limits	Difference	
Chromium, GFAA	988	574	0.0100	mg/L	0.0111		111.0		87 - 116

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/10/2000  
 Job No: 00.03531  
 Account No: 39150  
 Page 9 of 9

Job Description: F116 Better Brite

Analyte	Prep	Run			Matrix	MS	MSD			Relative	
	Batch	Batch	Sample	Spike	Spike	MSD	Percent	Percent	Control	Percent	
	Number	Number	Result	Amount	Units	Result	Result	Recovery	Recovery	Limits	Difference
Chromium, hexavalent		596	<0.0042	0.500	mg/L	0.48	0.48	96.0	96.0	70 - 116	0.0
Chromium, GFAA	988	574	0.016	0.0100	mg/L	0.0258	0.0227	98.0	67.0	80 - 131	12.8



## ANALYTICAL AND QUALITY CONTROL REPORT

RECEIVED

MAY 12 2000

TEST AMERICA COPY  
 PROJECT # \_\_\_\_\_  
 CO: \_\_\_\_\_

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS *WIS Geotrans*  
 175 N. Corporate Drive *Milwaukee*  
 Suite 100  
 Brookfield, WI 53045

05/10/2000

Job No: 00.03562

Page 1 of 11

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
393540	MW-106 F119 Better Brite	05/02/2000	05/03/2000
393541	MW-106A F119 Better Brite	05/02/2000	05/03/2000
393542	MW-107A F119 Better Brite	05/02/2000	05/03/2000
393543	MW-107D F119 Better Brite	05/02/2000	05/03/2000
393544	MW-107 F119 Better Brite	05/02/2000	05/03/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

*Karen R. Wenta*  
 Karen R. Wenta  
 Inorganic Operations Manager

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03562  
Sample No: 393540  
Account No: 39150  
Page 2 of 11

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-106 F119 Better Brite  
Rec'd on ice

Date/Time Taken: 05/02/2000 17:10

Date Received: 05/03/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/03/2000	597
Chromium, GFAA	0.0040	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03562  
Sample No: 393541  
Account No: 39150  
Page 3 of 11

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-106A F119 Better Brite  
Rec'd on ice

Date/Time Taken: 05/02/2000 17:05

Date Received: 05/03/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/03/2000	597
Chromium, GFAA	0.0094	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

ug/L

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03562  
Sample No: 393542  
Account No: 39150  
Page 4 of 11

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-107A F119 Better Brite  
Rec'd on ice

Date/Time Taken: 05/02/2000 15:50

Date Received: 05/03/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/03/2000	597
Chromium, GFAA	M 0.016	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574



## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03562  
Sample No: 393543  
Account No: 39150  
Page 5 of 11

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-107D F119 Better Brite  
Rec'd on ice

Date/Time Taken: 05/02/2000 16:05

Date Received: 05/03/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/03/2000	597
Chromium, GFAA	0.0045	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000  
Job No: 00.03562  
Sample No: 393544  
Account No: 39150  
Page 6 of 11

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-107 F119 Better Brite  
Rec'd on ice

Date/Time Taken: 05/02/2000 16:00

Date Received: 05/03/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/03/2000	597
Chromium, GFAA	0.0042	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03562  
Account No: 39150

Page 7 of 11

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	597	0.500	0.51	102.0	90 - 110	jts
Chromium, hexavalent	597	0.500	0.49	98.0	90 - 110	jts
Chromium, GFAA	574	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	574	0.0100	0.0106	106.0	90 - 110	mmm

## QUALITY CONTROL REPORT BLANKS

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03562  
Account No: 39150

Page 8 of 11

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		597	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		597	<0.0042	0.0042	0.015	mg/L
Chromium, GFAA	988	574	0.00089	0.00052	0.0018	mg/L
Chromium, GFAA		574	<0.00052	0.00052	0.0018	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03562  
Account No: 39150

Page 9 of 11

Job Description: F119 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		597	<0.0042	<0.0042	mg/L		23
Chromium, GFAA	988	574	0.0042	0.0038	mg/L	10.0	20

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/10/2000

Job No: 00.03562  
 Account No: 39150

Page 10 of 11

Job Description: F119 Better Brite

Analyte	Prep	Run	Sample	Spike	Units	Matrix	MSD	MS	MSD	Relative
	Batch	Batch				Spike		Percent	Percent	
	Number	Number	Result	Amount		Result	Recovery	Recovery	Limits	Difference
Chromium, hexavalent		597	<0.0042	0.500	mg/L	0.50	0.49	100.0	98.0	70 - 116 2.0
Chromium, GFAA	988	574	0.016	0.0100	mg/L	0.0258	0.0227	98.0	67.0	80 - 131 12.8

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/10/2000

Job No: 00.03562  
Account No: 39150

Page 11 of 11

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	LCSD Result	LCS Percent Recovery	LCSD Percent Recovery	Control Limits	Relative Percent Difference
Chromium, GFAA	988	574	0.0100	mg/L	0.0111		111.0		87 - 116	

## CHAIN OF CUSTODY RECORD

00.03562

602 Commerce Drive / Watertown, WI 53094  
 Phone: (920) 261-1660 / Fax: (920) 261-8120

COMPANY HSI GeoTrans  
 ADDRESS 175 N. Corporate Dr. 100  
 PHONE 262-792-1282 FAX  
 PROJECT DESCRIPTION/NO. Flu Better Brite  
 PROJECT MANAGER Dan Morgan

REPORT TO: Dan Morgan  
 INVOICE TO: \_\_\_\_\_  
 P.O. NO.: \_\_\_\_\_  
 QUOTE NO.: \_\_\_\_\_

SAMPLED BY: Kathryn Schoephoester  
 NAME: Keith Becker

### ANALYSES

Fax Results?  OC w/Results?

Which regulations apply?  
 NPDES/Wastewater  RCRA  USI   
 Drinking Water  Other  None

DATE	TIME	SAMPLE ID/DESCRIPTION	FILTERED	MATRIX	GRAB	COMP	# and Type of Containers							OTHER	COMMENTS	
							HCl	NaOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NONE	METHANOL	OTHER			
5/26	1710	MW-106	NO	SW	X				X					X	X	
	1705	MW-106 A			X				X					X	X	
	1550	MW-107 A			X				X					X	X	MS/MSD
	1605	MW-107 D			X				X					X	X	
	1600	MW-107			X				X					X	X	
		<del>MW-10</del>														

LAB USE ONLY  
 CONDITION OF SAMPLE: \_\_\_\_\_ BOTTLES INTACT?  YES  NO  
 VOLATILES FREE OF HEADSPACE? YES / NO \_\_\_\_\_ BOTTLES SUPPLIED BY LAB?  YES  NO  
 TEMPERATURE UPON RECEIPT: 16.0 °C

RELINQUISHED BY: Kathryn Schoephoester DATE: 5/26 TIME: 5:35 pm  
 RECEIVED BY: \_\_\_\_\_ DATE: 5/3/07 TIME: 11:00  
 RECEIVED FOR LAB BY: Carla Beaman

METHOD OF SHIPMENT: \_\_\_\_\_ REMARKS: a 5/3/07  
 TestAmerica Courier \_\_\_\_\_  
 Client: \_\_\_\_\_  
 Common Carrier: Edwards



## ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000

Job No: 00.03645


Page 1 of 17

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
393885	MW-4 Better Brite	05/03/2000	05/04/2000
393886	EQ-1 Better Brite	05/03/2000	05/04/2000
393887	MW-4A Better Brite	05/03/2000	05/04/2000
393888	MW-11 Better Brite	05/03/2000	05/04/2000
393889	MW-113 Better Brite	05/03/2000	05/04/2000
393890	MW-112 Better Brite	05/03/2000	05/04/2000
393891	MW-8 Better Brite	05/03/2000	05/04/2000
393892	MW-8A Better Brite	05/03/2000	05/04/2000
393893	Trip Blank Better Brite	05/03/2000	05/04/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits



Brian D. DeJong  
Organic Operations Manager

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393885  
Account No: 39150  
Page 2 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-4 Better Brite  
Rec'd on ice

Date/Time Taken: 05/03/2000 15:40

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.0046	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/16/2000  
 Job No: 00.03645  
 Sample No: 393886  
 Account No: 39150  
 Page 3 of 17

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: EQ-1 Better Brite  
 Rec'd on ice

Date/Time Taken: 05/03/2000 15:25

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.0038	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/16/2000  
 Job No: 00.03645  
 Sample No: 393886  
 Account No: 39150  
 Page 4 of 17

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: EQ-1 Better Brite  
 Rec'd on ice

Date/Time Taken: 05/03/2000 15:25

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Toluene	0.14	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Surr: Dibromofluoromethane	97.0	%		88-116	SW 8260B	05/08/2000	1905
Surr: Toluene-d8	99.6	%		88-113	SW 8260B	05/08/2000	1905
Surr: Bromofluorobenzene	94.4	%		91-111	SW 8260B	05/08/2000	1905

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393887  
Account No: 39150  
Page 5 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-4A Better Brite.  
Rec'd on ice

Date/Time Taken: 05/03/2000 16:08

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.0087	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393888  
Account No: 39150  
Page 6 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-11 Better Brite  
Rec'd on ice

Date/Time Taken: 05/03/2000 13:36

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.0070	mg/L	0.00052	0.0018	EPA 218.2	05/09/2000	988 574

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393889  
Account No: 39150  
Page 7 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-113 Better Brite  
Rec'd on ice

Date/Time Taken: 05/03/2000 12:45

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.022	mg/L	0.00052	0.0018	EPA 218.2	05/15/2000	989 575

## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393890  
Account No: 39150  
Page 8 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-112 Better Brite  
Rec'd on ice

Date/Time Taken: 05/03/2000 12:55

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.0041	mg/L	0.00052	0.0018	EPA 218.2	05/15/2000	989 575



## ANALYTICAL REPORT

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393891  
Account No: 39150  
Page 9 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-8 Better Brite  
Rec'd on ice

Date/Time Taken: 05/03/2000 14:10

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.015	mg/L	0.00052	0.0018	EPA 218.2	05/15/2000	989 575

## ANALYTICAL REPORT

Mr. Dan Morgan  
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175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000  
Job No: 00.03645  
Sample No: 393892  
Account No: 39150  
Page 10 of 17

JOB DESCRIPTION: Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-8A Better Brite  
Rec'd on ice

Date/Time Taken: 05/03/2000 14:25

Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/04/2000	598
Chromium, GFAA	0.016	mg/L	0.00052	0.0018	EPA 218.2	05/15/2000	989 575

## ANALYTICAL REPORT

Mr. Dan Morgan  
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 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/16/2000  
 Job No: 00.03645  
 Sample No: 393893  
 Account No: 39150  
 Page 11 of 17

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Trip Blank Better Brite  
 Rec'd on ice

Date/Time Taken: 05/03/2000 UNKNOWN Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/16/2000  
 Job No: 00.03645  
 Sample No: 393893  
 Account No: 39150  
 Page 12 of 17

JOB DESCRIPTION: Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Trip Blank Better Brite  
 Rec'd on ice

Date/Time Taken: 05/03/2000 UNKNOWN Date Received: 05/04/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Methylene Chloride	L 0.58	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/08/2000	1905
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	05/08/2000	1905
Surr: Dibromofluoromethane	97.4	%		88-116	SW 8260B	05/08/2000	1905
Surr: Toluene-d8	97.6	%		88-113	SW 8260B	05/08/2000	1905
Surr: Bromofluorobenzene	93.2	%		91-111	SW 8260B	05/08/2000	1905

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

05/16/2000

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 00.03645  
Account No: 39150

Page 13 of 17

Job Description: Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	598	0.500	0.50	100.0	90 - 110	jts
Chromium, hexavalent	598	0.500	0.49	98.0	90 - 110	jts
Chromium, GFAA	574	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	574	0.0100	0.0106	106.0	90 - 110	mmm
Chromium, GFAA	575	0.0100	0.0102	102.0	90 - 110	mmm
Chromium, GFAA	575	0.0100	0.0104	104.0	90 - 110	mmm
VOC - AQUEOUS - EPA 8260B						
Benzene	1905	50.0	45.5	91.0		mae
Bromoform	1905	50.0	50.2	100.4		mae
Chlorobenzene	1905	50.0	48.8	97.6		mae
Chloroform	1905	50.0	44.4	88.8	80 - 120	mae
Chloromethane	1905	50.0	42.2	84.4		mae
1,1-Dichloroethane	1905	50.0	44.9	89.8		mae
1,1-Dichloroethene	1905	50.0	44.4	88.8	80 - 120	mae
1,2-Dichloropropane	1905	50.0	45.2	90.4	80 - 120	mae
Ethylbenzene	1905	50.0	47.5	95.0	80 - 120	mae
Methyl-t-butyl ether	1905	50.0	44.7	89.4	80 - 120	mae
1,1,2,2-Tetrachloroethane	1905	50.0	47.4	94.8		mae
Toluene	1905	50.0	48.1	96.2	80 - 120	mae
Trichloroethene	1905	50.0	49.0	98.0		mae
1,2,4-Trimethylbenzene	1905	50.0	47.7	95.4		mae
1,3,5-Trimethylbenzene	1905	50.0	47.1	94.2		mae
Vinyl Chloride	1905	50.0	42.0	84.0	80 - 120	mae
Xylenes, Total	1905	150	145.0	96.7		mae
Surr: Dibromofluoromethane	1905	50.0	47.8	95.6	87 - 116	mae
Surr: Toluene-d8	1905	50.0	50.7	101.4	89 - 109	mae
Surr: Bromofluorobenzene	1905	50.0	47.0	94.0	87 - 112	mae

## QUALITY CONTROL REPORT

### BLANKS

05/16/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03645  
 Account No: 39150

Page 14 of 17

Job Description: Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		598	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		598	<0.0042	0.0042	0.015	mg/L
Chromium, GFAA	988	574	0.00089	0.00052	0.0018	mg/L
Chromium, GFAA		574	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA	989	575	<0.00052	0.00022	0.00078	mg/L
Chromium, GFAA		575	<0.00052	0.00022	0.00078	mg/L
VOC - AQUEOUS - EPA 8260B						
Benzene		1905	<0.10	0.10	0.33	ug/L
Bromobenzene		1905	<0.25	0.25	0.83	ug/L
Bromochloromethane		1905	<0.25	0.25	0.83	ug/L
Bromodichloromethane		1905	<0.25	0.25	0.83	ug/L
Bromoform		1905	<0.25	0.25	0.83	ug/L
Bromomethane		1905	<0.25	0.25	0.83	ug/L
n-Butylbenzene		1905	<0.25	0.25	0.83	ug/L
sec-Butylbenzene		1905	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		1905	<0.25	0.25	0.83	ug/L
Carbon Tetrachloride		1905	<0.25	0.25	0.83	ug/L
Chlorobenzene		1905	<0.25	0.25	0.83	ug/L
Chlorodibromomethane		1905	<0.25	0.25	0.83	ug/L
Chloroethane		1905	<0.25	0.25	0.83	ug/L
Chloroform		1905	<0.25	0.25	0.83	ug/L
Chloromethane		1905	<0.25	0.25	0.83	ug/L
2-Chlorotoluene		1905	<0.10	0.10	0.33	ug/L
4-Chlorotoluene		1905	<0.25	0.25	0.83	ug/L
1,2-Dibromo-3-Chloropropane		1905	<0.25	0.25	0.83	ug/L
1,2-Dibromoethane (EDB)		1905	<0.25	0.25	0.83	ug/L
Dibromomethane		1905	<0.25	0.25	0.83	ug/L
1,2-Dichlorobenzene		1905	<0.25	0.25	0.83	ug/L
1,3-Dichlorobenzene		1905	<0.25	0.25	0.83	ug/L
1,4-Dichlorobenzene		1905	<0.25	0.25	0.83	ug/L
Dichlorodifluoromethane		1905	<0.25	0.25	0.83	ug/L
1,1-Dichloroethane		1905	<0.25	0.25	0.83	ug/L
1,2-Dichloroethane		1905	<0.25	0.25	0.83	ug/L
1,1-Dichloroethene		1905	<0.25	0.25	0.83	ug/L
cis-1,2-Dichloroethene		1905	<0.25	0.25	0.83	ug/L
trans-1,2-Dichloroethene		1905	<0.25	0.25	0.83	ug/L
1,2-Dichloropropane		1905	<0.25	0.25	0.83	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

05/16/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03645  
 Account No: 39150

Page 15 of 17

Job Description: Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
1,3-Dichloropropane		1905	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		1905	<0.25	0.25	0.83	ug/L
1,1-Dichloropropene		1905	<0.25	0.25	0.83	ug/L
cis-1,3-Dichloropropene		1905	<0.25	0.25	0.83	ug/L
trans-1,3-Dichloropropene		1905	<0.25	0.25	0.83	ug/L
Di-isopropyl ether		1905	<0.25	0.25	0.83	ug/L
Ethylbenzene		1905	<0.25	0.25	0.83	ug/L
Hexachlorobutadiene		1905	<0.25	0.25	0.83	ug/L
Isopropylbenzene		1905	<0.25	0.25	0.83	ug/L
p-Isopropyltoluene		1905	<0.25	0.25	0.83	ug/L
Methylene Chloride		1905	<0.25	0.25	0.83	ug/L
Methyl-t-butyl ether		1905	<0.25	0.25	0.83	ug/L
Naphthalene		1905	<0.25	0.25	0.83	ug/L
n-Propylbenzene		1905	<0.25	0.25	0.83	ug/L
Styrene		1905	<0.25	0.25	0.83	ug/L
1,1,1,2-Tetrachloroethane		1905	<0.25	0.25	0.83	ug/L
1,1,2,2-Tetrachloroethane		1905	<0.25	0.25	0.83	ug/L
Tetrachloroethene		1905	<0.25	0.25	0.83	ug/L
Toluene		1905	<0.10	0.10	0.33	ug/L
1,2,3-Trichlorobenzene		1905	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		1905	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		1905	<0.25	0.25	0.83	ug/L
1,1,2-Trichloroethane		1905	<0.25	0.25	0.83	ug/L
Trichloroethene		1905	<0.25	0.25	0.83	ug/L
Trichlorofluoromethane		1905	<0.25	0.25	0.83	ug/L
1,2,3-Trichloropropane		1905	<0.25	0.25	0.83	ug/L
1,2,4-Trimethylbenzene		1905	<0.10	0.10	0.33	ug/L
1,3,5-Trimethylbenzene		1905	<0.10	0.10	0.33	ug/L
Vinyl Chloride		1905	<0.25	0.25	0.83	ug/L
Xylenes, Total		1905	<0.25	0.25	0.83	ug/L
Surr: Dibromofluoromethane		1905	95.4		88-116	%
Surr: Toluene-d8		1905	100.2		88-113	%
Surr: Bromofluorobenzene		1905	91.0		91-111	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/16/2000

Job No: 00.03645  
Account No: 39150

Page 16 of 17

Job Description: Better Brite

Analyte	Prep	Run	LCS		LCS	LCS	LCS	LCS	Relative
	Batch	Batch	Amount	Units	Result	Result	Percent	Percent	
	Number	Number					Recovery	Recovery	Control
									Limits
									Difference
Chromium, GFAA	988	574	0.0100	mg/L	0.0111		111.0		87 - 116
Chromium, GFAA	989	575	0.0100	mg/L	0.0108		108.0		87 - 116



## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

05/16/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03645  
 Account No: 39150

Page 17 of 17

Job Description: Better Brite

Analyte	Prep	Run	Sample	Spike	Matrix	MS	MSD	MS	MSD	Relative	
	Batch	Batch									Control
	Number	Number	Result	Amount	Units	Result	Result	Recovery	Recovery	Limits	Difference
Chromium, hexavalent		598	<0.0042	0.500	mg/L	0.48	0.48	96.0	96.0	70 - 116	0.0
Chromium, GFAA	988	574	0.016	0.0100	mg/L	0.0258	0.0227	98.0	67.0	80 - 131	12.8
Chromium, GFAA	989	575	0.0039	0.0100	mg/L	0.0159	0.0151	120.0	112.0	80 - 131	5.2
VOC - AQUEOUS - EPA 8260B											
Benzene		1905	<0.10	50.0	ug/L	45.2	45.1	90.4	90.2	80 - 121	0.2
Chlorobenzene		1905	<0.25	50.0	ug/L	48.7	49.9	97.4	99.8	85 - 116	2.4
1,1-Dichloroethene		1905	<0.25	50.0	ug/L	43.9	44.2	87.8	88.4	72 - 131	0.7
Ethylbenzene		1905	<0.25	50.0	ug/L	49.1	49.9	98.2	99.8	83 - 118	1.6
Methyl-t-butyl ether		1905	<0.25	50.0	ug/L	42.3	43.1	84.6	86.2	71 - 127	1.9
Toluene		1905	0.14	50.0	ug/L	47.1	50.0	93.9	99.7	82 - 116	6.0
Trichloroethene		1905	<0.25	50.0	ug/L	46.1	47.0	92.2	94.0	80 - 117	1.9
1,2,4-Trimethylbenzene		1905	<0.10	50.0	ug/L	47.3	49.8	94.6	99.6	80 - 122	5.1
1,3,5-Trimethylbenzene		1905	<0.10	50.0	ug/L	47.3	49.3	94.6	98.6	83 - 122	4.1
Xylenes, Total		1905	<0.25	150	ug/L	144.4	150.3	96.3	100.2	84 - 119	4.0
Surr: Dibromofluoromethane		1905	48.5	50.0	%	49.0	49.3	98.0	98.6	88 - 116	0.6
Surr: Toluene-d8		1905	49.8	50.0	%	50.0	51.2	100.0	102.4	88 - 113	2.4
Surr: Bromofluorobenzene		1905	47.2	50.0	%	47.5	48.0	95.0	96.0	91 - 111	1.0

## CHAIN OF CUSTODY RECORD

00.03645

602 Commerce Drive / Watertown, WI 53094  
Phone: (920) 261-1660 / Fax: (920) 261-8120

COMPANY HSI GeoTrans  
ADDRESS 175 N. Corporate Dr. #100  
PHONE 262-792-1282 FAX \_\_\_\_\_  
PROJECT DESCRIPTION/NO. Better Brite  
PROJECT MANAGER Dan Morgan

REPORT TO: Dan Morgan  
INVOICE TO: \_\_\_\_\_  
P.O. NO.: \_\_\_\_\_  
QUOTE NO.: \_\_\_\_\_

SAMPLED BY:  
Kathryn Schoephaester  
NAME  
Keith Becker  
NAME

### ANALYSES

Fax Results? \_\_\_\_\_ QC w/Results? \_\_\_\_\_

Which regulations apply?  
NPDES/Wastewater \_\_\_\_\_ RCRA \_\_\_\_\_ USI \_\_\_\_\_  
Drinking Water \_\_\_\_\_ Other \_\_\_\_\_ None \_\_\_\_\_

DATE	TIME	SAMPLE ID/DESCRIPTION	FILTERED	MATRIX	GRAB	COMP	# and Type of Containers							Hex Cr	Total Cr	VOC	COMMENTS
							HCl	NaOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NONE	METHANOL	OTHER				
5/3/00	1540	MW-4	No	GW	X								X	X			
	1525	EQ-1					3						X	X	X		
	1608	MW-4A											X	X			
	1336	MW-11											X	X			
	1245	MW-113											X	X			
	1255	MW-#3 112											X	X			
	1410	MW-8											X	X			
✓	1425	MW-8A	↓	↓	↓								X	X			
		Trip Blank					1								X	Ⓜ	

CONDITION OF SAMPLE: BOTTLES INTACT?  YES  NO  
 LAB USE ONLY: VOLATILES FREE OF HEADSPACE?  YES  NO  
 BOTTLES SUPPLIED BY LAB?  YES  NO  
 TEMPERATURE UPON RECEIPT: keelc

RELINQUISHED BY: Kathryn Schoephaester DATE: 5/3/00 TIME: 5:00  
 RECEIVED BY: \_\_\_\_\_ DATE: 5/4/00 TIME: 10:50  
 RECEIVED FOR LAB BY: Carla B...

METHOD OF SHIPMENT:  
TestAmerica Courier \_\_\_\_\_  
Client: \_\_\_\_\_  
Common Carrier: keelc

REMARKS:  
a 5/5/00



## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394254  
Account No: 39150  
Page 2 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-5A F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 16:55

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0065	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394255  
Account No: 39150  
Page 3 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-115 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 15:35

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0060	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000  
 Job No: 00.03691  
 Sample No: 394256  
 Account No: 39150  
 Page 4 of 23

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Zinc Sump F119 Better Brite  
 Rec'd on Ice

Date/Time Taken: 05/04/2000 16:30

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	1.8	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	1.7	mg/L	0.00052	0.0018	EPA 218.2	05/18/2000	989 577
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000  
 Job No: 00.03691  
 Sample No: 394256  
 Account No: 39150  
 Page 5 of 23

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Zinc Sump F119 Better Brite  
 Rec'd on Ice

Date/Time Taken: 05/04/2000 16:30

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,1-Trichloroethane	1.4	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Surr: Dibromofluoromethane	97.8	‡		88-116	SW 8260B	05/10/2000	1908
Surr: Toluene-d8	104.0	‡		88-113	SW 8260B	05/10/2000	1908
Surr: Bromofluorobenzene	100.8	‡		91-111	SW 8260B	05/10/2000	1908

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394257  
Account No: 39150  
Page 6 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-5 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 16:50

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	0.12	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.19	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577



## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394258  
Account No: 39150  
Page 7 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-12 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 14:50

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0048	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394259  
Account No: 39150  
Page 8 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-115A F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 15:55

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.012	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394260  
Account No: 39150  
Page 9 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 14:25

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	23	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, AA	26	mg/L	0.026	0.091	EPA 218.1	05/17/2000	1597 832

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394261  
Account No: 39150  
Page 10 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6D F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 14:30

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	22	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, AA	26	mg/L	0.026	0.091	EPA 218.1	05/17/2000	1597 832

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000  
 Job No: 00.03691  
 Sample No: 394262  
 Account No: 39150  
 Page 11 of 23

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-2 F119 Better Brite  
 Rec'd on Ice

Date/Time Taken: 05/04/2000 15:10

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0076	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577
VOC - AQUEOUS - EPA 8260B							
Benzene	1.3	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
sec-Butylbenzene	0.71	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000  
 Job No: 00.03691  
 Sample No: 394262  
 Account No: 39150  
 Page 12 of 23

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: MW-2 F119 Better Brite  
 Rec'd on Ice

Date/Time Taken: 05/04/2000 15:10

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Ethylbenzene	0.37	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Isopropylbenzene	2.6	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Methyl-t-butyl ether	34	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
n-Propylbenzene	0.53	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Toluene	0.12	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Surr: Dibromofluoromethane	99.8	%		88-116	SW 8260B	05/10/2000	1908
Surr: Toluene-d8	104.4	%		88-113	SW 8260B	05/10/2000	1908
Surr: Bromofluorobenzene	100.8	%		91-111	SW 8260B	05/10/2000	1908

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HSI GEOTRANS  
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 Brookfield, WI 53045

05/18/2000  
 Job No: 00.03691  
 Sample No: 394263  
 Account No: 39150  
 Page 13 of 23

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: EQ-2 F119 Better Brite  
 Rec'd on Ice

Date/Time Taken: 05/04/2000 13:20

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.00082	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
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 Brookfield, WI 53045

05/18/2000  
 Job No: 00.03691  
 Sample No: 394263  
 Account No: 39150  
 Page 14 of 23

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: EQ-2 F119 Better Brite  
 Rec'd on Ice

Date/Time Taken: 05/04/2000 13:20

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	05/10/2000	1908
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	05/10/2000	1908
Surr: Dibromofluoromethane	98.6	µ		88-116	SW 8260B	05/10/2000	1908
Surr: Toluene-d8	105.8	µ		88-113	SW 8260B	05/10/2000	1908
Surr: Bromofluorobenzene	99.4	µ		91-111	SW 8260B	05/10/2000	1908



## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/18/2000  
Job No: 00.03691  
Sample No: 394264  
Account No: 39150  
Page 15 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7D F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 13:20

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0016	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
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Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394265  
Account No: 39150  
Page 16 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-6A F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 14:40

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.0066	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.022	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
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Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03691  
Sample No: 394266  
Account No: 39150  
Page 17 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 13:10

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0039	mg/L	0.00052	0.0018	EPA 218.2	05/15/2000	989 575

## ANALYTICAL REPORT

Mr. Dan Morgan  
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05/18/2000  
Job No: 00.03691  
Sample No: 394267  
Account No: 39150  
Page 18 of 23

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-7A F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/04/2000 13:00

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	<0.0042	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.0047	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## QUALITY CONTROL REPORT

### CONTINUING CALIBRATION VERIFICATION

05/18/2000

Mr. Dan Morgan  
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 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03691  
 Account No: 39150

Page 19 of 23

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	599	0.500	0.48	96.0	90 - 110	jts
Chromium, hexavalent	599	0.500	0.51	102.0	90 - 110	jts
Chromium, AA	832	0.500	0.506	101.2	90 - 110	gaf
Chromium, AA	832	0.500	0.511	102.2	90 - 110	gaf
Chromium, GFAA	575	0.0100	0.0102	102.0	90 - 110	mmm
Chromium, GFAA	575	0.0100	0.0104	104.0	90 - 110	mmm
Chromium, GFAA	577	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	577	0.0100	0.0103	103.0	90 - 110	mmm
Chromium, GFAA	577	0.0100	0.0102	102.0	90 - 110	mmm
VOC - AQUEOUS - EPA 8260B						
Benzene	1908	50.0	48.2	96.4		mae
Bromoform	1908	50.0	50.3	100.6		mae
Chlorobenzene	1908	50.0	49.4	98.8		mae
Chloroform	1908	50.0	47.9	95.8	80 - 120	mae
Chloromethane	1908	50.0	44.4	88.8		mae
1,1-Dichloroethane	1908	50.0	49.6	99.2		mae
1,1-Dichloroethene	1908	50.0	50.4	100.8	80 - 120	mae
1,2-Dichloropropane	1908	50.0	48.9	97.8	80 - 120	mae
Ethylbenzene	1908	50.0	49.6	99.2	80 - 120	mae
Methyl-t-butyl ether	1908	50.0	48.6	97.2	80 - 120	mae
1,1,2,2-Tetrachloroethane	1908	50.0	45.8	91.6		mae
Toluene	1908	50.0	50.5	101.0	80 - 120	mae
Trichloroethene	1908	50.0	50.2	100.4		mae
1,2,4-Trimethylbenzene	1908	50.0	47.4	94.8		mae
1,3,5-Trimethylbenzene	1908	50.0	48.3	96.6		mae
Vinyl Chloride	1908	50.0	42.2	84.4	80 - 120	mae
Xylenes, Total	1908	150	146.9	97.9		mae
Surr: Dibromofluoromethane	1908	50.0	49.5	99.0	87 - 116	mae
Surr: Toluene-d8	1908	50.0	52.8	105.6	89 - 109	mae
Surr: Bromofluorobenzene	1908	50.0	49.9	99.8	87 - 112	mae

## QUALITY CONTROL REPORT

### BLANKS

05/18/2000

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03691  
 Account No: 39150

Page 20 of 23

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		599	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		599	<0.0042	0.0042	0.015	mg/L
Chromium, AA	1597	832	<0.026	0.026	0.091	mg/L
Chromium, AA		832	<0.026	0.026	0.091	mg/L
Chromium, GFAA	989	575	<0.00052	0.00022	0.00078	mg/L
Chromium, GFAA		575	<0.00052	0.00022	0.00078	mg/L
Chromium, GFAA		577	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		577	<0.00052	0.00052	0.0018	mg/L
VOC - AQUEOUS - EPA 8260B						
Benzene		1908	<0.10	0.10	0.33	ug/L
Bromobenzene		1908	<0.25	0.25	0.83	ug/L
Bromochloromethane		1908	<0.25	0.25	0.83	ug/L
Bromodichloromethane		1908	<0.25	0.25	0.83	ug/L
Bromoform		1908	<0.25	0.25	0.83	ug/L
Bromomethane		1908	<0.25	0.25	0.83	ug/L
n-Butylbenzene		1908	<0.25	0.25	0.83	ug/L
sec-Butylbenzene		1908	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		1908	<0.25	0.25	0.83	ug/L
Carbon Tetrachloride		1908	<0.25	0.25	0.83	ug/L
Chlorobenzene		1908	<0.25	0.25	0.83	ug/L
Chlorodibromomethane		1908	<0.25	0.25	0.83	ug/L
Chloroethane		1908	<0.25	0.25	0.83	ug/L
Chloroform		1908	<0.25	0.25	0.83	ug/L
Chloromethane		1908	<0.25	0.25	0.83	ug/L
2-Chlorotoluene		1908	<0.10	0.10	0.33	ug/L
4-Chlorotoluene		1908	<0.25	0.25	0.83	ug/L
1,2-Dibromo-3-Chloropropane		1908	<0.25	0.25	0.83	ug/L
1,2-Dibromoethane (EDB)		1908	<0.25	0.25	0.83	ug/L
Dibromomethane		1908	<0.25	0.25	0.83	ug/L
1,2-Dichlorobenzene		1908	<0.25	0.25	0.83	ug/L
1,3-Dichlorobenzene		1908	<0.25	0.25	0.83	ug/L
1,4-Dichlorobenzene		1908	<0.25	0.25	0.83	ug/L
Dichlorodifluoromethane		1908	<0.25	0.25	0.83	ug/L
1,1-Dichloroethane		1908	<0.25	0.25	0.83	ug/L
1,2-Dichloroethane		1908	<0.25	0.25	0.83	ug/L
1,1-Dichloroethene		1908	<0.25	0.25	0.83	ug/L
cis-1,2-Dichloroethene		1908	<0.25	0.25	0.83	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

05/18/2000

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03691  
 Account No: 39150

Page 21 of 23

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
trans-1,2-Dichloroethene		1908	<0.25	0.25	0.83	ug/L
1,2-Dichloropropane		1908	<0.25	0.25	0.83	ug/L
1,3-Dichloropropane		1908	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		1908	<0.25	0.25	0.83	ug/L
1,1-Dichloropropene		1908	<0.25	0.25	0.83	ug/L
cis-1,3-Dichloropropene		1908	<0.25	0.25	0.83	ug/L
trans-1,3-Dichloropropene		1908	<0.25	0.25	0.83	ug/L
Di-isopropyl ether		1908	<0.25	0.25	0.83	ug/L
Ethylbenzene		1908	<0.25	0.25	0.83	ug/L
Hexachlorobutadiene		1908	<0.25	0.25	0.83	ug/L
Isopropylbenzene		1908	<0.25	0.25	0.83	ug/L
p-Isopropyltoluene		1908	<0.25	0.25	0.83	ug/L
Methylene Chloride		1908	<0.25	0.25	0.83	ug/L
Methyl-t-butyl ether		1908	<0.25	0.25	0.83	ug/L
Naphthalene		1908	<0.25	0.25	0.83	ug/L
n-Propylbenzene		1908	<0.25	0.25	0.83	ug/L
Styrene		1908	<0.25	0.25	0.83	ug/L
1,1,1,2-Tetrachloroethane		1908	<0.25	0.25	0.83	ug/L
1,1,2,2-Tetrachloroethane		1908	<0.25	0.25	0.83	ug/L
Tetrachloroethene		1908	<0.25	0.25	0.83	ug/L
Toluene		1908	<0.10	0.10	0.33	ug/L
1,2,3-Trichlorobenzene		1908	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		1908	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		1908	<0.25	0.25	0.83	ug/L
1,1,2-Trichloroethane		1908	<0.25	0.25	0.83	ug/L
Trichloroethene		1908	<0.25	0.25	0.83	ug/L
Trichlorofluoromethane		1908	<0.25	0.25	0.83	ug/L
1,2,3-Trichloropropane		1908	<0.25	0.25	0.83	ug/L
1,2,4-Trimethylbenzene		1908	<0.10	0.10	0.33	ug/L
1,3,5-Trimethylbenzene		1908	<0.10	0.10	0.33	ug/L
Vinyl Chloride		1908	<0.25	0.25	0.83	ug/L
Xylenes, Total		1908	<0.25	0.25	0.83	ug/L
Surr: Dibromofluoromethane		1908	98.4		88-116	%
Surr: Toluene-d8		1908	102.0		88-113	%
Surr: Bromofluorobenzene		1908	96.6		91-111	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000

Job No: 00.03691  
 Account No: 39150

Page 22 of 23

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	LCSD Result	LCS Percent Recovery	LCSD Percent Recovery	Control Limits	Relative Percent Difference
Chromium, AA	1597	832	0.500	mg/L	0.454		90.8		76 - 106	
Chromium, GFAA	989	575	0.0100	mg/L	0.0108		108.0		87 - 116	



## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000

Job No: 00.03691  
 Account No: 39150

Page 23 of 23

Job Description: F119 Better Brite

Analyte	Prep	Run	Sample Result	Spike		Matrix		MS	MSD	Control Limits	Relative Percent Difference
	Batch Number	Batch Number		Amount	Units	Spike Result	MSD Result	Percent Recovery	Percent Recovery		
Chromium, hexavalent		599	<0.0042	0.500	mg/L	0.49	0.49	98.0	98.0	70 - 116	0.0
Chromium, AA	1597	833	<0.026	0.500	mg/L	0.390	0.391	78.0	78.2	62 - 122	0.3
Chromium, GFAA	989	575	0.0039	0.0100	mg/L	0.0159	0.0151	120.0	112.0	80 - 131	5.2
VOC - AQUEOUS - EPA 8260B											
Benzene		1908	3.0	50.0	ug/L	48.2	48.7	90.4	91.4	80 - 121	1.0
Chlorobenzene		1908	5.7	50.0	ug/L	53.0	52.1	94.6	92.8	85 - 116	1.7
1,1-Dichloroethene		1908	<0.25	50.0	ug/L	50.3	50.2	100.6	100.4	72 - 131	0.2
Ethylbenzene		1908	<0.25	50.0	ug/L	47.9	47.2	95.8	94.4	83 - 118	1.5
Methyl-t-butyl ether		1908	<0.25	50.0	ug/L	48.6	49.0	97.2	98.0	71 - 127	0.8
Toluene		1908	0.13	50.0	ug/L	48.2	48.2	96.1	96.1	82 - 116	0.0
Trichloroethene		1908	<0.25	50.0	ug/L	46.2	46.9	92.4	93.8	80 - 117	1.5
1,2,4-Trimethylbenzene		1908	<0.10	50.0	ug/L	44.4	45.8	88.8	91.6	80 - 122	3.1
1,3,5-Trimethylbenzene		1908	<0.10	50.0	ug/L	45.3	46.4	90.6	92.8	83 - 122	2.4
Xylenes, Total		1908	<0.25	150	ug/L	139.9	141.0	93.3	94.0	84 - 119	0.8
Surr: Dibromofluoromethane		1908	50.7	50.0	%	50.5	50.0	101.0	100.0	88 - 116	1.0
Surr: Toluene-d8		1908	52.5	50.0	%	52.3	52.3	104.6	104.6	88 - 113	0.0
Surr: Bromofluorobenzene		1908	49.4	50.0	%	49.5	48.6	99.0	97.2	91 - 111	1.8



CHAIN OF CUSTODY RECORD

602 Commerce Drive / Watertown, WI 53094  
 Phone: (920) 261-1660 / Fax: (920) 261-8120

COMPANY HSI Geotrans  
 ADDRESS 175 N. Corporate Dr. # 100  
 PHONE 262-792-1282 FAX \_\_\_\_\_  
 PROJECT DESCRIPTION/NO. Better Brite F119  
 PROJECT MANAGER Dan Morgan

00.03691  
 REPORT TO: Dan Morgan  
 INVOICE TO: \_\_\_\_\_  
 P.O. NO.: \_\_\_\_\_  
 QUOTE NO.: \_\_\_\_\_

SAMPLED BY  
Kathryn Schoephoester  
 NAME  
Keith Becker

ANALYSES

Fax Results? \_\_\_\_\_ QC w/Results? \_\_\_\_\_  
 Which regulations apply?  
 NPDES/Wastewater \_\_\_\_\_ RCRA \_\_\_\_\_ USF \_\_\_\_\_  
 Drinking Water \_\_\_\_\_ Other \_\_\_\_\_ None \_\_\_\_\_

DATE	TIME	SAMPLE ID/DESCRIPTION	FILTERED	MATRIX	GRAB	COMP	# and Type of Containers						OTHER	Hex Cr	Total Cr	VOC	COMMENTS
							HCl	NaOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	NONE	METHANOL					
5/4/00	1655	MW-5A	No	GW	X									X	X		
	1535	MW-115	No	GW	X									X	X		(2) VOC'S
	1630	Zinc Sump	No	GW	X		1							X	X	X	
	1650	MW-5	No	GW	X									X	X		
	1545	MW-12	No	GW	X									X	X		time = 1450
	1555	MW115A	No	GW	X									X	X		
	1425	MW-6	No	GW	X									X	X		
	1430	MW-6-D	No	GW	X									X	X		
	1510	MW-2	No	GW	X		1							X	X	X	3 voc's
	<del>1320</del>	<del>EQ-2</del>					1		X	X				X	X	X	<del>JUS</del>
	1320	EQ-2	No	GW	X		1							X	X	X	3 voc's
	1320	MW-7D	No	GW	X									X	X		
	1440	MW-6A	No	GW	X									X	X		
	1310	MW-7	No	GW	X					2	2			X	X		MS/MSD
	1300	MW-7A	No	GW	X					1	1			X	X		

LAB USE ONLY  
 CONDITION OF SAMPLE: BOTTLES INTACT? YES/NO 0 VOLATILES FREE OF HEADSPACE? YES/NO 0 BOTTLES SUPPLIED BY LAB? YES/NO 0 TEMPERATURE UPON RECEIPT: 10.0 °C

RELINQUISHED BY: Kathryn Schoephoester DATE: 5/4/00 TIME: 5:15 RECEIVED BY: \_\_\_\_\_ DATE: 5/5/00 TIME: 12:40 RECEIVED FOR LAB BY: Carl B.

METHOD OF SHIPMENT: TestAmerica Courier \_\_\_\_\_ Client: \_\_\_\_\_ Common Carrier: X idex REMARKS: Shrewy Worms SI D

RECEIVED

# Test America

INCORPORATED

LAB  
FAC  
CO

177

MAY 20 2000  
ANALYTICAL AND QUALITY CONTROL  
TECHNICAL

## ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000

Job No: 00.03709

Page 1 of 9

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
394437	MW-3 F119 Better Brite	05/05/2000	05/05/2000
394438	MW-10 F119 Better Brite	05/05/2000	05/05/2000
394439	MW-9 F119 Better Brite	05/05/2000	05/05/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

- A = Analyzed/extracted past hold time
- C = Standard outside of control limits
- F = Sample filtered in lab
- H = Late eluting hydrocarbons present
- J = Estimated concentration
- M = Matrix interference
- Q = Result confirmed via re-analysis
- T = Does not match typical pattern
- X = Unidentified compound(s) present
- B = Blank is contaminated
- D = Diluted for analysis
- G = Received past hold time
- I = Improperly handled sample
- L = Common lab solvent and contaminant
- P = Improperly preserved sample
- S = Sediment present
- W = BOD re-set due to missed dilution
- Z = Internal standard outside limits

Karen R. Wenta  
Inorganic Operations Manager

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03709  
Sample No: 394437  
Account No: 39150  
Page 2 of 9

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-3 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/05/2000 09:45

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	0.23	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.33	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03709  
Sample No: 394438  
Account No: 39150  
Page 3 of 9

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-10 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/05/2000 10:05

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	30	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, AA	30	mg/L	0.026	0.091	EPA 218.1	05/17/2000	1597 832

## ANALYTICAL REPORT

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000  
Job No: 00.03709  
Sample No: 394439  
Account No: 39150  
Page 4 of 9

JOB DESCRIPTION: F119 Better Brite  
PROJECT DESCRIPTION: Groundwater Analysis  
SAMPLE DESCRIPTION: MW-9 F119 Better Brite  
Rec'd on Ice

Date/Time Taken: 05/05/2000 10:20

Date Received: 05/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Chromium, hexavalent	0.013	mg/L	0.0042	0.015	SM 3500CrD	05/05/2000	599
Chromium, GFAA	0.039	mg/L	0.00052	0.0018	EPA 218.2	05/17/2000	989 577

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000

Job No: 00.03709  
Account No: 39150

Page 5 of 9

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	599	0.500	0.48	96.0	90 - 110	jts
Chromium, hexavalent	599	0.500	0.51	102.0	90 - 110	jts
Chromium, AA	832	0.500	0.506	101.2	90 - 110	gaf
Chromium, AA	832	0.500	0.511	102.2	90 - 110	gaf
Chromium, GFAA	577	0.0100	0.0105	105.0	90 - 110	mmm
Chromium, GFAA	577	0.0100	0.0103	103.0	90 - 110	mmm
Chromium, GFAA	577	0.0100	0.0102	102.0	90 - 110	mmm

## QUALITY CONTROL REPORT

### BLANKS

05/18/2000

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.03709  
 Account No: 39150

Page 6 of 9

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		599	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		599	<0.0042	0.0042	0.015	mg/L
Chromium, AA	1597	832	<0.026	0.026	0.091	mg/L
Chromium, AA		832	<0.026	0.026	0.091	mg/L
Chromium, GFAA	989	575	<0.00052	0.00022	0.00078	mg/L
Chromium, GFAA		577	<0.00052	0.00052	0.0018	mg/L
Chromium, GFAA		577	<0.00052	0.00052	0.0018	mg/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d



## QUALITY CONTROL REPORT DUPLICATES

Mr. Dan Morgan  
HSI GEOTRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

05/18/2000

Job No: 00.03709  
Account No: 39150

Page 7 of 9

Job Description: F119 Better Brite

Parameter	Prep Batch Number	Run Batch Number	Sample Value	Duplicate Value	Units	RPD	Control Limit
Chromium, hexavalent		599	<0.0042	<0.0042	mg/L		23
Chromium, AA	1597	833	<0.026	<0.026	mg/L		12
Chromium, GFAA	989	575	0.016	0.018	mg/L	11.8	20

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000

Job No: 00.03709  
 Account No: 39150

Page 8 of 9

Job Description: F119 Better Brite

Analyte	Prep	Run	Sample Result	Spike Amount	Units	Matrix	MSD Result	MS	MSD	Control Limits	Relative
	Batch Number	Batch Number				Spike Result		Percent Recovery	Percent Recovery		Percent Difference
Chromium, hexavalent		599	<0.0042	0.500	mg/L	0.49	0.49	98.0	98.0	70 - 116	0.0
Chromium, AA	1597	833	<0.026	0.500	mg/L	0.390	0.391	78.0	78.2	62 - 122	0.3
Chromium, GFAA	989	575	0.0039	0.0100	mg/L	0.0159	0.0151	120.0	112.0	80 - 131	5.2

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
 HSI GEOTRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

05/18/2000

Job No: 00.03709  
 Account No: 39150

Page 9 of 9

Job Description: F119 Better Brite

Analyte	Prep	Run			LCS	LCS	LCS	LCS	Relative
	Batch	Batch	LCS	Units	LCS	LCS	Percent	Percent	Control
	Number	Number	Amount		Result	Result	Recovery	Recovery	Limits
									Difference
Chromium, AA	1597	832	0.500	mg/L	0.454		90.8		76 - 106
Chromium, GFAA	989	575	0.0100	mg/L	0.0108		108.0		87 - 116



## ANALYTICAL AND QUALITY CONTROL REPORT

FILE COPY  
F119  
CC: DLM, Keith,  
JLF

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

06/19/2000

Job No: 00.04709

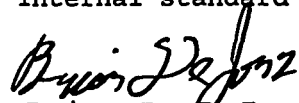
Page 1 of 12

Enclosed are the Analytical and Quality Control reports for the following samples submitted for analysis:

Sample Number	Sample Description	Date Taken	Date Received
398279	F119-MW-116 Better Brite	06/05/2000	06/05/2000
398280	F119-MW-116D Better Brite	06/05/2000	06/05/2000
398281	Trip Blank Better Brite	06/05/2000	06/05/2000

Soil results are reported on a dry weight basis. The above sample(s) may have a result flag shown on the report. The following are the result flag definitions:

A = Analyzed/extracted past hold time	B = Blank is contaminated
C = Standard outside of control limits	D = Diluted for analysis
F = Sample filtered in lab	G = Received past hold time
H = Late eluting hydrocarbons present	I = Improperly handled sample
J = Estimated concentration	L = Common lab solvent and contaminant
M = Matrix interference	P = Improperly preserved sample
Q = Result confirmed via re-analysis	S = Sediment present
T = Does not match typical pattern	W = BOD re-set due to missed dilution
X = Unidentified compound(s) present	Z = Internal standard outside limits

  
Brian D. DeJong  
Organic Operations Manager  
KRW

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2000  
 Job No: 00.04709  
 Sample No: 398279  
 Account No: 39150  
 Page 2 of 12

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: F119-MW-116 Better Brite  
 Rec'd on ice

Date/Time Taken: 06/05/2000 08:00

Date Received: 06/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	1.6	mg/L	0.0042	0.015	SM 3500CrD	06/05/2000	608
Chromium, AA	0.47	mg/L	0.026	0.091	EPA 218.1	06/19/2000	1643 842
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Dichlorodifluoromethane	5.8	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloroethane	1.6	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2000  
 Job No: 00.04709  
 Sample No: 398279  
 Account No: 39150  
 Page 3 of 12

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: F119-MW-116 Better Brite  
 Rec'd on ice

Date/Time Taken: 06/05/2000 08:00

Date Received: 06/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Tetrachloroethene	1.7	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,1-Trichloroethane	3.2	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Trichlorofluoromethane	4.4	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Surr: Dibromofluoromethane	97.2	‡		89-119	SW 8260B	06/08/2000	1952
Surr: Toluene-d8	97.4	‡		86-105	SW 8260B	06/08/2000	1952
Surr: Bromofluorobenzene	99.8	‡		89-107	SW 8260B	06/08/2000	1952

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2000  
 Job No: 00.04709  
 Sample No: 398280  
 Account No: 39150  
 Page 4 of 12

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: F119-MW-116D Better Brite  
 Rec'd on ice

Date/Time Taken: 06/05/2000 08:00

Date Received: 06/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Chromium, hexavalent	1.5	mg/L	0.0042	0.015	SM 3500CrD	06/05/2000	608
Chromium, AA	0.46	mg/L	0.026	0.091	EPA 218.1	06/19/2000	1643 842
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Dichlorodifluoromethane	4.9	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloroethane	1.3	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952



## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2000  
 Job No: 00.04709  
 Sample No: 398280  
 Account No: 39150  
 Page 5 of 12

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: F119-MW-116D Better Brite  
 Rec'd on ice

Date/Time Taken: 06/05/2000 08:00

Date Received: 06/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date	Prep/Run
						Analyzed	Batch
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Methylene Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Tetrachloroethene	1.5	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,1-Trichloroethane	2.4	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Trichlorofluoromethane	3.5	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Surr: Dibromofluoromethane	87.6	µ		89-119	SW 8260B	06/08/2000	1952
Surr: Toluene-d8	93.8	µ		86-105	SW 8260B	06/08/2000	1952
Surr: Bromofluorobenzene	103.8	µ		89-107	SW 8260B	06/08/2000	1952

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
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 Brookfield, WI 53045

06/19/2000  
 Job No: 00.04709  
 Sample No: 398281  
 Account No: 39150  
 Page 6 of 12

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Trip Blank Better Brite  
 Rec'd on ice

Date/Time Taken: 06/05/2000 UNKNOWN      Date Received: 06/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
VOC - AQUEOUS - EPA 8260B							
Benzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
Bromobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromochloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromodichloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromoform	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Bromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
n-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
sec-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
tert-Butylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Carbon Tetrachloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chlorodibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloroform	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Chloromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
2-Chlorotoluene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
4-Chlorotoluene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dibromo-3-Chloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dibromoethane (EDB)	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Dibromomethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,3-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,4-Dichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Dichlorodifluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
cis-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
trans-1,2-Dichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,3-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
2,2-Dichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
cis-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
trans-1,3-Dichloropropene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Di-isopropyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Ethylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Hexachlorobutadiene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952

## ANALYTICAL REPORT

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2000  
 Job No: 00.04709  
 Sample No: 398281  
 Account No: 39150  
 Page 7 of 12

JOB DESCRIPTION: F119 Better Brite  
 PROJECT DESCRIPTION: Groundwater Analysis  
 SAMPLE DESCRIPTION: Trip Blank Better Brite  
 Rec'd on ice

Date/Time Taken: 06/05/2000 UNKNOWN

Date Received: 06/05/2000

Parameter	Results	Units	MDL	LOQ	Method	Date Analyzed	Prep/Run Batch
Isopropylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
p-Isopropyltoluene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Methylene Chloride	L 0.69	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Methyl-t-butyl ether	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Naphthalene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
n-Propylbenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Styrene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,1,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,2,2-Tetrachloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Tetrachloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Toluene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
1,2,3-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,4-Trichlorobenzene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,1-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,1,2-Trichloroethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Trichloroethene	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Trichlorofluoromethane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
1,2,4-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
1,3,5-Trimethylbenzene	<0.10	ug/L	0.10	0.33	SW 8260B	06/08/2000	1952
Vinyl Chloride	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Xylenes, Total	<0.25	ug/L	0.25	0.83	SW 8260B	06/08/2000	1952
Surr: Dibromofluoromethane	93.6	%		89-119	SW 8260B	06/08/2000	1952
Surr: Toluene-d8	95.6	%		86-105	SW 8260B	06/08/2000	1952
Surr: Bromofluorobenzene	100.8	%		89-107	SW 8260B	06/08/2000	1952

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

06/19/2000

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

Job No: 00.04709  
Account No: 39150

Page 8 of 12

Job Description: F119 Better Brite

Parameter	Run Batch	True Value	Observed Value	Percent Recovery	Control Limits	Analyst
Chromium, hexavalent	608	0.500	0.51	102.0	90 - 110	jts
Chromium, hexavalent	608	0.500	0.47	94.0	90 - 110	jts
Chromium, AA	842	0.500	0.521	104.2	90 - 110	gaf
Chromium, AA	842	0.500	0.500	100.0	90 - 110	gaf
VOC - AQUEOUS - EPA 8260B						
Benzene	1952	50.0	51.1	102.2		mae
Bromoform	1952	50.0	48.6	97.2		mae
Chlorobenzene	1952	50.0	48.8	97.6		mae
Chloroform	1952	50.0	51.3	102.6	80 - 120	mae
Chloromethane	1952	50.0	42.4	84.8		mae
1,1-Dichloroethane	1952	50.0	50.6	101.2		mae
1,1-Dichloroethene	1952	50.0	52.5	105.0	80 - 120	mae
1,2-Dichloropropane	1952	50.0	52.7	105.4	80 - 120	mae
Ethylbenzene	1952	50.0	49.0	98.0	80 - 120	mae
Methyl-t-butyl ether	1952	50.0	56.1	112.2	80 - 120	mae
1,1,2,2-Tetrachloroethane	1952	50.0	46.9	93.8		mae
Toluene	1952	50.0	50.2	100.4	80 - 120	mae
Trichloroethene	1952	50.0	54.1	108.2		mae
1,2,4-Trimethylbenzene	1952	50.0	47.0	94.0		mae
1,3,5-Trimethylbenzene	1952	50.0	47.7	95.4		mae
Vinyl Chloride	1952	50.0	49.8	99.6	80 - 120	mae
Xylenes, Total	1952	150	144.1	96.1		mae
Surr: Dibromofluoromethane	1952	50.0	51.3	102.6	87 - 116	mae
Surr: Toluene-d8	1952	50.0	50.2	100.4	89 - 109	mae
Surr: Bromofluorobenzene	1952	50.0	48.4	96.8	87 - 112	mae

## QUALITY CONTROL REPORT

### BLANKS

06/19/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.04709  
 Account No: 39150

Page 9 of 12

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
Chromium, hexavalent		608	<0.0042	0.0042	0.015	mg/L
Chromium, hexavalent		608	<0.0042	0.0042	0.015	mg/L
Chromium, AA	1643	842	<0.026	0.026	0.091	mg/L
Chromium, AA		842	<0.026	0.026	0.091	mg/L
VOC - AQUEOUS - EPA 8260B						
Benzene		1952	<0.10	0.10	0.33	ug/L
Bromobenzene		1952	<0.25	0.25	0.83	ug/L
Bromochloromethane		1952	<0.25	0.25	0.83	ug/L
Bromodichloromethane		1952	<0.25	0.25	0.83	ug/L
Bromoform		1952	<0.25	0.25	0.83	ug/L
Bromomethane		1952	<0.25	0.25	0.83	ug/L
n-Butylbenzene		1952	<0.25	0.25	0.83	ug/L
sec-Butylbenzene		1952	<0.25	0.25	0.83	ug/L
tert-Butylbenzene		1952	<0.25	0.25	0.83	ug/L
Carbon Tetrachloride		1952	<0.25	0.25	0.83	ug/L
Chlorobenzene		1952	<0.25	0.25	0.83	ug/L
Chlorodibromomethane		1952	<0.25	0.25	0.83	ug/L
Chloroethane		1952	<0.25	0.25	0.83	ug/L
Chloroform		1952	<0.25	0.25	0.83	ug/L
Chloromethane		1952	<0.25	0.25	0.83	ug/L
2-Chlorotoluene		1952	<0.10	0.10	0.33	ug/L
4-Chlorotoluene		1952	<0.25	0.25	0.83	ug/L
1,2-Dibromo-3-Chloropropane		1952	<0.25	0.25	0.83	ug/L
1,2-Dibromoethane (EDB)		1952	<0.25	0.25	0.83	ug/L
Dibromomethane		1952	<0.25	0.25	0.83	ug/L
1,2-Dichlorobenzene		1952	<0.25	0.25	0.83	ug/L
1,3-Dichlorobenzene		1952	<0.25	0.25	0.83	ug/L
1,4-Dichlorobenzene		1952	<0.25	0.25	0.83	ug/L
Dichlorodifluoromethane		1952	<0.25	0.25	0.83	ug/L
1,1-Dichloroethane		1952	<0.25	0.25	0.83	ug/L
1,2-Dichloroethane		1952	<0.25	0.25	0.83	ug/L
1,1-Dichloroethene		1952	<0.25	0.25	0.83	ug/L
cis-1,2-Dichloroethene		1952	<0.25	0.25	0.83	ug/L
trans-1,2-Dichloroethene		1952	<0.25	0.25	0.83	ug/L
1,2-Dichloropropane		1952	<0.25	0.25	0.83	ug/L
1,3-Dichloropropane		1952	<0.25	0.25	0.83	ug/L
2,2-Dichloropropane		1952	<0.25	0.25	0.83	ug/L

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT

### BLANKS

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

06/19/2000

Job No: 00.04709  
 Account No: 39150

Page 10 of 12

Job Description: F119 Better Brite

Parameter	Prep Batch	Run Batch	Blank Result	MDL	LOQ	Units
1,1-Dichloropropene		1952	<0.25	0.25	0.83	ug/L
cis-1,3-Dichloropropene		1952	<0.25	0.25	0.83	ug/L
trans-1,3-Dichloropropene		1952	<0.25	0.25	0.83	ug/L
Di-isopropyl ether		1952	<0.25	0.25	0.83	ug/L
Ethylbenzene		1952	<0.25	0.25	0.83	ug/L
Hexachlorobutadiene		1952	<0.25	0.25	0.83	ug/L
Isopropylbenzene		1952	<0.25	0.25	0.83	ug/L
p-Isopropyltoluene		1952	<0.25	0.25	0.83	ug/L
Methylene Chloride		1952	2.0	0.25	0.83	ug/L
Methyl-t-butyl ether		1952	<0.25	0.25	0.83	ug/L
Naphthalene		1952	<0.25	0.25	0.83	ug/L
n-Propylbenzene		1952	<0.25	0.25	0.83	ug/L
Styrene		1952	<0.25	0.25	0.83	ug/L
1,1,1,2-Tetrachloroethane		1952	<0.25	0.25	0.83	ug/L
1,1,2,2-Tetrachloroethane		1952	<0.25	0.25	0.83	ug/L
Tetrachloroethene		1952	<0.25	0.25	0.83	ug/L
Toluene		1952	<0.10	0.10	0.33	ug/L
1,2,3-Trichlorobenzene		1952	<0.25	0.25	0.83	ug/L
1,2,4-Trichlorobenzene		1952	<0.25	0.25	0.83	ug/L
1,1,1-Trichloroethane		1952	<0.25	0.25	0.83	ug/L
1,1,2-Trichloroethane		1952	<0.25	0.25	0.83	ug/L
Trichloroethene		1952	<0.25	0.25	0.83	ug/L
Trichlorofluoromethane		1952	<0.25	0.25	0.83	ug/L
1,2,3-Trichloropropane		1952	<0.25	0.25	0.83	ug/L
1,2,4-Trimethylbenzene		1952	<0.10	0.10	0.33	ug/L
1,3,5-Trimethylbenzene		1952	<0.10	0.10	0.33	ug/L
Vinyl Chloride		1952	<0.25	0.25	0.83	ug/L
Xylenes, Total		1952	<0.25	0.25	0.83	ug/L
Surr: Dibromofluoromethane		1952	103.4		89-119	%
Surr: Toluene-d8		1952	102.6		86-105	%
Surr: Bromofluorobenzene		1952	98.4		89-107	%

Method blank results exceed control limits when results are higher than the highest of any of the following: 1 - The limit of detection; 2 - Five percent of the regulatory limit for that analyte; 3 - Five percent of the measured concentration in the sample. NR149.14 (3)d

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

Mr. Dan Morgan  
HYDRO-SEARCH/GEO TRANS  
175 N. Corporate Drive  
Suite 100  
Brookfield, WI 53045

06/19/2000

Job No: 00.04709  
Account No: 39150

Page 11 of 12

Job Description: F119 Better Brite

Analyte	Prep Batch Number	Run Batch Number	LCS Amount	Units	LCS Result	LCSD Result	LCS Percent Recovery	LCSD Percent Recovery	Control Limits	Relative Percent Difference
Chromium, AA	1643	842	0.500	mg/L	0.441		88.2		76 - 106	

## QUALITY CONTROL REPORT

### MATRIX SPIKE/MATRIX SPIKE DUPLICATE

06/19/2000

Mr. Dan Morgan  
 HYDRO-SEARCH/GEO TRANS  
 175 N. Corporate Drive  
 Suite 100  
 Brookfield, WI 53045

Job No: 00.04709  
 Account No: 39150

Page 12 of 12

Job Description: F119 Better Brite

Analyte	Prep	Run	Sample	Spike	Units	Matrix	MSD	MS	MSD	Relative	
	Batch	Batch				Spike					MSD
	Number	Number	Result	Amount		Result	Result	Recovery	Recovery	Limits	Percent
Chromium, AA	1643	842	<0.026	0.500	mg/L	0.415	0.418	83.0	83.6	62 - 122	0.7
VOC - AQUEOUS - EPA 8260B											
Benzene		1952	<0.10	50.0	ug/L	47.6	42.2	95.2	84.4	80 - 121	12.0
Chlorobenzene		1952	<0.25	50.0	ug/L	46.6	48.4	93.2	96.8	85 - 116	3.8
1,1-Dichloroethene		1952	<0.25	50.0	ug/L	48.2	48.2	96.4	96.4	72 - 131	0.0
Ethylbenzene		1952	<0.25	50.0	ug/L	47.5	48.5	95.0	97.0	83 - 118	2.1
Methyl-t-butyl ether		1952	<0.25	50.0	ug/L	47.3	38.3	94.6	76.6	71 - 127	21.0
Toluene		1952	<0.10	50.0	ug/L	46.4	46.7	92.8	93.4	82 - 116	0.6
Trichloroethene		1952	<0.25	50.0	ug/L	48.1	41.5	96.2	83.0	80 - 117	14.7
1,2,4-Trimethylbenzene		1952	<0.10	50.0	ug/L	45.6	49.6	91.2	99.2	80 - 122	8.4
1,3,5-Trimethylbenzene		1952	<0.10	50.0	ug/L	46.0	49.4	92.0	98.8	83 - 122	7.1
Xylenes, Total		1952	<0.25	150	ug/L	138.6	147.9	92.4	98.6	84 - 119	6.5
Surr: Dibromofluoromethane		1952	48.6	50.0	%	50.4	47.6	100.8	95.2	89 - 119	5.7
Surr: Toluene-d8		1952	48.7	50.0	%	49.8	47.8	99.6	95.6	86 - 105	4.1
Surr: Bromofluorobenzene		1952	49.9	50.0	%	49.3	51.9	98.6	103.8	89 - 107	5.1



602 Commerce Drive / Watertown, WI 53094  
 Phone: (920) 261-1660 / Fax: (920) 261-8120

## CHAIN OF CUSTODY RECORD

200471

COMPANY HSI GEOTIANS  
 ADDRESS 175 N. CORPORATE DR STE 100 Brookfield  
 PHONE 262-792-1292 FAX 262-792-1310  
 PROJECT DESCRIPTION/NO. BETTER DATE F119  
 PROJECT MANAGER Dan Morgan

REPORT TO: \_\_\_\_\_  
 INVOICE TO: \_\_\_\_\_  
 P.O. NO.: \_\_\_\_\_  
 QUOTE NO.: \_\_\_\_\_

For Results? \_\_\_\_\_ QC w/Results? \_\_\_\_\_

Which regulations apply?

NPDES/Wastewater \_\_\_\_\_ RCRA \_\_\_\_\_ USI \_\_\_\_\_

Drinking Water \_\_\_\_\_ Other \_\_\_\_\_ None \_\_\_\_\_

COMMENTS

*Include DATA for Validation*

SAMPLED BY:		# and type of Containers													ANALYSES			
NAME		DATE	TIME	SAMPLE ID/DESCRIPTION	FILTERED	MATRIX	GRAB	COMP	HCl	HClOH	HNO <sub>3</sub>	H <sub>2</sub> SO <sub>4</sub>	HNOE	METHANOL	OTHER	TOTAL CHROMIUM	HEXAVALENT CHROME	VOL'S BZGD
JUDY FASSBENDER (AES)		00																
		6/5	800	F119- MW-116		X	X		3		1		1			X	X	X
		6/5	800	F119- MW-116 D			X		3		1		1			X	X	X
				TRIP BLANK					1									X

CONDITION OF SAMPLE: BOTTLES INTACT?  YES / NO  
 LAB USE ONLY: VOLATILES FREE OF HEADSPACE?  YES / NO  
 BOTTLES SUPPLIED BY LAB?  YES / NO  
 TEMPERATURE UPON RECEIPT: 01.2 °C

RELINQUISHED BY: Judy Fassbender DATE: 6/5/00 TIME: 14:50 RECEIVED BY: Shelby Loomis  
 RELINQUISHED BY: \_\_\_\_\_ DATE: 6/5/00 TIME: 15:45 RECEIVED FOR LAB BY: Calab

METHOD OF SHIPMENT: \_\_\_\_\_ REMARKS: 2 6/6/00  
 TestAmerica Courier \_\_\_\_\_  
 Client  \_\_\_\_\_  
 Common Carrier \_\_\_\_\_



**APPENDIX I**  
**DATA VALIDATION RESULTS**