

From: Byers, Harris <Harris.Byers@stantec.com>
Sent: Thursday, April 18, 2019 1:13 PM
To: Choi, Christopher; April Kroner; Paul Braun; kmcdaniel@manitowoc.org
Cc: Beggs, Tauren R - DNR; Ramanauskas, Peter; Cull, Whitney
Subject: Second Round of Sampling at Mirro
Attachments: Figures 1-4 - Proposed Sample Locations.pdf

Team:

From the email exchanges earlier this week, below is a description of the anticipated scope of work for the second round of sampling at the Mirro facility in Manitowoc. Figures illustrating proposed sampling locations are attached. COCs and sampling strategy presented in Table 1 and Table 2 of the Workplan remain valid. Depending on groundwater quality (data expected April 24), this scope may be further adjusted to maximize project benefit in the field. Will let you know of any substantial changes.

1 Objective – Delineate LNAPL at MW-12/MW-15

1.1 Summary from First Round of Sampling

- LNAPL identified in general vicinity of product identified previously by AES (2010); below building on northeast portion of Site (e.g. MW-12 to MW-15). The heavy presses were located immediately west of the apparent LNAPL plume and could be a possible source.
- LNAPL not identified in area previously identified by AES (2010) (e.g. MW-9)

1.2 Proposed Scope for Second Round of Sampling (Figure 1)

- Install MW-121 to the west of MW-15 in the right-of-way; MW will be completed with flush-mount cover.
- Complete SB-7 as a monitoring well
- Move SB-16 slightly to west and complete as a monitoring well
- Sample LNAPL for fingerprinting source

2 Objective - Delineate PCB Impacts to Soil at Loading Dock

2.1 Summary from First Round of Sampling

- Significant fill (possibly former brick basement?) encountered below the loading dock PCB release area
- Concentrations of PCBs in soil are similar to those in removed concrete at the source area (e.g. SB-37; SB-43), though significant PCB impacts to soil at depth (> 100 ppm) appear localized
- Horizontal extent of near-surface PCB impacts to soil are mostly delineated; vertical delineation in soil may not be possible due to shallow groundwater

2.2 Proposed Scope for Second Round of Sampling (Figure 2)

- Complete proposed borings at predetermined locations; no TWs to be constructed
- Focus sampling of sentinel borings to near-surface (0.5-1) and at locations with significant (e.g. > 3 IU) PID measurements
- Depending on groundwater quality at MW-37, SB-33 may be completed as a MW
- Depending on groundwater quality at MW-19, SB-50 may be completed as a MW

3 Objective - Delineate PCB Impacts to Soil at Area 8

3.1 Summary from First Round of Sampling

- Concentrations of PCBs in soil are less than in the removed concrete.
- The vertical and horizontal extents of PCB impacts to soil are mostly delineated.

3.2 Proposed Scope for Second Round of Sampling (Figure 3)

- Complete proposed borings at predetermined locations; no TWs to be constructed
- Focus sampling of borings to near surface (0.5-1)
- Complete proposed borings at pre-determined locations. Omit SB-55 (no PCB impacts at SB-56)
- Depending on groundwater quality at MW-67 (source area) and MW-60 (downgradient), one or more boring may be completed as a MW

4 Objective – Delineate Vertical Extent of PFAS-Impacts to Groundwater

- Install a piezometer near the MW with the greatest PFAS impacts to shallow groundwater. Piezometer to be double-cased during installation. Piezometer to extend through the regional clay unit (estimated 20'-28') and be completed in the lower sand/gravel units (estimated 28-34'). Piezometer to be constructed with 5' well screen.

5 Objective – Determine Groundwater Quality Downgradient of Site (Figure 4)

- Sample sentinel wells (AMEC_MW-17; AMEC_MW-16; AMEC_MW-15; AMEC_MW-14) for VOC and PAH
- Sample AECOM_MW-18 and AECOM_MW-17 for VOC and PAH and confirm presence/absence of LNAPL

6 Objective – Determine Groundwater Quality Beneath Southern Building (Upgradient; Figure 4)

- Time permitting, install SB-99, SB-103, SB-117, and SB-111 and complete as monitoring wells to determine the presence/magnitude of COCs under the southern building, which appears to be upgradient.

Sincerely,

Harris Byers

Sr. Brownfields Project Manager

Direct: 414 581-6476

Fax: 262 241-4901

Harris.Byers@stantec.com

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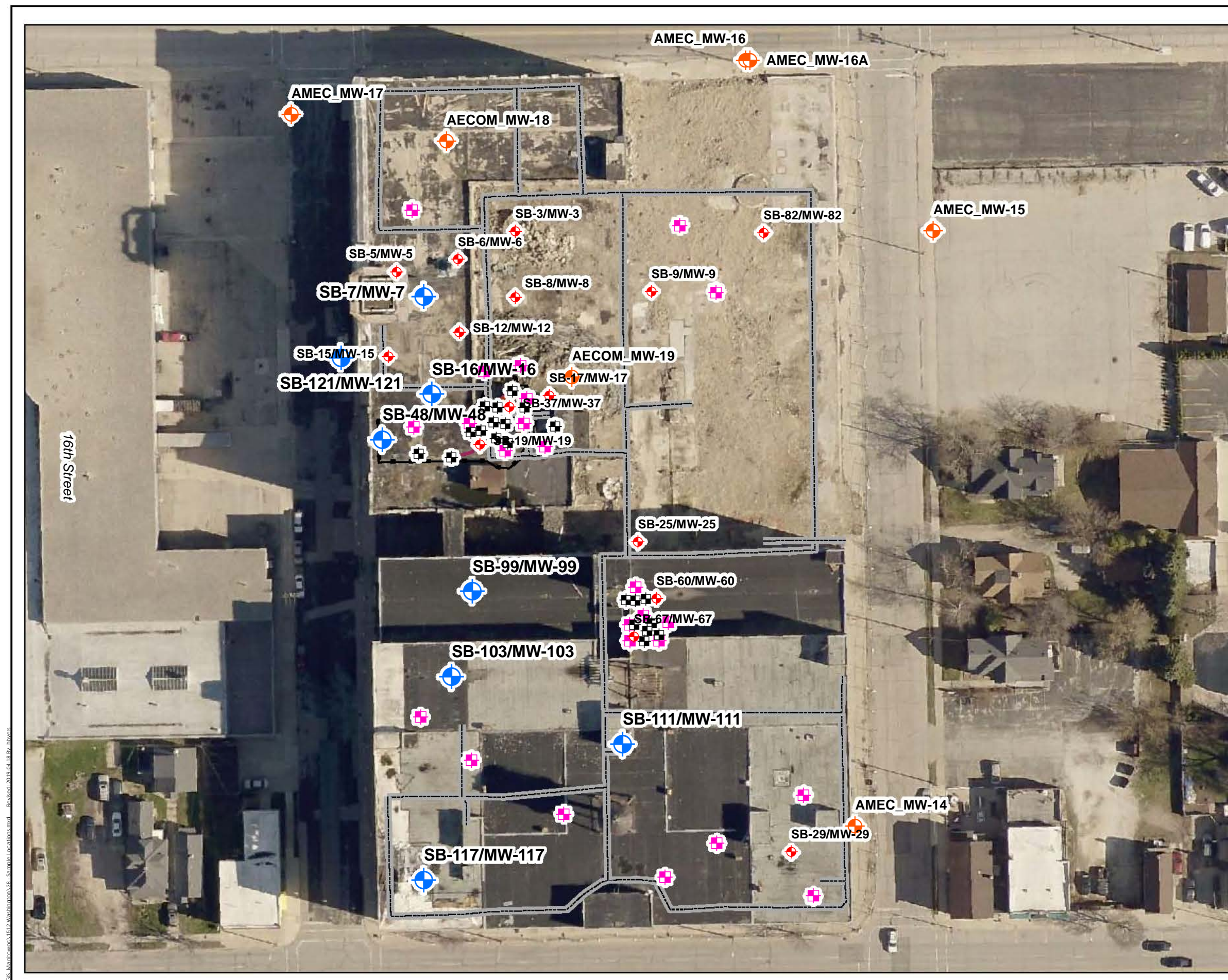


Figure No. **4**
 Title **Figure 4. Proposed Sample Locations**

Client/Project
 City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances

0 45 90 Feet
 193703931
 Prepared by HLB on 5-22-18

Legend

Proposed Soil Boring/Monitoring Well

- Soil Boring/Monitoring Well (8)
- Proposed Soil Boring (21)

Completed - Monitoring Well in April 2019

- Soil Boring/Monitoring Well (15)

Completed - Soil Boring in April 2019

- Soil Boring (24)
- AMEC (2010) and AECOM (2018) (7)

Tunnel System

Removed Concrete

PCBs in Surface Soil (mg/kg)

- 100
- 1000
- 10000

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include:
 Orthophotography: 2017 City of Manitowoc
 Data Adapted From: Symbiont (2016) and AES (2011)



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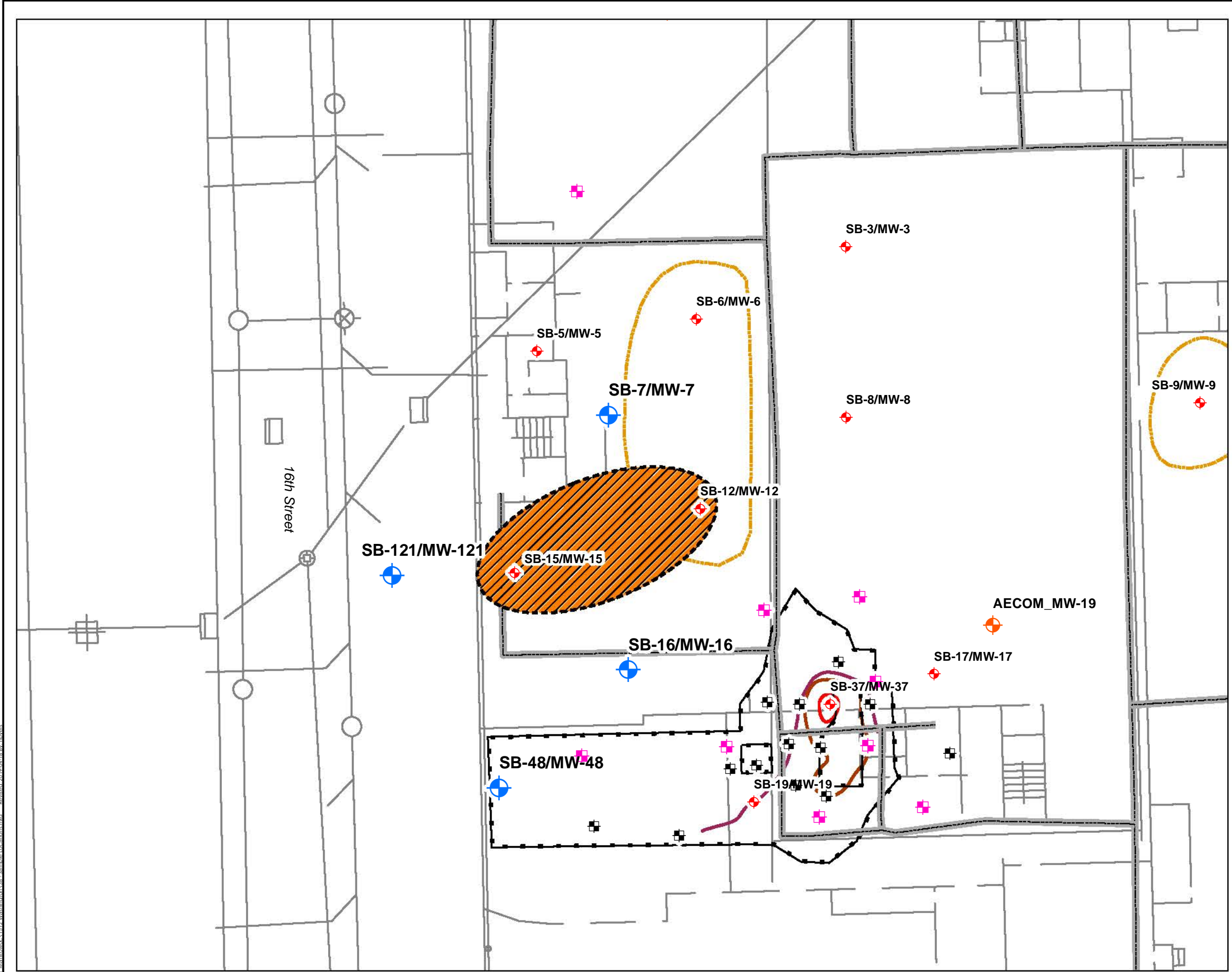


Figure No. **1**
 Title **Figure 1. Identified LNAPL and Proposed Sample Locations**
 Client/Project
 City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances
 0 15 30 Feet
 193703931
 Prepared by HLB on 5-22-18



Legend

- Proposed Soil Boring/Monitoring Well**
 - Soil Boring/Monitoring Well (4)
 - Proposed Soil Boring (13)
- Completed - Monitoring Well in April 2019**
 - Soil Boring/Monitoring Well (10)
- Completed - Soil Boring in April 2019**
 - Soil Boring (9)
- LNAPL (Stantec, 2019) (1)
- LNAPL (AES, 2010) (2)
- AMEC (2010) and AECOM (2018) (2)
- Tunnel System
- Removed Concrete
- PCBs in Surface Soil (mg/kg)**
 - 100
 - 1000
 - 10000

Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources Include:
 Orthophotography: 2017 City of Manitowoc
 Data Adapted From: Symbiont (2016) and AES (2011)



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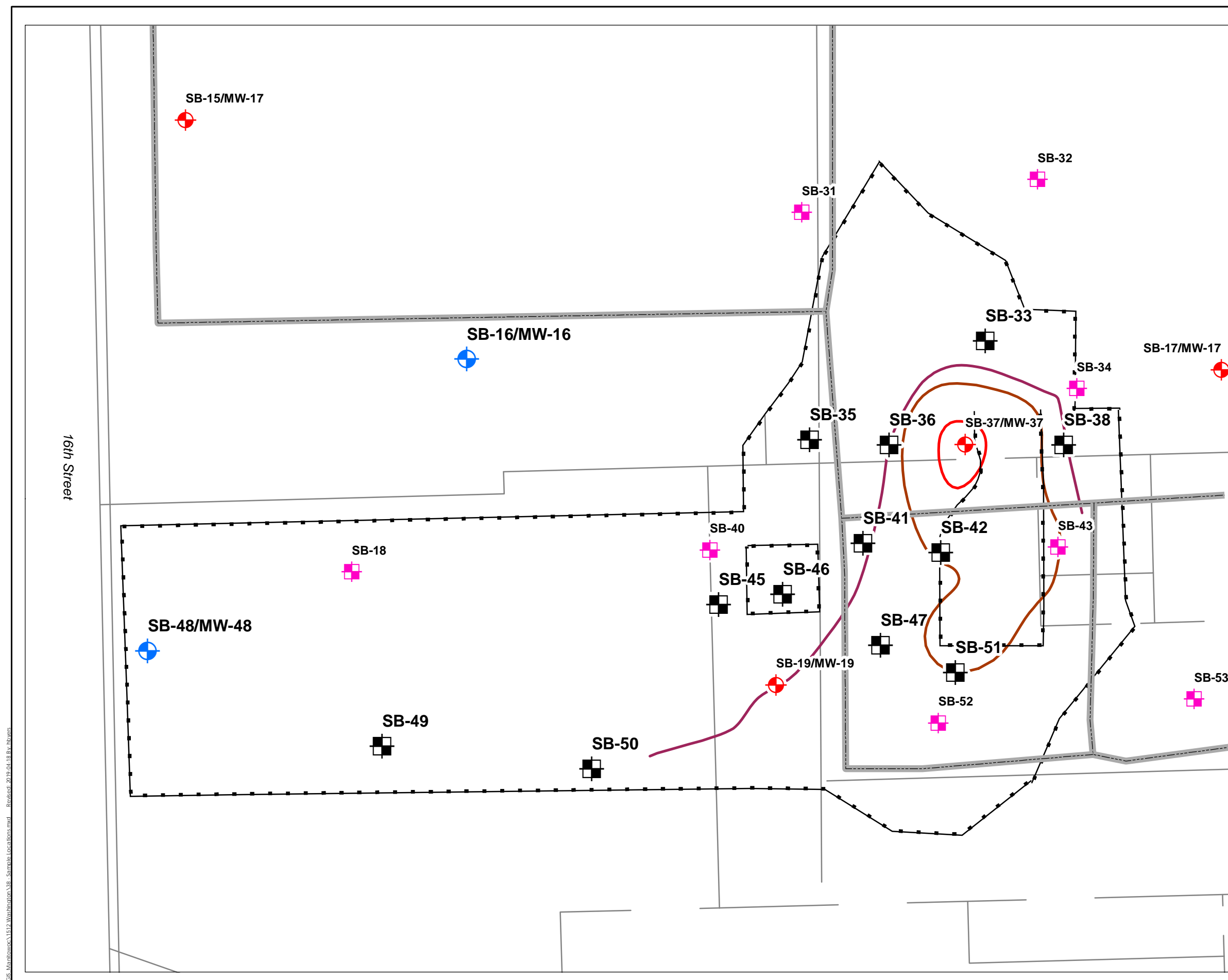


Figure No. **2**
 Title **Figure 2. Proposed Sample Locations in the Loading Dock Area**
 Client/Project
 City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances
 193703931
 Prepared by HLB on 5-22-18



Legend

Proposed Sample Locations

- Soil Boring/Monitoring Well (2)
- Soil Boring (12)

Completed - April 2019

- Soil Boring/Monitoring Well (4)
- Soil Boring (8)

- Tunnel System
- Removed Concrete

PCBs in Surface Soil (mg/kg)

- 100
- 1000
- 10000

Notes
 1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
 2. Data Sources Include:
 Orthophotography: 2017 City of Manitowoc
 Data Adapted From: Symbiont (2016) and AES (2011)



C:\GIS_Manitowoc\1617_Washington_38_Sample Locations.mxd Revised: 2019-04-18 By: hbvrs

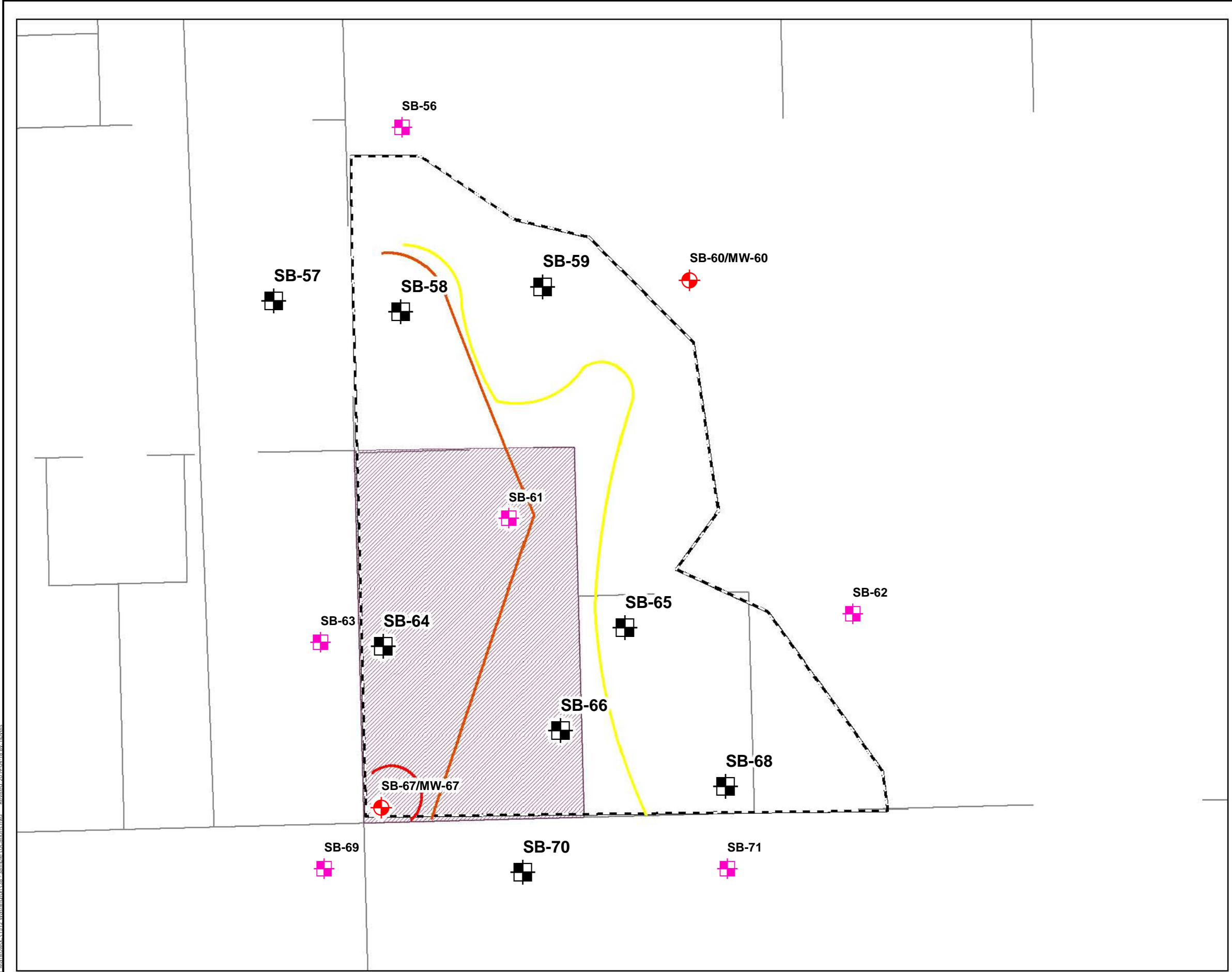


Figure No. 3
 Title
Figure 3. Proposed Sample Locations in Area 8
 Client/Project
 City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances
 0 3.5 7 Feet
 193703931
 Prepared by HLB on 5-22-18

Legend

- Proposed Sample Locations**
- Soil Boring/Monitoring Well (0)
 - Soil Boring (8)
- Completed - April 2019**
- Soil Boring/Monitoring Well (2)
 - Soil Boring (6)
- PCBs in Area 8**
- PCBs in Surface Soil (mg/kg)**
- 100
 - 1,000
 - 10,000
- Removed Concrete
 - Former Transformer Pad

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include:
 Orthophotography: 2017 City of Manitowoc
 Data Adapted From: Symbiont (2016) and AES (2011)



C:\GIS_Manitowoc\1617_Washington\8_Sample Locations.mxd Revised: 2019-04-18 By: HZVRS

From: Byers, Harris <Harris.Byers@stantec.com>
Sent: Monday, April 15, 2019 4:44 PM
To: Choi, Christopher; April Kroner; Paul Braun; kmcdaniel@manitowoc.org
Cc: Beggs, Tauren R - DNR; Ramanauskas, Peter; Cull, Whitney
Subject: Re: Site Work at Mirro - Project Update from Groundwater Sampling

Perfect; thanks everyone for responses.

Harris

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From: Choi, Christopher <choi.christopher@epa.gov>
Sent: Monday, April 15, 2019 4:10 PM
To: Byers, Harris; April Kroner; Paul Braun; kmcdaniel@manitowoc.org
Cc: Beggs, Tauren R - DNR; Ramanauskas, Peter; Cull, Whitney
Subject: RE: Site Work at Mirro - Project Update from Groundwater Sampling

Hi Everyone –

See my response in **RED** below. Let me know if there are questions.

Thanks,
Chris

From: Byers, Harris <Harris.Byers@stantec.com>
Sent: Friday, April 12, 2019 3:56 PM
To: Choi, Christopher <choi.christopher@epa.gov>; April Kroner <akroner@manitowoc.org>; Paul Braun <PBraun@manitowoc.org>; kmcdaniel@manitowoc.org
Cc: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>; Ramanauskas, Peter <ramanauskas.peter@epa.gov>; Cull, Whitney <Whitney.Cull@stantec.com>
Subject: Site Work at Mirro - Project Update from Groundwater Sampling

Team:

I wanted to provide you with a brief update following the groundwater sampling at Mirro this week and ask a few programmatic questions (below).

LNAPL. As we had expected based on work completed previously by others, light non-aqueous phase liquid (LNAPL) accumulated in the monitoring wells on the western/northwestern portion of the property. The thickness of the immiscible layer was thinner than previously measured by others on this portion of the property. The next round of sampling will focus on installing sentinel wells to confirm the horizontal extent of LNAPL at the Site. Based on the location of the apparent LNAPL, previous phases of work suggested the LNAPL was likely associated with indistinguishable releases from the hydraulic presses formerly located on that portion of the Site.

Potentiometric Surface and Well Development. The potentiometric surface of shallow groundwater decreased downward in a northern direction, similar to gradients measured previously by others. Recovery and development of the wells was typical for silty aquifers.

Sample Collection. Groundwater samples were submitted to TestAmerica per the Workplan. We increased the number of PFAS samples than initially planned to further define that class of compounds at the Site.

Unknown Subsurface Voids - The driller encountered two previously unknown voids/basements during this first round of drilling. Luckily, they did not lose any tooling down the borehole. Therefore, it would be reasonable to complete a site-wide geophysical survey using ground penetrating radar as proposed in the Workplan to (1) confirm the location/orientation/extent of the subsurface tunnel network, (2) identify any previously undocumented voids/basements, and (3) confirm the locations of the underground storage tanks previously abandoned at the Site. We have scheduled this work for April 18-19.

We expect soil data back from TestAmerica next Monday/Tuesday and expect groundwater data back by April 24. Therefore, we have scheduled the next round of sampling for April 25-26 to give us a chance to modify the next scope of work based on the results of this first round of sampling. I think it would be reasonable to wait until after this next round of sampling so we have a better understanding of overall Site conditions.

Programmatic Questions:

1. Chris – Based on the location of the LNAPL referenced above and Site limitations, we may need to install monitoring wells in the right-of-way located west of the property boundary to delineate the extent of impacts. Would it be permissible to use the SSA for installation of these wells? If so, would we need to submit an eligibility determination for the right-of-way? The City owns both the right-of-way and the Site; therefore, access will not be an issue and we will work with Paul/April and Engineering to find a suitable location for the monitoring well(s).

You don't need an ED for the right of way if what you are testing is how far the material from the site has spread. It would be OK to put wells off site to monitor the extent. The only issue would be access, which isn't a concern here. So as long as the right-of-way isn't a contributing source to the contamination no ED is needed.

2. Tauren/Chris/Peter – We anticipate the next round of sampling to include advancing borings at locations previously proposed in the Workplan (e.g. in the PCB source areas). If we get the data back suggesting further delineation of a particular area is needed, it may be reasonable to move certain borings. Do we need to submit a formal addendum to the workplan if we move boring locations – or may we submit a figure illustrating the proposed boring locations for the next round of sampling?

If you are just moving the locations of boring but are going to drill and sample the same way as outlined in the workplan, then an illustration and description of where the new locations will be sent via email is sufficient for me.

Please don't hesitate to call with any questions.

Sincerely,

Harris Byers

Sr. Brownfields Project Manager

Direct: 414 581-6476

Fax: 262 241-4901

Harris.Byers@stantec.com

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Figure No. 1
 Title
Figure 1. Proposed Sample Locations

Client/Project
 City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances

0 45 90 Feet
 193703931
 Prepared by HLB on 5-22-18

Legend

Proposed Sample Locations

- Soil Boring/Monitoring Well (15)
- Soil Boring (25)
- Target Parcel

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Data Sources Include:
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 Data Adapted From: Symbiont (2016) and AES (2011)



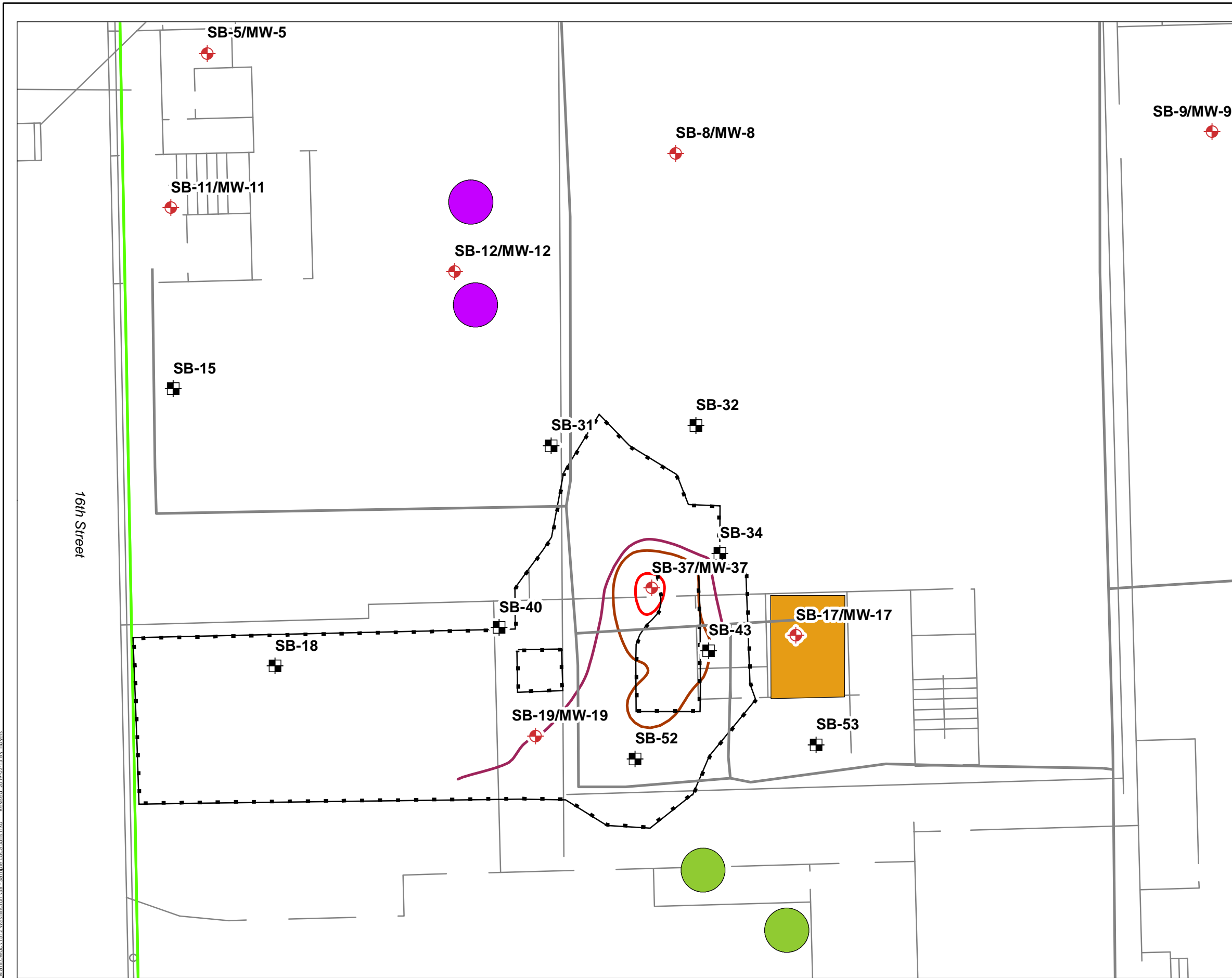


Figure No.

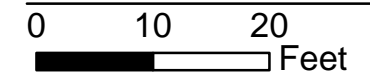
2

Title

Figure 2. Loading Dock

Client/Project

City of Manitowoc
 USEPA Brownfield Assessment Grant
 Hazardous Substances



193703931
 Prepared by HLB on 5-22-18

Legend



Proposed Sample Locations

- Soil Boring/Monitoring Well (8)
- Soil Boring (9)
- Tunnel System
- Removed Concrete

Possible PFAS Sources

- "Paint Mixing" - 6th Floor
- Pipe Run to Spray Booth - 3rd Floor
- Pipe Run to Spray Booth - 5th Floor
- Pipe Run to Spray Booth - 6th Floor
- Target Parcel

PCBs in Surface Soil (mg/kg)

- 100
- 1000
- 10000

Notes

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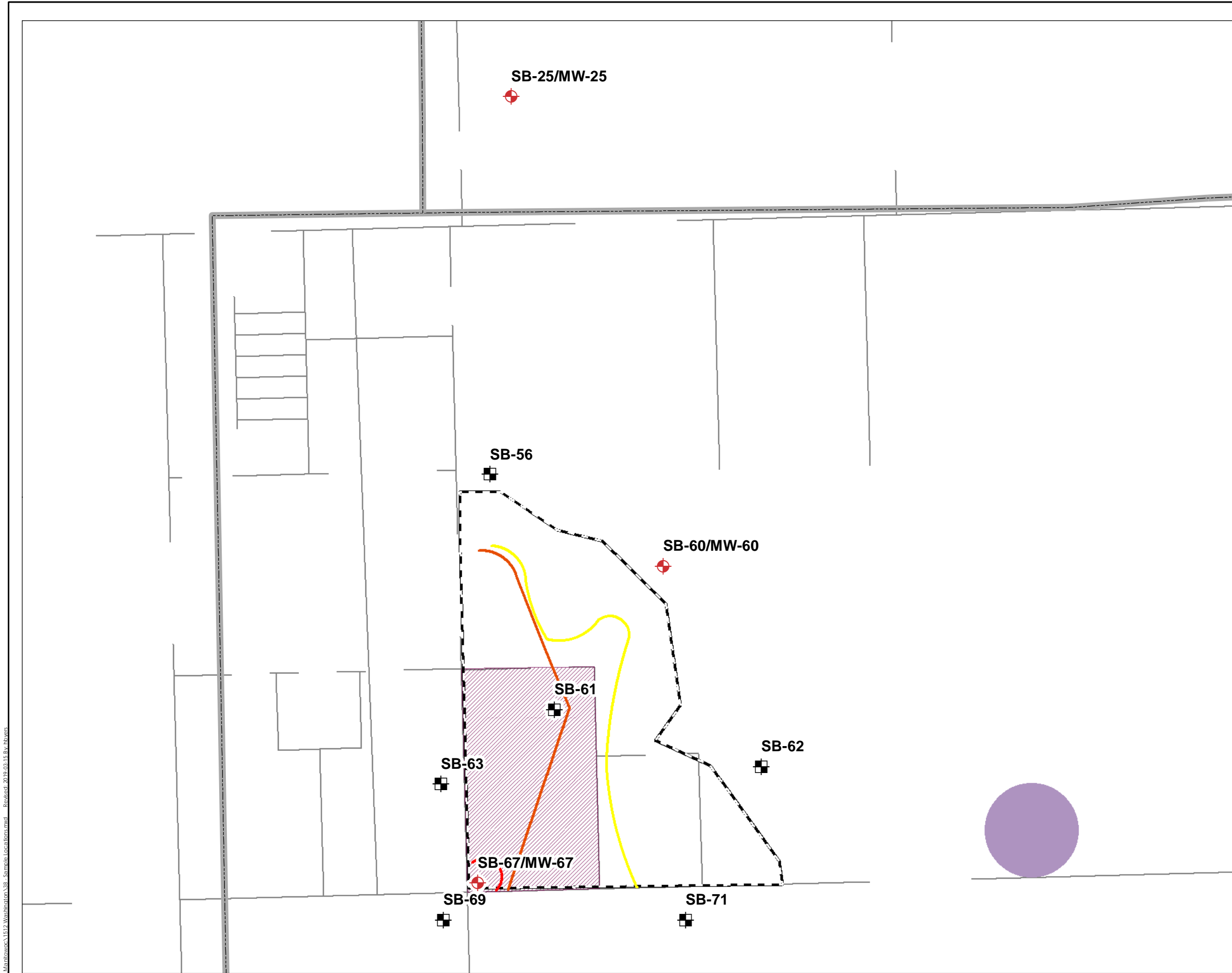


Figure No.
3

Title
Figure 3. Area 8

Client/Project
City of Manitowoc
USEPA Brownfield Assessment Grant
Hazardous Substances

0 5 10 Feet
193703931
Prepared by HLB on 5-22-18



Legend

Proposed Sample Locations

- Soil Boring/Monitoring Well (3)
- Soil Boring (6)

Tunnel System

PCBs in Area 8

PCBs in Surface Soil (mg/kg)

- 100
- 1,000
- 10,000

Removed Concrete

Former Transformer Pad

Possible PFAS Sources

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From: Beggs, Tauren R - DNR
Sent: Monday, April 15, 2019 9:30 AM
To: 'Byers, Harris'
Cc: Ramanauskas, Peter; Cull, Whitney; Choi, Christopher; April Kroner; Paul Braun; kmcdaniel@manitowoc.org
Subject: RE: Site Work at Mirro - Project Update from Groundwater Sampling

Hi Harris,

Peter and I are good with a figure illustrating the proposed boring locations for the next round of sampling with an email summary of why it's reasonable to move certain borings for further delineation of a particular area, if needed.

Thanks,

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Tauren R. Beggs

Phone: (920) 662-5178

Tauren.Beggs@wisconsin.gov

From: Byers, Harris <Harris.Byers@stantec.com>
Sent: Friday, April 12, 2019 3:56 PM
To: Choi, Christopher <choi.christopher@epa.gov>; April Kroner <akroner@manitowoc.org>; Paul Braun <PBraun@manitowoc.org>; kmcdaniel@manitowoc.org
Cc: Beggs, Tauren R - DNR <Tauren.Beggs@wisconsin.gov>; Ramanauskas, Peter <ramanauskas.peter@epa.gov>; Cull, Whitney <Whitney.Cull@stantec.com>
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Sincerely,

Harris Byers

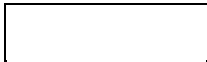
Sr. Brownfields Project Manager

Direct: 414 581-6476

Fax: 262 241-4901

Harris.Byers@stantec.com

Stantec



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