AKTPEERLESS
ENVIRONMENTAL SERVICES

ENVIRONMENTAL CONSTRUCTION MANAGEMENT PLAN

220 N. Park Street, Ypsilanti, Michigan

PREPARED FOR **Renovare Ypsilanti Homes, LLC**
42 Watson Street, Suite B
Detroit, Michigan 48201

PROJECT # 10627F3-3-27

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1.0 Introduction

AKT Peerless has prepared this Environmental Construction Management Plan (ECMP) on behalf of Renovare Ypsilanti Homes, LLC (Client and prospective Owner/Operator) in connection with the prospective Owner's proposed redevelopment of the property located at 220 N. Park Street in Ypsilanti, Washtenaw County, Michigan (the subject property). The subject property consists of one 4.46-acre tax identification parcel (Parcel ID No. 11-11-09-111-004) located in the northeast ¼ of Section 9, Township 3 South/Range 7 East. The subject property currently consists of undeveloped, vegetated land (i.e., maintained lawn, trees) and is not used for a significant or obvious purpose.

The prospective Owner/Operator intends to redevelop the subject property with 46 attached and detached residential dwellings and associated infrastructure, including a storm water management system, access drives, parking areas and sidewalks, and landscaped areas. Contamination associated with fill material of unknown origin has been identified in soil samples collected from the subject property during recent environmental due diligence activities at concentrations exceeding Part 201 Generic Residential Cleanup Criteria. The subject property therefore meets the definition of a "facility[1]" as defined in Part 201 of the Natural Resources and Environmental Protection Act, Michigan Public Act 451 of 1994, as amended (NREPA).

Refer to **Figure 1** for a topographic site location map, **Figure 2** for a site map, **Figure 3** for a site map with soil analytical results exceeding Part 201 Generic Residential Cleanup Criteria, and **Figure 4** for a site map with the proposed site plan.

1.1 Basis of the ECMP

As a Part 201 "facility," ***the Owner of the subject property is responsible for meeting the obligations set forth in Section 20107a of the NREPA***. To demonstrate compliance with Section 20107a(1), the concepts of exacerbation, Due Care, and reasonable precautions have been considered and evaluated in this ECMP. Pursuant to Section 20107a(1), and with respect to hazardous substances previously identified at the subject property, the Owner of the subject property must comply with the following obligations:

- Undertaking measures to prevent exacerbation of existing contamination.

[1] "Facility" means any area, place, or property where a hazardous substance in excess of the concentrations that satisfy the cleanup criteria for unrestricted residential use has been released, deposited, disposed of, or otherwise comes to be located. Facility does not include any area, place, or property where any of the following conditions are satisfied: (i) Response activities have been completed under this part that satisfy the cleanup criteria for unrestricted residential use. (ii) Corrective action has been completed under Part 213 that satisfies the cleanup criteria for unrestricted residential use. (iii) Site-specific criteria that have been approved by the department for application at the area, place, or property are met or satisfied and both of the following conditions are met: (A) The site-specific criteria do not depend on any land use or resource use restriction to ensure protection of the public health, safety, or welfare or the environment. (B) Hazardous substances at the area, place, or property that are not addressed by site-specific criteria satisfy the cleanup criteria for unrestricted residential use.

- Exercising Due Care by undertaking response activities to mitigate unacceptable exposure(s) to hazardous substances, mitigate fire and explosion hazards due to hazardous substances, and allow for the intended use of the "facility" in a manner that protects human health and safety.
- Taking reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the consequences that could result from those acts or omissions.
- Providing notifications to Michigan Department of Environment, Great Lakes, and Energy (EGLE) and others in regard to mitigating fire and explosions hazards, discarded or abandoned containers, contamination migrating beyond "facility" boundaries, as applicable.
- Comply with any land use or resource use restrictions established or relied on in connection with response activities at the "facility."
- Not impede the effectiveness or integrity of any land use or resource use restrictions employed at the "facility" in connection with response activities and provide reasonable cooperation and access to any person authorized to conduct response activities, if any.

This ECMP is based on Section 20107a of the NREPA and has been prepared to provide guidance to the prospective Owner of the subject property and the prospective Owner's General Contractor, subcontractor(s), and Owner's Representative for the management of soil and groundwater at the subject property in a manner that prevents exacerbation of contamination and protects future residential receptors at the subject property from potentially unacceptable exposure risks.

1.2 Overview of Environmental Conditions Relevant to the ECMP

1.2.1 Environmental Conditions Relevant to Redevelopment Activities

Contamination associated with fill material of unknown origin has been identified in various soil samples collected from the subject property at concentrations exceeding Part 201 Generic Residential Cleanup Criteria, thus qualifying the subject property, as a whole, as a "facility," as defined in Part 201 of the NREPA.

The fill material of unknown origin was identified on ground surface on the south-central portion of the subject property during completion of AKT Peerless' October 2015 Phase I Environmental Site Assessment (ESA; **Appendix A**) and below grade at various locations across the subject property during completion of G2 Consulting Group's July 2022 Report on Geotechnical Investigation (**Appendix B**). The soil contamination consists of various metals and semi-volatile organic compounds [SVOCs; primarily polynuclear aromatic hydrocarbons (PNAs)], as described in AKT Peerless' September 2021 Phase II ESA (**Appendix C**) and November 2022 Supplemental Phase II ESA (**Appendix D**). Refer also to **Figure 3** for a site map depicting the known distribution of soil contamination at the subject property and to **Table 1** for a summary of soil analytical results compared to Part 201 Generic Residential Cleanup Criteria.

The presence of soil contamination at the subject property at concentrations exceeding Part 201 Generic Residential Cleanup Criteria presents restrictions for the on-site management of soil and groundwater residuals (e.g., stockpiling and on-site relocation of soil, containerization of groundwater) and the off-site disposal of soil and groundwater residuals that cannot be reused and/or discharged at the subject property. These restrictions are discussed in further detail in Section 3.0 below.

1.2.2 Environmental Conditions Relevant to Future Residential Land Use

Exposure pathways associated with the previously identified soil contamination potentially relevant to future residential receptors at the subject property include groundwater venting to surface water;

ingestion of groundwater as drinking water; inhalation of contaminants volatilizing to indoor and/or ambient air; inhalation of soil particulates; and dermal contact/ingestion of soil.

The proposed redevelopment will be connected to municipal water and sanitary sewer services and include an integrated storm water management system that ultimately discharges to the municipal storm water system. Therefore, under proposed conditions, the ingestion of groundwater as drinking water and groundwater venting to surface water exposure pathways will not be complete and will not present potentially unacceptable exposure risks to residential receptors. The inhalation of contaminants volatilizing to indoor and/or ambient air, inhalation of soil particulates, and dermal contact/ingestion of soil exposure pathways remain relevant for future residential receptors. Applicable Part 201 Generic Residential Cleanup Criteria for the proposed future residential land use at the subject property therefore include Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC), Volatile Soil Inhalation Criteria (VSIC), Particulate Soil Inhalation Criteria (PSIC), and Direct Contact (DC).

Soil contamination exceeding Part 201 Generic Residential Cleanup Criteria for DC (and potentially PSIC) was identified in soil samples collected from the south-central portion of the subject property within the footprint of the proposed storm water detention basin, but not in soil samples collected from other portions of the subject property. Therefore, response activities are necessary within the footprint of the proposed storm water detention basin to mitigate unacceptable dermal contact/ingestion of soil (and potentially particulate soil inhalation) exposure risks for future residential receptors. Refer to **Figure 4** for a site map depicting the proposed storm water detention basin in relation to the remainder of the subject property and to **Table 1** for a summary of soil analytical results compared to Part 201 Generic Residential Cleanup Criteria. The proposed site layout is also depicted on the site engineering plan included as **Appendix E**.

An evaluation of potentially unacceptable exposure risks and guidance for the implementation of response activities to mitigate potentially unacceptable exposure risks to future residential receptors at the subject property are presented in Section 4.0 below.

1.3 Purpose and Implementation of the ECMP

The purpose of this ECMP is to (1) outline general construction considerations for the subject property, as a Part 201 “facility;” (2) define procedures for the on-site management of soil and groundwater residuals generated at the subject property to prevent exacerbation of contamination at the subject property; (3) define acceptable procedures for the off-site disposal of soil and groundwater residuals generated at the subject property to prevent exacerbation of environmental conditions beyond subject property boundaries; (4) evaluate environmental data, exposure pathways, and potential response activities necessary for the prospective Owner to mitigate potentially unacceptable exposure risks to future residential receptors at the subject property; (5) serve as notification to third parties (e.g., construction and utility contractors, subcontractors, etc.) of the presence of contamination at the subject property and the restrictions posed by said contamination; and (6) assist the prospective Owner with maintaining documentation of Due Care compliance during redevelopment activities.

This ECMP is intended for use by Renovare Ypsilanti Homes, LLC as prospective Owner. It is the prospective Owner’s responsibility to provide this ECMP to its General Contractor, subcontractors, and Owner’s Representative and to ensure these parties’ compliance with the guidance and procedures outlined in this ECMP during redevelopment activities. The prospective Owner has retained AKT Peerless to assist with the interpretation and implementation of this ECMP as its Qualified Environmental Professional. AKT Peerless will assign a “qualified individual” to oversee redevelopment activities, as

necessary, that has (1) at least two years of experience in the implementation of ECMPs, and (2) has a bachelor's degree or higher in engineering, geology, or other science-related discipline(s) or has demonstrated sufficient ability through past performance. ***If the General Contractor and its subcontractors choose to implement additional procedures that may impact soil and groundwater management activities at the subject property above and beyond those detailed in this ECMP, then these parties are responsible for the development of such procedures and are required to obtain approval from the prospective Owner and/or Qualified Environmental Professional prior to their implementation***.

2.0 General Construction Considerations

The prospective Owner and its General Contractor and subcontractors are solely responsible for safe execution of grading, subsurface excavations, and other invasive construction activities at the subject property, a Part 201 "facility," under this ECMP.

2.1 Health and Safety Plans

The General Contractor and its subcontractors shall exercise appropriate health and safety practices during redevelopment activities at the subject property. These parties shall develop and enforce their own Health & Safety Plans (HASPs) describing the specific health and safety practices and procedures to be employed by the employees thereof involved with the redevelopment project. HASPs should include, at a minimum, emergency contact numbers, hospital locations, Level D personal protective equipment (PPE; i.e., gloves, boots, coveralls), and decontamination procedures. HASPs prepared for redevelopment activities at the subject property shall be read and signed by all employees assigned to the redevelopment project.

2.2 Location of Existing Underground Utilities

The location of any existing underground utilities and associated easements at the subject property shall be the responsibility of the prospective Owner. The prospective Owner shall determine whether any existing underground utilities and associated easements at the subject property must be modified or removed to facilitate redevelopment activities and shall be responsible for resolving challenges posed by such utilities and easements consistent with the guidance provided in this ECMP.

2.3 Storm Water Pollution Prevention

The General Contractor and its subcontractors shall be responsible for conducting redevelopment activities at the subject property in compliance with a Soil Erosion and Sedimentation Control (SESC) permit and applicable rules and regulations as established by the State of Michigan (Part 91, SESC, of the NREPA) and local ordinance(s), in conjunction with the SESC Act (Act 347 of 1972), the Storm Water Permit-By-Rule for Construction Activities (R 323.2190 of Act 245 of 1929, as amended), and Act 203 of 1993.

Generally, precautionary measures should be utilized to eliminate the risk of erosion and runoff during redevelopment activities. Typical controls, such as site grading to control runoff, stormwater controls (e.g., diversions, filters, etc.), and erosion protection, should be installed. These precautionary measures are necessary to prevent contaminant migration through sedimentation, precipitation runoff, and erosion. Such erosion controls (e.g., silt fencing or other barriers) should be utilized: (1) around the

down-gradient perimeter of the subject property, and (2) around areas where excavated soil is stockpiled or mounded.

2.4 Dust Control

Proposed redevelopment activities at the subject property are expected to include (1) subsurface excavation(s) within the footprint of the proposed stormwater detention basin, where subsurface soil contamination (including metals and SVOCs) potentially exceeding Part 201 Generic Residential Cleanup Criteria for PSIC has previously been identified and (2) subsurface excavation(s) outside of the footprint of the proposed stormwater detention basin, and site grading and import of clean fill material (i.e., land balancing) across the subject property. Dust control and/or air monitoring is therefore necessary to (1) prevent potentially unacceptable exposure risks posed by subsurface soil contamination during excavation activities within the footprint of the proposed stormwater detention basin and (2) minimize the migration of nuisance dust off-site from the subject property during general excavation, site grading, and land balancing activities across the subject property.

Dust Control and Air Monitoring Procedures for Exposure Risk Mitigation Purposes

Dust control and air monitoring during excavation activities within the footprint of the proposed stormwater detention basin for exposure risk mitigation purposes shall be the responsibility of the prospective Owner, the Owner's Representative, and/or the Qualified Environmental Professional.

At the prospective Owner's, Owner's Representative's, and/or Qualified Environmental Professional's direction, the General Contractor and its subcontractors shall use a dedicated on-site water truck equipped with a water cannon capable of spraying water directly onto off-road areas to suppress dust generated during excavation activities within the footprint of the proposed stormwater detention basin, as necessary.

Dust and air monitoring shall be conducted by the Owner's Representative and/or the Qualified Environmental Professional during excavation activities within the footprint of the proposed stormwater detention basin as follows:

- Dust monitoring at the downwind perimeter of the subject property for the duration of excavation activities within the footprint of the proposed stormwater detention basin until such time as the excavation(s) are backfilled.
- Air monitoring within and downwind of the excavation(s) within the footprint of the proposed stormwater detention basin when construction workers are operating within or around the excavation(s).

Documentation (e.g., field and/or instrumentation logs, photographs, etc.) of dust control and air monitoring activities conducted in connection with excavation activities within the footprint of the proposed stormwater detention basin shall be maintained by the Owner's Representative and/or Qualified Environmental Professional as part of the prospective Owner's documentation of Due Care compliance.

Dust Control Procedures for Aesthetic Purposes

Dust control during excavation activities outside of the footprint of the stormwater detention basin and during site grading and land balancing activities across the subject property for aesthetic purposes shall be the responsibility of the prospective Owner and General Contractor.

The control of dust generated during these general redevelopment activities at the subject property shall be conducted as follows:

- Dust generation will be mitigated by limiting the total area of on-site construction roads to minimize the area requiring dust suppression; covering on-site construction roads with gravel to provide a relatively dust free surface; limiting the speed of all vehicles on the property to less than or equal to ten miles per hour (10 mph); and reducing free-fall drop distance from equipment during stockpiling of residuals.
- Dust suppression will be achieved using a dedicated on-site water truck for road wetting. The water truck will be equipped with a water cannon capable of spraying water directly onto off-road areas, including excavations and stockpiles, as needed.

The General Contractor and its subcontractors shall apply water and/or dust palliatives as required to eliminate visible dust emissions from the subject property during redevelopment activities. Application of water shall be the preferred dust palliative for the site. In the event that application of water proves ineffective, dust palliatives shall be approved by the prospective Owner. Appropriate dust palliatives may include:

- Calcium chloride, in accordance with Michigan Department of Transportation (MDOT) 9.22.08A.
- Organic, nonpetroleum products (e.g., lignin derivatives, vegetable oils, and sugar beet extract) and synthetic polymer derivatives.

2.5 Contingency Plan

In the event that the General Contractor and its subcontractors encounter soil or other media exhibiting unanticipated and/or unusual characteristics (e.g., visual or olfactory evidence of contamination, unexpected structures, underground storage tanks, etc.), then the General Contractor shall determine necessary handling and management procedures of these materials in coordination with the prospective Owner and Qualified Environmental Professional, as necessary. Redevelopment activities at such suspect location(s) may be suspended until each situation is adequately evaluated and addressed. Sampling and analysis may be performed on product, sediment, surrounding soil, groundwater, etc., as necessary to determine the nature of the material and identify proper management practices and/or disposal procedures to be used in accordance with the prospective Owner's obligations as well as in accordance with applicable Federal, State, and local rules and regulations. Any sampling, analysis, excavation, transportation, and/or disposal activities necessary under this contingency plan shall be conducted at the prospective Owner's expense.

3.0 Prevention of Exacerbation During Redevelopment Activities

Appropriate actions to avoid exacerbation of contamination during redevelopment activities at the subject property may include, but are not necessarily limited to: (1) promptly returning contaminated soil to the excavation from which it was removed; (2) properly managing soil through the use of erosion controls, etc., to prevent contaminated soil runoff; (3) segregating clean imported fill material from stockpiles of soil residuals generated at the subject property; (4) properly characterizing, transporting, and disposing contaminated soil and groundwater residuals and other materials/media generated at the

subject property at off-site licensed disposal facility(s); and (5) implementing precautionary measures to prevent track-off of soil to public rights-of-way.

The following subsections describe in more detail the environmental construction management practices to be implemented during redevelopment activities at the subject property to prevent the exacerbation of contamination.

3.1 On-Site Management of Soil and Groundwater

3.1.1 Soil Management

To ensure the soil management guidelines presented below are followed during on-site redevelopment activities, AKT Peerless recommends the prospective Owner clearly delineate the boundaries of the footprint of the proposed storm water detention basin in advance of site grading and subsurface work activities.

Permanent On-Site Relocation of Soil Residuals

As noted in Section 1.2, the subject property, as a whole, meets the definition of a "facility," as defined in Part 201 of the NREPA, while soil contamination exceeding applicable Part 201 Generic Residential Cleanup Criteria is limited to the footprint of the proposed storm water detention basin on the south-central portion of the subject property. To prevent the exacerbation of contamination at the subject property, the following guidelines for permanent on-site relocation of soil residuals shall be followed:

- ***Soil residuals generated within the footprint of the proposed storm water detention basin shall not be permanently relocated to any other portion of the subject property*** (i.e., soil residuals generated within the footprint of the proposed storm water detention basin must remain within the footprint of the proposed storm water detention basin or be properly characterized, transported, and disposed off-site).
- Soil residuals generated elsewhere on the subject property may be relocated to any other portion of the subject property or properly disposed off-site (i.e., soil residuals generated outside of the footprint of the proposed storm water detention basin may be relocated to other portions of the subject property, including the footprint of the proposed storm water detention basin, without restriction).

Temporary On-Site Relocation (Stockpiling) of Soil Residuals

Stockpiling, or the temporary on-site relocation or staging, of soil residuals for logistical or off-site transportation and disposal purposes may be necessary as part of redevelopment activities, although stockpiling should be minimized at the subject property to the extent possible. If stockpiling of soil residuals is necessary as a temporary soil management strategy, then subcontractors shall select acceptable stockpiling locations in coordination with the prospective Owner, General Contractor, and/or Qualified Environmental Professional prior to beginning redevelopment activities. Stockpiled soil residuals shall not be co-mingled with other residual materials (e.g., concrete, metal, masonry, vegetative material, etc.).

In consideration of the nature and distribution of soil contamination at the subject property, the following guidelines for temporary on-site relocation of soil residuals shall be followed:

- To the extent possible, ***soil residuals generated within the footprint of the proposed storm water detention basin shall not be temporarily relocated to any other portion of the subject property for stockpiling in advance of off-site transportation and disposal*** (i.e., it is recommended that any soil residuals generated within the footprint of the proposed storm water detention basin be stockpiled within, and directly loaded onto trucks from, the proposed storm water detention basin).
- ***Regardless of the selected location(s) for stockpiles of soil residuals generated within the footprint of the proposed storm water detention basin, such soil residual stockpiles shall be placed on, and at all times covered by, properly anchored plastic sheeting that has been approved by the Qualified Environmental Professional*** to prevent contact between the contaminated soil stockpiles and precipitation, which could mobilize contaminants and thereby exacerbate contamination. The General Contractor and its subcontractors shall be responsible for (1) the maintenance of plastic sheeting as necessary to prevent contact between stockpiled soil residuals and precipitation and (2) the construction of earthen berms beneath the lower plastic sheeting around such stockpiles to prevent contact between stockpiled soil residuals and surface run-off.
- Soil residuals generated elsewhere on the subject property may be temporarily relocated to any other portion of the subject property that remains outside the footprint of the proposed storm water detention basin (i.e., soil residuals generated outside of the footprint of the proposed storm water detention basin may be relocated to other portions of the subject property outside of the footprint of the storm water detention basin, but should not be temporarily relocated to the footprint of the proposed storm water detention basin to prevent cross-contamination and the potential for exacerbation of contamination).
- Regardless of the locations at which soil residuals were generated at the subject property, soil stockpiles shall not be located proximal to unprotected storm water structures. Silt fence and/or other best management practices (BMPs) shall be employed at the perimeter of stockpiled soil residuals to prevent erosion.

Import of Fill Material from Off-Site Source(s)

Imported fill material (e.g., sand, topsoil, etc.) shall be certified clean (i.e., demonstrated to have originated from a virgin site and/or demonstrated to not contain contaminants at concentrations above Part 201 Generic Residential Cleanup Criteria) by the vendor and documentation to this effect shall be provided to and maintained by the prospective Owner and verified and approved by the General Contractor and Qualified Environmental Professional prior to import of such material to the subject property. Fill material originating from industrial properties, spill sites, or other sites of environmental contamination or remediation, is prohibited from import to the subject property.

Stockpiles of imported fill material shall be located only on portions of the subject property outside the footprint of the proposed storm water detention basin and approved by the prospective Owner, Owner's Representative, and/or General Contractor, and stockpiles of imported fill material shall be kept separate and distinct from stockpiles of soil residuals generated at the subject property to prevent cross-contamination and the potential for exacerbation of contamination.

3.1.2 Groundwater Management

Groundwater was not encountered during previous subsurface investigations conducted at the subject property by AKT Peerless, although shallow groundwater was encountered at select geotechnical soil boring locations advanced at the subject property by G2 Consulting Group. Refer to the soil boring logs

included as parts of **Appendices B, C, and D** for additional information. To date, groundwater samples have not been collected from the subject property for laboratory analysis of hazardous substances and petroleum products. Therefore, groundwater chemistry characteristics are currently unknown.

While significant volumes of groundwater are not anticipated to be encountered during redevelopment activities at the subject property, groundwater and/or precipitation may collect within excavations. When open excavations are unavoidable, such open excavations should be barricaded and filled as quickly as possible to ensure water does not collect within them.

Interim dewatering of subsurface water that is presumed to be contaminated from excavations at the subject property shall involve containerization (e.g., vacuum tanker trucks, frac tanks, etc.) for temporary on-site storage. If containerization of subsurface water is necessary as a temporary groundwater management strategy, subcontractors shall select acceptable locations for the placement of containment vessels in coordination with the prospective Owner, Owner's Representative, and/or General Contractor prior to beginning dewatering activities. Containment vessels shall be visually inspected upon arrival at the subject property by the Owner's Representative and/or General Contractor to ensure they are clean and contain no residual materials. Containment vessels containing residual materials upon arrival shall not be accepted onto the subject property.

All subsurface water management practices at the subject property shall be conducted in accordance with Federal, State and local rules and regulations and as agreed upon by the prospective Owner, Owner's Representative, General Contractor,, and/or Qualified Environmental Professional. ***Subsurface water shall not be pumped out of excavations or discharged from containment vessels onto ground surface or into sanitary or storm sewers without analytical laboratory testing/characterization of subsurface water samples and proper discharge permit(s) and monitoring plans***, such as those associated with filtered discharge to sanitary sewers or other on-site management practices following on-site pre-treatment. ***Subsurface water that cannot be managed or discharged at or proximal to the subject property shall be transported by licensed waste hauler(s) to licensed off-site disposal facility(s)***.

3.1.3 Proposed Underground Infrastructure Considerations

Based on the results of previous subsurface investigations conducted at the subject property, soil contamination is present across the subject property at concentrations exceeding Part 201 Generic Residential Cleanup Criteria for Drinking Water Protection (DWP) and/or Groundwater Surface Water Interface Protection (GSIP). While these exposure pathways are not complete at the subject property and therefore do not pose potentially unacceptable exposure risks, with respect to the prevention of exacerbation of contamination, the prospective Owner should consider the material(s) of construction, including piping, seals, gaskets, and/or wraps, of potable water, sanitary sewer, and storm sewer conveyances across the subject property and the resistance of these materials to the contaminants with which they may be in contact following installation, as identified on **Figures 3 and 4** and as listed in **Table 1** of this ECMP.

3.2 Off-Site Disposal of Soil and Groundwater Residuals

The prospective Owner, Owner's Representative, and General Contractor shall be responsible for the off-site transportation and disposal of soil and groundwater residuals and other materials/media generated at the subject property as outlined in the following subsections. Soil and groundwater residuals and other materials/media shall not be transported off-site from the subject property without the prospective Owner's written approval.

3.2.1 Soil Disposal

Soil residuals that cannot be reused and/or relocated at the subject property as specified in Section 3.1.1 due to land balancing concerns, geotechnical concerns, non-constructability, timing, lack of required capacity, etc., shall be properly characterized for off-site transportation and disposal at a licensed disposal facility in accordance with Federal, State, and local rules and regulations. The prospective Owner shall be identified as the generator of soil residuals intended for off-site transportation and disposal.

Waste characterization of such soil residuals shall be conducted in coordination with the General Contractor's preferred or selected disposal facility, prospective Owner or Owner's Representative, and/or Qualified Environmental Professional for completion of waste profile(s) for the disposal facility's approval. Off-site transportation and disposal of soil residuals shall be conducted by licensed waste haulers under waste manifest documentation following the disposal facility's approval of the waste profile(s). Waste hauler trucks shall be properly placarded, with waste materials properly covered, as necessary. If loads contain wet material capable of producing free liquid, then truck liners shall be used.

The prospective Owner or Owner's Representative, shall sign waste profiles, waste manifests, and bills of lading, as appropriate. It shall be the General Contractor's responsibility to collect, maintain, and provide the prospective Owner and/or Owner's Representative with all documentation regarding off-site transportation and disposal of contaminated soil residuals, including fully executed waste manifests, bills of lading, load tickets, etc., during and upon completion of redevelopment activities. This documentation shall identify the off-site disposal facility and include the quantity of material transported and disposed.

Unless waste characterization analytical results indicate that soil residuals generated at the subject property meet the definition of hazardous waste based on toxicity characteristic leaching procedure (TCLP), reactivity, corrosivity, and/or ignitability (RCI) characteristics, and/or total polychlorinated biphenyl (PCB) concentrations, it is anticipated that soil residuals generated at the subject property will qualify for disposal as non-hazardous waste at a licensed Type II landfill.

The off-site transportation and disposal of soil residuals generated at the subject property at off-site properties other than a licensed disposal facility is prohibited.

3.2.2 Groundwater Disposal

Should analytical laboratory testing/characterization results indicate that subsurface water residuals generated at the subject property are contaminated such that on-site management is not feasible, off-site transportation and disposal by licensed waste haulers at a licensed disposal facility is expected to be the most time-effective disposal option. The process for off-site transportation and disposal of groundwater residuals generated at the subject property shall follow the same process as described for the off-site transportation and disposal of soil residuals generated at the subject property in Section 3.2.1 above and in accordance with applicable Federal, State, and local rules and regulations.

3.2.3 Disposal of Other Materials/Media

In addition to soil and groundwater residuals, other materials/media, including, but not necessarily limited to, concrete, metal, masonry, vegetative material, and used silt fencing and related erosion control materials, may be generated during redevelopment activities. Off-site transportation and disposal of such materials generated at the subject property shall be conducted in accordance with applicable Federal, State, and local rules and regulations.

3.3 Vehicular Track-Out Prevention

The General Contractor and its subcontractors shall take measures to consistently prevent vehicular track-out of soil from the subject property to the adjacent public rights-of-way. Such measures may include, but are not necessarily limited to: (1) limiting vehicle egress to only designated locations; (2) taking measures to remove residual materials from vehicles prior to egress (e.g., rumble strips); and (3) collecting track-out materials from paved roadways, as necessary, if the preceding measures fail at prevention.

Egress points for trucks and equipment from the subject property shall be kept free of soil and other materials during redevelopment activities. Track-out material recovered from designated egress locations and from street cleaning, as necessary, shall be managed consistent with the soil management practices outlined above. Queuing of trucks shall be employed at the subject property to minimize off-site disturbances. Off-site queuing of trucks is prohibited.

4.0 Response Activities for Future Residential Land Use

4.1 Known Contamination Above Part 201 Residential Cleanup Criteria

Hazardous substances detected in soil samples collected from the subject property at concentrations exceeding Part 201 Generic Residential Cleanup Criteria, which are the applicable cleanup criteria for the proposed residential land use of the subject property, are summarized in the following table:

Summary of Soil Analytical Results

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	Part 201 Generic RCC Exceeded/Established Criteria (µg/kg)	Maximum Concentration (µg/kg)/Sample Location
Arsenic	7440-38-2	PS-SB-1 (1'-3') Soil Duplicate* DB-1 (1'-3') DB-2 (2'-4') DB-3 (1'-3') DB-4 (1'-3') DB-5 (2'-4') DB-6 (2'-4') DB-7 (4'-6') DB-8 (4'-6') DB-9 (2'-4') DB-10 (2'-4') DB-11 (3'-5') DB-14 (1'-3') B-12-E (2'-4') B-18-E (2'-4')	DWP / 4,600 GSIP / 4,600 DC / 7,600	12,000 / DB-10, B-18-E
Barium	7440-39-3	B-18-E (2'-4')	DWP / 1,300,000	2,200,000 / B-18-E

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	Part 201 Generic RCC Exceeded/Established Criteria (µg/kg)	Maximum Concentration (µg/kg)/Sample Location
Chromium, total	7440-47-3	DB-1 (1'-3') DB-2 (2'-4') DB-3 (1'-3') DB-4 (1'-3') DB-5 (2'-4') DB-6 (2'-4') DB-7 (4'-6') DB-8 (4'-6') DB-9 (2'-4') DB-10 (2'-4') DB-11 (3'-5') DB-12 (3'-5') DB-13 (1'-3') DB-14 (1'-3') B-1-E (1'-3') B-10-E (1'-3') B-12-E (2'-4') B-18-E (2'-4')	GSIP / 3,300	28,000 / B-18-E
Lead	7439-92-1	B-18-E (2'-4')	DWP / 700,000 DC / 400,000	31,000,000 / B-18-E
Mercury	7439-97-6	DB-4 (1'-3') DB-7 (4'-6') DB-8 (4'-6') DB-9 (2'-4') DB-10 (2'-4') B-1-E (1'-3') B-10-E (1'-3') B-18-E (2'-4')	GSIP / 50	230 / B-18-E
Selenium	7782-49-2	PS-SB-1 (1'-3') DB-1 (1'-3') DB-2 (2'-4') DB-3 (1'-3') DB-5 (2'-4') DB-7 (4'-6') DB-8 (4'-6') DB-10 (2'-4') DB-13 (1'-3') DB-14 (1'-3') B-1-E (1'-3') B-10-E (1'-3') B-12-E (2'-4')	GSIP / 400	2,100 / B-10-E
Silver	7440-22-4	B-18-E (2'-4')	GSIP / 100	3,500 / B-18-E

Parameter	Chemical Abstract Service (CAS) Number	Sample Identification with Criteria Exceedance (depth)	Part 201 Generic RCC Exceeded/Established Criteria (µg/kg)	Maximum Concentration (µg/kg)/Sample Location
Zinc	7440-66-6	B-18-E (2'-4')	DWP / 2,400,000	2,700,000 / B-18-E
Acenaphthylene	208-96-8	DB-12 (3'-5')	GSIP / 5,900	6,400 / DB-12
Benzo(a)anthracene	56-55-3	DB-12 (3'-5')	DC / 20,000	27,000 / DB-12
Benzo(a)pyrene	50-32-8	DB-10 (2'-4') DB-11 (3'-5') DB-12 (3'-5')	DC / 2,000	31,000 / DB-12
Benzo(b)fluoranthene	205-99-2	DB-12 (3'-5')	DC / 20,000	33,000 / DB-12
Carbazole	86-74-8	DB-12 (3'-5')	GSIP / 1,100	1,800 / DB-12
Dibenzo(a,h)anthracene	53-70-3	DB-12 (3'-5')	DC / 2,000	3,400 / DB-12
Fluoranthene	206-44-0	DB-10 (2'-4') DB-11 (3'-5') DB-12 (3'-5')	GSIP / 5,500	48,000 / DB-12
Naphthalene	91-20-3	DB-10 (2'-4') DB-12 (3'-5')	GSIP / 730	2,400 / DB-12
Phenanthrene	85-01-8	DB-10 (2'-4') DB-11 (3'-5') DB-12 (3'-5')	GSIP / 2,100	31,000 / DB-12

Notes:
Sample identification: LETTER-# / LETTER-#-LETTER indicates soil boring location and (#-#) indicates sample depth interval in feet below ground surface (bgs).
RCC – Residential Cleanup Criteria
µg/kg – micrograms per kilogram
*Soil Duplicate: PS-SB-1 (1'-3')

In addition to the exceedances of Part 201 Generic Residential Cleanup Criteria summarized in the table above, lead was also detected in soil samples collected from soil boring locations DB-1, DB-8, DB-10, and DB-12 at concentrations greater than 75,000 µg/kg, a threshold above which EGLE Remediation and Redevelopment Division (RRD) recommends fine fraction and coarse fraction lead analysis for the evaluation of the dermal contact/ingestion and particulate soil inhalation exposure pathways, but less than Part 201 Generic Residential Cleanup Criteria. Consistent with the spatial distribution of other soil contaminants posing a potentially unacceptable dermal contact/ingestion exposure risk, these soil samples were also collected from within the footprint of the proposed storm water detention basin on the south-central portion of the subject property.

Refer to **Figure 2** for a site map with soil boring locations, **Figure 3** for a site map with soil analytical results exceeding Part 201 Generic Residential Cleanup Criteria, and **Table 1** for a summary of hazardous

substances detected at the subject property and a comparison to Part 201 Generic Residential Cleanup Criteria.

4.2 Exposure Pathway Evaluation

The exposure pathway evaluation is based on proposed redevelopment activities at the subject property and the intended future residential land use of the subject property. Hazardous substances identified in soil samples collected from the subject property have therefore been compared to Part 201 Generic Residential Cleanup Criteria.

The following soil exposure pathways have been evaluated; groundwater was not encountered during previous subsurface investigations conducted at the subject property by AKT Peerless.

- Groundwater Surface Water Interface Protection
- Drinking Water Protection
- Soil Volatilization to Indoor and/or Ambient Air Inhalation
- Particulate Soil Inhalation
- Dermal Contact/Ingestion

4.2.1 Groundwater Surface Water Interface Protection

Arsenic, chromium (total), mercury, and selenium were detected in soil samples collected from various soil boring locations across the subject property at concentrations exceeding Part 201 Generic Cleanup Criteria for GSIP. In addition, silver, acenaphthylene, carbazole, fluoranthene, naphthalene, and phenanthrene were detected in one or more soil samples collected from within the footprint of the proposed storm water detention basin on the south-central portion of the subject property at concentrations exceeding Part 201 Generic Cleanup Criteria for GSIP.

In absence of on-site and adjacent surface water bodies, and in consideration of the proposed redevelopment of the subject property, which includes the construction of paved access drives, parking areas, and sidewalks; residential dwellings; landscaped features; and an integrated storm water management system with a lined storm water detention basin, the GSIP aquatic toxicity exposure pathway will not become complete due to redevelopment activities at the subject property.

4.2.2 Drinking Water Protection

Arsenic was detected in soil samples collected from various soil boring locations across the subject property at concentrations exceeding the Part 201 Generic Residential Cleanup Criterion for DWP. In addition, barium, lead, and zinc were detected in one soil sample collected from within the footprint of the proposed storm water detention basin on the south-central portion of the subject property at concentrations exceeding Part 201 Generic Residential Cleanup Criteria for DWP.

The proposed residential redevelopment of the subject property will be connected to municipal water service, the source of which does not include groundwater from the vicinity of the subject property. Therefore, the drinking water protection exposure pathway will not become complete during redevelopment activities at the subject property and does not present a potentially unacceptable exposure risk for future residential receptors.

4.2.3 Soil Volatilization to Indoor and/or Ambient Air Inhalation

Contaminants were not detected in soil samples collected from the subject property at concentrations exceeding Part 201 Generic Residential SVIIC or VSIC. Therefore, the soil volatilization to indoor and/or ambient air inhalation exposure pathways are not complete, and will not become complete during redevelopment activities, at the subject property and do not present a potentially unacceptable exposure risk.

4.2.4 Particulate Soil Inhalation

Contaminants were not detected in soil samples collected from the subject property at concentrations exceeding Part 201 Generic Residential PSIC. However, lead was detected in soil samples collected from soil boring locations DB-1, DB-8, DB-10, DB-12, and B-18-E at concentrations greater than 75,000 µg/kg, a threshold above which EGLE RRD recommends fine fraction and coarse fraction lead analysis for the evaluation of the PSI and DC exposure pathways. Each of these soil borings is located within the footprint of the proposed storm water detention basin on the south-central portion of the subject property.

Therefore, while the particulate soil inhalation exposure pathway is not complete for contaminants aside from lead at the subject property, the concentrations of lead detected in the referenced soil samples collected from within the footprint of the proposed storm water detention basin on the south-central portion of the subject property may present a potentially unacceptable exposure risk.

Refer to Section 4.3 for a discussion of recommended response activity(s) to mitigate this potentially unacceptable exposure risk.

4.2.5 Dermal Contact/Ingestion

Arsenic, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene were detected in soil samples collected from one or more soil boring locations within the footprint of the proposed storm water detention basin on the south-central portion of the subject property at concentrations exceeding Part 201 Generic Residential Cleanup Criteria for DC. Therefore, the dermal contact/ingestion exposure pathway presents a potentially unacceptable exposure risk.

Refer to Section 4.3 for a discussion of recommended response activity(s) to mitigate this potentially unacceptable exposure risk.

4.3 Response Activity (Engineering Control)

Based on the results of previous subsurface investigations conducted at the subject property, soil contamination posing potentially unacceptable exposure risks [i.e., lead for particulate soil inhalation and arsenic, lead, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and dibenzo(a,h)anthracene for dermal contact/ingestion] appears to be limited to the footprint of the proposed storm water detention basin on the south-central portion of the subject property.

AKT Peerless understands that the proposed storm water detention basin will be constructed primarily by relocating on-site soils and/or importing clean fill material to the footprint of the storm water detention basin to construct the detention basin above existing ground surface. If constructed of soil residuals relocated from areas outside the footprint of the proposed storm water detention basin (i.e., soil residuals that are not contaminated at levels above applicable Part 201 Generic Residential Cleanup Criteria) and/or clean imported fill material, then the above-grade storm water detention basin may be relied on as an engineering control to mitigate potentially unacceptable exposure risks posed by underlying soil contamination.

During construction of the storm water detention basin, the following guidelines shall be considered and/or followed to rely on the storm water detention basin as an engineering control to mitigate potentially unacceptable exposure risks during the future residential land use of the subject property:

- Any subsurface soils excavated from within the footprint of the proposed storm water detention basin shall be reused within the footprint of the storm water detention basin or characterized, transported, and disposed off-site, as specified in Section 3.2.
- The areal extent and existing ground elevation of the footprint of the proposed storm water detention basin (or the ground elevation as it exists following relocation of soil residuals generated at and replaced within the footprint of the storm water detention basin) shall be surveyed prior to construction of the above-grade storm water detention basin.
- Soil residuals relocated from areas outside of the footprint of the proposed storm water detention basin to the footprint of the storm water detention basin and/or clean fill material imported from off-site source(s) shall be used to construct the detention basin above the ground elevation. The prospective Owner shall be responsible for ensuring that soil residuals and/or fill material is geotechnically suitable for construction of the proposed storm water detention basin.
- A storm water detention liner, serving also as a demarcation barrier, shall be placed over the constructed above-grade storm water detention basin to prevent the infiltration of storm water through underlying contaminated soils. The areal extent and ground elevation of the storm water detention liner shall be surveyed upon completion of its placement. The storm water detention liner shall then be covered with a minimum of 18 inches of clean imported fill material and seeded to reestablish vegetative ground cover. The areal extent and final ground elevation of this fill material cap shall be surveyed to document the condition of the engineering control that is to be maintained during the future residential land use of the subject property.

AKT Peerless notes that the prospective Owner, or any subsequent owner(s), shall be responsible for operation, maintenance, and monitoring of the storm water detention basin as an engineering control in perpetuity to comply with the owner's Due Care obligations during the future residential land use of the subject property. Refer to Section 7.0 for additional information.

Should it appear, during construction of the proposed storm water detention basin, that soil boring locations at which soil contamination was identified at levels exceeding applicable Part 201 Generic Residential Cleanup Criteria will not be covered by the detention basin (e.g., soil boring locations nearer the adjacent railroad along the southern subject property boundary), then additional response activities beyond those listed above will be necessary to mitigate potentially unacceptable exposure risks. Such additional response activities may include, but are not limited to, the extension of the storm water detention liner/demarcation barrier to the southern subject property boundary, placement of additional clean imported fill material to extend the 18-inch thick seeded cap over the storm water detention liner/demarcation barrier, and/or installation of fencing to restrict access to the affected area(s). The prospective Owner shall coordinate with the Qualified Environmental Professional prior to implementing additional response activities at the subject property.

5.0 Reasonable Precautions

Section 20107a(1)(c) requires the Owner of a Part 201 "facility" to take reasonable precautions against the reasonably foreseeable acts or omissions of a third party, and the consequences that could result from those acts or omissions.

During redevelopment activities at the subject property, no subsurface activities shall be conducted without supplying third parties, including the General Contractor, subcontractors, utility workers, etc., with a copy of this ECMP, which provides a mechanism to notify such third parties that contamination exists at the subject property and certain activities are restricted.

6.0 Record Keeping

The prospective Owner shall maintain necessary records to demonstrate that soil and groundwater residuals and other materials/media relocation and/or disposal as described in Section 3.0 were conducted in accordance with all applicable Federal, State, and local rules and regulations. At the conclusion of redevelopment activities, the Owner's Representative, General Contactor, and/or Qualified Environmental Professional shall provide compilation(s) of import, transportation, and/or disposal documentation to the prospective Owner, as appropriate. Such documentation shall, at a minimum, include records of the approved, licensed disposal facility(s), the type(s) of materials disposed, the quantity(s) of materials imported on-site and transported off-site (e.g., manifests and/or bills of lading), and the quantity(s) of materials disposed (e.g., weigh scale tickets). Upon receipt of such documentation, the prospective Owner, or its designated Owner's Representative or Qualified Environmental Professional, shall examine the documentation for any breaks or omissions in sequentially numbered manifests and bills of lading and rationalize any such breaks or omissions, if identified.

In addition, the prospective Owner shall maintain necessary records to document the implementation of the response activity(s) identified in Section 4.0 at the subject property, including, but not necessarily limited to, the surveyed location(s) of engineering controls (i.e., areal extent, elevations, etc.) and materials employed (e.g., liners/demarcation barriers, clean fill material, fencing, etc.).

7.0 Recommendations for Future Documentation of Due Care Compliance

This ECMP has been prepared to provide guidance to the prospective Owner/Operator of the subject property and the prospective Owner's/Operator's Representative, General Contractor, and subcontractor(s) for the management of soil and groundwater at the subject property in a manner that prevents exacerbation of contamination and protects future residential receptors at the subject property from potentially unacceptable exposure risks. It is the responsibility of the prospective Owner to maintain the documentation generated during implementation of this ECMP as part of its documentation of Due Care compliance.

The successful execution of this ECMP does not preclude the prospective Owner's potential need to conduct additional subsurface investigation activities at the subject property that may be necessary to document compliance with its Due Care obligations with respect to the intended residential land use of the subject property following redevelopment activities.

AKT Peerless recommends a Documentation of Due Care Compliance report be prepared on behalf of the prospective Owner once the response activities identified in Section 4.0 of this ECMP and any other response activities that may become necessary based on the results of additional subsurface investigation activities at subject property have been implemented, and before the subject property is opened for residential land use. The Documentation of Due Care Compliance report should (1) document any additional subsurface investigation activities that may have occurred between the date of this ECMP the date of opening for residential land use; (2) evaluate relevant human exposure pathways and applicable Part 201 Generic Residential Cleanup Criteria; (3) identify potentially unacceptable exposure risks; (4) document the response activities implemented as part of, and, as applicable,

subsequent to, the implementation of this ECMP to mitigate any potentially unacceptable exposure risks; and (5) describe the continuing obligations of the Owner to ensure response activities are maintained such that they remain protective of potentially unacceptable exposure risks for as long as the subject property remains in residential land use.

8.0 Signatures of Environmental Professionals

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Figures

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Tables

Appendix A

AKT Peerless' October 2015 Phase I ESA

(Text and Figures Only)

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Appendix B

G2 Consulting Group's July 2022 Report on Geotechnical Investigation

Appendix C

AKT Peerless' September 2021 Phase II ESA

Appendix D

AKT Peerless' November 2022 Supplemental Phase II ESA Report

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Appendix E

Site Engineering Plan