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LMD SOLID WASTE

April 21, 1994

ERRP CASE # 36-516

Mr. Albert Veteri, P.E.
HNTB Corporation
One Park Plaza, Suite 600
11270 West Park Place
Milwaukee, WI 53224

RE: Addendum to Phase 2 Hazardous Materials Investigation Report for U.S. Highway 151 Located in Manitowoc, Wisconsin - STS Project No. 84335XA

Dear Mr. Veteri:

The purpose of this addendum letter is to provide additional information regarding the environmental conditions along the proposed United States Highway 151 (USH 151) realignment project located in Manitowoc, Wisconsin. This letter is an addendum to the three environmental conditions reports previously written for the project by STS Consultants, Ltd. (STS). These reports include a Limited Phase I Environmental Assessment dated June 15, 1992, an Additional Phase I Environmental Assessment dated September 24, 1993 and a Phase II Hazardous Materials Investigation dated February 10, 1994.

Background

Based on the Phase I reports, representatives of the Wisconsin Department of Transportation (WDOT) selected two properties along the alignment for subsurface investigation as part of Phase II investigation activities. **These two properties are known as Susie's Restaurant and Walgreens (See Figure 1).** The WDOT is considering the acquisition of Susie's Restaurant property and a portion of Walgreens' property for the realignment of USH 151.

It is our understanding, based upon conversations with the WDOT, that **Susie's Restaurant is owned by Mr. Paul Mertens, but the property the restaurant is located on is owned by Mr. Leon Berk from Royale Palm Beach, Florida.** Walgreens leases the building it occupies from Erickson Associates, a firm located in Rockford, Illinois. Mr. Steve Murphy is the contact for Erickson Associates. For the purposes of this letter, the two properties will be referred to as Susie's Restaurant and Walgreens.

Four borings were advanced on each property as part of the Phase II investigation. Soil and groundwater samples were collected from the borings and analyzed for petroleum compounds and chlorinated solvents. Petroleum and chlorinated solvents were detected in the soil and groundwater at both sites at concentrations above standards.

STS Consultants Ltd.
Consulting Engineers

11425 West Lake Park Drive
Milwaukee, Wisconsin 53224
414.359.3030/Fax 414.359.0822



A neighboring property known as Schmidt's Tire & Muffler located immediately to the west of Walgreens was identified in the STS Phase I and Phase II reports as a leaking underground storage tank site. Schmidt's Tire and Muffler was known to be the source of petroleum contamination on the Walgreens property. A remedial investigation was being completed by RMT, Inc. for the Schmidt site at the time of the STS Phase II investigation. It should be noted that Schmidt's Tire & Muffler is affiliated with US Oil and is often referred to as the US Oil site in the RMT reports. This addendum letter summarizes the findings of the remedial investigation at Schmidt's Tire & Muffler, presents the results of analysis for petroleum and chlorinated solvents to the area surrounding the site, and discusses any changes to the STS Phase II conclusions based on the updated information.

Contamination at US Oil/Schmidt's Tire & Muffler Site

The January 1994 RMT Remedial Investigation report for Schmidt's Tire & Muffler was reviewed by STS on March 23, 1994 at the Wisconsin Department of Natural Resources (WDNR) offices in Green Bay, Wisconsin. Several soil borings were advanced and wells were installed as part of the investigation. Four borings and four wells were placed on Walgreens property located to the east of Schmidt's Tire & Muffler. One well was installed on the Susie's Restaurant property located to the east of Walgreens (See Figure 1). Based on the soil and groundwater data, RMT Inc., the consultant for US Oil, has concluded that there is an easterly and northeasterly migration of dissolved petroleum compounds moving with the groundwater table from the Schmidt's Tire & Muffler site onto the neighboring Walgreens property. The petroleum related contamination plume was not shown to extend onto Susie's Restaurant property.

Chlorinated solvents were detected in all monitoring wells tested except one. RMT concluded that the pattern of occurrence of the chlorinated compounds in groundwater did not match that of the petroleum compounds, and appears to be from a different source not on the Schmidt's Tire & Muffler property. The highest concentration of chlorinated compounds occurred in the monitoring well placed off-site in an upgradient (western) direction to Schmidt's Tire & Muffler suggesting that the source is from this direction.

Comparison of Remedial Investigation and Phase II Results

Groundwater - The direction of groundwater movement in the vicinity of Susie's Restaurant and Walgreens properties was anticipated by STS to be to the east toward the lake based on reviewed literature. However, a northerly or even southeasterly groundwater flow direction was believed to be possible due to historical erosional features of the underlying clay layer. The groundwater level data obtained from the RMT report suggests a northeasterly groundwater flow direction. Therefore, based on the additional groundwater measurement data, groundwater is assumed to flow toward the northeast.



The concentration of chlorinated solvents detected in the groundwater during the RMT Remedial Investigation were compared to the concentrations detected during the STS Phase II investigation. The chlorinated solvents detected in the RMT work include vinyl chloride, cis-1,2-dichloroethylene (DCE) and trichloroethylene (TCE). Tetrachloroethylene (PCE) was not detected at the locations sampled by RMT. Vinyl chloride, likely a degradation product of the remaining chlorinated solvents, appears to be more prevalent in the groundwater on Susie's Restaurant property and the eastern portion of Walgreens property than on the Schmidt's Tire & Muffler property.

TCE was detected in the highest concentrations to the west of Schmidt's Tire & Muffler with decreasing concentrations to the east toward Susie's Restaurant property. The upgradient concentration of TCE suggests an off-site source located to the west. DCE was detected on all three sites (Schmidt's Tire & Muffler, Walgreens and Susie's Restaurant) at concentrations above NR140 Enforcement Standards suggesting an area wide contamination problem. DCE may also represent a decomposition product of an upgradient TCE release.

IMPORTANT !

* PCE was detected in the groundwater on Susie's Restaurant property at 2 to 100 times the NR140 Enforcement Standard. PCE was not detected in the groundwater at Walgreens or Schmidt's Tire & Muffler. PCE is a solvent which has historically been widely used in the dry cleaning industry. The Susie's Restaurant property is the former location of Normington's Dry Cleaners. The presence of the chlorinated solvent PCE on the Susie's Restaurant property compiled with the absence of this parameter in upgradient locations suggests that the PCE may be attributable to the former dry cleaners located at the site.

The petroleum contamination from Schmidt's Tire & Muffler has migrated onto the Walgreens property as documented by RMT based on groundwater analysis and water table measurements. However, during the Phase II investigation by STS, petroleum compounds were also detected at low concentrations in the groundwater on the Susie's Restaurant property. No petroleum compounds were detected above the Enforcement Standards, but benzene was reported in the groundwater above the Preventive Action Limit at three of the four borings placed on Susie's Restaurant property by STS. It should be noted that no groundwater monitoring wells were installed as part of the Phase II investigation. Groundwater samples were collected from the open boreholes. In order to compile a formal evaluation of NR140 exceedances, it would be necessary to obtain information from NR141 groundwater wells.

US Oil has placed a groundwater extraction well near Susie's Restaurant property on the east side of Walgreens property (see Figure 1). Underground piping for the well traverses parallel to Calumet Avenue and under Walgreens parking lot to the Schmidt's Tire & Muffler service station. Another extraction well was placed on the southern portion of the Schmidt's Tire & Muffler property while a third extraction well is proposed to be placed on the north side of the site. A groundwater recovery and vapor extraction system are being proposed to the WDNR by US Oil for remediation of the petroleum constituents at Schmidt's Tire & Muffler and Walgreens. The system is



proposed to be operational by June or July of 1994. The groundwater extraction system will likely influence the groundwater table on Susie's Restaurant property and consequently draw the contaminants at Susie's Restaurant property toward the extraction well at Walgreens.

Soil - Soil impacts were also reported during the RMT Remedial Investigation and STS' Phase II Investigation. PCE, TCE and DCE were detected in the soil at Susie's Restaurant during the STS Phase II Investigation. PCE was reported in the soil as high as 3,080 ppb. The remaining compounds were detected at much lower concentrations. No vinyl chloride was detected in the soil at Susie's. The soil samples collected from the Walgreens property by STS had low concentrations of DCE, TCE and vinyl chloride. Each compound was detected only once in separate soil samples. RMT did not have the soil samples from Schmidt's Tire & Muffler analyzed for chlorinated solvents.

Petroleum compounds did not appear to be prevalent on the Walgreens property at the location of the four soil borings based on the STS Phase II soil results. One of the five soil samples from Susie's Restaurant property had detections of petroleum compounds. The detections were at low concentrations. Petroleum contamination was documented on Schmidt's Tire & Muffler site based on the RMT Remedial Investigation results.

Site Observations

The Susie's Restaurant, Walgreens and Schmidt's Tire & Muffler properties were visited on March 23, 1994 by a representative of STS to observe the placement of groundwater monitoring and extraction wells. The groundwater wells were placed flush with the ground surface and were not easily identified. The extraction wells were covered with manhole covers. The system was not operational at the time of the site visit.

The project manager from RMT, Mr. Paul Turpin, was contacted on March 28, 1994 to discuss the progress of the remediation system. He indicated that the pilot tests for the groundwater recovery and vapor extraction systems were completed in February, 1994. The system will be designed in April and May with operation beginning in June or July. Mr. Turpin mentioned that the wells on-site will no longer be sampled for the full volatile organic scan which includes the chlorinated solvents, rather the wells will be sampled for petroleum compounds only. Therefore, if the WDOT would need additional rounds of chlorinated solvent testing from the on-site wells to further evaluate the distribution of chlorinated solvents, then permission will need to be obtained from US Oil and Walgreens to sample these wells.

Summary and Conclusions

The soil and groundwater at Walgreens property is affected with petroleum and chlorinated solvents. The petroleum contamination is from Schmidt's Tire & Muffler and is in the process of being remediated. The petroleum contaminants appear to be following the northeasterly groundwater flow direction. The chlorinated solvents detected in the soil and groundwater at Walgreens appear to originate from off-site sources and are not attributable to the present Walgreens business or the former property



uses. The contamination at Walgreens is being remediated by Schmidt's Tire & Muffler and US Oil, therefore, the WDNR is not pursuing remedial actions by Walgreens.

STS recommends that the WDNR files for Schmidt's Tire & Muffler be again reviewed closer to the time of roadway construction to obtain the as-built information on the remediation system which can be used to design the roadway improvements so as to avoid potential conflicts with the remediation system. The file information should also be reviewed to evaluate the progress of remediation and the concentrations of residual contamination.

Susie's Restaurant property has chlorinated solvents in the soil and groundwater and to a lesser extent petroleum contamination. The chlorinated solvent PCE which is a common dry cleaning solvent, was detected on Susie's Restaurant property and not on Walgreens or Schmidt's Tire & Muffler property suggesting a localized source of PCE in the vicinity of Susie's Restaurant. PCE can possibly be originating from a variety of sources including the former dry cleaners at Susie's Restaurant as well as neighboring commercial properties. Another solvent plume with a high concentration of TCE appears to be located to the west of Schmidt's Tire & Muffler. TCE and its degradation products (DCE and vinyl chloride) are migrating to the east toward Susie's. The TCE and PCE plumes appear to coalesce making delineation of the two plumes difficult.

The detections of solvents on Susie's Restaurant property have been reported to the WDNR by the WDOT. STS recommends that the WDOT monitor the WDNR's progress by contacting the WDNR project manager assigned to the case. Should it become necessary due to real estate transactions for the WDOT to pursue its own investigation at Susie's Restaurant, STS recommends that a Phase III investigation be conducted. The Phase III should be completed by the WDOT prior to acquisition of Susie's Restaurant property.

The Phase III exploration would initially focus on determining the source of PCE near Susie's. NR140 groundwater quality wells may need to be installed on Susie's Restaurant property in both upgradient and downgradient positions to collect the necessary groundwater information. The groundwater wells located on Walgreens and Schmidt's Tire & Muffler may also be sampled (with permission from US Oil and Walgreens) to collect data on the source of chlorinated solvents. Groundwater level measurements and laboratory analytical data should be used to evaluate the source of PCE. Based on the groundwater results, remedial plans can be developed for the property.

The conclusions and recommendations presented in the Phase II Hazardous Materials Investigation have not materially changed in light of the additional remediation information from Schmidt's Tire & Muffler. Petroleum and chlorinated solvents are known to exist along the proposed roadway alignment at concentrations above standards. Remediation of the petroleum constituents has been initiated. However, the sources of



chlorinated solvents have not been identified. If the chlorinated solvents are not remediated prior to acquisition of Susie's Restaurant property by the WDOT, then a Phase III investigation is recommended to define the source of contaminants and extent of impacts.

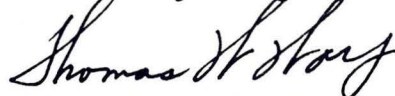
Closing

We have appreciated the opportunity to provide environmental services for the USH 151 project. If you have any questions regarding the information presented in this letter or the other reports, please do not hesitate to contact us.

Sincerely,

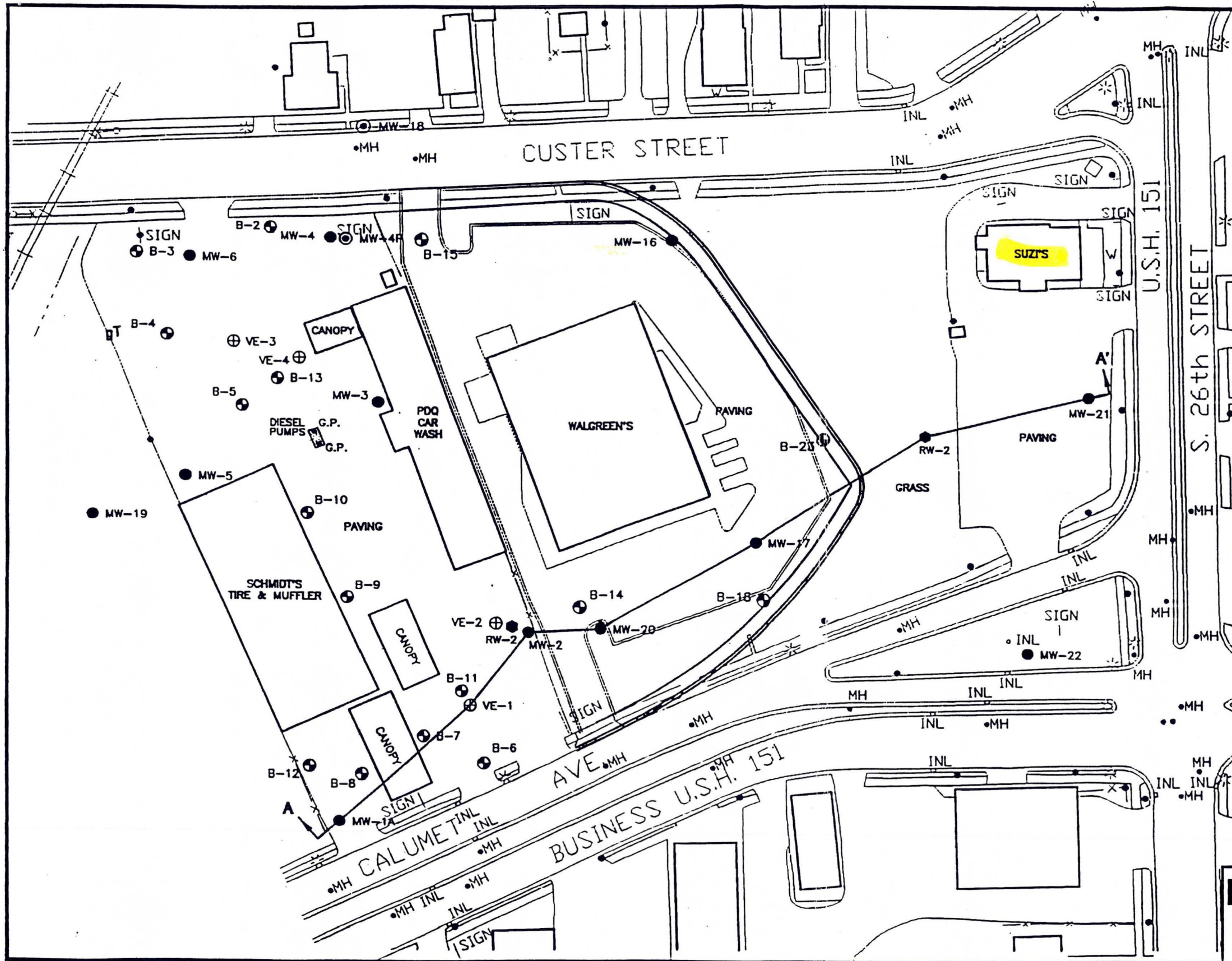
STS CONSULTANTS, LTD.


Suzanne M. Murawski
Assistant Project Engineer


Thomas W. Wolf, P.E.
Executive Vice President

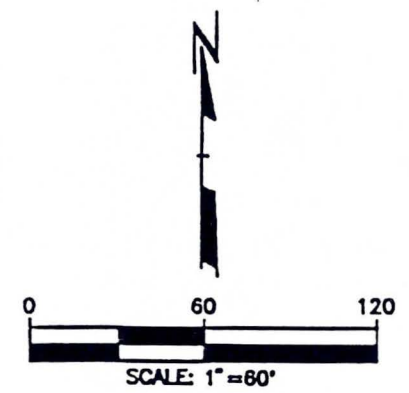
84335XA/HNTB/4-21-94
©STS Consultants, Ltd., April, 1994

Attachment



LEGEND

- ⊕ B-15 SOIL BORING
- MW-16 WATER TABLE MONITORING WELL
- RW-2 RECOVERY WELL
- ⊙ MW-4P PIEZOMETER
- ⊕ VE-3 SOIL VAPOR EXTRACTION WELL
- MH MANHOLE
- INL STORM INLET
- * LIGHT POLE
- POWER POLE



MAP SOURCES:
 HARRIS & ASSOCIATES, INC. (SCHMIDT'S TIRE & MUFFLER)
 HNTB (EXISTING ROADS AND PROPOSED RIGHT OF WAY)
 SEGREID, EDWARDS & ASSOC. (WALGREEN)

BORING, MONITORING WELL & CROSS-SECTION LOCATOR MAP
 US OIL
 SCHMIDT'S TIRE & MUFFLER
 MANITOWOC, WI

	DWN. BY: RBN
	APPROVED BY: PDT
	DATE: JANUARY 1994
	FILE # 23730404

DRAWN BY	J.M.I.	DATE	4/20/94
CHECKED BY	S.M.M.	DATE	4/20/94
APPROVED BY	P.A.T.	DATE	4/20/94
AUTOCAD FILE	84335001		

USH 151 REALIGNMENT
BORING AND WELL LOCATIONS
MANITOWOC, WISCONSIN

STS Consultants Ltd.
 Consulting Engineers

STS PROJECT NO.	84335XA
STS PROJECT FILE	
SCALE	AS SHOWN
FIGURE NO.	1

NOTE: FIGURE ADAPTED FROM JANUARY 1994 RMT REMEDIAL INVESTIGATION REPORT