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708 Heartland Trail
Suite 3000
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www.TRCsolutions.com

December 16, 2016

Mr. Alex Edler
Wisconsin Department of Natural Resources
2984 Shawano Avenue
Green Bay, WI 54313

Subject: Excavation Management Plan and Special Provisions
STH 116 (Wolf River Bridge and Approaches), Winneconne, Winnebago, WI
WisDOT Project ID #6190-15-01

Dear Mr. Edler:

Enclosed are the Excavation Management Plan and Special Provisions for the STH 116 (Wolf River Bridge and Approaches), project in Winneconne, Wisconsin.

We are requesting WDNR's concurrence with the Special Provisions by January 15, 2017.

Please feel free to contact me at 608-826-3628, if you have any question or would like to discuss in further detail.

Sincerely,

TRC Environmental Corporation

Dan Haak, P.E.
Project Manager

Enclosure

cc: Kathie Van Price – WisDOT (hard copy and pdf on CD)
Shar TeBeest – WisDOT (hard copy and pdf on CD)
Jim Morse – TRC

Excavation Management Plan

STH 116 (Wolf River Bridge and Approaches)
Winneconne, Winnebago County, Wisconsin

WisDOT Project #6190-15-01

December 2016

Excavation Management Plan

STH 116 (Wolf River Bridge and Approaches)
Winneconne, Winnebago County, Wisconsin

WisDOT Project #6190-15-01

December 2016

Daniel Haak
Project Manager

James E. Morse
Senior Client Service Manager

TRC Environmental Corporation | Wisconsin Department of Transportation
Final
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Commonly Used Abbreviations and Acronyms

AST	aboveground storage tank
bgs	below ground surface
BRRTS	Bureau for Remediation and Redevelopment Tracking System
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CTH	County Trunk Highway
CY	cubic yards
DATCP	Department of Agriculture, Trade and Consumer Protection
DRO	diesel range organics
FDM	Facilities Development Manual
EMP	Excavation Management Plan
ERP	Environmental Repair Program
ES	Enforcement Standards
ESA	Environmental Site Assessment
FINDS	Facility Index System/Facility Identification Initiative Program Summary Report
GIS Registry	WDNR Geographic Information System (GIS) Registry of Closed Remediation Sites
GRO	gasoline range organics
HAZWOPER	Code of Federal Registry Chapter 29 (29 CFR) Part 1910.120 Hazardous Waste Operations and Emergency Response
HMA	Hazardous Materials Assessment
IH	Interstate Highway
LQG	large quantity generator
LUST	leaking underground storage tank
NPL	National Priorities List
NR ###	Wisconsin Administrative Code (WAC) Natural Resources (NR) Chapter ###
PAHs	polynuclear aromatic hydrocarbons
PAL	Preventive Action Limits
PCBs	polychlorinated biphenyls
PCE	perchloroethylene/tetrachloroethylene
PID	photoionization detector
PVOCs	petroleum volatile organic compounds
RCLs	Residual Contaminant Levels in NR 720
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
R/W or ROW	right-of-way
sf	square feet
STH	State Trunk Highway
TCE	trichloroethylene
TRIS	Toxic Chemical Release Inventory System
USGS	United States Geological Survey
USH	United States Highway
UST	underground storage tank
VOCs	volatile organic compounds
WDNR	Wisconsin Department of Natural Resources
WisDOT	Wisconsin Department of Transportation
WGNHS	Wisconsin Geological and Natural History Survey
WI ERP	Wisconsin Environmental Repair Program database

Executive Summary

The WisDOT is planning to construct a new fixed bridge with a 23-foot clearance located immediately south, adjacent to the existing bridge over the Wolf River in Winneconne, Wisconsin (WisDOT Project #6190-15-01).

As part of the new bridge construction, proposed improvements to the 0.33 mile segment of STH 116 (Main Street) from S. 2nd Street to S. 2nd Avenue include new water and sewer lines, street lighting, traffic signal poles, strip ROW acquisitions, highway easements, and temporary limited easements. During the construction of the new STH 116 bridge and approaches, it is estimated that maximum excavation depths will be between 5 and 15 feet bgs. Groundwater is expected to be encountered at depths ranging from 4 to 14 feet. Construction is planned for 2017.

The results of the Phase 1, Phase 2, and Phase 3 investigations identified five properties that could pose a hazardous material concern to the proposed bridge approach construction activities within the limits of the proposed STH 116 project corridor.

Based on the results of the investigation, and TRC's review of the highway plans, petroleum- and/or chlorinated-contaminated soil is potentially present within the limits of construction at the following locations:

- Station 135+00 to the Wolf River within STH 116 construction limits (Creative Tile and Marble, 29 W. Main Street and The Other Place, 19 W. Main Street)
- From the Wolf River to Station 148+50 within STH 116 construction limits Falk Property (21 E. Main Street), A1 Auto Sales (105 E. Main Street) and PDK Properties (115 E. Main Street).

TRC recommends that contaminated soil excavated at the locations listed above be field-screened by an environmental consultant during excavations for the reconstruction of STH 116, and soil with significant contamination be disposed at a WDNR-licensed landfill. TRC estimates that approximately 1,000 tons of petroleum-contaminated soil and 500 tons of chlorinated-contaminated soil will require off-site disposal, at a unit cost of approximately $60 per ton. TRC recommends that soil with low-level contamination be reused as backfill within the limits of construction of the project.

If dewatering of contaminated groundwater is required, it will either be disposed in the local sanitary sewer or be containerized and disposed off-site.

Section 1
Background

1.1 Proposed Roadway and Utility Construction

The WisDOT is planning to construct a new fixed bridge with a 23-foot clearance located immediately south adjacent to the existing bridge over the Wolf River in Winneconne, Winnebago County, Wisconsin. As part of the new bridge construction, proposed improvements to the 0.33 mile segment of STH 116 (Main Street) from S. 2nd Street to S. 2nd Avenue include new water and sewer lines, street lighting, traffic signal poles, strip ROW acquisitions, highway easements, and temporary limited easements. A Site Location Map is presented in Figure 1. Construction is planned for 2017. Groundwater is expected to be encountered at depths ranging from 4 to 14 feet. Construction plans are included in Appendix A.

1.2 Previous Site Investigations

A Phase 1 HMA report completed by Himalayan Consultants, LLC (Himalayan) in August 2012, identified historical land use activities for the aforementioned properties that could pose a potential hazardous materials concern during construction of the proposed new STH 116 Bridge and approach construction. Based on the findings of the Phase 1 HMA, five sites were identified and recommended for a Phase 2 Hazardous Materials Investigation (HMI) in order to identify the potential presence and nature of contamination within the proposed ROW and for property acquisitions.

In January 2014, Himalayan completed a Phase 2 HMI Report for the WisDOT. In December 2014, TRC completed Phase 3 investigations. The findings of the Phase 2 and Phase 3 investigations concluded that evidence of hazardous substance release was identified at the following sites:

- Site #5 - Creative Tile and Marble (29 W. Main Street [closed, BRRTS #02-71-562880])
- Site #8 - The Other Place (19 W. Main Street [closed, BRRTS #02-71-562879])
- Site #9 - Falk Property (21 E. Main Street [closed, BRRTS #03-71-001089])
- Site #11 - A1 Auto Sales (105 E. Main Street [open, BRRTS #02-71-562271])
- Site #12 - PDK Properties (115 E. Main Street [open, BRRTS #02-71-562227])

The locations of borings are provided on Figures 2 and 3. Associated background soil and groundwater data is presented in Appendix B.

Section 2
Conclusions and Recommendations

2.1 Contaminated Soil Management

Potential contaminated soil is present within the limits of construction at the following locations (see Figures 2 and 3 for locations and depths):

- Station 135+00 to the Wolf River within STH 116 construction limits (Creative Tile and Marble, 29 W. Main Street and The Other Place, 19 W. Main Street)
- From the Wolf River to Station 148+50 within STH 116 construction limits Falk Property (21 E. Main Street), A1 Auto Sales (105 E. Main Street) and PDK Properties (115 E. Main Street).

Contaminated soil will be considered non-hazardous based on previous waste characterization results.

TRC recommends that soil excavated at the locations listed above be field-screened by an environmental consultant during excavations for the reconstruction of STH 116, and

- Soil with significant impacts be disposed at a WDNR-licensed landfill. Soil will be considered to have significant contamination if it exhibits significant odor, staining, and/or elevated PID readings (for example, PID readings greater than 10 ppm).
- Soil exhibiting low-level contamination based on field screening (for example, PID readings less than 10 ppm) will be considered suitable for reuse as backfill in the excavation from which it came. Excess low-level contaminated soil that cannot be reused as backfill in these areas will also be disposed at a WDNR-licensed landfill.

The PID will be fitted with an 11.7 eV lamp to detect a broader range of contaminants.

TRC estimates that approximately 1,000 tons of petroleum-contaminated soil and 500 tons of chlorinated-contaminated soil will require off-site disposal, at a unit cost of approximately $60 per ton. Based on historic land uses along the STH 116 construction corridor, additional contaminated soil may be encountered during construction at locations other than those listed.

If dewatering of contaminated groundwater is required, it will either be disposed in the local sanitary sewer or be containerized and disposed off-site.

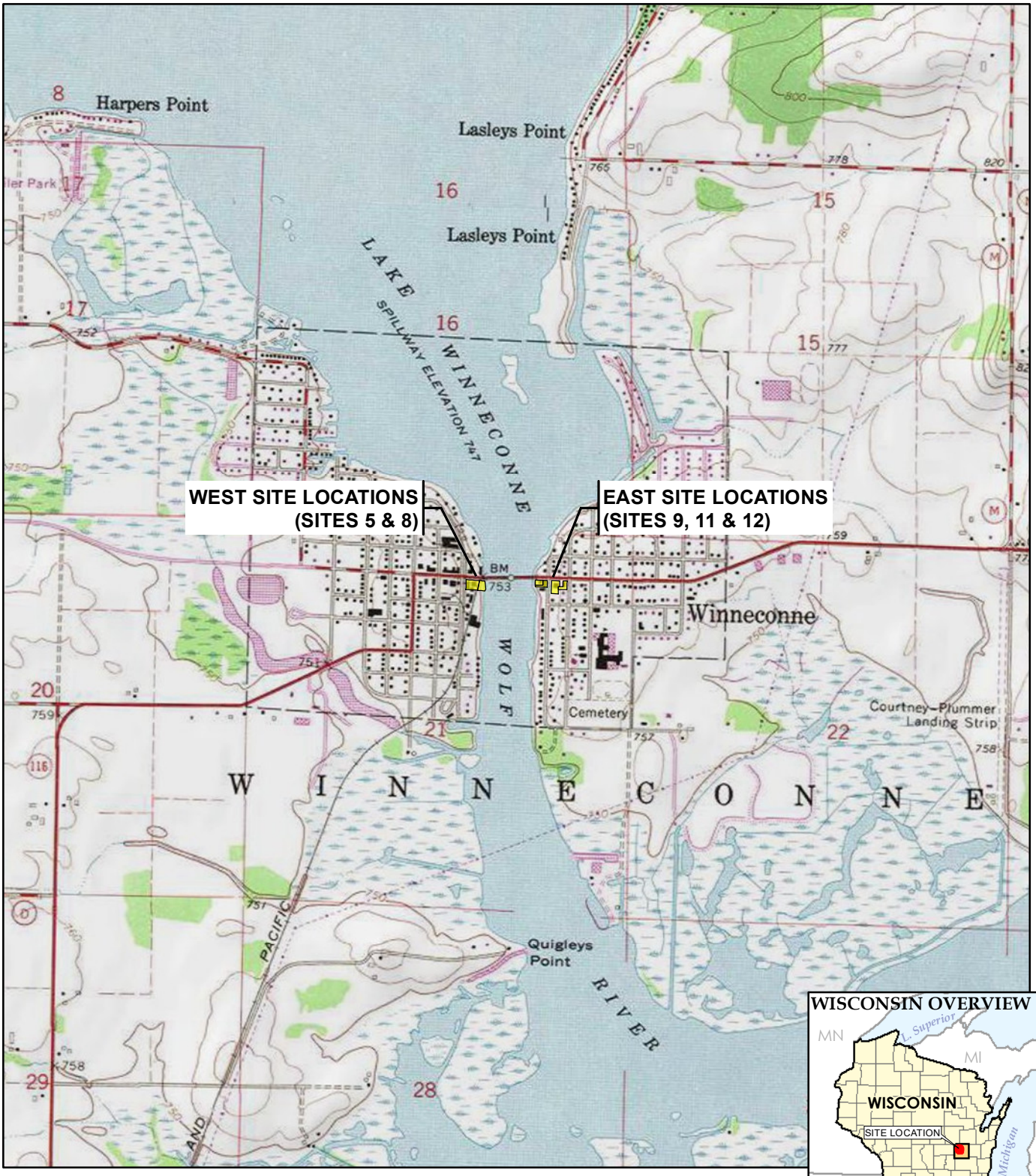
2.2 Request for WDNR Reviews

TRC has prepared Special Provisions for the management contaminated soil during construction (Appendix C). TRC recommends that the WDNR review this report and the attached Special Provisions as the EMP. If acceptable, the WDNR should provide record of their concurrence with the EMP.

Table 1
Site Summary
STH 116 - Winneconne, Wisconsin
WisDOT #: 6190-15-01

SITE NAME	SITE ADDRESS	POTENTIAL ISSUES	MAXIMUM EXCAVATION REQUIREMENTS IN POTENTIALLY CONTAMINATED SOIL	SUMMARY
Creative Tile and Marble (Site 5)	29 W. Main Street	Various uses Petroleum impacted fill Closed site, BRRTS #02-71-562880	8 ft sanitary sewer	Petroleum-impacts in fill material at depths greater than 2 feet.
The Other Place (Site 8)	19 W. Main Street	Various uses Petroleum impacted fill Closed site, BRRTS #02-71-562879	8 ft storm sewer	Petroleum-impacts in fill material at depths greater than 2 feet.
Falk Property (Site 9)	21 E. Main Street	Former gasoline station Petroleum contamination Closed site, BRRTS #03-71-001089	8 ft storm sewer	Petroleum-impacts and chlorinated-impacts at varying depths.
A1 Auto Sales (Site 11)	105 E. Main Street	Various uses Petroleum contamination Open site, BRRTS #03-71-562271	12 ft sanitary sewer	Petroleum-impacts and chlorinated-impacts at varying depths.
PDK Properties (Site 12)	115 E. Main Street	Chlorinated contamination Open site, BRRTS #02-71-562227	12 ft sanitary sewer	Chlorinated-impacts in or near the water table.

TRC - GIS



BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

TRC
708 Heartland Trail
Suite 3000
Madison, WI 53717
Phone: 608.826.3600

WISDOT ID# 6190-15-01
STH 116
WINNECONNE,WINNEBAGO COUNTY WISCONSIN

SITE LOCATION MAP

DRAWN BY:	RHODE B
APPROVED BY:	HAAK D
PROJECT NO:	254450
FILE NO.	254450-002slm.mxd
DATE:	DECEMBER 2016

FIGURE 1

LEGEND

- TRC SOIL BORING / 2" NR 141MONITORING WELL
- TRC SOIL BORING / TEMPORARY WELL
- TRC SOIL BORING
- HISTORIC SOIL BORING / TEMPORARY WELL
- HISTORIC SOIL BORING
- PREVIOUS INVESTIGATION TEST PITS
- PROPERTY BOUNDARY
- POTENTIALLY CONTAMINATED SOIL
- 5' ESTIMATED DEPTH TO CONTAMINATED SOIL FEET BGS

NOTES

1. BASE MAP IMAGERY FROM ESRI/MICROSOFT, "WORLD IMAGERY", WEB BASEMAP SERVICE LAYER, 2011.
2. CONSTRUCTION DESIGN WORK SUPPLIED BY WisDOT.
3. PROPERTY BOUNDARIES SUPPLIED BY WINNEBAGO COUNTY GIS DEPARTMENT.
4. HISTORIC BORING / WELL LOCATIONS AND PROPERTY BOUNDARIES DIGITIZED FROM HIMALAYAN CONSULTANTS, LLC PHASE 1 & 2 FIGURES, LOCATIONS ARE APPROXIMATE.

N

0 50 100 Feet

1 " = 50 '

1:600

PROJECT:

WISDOT ID# 6190-15-01
STH 116
WINNECONNE, WINNEBAGO COUNTY WISCONSIN

SHEET TITLE:

SITE MAP- EAST

DRAWN BY:	B DEEGAN	SCALE:	PROJ. NO. 254450
CHECKED BY:	D HAAK	1: 600	FILE NO. 254450-003.mxd
APPROVED BY:	D HAAK	DATE PRINTED:	**FIGURE 2**
DATE:	DECEMBER 2016		

TRC

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Madison, WI 53717
Phone: 608.826.3600
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TRC - GIS
Coordinate System: NAD 1983 HARN WISCRS Winnebago County Feet (Foot US)
Map Rotation: 0
Saved By: BDEEGAN on 12/12/2016, 08:49:12 AM
Path: E:\WI_DOT\2014_223432\254450-003.mxd

LEGEND

- TRC SOIL BORING / 2" NR 141MONITORING WELL
- TRC SOIL BORING / TEMPORARY WELL
- HISTORIC SOIL BORING / TEMPORARY WELL
- HISTORIC SOIL BORING
- PROPERTY BOUNDARY
- POTENTIALLY CONTAMINATED SOIL
- 5' ESTIMATED DEPTH TO CONTAMINATED SOIL-FEET BGS

NOTES

1. BASE MAP IMAGERY FROM ESRI/MICROSOFT, "WORLD IMAGERY", WEB BASEMAP SERVICE LAYER, 2011.
2. CONSTRUCTION DESIGN WORK SUPPLIED BY WisDOT.
3. PROPERTY BOUNDARIES SUPPLIED BY WINNEBAGO COUNTY GIS DEPARTMENT.
4. HISTORIC BORING / WELL LOCATIONS AND PROPERTY BOUNDARIES DIGITIZED FROM HIMALAYAN CONSULTANTS, LLC PHASE 1 & 2 FIGURES, LOCATIONS ARE APPROXIMATE.

N

0 50 100 Feet

1 " = 50 '
1:600

PROJECT: **WISDOT ID# 6190-15-01**
STH 116
WINNECONNE, WINNEBAGO COUTNY, WISCONSIN

SHEET TITLE: **SITE MAP- WEST**

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CHECKED BY: D HAAK		FILE NO.	254450-004.mxd
APPROVED BY: D HAAK	DATE PRINTED:	**FIGURE 3**	
DATE: DECEMBER 2016			

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TRC - GIS
Coordinate System: NAD 1983 HARN WISCRS Winnebago County Feet (Foot US)
Map Rotation: 0
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Appendix A
Construction Plans

2

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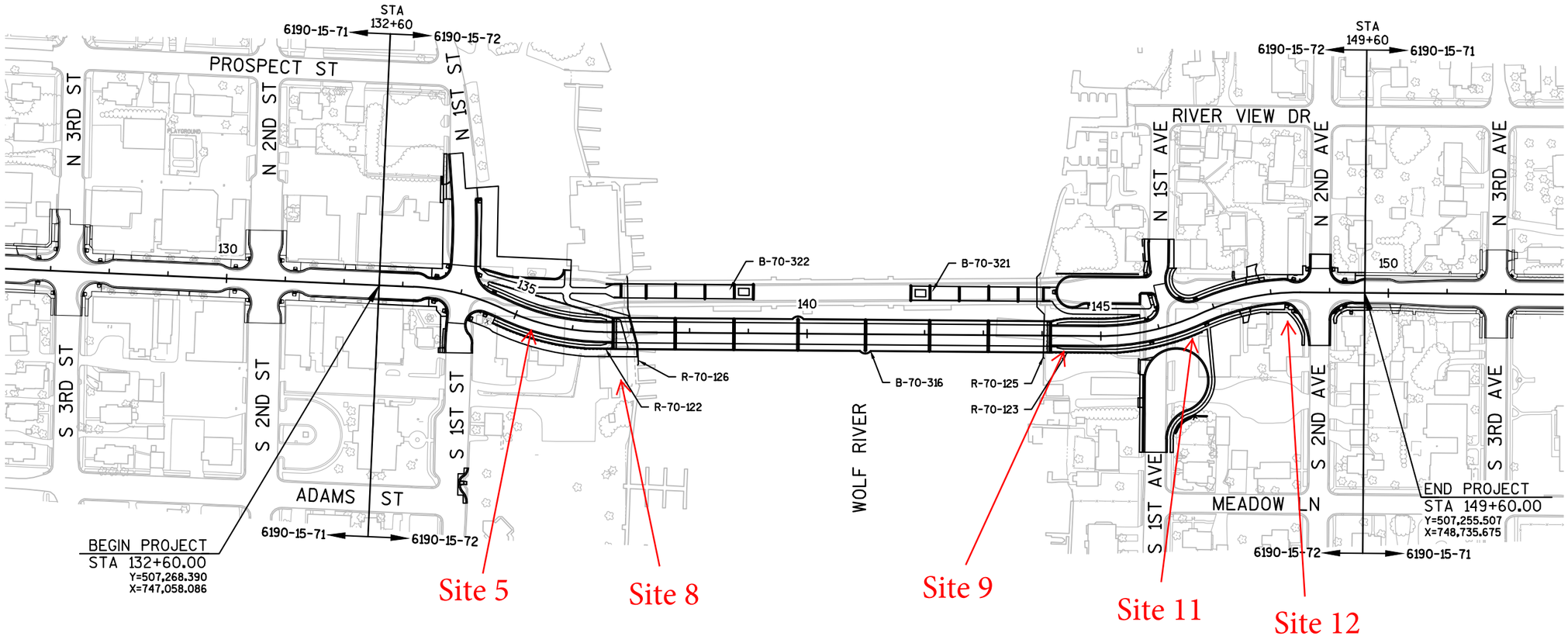

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LAYOUT NAME - 61901572-020201-PO
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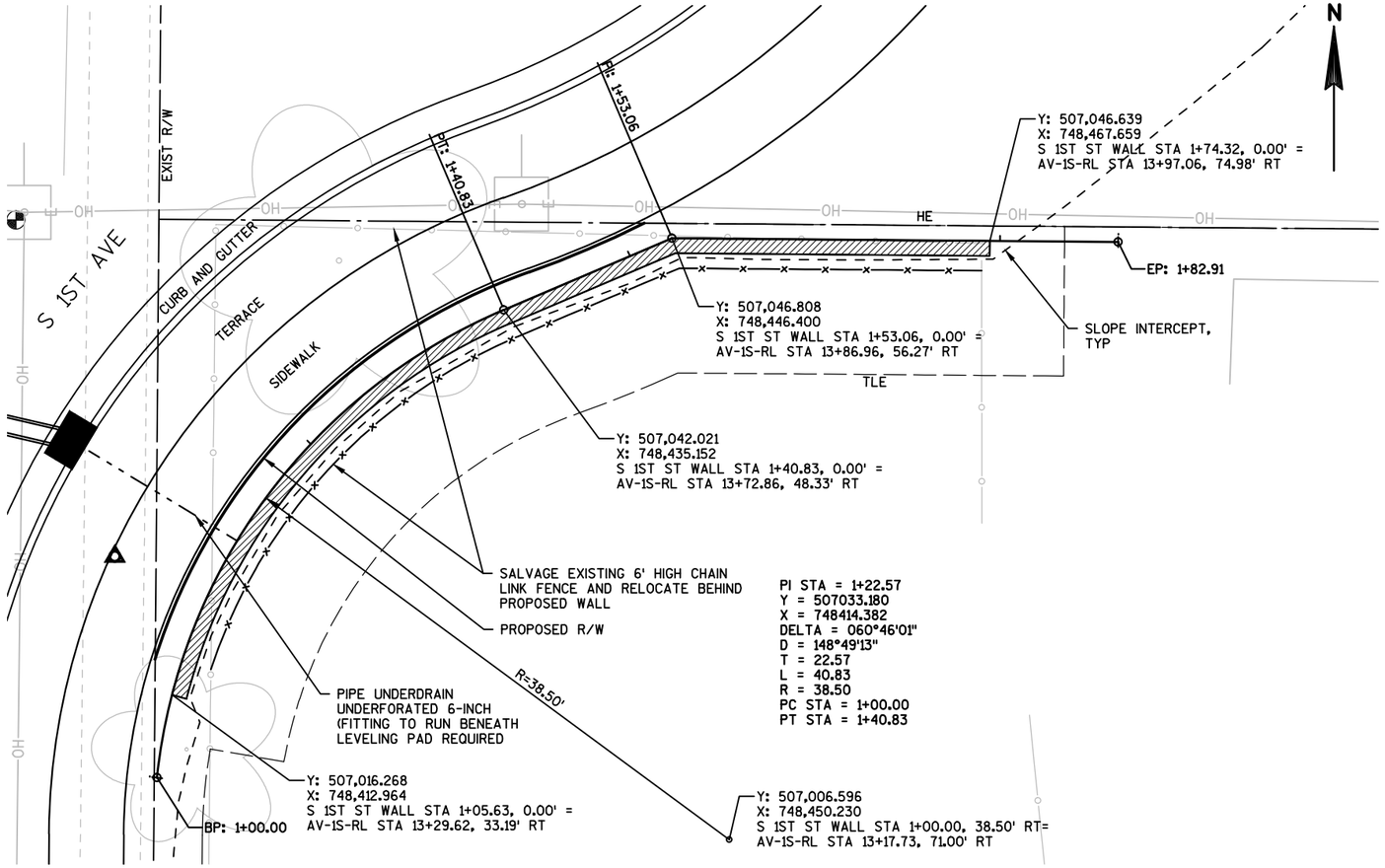
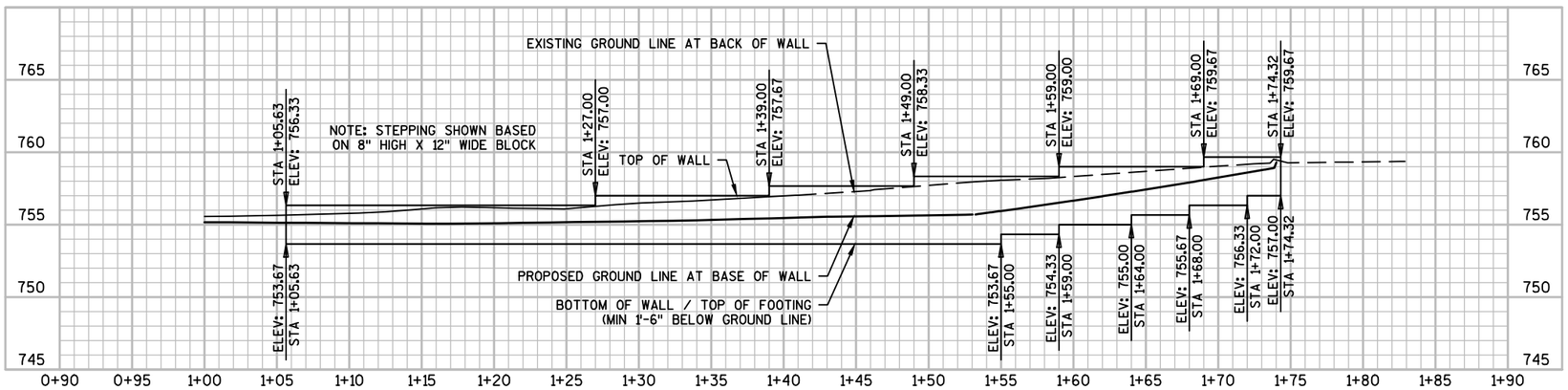
WISDOT/CADDS SHEET 44

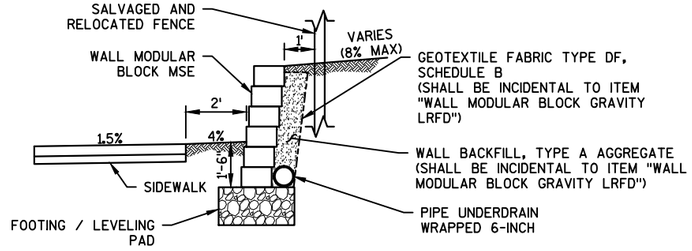


PLAN



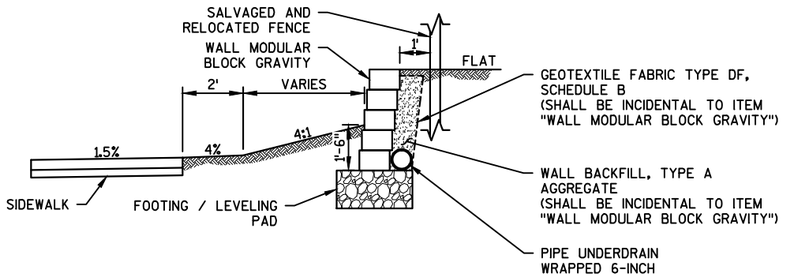
ELEVATION

(LOOKING AT B.F. OF WALL)



TYPICAL CROSS SECTION OF WALL

STA 1+05 TO STA 1+53



TYPICAL CROSS SECTION OF WALL

STA 1+53 TO STA 1+74

TOTAL ESTIMATED QUANTITIES

WALL MODULAR BLOCK GRAVITY LRPD ..... 235 SF

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK GRAVITY LRFD".

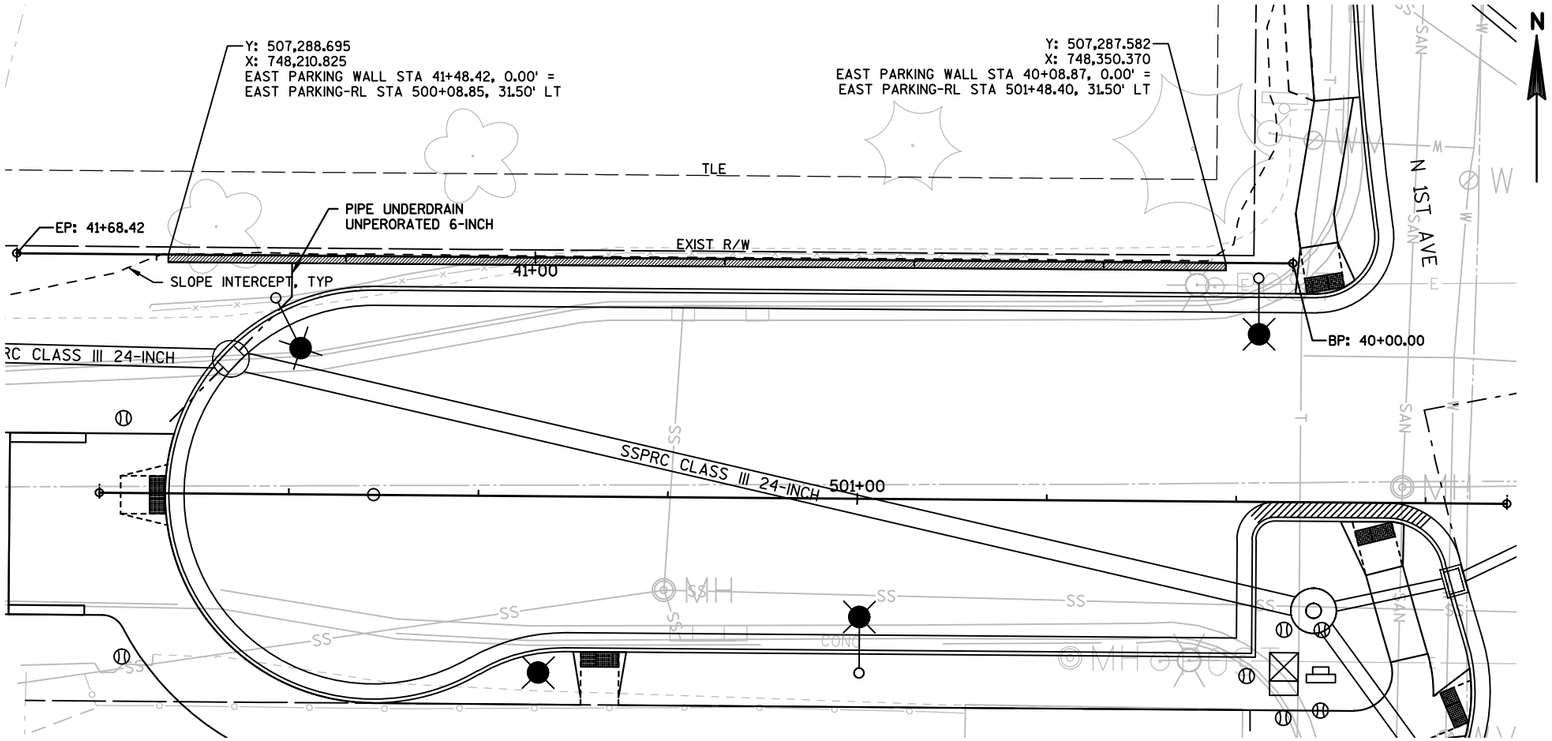
PLANS, ELEVATIONS, AND DETAILS SHOWN ON THE DRAWING ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

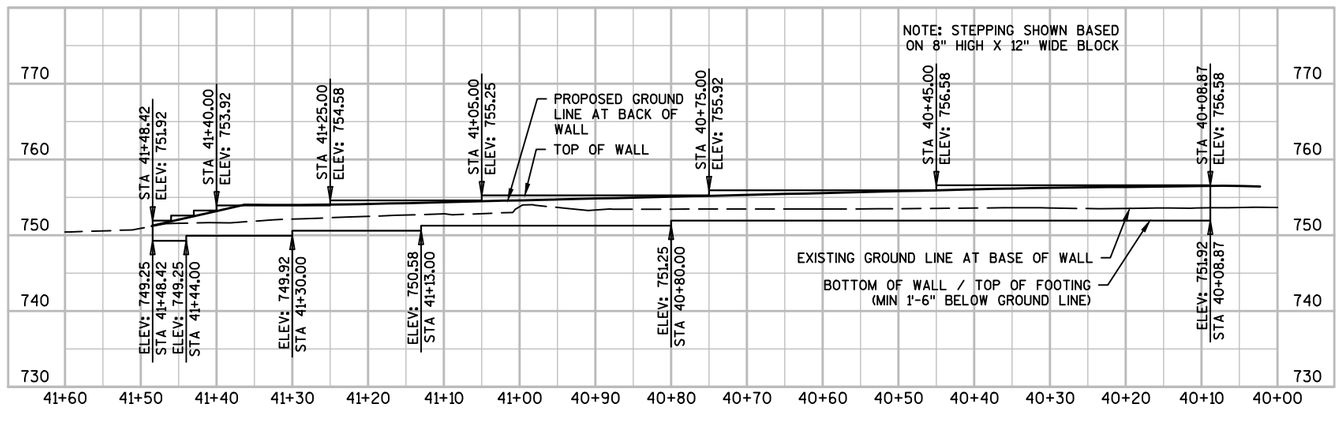
DESIGN FOR THE RETAINING WALL TO PROVIDE FOR THE FINISHED GRADE SLOPED BEHIND THE WALL AS SHOWN.

COLOR OF BLOCK SHALL BE GRAY.

FOR THE PURPOSES OF COMPUTING LATERAL EARTH PRESSURES AGAINST UTILITIES AND STRUCTURES, ASSUMING TRIANGULAR LOAD DISTRIBUTION WITH GRANULAR BACKFILL, THE FOLLOWING SOIL PARAMETERS MAY BE USED: PHI=30°, y=115 pcf, Ka=0.33, Kp=3.0, Ko=0.5

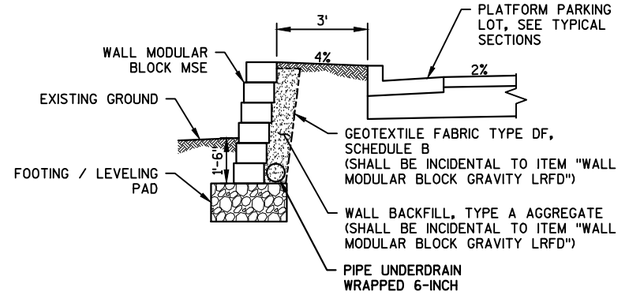


PLAN



ELEVATION

(LOOKING AT B.F. OF WALL)



TYPICAL CROSS SECTION OF WALL

TOTAL ESTIMATED QUANTITIES

WALL MODULAR BLOCK GRAVITY LRFD ..... 562 SF

GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED

DESIGN DATA

THE CONTRACTOR SHALL PROVIDE COMPLETE DESIGN, PLANS, DETAILS, SPECIFICATIONS, AND SHOP DRAWINGS FOR THE RETAINING WALL IN ACCORDANCE WITH THE SPECIAL PROVISIONS. THE RETAINING WALL MANUFACTURER SHALL PROVIDE TECHNICAL ASSISTANCE TO THE CONTRACTOR DURING CONSTRUCTION. THE COST OF FURNISHING THESE ITEMS SHALL BE INCLUDED IN THE BID ITEM "WALL MODULAR BLOCK GRAVITY LRFD".

PLANS, ELEVATIONS, AND DETAILS SHOWN ON THE DRAWING ARE INTENDED TO INDICATE WALL LOCATIONS, LENGTHS, HEIGHTS, AND DETAILS COMMON TO THE WALL SYSTEM SELECTED. THE CONTRACTOR SHALL VERIFY THAT THE WALL SYSTEM SELECTED WILL CONFORM TO THE REQUIRED ALIGNMENTS AND DETAILS.

THE RETAINING WALL IS TO BE DESIGNED USING THE ELEVATIONS GIVEN ON THIS SHEET.

DESIGN FOR THE RETAINING WALL TO PROVIDE FOR THE FINISHED GRADE SLOPED BEHIND THE WALL AS SHOWN AND FOR SURCHARGES IN THE PARKING LOT.

COLOR OF BLOCK SHALL BE GRAY.

FOR THE PURPOSES OF COMPUTING LATERAL EARTH PRESSURES AGAINST UTILITIES AND STRUCTURES, ASSUMING TRIANGULAR LOAD DISTRIBUTION WITH GRANULAR BACKFILL, THE FOLLOWING SOIL PARAMETERS MAY BE USED: PHI=30°, y=115 pcf, Ka=0.33, Kp=3.0, Ko=0.5

STA 133+50.00, 17.50' LT
CATCH BASINS 2x3-H
SS35.2

STA 133+23.00, 23.50' LT
CATCH BASINS 2x3-H-S
SS35.3

LIMIT OF STORM SEWER INSTALLED UNDER 6190-15-72

UNDERDRAIN REQD

STA 133+50.00, 6.00' LT
MANHOLES 5-J
SS35.0

STA 133+23.00, 23.50' RT
CATCH BASINS 2x3-H-S
SS35.4

UNDERDRAIN REQD

STA 133+50.00, 17.50' RT
CATCH BASINS 2x3-H
SS35.1

STA 135+46.11, 78.35' LT
CATCH BASINS 2x3-H-S
SS5.1

STA 134+41.80, 31.40' LT
INLETS MEDIAN 1G-MS
SS25.2

STA 134+39.91, 19.59' LT
CATCH BASINS 2x3-H
SS25.1

STA 134+36.75, 0.00'
MANHOLES 5-J
SS25.0

STA 135+91.33, 87.12' LT
INLETS MEDIAN 1G-MS
SS5.0

STORM SEWER REMOVAL, TYP

STA 136+29.00, 17.50' LT
CATCH BASINS 2x3-H
SS30.2

STA 136+25.00, 0.00'
MANHOLES 5-J
SS30.0

STA 136+29.00, 17.50' RT
CATCH BASINS 2x3-H
SS30.1

STA 134+37.01, 20.30' RT
CATCH BASINS 5-H
SS20.0

STA 134+83.98, 73.19' RT
MANHOLES 5-J
SS15.0

STA 136+33.80, 51.24' RT
MANHOLES 5-J
SS10.0

STH 116

1ST ST

SS35.0
MANHOLES 5-J
RIM: 758.15
STR DEPTH: 4.77'
SUMP DEPTH: 0.0'
W 24" INV: 752.14
E 24" INV: 752.14
S 12" INV: 753.00
N 12" INV: 753.00

SS25.0
MANHOLES 5-J
RIM: 757.41
STR DEPTH: 4.90'
SUMP DEPTH: 0.0'
W 24" INV: 751.27
S 24" INV: 751.27
NE 12" INV: 752.27
E 12" INV: 751.27
W 24" INV: 751.27

SS30.0
MANHOLES 5-J
RIM: 761.72
STR DEPTH: 4.48'
SUMP DEPTH: 0.0'
N 12" INV: 756.42
S 12" INV: 756.42
W 12" INV: 756.00

SS30.1
CATCH BASINS 2x3-H
RIM: 761.47
STR DEPTH: 5.87'
SUMP DEPTH: 2.0'
N 12" INV: 756.60

SS30.0
MANHOLES 5-J
RIM: 761.72
STR DEPTH: 4.48'
SUMP DEPTH: 0.0'
N 12" INV: 756.42
S 12" INV: 756.42
W 12" INV: 756.00

SS30.2
CATCH BASINS 2x3-H
RIM: 761.47
STR DEPTH: 5.87'
SUMP DEPTH: 2.0'
S 12" INV: 756.60

SSPRC CLASS III 24-INCH 90 LF @ 2.63%

SSPRC CLASS III 24-INCH 87 LF @ 1.00%

SSPRC CLASS III 12-INCH 187 LF @ 2.53%

SSPRC CLASS III 12-INCH 18 LF @ 1.00%

SSPRC CLASS III 12-INCH 18 LF @ 1.00%

LIMIT OF STORM SEWER INSTALLED UNDER 6190-15-72
INSTALL TEMPORARY CAP AS DIRECTED BY ENGINEER

TEMPORARY CONNECTION TO EXISTING 24" STORM SEWER REQD. VERIFY EXISTING INV PRIOR TO ORDERING STRUCTURE

10" SANITARY SEWER

1. LOCATIONS FOR INLETS AND MANHOLES REFERS TO CENTER OF STRUCTURE
2. ELEVATIONS REFER TO CENTER OF STRUCTURE FOR MANHOLES AND INLETS. ADD 0.09' TO CENTER OF INLET ELEVATION FOR FLANGELINE ELEVATION
3. STRUCTURE DEPTH = RIM ELEVATION-SUMP ELEVATION-ADJUSTMENT FACTOR (ADJUSTMENT FACTOR FOR INLET COVERS = 1.0', MANHOLE COVERS = 1.24'
4. INVERTS OF EXISTING PIPE AND STRUCTURES SHALL BE VERIFIED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO ORDERING STRUCTURES.

Potentially contaminated soil

PROJECT NO: 6190-15-72	HWY: STH 116	COUNTY: WINNEBAGO	STORM SEWER	SHEET 40	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\72 SHEETS\61901572-022501-SS.DWG
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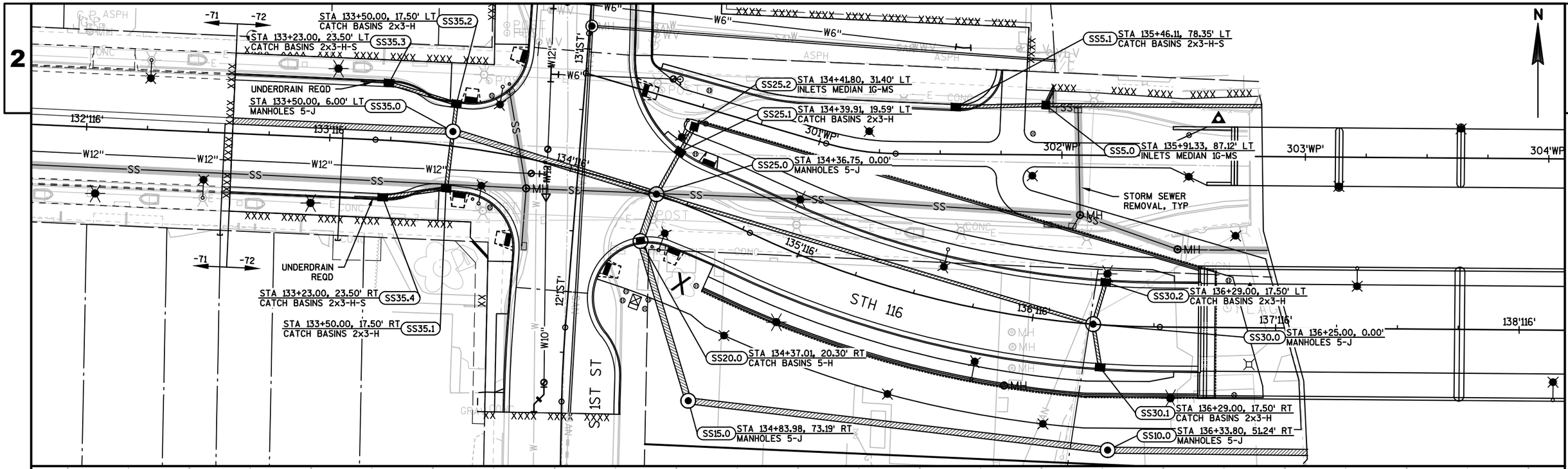
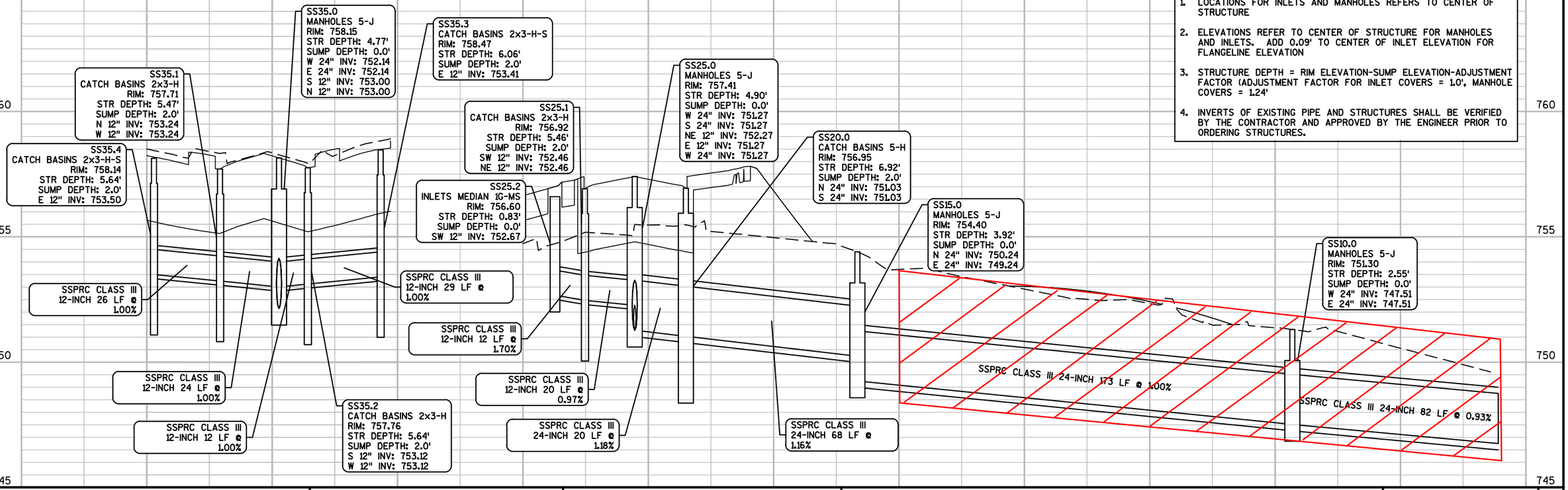
PLOT DATE : 11/4/2016 6:03 AM PLOT BY : ANDREW WESTBROOK PLOT NAME : PLOT SCALE : **********
WISDOT/CADDS SHEET 41





1. LOCATIONS FOR INLETS AND MANHOLES REFERS TO CENTER OF STRUCTURE
2. ELEVATIONS REFER TO CENTER OF STRUCTURE FOR MANHOLES AND INLETS. ADD 0.09' TO CENTER OF INLET ELEVATION FOR FLANGELINE ELEVATION
3. STRUCTURE DEPTH = RIM ELEVATION-SUMP ELEVATION-ADJUSTMENT FACTOR (ADJUSTMENT FACTOR FOR INLET COVERS = 1.0', MANHOLE COVERS = 1.24'
4. INVERTS OF EXISTING PIPE AND STRUCTURES SHALL BE VERIFIED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER PRIOR TO ORDERING STRUCTURES.

PROJECT NO: 6190-15-72	HWY: STH 116	COUNTY: WINNEBAGO	STORM SEWER	SHEET 41	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\72 SHEETS\61901572-022501-SS.DWG
LAYOUT NAME - 61901572-022502-SS
PLOT DATE : 11/4/2016 6:04 AM
PLOT BY : ANDREW WESTBROOK
PLOT NAME :
PLOT SCALE : **********
WISDOT/CADDS SHEET 41

Potentially contaminated soil

ADJUST MANHOLE COVER
EXIST RIM: 756.37
PROP RIM: 756.21

ADJUST INLET COVER
EXIST RIM: 756.35
PROP RIM: 756.35

STORM SEWER
REMOVAL, TYP

STA 14+00.00, 23.50' LT
CATCH BASINS 2x3-H
SS31.1

SS31.2
STA 14+00.00, 17.00' RT
CATCH BASINS 2x3-H

N 1ST ST

S 1ST ST

ADAMS ST

SS210
STA 9+05.93, 16.7
INLETS 2x3-H-S

SS5.1
STA 135+46.11, 78.35' LT
CATCH BASINS 2x3-H-S

RECONNECT 6" PVC DRAIN FROM FIN AND FEATHER TO SS5.0
INV: 748.91 +/-

302'WP'

SS5.0
STA 135+91.33, 87.12' LT
INLETS MEDIAN 1G-MS

303'WP'

STORM SEWER
REMOVAL, TYP

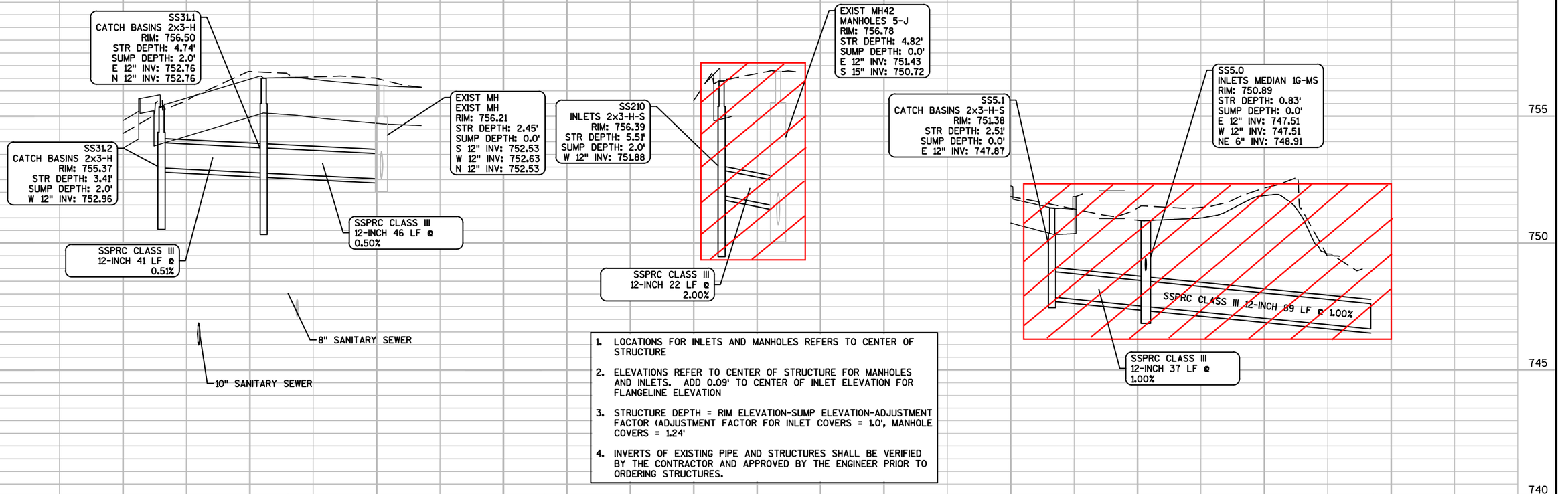
SS30.2
STA 136+29.00, 17.50' LT
CATCH BASINS 2x3-H

136'16"

137'16"

STH 116

SS30.0
STA 136+25.00, 0.00'
MANHOLES 5-J



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Potentially contaminated soil

PROJECT NO: 6190-15-72	HWY: STH 116	COUNTY: WINNEBAGO	STORM SEWER	SHEET 42	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\72 SHEETS\61901572-022501-SS.DWG
LAYOUT NAME - 61901572-022503-SS
PLOT DATE : 11/4/2016 6:04 AM
PLOT BY : ANDREW WESTBROOK
PLOT NAME :
PLOT SCALE : **********
WISDOT/CADDS SHEET 41

STA 17+38.00, 11.40' LT
CATCH BASINS 4-H
DRIVEWAY CURB HEAD REQD
SS106.0

SS106.1 STA 17+08.00, 21.90' RT
CATCH BASINS 2x3-H

SS105.1 STA 16+50.00, 9.15' LT
CATCH BASINS 2x3-H

SS105.6 STA 146+80.00, 55.80' LT
INLETS MEDIAN 1G-MS

SS110.3 STA 149+55.07, 22.62' LT
CATCH BASINS 2x3-H-S

UNDERDRAIN REQD
SS100.0 STA 144+31.84, 92.28' LT
CATCH BASINS 4-H-S

STA 16+50.64, 28.08' LT
MANHOLES 5-J
SS105.0

STORM SEWER REMOVAL, TYP

STA 144+56.00, 17.50' LT
CATCH BASINS 2x3-H
SS107.3

STA 145+99.93, 23.51' LT
CATCH BASINS 4-H
SS105.2

STA 145+93.00, 0.00'
MANHOLES 5-J
SS107.0

SS105.5 STA 146+57.60, 30.27' LT
CATCH BASINS 2x3-H

STA 26+13.16, 35.03' LT
CATCH BASINS 2x3-H
SS110.1

SS110.2 STA 26+25.12, 31.53' RT
CATCH BASINS 2x3-H-S

UNDERDRAIN REQD

UNDERDRAIN REQD

SS110.0 STA 26+00.00, 0.00'
MANHOLES 5-J

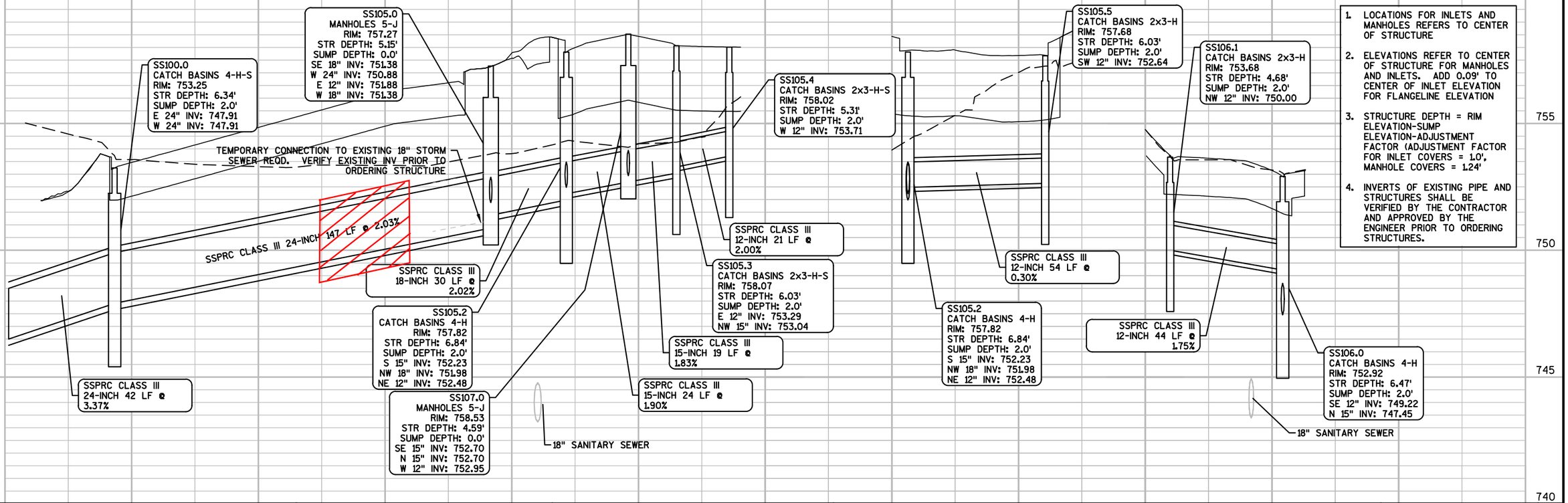
SS105.4 STA 146+20.00, 17.50' RT
CATCH BASINS 2x3-H-S

SS105.3 STA 146+00.00, 17.50' RT
CATCH BASINS 2x3-H-S

STA 144+56.00, 17.50' RT
CATCH BASINS 2x3-H
SS107.2

SS107.1 STA 144+60.00, 0.00'
MANHOLES 5-J

N 1ST AVE
N 2ND AVE
S 2ND AVE
STH 116
144'116'
145'116'
146'116'
147'116'
148'116'
149'116'
150'116'
17'N1AV'
27'N2AV'
26'S2AV'
12"
10"
W12"
SS
MH
N



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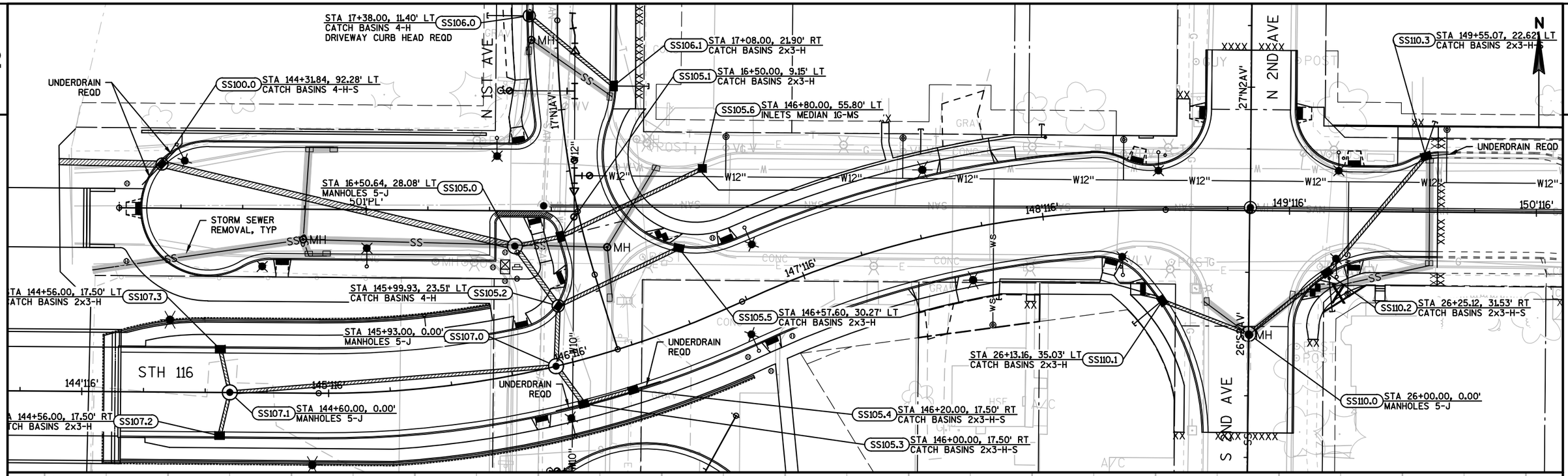
PROJECT NO: 6190-15-72	HWY: STH 116	COUNTY: WINNEBAGO	STORM SEWER	SHEET 44	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\72 SHEETS\61901572-022501-SS.DWG
LAYOUT NAME - 61901572-022510-SS
PLOT DATE : 11/4/2016 6:05 AM
PLOT BY : ANDREW WESTBROOK
PLOT NAME :
PLOT SCALE : **********
WISDOT/CADDS SHEET 41

Potentially contaminated soil



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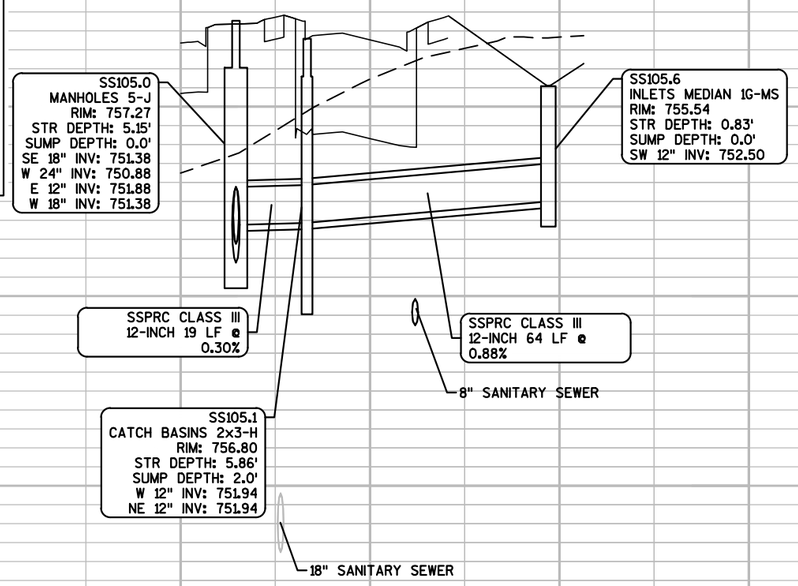
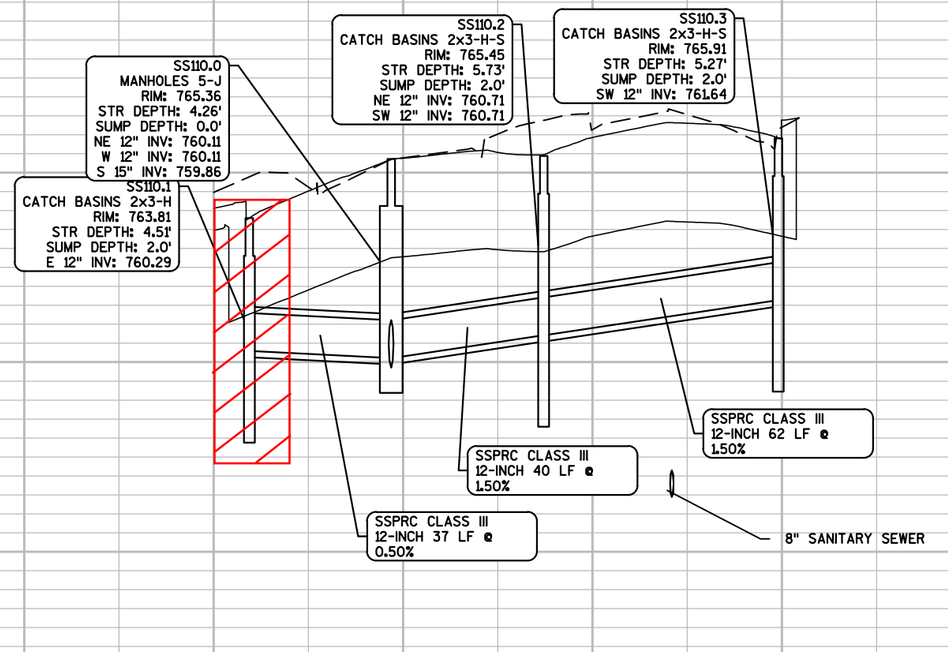
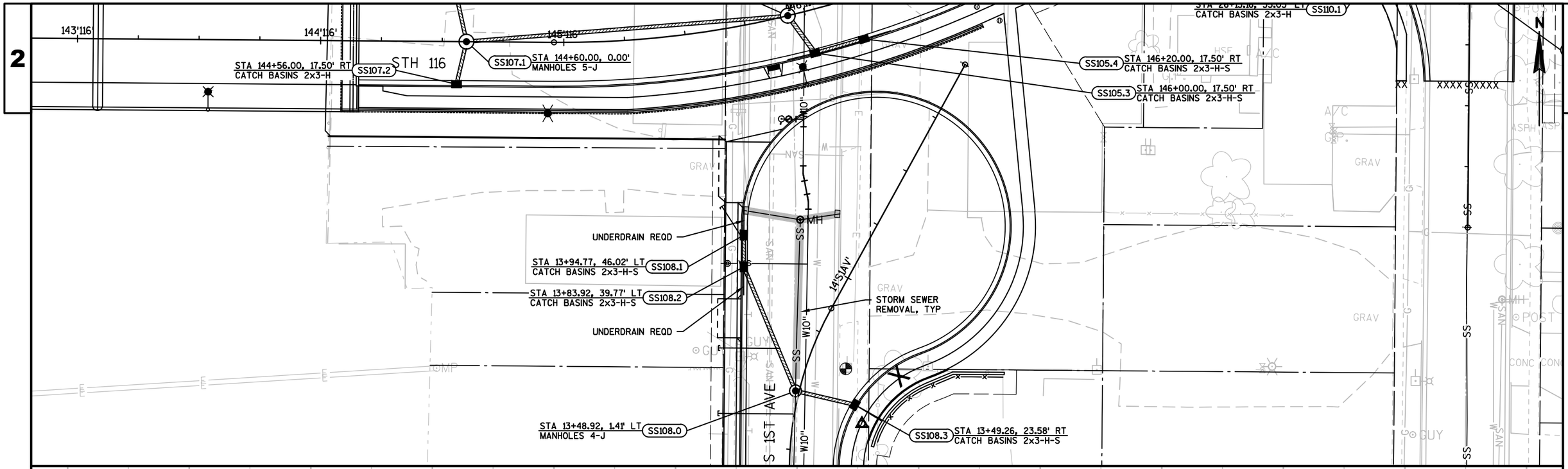


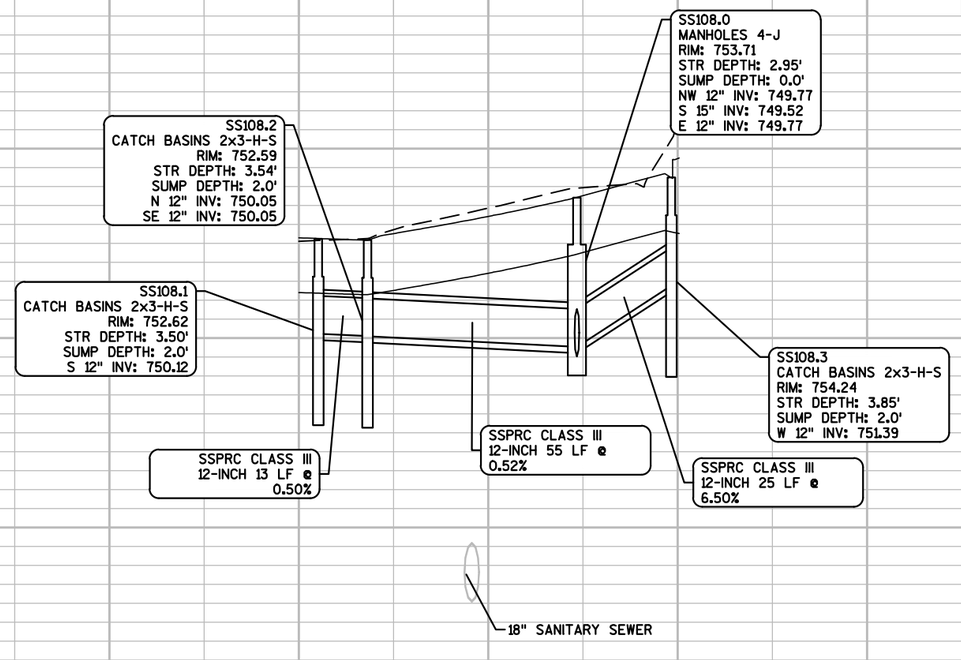


PROJECT NO: 6190-15-72	HWY: STH 116	COUNTY: WINNEBAGO	STORM SEWER	SHEET 45	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\72 SHEETS\61901572-022501-SS.DWG
LAYOUT NAME - 61901572-022511-SS
PLOT DATE : 11/4/2016 6:05 AM
PLOT BY : ANDREW WESTBROOK
PLOT NAME :
PLOT SCALE : **********
WISDOT/CADDS SHEET 41

Potentially contaminated soil





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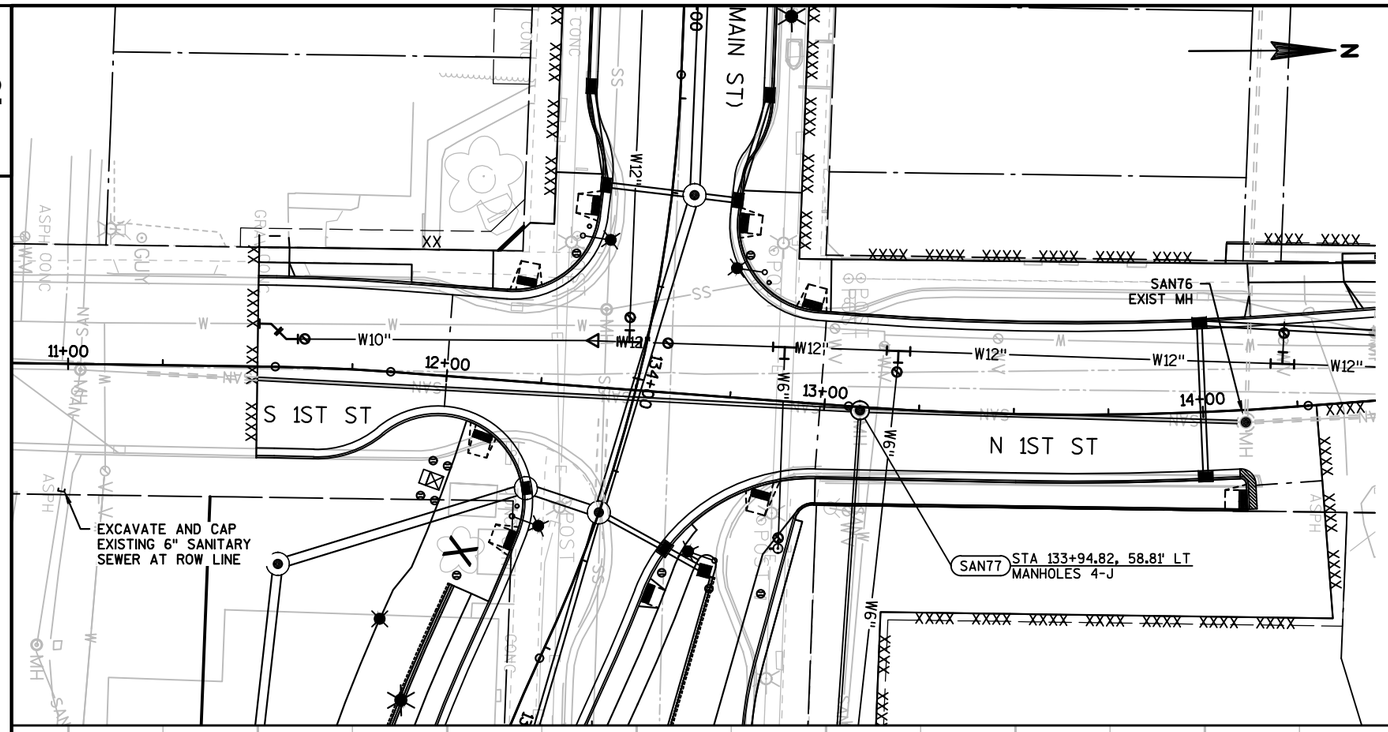
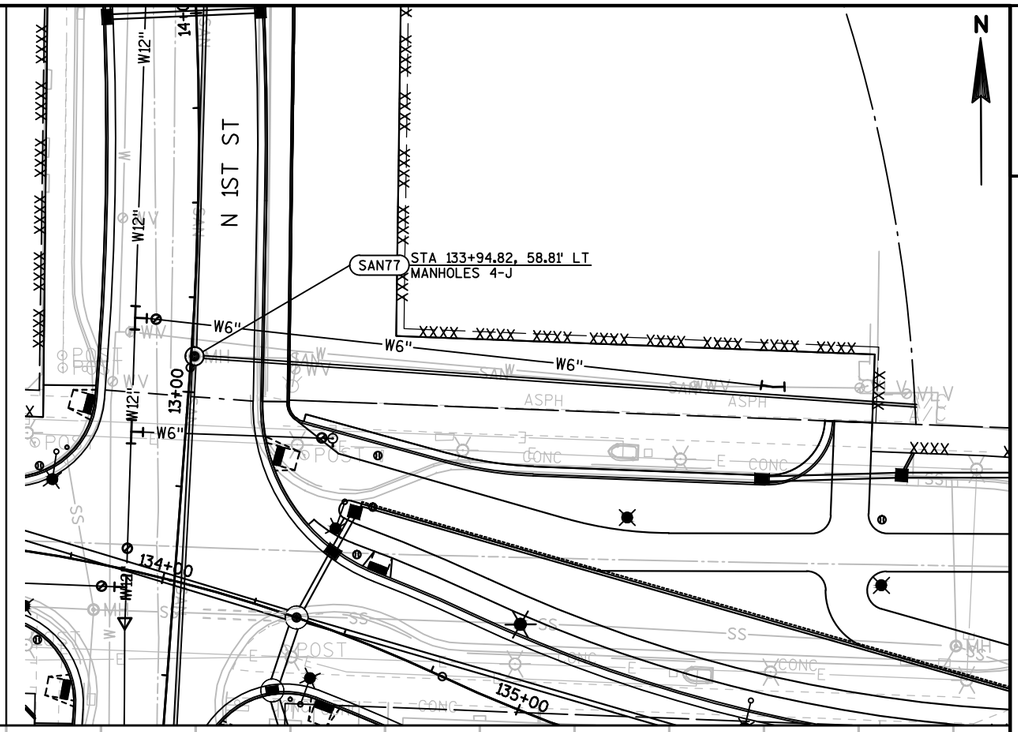
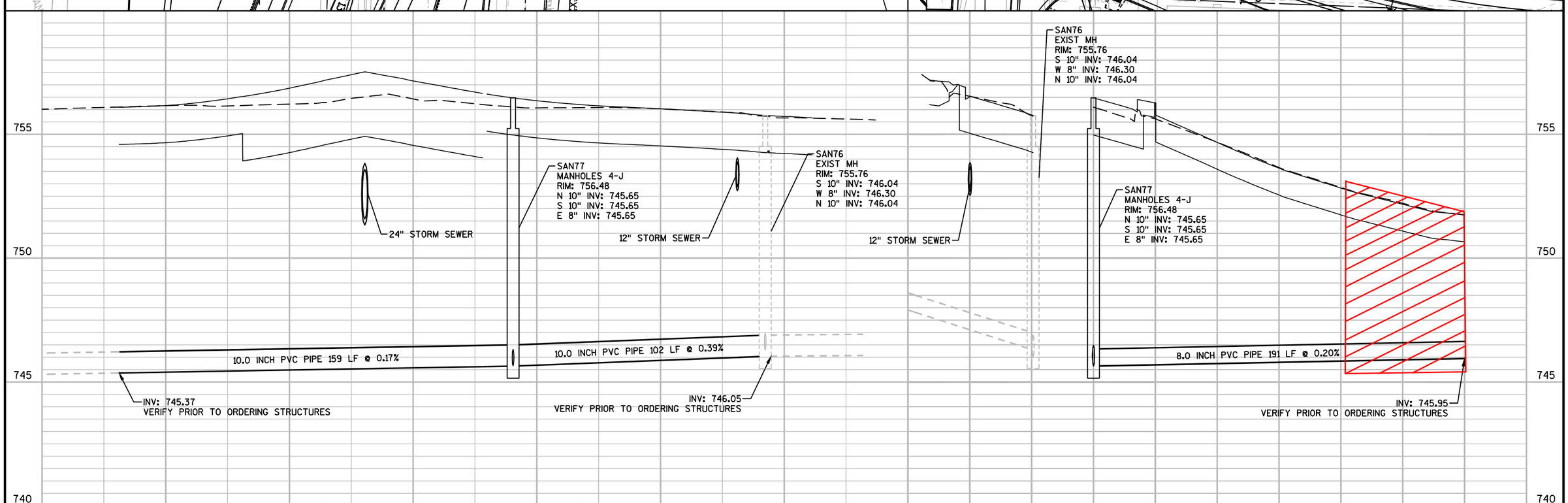
PROJECT NO: 6190-15-72	HWY: STH 116	COUNTY: WINNEBAGO	STORM SEWER	SHEET 46	E





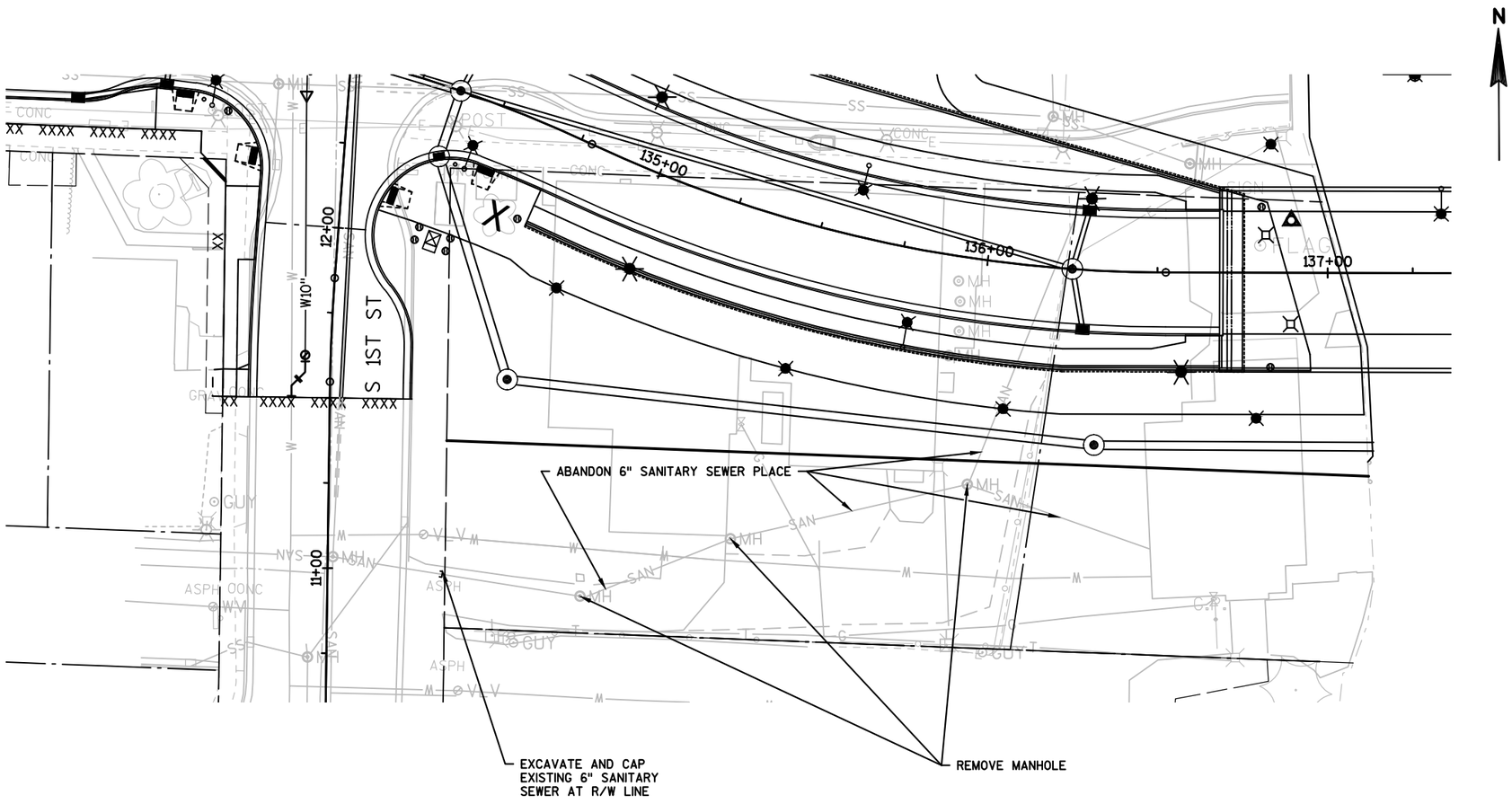


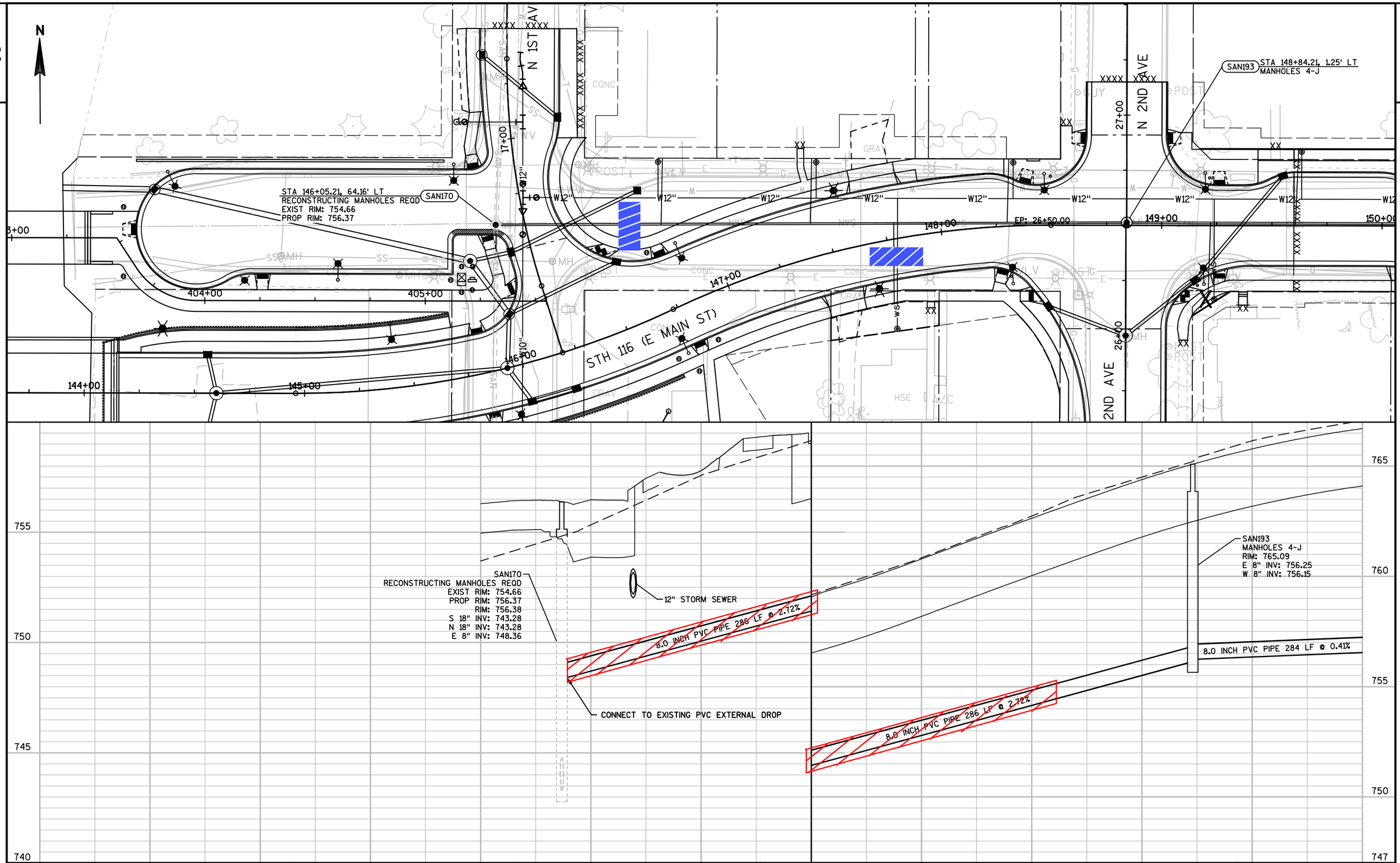
PROJECT NO: 6190-15-74	HWY: STH 116	COUNTY: WINNEBAGO	SANITARY SEWER	SHEET 47	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\74 SHEETS\61901574-023001-UP.DWG
LAYOUT NAME - 61901574-023001-UP
PLOT DATE : 11/3/2016 4:32 PM
PLOT BY : ANDREW WESTBROOK
PLOT NAME :
PLOT SCALE : **********
WISDOT/CADDS SHEET 41

Potentially contaminated soil

2


N
135+00
136+00
137+00
12+00
11+00
S 1ST ST
ABANDON 6" SANITARY SEWER PLACE
EXCAVATE AND CAP
EXISTING 6" SANITARY
SEWER AT R/W LINE
REMOVE MANHOLE



PROJECT NO: 6190-15-74	HWY: STH 116	COUNTY: WINNEBAGO	SANITARY SEWER	SHEET 49	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\74 SHEETS\61901574-023001-UP.DWG
LAYOUT NAME - 61901574-023010-UP

PLOT DATE : 11/3/2016 4:32 PM PLOT BY : ANDREW WESTBROOK PLOT NAME : PLOT SCALE : **********

WISDOT/CADDS SHEET 41

Proposed trench plug

Potentially contaminated soil

(1) 12"x6" TEE
(1) 6" VALVE AND BOX

(1) 12"x6" TEE

REMOVE EXISTING HYDRANT

(1) 6" 11¼° BEND

REMOVE EXISTING HYDRANT

(1) HYDRANT
(1) 6" VALVE AND BOX

STH 116 (W MAIN ST)

S 2ND ST

1ST ST

131+00 132+00 133+00 134+00 135+00 136+00 137+00

12+00 13+00

W12" W10" W6"

(1) 12"x12" TEE
(1) 12"X10" REDUCER
(1) 10" VALVE AND BOX
(2) 12" VALVE AND BOX

N

760 755 750 745

EXISTING GRADE ALONG MAIN

PROPOSED GRADE ALONG MAIN
PROPOSED SUBGRADE ALONG MAIN

7' MIN DEPTH

12" STORM SEWER

PROPOSED STH 116
WATER MAIN

10" SANITARY SEWER

PROJECT NO: 6190-15-74	HWY: STH 116	COUNTY: WINNEBAGO	WATER MAIN	SHEET 50	E

(1) 12"x12" TEE
(1) 12"X10" REDUCER
(1) 10" VALVE AND BOX
(2) 12" VALVE AND BOX

(1) 12"x6" TEE

(1) 12"x6" TEE
(1) 6" VALVE AND BOX

CONNECT TO EXISTING

(1) 12" 11¼° BEND

(2) 6" 45° BEND

(1) 12"X6" REDUCER
(1) 6" VALVE AND BOX

(2) 12" 45° BEND

(1) 12"X14" REDUCER

CONNECT TO EXISTING
(2) 10" 45° BEND

REMOVE EXISTING HYDRANT

(1) HYDRANT
(1) 6" VALVE AND BOX

(1) 12"x8" TEE
(1) 8" VALVE AND BOX

S 1ST ST

N 1ST ST

11+00 12+00 13+00 14+00

135+00

W10" W12" W12" W12" W12" W12" W12" W12" W12" W6" W6" W6" W6"

760
755
750
745
743

7' MIN DEPTH

24" STORM SEWER

12" STORM SEWER

EXISTING GRADE ALONG MAIN

PROPOSED GRADE ALONG MAIN
PROPOSED SUBGRADE ALONG MAIN

PROPOSED STH 116
WATER MAIN

8" SANITARY SEWER

PROJECT NO: 6190-15-74	HWY: STH 116	COUNTY: WINNEBAGO	WATER MAIN	SHEET 51	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\74 SHEETS\61901574-023050-UP.DWG
LAYOUT NAME - 61901574-023051-UP
PLOT DATE : 11/3/2016 4:15 PM PLOT BY : ANDREW WESTBROOK PLOT NAME : PLOT SCALE : **********
WISDOT/CADDS SHEET 41

(1) HYDRANT
(1) 6" VALVE AND BOX

(1) 12"X10" REDUCER
(2) 10" 11¼° BENDS

(1) 12"x6" TEE

(1) 12" 11¼° BEND

(1) 12"x12" TEE
(1) 12"X10" REDUCER
(1) 10" VALVE AND BOX
(2) 12" VALVE AND BOX

N 1ST AVE

N 2ND AVE

S 2ND AVE

STH 116 (E MAIN ST)

17+00

27+00

26+00

405+00

145+00

146+00

147+00

148+00

149+00

150+00

151+00

EP: 26+50.00

12"

10"

W12"

WS

N

2

760

755

750

745

765

7' MIN DEPTH

12" STORM SEWER

PROPOSED 1ST AVE
WATER MAIN

EXISTING GRADE ALONG MAIN

PROPOSED GRADE ALONG MAIN

PROPOSED SUBGRADE ALONG MAIN

PROJECT NO: 6190-15-74	HWY: STH 116	COUNTY: WINNEBAGO	WATER MAIN	SHEET 52	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\74 SHEETS\61901574-023050-UP.DWG
LAYOUT NAME - 61901574-023070-UP

PLOT DATE : 11/3/2016 4:15 PM PLOT BY : ANDREW WESTBROOK PLOT NAME : PLOT SCALE : **********

WISDOT/CADDS SHEET 41

(1) HYDRANT
(1) 6" VALVE AND BOX

(1) 10"x6" TEE

CONNECT TO EXISTING
(2) 10" 45° BEND

(1) 12"x12" TEE
(1) 12"X10" REDUCER
(1) 10" VALVE AND BOX
(2) 12" VALVE AND BOX

(1) 12" 11¼° BEND

(1) HYDRANT
(1) 6" VALVE AND BOX

(1) 12"x6" TEE

(2) 10" 11¼° BENDS

(1) 12"X10" REDUCER
(2) 10" 11¼° BEND

13+00 14+00 15+00 16+00 17+00 18+00 19+00

W10" W10" W10" W10" W12" W12" W12"

S 1ST AVE

N 1ST AVE

STH 116 (E MAIN ST)

XXXX XXXX XXXX

PROPOSED GRADE ALONG MAIN
PROPOSED SUBGRADE ALONG MAIN

EXISTING GRADE ALONG MAIN

15" STORM SEWER

12" STORM SEWER

7' MIN DEPTH

8" SANITARY SEWER

12" STORM SEWER

PROPOSED STH 116
WATER MAIN

CONNECT TO
EXISTING 10" WATER
MAIN

755 750 745 740

PROJECT NO: 6190-15-74	HWY: STH 116	COUNTY: WINNEBAGO	WATER MAIN	SHEET 53	E

FILE NAME : F:\TR\JOBS\E2073A13\CIVIL 3D 2014\SHEETSPLAN\74 SHEETS\61901574-023050-UP.DWG
LAYOUT NAME - 61901574-023071-UP

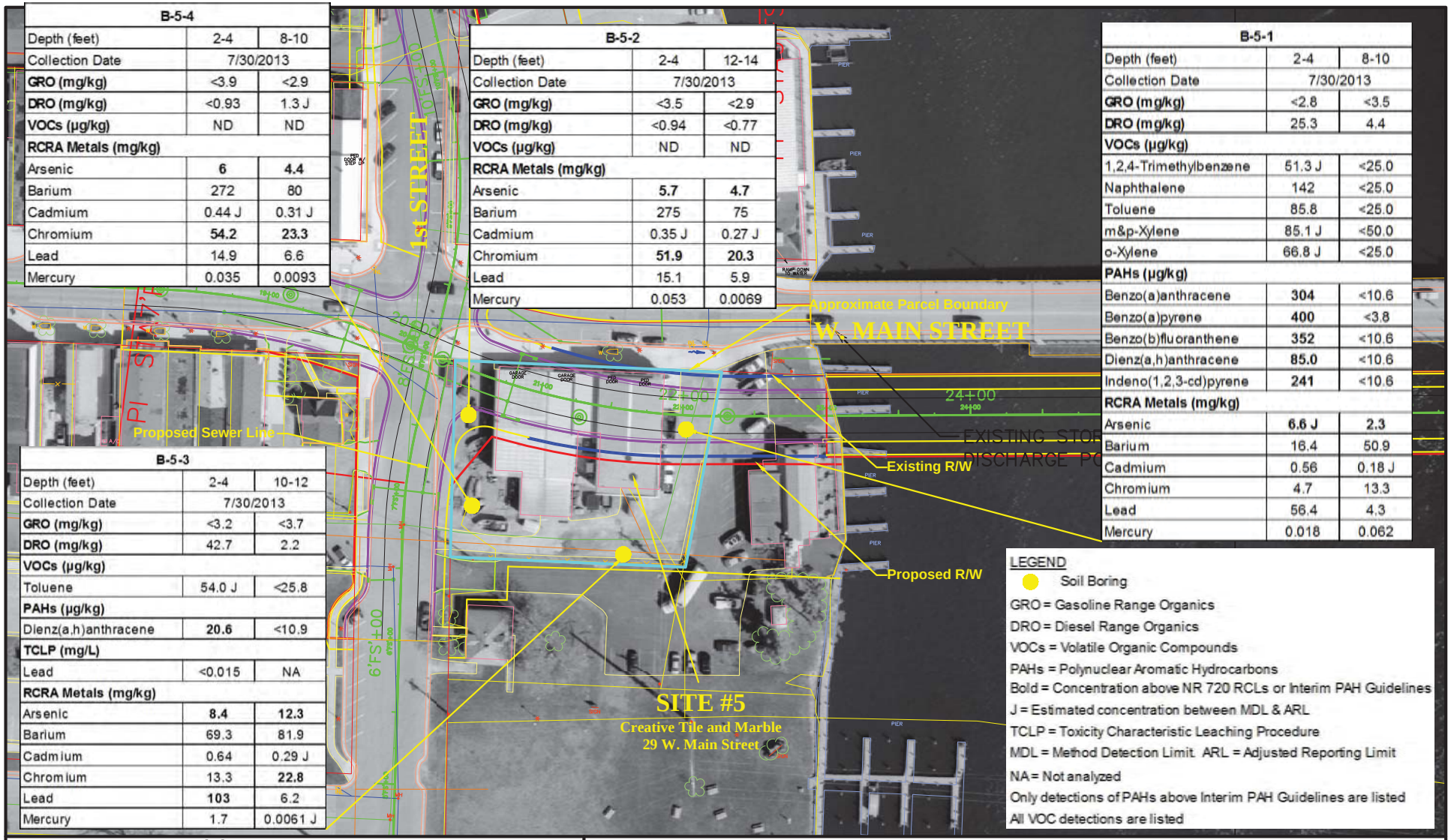
PLOT DATE : 11/3/2016 4:15 PM PLOT BY : ANDREW WESTBROOK PLOT NAME : PLOT SCALE : **********

WISDOT/CADDS SHEET 41

Proposed trench plug

Potentially contaminated soil

Appendix B
Background Information



B-5-4		
Depth (feet)	2-4	8-10
Collection Date	7/30/2013	
GRO (mg/kg)	<3.9	<2.9
DRO (mg/kg)	<0.93	1.3 J
VOCs (µg/kg)	ND	ND
RCRA Metals (mg/kg)		
Arsenic	**6**	**4.4**
Barium	272	80
Cadmium	0.44 J	0.31 J
Chromium	**54.2**	**23.3**
Lead	14.9	6.6
Mercury	0.035	0.0093

B-5-2		
Depth (feet)	2-4	12-14
Collection Date	7/30/2013	
GRO (mg/kg)	<3.5	<2.9
DRO (mg/kg)	<0.94	<0.77
VOCs (µg/kg)	ND	ND
RCRA Metals (mg/kg)		
Arsenic	**5.7**	**4.7**
Barium	275	75
Cadmium	0.35 J	0.27 J
Chromium	**51.9**	**20.3**
Lead	15.1	5.9
Mercury	0.053	0.0069

B-5-1		
Depth (feet)	2-4	8-10
Collection Date	7/30/2013	
GRO (mg/kg)	<2.8	<3.5
DRO (mg/kg)	25.3	4.4
VOCs (µg/kg)		
1,2,4-Trimethylbenzene	51.3 J	<25.0
Naphthalene	142	<25.0
Toluene	85.8	<25.0
m&p-Xylene	85.1 J	<50.0
o-Xylene	66.8 J	<25.0
PAHs (µg/kg)		
Benzo(a)anthracene	**304**	<10.6
Benzo(a)pyrene	**400**	<3.8
Benzo(b)fluoranthene	**352**	<10.6
Dienz(a,h)anthracene	**85.0**	<10.6
Indeno(1,2,3-cd)pyrene	**241**	<10.6
RCRA Metals (mg/kg)		
Arsenic	**6.6 J**	**2.3**
Barium	16.4	50.9
Cadmium	0.56	0.18 J
Chromium	4.7	13.3
Lead	56.4	4.3
Mercury	0.018	0.062

B-5-3		
Depth (feet)	2-4	10-12
Collection Date	7/30/2013	
GRO (mg/kg)	<3.2	<3.7
DRO (mg/kg)	42.7	2.2
VOCs (µg/kg)		
Toluene	54.0 J	<25.8
PAHs (µg/kg)		
Dienz(a,h)anthracene	**20.6**	<10.9
TCLP (mg/L)		
Lead	<0.015	NA
RCRA Metals (mg/kg)		
Arsenic	**8.4**	**12.3**
Barium	69.3	81.9
Cadmium	0.64	0.29 J
Chromium	13.3	**22.8**
Lead	**103**	6.2
Mercury	1.7	0.0061 J

LEGEND

Soil Boring

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

VOCs = Volatile Organic Compounds

PAHs = Polynuclear Aromatic Hydrocarbons

Bold = Concentration above NR 720 RCLs or Interim PAH Guidelines

J = Estimated concentration between MDL & ARL

TCLP = Toxicity Characteristic Leaching Procedure

MDL = Method Detection Limit ARL = Adjusted Reporting Limit

NA = Not analyzed

Only detections of PAHs above Interim PAH Guidelines are listed

All VOC detections are listed

Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

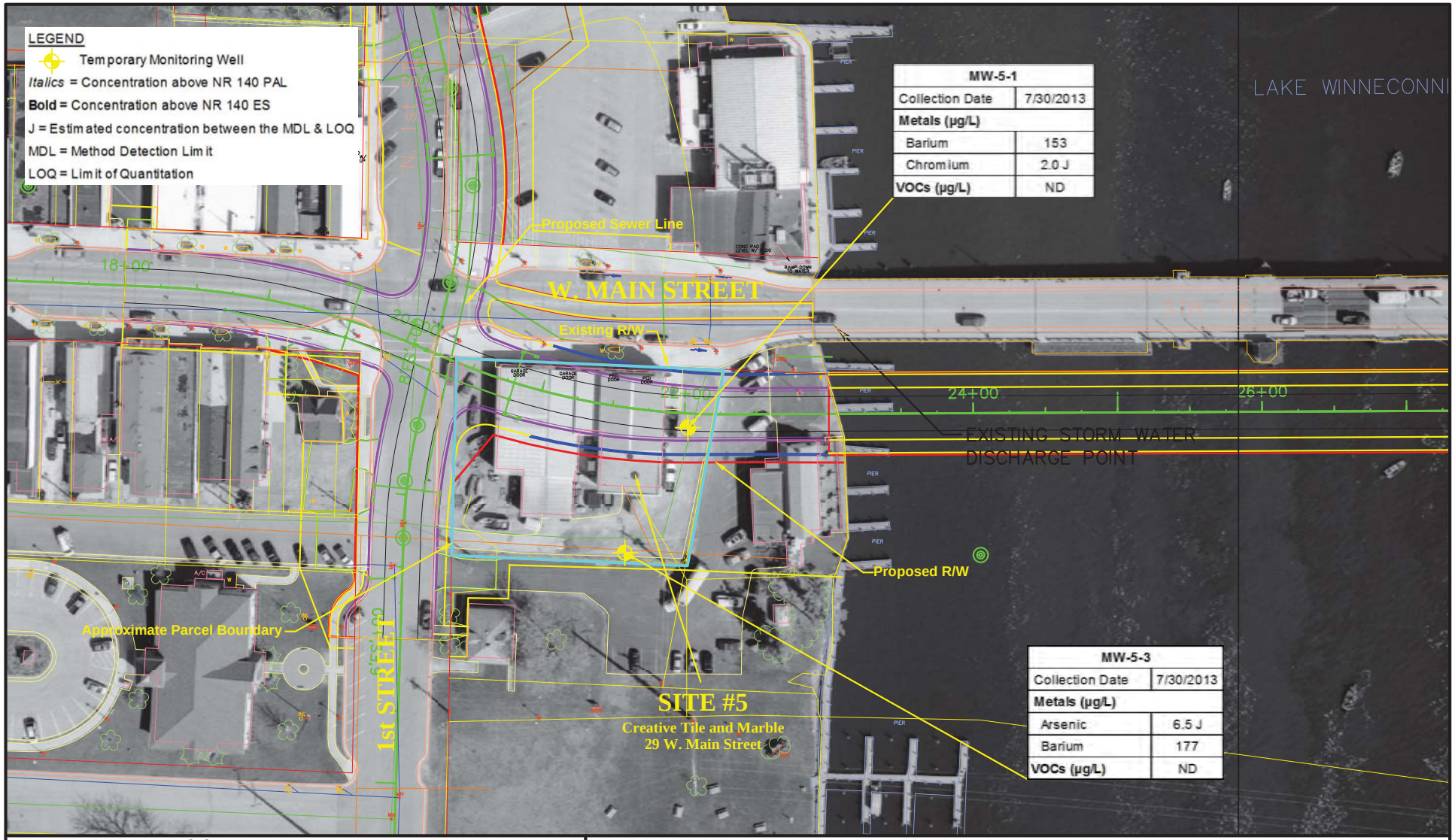
Scale: 0 50 100 200

FIGURE 3.2: SOIL QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N



Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

Scale: 0 50 100 200

FIGURE 3.3: GROUNDWATER QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N

TABLE 1
FIELD SCREENING RESULTS
Phase 2 Hazardous Materials Investigation
Creative Tile and Marble (29 W. Main Street)
Winneconne, Winnebago County
Project ID: 6190-17-00

Boring ID		B-5-1	B-5-2	B-5-3	B-5-4
Date		7/30/13	7/30/13	7/30/13	7/30/13
Depth (feet)	0-2	0.0	0.0	0.0	0.0
	2-4	0.0	0.0	0.0	0.0
	4-6	0.0	0.0	0.0	0.0
	6-8	0.0	0.0	0.0	0.0
	8-10	0.0	0.0	0.0	0.0
	10-12	0.0	0.0	0.0	0.0
	12-14	0.0	0.0	0.0	0.0
	14-16	0.0*	0.0	0.0*	0.0*
	16-18		0.0		
	18-20		0.0		

Notes:
Results provided in instrument units (IU).
* = sample depth equals 14 – 15 feet

5.2 Groundwater Conditions

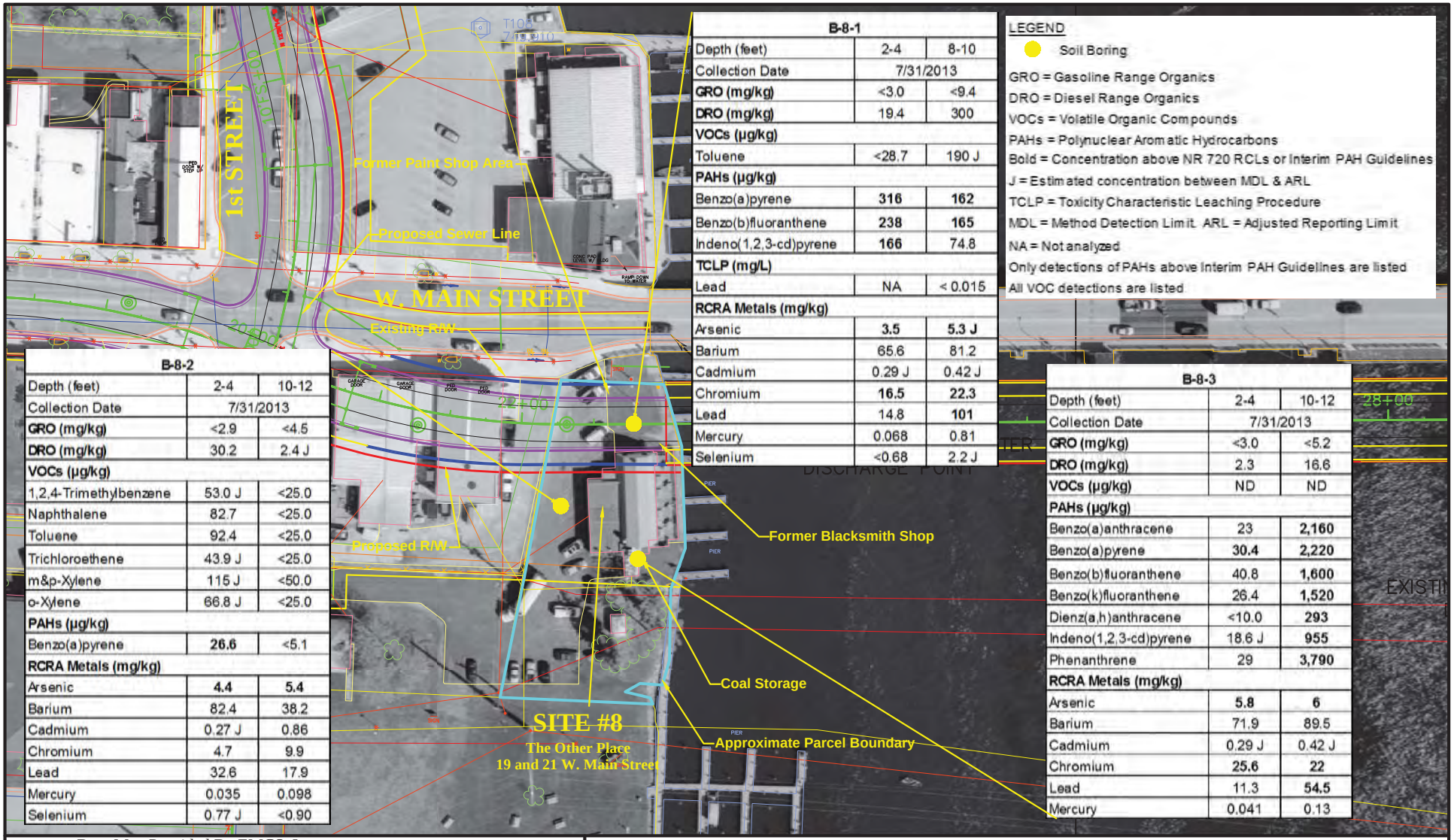
Saturated soil conditions were observed in borings B-5-1 and B-5-3 at depths ranging from 5 to 7 feet bgs. Groundwater in temporary wells MW-5-1 and MW-5-3 was encountered between 4.5 and 4.9 feet bgs. Temporary monitoring well MW-5-2 had insufficient groundwater recharge for sample collection. It should be noted that groundwater depths can vary throughout the year, depending on several factors including seasonal variations in precipitation, infiltration, and surface water runoff.

Refer to the soil boring logs in Attachment B for additional information regarding groundwater conditions encountered at each boring location.

6.0 ANALYTICAL RESULTS

6.1 Soil Samples

Laboratory analyses were performed on two soil samples selected from each borehole, at various depths ranging from 2 to 14 feet bgs.



B-8-1		
Depth (feet)	2-4	8-10
Collection Date	7/31/2013	
GRO (mg/kg)	<3.0	<9.4
DRO (mg/kg)	19.4	300
VOCs (µg/kg)		
Toluene	<28.7	190 J
PAHs (µg/kg)		
Benzo(a)pyrene	**316**	**162**
Benzo(b)fluoranthene	**238**	**165**
Indeno(1,2,3-cd)pyrene	**166**	74.8
TCLP (mg/L)		
Lead	NA	< 0.015
RCRA Metals (mg/kg)		
Arsenic	**3.5**	**5.3 J**
Barium	65.6	81.2
Cadmium	0.29 J	0.42 J
Chromium	**16.5**	**22.3**
Lead	14.8	**101**
Mercury	0.068	0.81
Selenium	<0.68	2.2 J

LEGEND

Soil Boring

GRO = Gasoline Range Organics

DRO = Diesel Range Organics

VOCs = Volatile Organic Compounds

PAHs = Polynuclear Aromatic Hydrocarbons

Bold = Concentration above NR 720 RCLs or Interim PAH Guidelines

J = Estimated concentration between MDL & ARL

TCLP = Toxicity Characteristic Leaching Procedure

MDL = Method Detection Limit. ARL = Adjusted Reporting Limit

NA = Not analyzed

Only detections of PAHs above Interim PAH Guidelines are listed

All VOC detections are listed

B-8-2		
Depth (feet)	2-4	10-12
Collection Date	7/31/2013	
GRO (mg/kg)	<2.9	<4.5
DRO (mg/kg)	30.2	2.4 J
VOCs (µg/kg)		
1,2,4-Trimethylbenzene	53.0 J	<25.0
Naphthalene	82.7	<25.0
Toluene	92.4	<25.0
Trichloroethene	43.9 J	<25.0
m&p-Xylene	115 J	<50.0
o-Xylene	66.8 J	<25.0
PAHs (µg/kg)		
Benzo(a)pyrene	**26.6**	<5.1
RCRA Metals (mg/kg)		
Arsenic	**4.4**	**5.4**
Barium	82.4	38.2
Cadmium	0.27 J	0.86
Chromium	4.7	9.9
Lead	32.6	17.9
Mercury	0.035	0.098
Selenium	0.77 J	<0.90

B-8-3		
Depth (feet)	2-4	10-12
Collection Date	7/31/2013	
GRO (mg/kg)	<3.0	<5.2
DRO (mg/kg)	2.3	16.6
VOCs (µg/kg)	ND	ND
PAHs (µg/kg)		
Benzo(a)anthracene	23	**2,160**
Benzo(a)pyrene	**30.4**	**2,220**
Benzo(b)fluoranthene	40.8	**1,600**
Benzo(k)fluoranthene	26.4	**1,520**
Dienz(a,h)anthracene	<10.0	**293**
Indeno(1,2,3-cd)pyrene	18.6 J	**955**
Phenanthrene	29	**3,790**
RCRA Metals (mg/kg)		
Arsenic	**5.8**	**6**
Barium	71.9	89.5
Cadmium	0.29 J	0.42 J
Chromium	**25.6**	**22**
Lead	11.3	**54.5**
Mercury	0.041	0.13

Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

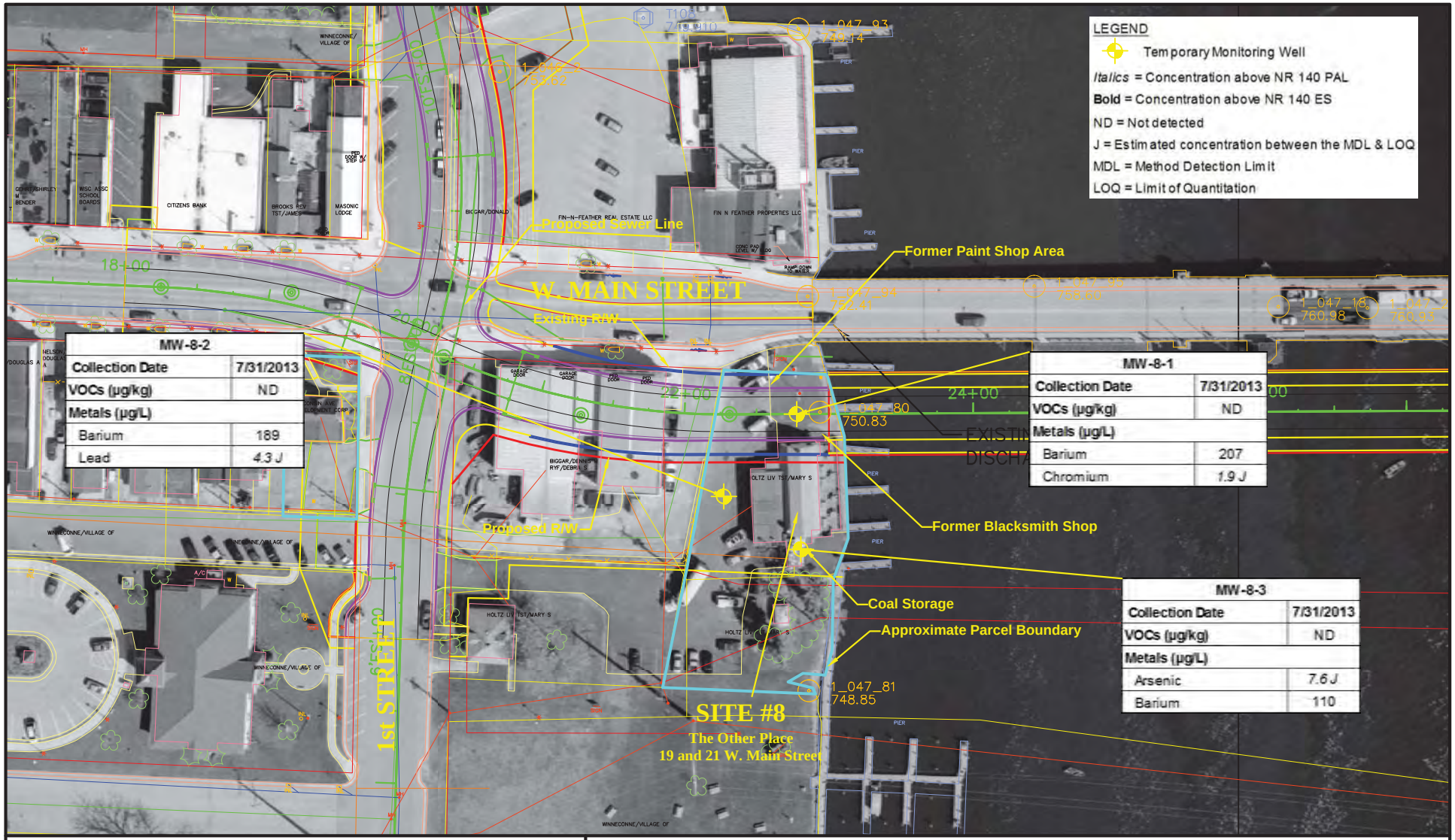
Scale: 0 50 100 200

FIGURE 3.2: SOIL QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N



Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

Scale: 0 50 100 200

FIGURE 3.3: GROUNDWATER QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
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Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N

TABLE 1
FIELD SCREENING RESULTS
Phase 2 Hazardous Materials Investigation
The Other Place (19-21 W. Main Street)
Winneconne, Winnebago County
Project ID: 6190-17-00

Boring ID		B-8-1	B-8-2	B-8-3
Date		7/31/13	7/31/13	7/31/13
Depth (feet)	0-2	---	---	---
	2-4	0.0	0.0	0.0
	4-6	0.0	0.0	0.0
	6-8	0.0	NR	0.0
	8-10	0.0	NR	0.0
	10-12	0.0	NR	0.0
	12-14	0.0	0.0	0.0
	14-15	0.0*	0.0*	0.0*

Notes:
Results provided in instrument units (IU).
NR = No recovery
* = sample depth equals 14 – 15 feet

5.2 Groundwater Conditions

Saturated soil conditions were observed in all boreholes, at depths ranging from 5 to 7 feet bgs. Groundwater was encountered in each temporary well, at depths ranging from 4.1 to 5.5 feet bgs. It should be noted that groundwater depths can vary throughout the year, depending on several factors including seasonal variations in precipitation, infiltration, and surface water runoff.

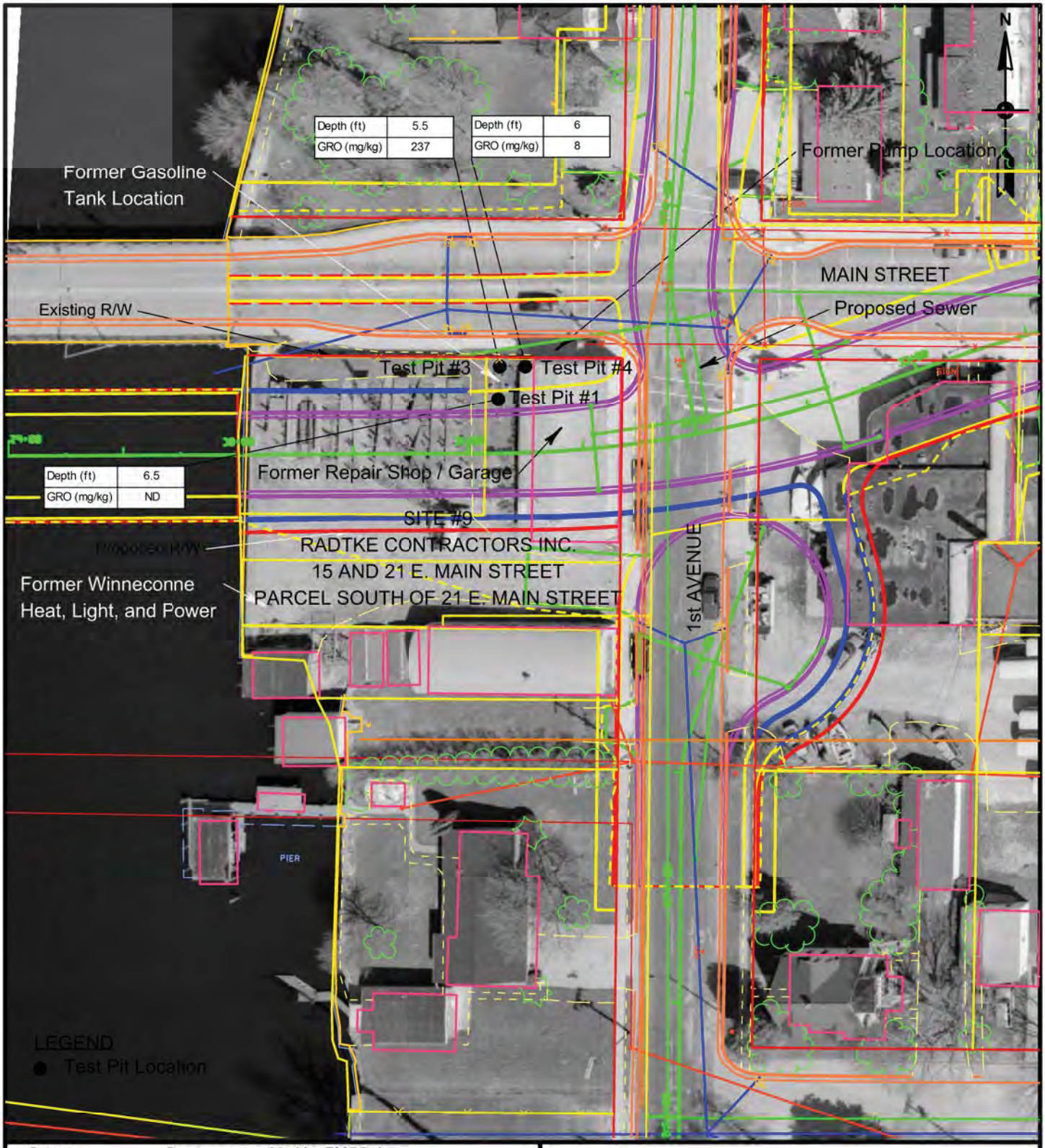
Refer to the soil boring logs in Attachment B for additional information regarding groundwater conditions encountered at each boring location.

6.0 ANALYTICAL RESULTS

6.1 Soil Samples

Laboratory analyses were performed on two soil samples selected from each borehole, at various depths ranging from 2 to 12 feet bgs.

No GRO was detected in any of the samples collected. DRO (2.3 J to 300 mg/kg) was detected in all six samples. The DRO concentration in B-8-1 8-10' (300 mg/kg) was the only soil sample exceeding the generic NR 720 RCL [Ref. 6]. A "J" denotes a concentration flagged by the laboratory as an estimated concentration.

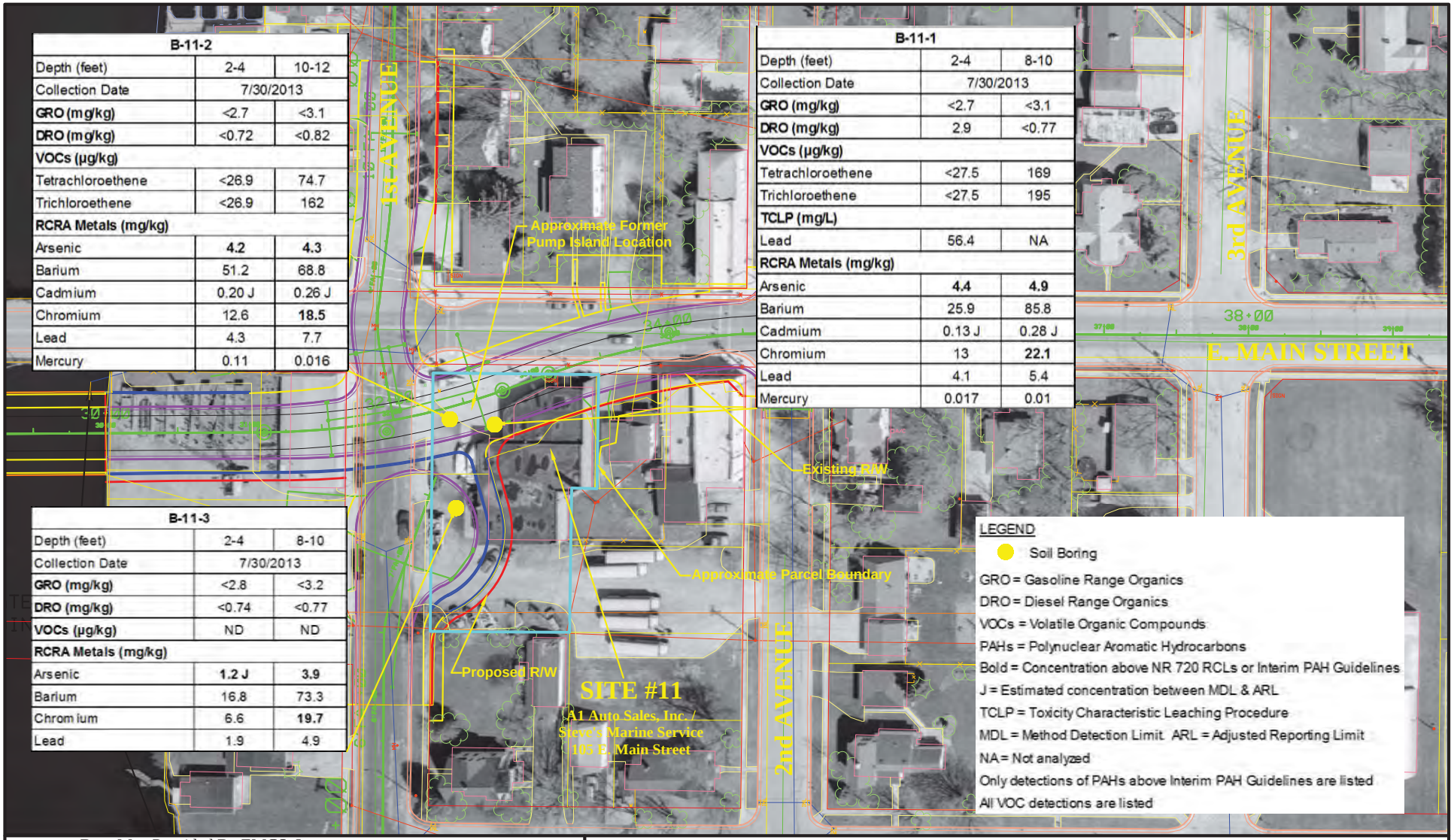


Source:	Base map provided by EMCS, Inc. Aerial provided by CH2M Hill
Scale:	0 30 60

Figure 12.1 SOIL QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066

Project ID: 1030-20-00
STH 116 (2nd Street - 2nd Avenue)
Winneconne, Winnebago County, WI



B-11-2		
Depth (feet)	2-4	10-12
Collection Date	7/30/2013	
GRO (mg/kg)	<2.7	<3.1
DRO (mg/kg)	<0.72	<0.82
VOCs (µg/kg)		
Tetrachloroethene	<26.9	74.7
Trichloroethene	<26.9	162
RCRA Metals (mg/kg)		
Arsenic	**4.2**	**4.3**
Barium	51.2	68.8
Cadmium	0.20 J	0.26 J
Chromium	12.6	**18.5**
Lead	4.3	7.7
Mercury	0.11	0.016

B-11-1		
Depth (feet)	2-4	8-10
Collection Date	7/30/2013	
GRO (mg/kg)	<2.7	<3.1
DRO (mg/kg)	2.9	<0.77
VOCs (µg/kg)		
Tetrachloroethene	<27.5	169
Trichloroethene	<27.5	195
TCLP (mg/L)		
Lead	56.4	NA
RCRA Metals (mg/kg)		
Arsenic	**4.4**	**4.9**
Barium	25.9	85.8
Cadmium	0.13 J	0.28 J
Chromium	13	**22.1**
Lead	4.1	5.4
Mercury	0.017	0.01

B-11-3		
Depth (feet)	2-4	8-10
Collection Date	7/30/2013	
GRO (mg/kg)	<2.8	<3.2
DRO (mg/kg)	<0.74	<0.77
VOCs (µg/kg)	ND	ND
RCRA Metals (mg/kg)		
Arsenic	**1.2 J**	**3.9**
Barium	16.8	73.3
Chromium	6.6	**19.7**
Lead	1.9	4.9

Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

Scale: 0 50 100 200

FIGURE 3.2: SOIL QUALITY MAP

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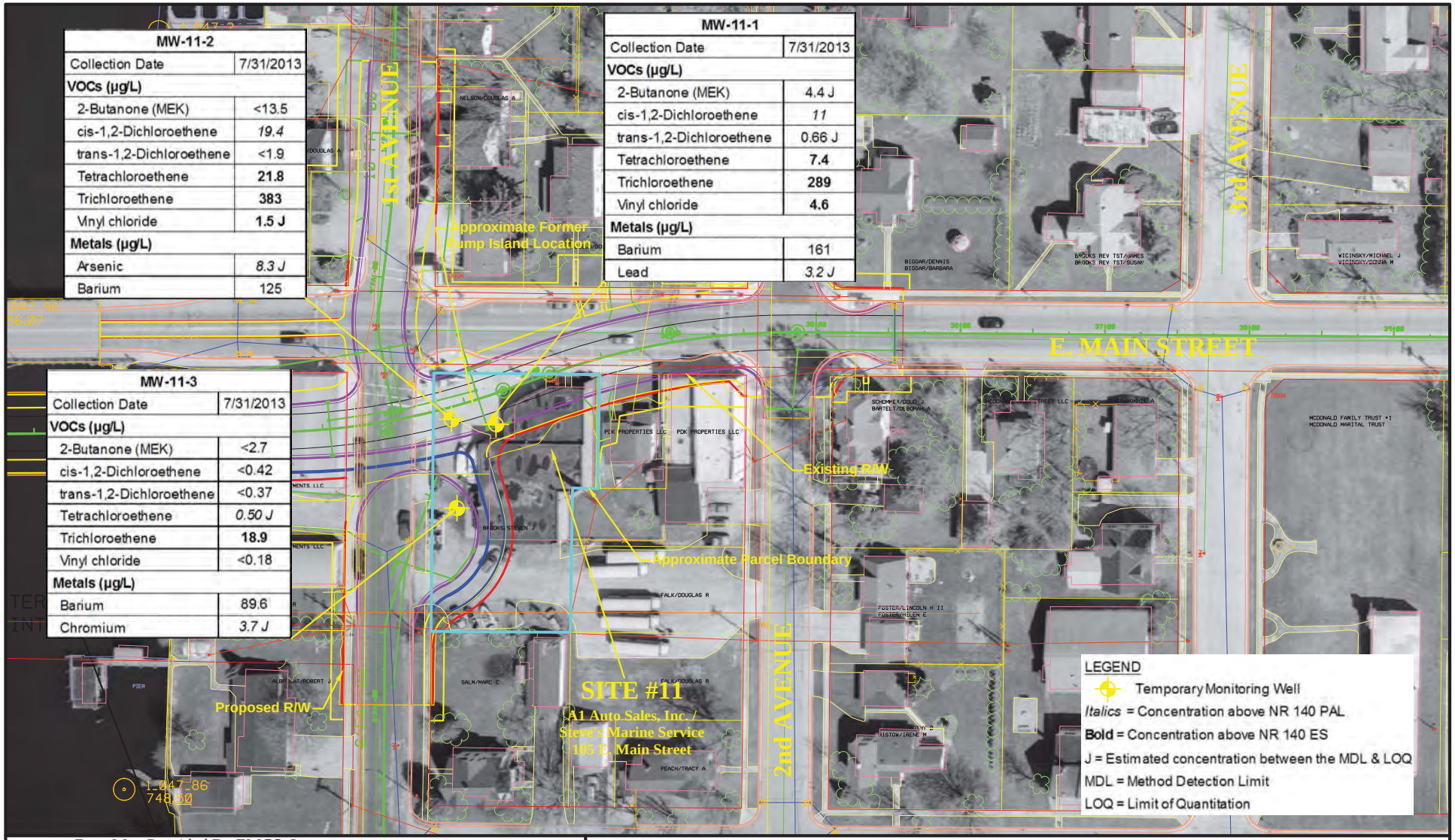
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N



Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

Scale: 0 50 100 200

FIGURE 3.3: GROUNDWATER QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

MW-11-3) and submitted for laboratory analysis. The water samples were analyzed for VOCs and RCRA metals.

5.0 SUBSURFACE CONDITIONS

5.1 Soil Conditions

Based on field observations, the shallow subsurface soils at the site consisted of fill materials from the ground surface to a depth of approximately 6 feet bgs. The fill materials consisted mainly of red sandy clay, with trace wood and brick fragments, medium to fine sand with gravel, cinders, and glass fragments.

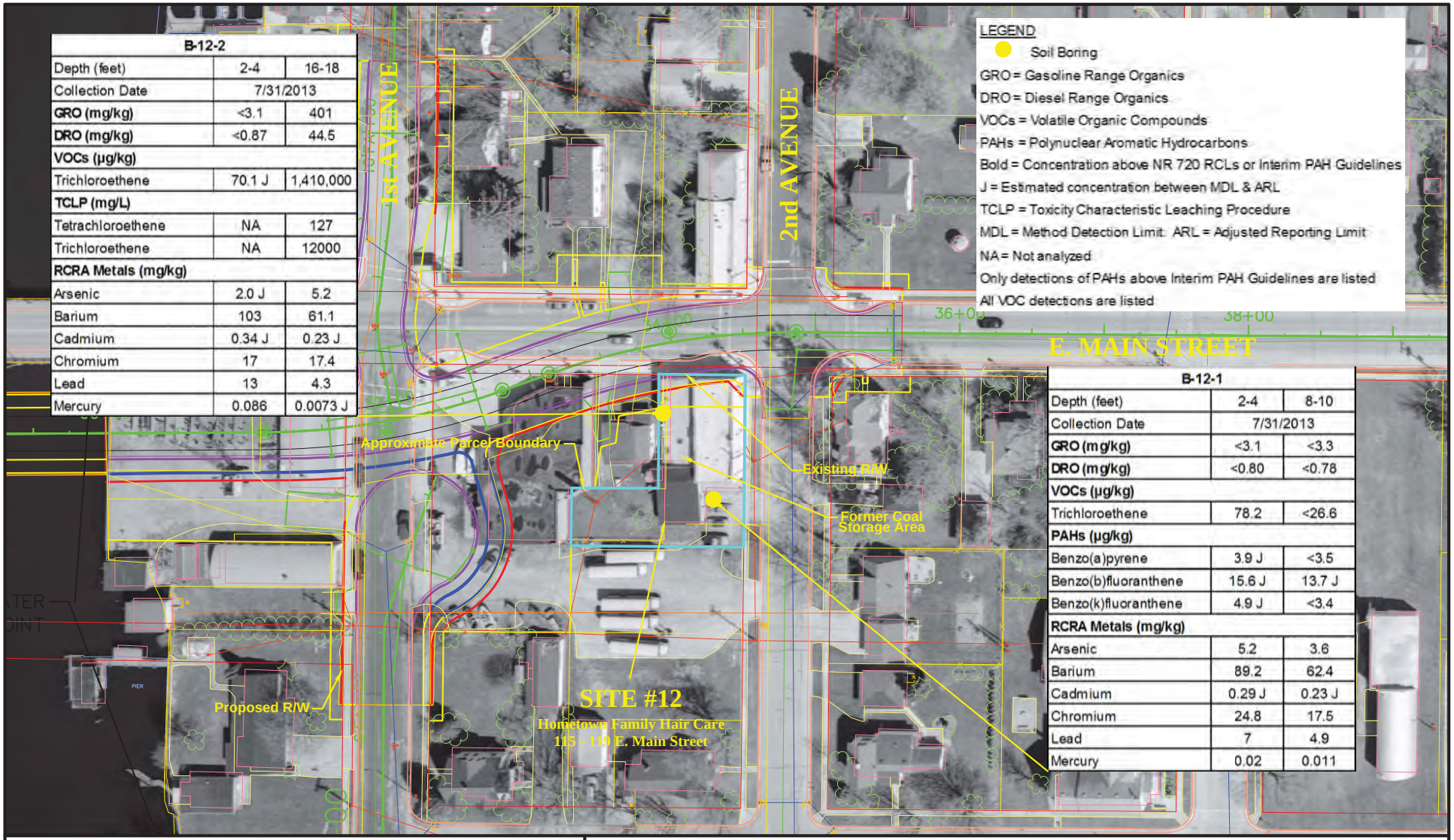
Native brown to red clay tills with trace amounts of fine gravel were encountered below the fill materials to the terminal depths of 20 feet bgs. Refer to soil boring logs in Attachment B for more detailed descriptions of the soils encountered at each boring location.

Continuous soil samples were obtained from the borings and field-screened for the presence of volatile organic vapors using a photoionization detector (PID). The field screening results for the collected 30 soil samples were all zero and are summarized in Table 1. No staining or odors were noted in the boring logs (see Attachment B). Note that asphalt was being overlain on STH 116 at the time of Himalayan's field work; therefore, it is possible that background calibration may have been elevated on the PID.

TABLE 1
FIELD SCREENING RESULTS
Phase 2 Hazardous Materials Investigation
A1 Auto Sales, Inc. / Steve's Marine Service (105 E. Main Street)
Winneconne, Winnebago County
Project ID: 6190-17-00

Boring ID		B-11-1	B-11-2	B-11-3
Date		7/30/13	7/30/13	7/30/13
Depth (feet)	0-2	0.0	0.0	0.0
	2-4	0.0	0.0	0.0
	4-6	0.0	0.0	0.0
	6-8	0.0	0.0	0.0
	8-10	0.0	0.0	0.0
	10-12	0.0	0.0	0.0
	12-14	0.0	0.0	0.0
	14-16	0.0	0.0	0.0
	16-18	0.0	0.0	0.0
	18-20	0.0	0.0	0.0

Notes:
Results provided in instrument units (IU).



B-12-2		
Depth (feet)	2-4	16-18
Collection Date	7/31/2013	
GRO (mg/kg)	<3.1	401
DRO (mg/kg)	<0.87	44.5
VOCs (µg/kg)		
Trichloroethene	70.1 J	1,410,000
TCLP (mg/L)		
Tetrachloroethene	NA	127
Trichloroethene	NA	12000
RCRA Metals (mg/kg)		
Arsenic	2.0 J	5.2
Barium	103	61.1
Cadmium	0.34 J	0.23 J
Chromium	17	17.4
Lead	13	4.3
Mercury	0.086	0.0073 J

B-12-1		
Depth (feet)	2-4	8-10
Collection Date	7/31/2013	
GRO (mg/kg)	<3.1	<3.3
DRO (mg/kg)	<0.80	<0.78
VOCs (µg/kg)		
Trichloroethene	78.2	<26.6
PAHs (µg/kg)		
Benzo(a)pyrene	3.9 J	<3.5
Benzo(b)fluoranthene	15.6 J	13.7 J
Benzo(k)fluoranthene	4.9 J	<3.4
RCRA Metals (mg/kg)		
Arsenic	5.2	3.6
Barium	89.2	62.4
Cadmium	0.29 J	0.23 J
Chromium	24.8	17.5
Lead	7	4.9
Mercury	0.02	0.011

Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

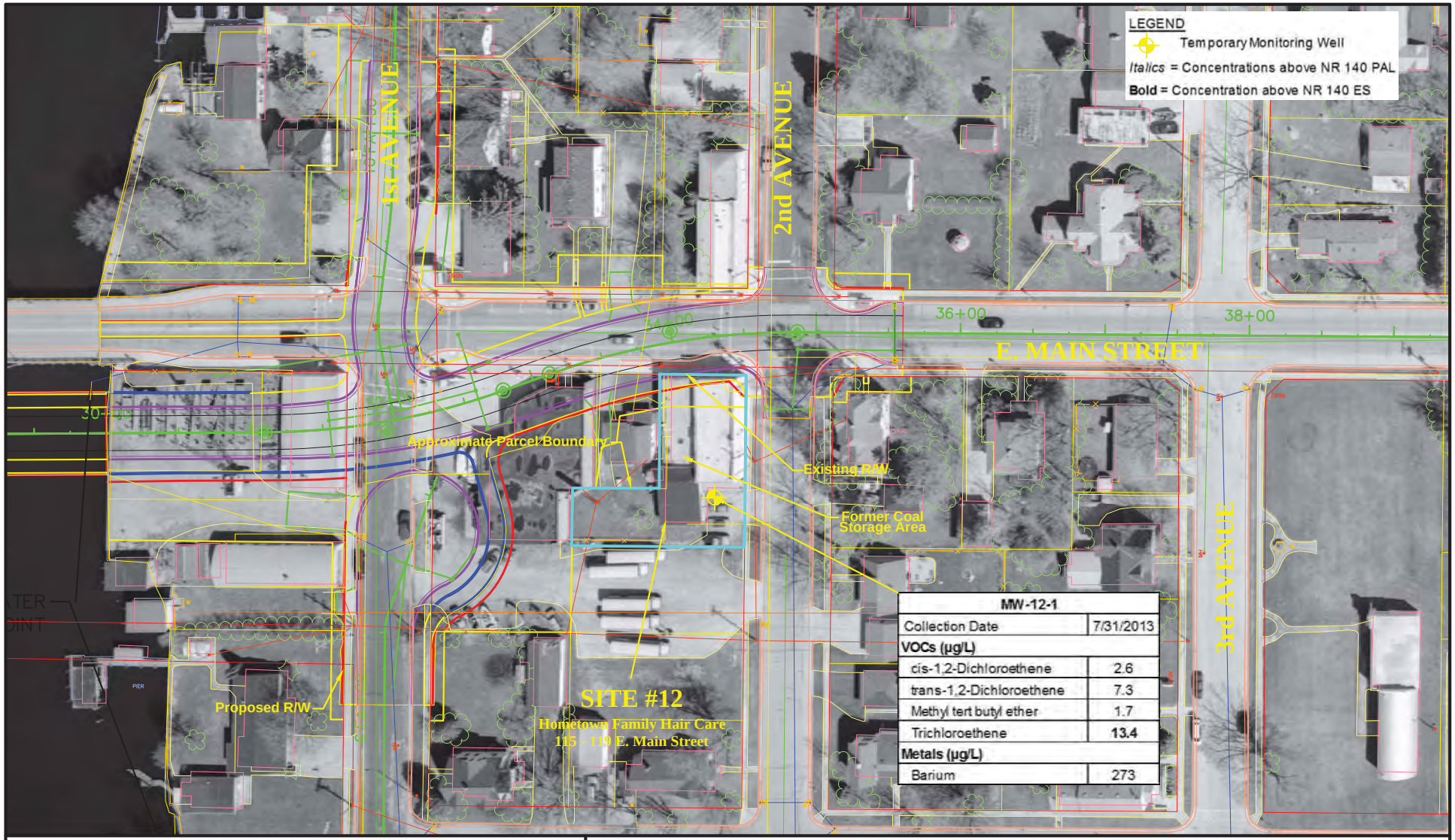
Scale: 0 50 100 200

FIGURE 3.2: SOIL QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N



Source: Base Map Provided By EMCS, Inc.
Aerial Provided by CH2M Hill

Scale: 0 50 100 200

FIGURE 3.3: GROUNDWATER QUALITY MAP

HIMALAYAN CONSULTANTS, LLC
Engineers and Hydrogeologists
W156 N11357 Pilgrim Road
Germantown, Wisconsin 53022
Phone: (262) 502-0066
Fax: (262) 502-0077

Project ID: 6190-17-00
STH 116
2nd Street - 2nd Avenue
Winneconne, Winnebago County, Wisconsin

N

RCRA metals. Temporary monitoring well W-12-2 had insufficient groundwater recharge for sample collection.

5.0 SUBSURFACE CONDITIONS

5.1 Soil Conditions

Based on field observations, the shallow subsurface soils at the site consisted of fill materials from the ground surface to a depth of approximately 2 feet bgs. The fill materials consisted mainly of black sandy silt, with trace small and large gravel.

Native red clay tills with trace amounts of fine gravel were encountered below the fill materials to the terminal depths of 20 feet bgs.

Refer to soil boring logs in Attachment B for more detailed descriptions of the soils encountered at each boring location.

Continuous soil samples were obtained from the borings and field-screened for the presence of volatile organic vapors using a photoionization detector (PID). The field screening results for the collected 34 soil samples were all zero and are summarized in Table 1. A strong solvent odor was noted in borehole samples collected from B-12-2, at depths greater than 14 feet bgs (see Attachment B). Note that asphalt was being overlain on STH 116 at the time of Himalayan's field work; therefore, it is possible that background calibration may have been elevated on the PID.

TABLE 1
FIELD SCREENING RESULTS
Phase 2 Hazardous Materials Investigation
Hometown Family Hair Care (119 E. Main Street)
Winneconne, Winnebago County
Project ID: 6190-17-00

Boring ID		B-12-1	B-12-2
Date		7/31/13	7/31/13
Depth (feet)	0-2	0.0	0.0
	2-4	0.0	0.0
	4-6	0.0	0.0
	6-8	0.0	0.0
	8-10	0.0	0.0
	10-12	0.0	0.0
	12-14	0.0	0.0
	14-16	0.0	1139
	16-18	0.0	4648
	18-20	0.0	1003

Notes: Results provided in instrument units (IU).

Appendix C
Special Provisions

1. Excavation, Hauling, and Disposal of Contaminated Soil and Management of Contaminated Groundwater, Item _____.

A Description

A.1 General

This special provision describes excavating, loading, hauling, and disposing contaminated soil at a DNR approved bioremediation and landfill facility. The closest DNR approved facilities are:

Advanced Disposal - Hickory Meadows Landfill
W3105 Schneider Road
Hilbert, Wisconsin 54129

Waste Management Valley Trail Landfill
N9101 Willard Rd.
Berlin, WI 54923

Perform this work in accordance with section 205 of the standard specifications and with pertinent parts of Chapters NR 700-754 of the Wisconsin Administrative Code, as supplemented herein. Per NR 718.07, a solid waste collection and transportation service-operating license is required under NR 502.06 for each vehicle used to transport contaminated soil.

This special provision also describes pumping, containerizing, and disposing of contaminated groundwater (if dewatering is necessary).

Perform this work in accordance to standard spec 205 and with pertinent parts of Chapters NR 100-299 of the Wisconsin Administrative Code, as supplemented herein. Perform all work necessary to control, handle, and dispose of groundwater and surface water, and all other water that may be encountered within contaminated areas, as required for performance of the work.

A.2 Notice to the Contractor – Contaminated Soil and Groundwater Locations

The department and others have completed testing for soil and groundwater contamination for locations within this project where excavation is required. Testing indicated that volatile organic compound (VOC) and/or petroleum-contaminated soil and/or groundwater is potentially present at the following location(s) as shown on the plans:

- Station 135+00 to the Wolf River within STH 116 construction limits (29 W. Main Street and 19 W. Main Street)

- From the Wolf River to Station 148+50 within STH 116 construction limits (21 E. Main Street, 105 E. Main Street and 115 E. Main Street).

Contaminated soils, groundwater and/or underground storage tanks (USTs) may be encountered at other locations within the construction limits. If contaminated soils, groundwater and/or USTs are encountered elsewhere on the project, terminate excavation activities in the area and notify the engineer. Contaminated soil and groundwater at other

locations shall be managed by the contractor under this contract. USTs will be removed by others.

For further information regarding previous investigation and remediation activities at these sites contact:

Name:	Kathie VanPrice
	Wisconsin DOT, Northeast Region
Address:	944 Vanderperren Way
	Green Bay, WI 54324
Phone:	(920) 492-7175
Fax:	(920) 492-5640
E-mail:	Kathie.vanprice@dot.state.wi.us

Name:	Dan Haak
	TRC Environmental Corporation
Address:	708 Heartland Trail, Suite 3000
	Madison, WI 53717
Phone:	(608) 826-3628
Fax:	(608) 826-3941
E-mail:	DHaak@trcsolutions.com

A.3 Coordination

Coordinate work under this contract with the environmental consultant retained by the department:

Consultant:	TRC Environmental Corporation
Address:	708 Heartland Trail, Suite 3000, Madison, WI 53717
Fax:	(608) 826-3941

Contact:	Dan Haak
Phone:	(608) 826-3628 (office), (608) 886-7423 (mobile)
E-mail:	DHaak@trcsolutions.com

The role of the environmental consultant will be limited to:

1. Determining the location and limits of contaminated soil to be excavated based on soil analytical results from previous investigations, visual observations, and field screening of soil that is excavated;

2. Identifying contaminated soils to be hauled to the bioremediation and landfill facility;

3. Documenting that activities associated with management of contaminated soil are in conformance with the contaminated soil management methods for this project as specified herein; and

4. Obtaining the necessary approvals for disposal of contaminated soil from the bioremediation and landfill facility.

5. Identifying contaminated groundwater to be hauled for treatment and disposal (if dewatering is necessary). Coordinating temporary storage containers, groundwater characterization, and location for disposal of contaminated water.

Provide at least a 14-calendar day notice of the preconstruction conference date to the environmental consultant. At the preconstruction conference, provide a schedule for all excavation activities in the areas of contamination to the environmental consultant. Also notify the environmental consultant at least three calendar days prior to commencement of excavation activities in each of the contaminated areas.

Identify the DNR approved bioremediation facility that will be used for disposal of contaminated soils, and provide this information to the environmental consultant no later than 30 calendar days prior to commencement of excavation activities in the contaminated areas or at the preconstruction conference, whichever comes first. The environmental consultant will be responsible for obtaining the necessary approvals for disposal of contaminated soils from the bioremediation and landfill facility. The environmental consultant will be responsible for obtaining the necessary approvals for disposal of contaminated soils from the bioremediation and landfill facility.

Coordinate with the environmental consultant to ensure that the environmental consultant is present during excavation activities in the contaminated areas. Perform excavation work in each of the contaminated areas on a continuous basis until excavation work is completed. Do not transport contaminated soil offsite without prior approval from the environmental consultant.

A.4 Protection of Groundwater Monitoring Wells

Groundwater monitoring wells may be present within the construction limits. Protect all groundwater monitoring wells to maintain their integrity. Adjust wells that do not conflict with structures, pavements, sidewalks, curb and gutter, and driveways to be flush with the final grade. For wells that conflict with the previously mentioned items, notify the environmental consultant, and coordinate with the environmental consultant the abandonment or adjustment of the wells by others. The environmental consultant will provide maps indicating the locations of all known monitoring wells, if requested by the contractor.

A.5 Excavation Management Plan Approval

The excavation management plan for this project has been designed to minimize the off-site disposal of contaminated material. The excavation management plan, including these special provisions, has been developed in cooperation with the WDNR. The WDNR's concurrence letter is on file at the Wisconsin Department of Transportation. For further information regarding the investigations, including waste characterization within the project limits, contact Kathie VanPrice with the department, at (920) 492-7175.

A.6 Health and Safety Requirements for Workers Remediating Contamination

Supplement subsection 107.1 of the standard specifications with the following:

During excavation activities, expect to encounter soil contaminated with VOCs, gasoline, diesel fuel, fuel oil, or other petroleum related products. Site workers taking part in activities that will result in the reasonable probability of exposure to safety and health hazards associated with hazardous materials shall have completed health and safety

training that meets the Occupational Safety and Health Administration (OSHA) requirements for Hazardous Waste Operations and Emergency Response (HAZWOPER), as provided in 29 CFR 1910.120.

Prepare a site-specific Health and Safety Plan, and develop, delineate and enforce the health and safety exclusion zones for each contaminated site location as required by 29 CFR 1910.120. Submit the site-specific health and safety plan and written documentation of up-to-date OSHA training to the engineer prior to the start of work.

Disposal of VOC or petroleum-contaminated soil at the bioremediation facility is subject to the facility's safety policies.

B (Vacant)

C Construction
Supplement subsection 205.3 of the standard specification with the following:

Control operations in the contaminated areas to minimize the quantity of contaminated soil excavated.

The environmental consultant will periodically evaluate soil excavated from the contaminated areas to determine if the soil will require offsite bioremediation. The environmental consultant will evaluate excavated soil based on field screening results, visual observations, and soil analytical results from previous environmental investigations. Assist the environmental consultant in collecting soil samples for evaluation using excavation equipment. The sampling frequency shall be a maximum of one sample for every 20 cubic yards excavated.

On the basis of the results of such field-screening, the material will be designated for disposal as follows:

- Excavation Common consisting of clean soil and/or clean construction and demolition fill (such as clean soil, boulders, concrete, reinforced concrete, broken pavement, bricks, building stone, and unpainted or untreated wood), which under NR 500.08 are exempt materials, or

- Low-level contaminated material for reuse as fill within the construction limits, or

- Contaminated soil for off-site treatment and disposal at the WDNR-licensed bioremediation and landfill facility, or

- Potentially contaminated for temporary stockpiling and additional characterization prior to disposal

Some material may require additional characterization prior to disposal. Provide for the temporary stockpiling of up to 200 cubic yards of contaminated soil on-site that require additional characterization. Construct and maintain a temporary stockpile of the material in accordance with NR 718.05(3), including, but not limited to, placement of the contaminated soil/fill material on an impervious surface and covering the stockpile with impervious material to prevent infiltration of precipitation. The Department's

environmental consultant will collect representative samples of the stockpiled material, laboratory-analyze the samples, and advise the contractor, within 10 business days of the construction of the stockpile, of disposal requirements. The stockpiled material shall be disposed either at the WDNR-licensed disposal facility by the contractor or, if characterized as hazardous waste, by the Department. As an alternative to temporarily stockpiling contaminated soil/fill material that requires additional characterization, the contractor has the option of suspending excavation in those areas where such soil is encountered until such time as characterization is completed.

Directly load and haul soils designated by the environmental consultant for offsite disposal to the DNR approved bioremediation and landfill facility. Verify that vehicles used to transport contaminated material are licensed for such activity in accordance with applicable state and federal regulations. Use loading and hauling practices that are appropriate to prevent any spills or releases of contaminated soils or residues. Prior to transport, sufficiently dewater soils designated for off-site disposal so as not to contain free liquids.

When material is encountered outside the above-identified limits of known contamination that appears to have been impacted with petroleum or chemical products, or when other obvious potentially contaminated materials are encountered or material exhibits characteristics of industrial-type wastes, such as fly ash, foundry sand, and cinders, or when underground storage tanks are encountered, suspend excavation in that area and notify the engineer.

Groundwater may be present within the construction limits. Water generated during dewatering operations (if necessary) is expected to be permitted to discharge to the surface except in the contaminated areas.

Water generated from dewatering activities within the contaminated groundwater areas may exceed the surface water discharge limits for petroleum compounds specified in the DNR's "General Permit to Discharge under the Wisconsin Pollutant Discharge Elimination System" for "Contaminated Groundwater from Remedial Action Operations" (WPDES Permit No. WI-0046566-5), Table 3.1.

Pump contaminated water that exceeds surface water discharge limits, as determined by environmental consultant, into temporary holding tanks provided by others, as necessary to complete construction. Allow contaminated water encountered, but not requiring removal as a standard course of construction, to remain in-place and do not manage in accordance to this special provision.

Employ construction methods and techniques in a manner that will minimize the need for dewatering, and if dewatering is required, minimize the volume of water generated. Take measures to limit groundwater, surface water, and precipitation from entering and exiting excavations in the areas of contamination. Such measures, which may include berming, ditching, or other means, shall be maintained until construction of utilities in the areas of contamination are complete.

The environmental consultant will coordinate holding tank mobilizations, waste characterization sampling of accumulated water, and transportation/disposal of contaminated water. The cost for holding tank mobilization, transportation, and contaminated water disposal will be paid by others.

Ensure continuous dewatering and excavation safety at all times. Provide, operate, and maintain adequate pumping equipment and drainage and disposal facilities. Notify the engineer of any dewatering activities, and obtain any permits necessary to discharge water. Provide copies of such permits to the engineer. Meet any requirements and pay any costs for obtaining and complying with such permit use. Follow all applicable legislative statues, judiciary decisions, and regulations of the State of Wisconsin.

D Measurement

The department will measure Excavation, Hauling, and Disposal of Contaminated Soil and Management of Contaminated Groundwater in tons of contaminated soil accepted by the bioremediation and landfill facility as documented by weight tickets generated by the bioremediation and landfill facility. Load tickets must be delivered to the engineer within 10 business days of the date on which the soil was accepted by the bioremediation and landfill facility.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
205.0501.S	Excavation, Hauling, and Disposal of Contaminated Soil and Management of Contaminated Groundwater	Ton

Payment is full compensation for excavating, segregating, loading, hauling, and treatment/disposal of contaminated soil; obtaining solid waste collection and transportation service operating licenses; assisting in the collection soil samples for field evaluation; dewatering of soils prior to transport, if necessary; and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.

205-003 (20080902)

Low Permeable Plug, Item SPV 0060.01

A Description

This special provision describes work conforming with the requirements of section 205 of the standard specifications, pertinent parts of the Wisconsin Administration Code (Department of Natural Resources Environmental Investigation and Remediation of Environmental Contamination, Chapters NR 700-736), as shown on the plans, and as supplemented herein.

This work consists of construction of low permeable plugs within utility trenches, including quality assurance testing, if required by the engineer or environmental consultant.

A.1 Notice to the Contractor

The department and others have completed investigations for soil and groundwater contamination for locations adjacent to, and within, the construction limits where excavation is planned. Information obtained by the department indicates that installation

of low permeable plugs are required to reduce the potential for migration of contaminants within new utility trenches entering and/or exiting the following contaminated soil management locations:

- Station 135+00 to the Wolf River within STH 116 construction limits (29 W. Main Street and 19 W. Main Street)

- From the Wolf River to Station 148+50 within STH 116 construction limits (21 E. Main Street, 105 E. Main Street and 115 E. Main Street).

Additional low permeable plugs may be required for utility trenches at other locations at the discretion of the engineer and environmental consultant. For further information regarding investigation activities at these locations, contact Dan Haak, TRC Environmental Corporation, 708 Heartland Trail, Madison, Wisconsin, 53717, and (608) 826-3628.

A.2 Coordination

Coordinate work under this contract with the environment consultant retained by the department:

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Consultant: TRC Environmental Corporation
Contact: Mr. Dan Haak
Address: 708 Heartland Trail, Suite 3000, Madison, WI 53717
Phone: (608) 826-3628
Fax: (608) 826-3941
e-mail: dhaak@trcsolutions.com

The role of the environmental consultant will be limited to:
1. Evaluation and approval of alternate low permeable plug construction (if alternate to section B is proposed by contractor); and
2. Determining the location and installation depths of low permeable plugs based on review of information from previous field investigations, visual observations, and field screening of soil and groundwater.

Construct low permeable plugs in accordance with the terms and conditions specified herein. At the pre-construction conference, provide a proposed schedule for all excavation activities in the areas of known contamination. Three calendar days prior to commencement of low permeable plug construction, notify the engineer and environmental consultant and provide specifications for alternate low permeable plugs, if proposed. Coordinate with the environmental consultant to ensure that the consultant is present prior to and during low permeable plug construction.

Provide documentation of conformance to the bentonite, cement, aggregate, and sand specifications identified in B Materials to engineer at least three days prior to low permeable plug construction.

B Materials

Furnish the materials required to mix and construct the low permeable plug. Acquire materials used for the low permeable plug mixture form the same source used for all work. Use the following low permeable plug mixture unless an alternative low permeable plug is approved by the department and environmental consultant:

(1) No. 1 Stone: Gradation in accordance with department's Concrete Coarse Aggregate, Section 501.2.5.4.4, No.1.

SIEVE SIZE	PERCENT PASSING
1 inch	100
¾-inch	90 – 100
3/8-inch	20 – 55
No. 4	0 – 10
No. 8	0 – 5

(2) Sand: Natural river or bank sand; free of silt, clay, loam, friable or soluble materials, or organic matter; graded in accordance with WisDOT Concrete Fine Aggregate Section 501.2.5.3.4 within the following limits:

SIEVE SIZE	PERCENT PASSING
3/8-inch	100
No. 4	90 – 100
No. 16	45 – 80
No. 50	5 – 30
No. 100	0 – 10

(3) Cement: ASTM C 150, Type I – Normal

(4) Bentonite: High yield 200-mesh sodium bentonite clay.

(5) Water: Use pre-approved department source. Water shall be clean and not detrimental to concrete.

Prepare the low permeable plug in general accordance with the following: one 50-pound bag of cement, two 50-pound bags of sodium bentonite, 1,280 pounds of sand, and 1,939 pounds of No. 1 stone per 1 CY of mix. Prepare the mixture to have sufficient water to be free-flowing and self-healing with a slump of 8 to 10 inches. Use form material at your discretion.

C Construction

Supplement subsection 205.3 of the standard specification with the following:

Examine the following items prior to the low permeable plug construction to verify materials to be used are acceptable: confirm trench subgrade and walls meet specifications, and confirm trench subgrade is free of standing water.

Erect formwork, shoring, and bracing to achieve design requirements in accordance with requirements of ACI 301. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to overstressing by construction loads. The trench backfill placed at the angle of repose in completed sections of the utility trench may serve as containment for one face of the low permeable trench plug.

Extend each low permeable plug at least 3 feet along the trench length. Extend the height of each plug from the bottom of the design utility trench to at least 1 foot above the installed utility. Completely encase the utility pipes and extend the low permeable plugs from trench sidewall to trench sidewall. Place materials such that materials do not segregate. Maintain

records of material placement (e.g., record data, location, quantity, air temperature, and test samples collected).

Remove the formwork in accordance with requirements of ACI 301. Remove the forms after 48 hours or when the low permeable material has achieved a strength of at least 50 pounds per square inch as measured by unconfined compressive strength tests on the test specimens. If low permeable plug material does not have the strength to maintain its shape without the assistance of forms, allow the forms to remain in-place.

Field inspection and testing will be performed by the department as necessary. Assist the department with obtaining material samples. The department representative may perform tests on bentonite, cement, aggregate, and sand to ensure conformance with specified requirements. If field inspections indicate work does not meet specified requirements, remove work and replace at no additional cost to the department.

D Measurement

The department will measure Low Permeable Plugs in quantity of plugs placed and accepted.

E Payment

The department will pay for measured quantities at the contract unit price under the following bid item:

ITEM NUMBER	DESCRIPTION	UNIT
SPV.0060.01	Low Permeable Plug	Each

Payment is full compensation for furnishing all materials and formwork, preparing the low permeable plug, hauling materials to the construction site, placing the material, removing formwork, and for furnishing all labor, tools, equipment, and incidentals necessary to complete the work.