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November 21, 2023

Project/File: 193708490

Attention: Mr. Tauren Beggs
Hydrogeologist, Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
Northeast Region, Green Bay Service Center
2984 Shawano Ave
Green Bay, WI 54313-6727

Reference: Addendum-1 to the *Stantec (2021) NR 716 Site Investigation Report*, River Point District, Phase 1 Redevelopment Area; Manitowoc, Wisconsin. BRRTS # 02-36-585491

Dear Mr. Beggs,

Stantec Consulting Services Inc. (Stantec) submitted a *NR 716 Site Investigation Report* (Stantec, 2021; herein referred to as the Stantec [2021] SIR) on behalf of the City of Manitowoc and City of Manitowoc Community Development Authority (CDA) in July 2021 to the Wisconsin Department of Natural Resources (WDNR) to request concurrence that site investigation activities were complete for Phase 1 of the River Point District redevelopment ("the Phase 1 Redevelopment Area"). WDNR indicated in their response letter dated September 17, 2021 (WDNR, 2021) that the site investigation for the entirety of the Phase 1 Redevelopment Area was incomplete, largely due to constituents of concern present in the former junkyard area fill materials in the northeast corner of the Phase 1 Redevelopment Area, and in the area of former bulk petroleum storage in the east-central portion of the Phase 1 Redevelopment Area.

Since the submittal of the Stantec (2021) SIR, mixed-use multi-family and commercial redevelopment plans were completed by River Landing Developers, LLC ("the Developer") for 0.596 acres of property consisting of the northwest portion of the Phase 1 Redevelopment Area and the southwest portion of the Phase 2 Redevelopment Area. This 0.596-acre parcel is delineated as "Lot 1" on Certified Survey Map 1266038 (**Attachment A**) and is herein referred to as "River Landing". The relative locations of the River Point District (outlined in yellow), the Phase 1 Redevelopment Area (outlined in green), the Phase 2 Redevelopment area (outlined in blue), and River Landing (outlined in black) are illustrated on **Figures 1 through 3.**

Additionally, since the completion of the Stantec (2021) SIR, Stantec (2023a, 2023b) completed several subsurface investigations at the River Point District which included sampling soil and groundwater at River Landing and at nearby areas. Data from these investigations are adapted on **Tables 1 and 2** and **Figures 1 through 16** included in this Addendum and discussed in the context of the proposed reuse area.

The purpose of this addendum to the Stantec (2021) SIR ("Addendum-1") is to demonstrate that, based on the information collected to date, the source, magnitude, and extents of impacts to soil and groundwater are defined and that no further investigation is warranted at River Landing to facilitate the proposed mixed-use multi-family residential/commercial development.

Section 1 provides background locational and ownership information, along with a description of the proposed redevelopment at River Landing. **Section 2** provides a summary of River Landing environmental history, and **Section 3** provides a comprehensive summary of identified subsurface conditions using information collected to date. Conclusions for are summarized in **Section 4**.

Reference: Addendum-1 to the Stantec (2021) *NR 716 Site Investigation Report*, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin.

1 RIVER LANDING PROPERTY INFORMATION

1.1 Property Location and Definition

River Landing is a 0.596-acre parcel delineated as "Lot 1" on Certified Survey Map 1266038 (**Attachment A**) and is located within the northeast quarter of the northeast quarter of Section 30, Township 19 North, Range 24 East, in the City of Manitowoc, Manitowoc County, Wisconsin. River Landing consists of portions of two contiguous former parcels of industrial (railroad) land in the northwest portion of the Phase 1 Redevelopment Area and the southwest portion of the Phase 2 Redevelopment Area at the River Point District.

The locations of River Landing, the Phase 1 Redevelopment Area, the Phase 2 Redevelopment Area, and the larger 21-acre River Point District relative to nearby topography are illustrated on **Figure 1**, and these locations relative to orthophotography are shown on **Figure 2**. The historical parcels comprising River Landing are shown on the orthophotograph provided as **Figure 3** and include Parcel IDs 173000 and 173003. River Landing is currently undeveloped and zoned Central Business B-4, as illustrated on **Figure 4**.

River Landing is a newly defined project area targeted for mixed-use multi-family residential and commercial reuse, with construction beginning in 2024. Planned property development features are detailed on **Figure 5** and include townhomes, commercial building space, and associated landscaping and hardscape. River Landing will be bound on all sides by City-owned rights-of-ways, including greenspace/park to the north and south, the multi-modal trail and greenspace to the west, and River Point Drive to the east.

There is no proposed change in the boundary to the Phase 1 Redevelopment Area outlined in the Stantec (2021) SIR north the Phase 2 Redevelopment Area described in the Stantec (2023a) SIR. Rather, as depicted on **Figures 1 through 3**, River Landing accounts for 0.596 acres of proposed redevelopment located primarily within the boundary of the Phase 1 Redevelopment Area, and extending 22-feet into the Phase 2 Redevelopment Area. The approximate geographic coordinates of the center of River Landing in the Wisconsin Transverse Mercator 1991 coordinate system are (X: 707043, Y: 404964); this was determined using the WDNR Remediation and Redevelopment Sites Map at a scale of 1 to 495 (WDNR, 2023a).

1.2 Historic Use and Ownership

The area surrounding River Landing was first platted in 1835 (**Figure 6**). As depicted on **Figure 6**, River Landing was vacant in the 19th Century. As adapted from historic Sanborn® Fire Insurance Maps drawn in the late 19th Century, a portion River Landing may have at one time been part of the Manitowoc River channel (**Figure 7**). However, apparent placement of fill in the late 19th Century at the River Point District (including at River Landing) appears to have altered the bank of the Manitowoc River to its current location prior to acquisition of the River Point District by the Western Railroad Company on July 22, 1895.

As illustrated on **Figure 8**, the majority of River Landing was developed for railroad use by 1895 and included multiple spur lines with a rectangular warehouse located adjacent to and west/southwest of River Landing (feature "35" on **Figure 8**). An 1898 panoramic photograph depicting railroad spur lines on the River Landing property is included as **Figure 9**. River Landing remained in railroad use through most of the 20th Century. A building permit was issued to the Soo Line Railroad on 11/24/1980 to raze the former railroad depot, which largely terminated railroad use at the River Point District; through smaller-scale rail operations remained at River Landing until the early 2000s when the remaining steel rails were removed

(Stantec, 2019). Additionally, as depicted on **Figure 10**, "Valders Stone and Marble, Inc." leased a large portion of the River Point District (including River Landing) for transloading stone prior to the City of Manitowoc CDA acquiring the River Point District 2019. The CDA is the current owner of River Landing but is in negotiations to formally sell this property to the Developer concurrent with proposed development.

1.3 Proposed Redevelopment

The Developer will begin construction of townhomes in the approximate northern two-thirds of River Landing starting in Spring 2024. As illustrated on **Figure 5**, this development will include the construction of eight, four-story townhome units, totaling 10,100 square feet (ft^2), 2,200 ft^2 of asphalt-paved driveways, 300 ft^2 of concrete sidewalks and 5,400 ft^2 of landscaping consisting of 1.5-feet of clean fill and 6 inches of topsoil completed in turf grass.

Construction in the approximate southern one-third of River Landing is expected to occur in 2025 – 2026. As illustrated on **Figure 5**, this development will include the construction of 6,000 ft^2 of commercial space and 2,000 ft^2 of landscaping consisting of 1.5-feet of clean fill and 6 inches of topsoil completed in turf grass.

As a best management practice, a sub-slab depressurization system (SSDS) will be installed beneath all future buildings at River Landing and passively maintained. Soil management activities and engineered barrier placement and maintenance for the above redevelopments will be outlined and discussed in greater detail in combined Remedial Action Plans/Material Management Plans (RAPs/MMPs), which will be prepared and submitted to WDNR under separate cover.

2 RIVER LANDING ENVIRONMENTAL HISTORY

2.1 Summary of Previous Environmental Investigations

The Stantec (2019) Phase I ESA completed at the greater River Point District identified the following recognized environmental conditions (RECs) relevant to River Landing:

- REC 1: Prior Railroad Use
- REC 2: Prior Industrial Use
- REC 3: Residual Impacts to Soil and Groundwater
- REC 4: Apparent Anthropogenic Fill

Following the Stantec (2019) Phase I ESA, several phases of investigation were performed by AECOM (2020) and Stantec (2020, 2021, 2023a and 2023b) to evaluate RECs and existing soil/groundwater quality at River Landing. This Addendum-1 includes an evaluation of subsurface data generated at or near River Landing between 2018 and 2023. *Table A* below provides a summary of previous environmental investigations performed at/near River Landing, along with relevant sample locations.

***Table A**: Summary of Environmental Investigations Performed at/near River Landing*

Report Title Phase	Sample Locations (River Landing)	Sample Locations (within 75 feet of River Landing)
Stantec (2020) Phase II ESA River Point District	SB-46	SB-43, SB-44/TW-44, MW-44, SB-47/TW-47, SB-48,SB-49/TW-49, SB-50/TW-50, SB-51
AECOM (2020) Limited Site Investigation River Point District	--	MW-47
Stantec (2021) NR 716 Site Investigation Report Phase 1 Redevelopment Area	SB-103, SB-105/TW-105, SB-106, SB-107, SB-108	SB-102, SB-117/MW-117, SB-132
Stantec (2023a) Site Investigation Report Phase 2 Redevelopment Area	--	SB-158/MW-158
Stantec (2023b) Phase II ESA Lot 3	--	--

Cumulative results from the reports summarized above are included in the soil quality and groundwater quality discussions provided in Section 3 and data are adapted on **Tables 1 and 2**, respectively. Data from soil borings and monitoring wells located within the River Landing property are indicated by green headings on **Tables 1 and 2**, and data from nearby sample locations located within 75 feet of River Landing are indicated by blue headings. Note that data from sentinel sample locations greater than 100 feet from the River Landing property are omitted from **Tables 1 and 2;** however, all data are included on **Figures 11**

through 16 to illustrate the horizontal extents of identified impacts relative to River Landing. Further soil and groundwater analytical discussions are provided in Section 3.

2.2 BRRTS Case Summary

02-36-585491 RIVERPOINT DISTRICT - LGU (Open ERP)

Environmental activities performed to date at River Landing are tracked under Bureau for Remediation and Redevelopment Tracking System (BRRTS) Environmental Repair Program (ERP) case number 02-36-585491 "RIVERPOINT DISTRICT- LGU". As summarized in Section 3, previous site investigations performed at/near River Landing between 2018 and 2023 indicated that various constituents of concern are present in soil and groundwater at concentrations greater than health-based standards.

Since the CDA intends to sell the River Landing property to the Developer, it is anticipated that a new BRRTS case will be opened specific to the River Landing property for independent administration from the greater River Point District.

07-36-583000 RAILROAD PROPERTY (FORMER) (LGU/General Property)

This General Property listing confirms the CDA was granted state local government unit (LGU) environmental liability exemption on March 18, 2019 for the River Point District.

2.3 Applicable Clean-Up Criteria

Soil – NR 720

Procedures for establishing soil clean-up standards applicable to sites in Wisconsin are specified in ch. NR 720 Wisconsin Administrative Code (WAC) (NR 720). Soil clean-up standards depend in part on land use. River Landing is currently vacant and zoned Central Business B-4, and the proposed future use is non-industrial; therefore, soil quality is compared to both the industrial direct contact (IDC) and non-industrial direct contact (NIDC) residual contaminant levels (RCLs).

As part of the revisions to NR 720, the WDNR adopted use of background threshold values (BTVs) for select metals in soil whose occurrence may be attributable in whole or in part to natural occurrence in Wisconsin soil. BTVs are "non-outlier trace element maximum levels in Wisconsin surface soils" as determined through a state-wide study. BTVs were established for 16 metals, including arsenic and lead. Probably the most significant BTV is the value of 8.0 milligrams per kilogram established for arsenic. This value is significant because the RCLs calculated for the direct contact and groundwater pathways are significantly lower than this value, which in the past resulted in sites with relatively low levels of naturally occurring arsenic significantly exceeding the clean-up levels. If measured levels of arsenic or lead are less than the BTVs, these levels can be attributed to natural occurrence without the need to perform a WDNR-approved site-specific study to determine background levels.

Soil quality data for this Addendum-1 are compared to health-based NR 720 RCLs and/or BTVs on **Table 1**.

Groundwater – NR 140

Public health-related groundwater quality standards are set forth by ch. NR 140 WAC (NR 140). Standards are listed for substances of public health concern (defined as substances having carcinogenic, mutagenic, or teratogenic properties, or interactive effects) and substances of public welfare concern (defined as having a negative aesthetic value but with little threat to human health). Two levels of standards are listed, the preventative action limit (PAL) and the enforcement standard (ES). The ES represents a concentration

above which action generally must be taken to improve the quality of groundwater. The PAL represents a lower concentration (usually 10 to 20 percent of the ES) above which groundwater quality should be monitored.

Groundwater quality data for this Addendum-1 are compared to NR 140 PAL and ES values on **Table 2**.

Groundwater – Wisconsin Department of Health Services

As part of the rulemaking process associated with updating NR 140, on November 6, 2020, the Wisconsin Department of Health Services proposed individual groundwater standards for six per- and polyfluorinated alkyl substance (PFAS) compounds and combined groundwater standards for six PFAS compounds. Although these proposed standards are not yet promulgated, groundwater samples taken for PFAS analysis are compared to these values on **Table 2** for comparison purposes.

2.4 WDNR (2021) Response to Stantec (2021) SIR

WDNR indicated in their response letter dated September 17, 2021 (WDNR, 2021) that the site investigation for the entirety of the Phase 1 Redevelopment Area was incomplete, largely due to constituents of concern present in former junkyard area fill materials in the northeast corner of the Phase 1 Redevelopment Area, and in the area of former bulk petroleum storage in the east-central portion of the Phase 1 Redevelopment Area. Additional site investigation (Stantec, 2023a, 2023b) and remediation efforts have been performed in these areas since the Stantec (2021) SIR. Moreover, River Landing is approximately 300 feet away from the residual impacts to the former junkyard and bulk petroleum storage areas. WDNR (2021) comments to the Stantec (2021) SIR relevant to River Landing that are addressed as part of this Addendum-1 include:

- Soil: Delineation of volatile organic compound (VOC) impacts identified at SB-49/TW-49 (Section 3.1.2);
- Groundwater: Gradient in PFAS concentrations in groundwater (Section 3.2.2); and
- Vapor: Evaluation of the vapor intrusion pathway (Section 3.3).

3 RIVER LANDING INVESTIGATION FINDINGS

As part of work to date, 17 soil borings were installed at/within 75 feet of River Landing and 23 soil samples were collected and analyzed for one or more constituents. Concurrently, 5 temporary monitoring wells and 4 permanent monitoring wells were constructed at/within 75 feet of River Landing and 9 groundwater samples collected and analyzed for one or more constituents. The following sections provide an interpretation of all data generated from 2018 through 2023 at River Landing.

3.1 Soil Quality

Table 1 is a comprehensive table and compares detected constituents to date in River Landing fill/soils to applicable NR 720 RCLs; the headings for soil borings and samples collected within the River Landing limits are shaded in green, and the headings for soil borings collected within 75 feet of River Landing are shaded in blue. Laboratory reports for all samples collected to date are available in their respective Stantec (2020, 2021, 2023a, 2023b) and AECOM (2020) reports. Soil boring logs performed at or within 75 feet of River Landing are adapted as **Attachment B** for ease of review.

3.1.1 SOIL LITHOLOGY

Surface soils at River Landing consisted of sparse, vegetated sandy/gravelly topsoil, with riprap present in samples performed closest to the Manitowoc River. Either present at the surface or underlying these limited surface materials is a sitewide black granular fill unit of varying thickness. A spatial analysis model illustrating the thickness and horizontal extent of the fill unit is illustrated on **Figure 11** and estimates that approximately 4,000 cubic yards of this black granular fill material is present at River Landing. The area with the greatest fill thickness (approximately 8 feet thick, represented by the darkest shading on **Figure 11**) is along the southwestern River Landing property boundary, which was documented as being filled as part of the adjustments made to the bank of the adjacent Manitowoc River in the late 19th Century (refer to **Figure 7**).

Consistent with previous investigations, apparent native soils beneath the fill layer were organic sands, silts and clays. Saturated conditions were encountered from 3 to 5 feet below ground surface (ft bgs). Cross sections illustrating the thickness of the black granular fill unit relative to underlying native soils along with the proposed future ground surface at River Landing are depicted on **Figure 12.**

Organic odors were observed in several soil borings where peat and/or organic sands were encountered. No hydrocarbon/petroleum odors or staining were observed in any soil sample taken at or within 75 feet of River Landing (**Attachment B**).

3.1.2 ANALYTICAL RESULTS

VOCs

A summary of soil sampling results from 2018 to date at River Landing are detailed on **Table 1**. The offsite extents of VOC (petroleum and chlorinated) constituents detected at quantifiable concentrations greater than NR 720 RCLs are illustrated on **Figure 13** and incorporate soil investigation data available to date at the River Point District.

As summarized in *Table B* and detailed on **Table 1**, five VOC constituents were detected in soil at concentrations greater than their respective NR 720 RCLs.

Reference: Addendum-1 to the Stantec (2021) *NR 716 Site Investigation Report*, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin.

***Table B**: VOC constituent detections in soil exceeding exposure pathways at/near River Landing.*

VOC Constituent	Exposure Pathway Exceeded in One or More Samples?				
	At River Landing	Within 75' of River Landing	NIDC RCL	IDC RCL	Groundwater Pathway RCL
Benzene	**Yes** All "J-flagged"	**Yes**	No	No	**Yes**
Naphthalene	No	**Yes**	No	No	**Yes**
Toluene	No	**Yes**	No	No	**Yes**
Methylene Chloride	No	**Yes**	No	No	**Yes** J-flagged only
1,2,3-Trichloropropane	No	**Yes**	**Yes** J-flagged only	**Yes** J-flagged only	**Yes** J-flagged only

- Benzene was the only VOC constituent detected within the River Landing property boundary at a concentration greater than the groundwater pathway RCL and is sporadically detected in fill across the greater River Point District, as discussed in Stantec (2021, 2023a and 2023b). Additionally, the reported benzene concentrations in soil within the River Landing property boundary were all qualified by the laboratory with a "J" flag, indicating the reported values are estimates between the limit of detection and limit of quantitation. Regardless, given the abundance of soil quality data generated to date, the horizontal and vertical extents of benzene impacts to soil are delineated.
- Naphthalene and toluene were detected in fill soils collected from soil boring SB-49 completed within 75 feet of River Landing in 2018 at concentrations greater than their respective groundwater pathway RCLs. Soil boring SB-117 was advanced adjacent to SB-49 in 2021 to confirm/delineate these apparent VOC detections. However, the concentrations of naphthalene and toluene in soil at SB-117 from the same depth interval were less than NR720 RCLs. As the concentrations of these two VOCs are less than NR720 RCLs in all other borings, these VOCs are not considered constituents of concern at River Landing.
- Methylene chloride was detected in fill soils sampled from soil boring SB-158 (performed within 75 feet of River Landing) at a concentration greater than the groundwater pathway RCL. This sample was J-flagged and was not detected in soil at any other sample location within 75 feet of River Landing. Methylene chloride is a common laboratory artifact and therefore is not considered a constituent of concern at River Landing.
- 1,2,3-Trichloropropane was detected at a concentration greater than the IDC RCL in fill sampled from SB-49 completed within 75 feet of River Landing in 2018 (note that this detection was J-flagged). Soil boring SB-117 was advanced adjacent to SB-49 in 2021 to confirm/delineate the 2018 detection. However, the concentration of 1,2,3-Trichloropropane in soil from SB-117 from the same depth interval was less than laboratory detection limits. Therefore, 1,2,3-Trichloropropane is no longer considered a constituent of concern at River Landing.

None of the VOCs detected in soil at or near River Landing (including Benzene) were detected in groundwater at quantifiable concentrations greater than NR 140 health-based standards (refer to **Table 2**) and are therefore not constituents of concern in groundwater. This includes groundwater sampled from TW-49 in 2018 and MW-117 in 2021, where potential VOC impacts to soil at SB-49 posed the apparent greatest risk to groundwater. Therefore, the limited VOC impacts to soil at/near River Landing, if present, do not pose a threat to groundwater quality.

Response to WDNR Comments. Delineation of the degree and extent of VOC soil impacts in the area of

Reference: Addendum-1 to the Stantec (2021) *NR 716 Site Investigation Report*, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin.

SB-49 was requested by WDNR (2021) and is relevant to this Addendum-1. In consideration of the VOC information presented above, Stantec requests concurrence from WDNR that delineation of VOC impacts to soil at River Landing is complete.

Polycyclic Aromatic Hydrocarbons (PAHs)

A summary of soil sampling results from 2018 to date at River Landing are adapted on **Table 1**. As discussed in this section, sitewide PAH concentrations greater than NR 720 RCLs are attributed to the heterogeneous black granular fill unit present across the River Point District. However, impacts identified in the fill unit have not leached into underlying native soils nor have they leached to groundwater. The horizontal and vertical extents of this fill unit at River Landing are illustrated on **Figures 11 and 12.**

As summarized in *Table C* below and adapted on **Table 1**, seven PAH constituents were detected at concentrations greater than their respective NR 720 RCLs. Benzo(a)pyrene was detected in a single fill sample from SB-50 (within 75 feet of River Landing) at a concentration slightly greater than the IDC RCL.

***Table C**: PAH constituent detections in soil exceeding exposure pathways at/near River Landing.*

PAH Constituent	Exposure Pathway Exceeded in One or More Samples?				
	At River Landing	Within 75' of River Landing	NIDC RCL	IDC RCL	Groundwater Pathway RCL
Benzo(a)anthracene	No	**Yes**	**Yes**	No	*Not Established*
Benzo(a)pyrene	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**
Benzo(b)fluoranthene	**Yes**	**Yes**	**Yes**	No	**Yes**
Chrysene	**Yes**	**Yes**	No	No	**Yes**
Dibenzo(a,h)anthracene	**Yes**	**Yes**	**Yes**	No	*Not Established*
Indeno(1,2,3-cd)pyrene	No	**Yes**	**Yes**	No	*Not Established*
Naphthalene	No	**Yes**	No	No	**Yes**

The results summarized above are consistent with the fill quality information gathered elsewhere at the River Point District, with PAH constituents in black granular fill consistently detected at concentrations greater than applicable NIDC RCLs, IDC RCLs, and/or soil to groundwater RCLs. The black granular fill is considered to be the source of identified PAHs at River Landing and the horizontal and vertical extents of this fill unit are defined in the project area (**Figure 11** and **Figure 12**).

Of additional note, the concentrations of PAHs in native soils beneath the black granular fill unit at/near River Landing (n=7; ex. SB-106 from 6-7 ft bgs) were all less than NR 720 RCLs, indicating that PAH impacts are limited to the black granular fill unit and have not leached to the native underlying soils. Further, as the target PAHs are not COCs for groundwater (**Table 2**), identified PAHs in the black granular fill at River Landing do not pose a threat to groundwater quality.

Resource Conservation and Recovery Act (RCRA) Metals

A summary of soil sampling results from 2018 to date at River Landing are adapted on **Table 1**. As discussed in this section, sitewide RCRA metal concentrations greater than BTVs/NR 720 RCLs are attributed to the heterogeneous black granular fill unit present across the River Point District. However, impacts identified in the fill unit have not leached into underlying native soils nor have they leached to groundwater. The horizontal and vertical extents of this fill unit at River Landing are illustrated on **Figures 11 and 12.**

As summarized in *Table D* below and adapted on **Table 1**, three RCRA metals were detected at concentrations greater than their respective BTVs/groundwater pathway RCLs. Arsenic was detected in

two fill samples from SB-132 and SB-158 (within 75 feet of River Landing) at a concentration greater than the BTV.

***Table D**: RCRA metal constituent detections in soil exceeding exposure pathways at/near River Landing.*

RCRA Metal Constituent	Exposure Pathway Exceeded in One or More Samples?				
	At River Landing	Within 75' of River Landing	NIDC RCL + BTV	IDC RCL + BTV	Groundwater Pathway RCL + BTV
Arsenic	No	**Yes**	**Yes**	**Yes**	**Yes**
Lead	**Yes**	**Yes**	No	No	**Yes**
Selenium	No	**Yes**	No	No	**Yes** J- & B-flagged only

The results summarized above are consistent with the fill quality information gathered elsewhere at the River Point District, with heavy metal constituents in black granular fill consistently detected at concentrations greater than applicable NIDC RCLs, IDC RCLs, and/or soil to groundwater RCLs. The black granular fill is considered to be the source of identified metals at River Landing and the horizontal and vertical extents of this fill unit are defined in the project area (**Figure 11** and **Figure 12**).

Of additional note, the concentrations of heavy metals in native soils (n=7; ex. SB-106 from 6-7 ft bgs) beneath the black granular fill unit are all less than BTVs (e.g., arsenic) or NR 720 RCLs (other metals), indicating that RCRA metal impacts are limited to the black granular fill unit and have not leached to the native underlying soils. Arsenic is present in groundwater near River Landing at concentrations greater than the NR 140 PAL (ex. TW-49 and MW-117; refer to **Table 2**), which is consistent with groundwater quality across the greater River Point District suggesting the source is native. Remaining RCRA metal impacts to fill across River Landing do not pose a threat to groundwater quality. No RCRA metal constituents are present in groundwater at or within 75 feet of River Landing at concentrations greater than an ES.

Other Constituents – Polychlorinated Biphenyls (PCBs) and Total Cyanide

PCBs and total cyanide were not sampled within the River Landing property boundary but are included in this discussion due to the proximity of north-adjoining sites with these as constituents of concern.

- Stantec (2023a) Phase 2 Redevelopment Area SI: Total cyanide was sampled to assess/delineate impacts from apparent oxide box waste fill located approximately 225 feet north of River Landing. The concentration of total cyanide at soil boring SB-158 (completed within 10 feet of River Landing) was less than laboratory detection limits and no apparent oxide box waste was identified at the River Landing project area. Therefore, total cyanide is not considered a COC for River Landing.

- Stantec (2023a) Phase 2 Redevelopment Area SI and Stantec (2023b) Lot 3 Phase II ESA. As illustrated on **Figure 13**, the concentration of PCBs at one soil boring location in "Lot 3" (SB-217) exceeded the ch. NR 720 NIDC RCL. The extents of PCB impacts were delineated by Stantec (2023b) and impacts do not appear to have extended outside of "Lot 3." The concentrations of PCBs in soil at SB-158 (completed within 10 feet of River Landing) were all less than laboratory detection limits. Therefore, PCBs are not considered a COC for River Landing.

3.2 Groundwater Quality

Groundwater samples have not been collected from the River Landing project area. However, several monitoring wells were installed adjacent to the project area and can be used to evaluate groundwater quality at River Landing (see **Table A**).

Table 2 compares constituents detected to date in groundwater near the River Landing project area to applicable NR 140 health-based standards. Laboratory reports for all samples collected to date are available in their respective Stantec (2020, 2021, 2023a, 2023b) and AECOM (2020) reports. Monitoring well construction forms for wells installed within 75 feet of River Landing are adapted as **Attachment C**.

3.2.1 PHYSICAL HYDROGEOLOGY

As illustrated on **Figure 14**, the potentiometric surface of shallow groundwater decreases in a southwesterly direction, with elevations ranging from approximately 582 feet above mean sea level (ft amsl) along the northeast River Landing property boundary to 580 ft amsl (the approximate groundwater elevation of the nearby Manitowoc River, which serves as a constant head boundary for shallow groundwater at the River Point District).

The hydraulic conductivity of the unconfined aquifer was calculated as part of the Stantec (2021) SIR for the Phase 1 Redevelopment Area and values range between 4.3×10^{-4} and 7.7×10^{-4} centimeters per second (cms), with an average of 5.2×10^{-4} cms.

3.2.2 ANALYTICAL RESULTS

VOCs

As illustrated on **Figure 15**, vinyl chloride remains in groundwater at concentrations greater than the ES and PAL along the western portion of “Lot 3”, which is 162-210 feet east/upgradient of the River Landing project. In addition, chlorinated VOCs are present in groundwater at concentrations greater than the PAL at MW-35, which is 140 feet northeast/upgradient of the River Landing project and groundwater impacts from petroleum VOCs are present at TW-216, which is located 294 feet northeast of River Landing.

However, as adapted on **Table 2**, the concentrations of VOCs in groundwater immediately upgradient and downgradient of River Landing are all less than ch. NR 140 standards. Therefore, VOCs are not considered constituents of concern for groundwater at River Landing.

It is acknowledged that methylene chloride was detected in groundwater from temporary wells TW-44 and TW-47 in 2018 at concentrations greater than the PAL; however, these detections were both J-flagged and B-flagged (indicating that the samples were not only estimated concentrations, but also detected in the laboratory blank). Methylene chloride is therefore considered a laboratory artifact, and are not considered COCs for groundwater at River Landing.

PAHs

As illustrated on **Figure 15**, PAHs are present in groundwater at TW-216, which is 294 feet northeast of River Landing. However, as adapted on **Table 2**, the concentrations of PAHs in groundwater immediately upgradient and downgradient of River Landing in permanent wells (as applicable) are all less than ch. NR 140 standards. Therefore, PAHs are not considered constituents of concern for groundwater at River Landing.

Dissolved RCRA Metals

As adapted on **Table 2**, the concentrations of dissolved metals in groundwater immediately upgradient and downgradient of River Landing in permanent wells (as applicable) are all less than applicable ESs. The concentrations of dissolved arsenic in select wells (e.g., TW-49 and MW-117) are greater than the PAL, which is consistent with other measurements made at the River Point district and appear attributable to naturally occurring sources weathering in the underlying organic alluvium at the River Point District. Therefore, heavy metals are not considered constituents of concern for groundwater at River Landing.

PFAS

As adapted on **Table 2** and illustrated on **Figure 16**, PFAS were detected in groundwater samples collected upgradient and downgradient of the River Landing project. Given the gradient in PFAS concentrations, River Landing does not appear to be a source of PFAS contributing to groundwater impacts.

Response to WDNR Comments. Given the gradient in concentrations, PFAS impacts to groundwater are likely migrating onto River Landing from a yet-unidentified source located upgradient of River Landing.

As such, an off-site exemption for PFAS in groundwater at River Landing appears warranted. Stantec requests concurrence from WDNR that an off-site exemption is appropriate for River Landing. If WDNR concurs, Stantec will submit an *Off-Site Liability Exemption and Liability Clarification Application* (Form 4400-201) for River Landing under separate cover for fee-review.

3.3 Migration Pathways and Potential Receptors

Based on site investigation data collected to date, Stantec evaluated potential contaminant migration pathways at River Landing; these findings are summarized below.

Vapor Intrusion: The term “vapor intrusion pathway” generally refers to subsurface contamination that can move through the air-filled pores of vadose zone soils and enter the breathing space of buildings. WDNR notes that due to their high volatility and health risk, VOCs, particularly chlorinated VOCs, are the contaminants that most commonly trigger assessment of the vapor intrusion pathway. Current WDNR guidance notes that vapor intrusion of benzene and other petroleum VOCs occurs most often when free phase product is located near building foundations, where petroleum contaminated groundwater has entered a building, or where contaminated groundwater is in contact with the building foundation.

There are currently no structures at or near River Landing; therefore, the vapor intrusion pathway is not currently a pathway of concern. In addition, no vapor intrusion would result from the movement of contaminated soil within the confines of River Landing (ex. as part of future materials management). As discussed in Section 3.1.2, benzene was detected in shallow fill soils at concentrations greater than health-based RCLs; however, there was no evidence of free product or groundwater contamination in association with these detections. Therefore, vapor intrusion is unlikely to occur at River Landing based on the vapor intrusion screening guidelines in the *Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin*, Wis. Stat. ch. 292; Wis. Admin. Code ch. NR 700 WDNR guidance (WDNR, 2018).

However, as a conservative best management practice, all future buildings constructed at the River Point District area will include a SSDS. The SSDS at River Landing will be passive and no post-construction sub-slab vapor samples are proposed.

Sediment/Surface Water: The CDA will maintain ownership of the hardscape and softscape rights-of-way surrounding River Landing, including the shoreline southwest/downgradient of River Landing. Therefore, the sediment/surface water migration pathway is not applicable to the River Landing property.

In regard to potential receptors, given the concentrations of PFAS in groundwater and the potentiometric surface of groundwater, residual groundwater impacts could migrate to the Manitowoc River. However, PFAS impacts appear to be migrating onto River Landing from an offsite source. As such, sediment/surface water does not require further evaluation in regards to the River Landing project.

Water Supply: Residents of the City of Manitowoc receive potable water from Lake Michigan. No known water supply wells are present at River Landing. Stantec conducted a search for nearby groundwater wells using the WDNR Well Construction Information System (Stantec, 2019 and WDNR, 2023b) and determined that there are no known public or private wells located within 1,200 feet of River Landing. Based on the above information, the migration potential of contaminants associated River Landing to water supply wells appears to be very low.

Wetlands: River Landing is located within a developed area of the City of Manitowoc. Based on review of information available on the WDNR Surface Water Data Viewer (WDNR, 2023c) on October 31, 2023, no wetlands or critical habitat areas are present at River Landing.

Utilities: There is no existing utility infrastructure at River Landing. New utility infrastructure was installed within the northeast-adjoining River Point Drive rights-of-way in Summer 2023 to service future buildings/structures at River Landing. Installation of service laterals to River Landing will be completed on a design/build basis. In general, the small quantity of spoil generated during trenching service laterals is not anticipated to disturb the impacted granular fill material at River Landing (i.e., proposed utility excavations are sufficiently shallow to not encounter this material). Due to the granular and heterogenous nature of River Landing soils and aquifer, and the nature of groundwater impacts combined with the elevations of proposed utilities, the installation of these new utilities is not expected to exacerbate contaminant transport.

4 CONCLUSIONS

On behalf of all interested parties, Stantec is requesting WDNR concurrence that no further investigation is required and the site investigation is considered complete for the proposed River Landing project area. and that conceptual redevelopment plans, if carried out in a manner as described herein, are reasonable and would protect human health and the environment.

The $1,050 review fee specified in WDNR Form 4400-237, accompanies this Addendum-1 in the form of a check.

4.1 Subsurface Impacts

Soil. Site investigation activities performed to date indicate that VOCs, PAHs and RCRA metals are present in fill at concentrations greater than established regulatory standards in the River Landing project area. As discussed in Section 3.1.2, Stantec requests concurrence from WDNR that delineation of VOC impacts in the area surrounding SB-49 is complete based on investigations performed to date. The source of residual PAH and RCRA metal impacts is largely attributable to the black granular fill unit present across the River Point District, as underlying native soils are not impacted by these COCs. The horizontal and vertical extents of identified impacts to fill have been sufficiently defined. Therefore, no further soil investigation appears to be warranted.

The cost to remove and replace the sitewide granular fill unit (estimated to be 4,000 cubic yards at River Landing) and associated impacts is not economically viable (estimated $400,000+ for removal and replacement with clean fill). However, residual constituents in the granular fill could pose a direct-contact threat to human health and the environment. The proposed non-industrial redevelopment of River Landing includes construction of sitewide engineered barriers (refer to **Figure 5**), which will be maintained with a continuing obligation(s). The engineered barriers will prevent direct contact with residual fill/soil impacts and allow existing fill/soil to be managed onsite for beneficial reuse.

Groundwater. In groundwater, dissolved arsenic is present at quantifiable concentrations greater than the Chapter NR 140 WAC PAL within 75 feet of River Landing. This is consistent with dissolved arsenic concentrations observed within the greater River Point District and likely attributable to naturally occurring sources weathering in the underlying alluvium. PFAS were detected in groundwater samples collected upgradient and downgradient of the River Landing project; however, given the gradient in PFAS concentrations, River Landing does not appear to be a source of PFAS contributing to groundwater impacts. As discussed in Section 3.2.2, an off-site exemption for PFAS at River Landing appears appropriate and is requested. If WDNR concurs, Stantec will submit an *Off-Site Liability Exemption and Liability Clarification Application* (Form 4400-201) for River Landing under separate cover for fee-review.

Based on the above, additional groundwater investigations at River Landing do not appear to be warranted. As described in Sections 1.3 and 4.2, the proposed non-industrial redevelopment of River Landing includes construction of sitewide engineered barriers, which will be maintained with a continuing obligation(s). The engineered barriers will prevent potential leaching of residual soil impacts to groundwater. The continuing obligation(s) will prevent direct contact with residual groundwater impacts (including PFAS).

Vapor. As described in Section 3.3, vapor intrusion is unlikely to occur at River Landing based on the vapor intrusion screening guidelines (WDNR, 2018). However, as a conservative best management practice, all future buildings constructed at the River Point District area will include a SSDS. The SSDS at River Landing will be passive and no post-construction sub-slab vapor samples are proposed.

Reference: Addendum-1 to the Stantec (2021) *NR 716 Site Investigation Report*, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin.

4.2 Proposed Engineered Barriers

Proposed soil management activities and engineered barrier placement and maintenance will be outlined and discussed in greater detail in combined RAP/MMP, which will be prepared and submitted to WDNR under separate cover. Based on the sequencing of development, a RAP/MMP for the proposed townhome development at River Landing will be submitted first. A separate RAP/MMP will be developed for the future commercial development in the southern portion of River Landing as plans are finalized. A summary of the townhome RAP/MMP for River Landing is outlined below.

The Developer will begin construction of townhomes in the approximate northern two-thirds of River Landing in Spring 2024. As illustrated on **Figure 5**, this development will include the construction of eight, four-story townhome units, totaling 10,100 ft^2, 2,200 ft^2 of asphalt-paved driveways, 300 ft^2 of concrete sidewalks and 5,400 ft^2 of landscaping consisting of 1.5-feet of clean fill and 6 inches of topsoil completed in turf grass.

As a conservative best management practice, a SSDS will be installed beneath the 10,100 ft^2 concrete building slab. The SSDS will be designed by an appropriately licensed engineer and will likely consist of Geovent™ (or similar) piping bedded in the gravel underlayment and connected to one or more riser(s). The riser(s) will extend vertically through the height of the building and terminate above the roofline. The Geovent™ system will be covered with an approved vapor membrane, and the SSDS will be passively maintained. Though not anticipated to be encountered, if soil with apparent COC impacts is disturbed during redevelopment, the material will be hauled offsite for proper management at a licensed solid waste landfill.

Sincerely,

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Geological Engineer in Training
Mobile: (262) 219 - 4740
whitney.cull@stantec.com

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Sr. Brownfields Project Manager
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Stu Gross, P.G.,
Senior Project Manager
stu.gross@stantec.com

Enclosures

FIGURES

Figure 1: River Landing and Regional Topography
Figure 2: River Landing and 2020 Orthophotograph
Figure 3: River Landing and Parcel Identification Numbers
Figure 4: River Landing and Zoning
Figure 5: River Landing and Proposed Redevelopment
Figure 6: Historic Plat Maps
Figure 7: Historic Site Features (19th Century)
Figure 8: Historic Site Features (20th Century)
Figure 9: 1898 Panoramic Photograph and River Landing
Figure 10: Late 20th Century Tenants
Figure 11: Fill Material Thickness

TABLES

ATTACHMENTS

References

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WDNR, 2023a. Wisconsin Department of Natural Resources RR Sites Map, accessed by Whitney Cull (Stantec), October 31, 2023.

WDNR, 2023b. Wisconsin Department of Natural Resources Well Construction Information System, accessed by Whitney Cull (Stantec), October 31, 2023.

WDNR, 2023c. Wisconsin Department of Natural Resources Surface Water Data Viewer, accessed by Whitney Cull (Stantec), October 31, 2023.

Reference: Addendum-1 to the Stantec (2021) *NR 716 Site Investigation Report*, River Point District, Phase 1 Construction Area; Manitowoc, Wisconsin.

Limitations

The conclusions in this letter are Stantec's professional opinion, as of the time of the letter, and concerning the scope described in the letter. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. This letter relates solely to the specific project for which Stantec was retained and the stated purpose for which the letter was prepared. This letter is not to be used or relied on for any variation or extension of the project, or for any other project or purpose, and any unauthorized use or reliance is at the recipient's own risk.

Stantec has assumed all information received from the City and the CDA and third parties in the preparation of this letter to be correct. While Stantec has exercised a customary level of judgment or due diligence in the use of such information, Stantec assumes no responsibility for the consequences of any error or omission contained therein.

This letter is intended solely for use by the City and the CDA in accordance with Stantec's contract with the City. While this letter may be provided to applicable authorities having jurisdiction and others for whom the City and the CDA is responsible, Stantec does not warrant the services to any third party. This letter may not be relied upon by any other party without the express written consent of Stantec, which may be withheld at Stantec's discretion.

FIGURES

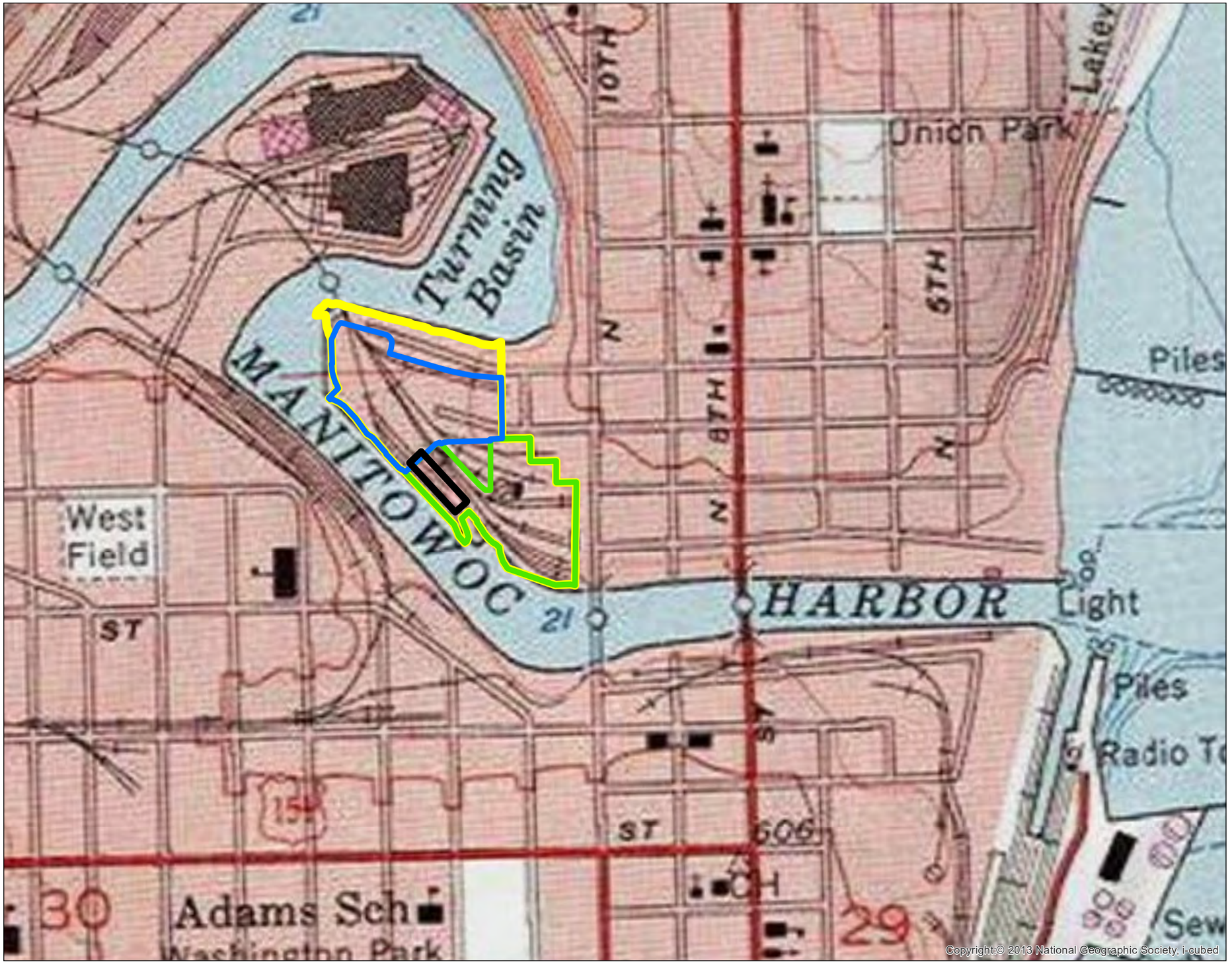


Figure No.
1

Title
Project Area and
Regional Topography

Client/Project
River Landing
River Point District
City of Manitowoc

0 390 780 Feet

Prepared by HLB on 5/8/2023

N

Legend

- River Point District
- River Landing
- Phase I Redevelopment Area
- Phase II Redevelopment Area

NOTE:
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

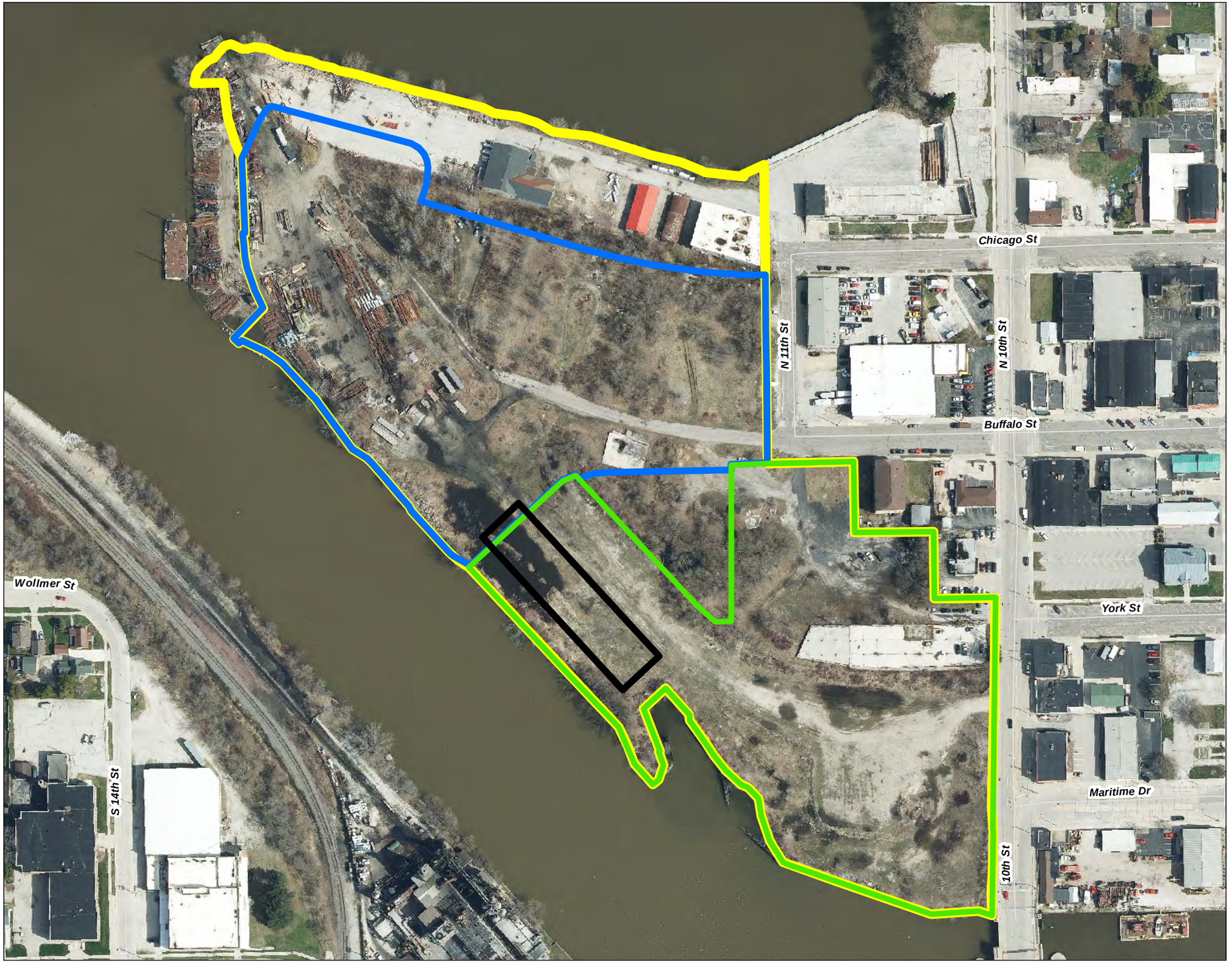


Figure No.
2
Title

River Landing and
2020 Orthophotograph

Client/Project
River Landing
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 5/8/2023

Legend

- River Point District
- River Landing
- Phase I Redevelopment Area
- Phase II Redevelopment Area

N

NOTE:
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

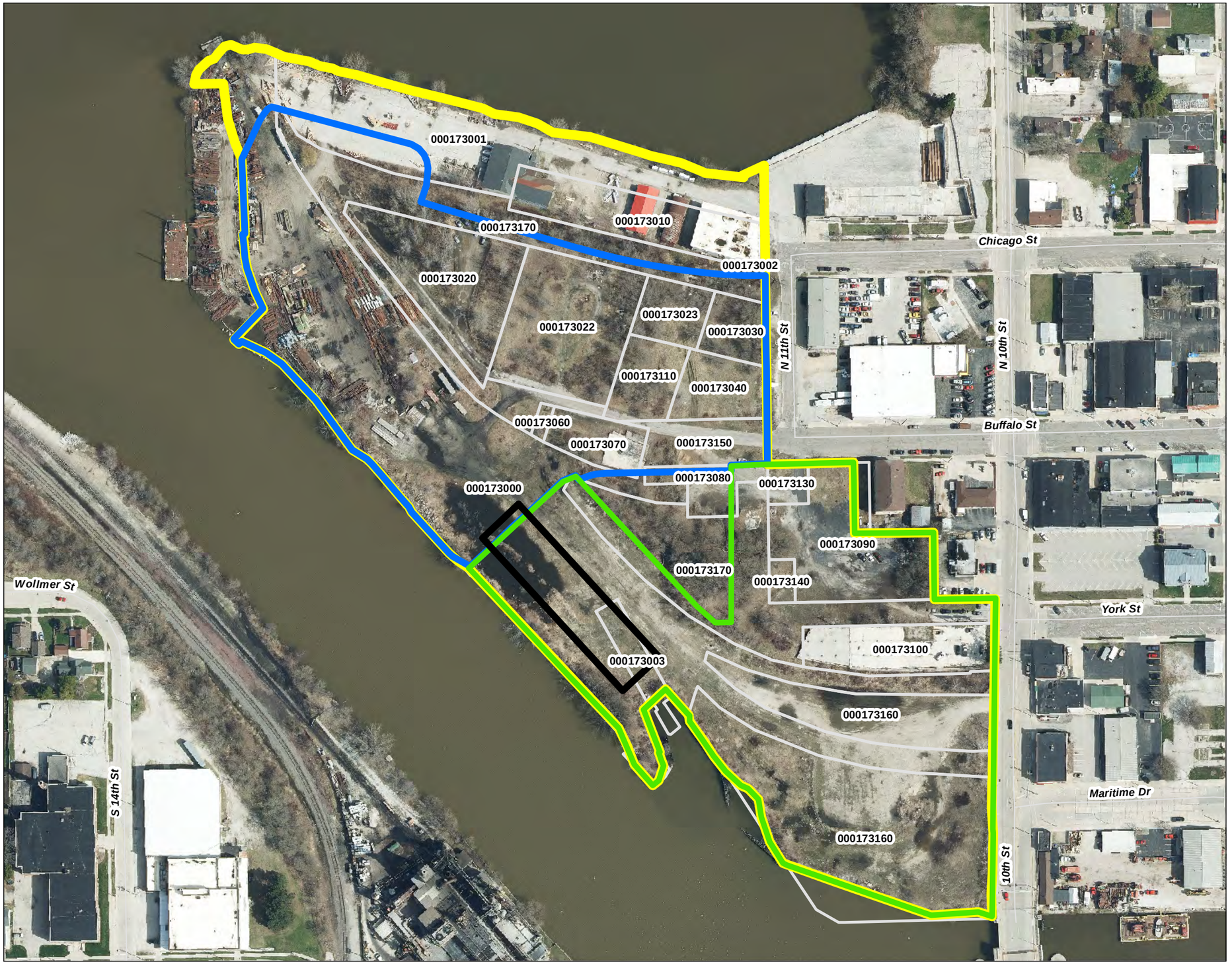


Figure No.
3

Title

Project Area and Property Identification Numbers

Client/Project
River Landing
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 5/8/2023

Legend

- River Point District
- River Landing
- Phase I Redevelopment
- Phase II Redevelopment
- Parcel Identification Numbers

N

NOTE:
1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

Figure No.
4
Title
River Landing and Zoning

Client/Project
River Landing
River Point District
City of Manitowoc

Prepared by HLB on 5/10/2023

0 130 260
Feet

Legend

N

Parcels
River Landing
River Point District

Zoning

B-3 General
B-4 Central Business
C-1 Commercial
I-2 Heavy Industrial
R-6 Multiple Family

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

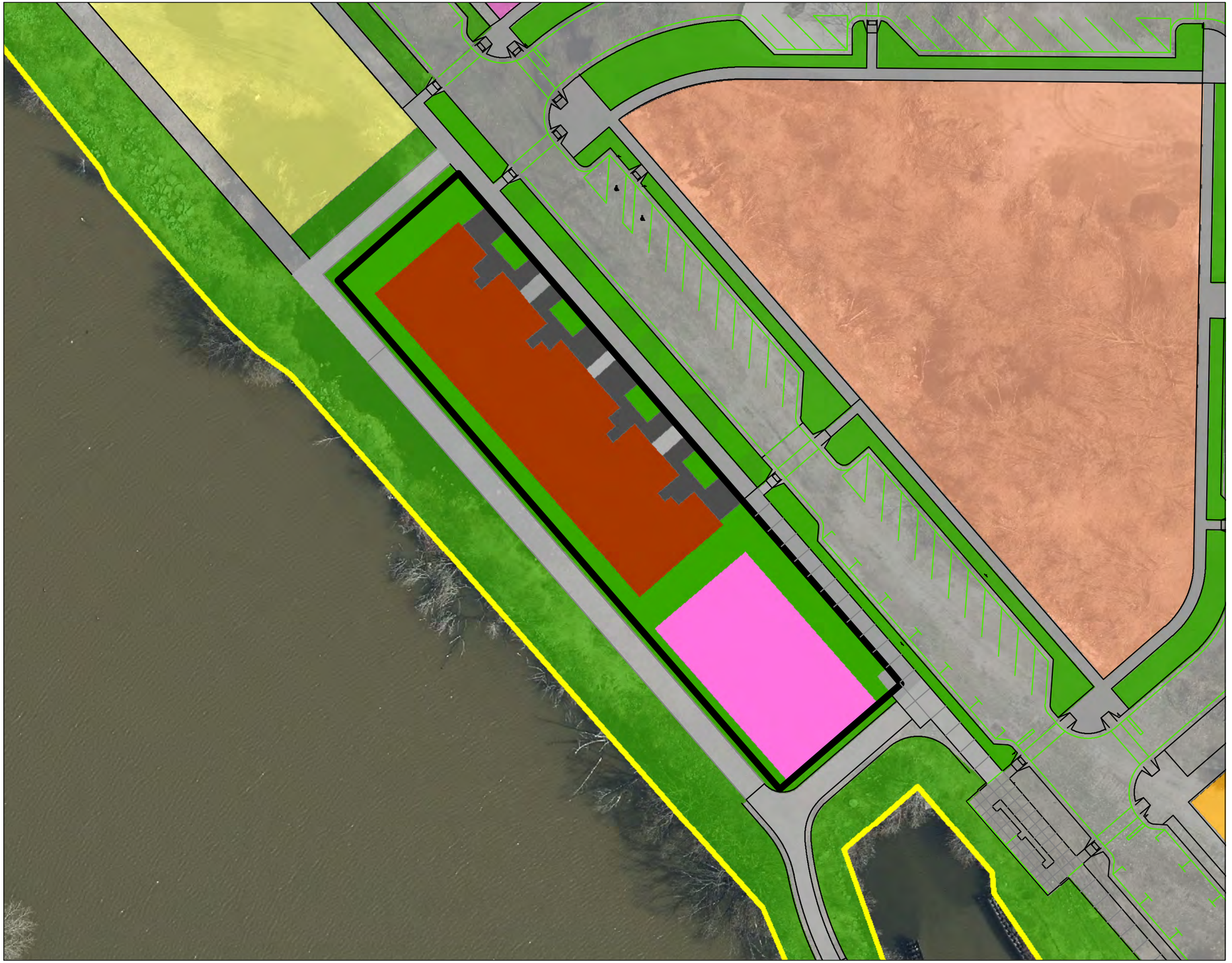


Figure No.
5

Title
River Landing and
Proposed Redevelopment

Client/Project
River Landing
River Point District
City of Manitowoc

0 37.5 75 Feet

Prepared by HLB on 5/8/2023

Legend

N

River Point District

River Landing

Townhome Reuse Features

Asphalt

Proposed Townhomes

Concrete

Grass

Future Redevelopment

Town Homes (2024-2025)

Multi-Family (Finishing 2022)

Roadway (2021-2024)

Landscaping (2024-2025)

Multi-Family Residential (2023-2024)

Sidewalk (2024-2025)

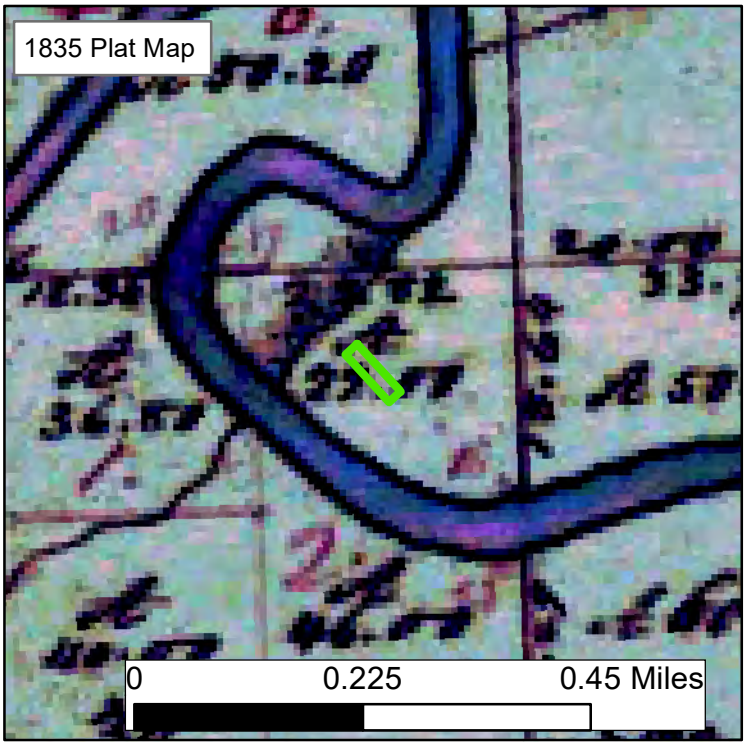
River Walk / Park (2023-2024)

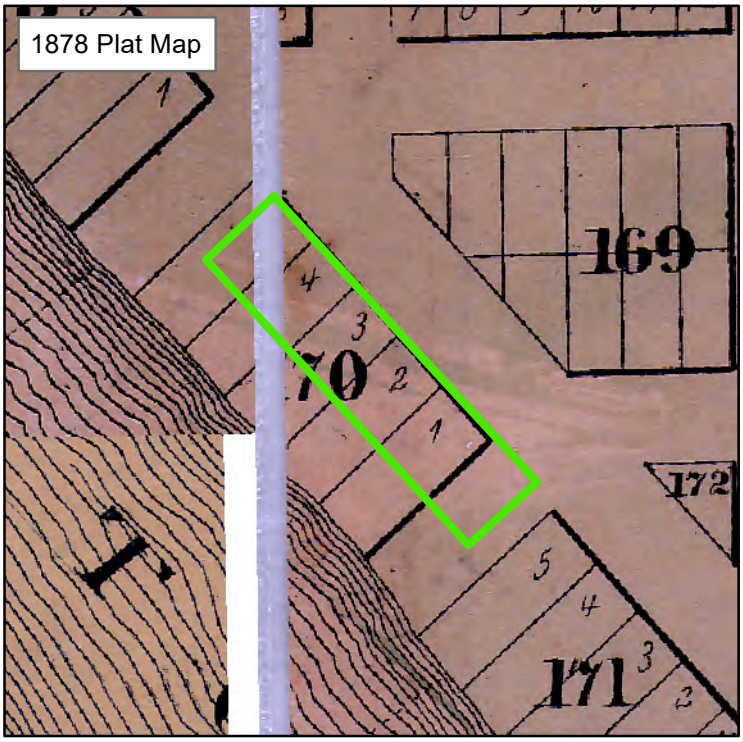
Proposed Commercial (2025-2026)

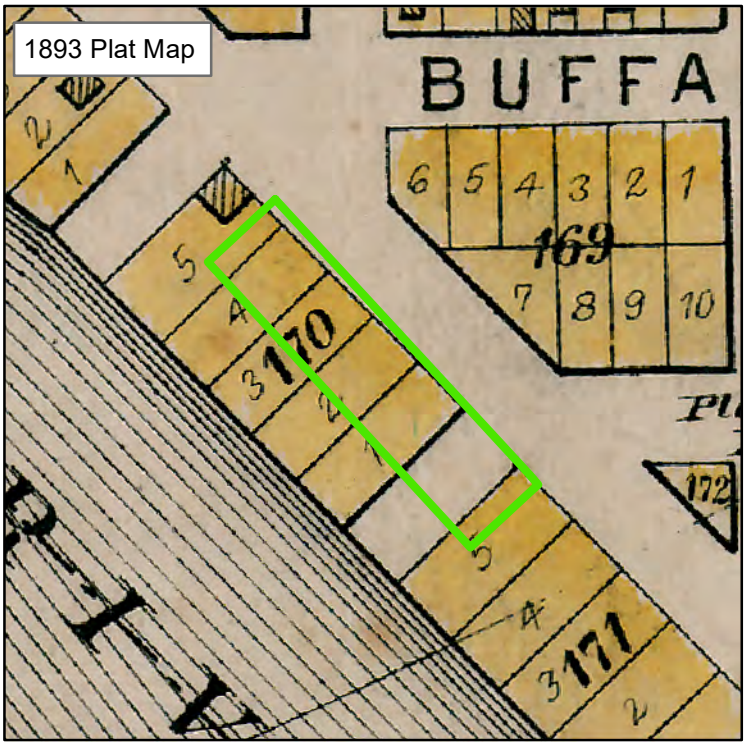
Future Commercial (2024-2025)

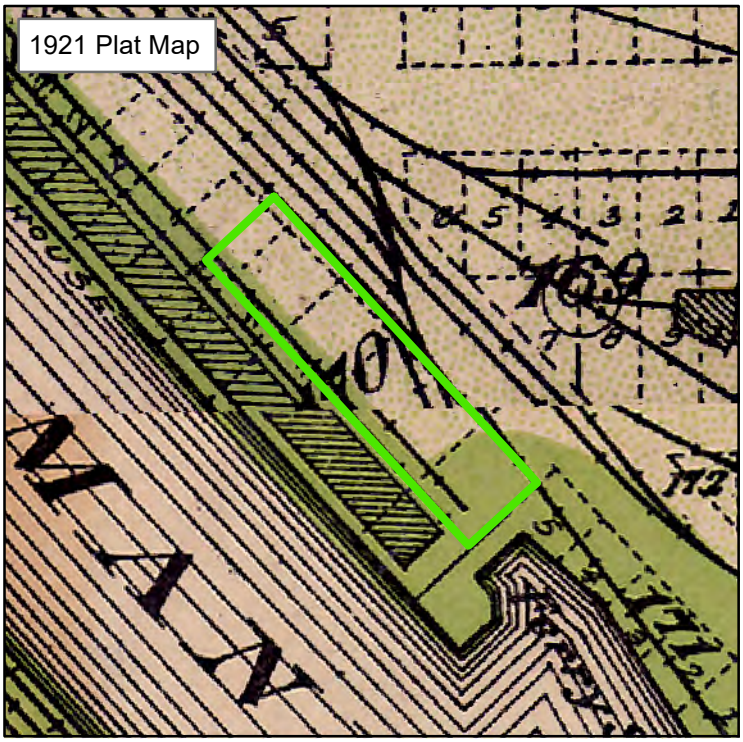
Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec









State Location

County Location

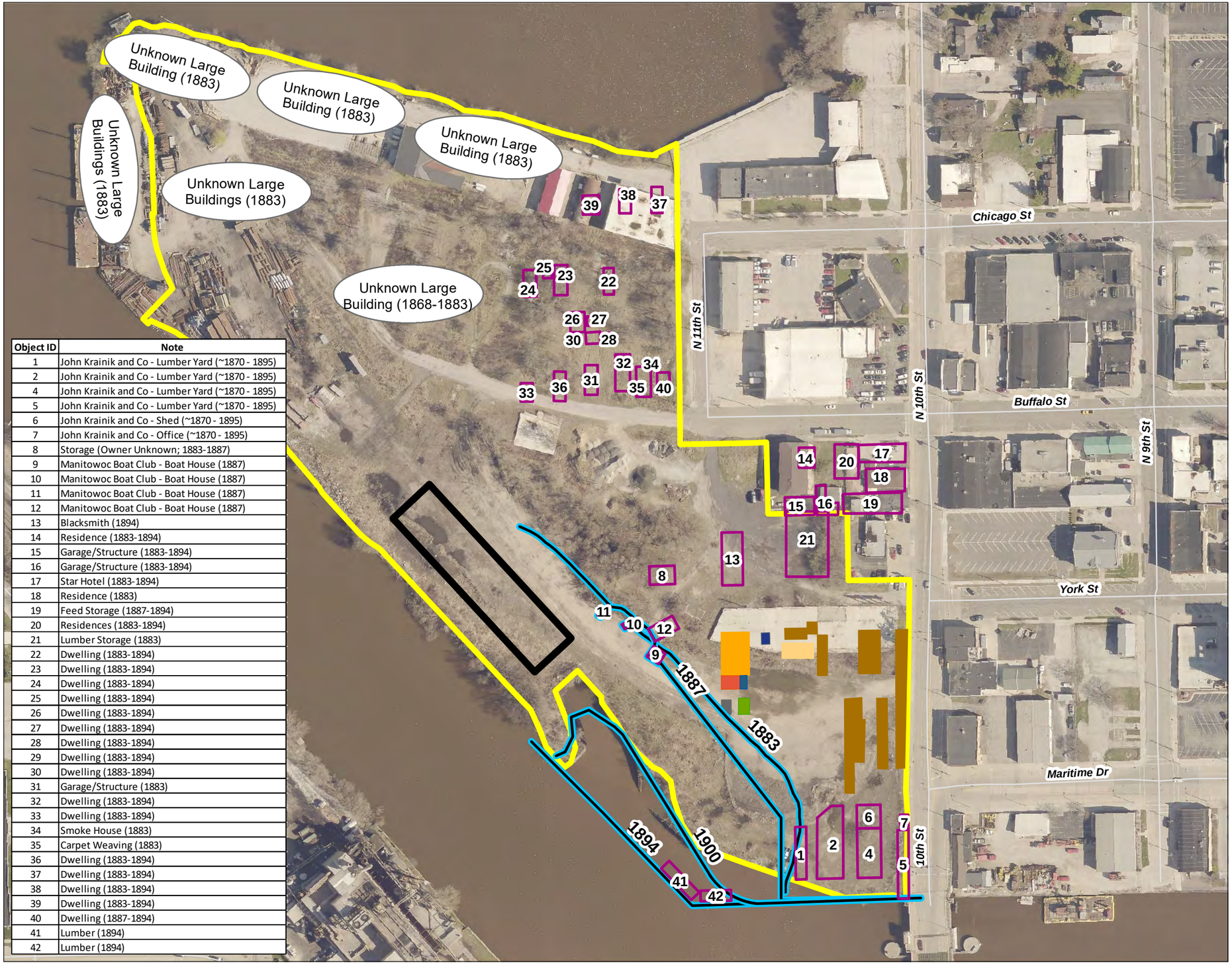
Legend

River Landing

0 120 240 480 Feet

N

Stantec 12075 Corporate Parkway Suite 200 Mequon, WI 53092 (262) 643-9174	The information on this map has been compiled by Stantec staff from a variety of sources and is subject to change without notice. Stantec makes no representations or warranties, express or implied, as to accuracy, completeness,timeliness, or rights to the use of such information.	**Figure 6: Historic Plat Maps** **River Landing**	DWG: 03.mxd DATE: May 2023 PROJ NO.



Object ID	Note
1	John Krainik and Co - Lumber Yard (~1870 - 1895)
2	John Krainik and Co - Lumber Yard (~1870 - 1895)
4	John Krainik and Co - Lumber Yard (~1870 - 1895)
5	John Krainik and Co - Lumber Yard (~1870 - 1895)
6	John Krainik and Co - Shed (~1870 - 1895)
7	John Krainik and Co - Office (~1870 - 1895)
8	Storage (Owner Unknown; 1883-1887)
9	Manitowoc Boat Club - Boat House (1887)
10	Manitowoc Boat Club - Boat House (1887)
11	Manitowoc Boat Club - Boat House (1887)
12	Manitowoc Boat Club - Boat House (1887)
13	Blacksmith (1894)
14	Residence (1883-1894)
15	Garage/Structure (1883-1894)
16	Garage/Structure (1883-1894)
17	Star Hotel (1883-1894)
18	Residence (1883)
19	Feed Storage (1887-1894)
20	Residences (1883-1894)
21	Lumber Storage (1883)
22	Dwelling (1883-1894)
23	Dwelling (1883-1894)
24	Dwelling (1883-1894)
25	Dwelling (1883-1894)
26	Dwelling (1883-1894)
27	Dwelling (1883-1894)
28	Dwelling (1883-1894)
29	Dwelling (1883-1894)
30	Dwelling (1883-1894)
31	Garage/Structure (1883)
32	Dwelling (1883-1894)
33	Dwelling (1883-1894)
34	Smoke House (1883)
35	Carpet Weaving (1883)
36	Dwelling (1883-1894)
37	Dwelling (1883-1894)
38	Dwelling (1883-1894)
39	Dwelling (1883-1894)
40	Dwelling (1887-1894)
41	Lumber (1894)
42	Lumber (1894)

Figure No.
7

Title
Historic Site Features (19th Century)

Client/Project
River Landing
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 4/15/2021

N

Legend

- River Landing
- River Point District
- Additional Site Features (see table)
- Bank of the Manitowoc River

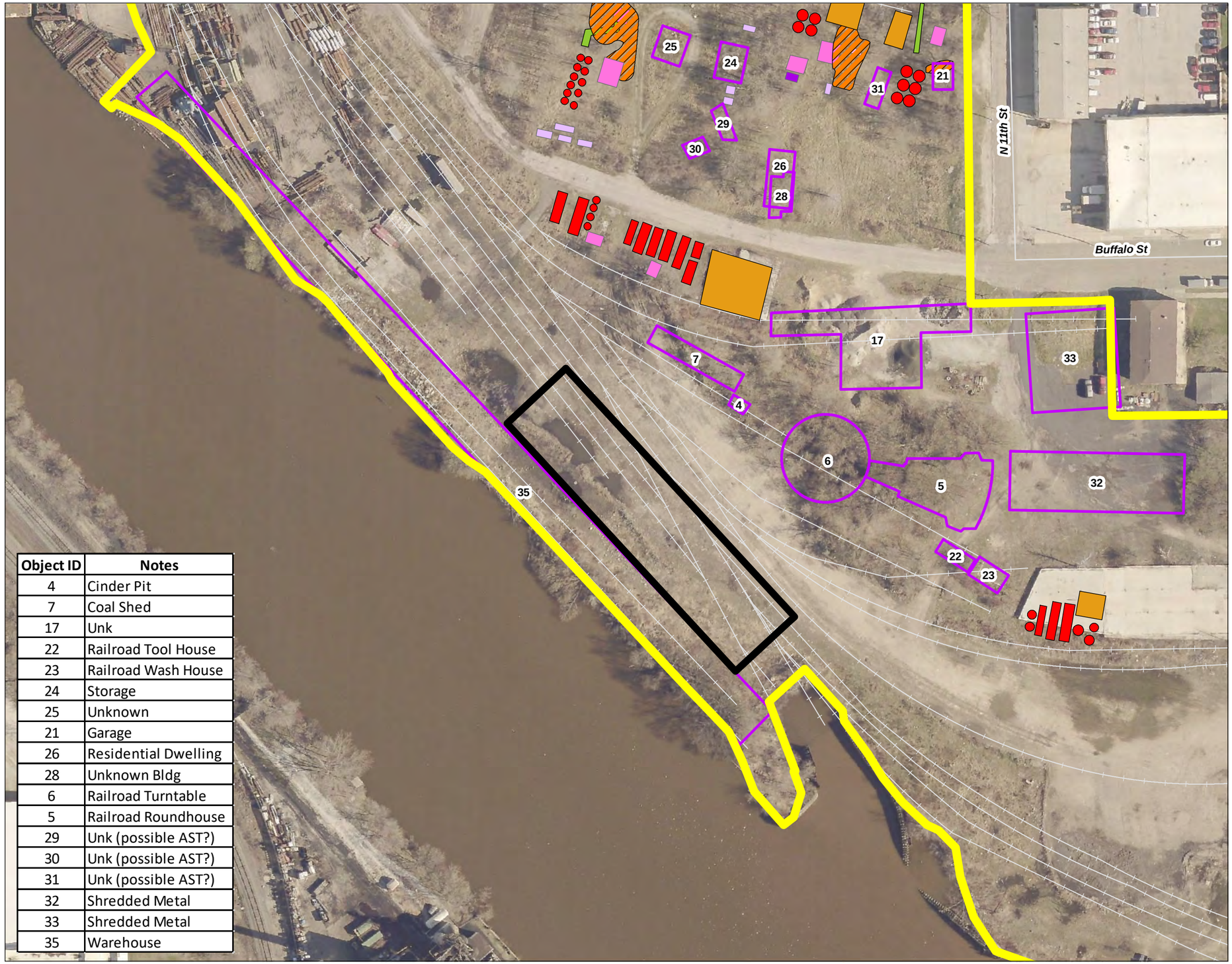
Carl Zander Planing Mill and Factory (~1870s-1895)

- Drying House
- Engine Room
- Lumber
- Planing Mill
- Warehouse
- Shavings
- Shed
- Steam Boxes

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Historic Site features illustrated on this figure were digitized from multiple historic maps/sources, including City Assessor files, WDNR files, and Sanborn (R) Fire Insurance Maps. These features are provided for illustration purposes only; Stantec makes no warranty as to the accuracy of these features.
3. Orthophotograph: Manitowoc County, 2017

Stantec



Object ID	Notes
4	Cinder Pit
7	Coal Shed
17	Unk
22	Railroad Tool House
23	Railroad Wash House
24	Storage
25	Unknown
21	Garage
26	Residential Dwelling
28	Unknown Bldg
6	Railroad Turntable
5	Railroad Roundhouse
29	Unk (possible AST?)
30	Unk (possible AST?)
31	Unk (possible AST?)
32	Shredded Metal
33	Shredded Metal
35	Warehouse

Figure No.
8

Title
Historic Site Features (20th Century)

Client/Project
River Landing
River Point District
City of Manitowoc

0 75 150
Feet

Legend

- River Landing
- River Point District
- Historic Site Features (see table for details)

N

Prior Site Features (City Records)

- Oil House (4)
- Oil Tank (AST) (42)
- Pump House (5)
- UST (1)
- Railroad Spurs

Additional Site Features (WDNR Files)

- Former UST (9)
- Product Piping (2)
- Pump House (2)
- Soil Excavation (3)

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Historic Site features illustrated on this figure were digitized from multiple historic maps/sources, including City Assessor files, WDNR files, and Sanborn (R) Fire Insurance Maps. These features are provided for illustration purposes only; Stantec makes no warranty as to the accuracy of these features.
3. Orthophotograph: Manitowoc County, 2017

Stantec

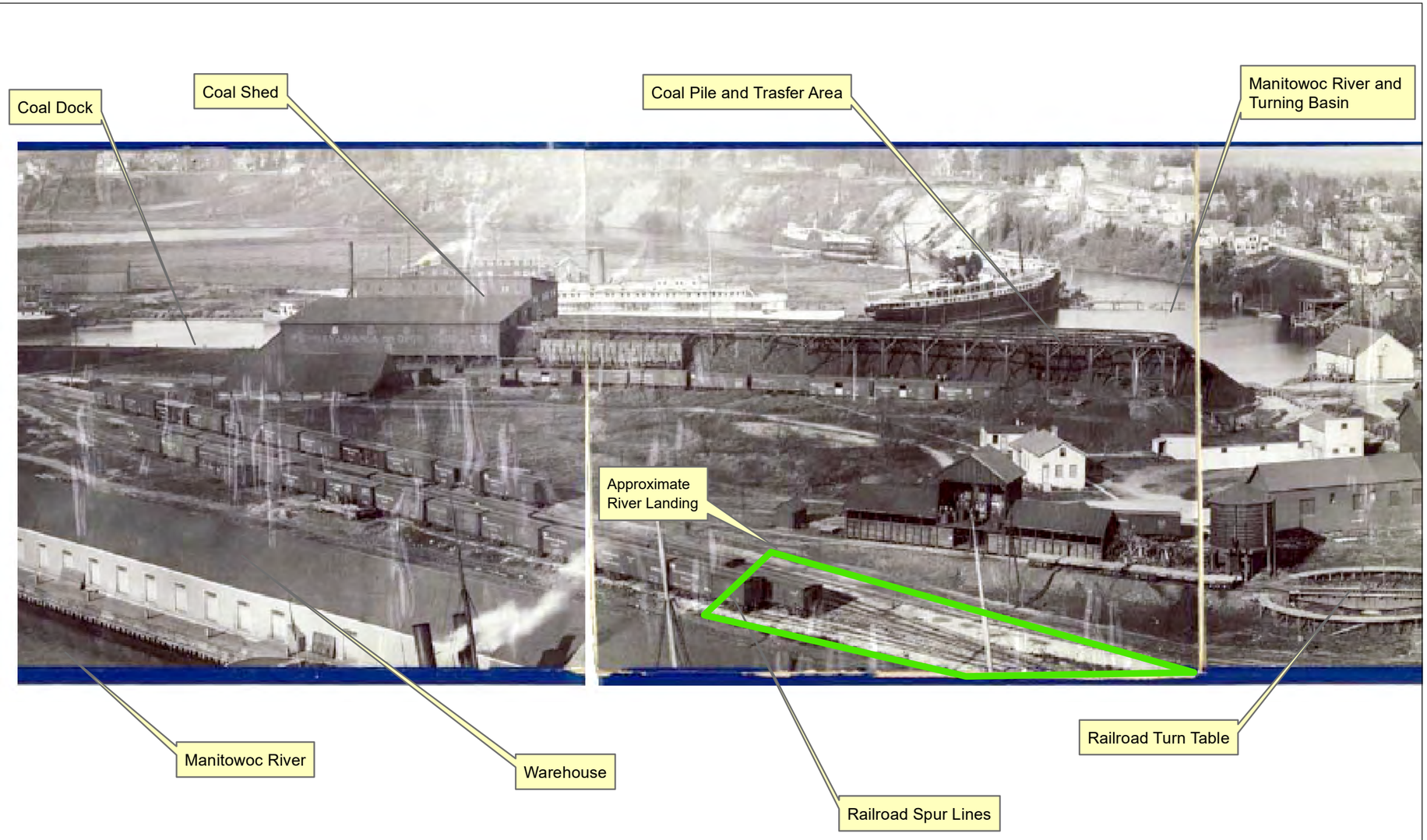


Figure No.
9

Title
1898 Panoramic Photograph
and River Landing

Client/Project
River Landing
River Point District
City of Manitowoc

Prepared by HLB on 1/31/2023

Approximate Vertical Scale
30 Feet
0

Approximate Horizontal Scale
0 175 Feet

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County Historical Society
3. Approximate horizontal and vertical scale for River Landing based on measurements and notations on the Sanborn (R) Fire Insurance Map published in 1900. The approximate scales are not applicable outside of this area.

Stantec

Figure No.
10
Title
Late 20th Century Tenants

Client/Project
River Landing
River Point District
City of Manitowoc

0 130 260 Feet

193708490
Prepared by HLB on 1/24/2022

Legend

- River Landing
- River Point District
- Prior Tenants

N

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

Stantec

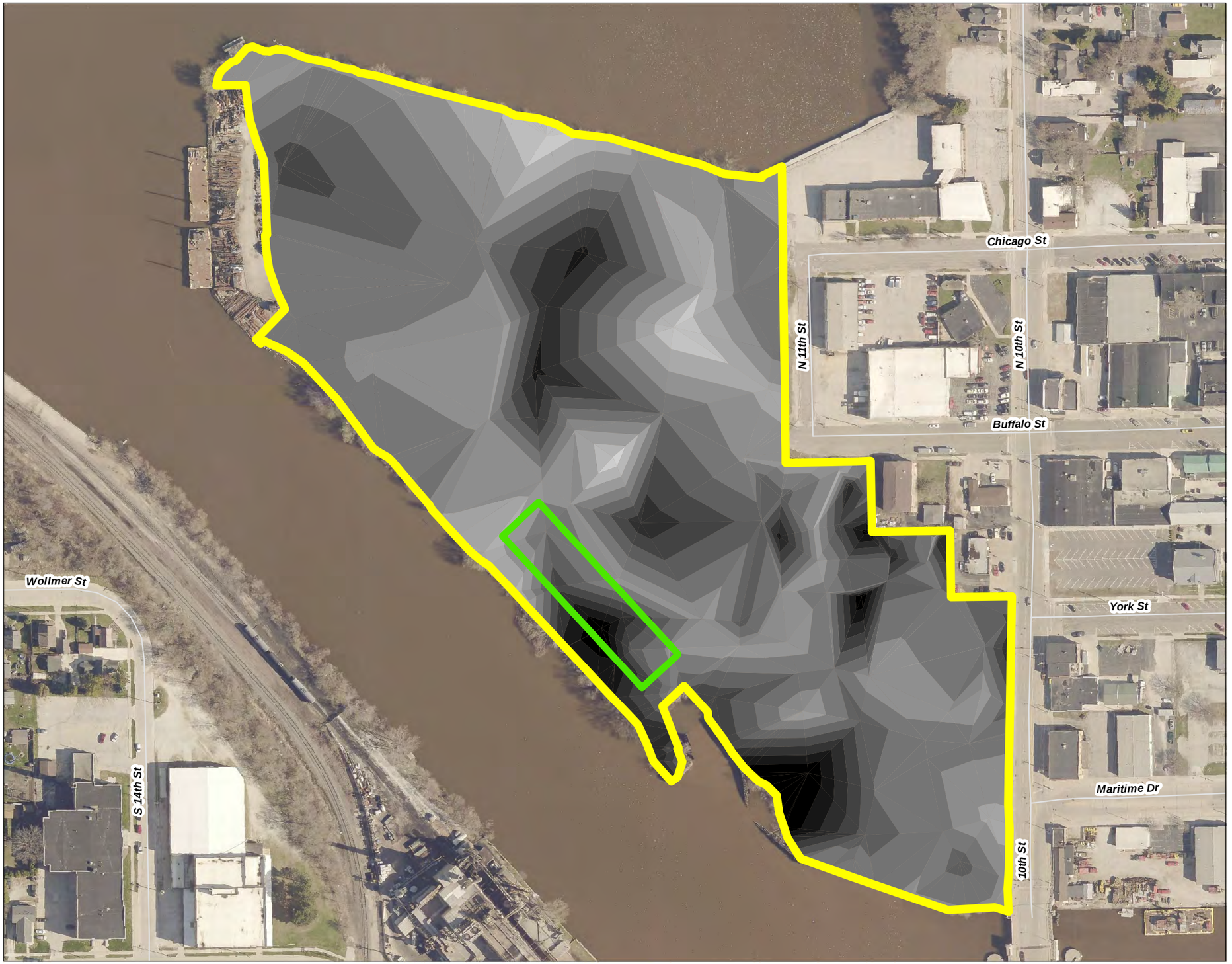


Figure No.
11

Title
Fill Material **Thickness**

Client/Project
River Landing
River Point District
City of Manitowoc

0 125 250 Feet

Prepared by HLB on 5/8/2023

Legend

- River Landing
- River Point District

Depth to Bottom of Fill

(Feet Below Ground Surface)

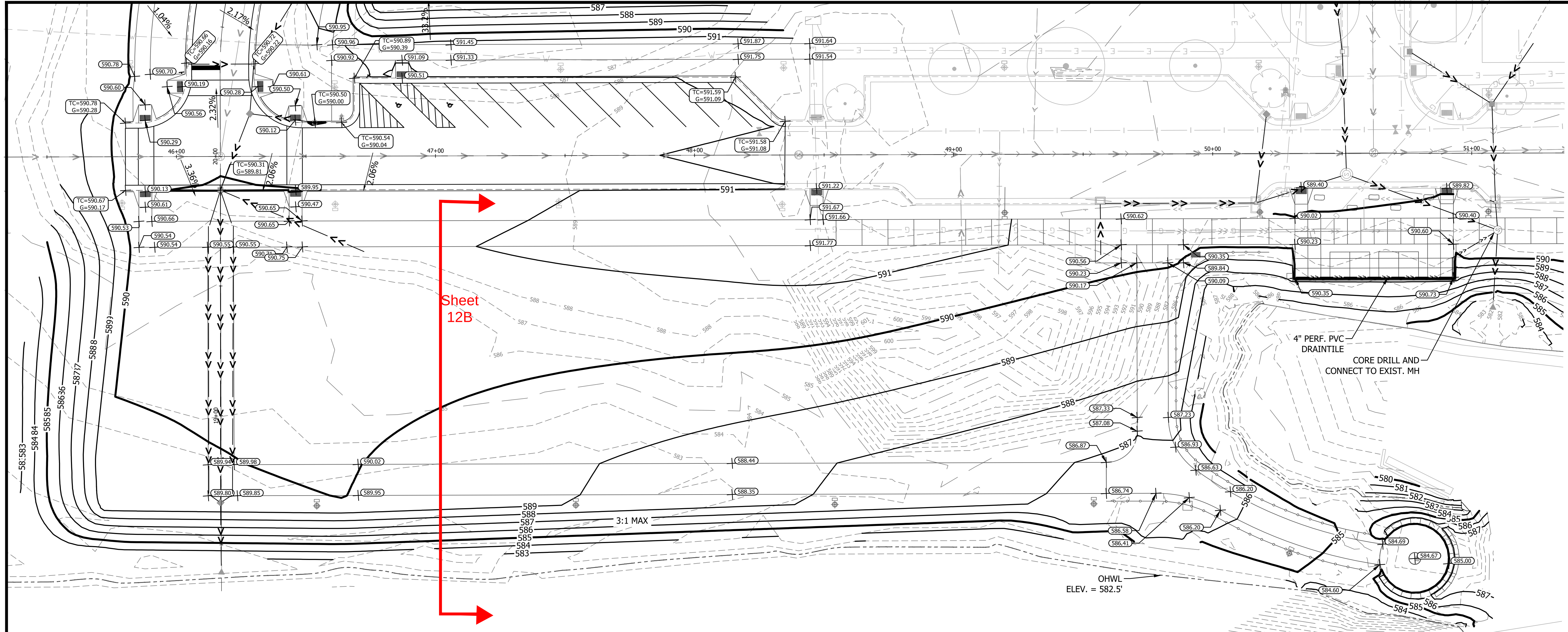
- 7.111 - 8
- 6.222 - 7.111
- 5.333 - 6.222
- 4.444 - 5.333
- 3.556 - 4.444
- 2.667 - 3.556
- 1.778 - 2.667
- 0.889 - 1.778
- 0 - 0.889

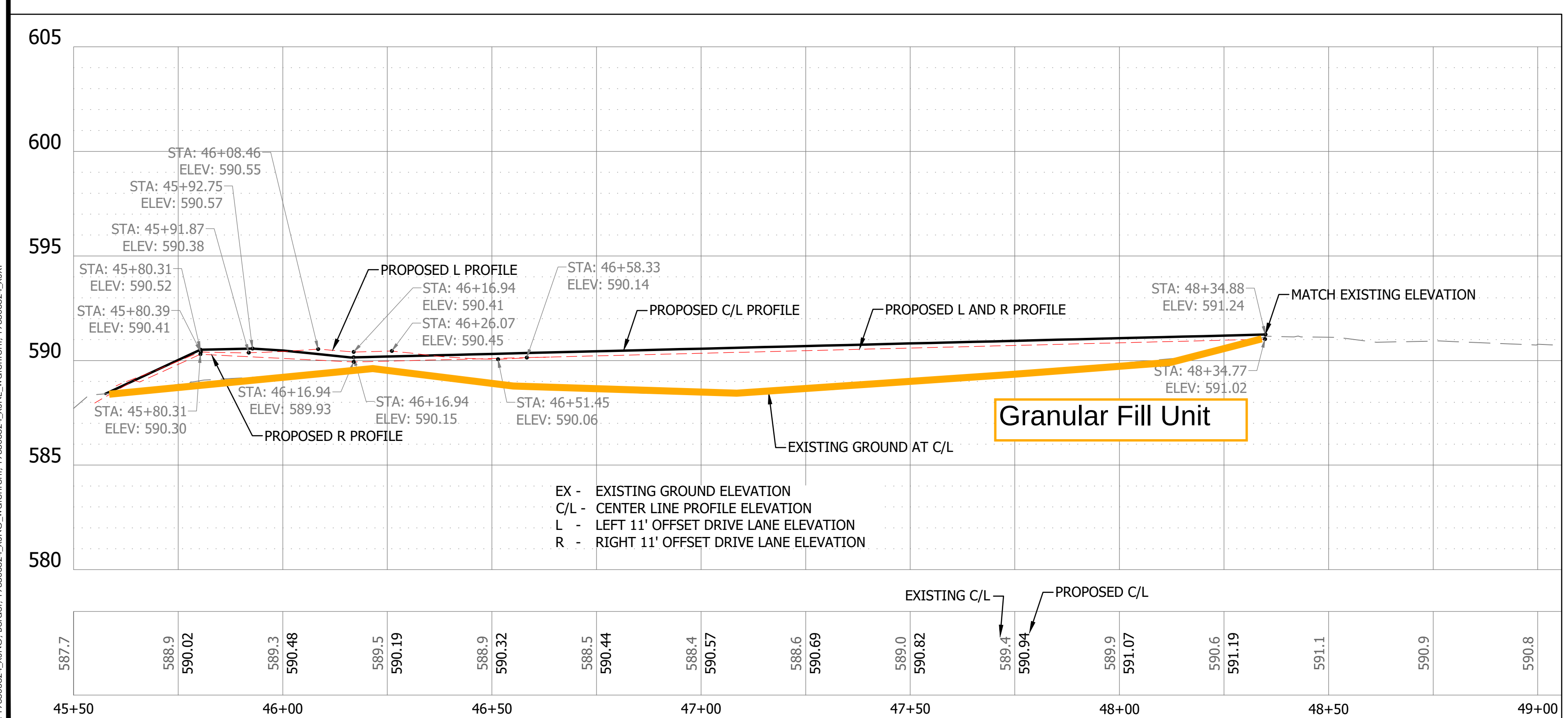
N

Notes

1. Coordinate System: NAD 1983 StatePlane Wisconsin South FIPS 4803 Feet
2. Historic Site features illustrated on this figure were digitized from multiple historic maps/sources, including City Assessor files, WDNR files, and Sanborn (R) Fire Insurance Maps. These features are provided for illustration purposes only; Stantec makes no warranty as to the accuracy of these features.
3. Orthophotograph: Manitowoc County, 2020

Stantec





NOTE

COMPACTION REQUIREMENTS OUTSIDE OF PAVING IS TO MEET BUILDING COMPACTION REQUIREMENTS

GRADING INFORMATION

952	EXISTING CONTOUR MINOR
950	EXISTING CONTOUR MAJOR
952	NEW CONTOUR MINOR
950	NEW CONTOUR MAJOR
	NEW GRADING LIMITS / SLOPE LIMITS
744.40 745.47 × STA:5+67.19 980.87	NEW SPOT ELEVATION
743.21 × 743.78	EXISTING SPOT ELEVATION
4:1	RUN:RISE (SLOPE)

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Bid Set Sheet C3.02
Grading Plan

FIGURE 12: RIVER LANDING CROSS SECTIONS

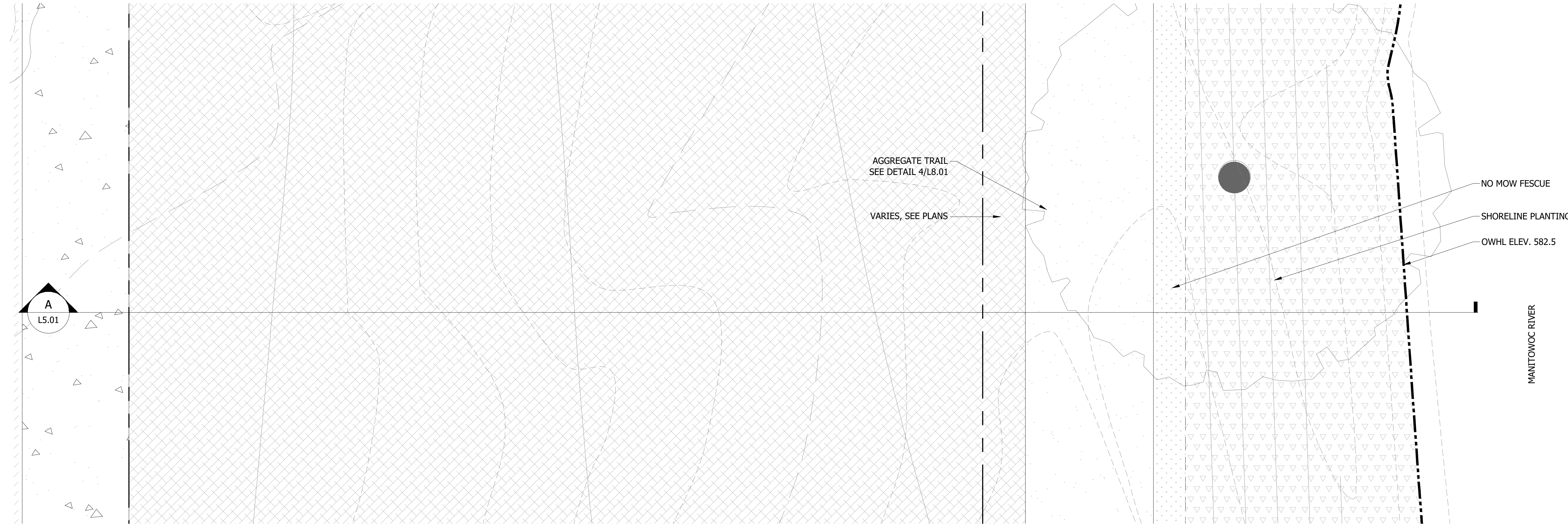
RIVER LANDING
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE: 01/17/2023

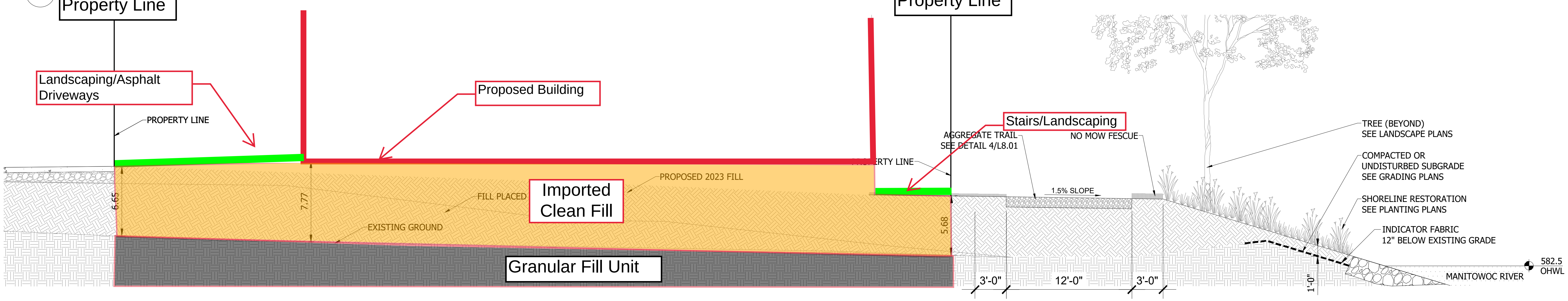
NO	REVISION	DATE

SURVEY	CENTERPOINT
DRAWN	JAW
DESIGNED	JAW
CHECKED	JCB
APPROVED	SMM
PROJ. NO.	193805824

SHEET NUMBER
12A



1 TYPICAL TRAIL AND SHORELINE PLAN



A TYPICAL TRAIL AND SHORELINE SECTION
1"=5'

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Bid Set Sheet L5.01
Landscaping

FIGURE 12: RIVER LANDING CROSS SECTIONS

RIVER LANDING
CITY OF MANITOWOC
MANITOWOC, WISCONSIN

DATE OF ISSUANCE
01/17/2023

NO	REVISION	DATE

SURVEY	CENTERPOINT
DRAWN	MF
DESIGNED	MF
CHECKED	JB
APPROVED	SM
PROJ. NO.	193805824

SHEET NUMBER
12B

Figure No.
13

Title
Sample Locations and Soil Impacts

Client/Project
Site Investigation Project Area
River Point District
City of Manitowoc

0 25 50 Feet

Prepared by HLB on 5/8/2023

Legend

N

River Point District

Site Investigation Project

Sample Locations

Soil Boring / Monitoring Well

Soil Boring

Soil Boring / Temp Well

Soil Impacts

PCB > NIDC

PVOC > GW Pathway

Legend

Townhome Reuse Features

- Asphalt
- Proposed Townhomes
- Concrete
- Grass

Future Redevelopment

- Town Homes (2024-2025)
- Commercial (Finished)
- Multi-Family (Finishing 2022)
- Roadway (2021-2024)
- Landscaping (2024-2025)
- Floating Dock and Pier (2023)
- Multi-Family Residential (2023-2024)
- Sidewalk (2024-2025)
- River Walk / Park (2023-2024)
- Proposed Commercial (2025-2026)

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020
3. Soil impacts illustrated on this figure are in addition to sitewide impacts from PAHs and heavy metals associated with granular fill materials. PCB = polychlorinated biphenyl, PVOC = petroleum volatile organic compounds; NIDC = non-industrial direct contact pathway.

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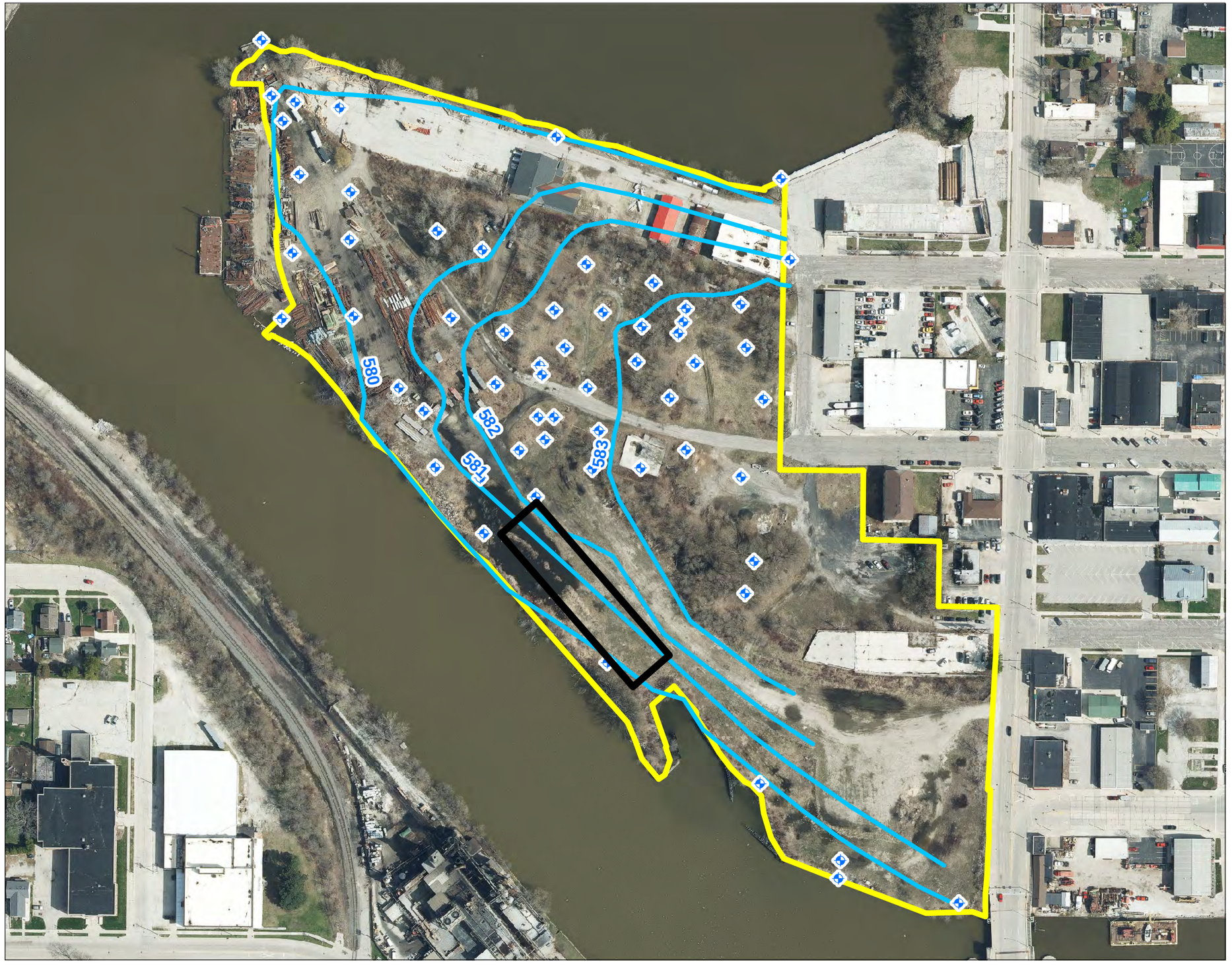

Figure No.
14

Title
Groundwater Elevation (March 2023)

Client/Project
River Landing
River Point District
City of Manitowoc

0 130 260 Feet

Prepared by HLB on 5/8/2023

N

Legend

- River Landing
- Groundwater Monitoring Well
- Groundwater Elevation (feet above mean sea level)
- River Point District

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

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Figure No.
15

Title
Sample Locations and Groundwaterl Impacts

Client/Project
River Landing
River Point District
City of Manitowoc

0 37.5 75 Feet

Prepared by HLB on 5/8/2023

N

Legend

- River Point District
- Site Investigation Project Area

Sample Locations

- Soil Boring / Monitoring Well
- Soil Boring
- Soil Boring / Temp Well

Groundwater Impacts

- CVOC > PAL
- PAH > PAL
- PVOC > PAL
- Vinyl Chloride > ES
- Vinyl Chloride > PAL

Townhome Reuse Features

- Asphalt
- Proposed Townhomes
- Concrete
- Grass

Future Redevelopment

- Town Homes (2024-2025)
- Commercial (Finished)
- Multi-Family (Finishing 2022)
- Roadway (2021-2024)
- Landscaping (2024-2025)
- Floating Dock and Pier (2023)
- Multi-Family Residential (2023-2024)
- Sidewalk (2024-2025)
- River Walk / Park (2023-2024)
- Proposed Commercial (2025-2026)

Notes
1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020
3. CVOC = chlorinated volatile organic compounds; PAH = polycyclic aromatic hydrocarbon; PVOC = petroleum volatile organic compound; PAL = preventive action limit; ES = enforcement standard.

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PFAS (ng/L)	TW-45
	28-Nov-18
PFOA	73
PFOS	4.3
6 PFAS	77.3

PFAS (ng/L)	MW-231
	3/25/2022
PFOA	150
PFOS	23
6 PFAS	173

PFAS (ng/L)	MW-47
	4-Mar-21
PFOA	71
PFOS	1.1 J
6 PFAS	72.1

PFAS (ng/L)	MW-234
	3/25/2022
PFOA	81
PFOS	< 0.51
6 PFAS	81

PFAS (ng/L)	TW-49
	28-Nov-18
PFOA	37
PFOS	3.3
6 PFAS	40.3

PFAS (ng/L)	TW-52
	28-Nov-18
PFOA	17
PFOS	2.8
6 PFAS	19.8

PFAS (ng/L)	MW-53
	3-Mar-21
PFOA	32
PFOS	14
6 PFAS	46

PFAS (ng/L)	MW-117
	4-Mar-21
PFOA	21
PFOS	5.6
6 PFAS	26.6

Notes
Perfluoro-n-Octanoic Acid (PFOA)
Perfluorooctane Sulfonate (PFOS)
Perfluorooctanesulfonamide (PFOSA)
N-ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)
N-Ethyl Perfluorooctanesulfonamido Ethanol (NEtFOSE)
N-ethyl perfluorooctane sulfonamide (NEtFOSA)
6 PFAS are NEtFOSE+NEtFOSA+NEtFOSAA+PFOSA+PFOA+PFOS

	Concentration greater than 2 nanograms per liter (ng/L)
	Concentration greater than 20 nanograms per liter (ng/L)

Figure No.
16

Title
PFAS Concentrations in Groundwater

Client/Project
River Landing
River Point District
City of Manitowoc

0 35 70 Feet

Prepared by HLB on 5/8/2023

Legend

- River Point District
- Site Investigation Project Area
- Groundwater Elevation (feet above mean sea level)

Sample Locations

- Soil Boring / Monitoring Well
- Soil Boring
- Soil Boring / Temp Well

Townhome Reuse Features

- Asphalt
- Proposed Townhomes
- Concrete
- Grass

Proposed Redevelopments

- Town Homes (2024-2025)
- Multi-Family (Finishing 2022)
- Roadway (2021-2024)
- Landscaping (2023-2025)
- Multi-Family Residential (2023-2024)
- Sidewalk (2024-2025)
- River Walk / Park (2023-2024)
- Proposed Commercial (2025-2026)

Notes

1. Coordinate System: NAD 1983 HARN WISCRS Manitowoc County Feet
2. Orthophotograph: Manitowoc County, 2020

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TABLES

Table 1
River Landing Soil Quality
River Point District
Manitowoc, Wisconsin

Notes:

mg/kg	Milligram per Kilogram
µg/kg	Microgram per Kilogram
LCS/LCSD	Laboratory Control Sample/Duplicate
MS/MSD	Matrix Spike/Duplicate
SBVT	Wisconsin Soil Background Threshold Value per WDNR, 2018, RCL spreadsheet for use with macro-enabled Excel program, December 2018 Update, available at https://dnr.wi.gov/topic/Brownfields/documents/tech/RCLs.xlsm.
RCL	Residual contaminant level for noted pathway per WDNR, 2018, RCL spreadsheet for use with macro-enabled Excel program, December 2018 Update, available at https://dnr.wi.gov/topic/Brownfields/documents/tech/RCLs.xlsm.
A	Concentration with a superscript A indicates concentration exceeds the soil background threshold value
B	Concentration with a superscript B indicates concentration exceeds the RCL for direct contact at non-industrial properties
C	Concentration with a superscript C indicates concentration exceeds the RCL for direct contact at industrial properties
D	Concentration with a superscript D indicates concentration exceeds the RCL for the soil to groundwater exposure pathway
1,500^{BCD}	Concentration with multiple superscript letters indicates concentration exceeds more than one RCL. In this example, the concentration exceeds the RCL for direct contact at non-industrial and industrial properties and the RCL for the soil to groundwater exposure route.
SB-105	Light green heading indicates sample was taken within the River Landing property boundary.
SB-49	Light blue heading indicates sample was taken within 75 feet of River Landing.
-	Parameter not analyzed.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
n/v	No standard/guideline value.
B	Indicates analyte was found in associated blank, as well as in the sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	The reported result is an estimated value.
ND	Not detected.
*	LCS or LCSD is outside the control limits
*+	LCS or LCSD is outside the control limits, high biased.
*III	Laboratory internal standard response or retention time outside acceptance limits.

Table 1
River Landing Soil Quality
River Point District
Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTV (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit										
						SB-44	SB-47		SB-49	SB-50		SB-102		SB-103		SB-105
						S5_SB-18	S5_SB-16		S1_SB-19	S1_SB-24		-		-		-
						15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	15-Nov-18	2-Mar-21	2-Mar-21	2-Mar-21	2-Mar-21	25-Feb-21
						0 - 1 ft	2.5 - 3 ft	3 - 4 ft	5 - 6 ft	1.5 - 2.25 ft	2.25 - 3 ft	2.5 - 3.5 ft	3.5 - 5 ft	2 - 3.5 ft	3.5 - 5 ft	3 - 5 ft
						ABOVE	BELOW	BELOW	FILL	FILL	BELOW	BELOW	BELOW	FILL	BELOW	FILL
Heavy Metals																
Arsenic	mg/kg	8.3	0.677	3	0.584	-	2.4 BD	-	-	-	-	-	-	0.86 J BD	0.49 J	-
Barium	mg/kg	364	15,300	100,000	164.8	-	38	-	-	-	-	-	-	-	-	-
Cadmium	mg/kg	1.07	71.1	985	0.752	-	0.14 J B	-	-	-	-	-	-	-	-	-
Chromium	mg/kg	43.5	n/v	n/v	360,000	-	13	-	-	-	-	-	-	-	-	-
Lead	mg/kg	51.6	400	800	27	-	13	-	-	-	-	-	-	10	5.0	-
Mercury	mg/kg	n/v	3.13	3.13	0.208	-	0.018	-	-	-	-	-	-	-	-	-
Selenium	mg/kg	n/v	391	5,840	0.52	-	**0.79 J B D**	-	-	-	-	-	-	-	-	-
Polychlorinated Biphenyls																
(9) Aroclor Mixtures	mg/kg	n/v	Various		n/v	-	-	-	-	-	-	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	-	-	-	-	70 J	-	<35	-	<110	<39	-
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	-	-	-	-	1,600	-	<35	-	<110	<39	-
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	-	-	-	-	1,600	-	<35	-	<110	<39	-
Benzo(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	-	-	-	-	**2,100 B**	-	11 J	-	<110	<39	-
Benzo(a)pyrene	µg/kg	n/v	115	2,110	470	-	-	-	-	**5,100 BCD**	-	11 J	-	<110	<39	-
Benzo(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	-	-	-	-	**9,200 BD**	-	11 J	-	<110	<39	-
Benzo(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	-	-	-	-	3,200	-	<35	-	<110	<39	-
Benzo(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	-	-	-	-	2,300	-	<35	-	<110	<39	-
Chrysene	µg/kg	n/v	115,000	2,110,000	144	-	-	-	-	**2,900 D**	-	11 J	-	<110	<39	-
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	-	-	-	-	**1,300 B**	-	<35	-	<110	<39	-
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	-	-	-	-	1,800	-	20 J	-	<110	<39	-
Fluorene	µg/kg	n/v	2,390,000	30,100,000	14,830	-	-	-	-	120 J *	-	<35	-	<110	<39	-
Indeno(1,2,3-cd)pyrene	µg/kg	n/v	1,150	21,100	n/v	-	-	-	-	**3,300 B**	-	<35	-	<110	<39	-
Methylnaphthalene, 1-	µg/kg	n/v	17,600	72,700	n/v	-	-	-	-	1,500	-	<70	-	<230	<80	-
Methylnaphthalene, 2-	µg/kg	n/v	239,000	3,010,000	n/v	-	-	-	-	1,700	-	<70	-	<230	<80	-
Naphthalene	µg/kg	n/v	5,520	24,100	658	-	-	-	-	**1,400 D**	-	<35	-	<110	<39	-
Phenanthrene	µg/kg	n/v	n/v	n/v	n/v	-	-	-	-	1,100	-	11 J	-	<110	<39	-
Pyrene	µg/kg	n/v	1,790,000	22,600,000	54,546	-	-	-	-	2,400	-	21 J	-	<110	<39	-
Volatile Organic Compounds																
Benzene	µg/kg	n/v	1,600	7,070	5.1	<13 *	-	<9.3 *	**160 D**	-	**50 D**	-	<16	<18	-	**12 J D**
Butylbenzene, n-	µg/kg	n/v	108,000	108,000	n/v	<35 *	-	<25 *	140 J *	-	23 J *	-	<65	<70	-	<61
Butylbenzene, sec- (2-Phenylbutane)	µg/kg	n/v	145,000	145,000	n/v	<35 *	-	<25 *	75 J *	-	<23 *	-	<65	<70	-	<61
Ethylbenzene	µg/kg	n/v	8,020	35,400	1,570	<16	-	<12	560	-	61	-	<16	<18	-	21
Isopropylbenzene	µg/kg	n/v	268,000	268,000	n/v	<34 *	-	<25 *	170 J *	-	42 J *	-	<65	<70	-	<61
Isopropyltoluene, p- (Cymene)	µg/kg	n/v	162,000	162,000	n/v	<32 *	-	<23 *	100 J *	-	<20 *	-	<65	<70	-	<61
Methylene Chloride (Dichloromethane)	µg/kg	n/v	61,800	1,150,000	2.6	<150	-	<100	<300	-	<92	-	<320	<350	-	<310
Naphthalene	µg/kg	n/v	5,520	24,100	658	68 J	-	<21	**1,100 D**	-	280	-	<65	<70	-	100
Propylbenzene, n-	µg/kg	n/v	264,000	264,000	n/v	<37	-	<26	280	-	56 J	-	<65	<70	-	<61
Toluene	µg/kg	n/v	818,000	818,000	1,107	30	-	<9.4 *	**1,200 D**	-	320	-	<16	<18	-	63
Trichloropropane, 1,2,3-	µg/kg	n/v	5	109	51.9	<37 *	-	<26 *	**130 J *BCD**	-	<23 *	-	<130	<140	-	<120
Trimethylbenzene, 1,2,4-	µg/kg	n/v	219,000	219,000	1,380	<32 *	-	<23 *	930	-	95	-	<65	<70	-	60 J
Trimethylbenzene, 1,3,5-	µg/kg	n/v	182,000	182,000		<34 *	-	<24 *	170 J *	-	<22 *	-	<65	<70	-	<61
Xylenes, Total	µg/kg	n/v	260,000	260,000	3,960	35 J *	-	<14 *	2,600	-	410	-	<32	<35	-	150
General Chemistry																
Cyanide, Total	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	-

See notes on last page

Table 1
River Landing Soil Quality
River Point District
Manitowoc, Wisconsin

Detected Constituents in Soil	Units	Wisconsin SBTV (A)	Non-Industrial Direct Contact RCL (B)	Industrial Direct Contact RCL (C)	Soil to Groundwater RCL (D)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date, Sample Depth, Lithology Relative to Black Granular Fill Unit											
						SB-106		SB-107	SB-108			SB-117	SB-132		SB-158		
						-		-	-			-	-		-		
						25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	25-Feb-21	29-Jun-22	29-Jun-22	29-Jun-22
						4 - 5 ft	6 - 7 ft	2 - 3 ft	0 - 1 ft	1 - 2.5 ft	3.5 - 5 ft	2.5 - 3.5 ft	2 - 3 ft	4 - 5 ft	5.5 - 6 ft	6 - 8 ft	12.5 - 15 ft
						FILL	BELOW	FILL	FILL	FILL	BELOW	ABOVE	FILL	BELOW	FILL	BELOW	BELOW
Heavy Metals																	
Arsenic	mg/kg	8.3	0.677	3	0.584	5.3[BCD]	1.2[BD]	2.0[BD]	-	1.8[BD]	0.42 J	-	**8.4[ABCD]**	0.57 J	**9.8[ABCD]**	1.6[BD]	1.7[BD]
Barium	mg/kg	364	15,300	100,000	164.8	-	-	-	-	-	-	-	-	-	53	22	27
Cadmium	mg/kg	1.07	71.1	985	0.752	-	-	-	-	-	-	-	-	-	0.54 B	0.12 J	0.12 J
Chromium	mg/kg	43.5	n/v	n/v	360,000	-	-	-	-	-	-	-	-	-	11	6.0	7.6
Lead	mg/kg	51.6	400	800	27	**72[AD]**	2.9	30[D]	-	37[D]	6.3	-	**200[AD]**	17	**140[AD]**	22	26
Mercury	mg/kg	n/v	3.13	3.13	0.208	-	-	-	-	-	-	-	-	-	0.046	0.10	0.18
Selenium	mg/kg	n/v	391	5,840	0.52	-	-	-	-	-	-	-	-	-	<0.61	<0.58	<0.63
Polychlorinated Biphenyls																	
(9) Aroclor Mixtures	mg/kg	n/v	Various		n/v	-	-	-	-	-	-	-	-	-	-	-	ND
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	µg/kg	n/v	3,590,000	45,200,000	n/v	12 J	<39	6.7 J	-	21 J	<38	-	<150	<36	<6.7	<6.2	<21
Acenaphthylene	µg/kg	n/v	n/v	n/v	n/v	44	<39	37	-	98	<38	-	85 J	<36	15 J	<4.5	<15
Anthracene	µg/kg	n/v	17,900,000	100,000,000	196,949	65	<39	51	-	170	<38	-	97 J	<36	64	<5.7	<19
Benzo(a)anthracene	µg/kg	n/v	1,140	20,800	n/v	140	<39	120	-	940	<38	-	220	<36	190 *III	7.0 J	19 J
Benzo(a)pyrene	µg/kg	n/v	115	2,110	470	**180[B]**	<39	**140[B]**	-	**880[BD]**	<38	-	**310[B]**	<36	**200 *III[B]**	6.6 J	<22
Benzo(b)fluoranthene	µg/kg	n/v	1,150	21,100	478	280	<39	260	-	**1,400[BD]**	<38	-	**510[D]**	<36	410 *III	<7.4	<25
Benzo(g,h,i)perylene	µg/kg	n/v	n/v	n/v	n/v	130	<39	97	-	340	<38 F1	-	210	<36	96 *III	<11	<37
Benzo(k)fluoranthene	µg/kg	n/v	11,500	211,000	n/v	130	<39	90	-	670	<38	-	230	<36	88 *III	<10	<34
Chrysene	µg/kg	n/v	115,000	2,110,000	144	**210[D]**	<39	**160[D]**	-	**960[D]**	<38	-	**310[D]**	<36	**310 *III[D]**	<9.4	<31
Dibenzo(a,h)anthracene	µg/kg	n/v	115	2,110	n/v	37	<39	31 J	-	**130[B]**	<38 F1	-	59 J	<36	<7.2 *III *+	<6.6 *+	<22 *+
Fluoranthene	µg/kg	n/v	2,390,000	30,100,000	88,878	260	<39	170	-	1,800	<38	-	320	<36	220	<6.4	<21
Fluorene	µg/kg	n/v	2,390,000	30,100,000	14,830	15 J	<39	7.7 J	-	28 J	<38	-	21 J	<36	8.3 J	<4.8	<16
Indeno(1,2,3-cd)pyrene	µg/kg	n/v	1,150	21,100	n/v	120	<39	99	-	380	<38 F1	-	190	<36	73 *III	<8.9	<30
Methylnaphthalene, 1-	µg/kg	n/v	17,600	72,700	n/v	350	<79	140	-	290	<78	-	830	<74	58 J	<8.4	<28
Methylnaphthalene, 2-	µg/kg	n/v	239,000	3,010,000	n/v	420	<79	170	-	340	<78	-	1,100	<74	62 J	<6.3	<21
Naphthalene	µg/kg	n/v	5,520	24,100	658	280	<39	120	-	250	<38	-	**770[D]**	<36	19 J	<5.3	<18
Phenanthrene	µg/kg	n/v	n/v	n/v	n/v	310	<39	120	-	430	<38	-	560	<36	510	7.1 J	<16
Pyrene	µg/kg	n/v	1,790,000	22,600,000	54,546	220	<39	150	-	1,500	<38	-	320	<36	370 *III	<6.8	<23
Volatile Organic Compounds																	
Benzene	µg/kg	n/v	1,600	7,070	5.1	**15 J[D]**	-	**11 J[D]**	<20	-	-	<32	-	-	**57[D]**	-	-
Butylbenzene, n-	µg/kg	n/v	108,000	108,000	n/v	<63	-	<56	<81	-	-	<130	-	-	<27	-	-
Butylbenzene, sec- (2-Phenylbutane)	µg/kg	n/v	145,000	145,000	n/v	<63	-	<56	<81	-	-	<130	-	-	36 J	-	-
Ethylbenzene	µg/kg	n/v	8,020	35,400	1,570	45	-	30	<20	-	-	<32	-	-	92	-	-
Isopropylbenzene	µg/kg	n/v	268,000	268,000	n/v	34 J	-	24 J	<81	-	-	<130	-	-	84	-	-
Isopropyltoluene, p- (Cymene)	µg/kg	n/v	162,000	162,000	n/v	<63	-	<56	<81	-	-	<130	-	-	26 J	-	-
Methylene Chloride (Dichloromethane)	µg/kg	n/v	61,800	1,150,000	2.6	<310	-	<280	<400	-	-	<640	-	-	**120 J[D]**	-	-
Naphthalene	µg/kg	n/v	5,520	24,100	658	150	-	120	82	-	-	99 J	-	-	430 B	-	-
Propylbenzene, n-	µg/kg	n/v	264,000	264,000	n/v	38 J	-	26 J	<81	-	-	<130	-	-	94	-	-
Toluene	µg/kg	n/v	818,000	818,000	1,107	98	-	85	40	-	-	58	-	-	320	-	-
Trichloropropane, 1,2,3-	µg/kg	n/v	5	109	51.9	<130	-	<110	<160	-	-	<250	-	-	**31 J[B]**	-	-
Trimethylbenzene, 1,2,4-	µg/kg	n/v	219,000	219,000	1,380	110	-	71	49 J	-	-	<130	-	-	260	-	-
Trimethylbenzene, 1,3,5-	µg/kg	n/v	182,000	182,000		27 J	-	<56	<81	-	-	<130	-	-	73	-	-
Xylenes, Total	µg/kg	n/v	260,000	260,000	3,960	280	-	200	110	-	-	130	-	-	720 B	-	-
General Chemistry																	
Cyanide, Total	mg/kg	n/v	n/v	n/v	n/v	-	-	-	-	-	-	-	-	-	-	<0.12	-

See notes on last page

Table 2
River Landing Groundwater Quality
River Point District
Manitowoc, Wisconsin

Notes:

TW-44	Light blue heading indicates sample was taken within 75 feet of River Landing.
ug/L	Microgram per Liter
mg/L	Milligram per Liter
ng/L	Nanogram per Liter
LCS/LCSD	Laboratory Control Sample/Duplicate
A	Constituent concentration with a subscript A is greater than the ch. NR 140 WAC Preventive Action Limit.
AB	Constituent concentration with a subscript AB is greater than the ch. NR 140 WAC Enforcement Standard.
15.2	Measured concentration did not exceed the indicated standard.
<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
-	Parameter not analyzed.
B	Indicates analyte was found in associated blank, as well as in the sample.
H	Sample was prepped or analyzed beyond the specified holding time.
I	Recorded values are the estimated maximum possible concentration.
J	The reported result is an estimated value between the laboratory limit of detection and the limit of quantitation.
ND	Not detected.
n/v	No standard/guideline value.
*+	The LCS or LCSD was outside acceptance limits, high biased.
**	Combined standard for (6) PFAS compounds proposed by the Wisconsin Department of Health Services on November 6, 2020 as part of the rulemaking process with updating ch. NR 140 WAC.

Table 2
River Landing Groundwater Quality
River Point District
Manitowoc, Wisconsin

Detected Constituents	Units	Preventive Action Limit (A)	Enforcement Standard (B)	Sample ID, Legacy Sample ID (Prior to 2021), Sample Date								
				TW-44	MW-44	TW-47	MW-47		TW-49	TW-50	MW-117	MW-158
				S5_TW-18	S5_MW-18	S5_TW-16	AECOM 1_MW-19		S1_TW-19	S1_TW-24	-	-
				27-Nov-18	4-Feb-19	27-Nov-18	18-Mar-20	4-Mar-21	28-Nov-18	28-Nov-18	4-Mar-21	19-Jul-22
Metals												
Arsenic	mg/L	0.001	0.01	**0.0030[A]**	<0.0037	-	< 0.00056	-	**0.0024[A]**	-	**0.0016[A]**	0.00070 J
Barium	mg/L	0.4	2	0.34	-	-	-	-	0.16	-	-	-
Lead	mg/L	0.0015	0.015	0.00083	-	-	-	<0.00050	<0.00019	-	0.00021 J	-
Fluorinated Alkyl Substances												
Perfluorobutane Sulfonate (PFBS)	ng/L	90,000	450,000	-	-	-	-	3.3	3.5	-	2.3	-
Perfluorobutanoic Acid (PFBA)	ng/L	2,000	10,000	-	-	-	-	9.5	14	-	5.8	-
Perfluoroheptanoic Acid (PFHpA)	ng/L	n/v	n/v	-	-	-	-	6.3	4	-	2.5	-
Perfluorohexanesulfonic acid (PFHxS)	ng/L	4	40	-	-	-	-	<1.8	0.79 J	-	0.65 J	-
Perfluorohexanoic Acid (PFHxA)	ng/L	30,000	150,000	-	-	-	-	5.9	4.2	-	2.2	-
Perfluoro-n-Octanoic Acid (PFOA)	ng/L	2	20	-	-	-	-	**71[AB]**	**37[AB]**	-	**21[AB]**	-
Perfluorononanoic Acid (PFNA)	ng/L	3	30	-	-	-	-	<1.8	0.62 J	-	1.3 J	-
Perfluorooctane Sulfonate (PFOS)	ng/L	2	20	-	-	-	-	1.1 J I	**3.3[A]**	-	**5.6[A]**	-
Perfluoropentanoic Acid (PFPeA)	ng/L	n/v	n/v	-	-	-	-	3.3	3.7 J	-	2.1	-
NEtFOSE+NEtFOSA+NEtFOSAA+PFOSA+PFOA+PFOS**	ng/L	2	20	-	-	-	-	**72.1[AB]**	**40.3[AB]**	-	**26.6[AB]**	-
Polycyclic Aromatic Hydrocarbons												
Acenaphthylene	µg/L	n/v	n/v	0.45 J H	<0.21 LQ	-	-	<0.78	<0.22	<0.23	<0.81	<0.21
Anthracene	µg/L	600	3,000	1.4	<0.26	-	-	<0.78	<0.27	<0.28	<0.81	<0.26 *+
Benzo(a)anthracene	µg/L	n/v	n/v	3.7	<0.045	-	-	<0.16	0.095 J	0.11 J	<0.16	<0.044
Benzo(a)pyrene	µg/L	0.02	0.2	**3.9[AB]**	<0.078	-	-	<0.16	<0.081	**0.11 J[A]**	<0.16	<0.077
Benzo(b)fluoranthene	µg/L	0.02	0.2	**4.2[AB]**	<0.064	-	-	<0.16	<0.066	**0.16 J[A]**	<0.16	<0.062
Benzo(g,h,i)perylene	µg/L	n/v	n/v	2.4	<0.30	-	-	<0.78	<0.31	<0.32	<0.81	<0.29
Benzo(k)fluoranthene	µg/L	n/v	n/v	2.0	<0.050	-	-	<0.16	<0.052	<0.054	<0.16	<0.050
Chrysene	µg/L	0.02	0.2	**3.7[AB]**	<0.054	-	-	<0.16	<0.056	**0.088 J[A]**	<0.16	<0.053
Dibenzo(a,h)anthracene	µg/L	n/v	n/v	0.66	<0.040	-	-	<0.24	<0.042	<0.043	<0.24	<0.039
Fluoranthene	µg/L	80	400	7.4	<0.36	-	-	<0.78	<0.37	<0.38	<0.81	<0.35
Fluorene	µg/L	80	400	0.49 J H	<0.19	-	-	<0.78	<0.20	<0.21	<0.81	<0.19
Indeno(1,2,3-cd)pyrene	µg/L	n/v	n/v	2.1	<0.059	-	-	<0.16	<0.061	<0.063	<0.16	<0.058
Methylnaphthalene, 1-	µg/L	n/v	n/v	<0.27 H	<0.24 LQ	-	-	<1.6	<0.25	<0.25	0.38 J	<0.23
Methylnaphthalene, 2-	µg/L	n/v	n/v	0.096 J H	<0.051 LQ	-	-	<1.6	<0.053	<0.055	0.48 J	<0.050
Naphthalene	µg/L	10	100	<0.27 H	<0.24 LQ	-	-	<0.78	<0.25	<0.26	0.64 J	<0.24
Phenanthrene	µg/L	n/v	n/v	4.3	<0.24	-	-	<0.78	<0.25	<0.25	<0.81	<0.23
Pyrene	µg/L	50	250	6.7	<0.34	-	-	<0.78	<0.35	<0.36	<0.81	<0.33 *+
Volatile Organic Compounds												
Isopropyltoluene, p- (Cymene)	µg/L	n/v	n/v	<0.36	-	<0.36	-	-	<0.36	<0.36	0.40 J	<0.36
Methylene Chloride (Dichloromethane)	µg/L	0.5	5	**3.9 J B[A]**	-	**4.5 J B[A]**	-	-	<1.6	<1.6	<5.0	<1.6
Naphthalene	µg/L	10	100	-	-	0.37 J B	-	-	-	-	0.51 J	<0.34

See notes on last page

ATTACHMENT A

Certified Survey Map

Design with community in mind

Attachment A - Recorded CSM for River Landing

CERTIFIED SURVEY MAP

DOC# 1266038 VOL 36 PG 329

LOCATED IN BLOCKS 148, 169, AND 170 OF THE ORIGINAL PLAT OF THE CITY OF MANITOWOC AND ADJACENT VACATED STREETS, BEING PART OF GOVERNMENT LOT 3 OF SECTION 30, TOWN 19 NORTH, RANGE 24 EAST, CITY OF MANITOWOC, MANITOWOC COUNTY, WISCONSIN

STATE OF WI - MTWC CO
KRISTI TUESBURG REG/DEEDS
RECEIVED FOR RECORD
09/21/2023 1:41:33 PM

Corner Point
A DIVISION OF ACE BUILDING SERVICE
3510 S. 26th Street
Manitowoc, WI 54220
Ph 920.682.6105

LEGEND

- ○ = 3/4"x 18" IRON REBAR SET WEIGHING 1.13 LBS/FT
- △ = MAG NAIL SET
- ● = EXISTING 3/4" IRON ROD
- ▲ = EXISTING MAG NAIL
- (000) = "RECORDED AS" DIMENSION

TOTAL AREA

119,852 Sq. Ft.
2.751 Acres

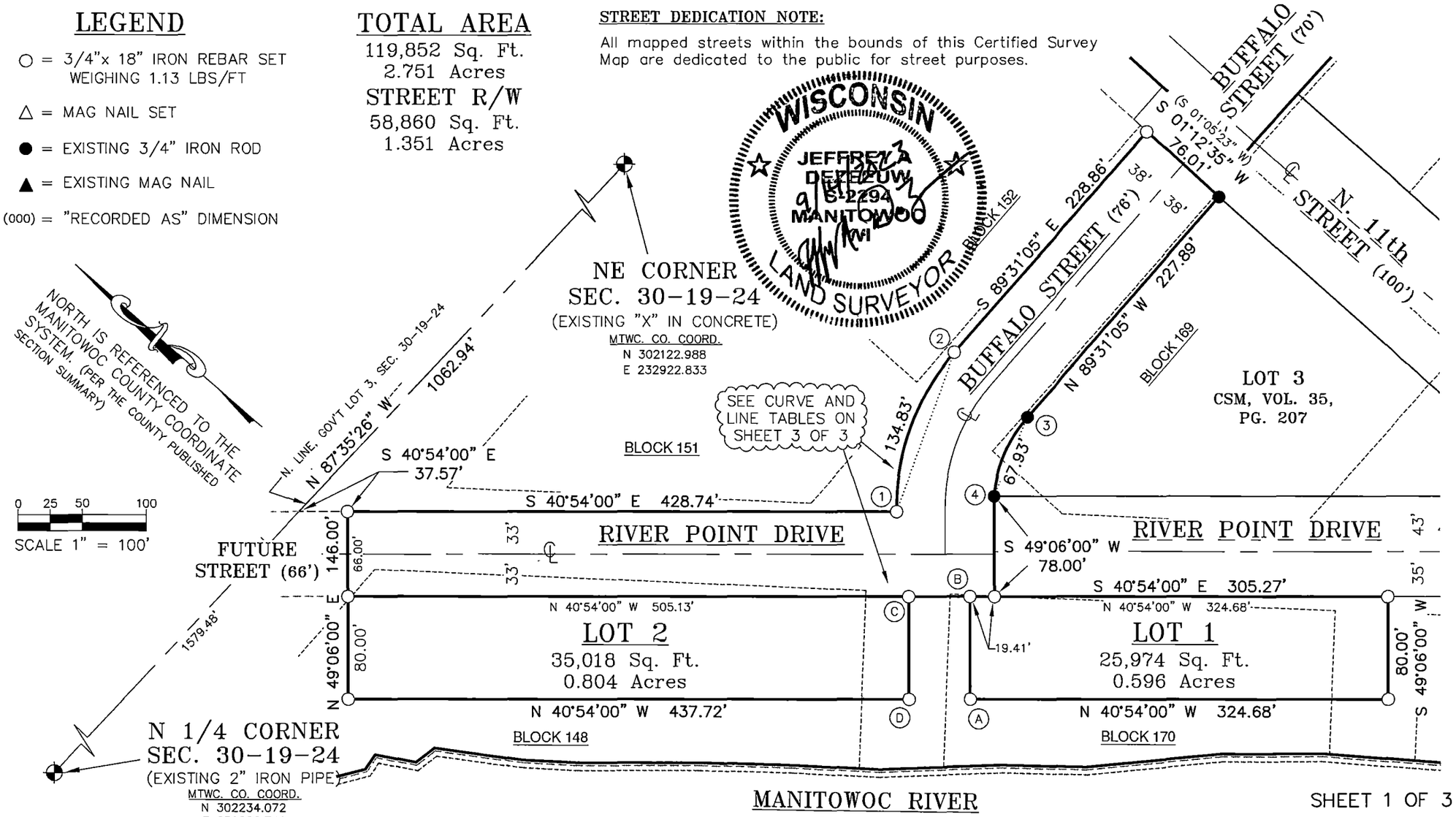
STREET R/W

58,860 Sq. Ft.
1.351 Acres

STREET DEDICATION NOTE:

All mapped streets within the bounds of this Certified Survey Map are dedicated to the public for street purposes.

WISCONSIN
JEFFREY A DEREEUW
S-2294
MANITOWOC
LAND SURVEYOR



SHEET 1 OF 3

THIS INSTRUMENT WAS DRAFTED BY: Jeffrey A. DeZeeuw, PLS of Corner Point JULY 26, 2023 JOB No.: S638023 FILE: DWG\CITY\MTWC\STANTEC\CITY-CN RR PROJECT\CSM 2023\S638023

DOC# 1266038 VOL 36 PG 330

CERTIFIED SURVEY MAP

LOCATED IN BLOCKS 148, 169, AND 170 OF THE ORIGINAL PLAT OF THE CITY OF MANITOWOC AND ADJACENT VACATED STREETS, BEING PART OF GOVERNMENT LOT 3 OF SECTION 30, TOWN 19 NORTH, RANGE 24 EAST, CITY OF MANITOWOC, MANITOWOC COUNTY, WISCONSIN

Corner Point
A DIVISION OF ACE BUILDING SERVICE
3510 S. 26th Street
Manitowoc, WI 54220
Ph 920.682.6105

SURVEYOR'S CERTIFICATE

I, Jeffrey A. DeZeeuw, Professional Land Surveyor with Corner Point, do hereby certify that I have surveyed and mapped the following described parcel:

Part of Blocks 148, 169, and 170 of the Original Plat of the City of Manitowoc and adjacent vacated streets, being part of Government Lot 3 of Section 30, Town 19 North, Range 24 East, City of Manitowoc, Manitowoc County, Wisconsin, described as follows:

Commencing at the NE Corner of said Section 30; Thence N 87°35'26" W, 1062.94 feet coincident with the north line of said Government Lot 3; Thence S 40°54'00" E, 37.57 feet coincident with the northwesterly extension of the northerly line of River Point Drive, to the point of beginning; Thence continuing S 40°54'00" E, 428.74 feet; Thence Northeasterly, 134.83 feet coincident with the arc of a 183.00 foot radius curve to the right, the chord of which bears N 69°22'31" E, 131.80 feet; Thence S 89°31'05" E, 228.86 feet to the west right-of-way line of N. 11th Street; Thence S 01°12'35" W (recorded as S 01°05'23" W), 76.01 feet to the northeast corner of Lot 3 of a Certified Survey Map recorded in volume 35, page 207; Thence N 89°31'05" W, 227.89 feet; Thence Southwesterly, 67.93 feet coincident with the arc of a 107.00 foot radius curve to the left, the chord of which bears S 72°17'45" W, 66.79 feet, all coincident with said north line of Lot 3; Thence S 49°06'00" W, 78.00 feet to the southerly right-of-way line of said River Point Drive; Thence S 40°54'00" E, 305.27 feet coincident with said southerly right-of-way line; Thence S 49°06'00" W, 80.00 feet; Thence N 40°54'00" W, 324.68 feet; Thence N 49°06'00" E, 80.00 feet to the northwesterly extension of said southerly right-of-way line; Thence N 40°54'00" W, 48.00 feet coincident with said southerly right-of-way line; Thence S 49°06'00" W, 80.00 feet; Thence N 40°54'00" W, 437.72 feet; Thence N 49°06'00" E, 146.00 feet to the point of beginning.

Said parcel contains 119,852 Square Feet (2.751 Acres) of land.

That I have made such survey, land division and map at the direction of Adam Tegen, City of Manitowoc.

I further certify that the map hereon is a correct representation of the exterior boundaries of the lands surveyed and the division thereof. Also that I have complied with the provisions of Chapter 236.34 of the Wisconsin Statutes and Chapter 21 of the Municipal Code of the City of Manitowoc.

Dated 9/14/2023

WISCONSIN JEFFREY A DEZEEUW S-2294 MANITOWOC WI

Jeffrey A. DeZeeuw
Professional Land Surveyor S-2294

LAND SURVEYOR

OWNER'S CERTIFICATE

As owners we hereby certify that we caused the land described on this map to be surveyed, mapped, divided and dedicated as represented on this map, and that we shall comply with the established drainage plan on file at the Manitowoc City Hall and with the "Standard Utility Easement Conditions" as recorded in Volume 1252, Page 498 at Manitowoc County Register of Deeds Office. We hereby consent to the granting of utility and drainage easement to the Manitowoc Public Utilities, City of Manitowoc, the Telephone Company and the Cable TV Company as noted on the map of this Certified Survey for the purpose of granting to the applicable firm the right to access, to place, repair and maintain applicable utilities. Said compliance with the drainage and plan easements granted shall run with the land and be binding upon the owners, their successors and assigns.

Dated 9/20/2023

Adam Tegen, Community Development Director
The Community Development Authority of the City of Manitowoc, Wisconsin, a Wisconsin municipality

STATE OF WISCONSIN)
MANITOWOC COUNTY) ss

Personally came before me this 20th day of September, 2023 the above named Adam Tegen to me known to be the person who executed the foregoing instrument and acknowledged the same.

Jennifer Bartz
Jennifer Bartz Notary Public, Manitowoc, WI

My Commission Expires: 8/17/24

JENNIFER BARTZ NOTARY PUBLIC STATE OF WISCONSIN

THIS INSTRUMENT WAS DRAFTED BY: Jeffrey A. DeZeeuw, PLS of Corner Point JULY 26, 2023 JOB No.: S638023 FILE: DWG\CITY\MTWC\STANTEC\CITY-CN RR PROJECT\CSM 2023\S638023

DOC# 1266038 VOL 36 PG 331

CERTIFIED SURVEY MAP

LOCATED IN BLOCKS 148, 169, AND 170 OF THE ORIGINAL PLAT OF THE CITY OF MANITOWOC AND ADJACENT VACATED STREETS, BEING PART OF GOVERNMENT LOT 3 OF SECTION 30, TOWN 19 NORTH, RANGE 24 EAST, CITY OF MANITOWOC, MANITOWOC COUNTY, WISCONSIN

Corner Point
A DIVISION OF ACE BUILDING SERVICE
3510 S. 26th Street
Manitowoc, WI 54220
Ph 920.682.6105

CERTIFICATE OF PLANNING AGENCY

This certified survey map has been submitted and approved by the City of Manitowoc Plan Commission.

Dated 9/20/2023

Paul Braun
Paul Braun, City Planner

CURVE TABLE					
CURVE	DELTA ANGLE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING
1–2	42°12'50"	183.00'	134.83'	131.80'	N 69°22'31" E
3–4	36°22'20"	107.00'	67.93'	66.79'	S 72°17'45" W

LINE TABLE		
LINE	BEARING	DISTANCE
A–B	N 49°06'00" E	80.00'
B–C	N 40°54'00" W	48.00'
C–D	S 49°06'00" W	80.00'

COMMON COUNCIL APPROVAL CERTIFICATE

Resolved, that this Certified Survey Map in the City of Manitowoc has been approved by the Common Council on September 18, 2023. The City further accepts the dedication of the streets as represented on this map.

Dated 9/19/23

Justin M. Nickels, Mayor

Dated 9/20/23

Mackenzie Reed, Clerk

WISCONSIN
JEFFREY A DEZEEUW
S-2294
MANITOWOC
9/14/2023
LAND SURVEYOR

3:CITY

SHEET 3 OF 3

THIS INSTRUMENT WAS DRAFTED BY: Jeffrey A. DeZeeuw, PLS of Corner Point JULY 26, 2023 JOB No.: S638023 FILE: DWG\CITY\MTWC\STANTEC\CITY-CN RR PROJECT\CSM 2023\S638023

Stantec

ATTACHMENT B

River Landing Soil Boring Logs

Design with community in mind

193706269 Site: 5 Boring Number: SB-44/TW-44 (FKA Page: 1 of 1

Site Name: Former Railroad Property Date: 11/15/18

Address: 100 Block of 10th Street, Manitowoc, WI Start: 12:40 Finish: 12:50

Boring recovery (feet)	Sample number	Sample time	Sampled for	Depth (feet)	Detailed Soil and Rock Description	Depth (feet)	PID collection and sample time	PID (ppm)	Well Log (if applicable)	Remarks
2.5/4'	SS SB-13 0-1	1:10	VOC	0.5	0-1 TOP SOIL + ORGANICS	0.5	12:55 1105	3.8	STICK-UP: 1.25'	
				1	1-3 GRAVELLY SILTY SAND GRAVELS 1/8"-1" UP ~50%. DARK BROWN, M. FINES DOWNWARDS A	1				
				1.5		1.5	12:55 1106	0.3		
				2		2				
				2.5		2.5	12:58 1106	0.5		
				3	3-6 BROWN SILTY SAND, FEW GRAVELS. SATURATED ~3', SOFT, FINE.	3				
				3.5		3.5	12:55 1106	0.4		
3/4'				4		4				
				4.5		4.5				
				5		5				
				5.5		5.5				
				6	6-7 PEAT (ORANGE-RED-BROWN) WET. SOFT.	6				
				6.5		6.5				
				7	7-8 SILTY CLAY - GREY/BROWN, SOFT, WET	7				
				7.5		7.5				
				8		8				
4/4'				8.5	8-12 AS ABOVE, WITH SHELLS	8.5				
				9		9				
				9.5		9.5				
				10		10				

End of Boring @ 12 bgs

Note: Stratification lines are approximate; in-situ transition between soil types may be gradual.

Remarks

Abbreviations:
D = Dry
W = Wet
M = Moist

fbg = feet below grade

HC = Hydrocarbon

* = Recovery is less than 100% due to compaction of soils/sands in core sampler, recovery is full recovery.

Groundwater Data
▼ Depth While Drilling
▽ Depth After Drilling n/a

Rig
GeoProbe
Depth 12
Geologist Whitney Cull
Driller/Co.

193706269 Site: 4 5

Boring Number: SB-47/TW-47 (FKA

Page: 1 of 1

Site Name: Former Railroad Property

Address: 100 Block of 10th Street Manitowoc, WI

Date: 11/ 15 /18

Start: 11:00

Finish: 11:15

Boring recovery (feet)	Sample number	Sample time	Sampled for	Depth (feet)	Detailed Soil and Rock Description
3/4'	SS SB-16 2.5-3	11:54 RCRA		0.5	0-0.5' TOPSOIL/GRAVEL/GRASS
				1	0.5-2' FILL, BLACK ANGULAR, SHARP, GRANULAR, D.
				1.5	
				2	2-2.5' WELL-GRADED GRAVEL, BROWN, DRY. GRAVELS 1/4 - 1 1/2"
				2.5	
				3	2.5-3' CLAY+GRAVEL, SOFT, WET, SOFT, RANGE UP TO ~1/8", SOME COARSE SAND
	SB SB-16 3-4	11:59 VOC		3.5	
				4	
3.5/4'				4.5	3-8' SILTY SAND, SATURATED, FINE YELLOWISH-BROWN. GRADES TO DARK BROWN W/ DEPTH (POSS MATL ~7-8')
				5	
				5.5	
				6	
				6.5	
				7	
				7.5	
				8	
				8.5	
				9	
				9.5	
				10	

End of Boring @ 8 bgs

Depth (feet)	PID collection and sample time	PID (ppm)
0.5	11:28, 11:36	0.6
1	11:29	
1.5	11:37	0.5
2		
2.5	-	-
3	11:29, 11:38	0.8
3.5	11:31	0.9
4	11:39	
4.5		
5		
5.5		
6		
6.5		
7		
7.5		
8		
8.5		
9		
9.5		
10		

Well Log (if applicable): STICK-UP: 1.10', SAND, BENTONITE, SAND

Remarks

Abbreviations:
D = Dry
W = Wet
M = Moist

fbg = feet below grade

HC = Hydrocarbon

* = Recovery is less than 100% due to compaction of soils/sands in core sampler, recovery is full recovery

Note: Stratification lines are approximate; in-situ transition between soil types may be gradual.

Groundwater Data
▼ Depth While Drilling 3'
▽ Depth After Drilling n/a

GeoProbe Depth 8' (12 FOR WELL)

Rig

Geologist Whitney Cull

Driller/Co.

193706269 Site: 1 | Boring Number: SB-49/TW-49 (FKA | Page: 1 of 1

Site Name: Former Railroad Property

Address: 100 Block of 10th Street Manitowoc, WI

Date: 11/ 15 /18
Start: 10:05
Finish: 10:20

Boring recovery (feet)	Sample number	Sample time	Sampled for	Depth (feet)	Detailed Soil and Rock Description	Depth (feet)	PID collection and sample time	PID (ppm)	Well Log (if applicable)	Remarks
2.5/4'				0.5	* NOTE: MAY NEED TO BE CLEANED OUT; BENTONITE KICKED IN WHILE DRILLING NEARBY ** BORING INTO ~1.5' W OF WELL 0-0.5' TOP SOIL/GRASS	0.5	10:26			STICK-UP: 1.51'
				1	0.5-2.5' FILL: RIP-RAP AND DARK BROWN SILTY SAND SOME GRAVELS (~1/4"), D.	1	10:46	1.5		
				1.5		1.5	10:33 10:42	0.4		
				2		2				
				2.5	2.5-~~5.0~~ 5.0' RIP-RAP BOULDER, WHITE, DRY	2.5	10:39			
				3		3	10:49	0.6		
				3.5		3.5	10:28 10:47	0.5		
4/4'				4		4				
				4.5	~~4.5~~	4.5	10:32 10:48	0.6		
				5	5.0-6.5' FILL (BLACK), GRAVELLY, ANGULAR/SHARP, SATURATED, SOME RED/WHITE GRAVELS ~1/4"-1/2"	5				
SI SB-19 5-6		10:52	VOC	5.5		5.5	10:51			
				6		6	10:59	0.7		
				6.5	6.5-7' GRAVEL, SATURATED, WOOD-LADED W/BROWN SAND	6.5				
				7	7-8' SANDY CLAY, BROWN, SATURATED	7				
				7.5		7.5				
				8		8				
				8.5		8.5				
				9		9				
				9.5		9.5				
				10		10				

End of Boring @ 8 bgs (WELL @ 12')

Abbreviations:
D = Dry
W = Wet
M = Moist
fbg = feet below grade
HC = Hydrocarbon

* = Recovery is less than 100% due to compaction of soils/sands in core sampler, recovery is full recovery.

Note: Stratification lines are approximate; in-situ transition between soil types may be gradual.

Groundwater Data
▼ Depth While Drilling 5'
▽ Depth After Drilling n/a

Rig
GeoProbe Depth 12
Geologist Whitney Cull
Driller/Co.

* ADJUSTED POSITION 9:55 - HITTING RIP-RAP (0.5-4 PULVERIZED STONE, WHITE, DRY)
* ADJUSTED ANOTHER FOOT 10:05 - BAD RECOVERY 0-4', AND 4'-8'. DRILL TO 12' + SET WELL, THEN NAILED CORE WORK TO IT FOR LITHOLOGY

193706269 Site: 1 | Boring Number: SB-50/TW-50 (FKA | Page: 1 of 1

Site Name: Former Railroad Property

Address: 100 Block of 10th Street Manitowoc, WI

Date: 11/15/18
Start: 9:05
Finish: 9:15

STICK-UP: 1.09'

Boring recovery (feet)	Sample number	Sample time	Sampled for	Depth (feet)	Detailed Soil and Rock Description	Depth (feet)	PID collection and sample time	PID (ppm)	Well Log (if applicable)	Remarks
2.25'/4'				0.5	0-0.5': TOP SOIL/GRASS, D.	0.5	9:27			Abbreviations: D = Dry; W = Wet; M = Moist; fbg = feet below grade; HC = Hydrocarbon
				1	0.5-1.5' BOULDERS. • FROM RIP-RAP ALONG RIVER BENDS. D.	1	9:31	0.8		
				1.5	1.5-2.25' FILL, BLACK, D. ANGULAR	1.5				
	5156-24 1.5-2.25	9:41	PAH	2	TO RANGULAR, "SHARP" EDGES	2	9:32	0.7		
	5156-24 225-3	9:40	VOC	2.5	2.25-3' FILL/SAND MIX, D. 10YR 5/2 TAN/GREY. GRAVELS 1/8"-1"	2.5	9:33	0.6		
				3		3				
				3.5	3-7' SILTY SAND, SATURATED FROM 3.5'-6.5' (VERY DISTINCT). M-W, YELLOWISH-BROWN. BECOMES CLAYEY FROM ~6-7'.	3.5	9:34	0.4		
2.5'/4'				4		4	9:35			
				4.5		4.5				
				5		5				
				5.5		5.5				* = Recovery is less than 100% due to compaction of soils/sands in core sampler, recovery is full recovery.
				6		6				
				6.5		6.5				
				7	7-8' BLACK SANDY CLAY, SAT'D	7				
				7.5		7.5				
				8	8-12' PEATY/SILTY CLAY, GREY/BLACK	8				
2'/4'				8.5		8.5				
				9		9				
				9.5		9.5				
				10		10				

End of Boring @ 12 bgs

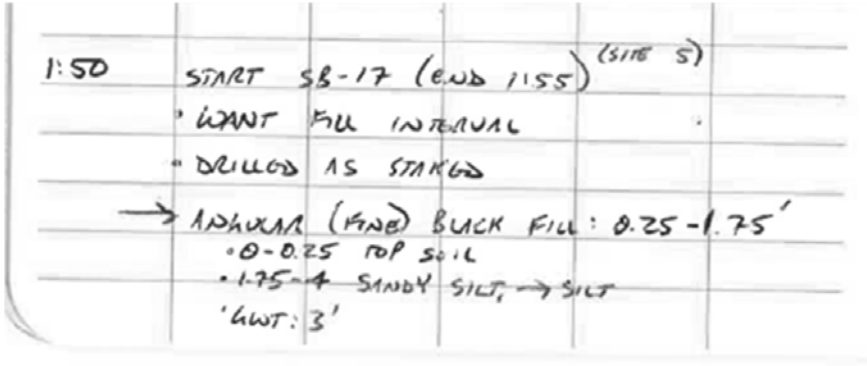
Note: Stratification lines are approximate; in-situ transition between soil types may be gradual.

Groundwater Data
▼ Depth While Drilling: 3.5
▽ Depth After Drilling: n/a

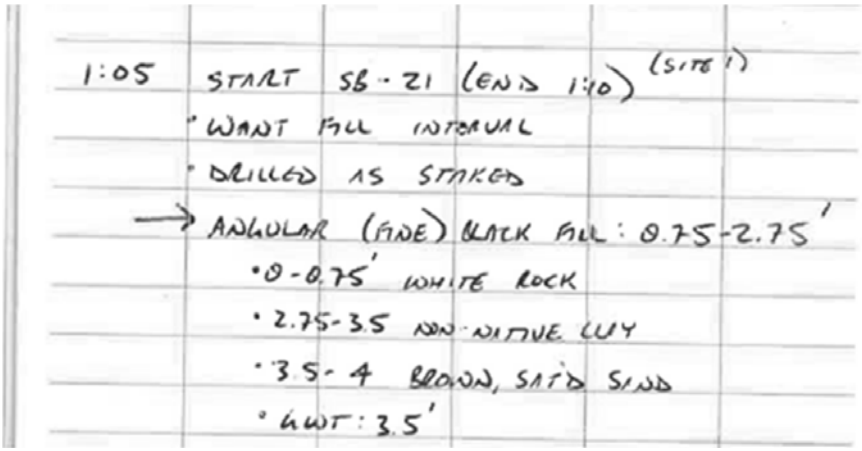
Rig:
GeoProbe Depth: 12
Geologist: Whitney Cull
Driller/Co.:

December 10, 2018 Stantec (2020) Soil Borings (performed to assess fill thickness)

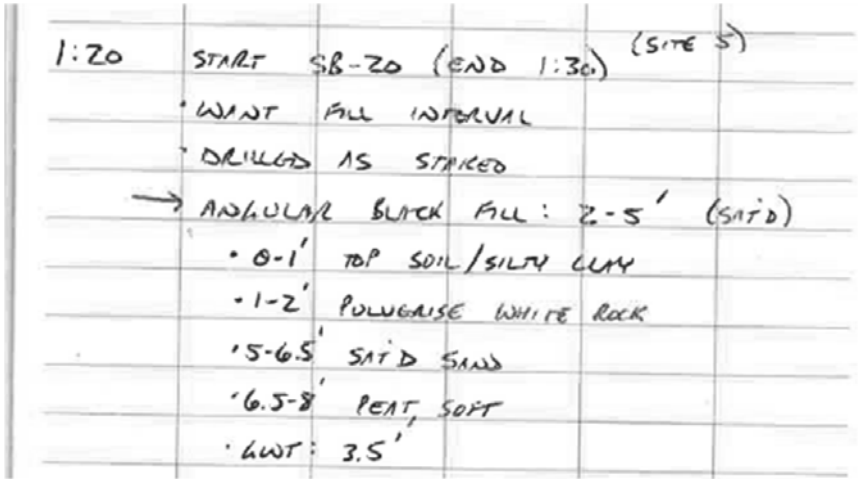
SB-43 (FKA 5_SB-17)



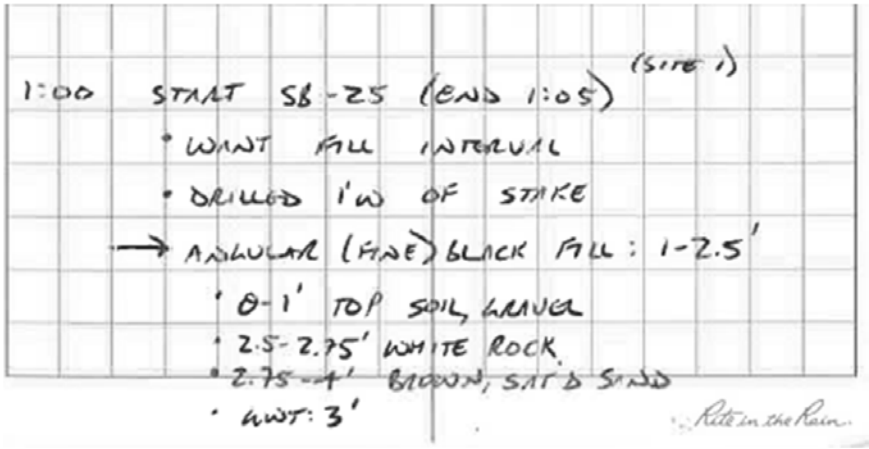
SB-48 (FKA 1_SB-21)



SB-46 (FKA 5_SB-20)



SB-51 (FKA 1_SB-25)



Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

SAMPLING METHOD:

BORING NO. SB-102

SHEET OF

DRILLING START TIME / FINISH TIME

					START	FINISH
WATER LEVEL	~3.5				TIME	TIME
TIME	1315					
DATE	3/2/21				DATE	DATE
CASING DEPTH						

DATUM PID ELEVATION

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	~~BLOWS/FT SAMPLER~~	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
	2.5			7.4		0		black fill sand, tar-like no odor
						1		
				0.8		2		
						3		light brown course sand w/gravel no odor
				0.5		4		
						5		grayish brown sand, saturated organic odor
				0.7		6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

DRILLING CONTR. N02099653

BY DATE CHK'D BY

625.1 (3) (REV 11-80)

Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

BORING NO. SB-103

SHEET OF

SAMPLING METHOD:

DRILLING START FINISH

					TIME	TIME
WATER LEVEL	~4 ft					
TIME	1330					
DATE	3/2/21				DATE	DATE
CASING DEPTH						

DATUM PID ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	~~BLOWS/FT~~ ~~SAMPLER~~	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
	4/5			860		0		black fill mixed with gravel
				3.4		1		
				8.6		2		black tar-like fill sand some gravel no odor
						3		
				3.9		4		grayish brown sand no odor saturated becomes clayey
						5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

DRILLING CONTR. N0209653

BY DATE CHK'D BY

625.1 (3) (REV 11-80)

Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

SAMPLING METHOD:

BORING NO. 105

SHEET OF

DRILLING START FINISH

					TIME	TIME
WATER LEVEL	~3					
TIME	0900					
DATE					DATE	DATE
CASING DEPTH						

DATUM: PID ELEVATION

DRILLING CONTR. N0209653

BY DATE CHK'D BY

525 1 (3) (REV 11-80)

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	~~BLOWS/FT~~ SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
				3.4		0		wet gray sand with large gravel organic-like odor
				3.4		1		large white gravel pieces in aquium organic-like odor, concrete
						2		
				3.9	1	3		white gravelly sand, organic/wetland odor
						4		
						5		black sand w/ large gravel pieces no odor
						6		saturated, black gravel, no odor
				1.4		7		saturated black sand with gravel no odor
						8		brown, saturated sandy clay no odor
				3.8		9		
						0		
						1		
						2		went to 12 for temp well
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		

Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

BORING NO. 106

SHEET OF

SAMPLING METHOD:

DRILLING START TIME / FINISH TIME

WATER LEVEL	~6					
TIME	1040					
DATE	2/25/21					
CASING DEPTH						

DATUM: PID ELEVATION

DRILLING CONTR. N0209653 BY DATE CHK'D BY

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	~~BLOWS/FT~~ ~~SAMPLER~~	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
				3.9		0		concrete + gravel, organic odor
						1		
						2		
						3		
				6.2		4		black fill sand w/ some gravel organic odor
						5		
						6		saturated, gray brown fine sandy w/ organic odor
				5.4		7		light brown sandy clay, organic odor
						8		dark brown sandy clay organic odor
				6.9		9		
						0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		

5261 (3) (REV 11-90)

Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

BORING NO. SB-107

SHEET OF

SAMPLING METHOD:

DRILLING START TIME / FINISH TIME

WATER LEVEL					
TIME	1015				
DATE	2/25/21				
CASING DEPTH					

DATUM PID ELEVATION

DRILLING CONTR. N0209653

BY DATE CHK'D BY

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	~~BLOWS/FT~~ SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
				3.1'		0		gravel with brown sand, organic smell
						1		
				29		2		black sand and large gravel, organic odor
				55		3		
						4		white powdery sandstone pieces no odor
				5.0		5		
						6		
						7		
						8		
						9		
						10		
						11		
						12		
						13		
						14		
						15		
						16		
						17		
						18		
						19		
						20		

625 1 (3) (REV 11-80)

Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

SAMPLING METHOD:

BORING NO. 108

SHEET OF

DRILLING START TIME / FINISH TIME

					START TIME	FINISH TIME
WATER LEVEL	~3.5					
TIME	1150					
DATE					START DATE	FINISH DATE
CASING DEPTH						

DATUM PID ELEVATION

SURFACE CONDITIONS:

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	~~BLOWS/FT~~ ~~SAMPLER~~	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	
				9.1		0		large gravel pieces with black sand organic (fish) smell
				4.6		1		black fill sand w/ gravel, some white gravel pieces, organic odor
						2		
				4.7		3		brown sand w/ gravel organic odor
				2.6				concrete/sandstone organic smell
				0.0		4		saturated dark brown fine sand
						5		some gravel, organic odor
						6		
						7		
						8		
						9		
						0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		

DRILLING CONTR. _____

N0209653

BY _____ DATE _____ CHK'D BY _____

825 I (3) (REV. 11-80)

Stantec

LOCATION OF BORING

JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

BORING NO. 117

SHEET OF

SAMPLING METHOD:

DRILLING START TIME / FINISH TIME

WATER LEVEL	2.5					
TIME	1000					
DATE	2/25/21					
CASING DEPTH						

DATUM: PID ELEVATION

DRILLING CONTR. N0209653 BY DATE CHK'D BY

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO / SAMPLE DEPTH	~~BLOWS/6" SAMPLER~~	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
						0		concrete/gravel
				4.3		1	0-2.5	
						2		
				4.3		3	2.5-3.5	grayish brown sand with gravel organic odor
						4	3.5-4	gravel w/ black sand, organic odor
						5	4-5	concrete, white
				1.7		6	5-7	saturated black sand w/ large gravel pieces, organic odor
				5.1		7		
				3.5		8	7-9	grayish brown sand with gravel no odor
						9	9-10	black sandy clay, no odor
				5.7		0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		

625.1 (3) (REV. 11-80)

Stantec

LOCATION OF BORING	JOB NO.	CLIENT	LOCATION

DRILLING METHOD:

SAMPLING METHOD:

BORING NO. 132

SHEET OF

DRILLING START TIME / FINISH TIME

WATER LEVEL					
TIME	1125				
DATE	2/25/12				
CASING DEPTH					

DATUM: PID: ELEVATION:

DRILLING CONTR: BY: DATE: CHK'D BY:

N0209653

625.1 (3) (REV 11-80)

SAMPLER TYPE	INCHES DRIVEN / INCHES RECOVERED	DEPTH OF CASING	SAMPLE NO. / SAMPLE DEPTH	~~BLOWS/FT~~ SAMPLER	NUMBER OF RINGS	DEPTH IN FEET	SOIL GRAPH	SURFACE CONDITIONS:
				—		0	0-2	black fill sand, some gravel organic odor
						1		
				9.1		2		brown sand with large gravel pieces odor like gasoline
						3		
				3-4		4	—	damp, fine brown sand
				4.9		5	—	organic odor
						6		
						7		
						8		
						9		
						0		
						1		
						2		
						3		
						4		
						5		
						6		
						7		
						8		
						9		
						0		

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION
Form 4400-122 Rev. 7-98

Route To: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

Page 1 of 2

Facility/Project Name	License/Permit/Monitoring Number	Boring Number
River Point District - Lot 3	BRRTS #02-36-176478	SB-158/MW-158

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
Ben Long Horizon Construction and Exploration, LLC	6/29/2022	6/29/2022	geoprobe

WI Unique Well No.	DNR Well ID No.	Common Well Name	Final Static Water Level	Surface Elevation	Borehole Diameter
		MW-158	581.8 Feet MSL	589.3 Feet MSL	2.3 inches

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☒
State Plane 771,964 N, 2,582,246 E S / C / N
NE 1/4 of NE 1/4 of Section 30, T 19 N, R 24 E
Lat ___° ___' ___"
Long ___° ___' ___"
Local Grid Location ☐ N Feet ☐ S ☐ E Feet ☐ W

Facility ID	County	County Code	Civil Town/City/ or Village
	Manitowoc	36	Manitowoc

Sample Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
0-2.5	60 30		1	0-5.5 LIMESTONE SCREENINGS, grey, dry, clean imported fill for new roadway construction, no odor				0.7						
2.5-5.5			3					2.0						
	60 36		5											
5.5-6			6	5.5-6 BLACK GRANULAR FILL, moist, some slag present, no odor. Original ground surface prior to 2022 construction.				0.7						SB-158 (5.5-6) VOC, PAH, RCRA
6-8			7	6-8 SAND, orange-brown, medium-fine, appears to be reworked native, saturated @ 7.5', no odor.			▼	0.5						SB-158 (6-8) PAH, RCRA, CN
8-10			9	8-10 SAND, dark grey, medium-fine, gravels (~10%) 1/4-1/2", rounded, saturated, no odor.	SP			0.5						
10-12.5	120 60		11	10-16 SAND, brown, medium-fine, soft, gravels (~10%) 1/4-1/2", rounded, saturated, no odor.	SP			0.4						

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Whitney Cull Firm Stantec Consulting Services Inc. Tel: Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

State of Wisconsin
Department of Natural Resources

SOIL BORING LOG INFORMATION SUPPLEMENT
Form 4400-122A

Boring Number SB-158/MW-158 Use only as an attachment to Form 4400-122. Page 2 of 2

Sample Number and Type	Sample Length Att. & Recovered (in)	Blow Counts	Depth In Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/ Comments
12.5-15			13	10-16 SAND, brown, medium-fine, soft, gravels (~10%) 1/4-1/2", rounded, saturated, no odor. *(continued)*				0.3						SB-158 (12.5-15) PAH, RCRA, PCB
			14		SP									
15-16			15					0.5						
16-18			16	16-19.5 SAND, grey, fine, soft, shells present, saturated, no odor.				0.5						
			17											
18-19.5			18		OH			0.5						
			19											
19.5-20			20	19.5-20 SILTY CLAY, grey, soft, shells and rootlets present, saturated, no odor.	OH			0.4						

Stantec

ATTACHMENT C

River Landing Monitoring Well Construction Forms

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: 10th Street Railroad Property	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-44, fka5 MW-18
Facility License, Permit or Monitoring No.	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or St. Plane ft. N, ft. E. (S)/C/N	Wis. Unique Well No. / DNR Well Number: 5 MW-18
Facility ID		Date Well Installed: 01/17/2019
Type of Well: Well Code 71/dw	Section Location of Waste/Source: N 1/4 of NE 1/4 of Sec 30, T. 19 N, R. 24 ☒ E ☐ W	Well Installed By: (Person's Name and Firm): Geiss Soil & Samples LLC
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation ____ ft. MSL
B. Well casing, top elevation ____ ft. MSL
C. Land surface elevation ____ ft. MSL
D. Surface seal, bottom ____ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☒ GC ☐ GW ☐ SW ☐ SP ☐
SM ☒ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

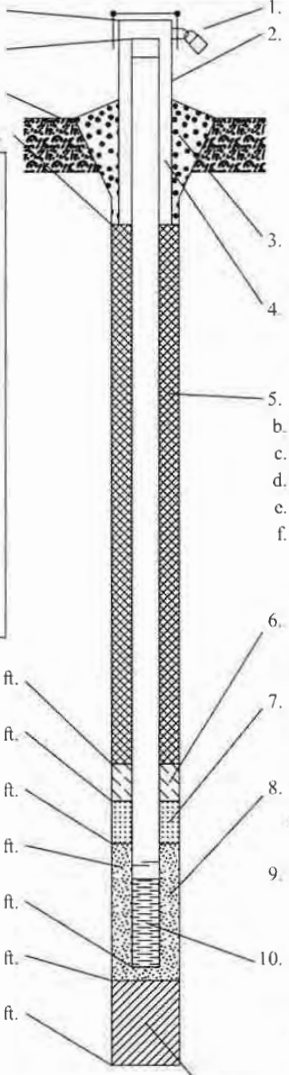
14. Drilling method used: Rotary ☐ 5 0 / Hollow Stem Auger ☒ 4 1 / ____ Other ☐

15. Drilling fluid used: Water ☐ 0 2 Air ☐ 0 1 Drilling Mud ☐ 0 3 None ☒ 9 9

16. Drilling additives used? ☐ Yes ☒ No
Describe ____

17. Source of water (attach analysis, if required):
____

E. Bentonite seal, top ____ ft. MSL or 0.0 ft.
F. Fine sand, top ____ ft. MSL or ____ ft.
G. Filter pack, top ____ ft. MSL or 1.5 ft.
H. Screen joint, top ____ ft. MSL or 2.0 ft.
I. Well bottom ____ ft. MSL or 12.0 ft.
J. Filter pack, bottom ____ ft. MSL or 12.0 ft.
K. Borehole, bottom ____ ft. MSL or 13.0 ft.
L. Borehole, diameter 4.3 in.
M. O.D. well casing 2.00 in.
N. I.D. well casing 2.00 in.



1. Cap and lock? ☐ Yes ☒ No
2. Protective cover pipe:
a. Inside diameter: ____ in.
b. Length: ____ ft.
c. Material: Steel ☐ 0 4 / N/A / Other ☒
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____
3. Surface seal: Bentonite ☒ 3 0 / Concrete ☐ 0 1 / ____ Other ☐
4. Material between well casing and protective pipe: Bentonite ☐ 3 0 / N/A / Other ☒
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 3 3
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 3 5
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 3 1
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 5 0
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 0 1 / Tremie pumped ☐ 0 2 / Gravity ☐ 0 8
6. Bentonite seal: a. Bentonite granules ☐ 3 3
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 3 2
c. ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. ____
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. ____
b. Volume added ____ ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 2 3 / Flush threaded PVC schedule 80 ☐ 2 4 / ____ Other ☐
10. Screen material: PVC
a. Screen Type: Factory cut ☒ 1 1 / Continuous slot ☐ 0 1 / ____ Other ☐
b. Manufacturer ____
c. Slot size: 0.010 in.
d. Slotted length: 10.0 ft.
11. Backfill material (below filter pack): None ☒ 1 4 / Filter pack / Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm	Tel: / Fax:
Whitney Cull	Stantec	

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: CN Manitowoc, 200 N. 10th Street	Local Grid Location of Well: ____ ft. ☐ N. ☐ S. ____ ft. ☐ E. ☐ W.	Well Name: MW-47, FKA 1 MW-19
Facility License, Permit or Monitoring No.: 60615404	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒ Lat. ° ' " Long. ° ' " or	Wis. Unique Well No. / DNR Well Number
Facility ID	St. Plane ____ ft. N, ____ ft. E. S/C/N	Date Well Installed: 03/03/2020
Type of Well	Section Location of Waste/Source: ____ 1/4 of ____ 1/4 of Sec. ____, T. ____ N, R. ____ ☐ E ☐ W	Well Installed By: (Person's Name and Firm) Tony Kapugi / Onsite Environmental
Distance from Waste/Source ft. / Enf. Stds. Apply ☐	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A. Protective pipe, top elevation ____ ft. MSL
B. Well casing, top elevation ____ ft. MSL
C. Land surface elevation ____ ft. MSL
D. Surface seal, bottom ____ ft. MSL or ____ ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☐
SM ☐ SC ☐ ML ☐ MH ☐ CL ☒ CH ☐
Bedrock ☐

13. Sieve analysis attached? ☐ Yes ☒ No

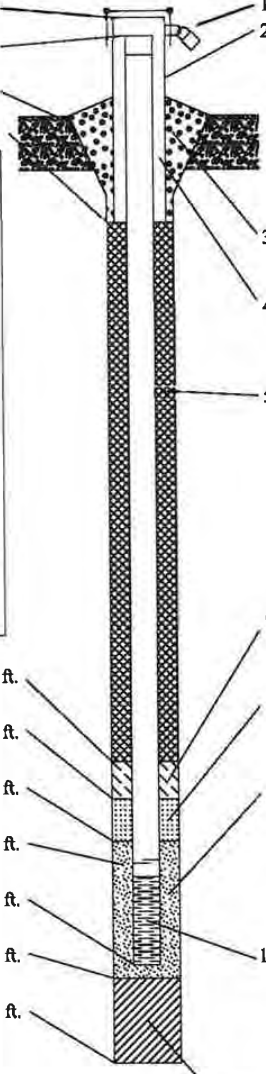
14. Drilling method used: Rotary ☐ 50 / Hollow Stem Auger ☒ 41 / Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01 Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe ____

17. Source of water (attach analysis, if required):

E. Bentonite seal, top ____ ft. MSL or 0.20 ft.
F. Fine sand, top ____ ft. MSL or ____ ft.
G. Filter pack, top ____ ft. MSL or 2.50 ft.
H. Screen joint, top ____ ft. MSL or 3.00 ft.
I. Well bottom ____ ft. MSL or 13.50 ft.
J. Filter pack, bottom ____ ft. MSL or 13.50 ft.
K. Borehole, bottom ____ ft. MSL or 13.50 ft.
L. Borehole, diameter 4.50 in.
M. O.D. well casing ____ in.
N. I.D. well casing 2.00 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: 4.0 in.
b. Length: 5.0 ft.
c. Material: Steel ☒ 04 / ____ Other ☐
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____
3. Surface seal: Bentonite ☐ 30 / Concrete ☐ 01 / ____ Other ☐
4. Material between well casing and protective pipe: Bentonite ☒ 30 / Sand Other ☐
5. Annular space seal: a. Granular/Chipped Bentonite ☐ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01 / Tremie pumped ☐ 02 / Gravity ☐ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐ 1/4 in. ☒ 3/8 in. ☐ 1/2 in. Bentonite chips ☒ 32
c. Halliburton Hole Plug 0.5 ft^3 / ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. ____
b. Volume added ____ ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. Red FlintSand and Gravel
b. Volume added 2.75 ft^3
9. Well casing: Flush threaded PVC schedule 40 ☐ 23 / Flush threaded PVC schedule 80 ☐ 24 / ____ Other ☐
10. Screen material: PVC Screen
a. Screen Type: Factory cut ☒ 11 / Continuous slot ☐ 01 / ____ Other ☐
b. Manufacturer ____
c. Slot size: ____ in.
d. Slotted length: ____ ft.
11. Backfill material (below filter pack): None ☐ 14 / ____ Other ☒

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Jacob Dean Firm: AECOM Tel: Fax:

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route to: Watershed/Wastewater ☐ Waste Management ☐
Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: RIVER POINT DISTRICT
Facility License, Permit or Monitoring No.: BRRTS # 02-36-585491
Facility ID: —
Type of Well — Well Code: 11 / MW
Distance from Waste/Source: — ft. Enf. Stds. Apply ☐

Local Grid Location of Well: ☒ N. ☐ S. 302262.803 ft. ☒ E. ☐ W. 301471.487 ft.
Local Grid Origin ☐ (estimated: ☐) or Well Location ☐
Lat. ° ' " Long. ° ' " or
St. Plane ft. N, ft. E. S/C/N
Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec. 30, T. 19 N, R. 24 ☒ E. ☐ W.
Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known
Gov. Lot Number: —

Well Name: MW-117
Wis. Unique Well No.: — DNR Well ID No.: —
Date Well Installed: — / — / — (m m d d y y y y)
Well Installed By: Name (first, last) and Firm: ADAM SWEET, HORIZON CONST. & EXP.

A. Protective pipe, top elevation: N/A ft. MSL
B. Well casing, top elevation: 587.536 ft. MSL
C. Land surface elevation: 584.519 ft. MSL
D. Surface seal, bottom: 584.519 ft. MSL or — ft.

12. USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☒ SP ☒
SM ☐ SC ☒ ML ☒ MH ☐ CL ☒ CH ☒
Bedrock ☐

13. Sieve analysis performed? ☐ Yes ☒ No

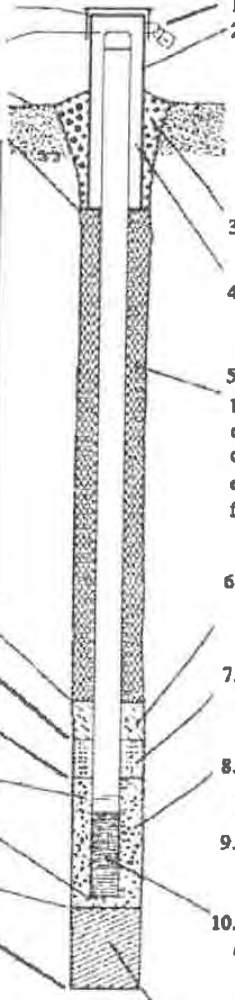
14. Drilling method used: Rotary ☐ 50; Hollow Stem Auger ☒ 41; Other ☐

15. Drilling fluid used: Water ☐ 02 Air ☐ 01; Drilling Mud ☐ 03 None ☒ 99

16. Drilling additives used? ☐ Yes ☒ No
Describe: N/A

17. Source of water (attach analysis, if required): N/A

E. Bentonite seal, top: — ft. MSL or 0 ft.
F. Fine sand, top: — ft. MSL or 2.5 ft.
G. Filter pack, top: — ft. MSL or 3 ft.
H. Screen joint, top: — ft. MSL or 8 ft.
I. Well bottom: — ft. MSL or 13 ft.
J. Filter pack, bottom: — ft. MSL or 15 ft.
K. Borehole, bottom: — ft. MSL or — ft.
L. Borehole, diameter: 4.25 in.
M. O.D. well casing: 2.25 in.
N. I.D. well casing: 2.0 in.



1. Cap and lock? ☒ Yes ☐ No
2. Protective cover pipe:
a. Inside diameter: — in.
b. Length: N/A ft.
c. Material: Steel ☐ 04; Other ☐
d. Additional protection? ☐ Yes ☐ No
If yes, describe:
3. Surface seal: Bentonite ☒ 30; Concrete ☐ 01; Other ☐
4. Material between well casing and protective pipe: N/A
Bentonite ☐ 30; Other ☐
5. Annular space seal: a. Granular/Chipped Bentonite ☒ 33
b. ____ Lbs/gal mud weight . . . Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight . . . . . Bentonite slurry ☐ 31
d. ____ % Bentonite . . . . . Bentonite-cement grout ☐ 50
e. ____ Ft^3 volume added for any of the above
f. How installed: Tremie ☐ 01; Tremie pumped ☐ 02; Gravity ☒ 08
6. Bentonite seal: a. Bentonite granules ☐ 33
b. ☐1/4 in. ☒3/8 in. ☐1/2 in. Bentonite chips ☒ 32
c. ____ Other ☐
7. Fine sand material: Manufacturer, product name & mesh size
a. RED FLINT
b. Volume added — ft^3
8. Filter pack material: Manufacturer, product name & mesh size
a. RED FLINT
b. Volume added — ft^3
9. Well casing: Flush threaded PVC schedule 40 ☒ 23; Flush threaded PVC schedule 80 ☐ 24; Other ☐
10. Screen material: PVC
a. Screen type: Factory cut ☒ 11; Continuous slot ☐ 01; Other ☐
b. Manufacturer —
c. Slot size: 0.01 in.
d. Slotted length: 10 ft.
11. Backfill material (below filter pack): None ☒ 14; Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.
Signature: [signature] Firm: STANTEC

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

State of Wisconsin
Department of Natural Resources

Route To: Watershed/Wastewater ☐ Waste Management ☐ Remediation/Redevelopment ☒ Other ☐

MONITORING WELL CONSTRUCTION
Form 4400-113A Rev. 7-98

Facility/Project Name: River Point District - Lot 3	Local Grid Location of Well: ____ ft ☐N ☐S ____ ft ☐E ☐W	Well Name: MW-158
Facility License, Permit or Monitoring No: BRRTS #02-36-176478	Local Grid Origin ☐ (estimated: ☐) or Well Location ☒	Wis. Unique Well No. / DNR Well Number
Facility ID	Lat ____ ° ____ ' ____ " Long ____ ° ____ ' ____ " or	Date Well Installed: 06/29/2022
Type of Well: Well Code 71/dw	St. Plane 771,964 ft N, 2,582,246 ft E S/C/N	Well Installed By: (Person's Name and Firm): Ben Long, Horizon Construction and Exploration, LLC
Distance from Waste/Source ____ ft / Enf. Stds. Apply ☐	Section Location of Waste/Source: NE 1/4 of NE 1/4 of Sec 30, T 19 N, R 24 ☒E ☐W	
	Location of Well Relative to Waste/Source: u ☐ Upgradient s ☐ Sidegradient d ☐ Downgradient n ☐ Not Known	Gov. Lot Number

A Protective pipe, top elevation ____ ft. MSL

B Well casing, top elevation 593.14 ft. MSL

C Land surface elevation 589.3 ft. MSL

D Surface seal, bottom ____ ft. MSL or ____ ft.

12 USCS classification of soil near screen:
GP ☐ GM ☐ GC ☐ GW ☐ SW ☐ SP ☒
SM ☐ SC ☐ ML ☐ MH ☐ CL ☐ CH ☐
Bedrock ☐

13 Sieve analysis attached? ☐ Yes ☒ No

14 Drilling method used: Rotary ☐ 50
Hollow Stem Auger ☒ 41
____ Other ☐

15 Drilling fluid used: Water ☐ 02 Air ☐ 01
Drilling Mud ☐ 03 None ☒ 99

16 Drilling additives used? ☐ Yes ☒ No
Describe ____

17. Source of water (attach analysis, if required):
____

E Bentonite seal, top 589.3 ft. MSL or 0.0 ft.

F. Fine sand, top 587.3 ft. MSL or 2.0 ft.

G Filter pack, top 586.8 ft. MSL or 2.5 ft.

H Screen joint, top 586.3 ft. MSL or 3.0 ft.

I Well bottom 576.3 ft. MSL or 13.0 ft.

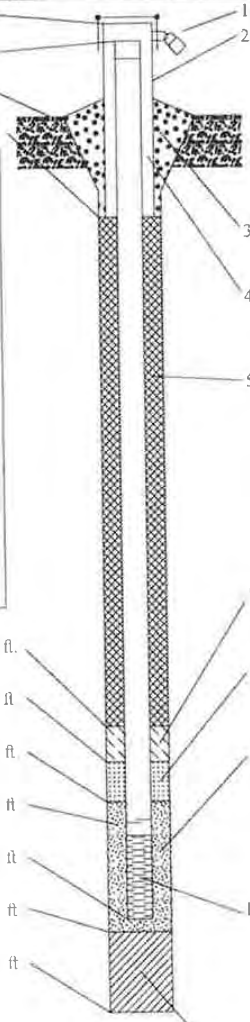
J Filter pack, bottom 576.3 ft. MSL or 13.0 ft.

K Borehole, bottom 569.3 ft. MSL or 20.0 ft.

L Borehole, diameter 2.3 in.

M O.D. well casing 2.25 in.

N I.D. well casing 2.00 in.



1 Cap and lock? ☒ Yes ☐ No

2 Protective cover pipe
a Inside diameter: ____ in.
b Length: ____ ft.
c Material: Steel ☐ 04
N/A Other ☒
d. Additional protection? ☐ Yes ☒ No
If yes, describe: ____

3 Surface seal: Bentonite ☒ 30
Concrete ☐ 01
____ Other ☐

4 Material between well casing and protective pipe: Bentonite ☐ 30
N/A Other ☒ __

5 Annular space seal: a Granular/Chipped Bentonite ☒ 33
b ____ Lbs/gal mud weight Bentonite-sand slurry ☐ 35
c. ____ Lbs/gal mud weight Bentonite slurry ☐ 31
d ____ % Bentonite Bentonite-cement grout ☐ 50
e 0.25 Ft³ volume added for any of the above
f. How installed: Tremie ☐ 01
Tremie pumped ☐ 02
Gravity ☒ 08

6 Bentonite seal: a Bentonite granules ☐ 33
b ☐ 1/4 in ☒ 3/8 in ☐ 1/2 in Bentonite chips ☒ 32
c ____ Other ☐

7. Fine sand material: Manufacturer, product name & mesh size
a ____
b Volume added 0.15 ft³

8 Filter pack material: Manufacturer, product name & mesh size
a ____
b Volume added 1 ft³

9 Well casing: Flush threaded PVC schedule 40 ☒ 23
Flush threaded PVC schedule 80 ☐ 24
____ Other ☐

10. Screen material: PVC
a. Screen Type: Factory cut ☒ 11
Continuous slot ☐ 01
____ Other ☐
b Manufacturer ____
c Slot size: 0.010 in.
d Slotted length: 10.0 ft.

11 Backfill material (below filter pack): None ☒ 14
____ Other ☐

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: Whitney Call
Firm: Stantec Consulting Services Inc
Tel
Fax

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