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May 28, 2020

Your Reference
02-30-000327

Our Reference
60628059

Paul Grittner
Wisconsin Department of Natural Resources
141 NW Barstow Street,
Room 180
Waukesha, WI 53188

Former Kenosha Engine Plant, Proposed Stormwater Pond, NR718.12 Exemption Request

Dear Mr. Grittner:

On May 18, 2020, you requested additional information to aid in the review of the NR 718.12 exemption request to reuse on-site potentially contaminated soil at the former Kenosha Engine Plant (KEP). The information you requested is presented below in italics and the additional information is provided below each request.

Comment: Based on the information provided in the exemption request and previous reports it appears that the following types of material will be excavated and managed on-site. It is unclear how each of these materials has been characterized and what the extent of each of these materials is expected to be. Confirm that the following materials will be excavated from the basin, provide the requested details regarding each, and confirm that other types of material are not expected to be generated during construction.

- *Top soil found at the surface of the site and the underlying gravel.*
  - *How is this material being classified for management? If it will not be managed as contaminated what is known about the origin of the material that would suggest it could be managed with minimal restrictions? If it will be managed as contaminated, have samples been collected of the material to assess how to use the material to not present a future risk?*

Response:

The topsoil found at the surface of the subject property is considered clean topsoil and was newly placed during the two Phases of soil remediation at the KEP. The topsoil originated from a farm field that was developed for the current Amazon warehouse. The topsoil was approved by the WDNR for use by the City at the KEP in a letter dated October 7, 2016, from Dave Volkert, WDNR project manager, approving the Revised Soil & Materials Management Plan for use of the berm soil as backfill and Amazon topsoil at the KEP.

The gravel underlying the former building footprint was identified when the Building 70 floor slab was removed. It was assumed that this was virgin granular base material for the new building, because it is visually different from the compacted backfill material below. The approximate location of the gravel building pad is depicted on Figure 18, Alternative 4-Conceptual Layout (from the 2015 ROAR). The gravel was found only under the Building 70's floor slab when the floor slab was removed during the second phase of soil remediation.

Supporting Discussion:

The City had stockpiled the topsoil from the Amazon development for use on remediation and other City projects. The topsoil was placed at the KEP after the remedial excavations were complete and after the former building floor slabs were removed. The topsoil will be removed and stockpiled for reuse. After the stormwater basin is constructed and the soil from the basin is spread in the location depicted on the

plans, the topsoil will be replaced on the surface of the fill area and the berms surrounding the newly created pond. No testing of the topsoil is planned.

The gravel material under the former Building 70 footprint where the basin is to be constructed appeared at the time observed during the floor slab/foundation removal in 2018 to be a rounded, well-graded gravel that was imported to serve as the base below the building's floor when the building was constructed in 1999-2000. This gravel material was reused at the site as a base for the roadways previously and gravel excavated from the basin construction is planned to be reused for on-site construction.

Comment:

- *Contaminated soil found in the vicinity of SPW-8 and MW-904.*
  - *Samples collected from SWP-8 and MW-904, and the large amount of foundry waste fill in between them, suggest that a significant amount of PAH contaminated material may be located in the vicinity of these borings. The RAOR outlined a large area containing foundry sand material near SWP-8; the bore log for SWP-8 indicated significant amount of fill at that location. Could this material be the same as the material that was identified as foundry waste nearby; are concentrations of PAHs detected in SWP-8 indicative of what could be expected in the foundry sand?*

Response:

Soil boring SWP-8 was placed within the western area of the proposed stormwater pond footprint where GZA identified as foundry sand to evaluate if the "large area" of foundry sand existed.

However, as described on the boring log the material encountered was not foundry sand (although a very thin layer of cinder was identified from 1.3 to 1.35 feet below ground surface (bgs)). The SWP-8 sample with detected PAHs was collected from a depth of 5 to 6 feet bgs which is several feet below the cinder layer described at 1.3 to 1.35 feet bgs. The fill material encountered in SWP-8 and SWP-9 that was described as fill is composed of 70% gravel-sized and 20% sand-sized material that was crushed concrete from the demolition of the original "main" buildings that formed a north-south line on the east side of the KEP and is not in any way foundry sand.

Foundry sand material is not expected to be encountered in the footprint of the proposed stormwater pond. If foundry sand is encountered during the excavation for the basin then it will be handled as a waste at an off-site solid waste disposal facility.

Supporting Discussion:

The area depicted in the ROAR and repeated on the site investigation interactive map as "potential" foundry sand was based on a memo prepared by GZA Associates, Ltd., to Chrysler and provided to the WDNR as one of the 10,000 documents submitted to the WDNR when the bankruptcy court ruled that the KEP could be liquidated as part of the bankruptcy of Chrysler. As the investigation at the KEP has progressed, we have not confirmed any of the areas described in the foundry sand memo or other memos from GZA to Chrysler purporting to identify specific contaminated features such as this foundry sand area. In fact, part of the area shown as foundry sand in the ROAR was a former 18-foot deep basement area that held the hydraulic fluid recirculation tanks for Building 70. During building demolition, these tanks were removed and the floors and walls were pressure washed. Then the floor was perforated (so it would not hold water) and the vault was filled with clay obtained from an approved source in northern Illinois.

The fill material encountered in SWP-8 and SWP-9 described as fill is composed of 70% gravel-sized and 20% sand-sized material that was crushed concrete from the demolition of the original "main" buildings that formed a north-south line on the east side of the KEP. This crushed material was used as backfill in the former building basements and was dynamically compacted (this was confirmed by other GZA

documentation). These materials formed the subgrade for the "new" Building 70 completed in 2000 (and demolished in 2013). It is AECOM's opinion that this material is not the foundry sand identified by GZA in the memo. It is AECOM's opinion that the PAHs identified in the two samples collected at the SWP-8 likely represent the condition of demolished building materials. It should be noted that the with the exception of benzo(a)pyrene in the upper sample, the PAH exceedances are non-industrial direct contact or groundwater pathway. Consistent with ROAR Alternative #4, only industrial direct contact exceedances were generally removed by excavation as part of the selected remediation strategy. The WDNR-approved Alternative #4 provided for soils exceeding the non-industrial direct contact and groundwater pathways to be managed on-site at the time of the remediation and covered with permanent barriers as provided in the alternative details when redevelopment occurs.

Where depicted on Figure 18, Alternative 4 – Conceptual Layout, some of the areas for capping have been re-defined by data collected later or as part of the planned excavations. The areas of groundwater treatment were further refined as identified in the Groundwater Remedial Design Report.

Comment: (how to manage these materials)

- *Soil contaminated with VOCs*
- *Soil contaminated with PCBs*
- *Soil contaminated with nickel and/or lead*

Response:

Soil contaminated with VOCs, nickel and/or lead will be placed in an area that has higher residual impacts and is planned for permanent capping as part of site redevelopment. Table 3 from our original request has been modified to show the range of impacts in the Soil Placement Area and the range of impacts in the Proposed Stormwater Pond location. The proposed stormwater pond soil relocated to the Soil Placement Area occurs over the planned permanent cap area depicted in the Figure 18, Alternative 4, Conceptual Layout, Soil and Groundwater Source Control from the 2015 Remedial Action Options Report (ROAR). The Soil Placement Area has been added to the figure and the figure is attached to this letter. Moving the soil from the Proposed Stormwater Pond location to the Soil Placement Area will be more protective of the human health and the environment because the soil will be placed under a permanent cap, which it would not have if the soil remained in its current location.

Soil contaminated with PCBs will not be moved or relocated. As shown on Figure 3 "Group A and Group B Excavation Locations" from the first phase of soil remediation, PCBs depicted in the ROAR figure were removed by excavation (E35P-as depicted on Figure 3 Group A and Group B Excavation Locations from the 2016 Soil Remediation Report) and are no longer an issue for management at the KEP.

Comment:

- *Clean soil'*
  - *Explain how 'clean soil' is defined for the purposes of this exemption request*.

Response:

Clean soil was intended to mean the WDNR's definition of a clean soil; a soil without RCL exceedances. With the exception of arsenic detection results in an exceedance of each of the three RCLs, but for the samples tested are usually less than the background threshold value for arsenic. Thus, the soil samples identified as GP-917, GP-918, SWP-1, SWP-3, SWP-4, SWP-5, SWP-6, SWP-7, and SWP-10 meet the definition of clean when the arsenic concentrations are considered background levels, not requiring special management. Further an additional number of samples did not have VOC or PAH RCL exceedances (but were not tested for metals) including GP-SL-45, PZ-905, PZ-907, and PZ-908. These sample locations have been identified on Figure 3, Soil Sample Locations, prepared for the NR 718.12 exemption request depicting the boring locations within the proposed pond project area.

Additionally, the topsoil that was used was previously pre-approved for the site and is considered clean. The topsoil will be stockpiled and replaced.

Comment: *A figure should be provided that identifies where each of these materials is expected to be found within the area to be excavated. Accurate characterization of the material proposed to be excavated ensures that conditions at the completion of the material management activity are understood and the appropriate continuing obligations can be imposed.*

Response:

Figure 3, Soil Sample Locations prepared for the NR718.12 exemption request depicts the sampling locations from the prior investigations conducted since 2012 as well as the 10 new sample locations conducted within the proposed stormwater pond. The proposed storm water pond area is depicted on the figure and the soil sample locations without RCL exceedances have been identified. The remaining sample locations have at least one sample that has one or more RCL exceedances.

Soil removed from within the pond will be conducted using ordinary construction techniques such as a scraper to remove a thickness of soil and transport that material across to the deposition location. Segregation is an inefficient soil removal method generally reserved for hot-spot or highly contaminated soil removals. Cost-effective excavation for areas the size of the pond will result in the uncontaminated soil and contaminated soil with low contaminant concentrations being comingled and placed within the area planned for the permanent cap. This results in more conservative management of the soil than what was planned by ROAR Alternative #4 for this area.

Supporting Discussion:

The soils in the pond area are less contaminated than those in the proposed permanent cap area. As shown on the figure, most of the northern and eastern portions of the pond have “clean” soil samples surrounding individual samples that have only non-industrial direct contact or groundwater pathway RCL exceedances. For example, GP-919 was sampled at 3 to 4 feet bgs and had no VOC exceedances, but had 2 PAH compounds that exceeded the non-industrial direct contact RCLs and no metals testing for this interval. For the 6 to 7-foot sample there were no VOC or PAH exceedances, but nickel was detected above the groundwater pathway RCL, but its concentration was approximately ½ of the background threshold value. When excavated and comingled a natural attenuation will occur. Human health and the environment will be protected because these soils will over-lie soil with higher concentrations of VOCs, PAH or metals and when redeveloped will be under a permanent cap.

The storm water pond construction is not a remedial excavation. As depicted in Figure 18, Alternative #4 from the ROAR, the area of the pond did not include special capping except for one area (green shading) which had known higher PAH impacts, but not extensive enough to justify hot spot excavation using the bankruptcy escrow or grant funds allotted to the KEP for remediation which further demonstrates WDNR’s previous agreement that soil impacts in the proposed stormwater pond footprint are de minimis.

Comment: *Non-soil solid waste, such as construction debris, is anticipated to be discovered and excavated during this project. Solid waste such as this should only be reused on-site only with prior DNR approval. Discuss under what authority will this material, if encountered, will be reused. An exemption could be obtained through NR 718.15 to reuse the material on-site if details are provided as to what the material is to be managed, how it was characterized, and how it will be reused.*

Response:

Solid wastes will not be reused at the site. Storm and sanitary sewer pipe will be removed and disposed. Other construction debris, if encountered in material quantities, will be stockpiled and disposed by the

contractor constructing the pond. The exception is the crushed concrete previously used as fill below former Building 70 which will be treated in the same manner as is proposed for impacted soil in the plan and placed in the area planned for a future permanent cap.

Comment: *To obtain an exemption under NR 718 to manage contaminated material on a site the number of samples collected from the material proposed to be excavated must be sufficient to determine what type of contamination is present and to separate the material that needs to be specially managed from that which does not. An exemption from the sampling requirements of NR 718.12(1)(e) was requested. The DNR will consider whether enough information is available to support how the material is being characterized and how it will be reused when determining if additional sampling is needed. Depicting the limits of the proposed excavation on a figure with the sample locations would be useful with displaying how samples were distributed throughout basin.*

Response:

Approximately 157,350 cubic yards of soil will be relocated from the Proposed Stormwater Pond to the Soil Placement Area. The number of soil samples required to characterize this volume of soil would be 529 samples. The number of samples are cost prohibitive and the volume of data generated by this many samples would not be easy to manage or review. A limited number of additional samples were collected at the propose stormwater pond area because the previously collected soil samples were considered sufficient based on the approved ROAR and Soil Remedial Design Report. Approximately 79 soil samples were collected within the Propose Stormwater Pond boundary. The sampling frequency would be one sample for every 2,000 cubic yards.

A total of four figures have been annotated with the Proposed Stormwater Pond area and Soil Placement Area depicted. These figures are:

1. Figure 18, Alternative 4 – Conceptual Layout from the 2015 Remedial Action Options Report, Kenosha Engine Plant
2. No figure number – Site Investigation Interactive Map -site-wide print with soil boring, monitoring well and piezometer locations depicted from several phases of investigation conducted at the KEP after 2010.
3. Figure 3 prepared to depict the supplement soil borings conducted within the proposed stormwater pond boundary to supplement the soil characterization. The figure includes the prior investigation sample locations Due to scale, the figure does not depict the entire pond area. Thus, the prior figure was included to depict the former sample locations within the contiguous boundaries of the KEP. This figure was further annotated to identify soil sample locations whose soil samples had no RCL exceedances.
4. Figure 3, Group A and Group B Excavation Locations. This figure was provided to illustrate the location of the Proposed Stormwater Pond and the Soil Placement Area.

Comment: *Based on the history and size of this site there is the potential that previously undiscovered contamination will be encountered, no matter how many samples are collected before the project starts. Any approval to reuse contaminated material on-site would be contingent on the expectation that newly discovered contamination will be immediately reported, segregated, characterized, and managed with DNR approval.*

Response:

The Supplemental Specifications for the Project #19-1150, Former Kenosha Engine Plant Storm Water Improvements provided instructions to the stormwater pond contractor and becomes part of the contract between the City and the contractor. Supplemental specification #16 includes the following language:

16.) Disposal of Material

The Contractor shall be responsible for the transporting, disposal, and leveling of all excavated material from this project onsite as shown on the grading and restoration plans. The Contractor shall follow the restoration requirements as defined on the Project Plans. All non-soil materials encountered shall be removed and disposed of offsite at the Contractor's expense.

If concrete, steel and other metallic materials are encountered on site during excavations, the Contractor shall dispose of the material as specified under Item SPV.1095.02 Dispose of Concrete, Steel and Other Metallic Materials.

If it appears contaminated soil is encountered on site the Contractor, at the direction of the Engineer, shall remove the contaminated soil from the excavation, stockpile the soil on an impervious surface or plastic sheeting and contact the City of Kenosha's Environmental Consultant for testing. After the results from the testing are received, the Contractor shall either spread the material on site or properly dispose of the soil as determined by the City of Kenosha's Environmental Consultant. Payment for the excavation, stockpiling, disposal and removal of contaminated soil shall be paid for under the Stockpile Potentially Contaminated Soils, Grade Soil Determined not to be Contaminated Soil, and Dispose of Contaminated Soil bid items respectively.

Contaminated soils shall be disposed at Kestrel Hawk Landfill, 1989 Oakes Road, Racine, Wisconsin. The Contractor shall meet all applicable regulations and Wisconsin Department of Natural Resources guidelines. Actual landfill costs for the disposal of excavated material will be paid by the City of Kenosha and should not be included in the Contractors unit price.

Supporting Discussion

Additionally, the selected contractor for the project, Oakes and Son, were the successful contractor for the first phases of soil remediation at the KEP. Thus, a site-experienced contractor is being used and it is expected that only soil materials will be placed in the planned location and that if contamination is encountered unexpectedly, they will stop work in the contaminated area and contact the City Engineer or their representative until a determination has been made regarding proper management of encountered contamination.

Comment:

Material reuse on-site

A detailed description of how the different materials identified above will be reused on-site must be provided. Describe where the different materials would be reused, at what thickness, and how they will be placed relative to other material in the same area (i.e., what material will be used as surface cover, what contaminated material will be placed under cleaner material, etc.). It would be helpful if this is illustrated on a figure. The overall area where excavated material will be reused must also be identified. A cut-fill map is usually provided as part of a NR 718.12 exemption request, but if the depth of excavation and thickness of replaced material across the site is going to be generally consistent throughout this would probably not be needed.

Response:

The soil within the Proposed Stormwater Pond will be mass excavated and moved to the Soil Placement Area regardless of soil type or impacts because the impacts within the proposed stormwater pond are equal to or less than the impact identified in the Soil Placement area. Table 3 provides a comparison of the minimum and maximum detected contaminants in both areas. . The soil in the area of the pond will be moved from an area with lesser contamination to an area of known higher contamination (Table 3).

The Soil Placement Area is planned to be permanently capped as the site is redeveloped and as such, is more protective than leaving the soil in the proposed Stormwater Pond Area without a planned permanent cap.

Supporting Discussion:

Figures from the ROAR (Figure 18, Alternative #4), the Site Investigation Interactive Map, Figure 3 from the NR 718.12 exemption request, and Figure 3 Group A and Group B Excavation Locations from the Soil Remediation Documentation Report have each been annotated with the planned pond excavation location and the location planned for soil placement. These figures depict that soil from the proposed pond area is being removed from an area of lesser contamination to an area of higher contamination. Additionally, Attachment A of the NR 718.12 Exemption Request included two figures, a proposed grading plan that shows the fill area (Plan sheet number GR-02R-2) and the proposed stormwater facility grading & erosion control plan that shows the cut area (Plan sheet number GR-01R-1). These areas were not further annotated as cut and fill areas so the data contained in the figure would not be obscured.

The anticipated fill amounts can be viewed directly on the proposed grading plan because the existing elevations were depicted in grey under the new grades (black contours) on top. From the edge of the pond berms, some areas of thicker soil placement, approximately three feet thick gradually diminishes to a thickness of approximately one foot over the larger area to the west. The area proposed for topsoil stockpiling is also depicted on this figure.

Similarly, for the proposed pond grading plan, the existing elevations are shown in grey under the black new (or proposed) contours which then can be used to evaluate how much soil is being cut. A cut-fill map like those prepared for roadways or other linear features could not fully represent the cut-fill for the pond or the area of soil placement.

Comment: *The DNR does not usually approve the reuse of soil contaminated with PCBs or chlorinated volatile organic compounds and will carefully consider how this material will be used before approving it to be replaced on the site. For this material to be considered for on-site reuse the extent of the contamination within the basin and the area where it will be reused would need to be clearly identified. The area chosen for this material to be reused must minimize the potential for this contamination to pose a future risk.*

Response: There is no PCB-contaminated soil in the pond project area, so no PCB-contaminated soil will be moved.

One of the main contaminants at the KEP is chlorinated VOCs. As depicted on Figure 3, Group A and Group B Excavation Locations from the Remediation Documentation report, multiple excavations were conducted in the area proposed for soil placement to removed soil with TCE concentrations above 1,000 ug/kg. This value was chosen with WDNR approval of the approach as is confirmed by the WDNR approval of the Soil Remedial Design (2016) document based on empirical evidence from TCE concentrations in the groundwater. The residual concentrations of TCE in the excavations were included in the Soil Remediation Documentation report. As such, the soil being moved has TCE concentrations that are much less than the residual concentration in the area of soil placement. Additionally, area proposed for soil placement will receive a permanent cap with redevelopment.

Comment:

Post management requirements

An NR 718 exemption request to reuse contaminated material can be approved if the contaminants in the material will not pose a risk or if adequate controls are in place that will mitigate the risk. Specific restrictions (i.e., continuing obligations such as capping, requiring proper management of excavated material, addressing vapor intrusion, etc.) that will apply to

certain areas of the reuse area will need to be identified and must be appropriate for the contaminants located there. Consider the following points when evaluating what restrictions will be imposed.

- *The submittal stated that certain areas will require that a 'temporary' cap will need to be replaced by a 'permanent cap'. These different areas will need to be identified.*

- *One area within excavation area currently requires a cap to be maintained over it. If this soil is allowed to be reused on-site it will need to be capped after it is replaced.*

- *Requiring a vapor barrier be installed at buildings constructed on this site may reduce the potential for vapor intrusion but will not replace the requirement to assess the need to conduct a vapor investigation, collect sub-slab vapor samples if needed, and to operate an active mitigation system where a vapor intrusion risk exists.*

The DNR will typically impose continuing obligations, including capping requirements, on the property upon approving the NR 718 exemption. This may require that annual inspections of surface barriers be conducted as outlined in an interim maintenance plan to be provided with the exemption request.

Response:

- The different areas for permanent capping were identified in Figure 18, Alternative 4 Conceptual Layout, of the Remedial Action Options Report which WDNR approved. Figure 18 has been annotated to depict where the proposed pond and proposed fill areas are located, to illustrate that relatively less-impacted soil is being replaced in an area that had higher impacted soil that will receive a permanent cap.

- Excavation of the soil near the railroad and under the proposed pond will be excavated and placed in an area also identifies as receiving a planned permanent cap. The area depicted as receiving a permanent cap on the southeast property line was based on the estimated area that would receive groundwater treatment for soils with groundwater pathway exceedances. These soils are going from one planned permanent cap area to another. The movement of the soil from one capped area to another is not anticipated to increase the risk to human health or the environment.

Proposed redevelopments in the City of Kenosha at historic fill or brownfield sites require an active Vapor Recovery System. The WDNRs vapor intrusion screening and mitigation requirements in WDNR's RR-800 publication, *Addressing Vapor Intrusion at Remediation and Redevelopment Sites in Wisconsin*, states a vapor mitigation system should be installed in new buildings where vapor may be present in the subsurface. The WDNR 's guidance states that an active/passive system should be designed to meet the requirements found in *ANSI CC-1000 2018 Soil Gas Control Systems in New Construction Buildings*.

Comment:

General questions

Providing a brief response to the following questions would help to describe the proposed plan.

- *A two-foot thick clay base is proposed for basin, does this mean that the pond is not intended to allow infiltration?*

- *The submittal states groundwater in the vicinity of the basin is at 10 feet, is the clay cap expected to limit infiltration of groundwater into the pond as well?*

- *Are there concrete foundations remaining in the excavation area? How will this material be removed/reused – characterized?*

- *Contaminated soil was previously identified in berms located along the edges of CS9 and CS10. Soil contained in these berms was used as backfill for remedial excavations on this site. Please confirm that soil within these berms will not be excavated as part of the basic construction.*

- *Various 'hot spot' excavations were completed across the site. Confirm that any of these areas identified within the basin were excavated as proposed and will not need to be addressed during this construction project.*

Response:

- Yes, the pond is not intended to allow infiltration consistent with reduction in infiltration provided by a 2-foot compacted clay liner.

- Yes, the clay pond liner is expected to limit infiltration of the groundwater into the pond. The pond was designed following DNR Technical Standard 1001, Wet Detention Pond, which requires the liner elevation to extend above the permanent pool up to the elevation reached by the 2-year, 24- hour storm event. If infiltration of groundwater into the pond would occur, this could potentially limit the capacity and functionality of the pond as designed , the clay liner will mitigate the potentially contaminated groundwater and constituents from entering the pond and the City's storm sewer system.

- If concrete foundations are encountered the concrete will be removed and crushed for reuse in a manner similar to the way concrete from the floors and foundations of the former buildings was crushed and reused. If the concrete is not stained it will be reused, if the concrete is visible stained, it will be disposed.

- Soil from the berms in the vicinity of the pond are gone and the land surface on the eastern side of the proposed pond is at street level.

- A copy of Figure 3, Group A and Group B Excavation Locations has been annotated with the approximate pond boundary and the proposed soil placement area. The pond is not located over any remedial excavations. However, the inlet to the pond may touch the northern portion of the Group B excavation identified as E33 T. This excavation was backfilled with clay approved as clean by WDNR from an off-site source. Any backfill excavated will be placed in the proposed location and treated like other soils. The residual concentrations of VOCs in the northern part of the pond were low and exceeded only the groundwater pathway RCLs. The construction of the inlet to the pond is not expected to cause residual impacts to leach into the groundwater.

Comment:

Scope

A written NR 718 exemption would only apply to contaminated material excavated from the basin and reused on-site as proposed. The exemption would not apply to any utility trenches connected to the pond or any other development activities. In the future we can discuss what the City's exact needs are regarding the reuse of contaminated materials excavated from other areas of the site, and how we can work together to obtain these exemptions.

Response:

The City of Kenosha understands that the NR 718.12 exemption request is only for the placement of the soil from the storm water pond on another area of the KEP. The storm water management plan was provided as an addendum to demonstrate that management of any encountered materials would be managed during construction.

The City further understands that you are requesting a separate meeting (and fee?) to address site-wide redevelopment issues before the City proceeds with redevelopment concurrent with continued remediation of the groundwater.

Yours sincerely,

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cc: Kim Masura, Senior Civil Engineer, City of Kenosha
Shelly Billingsley, Director of Public Works, City of Kenosha

Attachments: F18 ROAR Alternative #4-Annotated
KEP SI Interactive-Annotated
F3-Exempt Request-Annotated
F3 Group A and Group B Excavation Locations-Annotated

Updated Table 3, Comparison of Proposed Stormwater Pond Soil Concentration vs. Soil Placement Area Soil Concentrations

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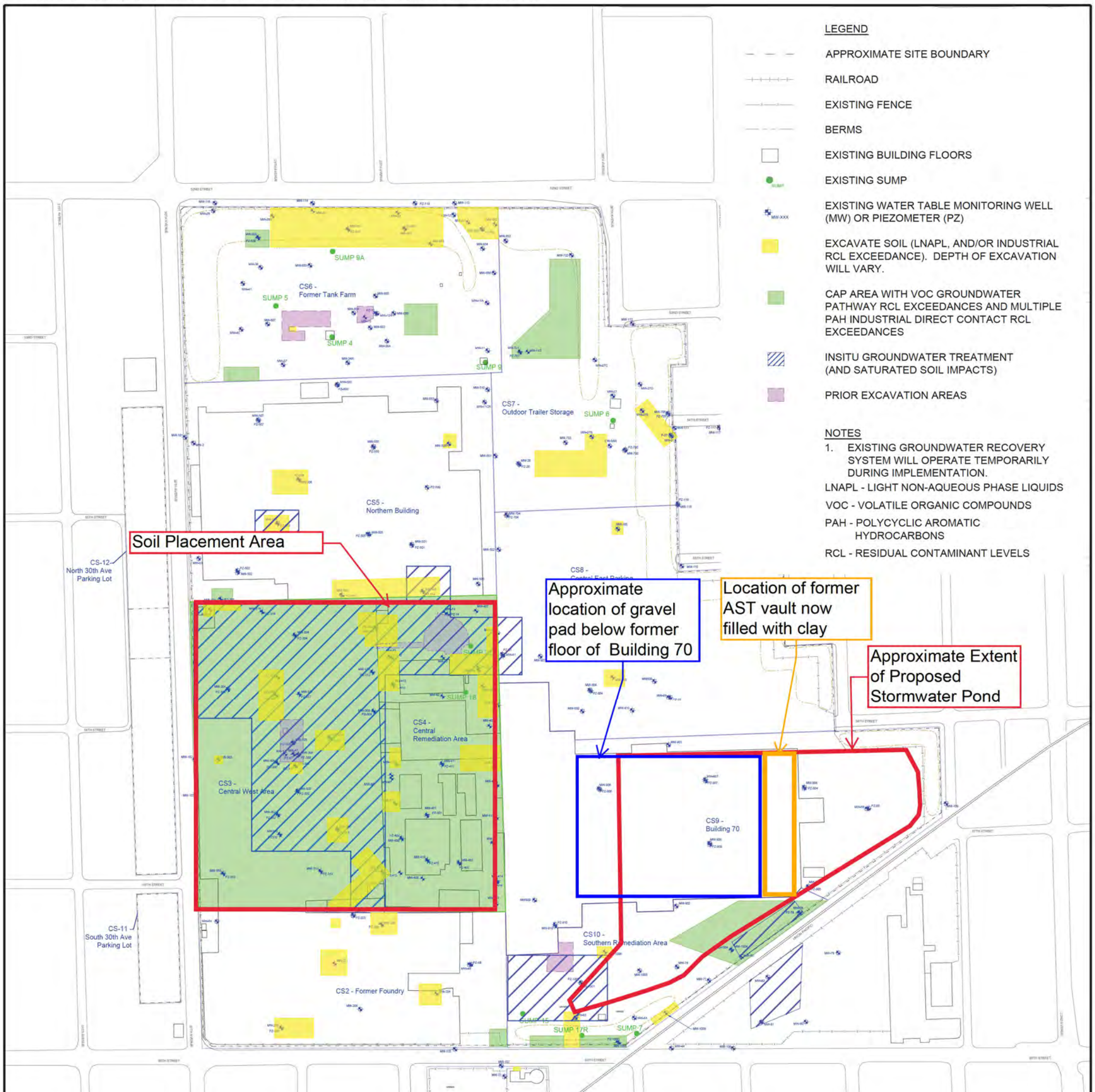

LEGEND

- APPROXIMATE SITE BOUNDARY
- RAILROAD
- EXISTING FENCE
- BERMS
- EXISTING BUILDING FLOORS
- EXISTING SUMP
- EXISTING WATER TABLE MONITORING WELL (MW) OR PIEZOMETER (PZ)
- EXCAVATE SOIL (LNAPL, AND/OR INDUSTRIAL RCL EXCEEDANCE). DEPTH OF EXCAVATION WILL VARY.
- CAP AREA WITH VOC GROUNDWATER PATHWAY RCL EXCEEDANCES AND MULTIPLE PAH INDUSTRIAL DIRECT CONTACT RCL EXCEEDANCES
- INSITU GROUNDWATER TREATMENT (AND SATURATED SOIL IMPACTS)
- PRIOR EXCAVATION AREAS

NOTES

1. EXISTING GROUNDWATER RECOVERY SYSTEM WILL OPERATE TEMPORARILY DURING IMPLEMENTATION.

LNAPL - LIGHT NON-AQUEOUS PHASE LIQUIDS

VOC - VOLATILE ORGANIC COMPOUNDS

PAH - POLYCYCLIC AROMATIC HYDROCARBONS

RCL - RESIDUAL CONTAMINANT LEVELS

ALTERNATIVE 4 - CONCEPTUAL LAYOUT
SOIL AND GROUNDWATER SOURCE CONTROL
KENOSHA ENGINE PLANT
KENOSHA, WISCONSIN

Drawn : ARS 4/7/2015

Checked: LLA 4/7/2015

Approved: KWB 4/7/2015

PROJECT NUMBER 60328684

FIGURE NUMBER 18

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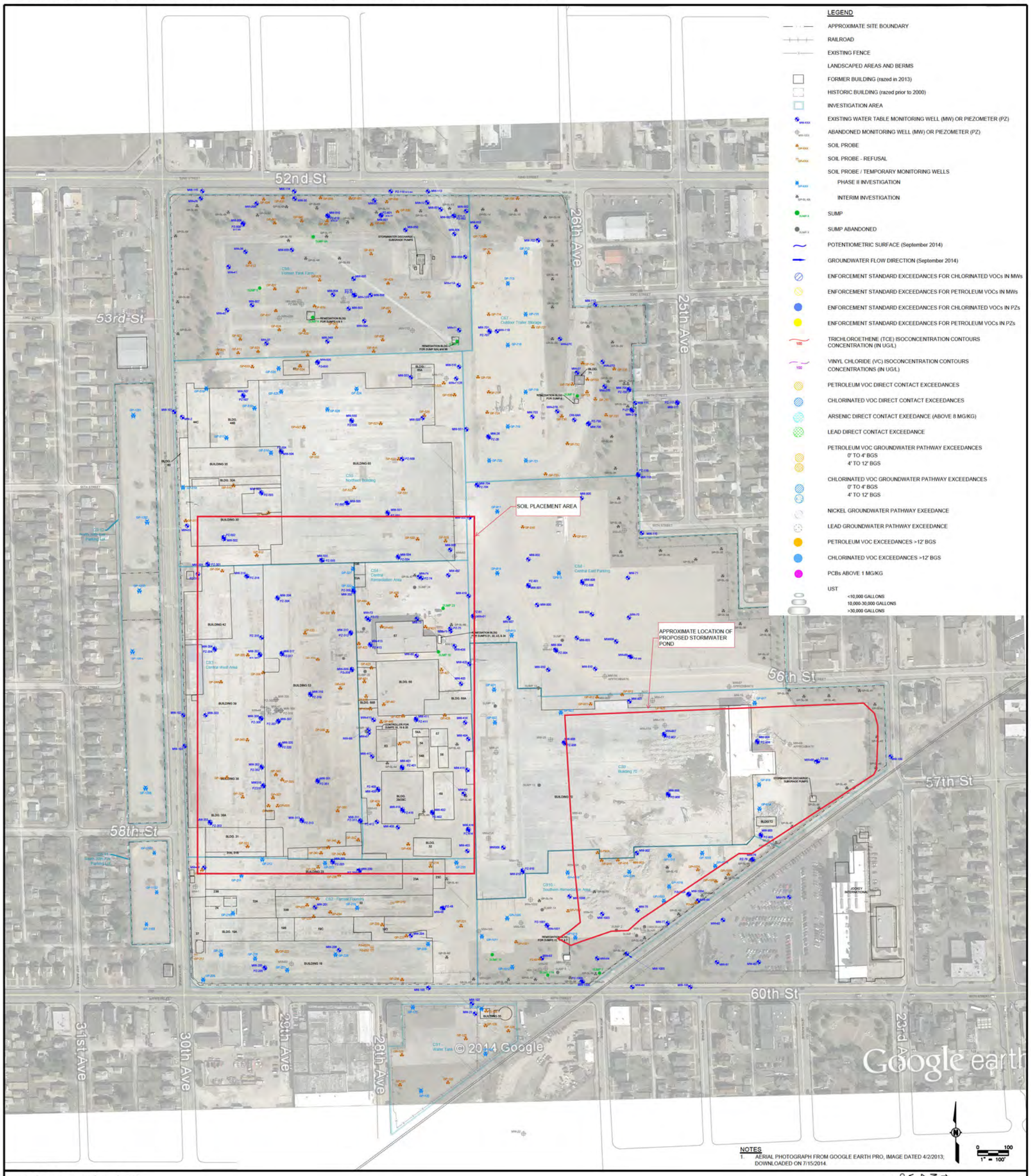

SITE INVESTIGATION INTERACTIVE MAP
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN

Drawn :	SAE	2/23/2015
Checked:	LLA	2/23/2015
Approved:	KWB	2/23/2015

PROJECT NUMBER 60312487

FIGURE NUMBER —

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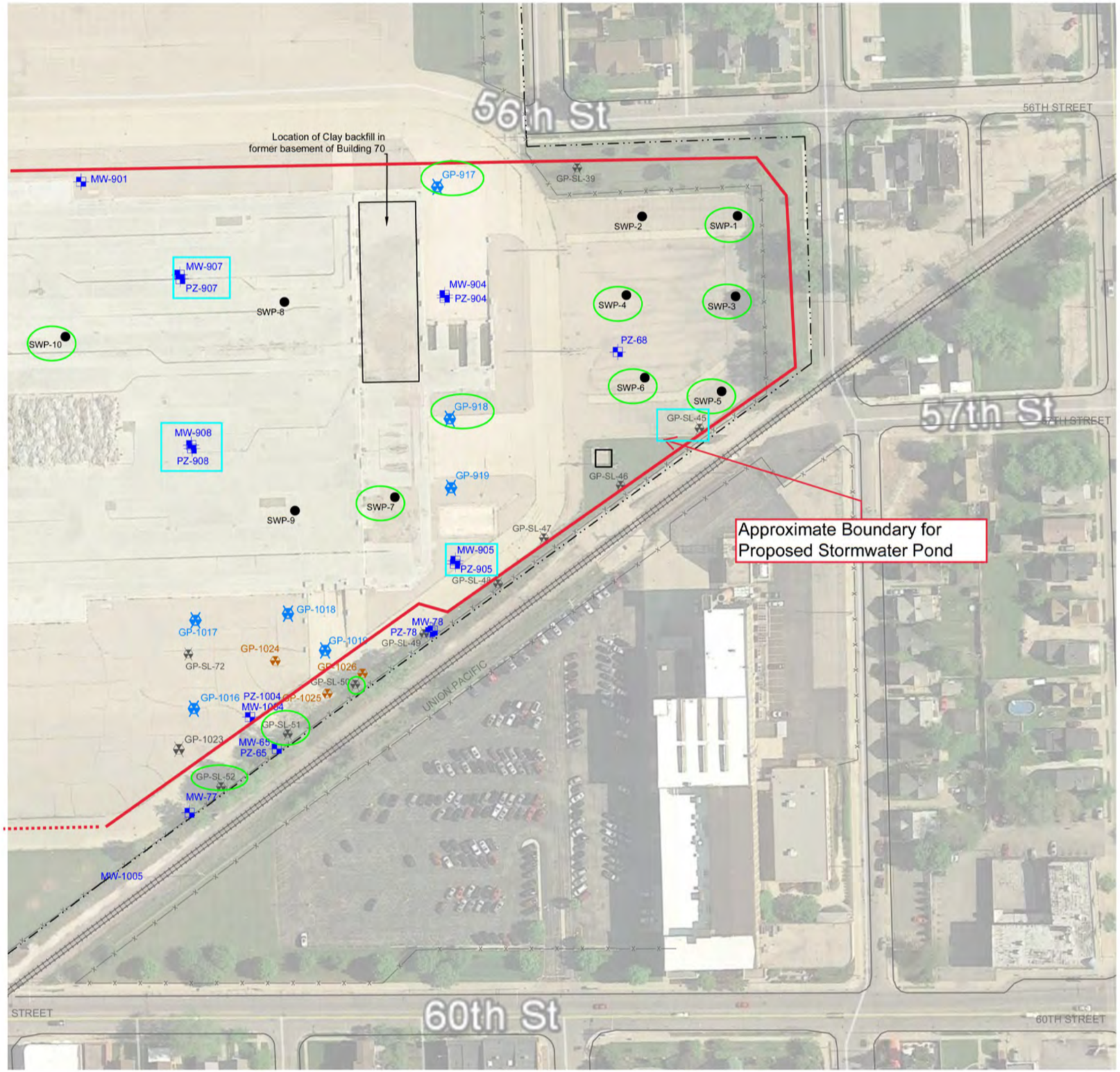

LEGEND

- APPROXIMATE SITE BOUNDARY
- RAILROAD
- EXISTING FENCE
- MW-XXX — EXISTING WATER TABLE MONITORING WELL (MW) OR PIEZOMETER (PZ)
- GP-XXX — SOIL PROBE
- GP-XXX — SOIL PROBE / TEMPORARY MONITORING WELLS - PHASE II INVESTIGATION
- GP-SL-XX — SOIL PROBE / TEMPORARY MONITORING WELLS - INTERIM INVESTIGATION
- SWP-XX — SOIL BORINGS

NOTES

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, IMAGE DATED 6/2/2015; DOWNLOADED ON 8/10/2015.
2. BORDER DISCONTINUITIES ARE DUE TO ANGLE OF 2015 AERIAL.

0' 120' 240'

SCALE

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Milwaukee, WI 53212
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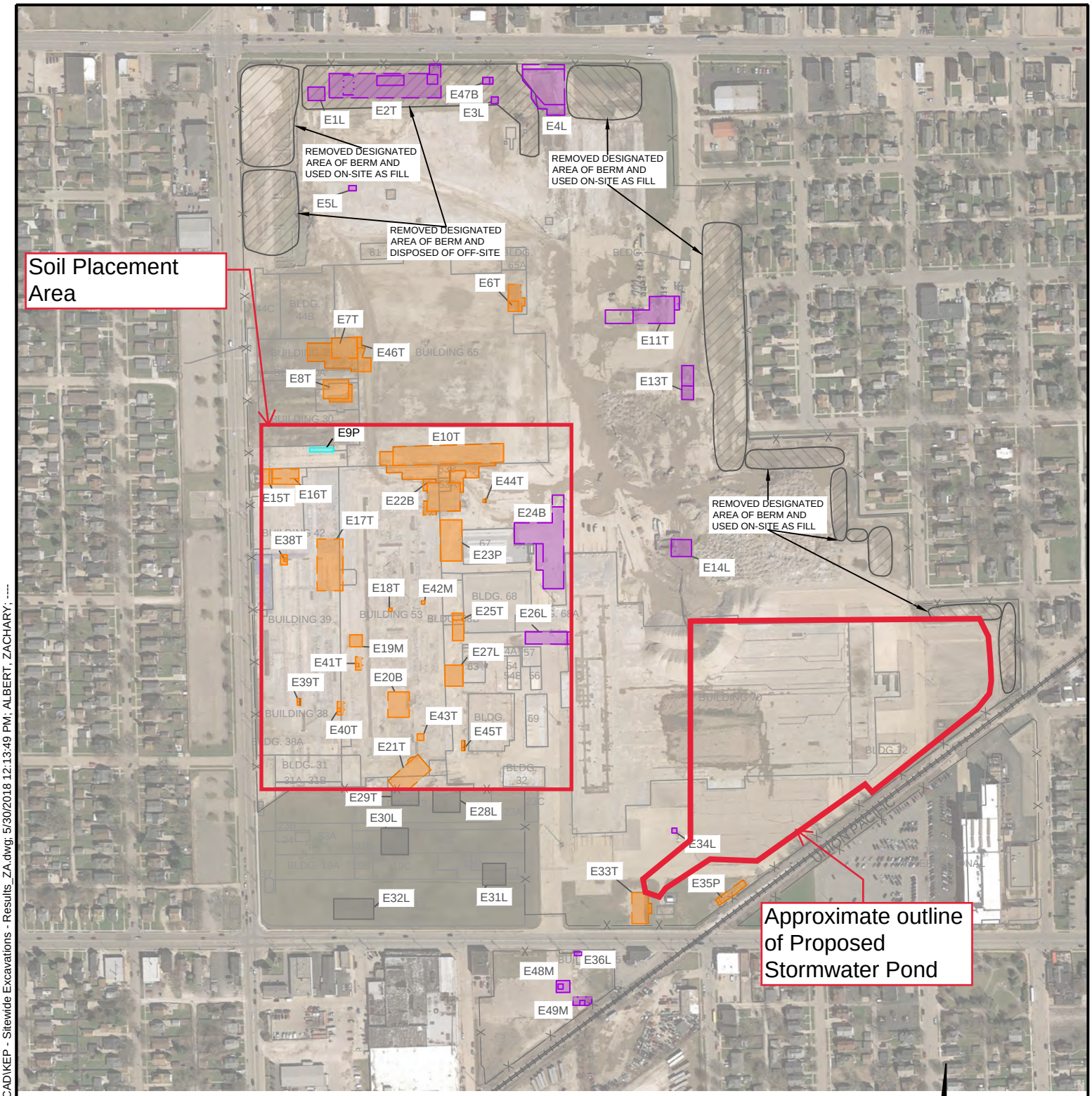
SOIL SAMPLE LOCATIONS
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN

Drawn :	CAS	3/16/2020
Checked:	LLA	3/16/2020
Approved:		
PROJECT NUMBER	60628059	
FIGURE NUMBER	3	



LEGEND

- APPROXIMATE SITE BOUNDARY
- RAILROAD
- EXISTING FENCE
- HISTORIC BUILDING OUTLINE
- GROUP A EXCAVATIONS
- GROUP B EXCAVATIONS
- GROUP K EXCAVATIONS
- PRIOR EXCAVATIONS

NOTES

1. AERIAL PHOTOGRAPH FROM GOOGLE EARTH PRO, IMAGE DATED 4/6/2017; DOWNLOADED ON 6/5/2017.
2. BORDER DISCONTINUITIES ARE DUE TO ANGLE OF 2017 AERIAL.
3. UNFILLED AREAS NOT EXCAVATED
4. IRREGULAR SHAPES SHOW WHERE EXCAVATIONS WERE EXTENDED

N

0' 400'

Approximate Scale

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GROUP A AND GROUP B EXCAVATION LOCATIONS
KENOSHA ENGINE PLANT
CITY OF KENOSHA
KENOSHA, WISCONSIN

Drawn :	ZPA	3/14/2018
Checked:	PL	1/31/2017
Approved:	LLA	1/31/2017
PROJECT NUMBER	60523016	
FIGURE NUMBER	3	

C:\Users\zachary.albert\Documents\Projects\KEP Soil Remediation\CAD\KEP - Sitewide Excavations - Results_ZA.dwg; 5/30/2018 12:13:49 PM; ALBERT, ZACHARY; ----

Table 3
Comparison of Proposed Stormwater Pond Soil Concentrations vs. Soil Placement Area Soil Concentrations
Kenosha Engine Plant

	Generic RCLS				Soil Placement Area		Proposed Pond Area	
Detected Analyte in Soil Samples 12 feet bgs or less	**Non-Industrial Direct Contact**	**Industrial Direct Contact**	**Groundwater Pathway**	**Background Threshold Value**	**Minimum Concentration**	**Maximum Concentration**	**Minimum Concentration**	**Maximum Concentration**
VOCs (ug/kg)								
1,1,1-Trichloroethane	640,000	640,000	140.2	--	<25	6620	<25	<25
1,1-Dichloroethane	5,060	22,200	2.8	--	<25	2330	171	171
1,2,4-Trimethylbenzene	219,000	219,000	1378.7	--	<25	357000	29.8	128
1,3,5-Trimethylbenzene	182,000	182,000	1378.7	--	<25	102000	33.6	55.1
Benzene	1,600	7,070	5.1	--	<25	4840	<25	<25
Bromoform	25,400	113,000	2.3	--	<25	246	246	246
cis-1,2-Dichloroethene	156,000	2,340,000	41.2	--	<25	64100	112	2290
Naphthalene	5,520	24,100	658.2	--	<25	55000	30.5	3900
n-Butylbenzene	108,000	108,000	--	--	<25	33200	53.3	53.3
p-Isopropyltoluene	162,000	162,000	--	--	<25	3850	44.4	46.5
trans-1,2-Dichloroethene	1,560,000	1,850,000	62.6	--	<25	1730	185	185
Tetrachloroethene	33,000	145,000	4.5	--	<25	661	<25	<25
Trichloroethene	1,300	8,410	3.6	--	<25	10200	35	469
Toluene	818,000	818,000	1107.2	--	<25	26700	<25	<25
Trichloroethene	1,300	8,410	3.6	--	<25	978	<25	<25
PAHs (ug/kg)								
1-Methylnaphthalene	17,600	72,700	--	--	<2.6	23300	3.6	1470
2-Methylnaphthalene	239,000	3,010,000	--	--	<2.6	5110	4.6	1250
Acenaphthene	3,590,000	45,200,000	--	--	<2.4	3610	13.6	3570
Acenaphthylene	--	--	--	--	<2.7	794	3.9	503
Anthracene	17,900,000	100,000,000	196,949.2	--	<4	7640	4.8	7640
Benzo(a)anthracene	1,140,000	20,800	--	--	<2.4	10700	3.2	10700
Benzo(a)pyrene	115	2110	470	--	<2.8	9660	3.2	9660
Benzo(b)fluoranthene	1,150	21,100	478.1	--	<3	9360	5.6	9360
Benzo(g,h,i)perylene	--	--	--	--	<2.3	5450	3.1	5080
Benzo(k)fluoranthene	11,500	211,000	--	--	<3.2	9610	5.9	9610
Chrysene	115,000	2,110,000	144.2	--	<3.1	11400	3.6	11400
Dibenz(a,h)anthracene	115	2110	--	--	<4.6	2110	8	1980
Fluoranthene	2,390,000	30,100,000	88,877.8	--	<8.6	29900	4.5	29900
Fluorene	2,390,000	30,100,000	14,829.9	--	<4.2	3150	8.7	2240
Indeno(1,2,3-cd)pyrene	1,150	21,100	--	--	<2.4	5020	4.8	5020
Naphthalene	5,520	24,100	658.2	--	<3	1870	2	2330
Phenanthrene	--	--	--	--	<3.8	27300	3.4	27300
Pyrene	1,790,000	22,600,000	54,545.5	--	<3.1	22300	4.2	22300
Metals (mg/kg)								
Arsenic	0.677	3	0.584	8	1.3	72	1.6	11.3
Barium	15,300	100,000	164.8	364	6.2	976	8.4	166
Cadmium	71.1	985	0.752	1	<0.019	3.6	0.05	1.3
Chromium	--	--	360,000	44	3	154	4.8	34.5
Copper	3,130	46,700	91.6	35	2.5	1970	6.9	217
Lead	400	800	27	52	1.3	784	2.9	220
Mercury	3.13	3.13	0.208	--	<0.002	0.22	0.0051	0.12
Nickel		22,500	13.1		3.7	520	5.1	48.6
Silver	391	5,840	0.8491	--	<0.042	1.9	0.055	0.44
Zinc	23,500	100,000	--	150	3.4 J	864	16.5	315

Notes:

VOCs = Volatile Organic Compounds. ug/kg = Micrograms per kilogram.

PAHs = Polycyclic Aromatic Hydrocarbons mg/kg = Milligrams per kilogram

Only compounds detected in the soils are listed. Methylene chloride has been excluded as detections were related to laboratory contamination.

˅ Estimated concentration between the Method Detection Limit (MDL) and Reporting Limit (RL)

Generic RCLs Dec 2018 per WDNR PUB-RR-890.