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Site Decommissioning Response Action Plan

Twin Cities Assembly Plant
St. Paul, Minnesota

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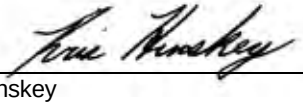
Site Decommissioning Response Action Plan

Twin Cities Assembly Plant
966 South Mississippi Boulevard
St. Paul, Minnesota 55166



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Our Ref.:
DE000372.0004.00002

Date:
April 1, 2015

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Figures

Appendices

1. Introduction

This Site Decommissioning Response Action Plan (SDRAP) provides a description of the environmental actions which will be implemented by ARCADIS, on behalf of Ford Motor Company (Ford), at the Twin Cities Assembly Plant (TCAP; Site) in St. Paul, Minnesota (Figure 1) in support of the on-going decommissioning activities being completed at the Site. As discussed during a July 10, 2014 telephone conversation between Ford, ARCADIS, and Minnesota Pollution Control Agency (MPCA), this document is specific to the main parcel (east of South Mississippi River Boulevard) and is restricted to address soil only.

2. Site Location and History

The Site is located at 966 South Mississippi River Boulevard in St. Paul, Ramsey County, Minnesota at approximate Latitude (north) 44^{o} 54' 50.8" and Longitude (west) 93^{o} 11' 31.9". The TCAP is located in a mixed industrial, commercial and residential use area on the eastern shore of the Mississippi River, along the east side of South Mississippi River Boulevard, south of Ford Parkway and west of South Cleveland Avenue (Figure 1).

Operations at the Site formerly consisted of the assembly and painting of light duty trucks (Ford Ranger) using parts manufactured off-Site. Assembly processes included welding, metal cleaning, painting and curing, windshield and trim installation and preparation of the vehicles for final delivery. In addition, a wastewater treatment plant and steam plant were operated at the Site and were associated with the former assembly operations, which were all investigated during the Phase I ESA. Manufacturing operations at the Site ceased on December 16, 2011.

The Site was vacant undeveloped land prior to construction of the assembly plant. Construction of the original portion of the main assembly building (MAB) began in 1923 and several additions to the MAB have occurred throughout the years, mainly between 1960 and 1978, which added 300,000 square feet to the original building footprint. The paint building was constructed in 1985 and is connected to the MAB via a 625-foot bridge. The steam plant was constructed in 1923 and is approximately 10,400 square feet. A former coal gasification plant was located near the southeastern corner of the steam plant, but was demolished prior to 1974. The wastewater treatment plant is located adjacent to the steam plant, and was constructed in 1984. Additional details on the history of the Site are available in the Phase I ESA (ARCADIS 2007a).

3. Summary of Past Investigations and Remedial Action

Several Site investigations and reports have been completed. The following is a brief summary of previous investigations.

On June 26, 1990 the MPCA issued a Request for Response Action (RFRA) due to the historical waste handling and disposal practices at the Site. In accordance with the RFRA, a Remedial Investigation/Feasibility Study (RI/FS) was completed in May 1992 by Conestoga-Rovers & Associates Inc. (CRA), which included a Remedial Investigation/Alternatives Analysis (RI/AA) of three areas adjacent to the paint building and MAB (Area A, Area B and a UST site) designated by the MPCA (CRA 1992).

From 2007 to the present, additional environmental assessments, remedial action, and subsurface investigations have been completed at the Site to determine potential impacts in soil and groundwater from former operations and Features. These activities included:

- A Phase I Environmental Site Assessment completed in 2007 to identify Features and obtain information regarding environmental activities and conditions at the Site (ARCADIS 2007a).
- Soil investigations and a Surface Soil Risk Assessment completed in 2007 to evaluate the Potential Battery Waste Disposal Area (Feature 139), located east of the plant (ARCADIS 2007b; 2007c).
- Remedial action for the Potential Battery Waste Disposal Area (Feature 139) completed in 2008 (ARCADIS, 2008).
- An initial and supplemental Phase II investigation of the Site exterior (outside building footprint) completed in June and July 2007 (ARCADIS 2007d) and between August and November 2011 and October 2012 (ARCADIS 2013a).
- An initial Phase II investigation of the Site interior completed in August 2010 and continued in May and June of 2012.
- Removal of USTs in July 2013 (ARCADIS 2013c)
- An initial delineation investigation of the Site exterior completed in October and November 2013 (ARCADIS 2014a), and continued in January 2014 (ARCADIS 2014b).
- Supplemental delineation of the exterior in response to the 2013 and early 2014 investigations proposed (ARCADIS 2014c).

4. SDRAP Scope and Objectives

The scope of this SDRAP was developed to provide detail on the soil monitoring activities that will take place during decommissioning and to provide a framework for soil remedial activities to be completed in localized areas of impact that are encountered. As discussed in more detail below, the monitoring activities completed during decommissioning will include screening of all excavated and exposed soil using a photo ionization detector (PID), visual inspections of all excavated and exposed soil, and analytical sampling as warranted based on the PID readings and visual inspections. Additional focus will be placed on areas of the Site that were identified as Features during the Phase I investigation (ARCADIS 2007a).

The objective of the SDRAP is to identify soils exceeding MPCA Tier I Soil Reference Values as they become exposed during decommissioning and ensure that the soils are adequately addressed through removal, segregation, and/or containment. If water is encountered during decommissioning a sample may be collected for characterization purposes, however, no groundwater recovery or remediation is expected as part of this work.

This plan was prepared in accordance with MPCA guidance and is being requested to supercede the Site-Wide Contingency Plan (SWCP) that was approved on August 14, 2013. The SDRAP covers the same aspects of decommissioning oversight but in greater detail.

Site investigation activities not related to decommissioning will continue to be completed in accordance with previously MPCA approved work plans (ARCADIS, 2010; 2013b, 2014a, 2014b, 2014c) and will not be affected by this SDRAP or any remedial actions that are completed as a result.

5. Current Site Conditions

Through work noted above the following site conditions have been observed at the Site.

5.1 Site Geology and Hydrogeology

The general geology and hydrogeology of the Site, based on information acquired through the Phase I and Phase II investigations is outlined in the following sections.

5.1.1 Geology

At the surface of the Site, a thin mantle of unconsolidated sediments exists over bedrock terraces. Underlying the unconsolidated material are sedimentary bedrock units that were deposited during the middle of the Ordovician geologic period. The sedimentary units are, in descending order, Decorah Shale, Platteville Limestone/Dolostone, Glenwood Shale, and St. Peter Sandstone. The depth and thicknesses of the bedrock units, as interpreted from boring logs, are illustrated on the geologic cross-sections (Figures 2 through 6).

Overburden: Soil horizons consist of predominately sandy clay and clayey sand. Weathered shale cobbles are common and two to five feet of peat was observed east of the former oil fill area (Feature 20). Near former disposal Area B (Feature 11) and former waste disposal area at the wastewater treatment facility (Feature 140), a large portion of the native material has been disturbed and is mixed with fill material such as building rubble, glass, and scrap metal.

Bedrock: The Platteville formation lies on top of the Glenwood Shale formation and the contact appears to be gradational. The Glenwood Shale is composed of dark green to gray shale and sandy shale. The formation is thinly laminated and moderately fissile (cleavable) and is approximately seven feet thick in the areas investigated. The St. Peter Sandstone outcrops along the bluffs of the Mississippi River and continues below the elevation of the riverbed. The sandstone is composed of medium-grained, well-sorted and well-rounded quartzite. It is white to buff in color and is medium to weakly indurated (hardened). The St. Peter formation is as much as 150 feet thick in the Twin Cities area.

5.1.2 Hydrogeology

Perched groundwater is found in the highly heterogeneous unconsolidated sediments overlying bedrock. Bedrock groundwater is encountered in the St. Peter formation, which is a high yielding aquifer. Groundwater in the overburden is generally isolated from the bedrock groundwater by the Decorah/Platteville/Glenwood Formation, which has been documented to be an aquitard/aquiclude.

The apparent groundwater flow direction at the Site is generally to the southwest towards the Mississippi River. However, based on Site-wide monitoring well data, groundwater flow can be locally variable particularly in the unconsolidated sediments and close to the river.

The potential hydraulic connection between the Site and Hidden Falls Creek was reviewed to evaluate the potential of Site utilities (storm sewer and subsurface tunnels) providing a conduit for the migration of perched groundwater. Outfall 001, which discharges to Hidden Falls Regional Park, collects storm water from the east side of the Site prior to combining with storm water received from neighboring properties. Overburden groundwater was not encountered within the eastern portion of the Site, demonstrating the possibility that overburden groundwater does not migrate to Hidden Falls Creek through the storm water sewer to Outfall 001. The subsurface tunnels at the Site, which generally extend linearly from east to west, terminate within the Site property limits west of Mississippi Boulevard and do not provide potential for direct contact with off-Site receptors. The tunnels terminate more than 50 feet below ground surface (bgs) (711 feet above mean sea level) as noted in the ARCADIS 2009 Tunnel Survey Report. This elevation is well below the overburden groundwater depths observed east of the Mississippi Boulevard and above those observed west of the Mississippi Boulevard.

Additional information on the geology and hydrogeology of the Site can be found in the Phase I ESA (ARCADIS 2007a) and the Initial Phase II – Exterior Investigation Report (ARCADIS 2007b).

5.2 Nature and Extent of Contamination

With consideration of former Site operations, construction, geographical layout, and environmental activities completed to-date, the Site was divided into 11 Focus Areas FAs as depicted on Figure 7 and described in the table on the following page:

Focus Area	Location Description
FA-01	North Parking Area
FA-02	Open LUST Releases
FA-03	Main Assembly Building (East Portion)
FA-04	Former Hazardous Waste Storage Areas
FA-05	Pant Shop
FA-06	Former Hazardous Waste Storage and Disposal Areas
FA-07	Railroad Tracks
FA-08	Baseball Fields
FA-09	Main Assembly Building (West Portion)
FA-10	Area C
FA-11	Waste Water Treatment Plant

This SDRAP addresses continued investigation within 9 of 11 FAs; FA-08 and FA-10 are or will be addressed under separate cover. Investigation activities will be implemented and completed within each individual FA as they become available following ongoing decommissioning activities.

In excess of 300 soil borings, 50 temporary wells and 20 permanent wells have been completed at the Site to-date within the nine aforementioned FAs to investigate potential soil and groundwater impacts. Several Features (i.e. Feature 23, 49 and 121) have not been investigated due to utility interferences or other obstructions, but are planned to be completed as part of the decommissioning activities as access allows. As indicated in the summary below, each of the nine Focus Areas have soil exceedances of at least one SRV (excluding naturally occurring elements when they were detected at concentrations within the range of naturally occurring concentrations) and all nine FAs had groundwater exceedances of at least one applicable groundwater criteria.

Subsurface investigations to-date of the main parcel and lower parcel (along the Mississippi River) have identified:

- Volatile organic compound (VOC) Tier I Residential and Tier II Industrial soil reference value (SRV) standard exceedances are in concentrated sections within the northern, central and southern portions of the Site (FA1, FA2, FA4, FA6 and FA7). Groundwater MDH exceedances are concentrated in the northern and central portions of the Site (Figure 8),
- Semi-volatile organic compound (SVOC) Tier I SRV Residential and Tier II SRV Industrial standard exceedances are concentrated in the central and southern portions of FA4, southern FA7, western FA6, and FA11. Groundwater MDH exceedances are concentrated in the northern and central portions of the Site (FA2, FA4, and FA7) (Figure 9),
- Metals Tier I SRV Residential standard exceedances are scattered throughout the Site, with concentrated areas within FA4, FA6, and FA7. Tier II SRV Industrial standard exceedances are concentrated within FA4 and FA7. Groundwater MDH exceedances are within the central portion of the Site (FA2 and FA4), with a few isolated exceedances along the north edge of MAB (Figure 10).
- Lead Tier I Residential and Tier II Industrial standard exceedances are concentrated in the southern portion of FA7, with isolated exceedances in the center of the Site (FA2) and east of the waste water treatment plant (FA11). Groundwater MDH exceedances are scattered across the Site (Figure 10).

- No Tier I SRV Residential or MDH standard exceedances exist at locations sampled for cyanide.

6. Decommissioning Oversight Activities

The following environmental oversight activities will be completed in conjunction with decommissioning.

6.1 Exposed and Excavated Soil Screening

An ARCADIS representative will be present during decommissioning when soil is exposed and during soil excavations to monitor and inspect the soil as it is exposed and/or removed. The soil will be field screened with a PID (11.7 eV lamp) and monitored for visual or olfactory indications of impacts including odors, staining, free-product or non-organic debris. The field screening will be utilized to determine whether any soil should be segregated or if it can remain available for re-use on-Site. PID screening of exposed and excavated soil will be completed in accordance with MPCA Petroleum Brownfields Program Guidance Document 4-04 *Soil Sample Collection and Analysis Procedures* at the following frequency:

6.1.1 Excavated Soil

Soil excavated as part of decommissioning will be screened using a PID at the following frequency:

Location	Screening Frequency
Excavated soil during removal of features, foundations, footings etc.	Minimum of one screening sample per 10 CY of excavated soil.

Excavated soil will be generated to gain access to subsurface structures such as building foundations and footings or utilities. Excavated soil will be handled as follows:

- If PID readings are less than 10 ppm and the soil does not show any visual or olfactory indications of impacts or debris the soil will be available to be placed back in the excavation after the subsurface structure is removed.

- If PID readings are less than 10 ppm, the soil does not show any visual or olfactory indications of impacts or debris and the soil is designated for use as fill in a different portion of the Site, it will be stockpiled and sampled in accordance with

Section 6.2 prior to reuse. If reused on-Site, the quantity and location of final placement will be recorded.

- If the soil has PID readings of greater than 10 ppm, has any indications of visual or olfactory impacts or has construction debris that cannot be separated from the soil it will be segregated in the Lower Bowl and sampled for off-Site disposal in accordance with requirements of a Ford-approved and MPCA-permitted off-Site disposal facility. Alternatively, if additional impacted soil is left in place after the excavation is completed the impacted soil may be placed back into the excavation and the area will be address as discussed in Section 6.3. . Soil placed in the lower bowl will be placed on top of and covered by polyethylene sheets until it is removed from the Site.

6.1.2 Exposed Soil

Soil exposed as part of decommissioning will be screened using a PID at the following frequency:

Location	Screening Frequency
Soil exposed during removal of infrastructure (e.g. building slab and foundation) not associated with an identified feature.	Minimum of 10 screening samples per acre.
Soil exposed during removal of an identified feature.	<u>Features less than 2,000 sq. ft.</u> Minimum of one screening sample per 100 square feet covered by the feature. <u>Features between 2,000 sq. ft. and 10,000 sq. ft.</u> Minimum of one screening sample per 1,000 square feet covered by the feature. <u>Features greater than 10,000 sq. ft.</u> Minimum of one screening sample per 2,500 square feet covered by the feature.

No PID screening will be completed if the exposed surface is bedrock. GPS locations of the exposed soil screening will be collected. Soil will be exposed when building slabs and subsurface structures are removed. If soil is exposed when the temperature is below freezing, the exposed soil will not be screened until the spring when ambient temperatures will allow for soil sample collection. Exposed soil will be evaluated as follows:

- If PID readings are less than 10 ppm and the soil does not show any visual or olfactory indications of impacts the soil will be left in place.
- If PID readings exceed 10 ppm or the soil does shown visual or olfactory indications of impacts a soil sample will be collected in accordance with Section 6.2 below.
- If the extent of the impacts appears to be relatively minor based on field observations the impacted soil may be excavated as part of an interim remedial action during decommissioning. If that occurs, an addendum to this SDRAP will be completed as discussed in Section 6.3.

6.2 Analytical Requirements and Sampling Frequency

6.2.1 Soil Sampling

When soil samples are collected they will be analyzed for the following at a minimum:

- If petroleum impacts are suspected via visual or olfactory observations, samples will be analyzed for Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by the Wisconsin Modified Method
- If PID readings are greater than 10 ppm, soil samples will be analyzed for VOCs by USEPA Method 8260
- If unexpected conditions, debris, clinkers, free-product, staining, etc. or any contaminated media are encountered during the excavation, samples will be analyzed for RCRA metals (USEPA Method 6010), TCLP lead (USEPA Method 1311 and 6010), cyanide (USEPA Method 335), and SVOCs (USEPA Method 8270).

- If soils have any indication of oily wastes, samples will be analyzed for PCBs by USEPA Method 8082.

As discussed in Section 6.1.1, soil excavated during decommissioning that does not have any PID readings greater than 10 ppm or visual or olfactory indications of impacts or debris may be reused on-Site. If the material is placed back in the excavation it was removed from, no analytical sampling is required. If the material is moved to another portion of the Site to be used as backfill, the material will be stockpiled and sampled prior to reuse. Stockpiles will be sampled at the following frequency, which is consistent with MPCA Petroleum Remediation Program Guidance Document 4-04 *Soil Sample Collection and Analysis Procedures:*

Cubic yards of soil	Number of grab samples
Less than 50	1
51-500	2
501-1000	3
1001-2000	4
2001-4000	5
Each additional 2,000	One additional sample

6.2.2 Water Sampling

There is the potential for encountering water during decommissioning activities through soil excavations that encounter groundwater or from perched water, subsurface piping and piping bedding. If water is encountered during decommissioning activities it will be inspected for visual indications of impacts (e.g., sheen, discoloration) and olfactory impacts. Samples of the water may be collected based on the following criteria:

- If is encountered as part of decommissioning in an identified Feature, samples will be analyzed for all parameters associated with that Feature as defined in the Interior, Work Element 1, and Work Element 2 Work Plans (ARCADIS 2010, 2013b, 2014a, 2014b and 2014c).

- If the water is not associated with a feature, but there is a visible sheen on the water or olfactory indications of impact, samples will be analyzed for VOCs (USEPA Method 8260), GRO and DRO by the Wisconsin Modified Method, dissolved RCRA metals (USEPA Method 6010), and SVOCs (USEPA Method

8270). If water has any indication of free product, samples will also be analyzed for PCBs by USEPA Method 8082.

- If the source of the water is unknown or comes from subsurface piping encountered during decommissioning, samples will be analyzed for VOCs (USEPA Method 8260), GRO and DRO by the Wisconsin Modified Method, dissolved RCRA metals (USEPA Method 6010), and SVOCs (USEPA Method 8270).

6.3 SDRAP Addendum Procedure

During decommissioning activities, unexpected environmental conditions including elevated PID readings, olfactory cues, visual staining, unexpected debris, free product, drums, or releases from unidentified tanks may be encountered as a result of the field screening described above or as a result of the decommissioning process. As environmental conditions are detected, a minimum of one sample will be collected in accordance with the field observations and analytical guidelines in Section 6.2.

If environmental conditions are left in place to be addressed in the future detailed notes regarding the location, description, field observations and analytical results will be recorded for development of a Site-Wide RAP that will be completed when decommissioning is complete. If the environmental conditions can be remediated via soil excavation that is completed in conjunction with decommissioning, or if the environmental condition has the potential to be exacerbated if not addressed immediately, an addendum to this SDRAP will be completed to document the planned remedial action and sampling program. SDRAP Addendums apply to actions associated with soil remediation only, as groundwater impacts will be addressed as part of the Site-Wide RAP. An SDRAP Addendum will be completed for each individual environmental condition that is encountered and will include the following items:

- A detailed description of the environmental condition including;
    - Field observations that led to identification;
    - Site map showing the location;
    - Field sketch showing field observations and any delineation activities that were completed;

- A summary of the analytical sampling that has been completed;

- Proposed remedial actions and confirmation samples that will be taken based off results of the analytical sampling.

Attachment A presents a SDRAP Addendum template. Each SDRAP Addendum will be submitted electronically to the MPCA for approval before remedial actions are taken. Remedial actions and post-remediation sampling results will be documented in a SDRAP Implementation Report.

Following the completion of the remedial action described in the individual SDRAP Addendums, confirmation soil samples will be collected for all parameters that exceeded MPCA SRVs during the initial characterization. Confirmation sampling frequency will be completed in accordance with the table below:

Square Feet of Excavation Surface Area	Number of Confirmation Samples
Less than 500	1 base and 1 sidewall
500 to 5,000	2 base and 4 sidewall
5,000 to 20,000	4 base and 4 sidewall
Greater than 20,000	4 base plus 1 additional base for each 10,000 sq. ft. above 20,000 and 4 sidewall

If excavations are completed down to bedrock, base sampling will not be completed.

6.4 Short-term Monitoring and Temporary Engineering Controls

Construction and decommissioning activities are not expected to produce excessive dust, noise, and vibrations. However, several engineering controls have been approved for the Site and include:

- A water truck will be utilized to mitigate dust generated during on-Site truck movement;

- An erosion and sediment control plan for the Site was approved by the Capitol Region Watershed District (Permit No. 12-023) on March 22, 2013;

- A Case-Specific Beneficial Use Determination (CSBUD) was developed to "ensure infiltration of stormwater through the recycled concrete and the Site contamination [would] not create adverse effects"; and

- A Stormwater Pollution Prevention Plan (SWPPP) for the Site has been submitted and approved.

The Site is enclosed by chain-link fencing, with the upper main parcel (MAB and paint building) utilizing privacy cover as well. Security personnel patrol and monitor access on-Site 24-hours a day, seven days a week.

Decommissioning activities are regulated by on-Site Health and Safety Plans and officers. Devon Industrial Group (DIG) developed a Site-specific Health and Safety Program focused on construction and decommissioning activities. ARCADIS has developed an amendment Health and Safety Plan to include the investigation activities discussed in this SDRAP.

7. Anticipated Project Schedule

Decommissioning is anticipated to be completed in 2015. Activities described in this SDRAP will be implemented immediately upon approval from the MPCA and will continue for the duration of decommissioning activities.

8. Documentation

Soil characteristics for all excavated soil (including PID screening results, visual observations, quantity and location) as well as samples collected for laboratory analysis will be documented in field notes. Decommissioning activities completed under the scope of this SDRAP will be reported in a Site-wide document detailing the decommissioning as well as the Site-wide investigation activities discussed in Section 3.

9. References

ARCADIS, 2007a. Phase I Environmental Site Assessment, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota." June 2007.

ARCADIS, 2007b. Soil Investigation Report – Baseball Fields – Feature 139. Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. September 2007.

ARCADIS, 2007c. Additional Soil Investigation and Surface Soil Risk Assessment Report – Baseball Fields – Feature 139. Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. December 2007.

ARCADIS, 2007d. Initial Phase II – Exterior Investigation Report. Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. October 2007.

ARCADIS, 2008. Response Action Implementation Report – Baseball Fields – Feature 139, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. March 2008.

ARCADIS, 2010. Phase II – Interior Investigation Work Plan. Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. May, 2010.

ARCADIS, 2013a. Supplemental Phase II – Exterior Investigation Report. Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. May 2013.

ARCADIS, 2013b. Subsurface Investigation Work Plan – Work Element 1, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. July 2013.

ARCADIS, 2013c. Underground Storage Tank (UST) Removal Report – Waste Solvent Tanks, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. November 2013.

ARCADIS, 2014a. Subsurface Investigation Work Plan – Work Element 1, 2013 Initial Mobilization Soil & Groundwater Quality Analytical Results, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. January 2014.

ARCADIS, 2014b. Subsurface Investigation Work Plan – Work Element 1, Second Mobilization Soil & Groundwater Quality Analytical Results, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. March 2014.

ARCADIS, 2014c. Subsurface Investigation Work Plan – Work Element 2, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. June 2014.

CRA. Remedial Investigation/Alternatives Analysis (RI/AA) Report, Ford Motor Company, Twin Cities Assembly Plant, St. Paul, Minnesota. May 1992.

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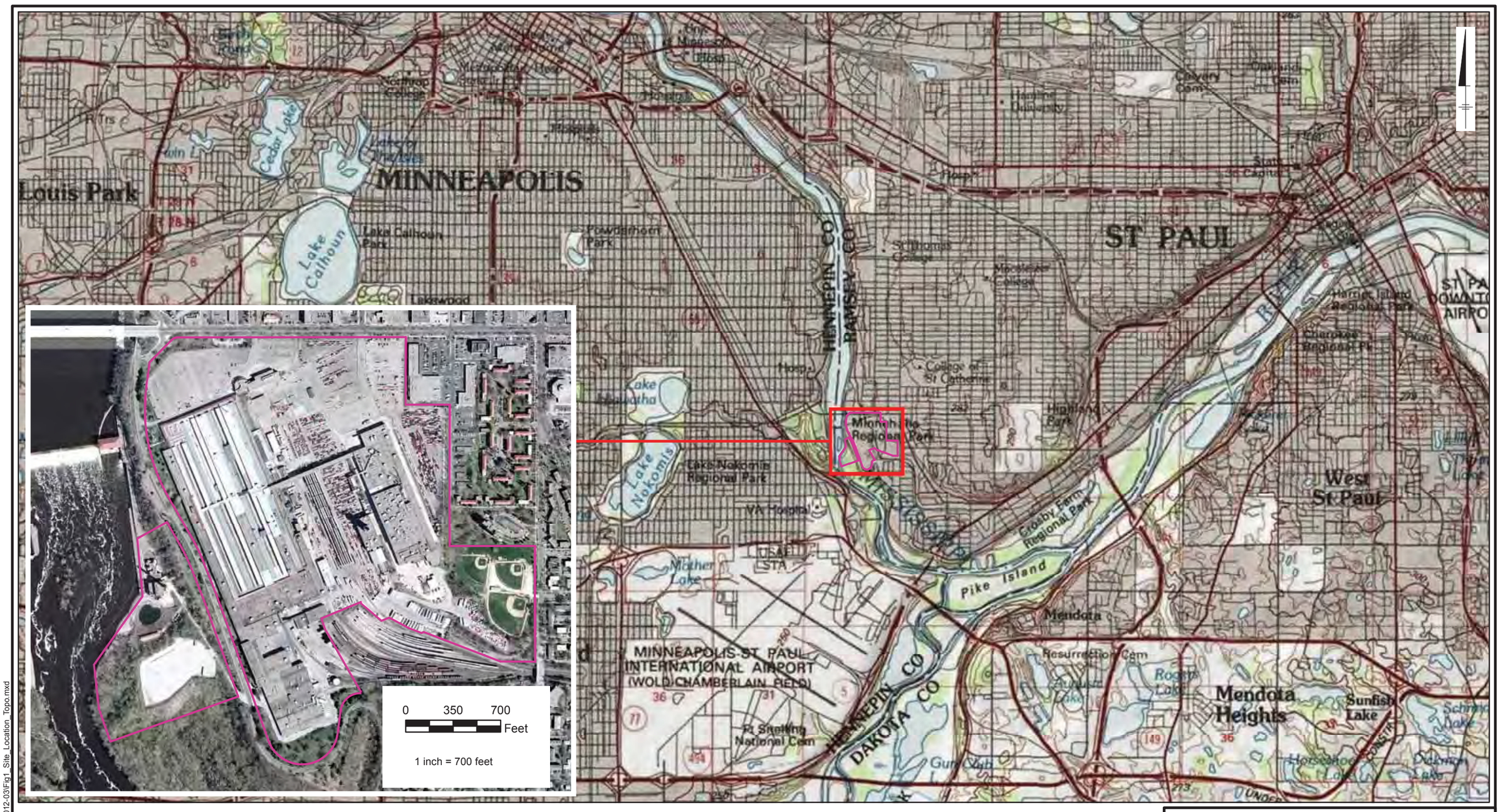
Figures



LEGEND:

Ford Property Boundary

NOTES:

Imagery Source: United States Geological Survey
High Resolution Orthoimagery for the Minneapolis-St. Paul, Minnesota Urban Area

Topographic Map Source:
© 2007 National Geographic Society

Twin Cities Assembly Plant
Ford Motor Company
St. Paul, Minnesota
Phase II Supplemental Exterior Investigation

Site Location / Property Layout

ARCADIS

FIGURE 1

CITY: Minneapolis, MN DB: MGress PM: BZinda
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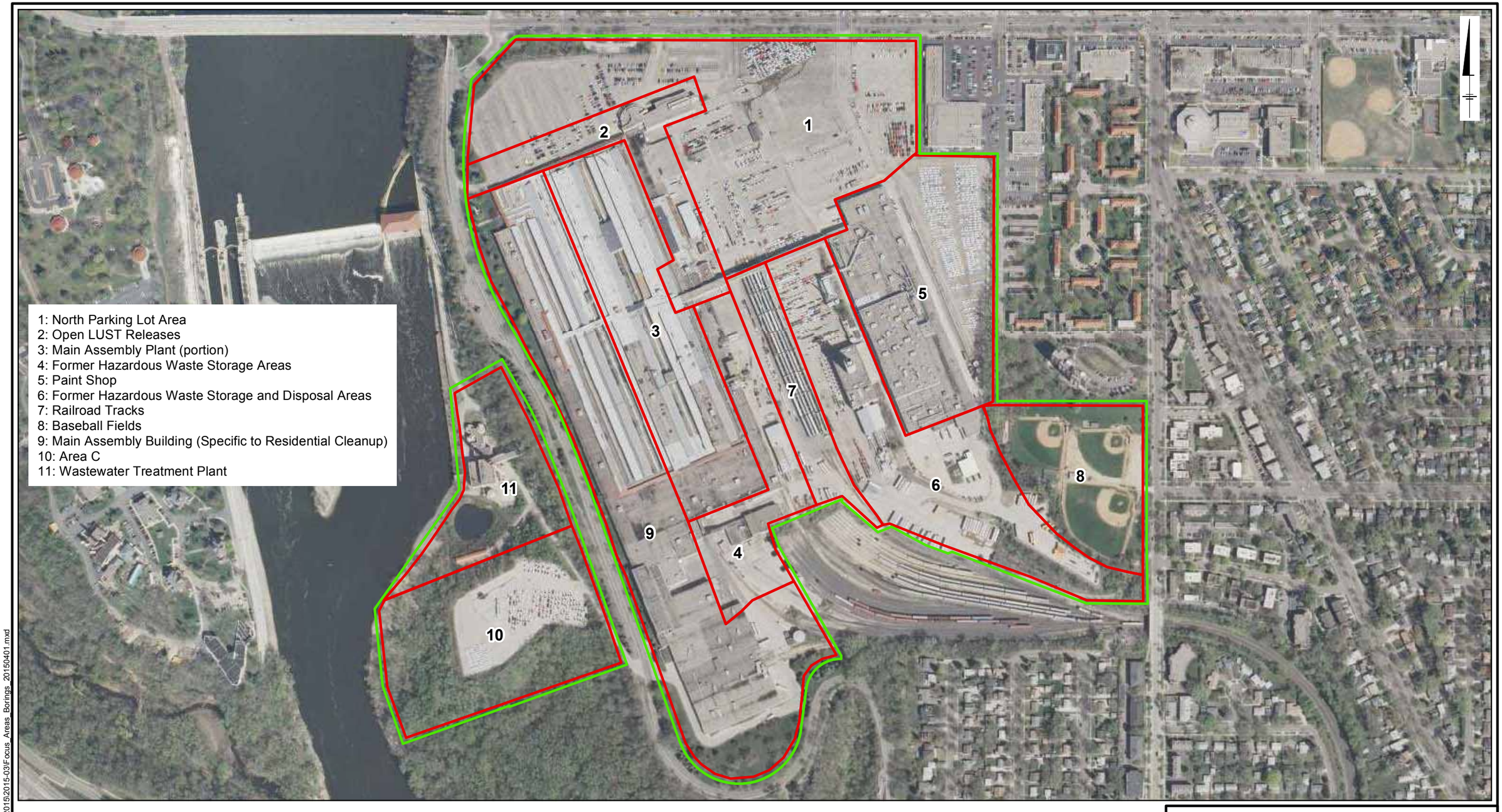

LEGEND:

- Ford Property Boundary
- Proposed Certificate of Completion Focus Areas

NOTES:

1) This Figure is not to be used for completing Land Splits, Land Unit Development, Plats, or generating new Tax Identification numbers.

2) The Figure is not to be used for any Real Estate Planning or Discussion purposes.

3) This Figure is to be used for obtaining Certificates of Completion during the environmental investigation/remediation process only.

4) Imagery Source: MnGeo WMS service, 2010 color 7-county http://geoint.lmic.state.mn.us/cgi-bin/wms? Accessed 12/3/2012

0 400 800 Feet

1 inch = 400 feet

Twin Cities Assembly Plant
Ford Motor Company
St. Paul, Minnesota

Focus Areas Location Map

ARCADIS

FIGURE
2

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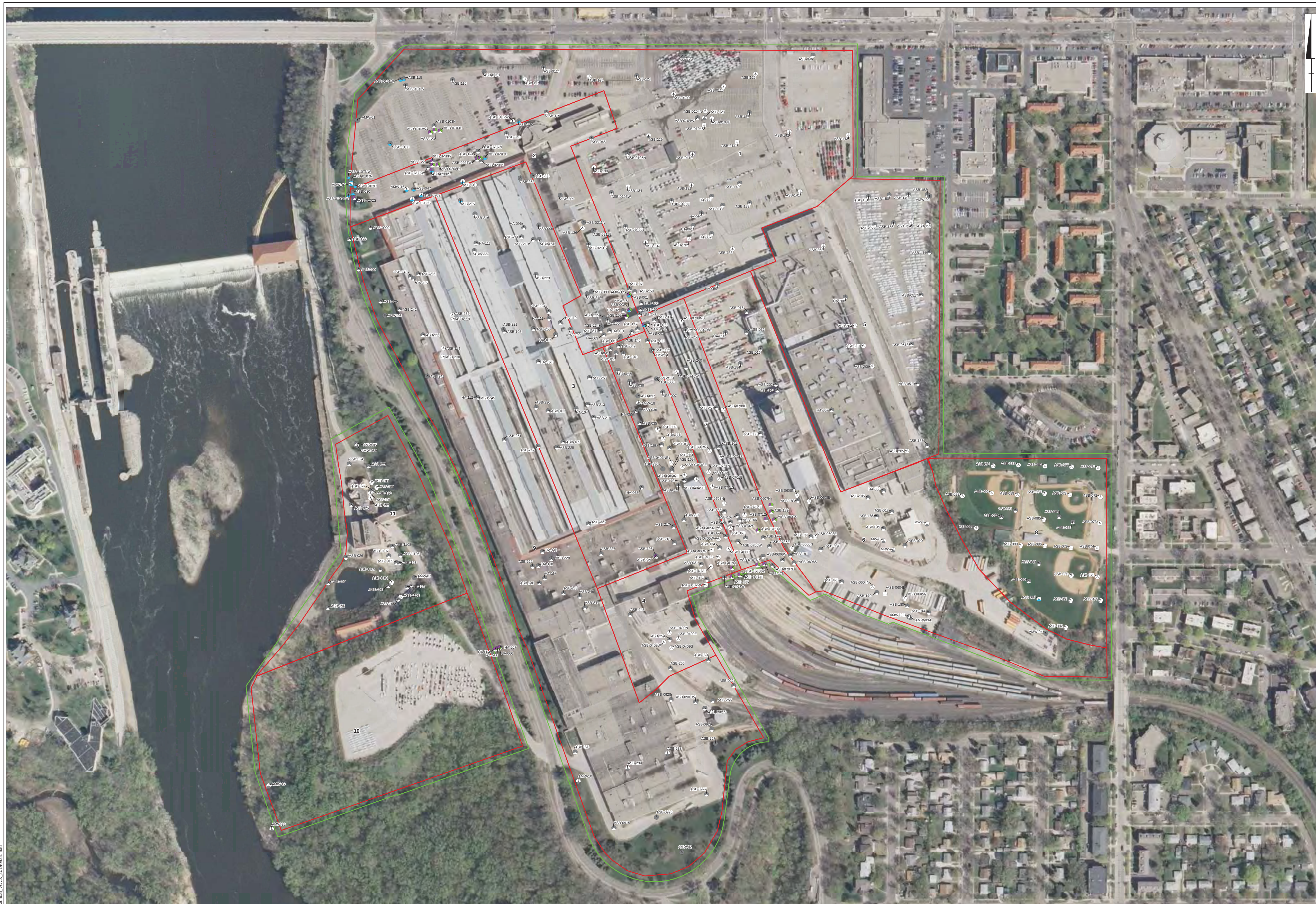

LEGEND:

Soil Results
MPCA Tier 1 Residential SRV
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Soil Results
MPCA Tier 2 Industrial SRV
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Groundwater Results
MDH HRL/HBV/RAA, EPA Arsenic MCL
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Ford Property Boundary

Proposed Certificate of Completion Focus Areas

NOTES:
AMW = ARCADIS Monitoring Well
ASB = ARCADIS Soil Boring
EPA = Environmental Protection Agency
HA = Hand Auger
HBV = Health Based Value
HRL = Health Risk Limit
MCL - Maximum Contaminant Level
MDH = Minnesota Department of Health
MPCA = Minnesota Pollution Control Agency
RAA = Risk Assessment Advice
SRV = Soil Reference Value
Imagery Source: MnGeo WMS service, 2010 color 7-county
http://geoint.lmic.state.mn.us/cgi-bin/wms? Accessed 6/5/2014

0 120 240 360 480
SCALE IN FEET
1 inch = 120 feet

Twin Cities Assembly Plant
Ford Motor Company
St. Paul, Minnesota

VOC Groundwater & Soil Exceedances

ARCADIS

FIGURE
3

CITY: MINNEAPOLIS, MN DB: MG LD: KH
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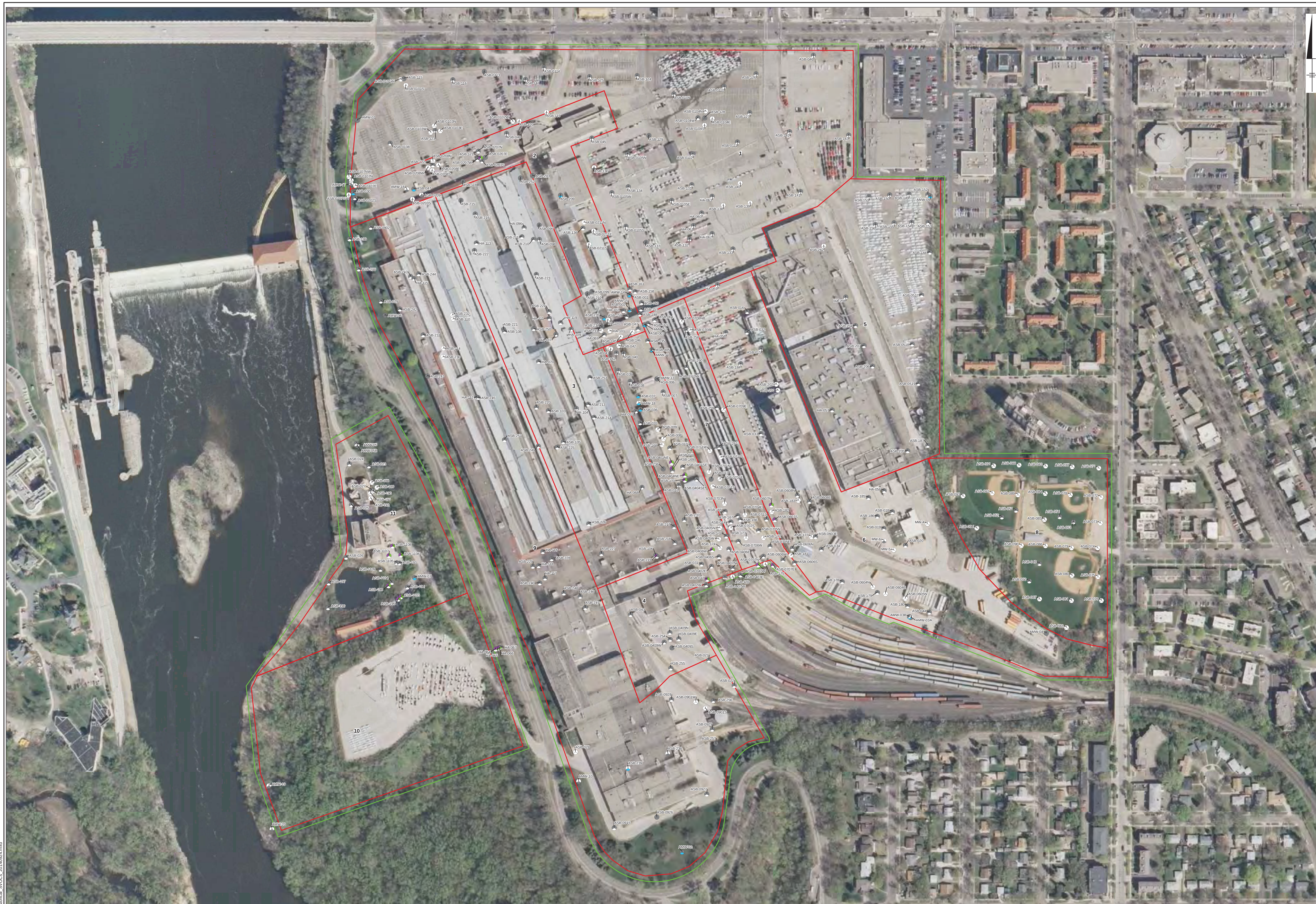


LEGEND:

Soil Results
MPCA Tier 1 Residential SRV
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Soil Results
MPCA Tier 2 Industrial SRV
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Groundwater Results
MDH HRL/HBV/RAA, EPA Arsenic MCL
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Ford Property Boundary

Proposed Certificate of Completion Focus Areas

NOTES:
AMW = ARCADIS Monitoring Well
ASB = ARCADIS Soil Boring
EPA = Environmental Protection Agency
HA = Hand Auger
HBV = Health Based Value
HRL = Health Risk Limit
MCL - Maximum Contaminant Level
MDH = Minnesota Department of Health
MPCA = Minnesota Pollution Control Agency
RAA = Risk Assessment Advice
SRV = Soil Reference Value
Imagery Source: MnGeo WMS service, 2010 color 7-county
http://geoint.lmic.state.mn.us/cgi-bin/wms? Accessed 6/5/2014

0 120 240 360 480
SCALE IN FEET
1 inch = 120 feet

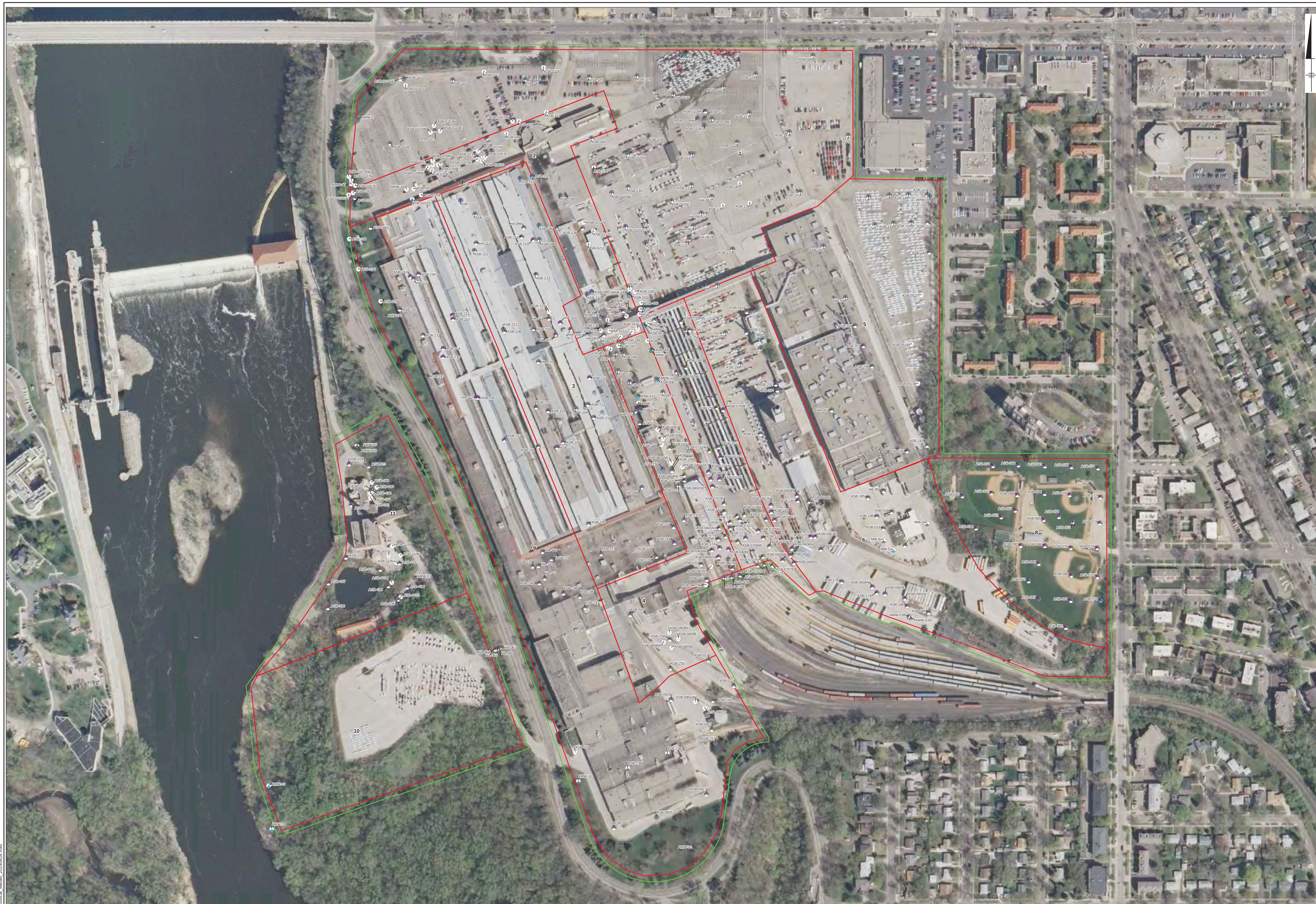
Twin Cities Assembly Plant
Ford Motor Company
St. Paul, Minnesota

SVOC/PAHs
Groundwater & Soil Exceedances

ARCADIS

FIGURE
4

CITY: MINNEAPOLIS, MN DB: MG LD: KH
PATH: G:\GIS\Projects\Ford Ranger\ArcMap\2014\2014-09\Historical_SVOCs_20140924.mxd



LEGEND:

Soil Results
MPCA Tier 1 Residential SRV
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Soil Results
MPCA Tier 2 Industrial SRV
- Exceedance
- Sampled, No Exceedance
- Not Sampled

Groundwater Results
MDH HRL/HBV/RAA, EPA Arsenic MCL
- Exceedance
- Sampled, No Exceedance
- Not Sampled

- Ford Property Boundary
- Proposed Certificate of Completion Focus Areas

NOTES:
AMW = ARCADIS Monitoring Well
ASB = ARCADIS Soil Boring
EPA = Environmental Protection Agency
HA = Hand Auger
HBV = Health Based Value
HRL = Health Risk Limit
MCL - Maximum Contaminant Level
MDH = Minnesota Department of Health
MPCA = Minnesota Pollution Control Agency
RAA = Risk Assessment Advice
SRV = Soil Reference Value
Imagery Source: MnGeo WMS service, 2010 color 7-county
http://geoint.lmic.state.mn.us/cgi-bin/wms? Accessed 6/5/2014

0 120 240 360 480
SCALE IN FEET
1 inch = 120 feet

Twin Cities Assembly Plant
Ford Motor Company
St. Paul, Minnesota

Metals
Groundwater & Soil Exceedances

ARCADIS

FIGURE
5

CITY: MINNEAPOLIS, MN DB: MG LD: KH
PATH: G:\GIS\Projects\Ford Ranger\ArcMap\2014\2014-09\Historical_Metals_20140924.mxd

ARCADIS

Appendix A

SDRAP Addendum Template

ARCADIS

Site Decommissioning Remedial Action Plan Addendum

Addendum Number:_____

Submittal Date:_____

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1) Description of Conditions:

Summary of observations (e.g., elevated PID readings, visual staining, olfactory indications). Attach photo log, site map or field sketch if needed.

2) Analytical sampling:

Include summary of the number and location of samples that were collected as well as the analytical parameters that were submitted. Refer to the Site Decommissioning Remedial Action Plan for guidance on analytical parameters.

3) Proposed remedial action:

Attachments: