APPENDIX D

ONONDAGA LAKE
LONG-TERM CAP MONITORING WORK PLAN

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LIST OF ACRONYMS

AHA	Activity Hazard Analysis
BSQV	Bioaccumulation-Based Sediment Quality Value
CPOIs	Chemical Parameters of Interest
GAC	granular activate carbon
GPS	global positioning system
HPAH	High Molecular Weight PAH
HSP^2	Honeywell Syracuse Portfolio Health and Safety Plan
LPAH	Low Molecular Weight PAH
MERC	Modified Erosion Resistant Cap
MPC	Modified Protective Cap
NAVD88	North American Vertical Datum of 1988
NYSDEC	New York State Department of Environmental Conservation
OLMMP	Onondaga Lake Monitoring and Maintenance Plan
PAH	polycyclic aromatic hydrocarbon
PEC	Probable Effect Concentration
PECQs	Probable Effect Concentration Quotient
PDI	Pre-Design Investigation
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RA	Remediation Area
RAO	Remedial Action Objective
ROD	Record of Decision
SOP	Standard Operating Procedure
SSP	Subcontractor Safety Plan
TLC	thin layer cap
TOC	Total Organic Carbon
USEPA	United States Environmental Protection Agency

WORK PLAN
ONONDAGA LAKE
LONG-TERM CAP MONITORING

1.0 INTRODUCTION

This work plan describes data to be collected beginning in 2017 related to long-term cap monitoring activities for Onondaga Lake. As detailed in Section 6 of this Monitoring and Maintenance Plan (OLMMP), long-term cap monitoring will include:

- Routine monitoring of capped areas
- Event-based monitoring of capped areas, if required based on triggering events
- Additional monitoring and/or sampling of capped areas based on the results of routine and/or event-based monitoring, referred to herein as response action monitoring

This work plan describes the routine monitoring program, which includes both physical and chemical monitoring of capped areas. Work plan(s) related to event-based or response action monitoring will be developed in the future, if necessary, and will be subject to New York State Department of Environmental Conservation (NYSDEC) approval. Routine monitoring results that would trigger response action monitoring are detailed in Section 6 of this OLMMP. Descriptions of the field and analytical methods, and the Quality Assurance Program supporting the field work described in this work plan, are described in the Quality Assurance Project Plan (QAPP) (Parsons et al., 2017a).

The primary purpose of this monitoring program is to provide post-remediation data to verify that the caps are achieving the performance criteria established for the cap based on the Remedial Action Objectives (RAOs) presented in the Record of Decision (ROD) (NYSDEC and EPA, 2005), and consistent with the *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (Sediment Management Unit 8)* Final Design (Parsons and Anchor QEA, 2012). Detailed cap performance criteria are provided in Section 6 of this OLMMP.

This appendix also includes the following attachments that were generated to support development of the overall monitoring program and/or to provide information that will be used to inform the results and interpretation of long-term monitoring:

- Attachment A – As-built information regarding cap material over-placements based on construction data.
- Attachment B – Information pertaining to the contamination remaining post-dredging that is present underlying the cap.
- Attachment C - Projections regarding the levels of contamination expected over time within the chemical isolation and habitat/erosion protection layers (based on cap modeling), which will be used for comparison to long-term chemical monitoring results to evaluate whether the cap is performing as expected.

- Attachment D – A sensitivity analysis evaluating the long-term protectiveness of the cap in the unlikely event of a significant reduction in the thickness of the habitat/erosion protection layer due to erosion.
- Attachment E – Results from the comprehensive post-construction bathymetric survey.
- Attachment F – As-built information pertaining to cap monitoring ports.

2.0 HEALTH AND SAFETY

The Honeywell Project Safety, Health, and Environmental Plan (Parsons, 2017d) and subcontractor safety plans (SSPs) will be followed by all field personnel. Any task outside of currently scoped field efforts will have a new Activity Hazard Analysis (AHA) completed before the task begins. All decontamination and waste management activities will be conducted in accordance with Standard Operating Procedures (SOPs) provided in the QAPP.

3.0 CAP MONITORING SUMMARY

Long-term monitoring will include both physical and chemical monitoring and will be implemented consistent with the schedule provided in Table D.1. Physical monitoring will be conducted to verify that the habitat/erosion protection layer and underlying chemical isolation layer for multi-layer caps and mono-layer caps remain in place. Chemical monitoring will be conducted to verify that the chemical isolation layer in multi-layer caps and mono-layer caps are performing consistent with, or better than, expectations. Chemical monitoring will include sampling within each of the primary cap modeling areas and will include collection of porewater and/or cap material samples from the chemical isolation and habitat layers of the cap.

Physical and chemical monitoring methods used will be influenced by the coarsest substrate present in various areas within the habitat and erosion protection layers, which varies from sand to cobbles, with the coarser materials occurring closer to shore. Physical and chemical monitoring considerations associated with each of the various substrates are summarized below.

- Zone 1: Sand – There are no restrictions on coring for thickness verification or sample collection of the cap media or porewater in these areas.
- Zone 2: Fine gravel – A core can be collected through fine gravel for verification of cap thickness. However, this material is too coarse to collect a solid sample for laboratory analysis. Chemical isolation in these areas will be verified based on sampling of the porewater within the habitat/erosion protection layer and underlying chemical isolation layer and/or sampling of cap material (via coring) in the underlying chemical isolation layer.
- Zone 3: Coarse gravel or gravely-cobble. This material is too coarse to push a core through in order to determine the cap profile. Therefore, manual probing will be used to verify the presence of coarse gravel- or gravelly cobble-sized armor stone (erosion protection) materials for caps. Probing results, in combination with bathymetric survey results, will be used to evaluate for potential significant changes in habitat/erosion protection layer thicknesses in these areas. Chemical isolation in these areas will be

verified based on sampling of the porewater within the habitat/erosion protection layer and underlying chemical isolation layer, or sampling of the cap material (via coring) from the overlying finer habitat substrate in areas where this is part of the cap design.

These zones are shown in Figures D.1 through D.6. The cap monitoring implications were incorporated into the physical and chemical monitoring strategy and methods detailed below.

4.0 PHYSICAL MONITORING

The primary purpose of the physical monitoring is to verify that the chemical isolation and habitat/erosion protection layers of the cap remain in place. Specific activities that will be implemented as part of the routine physical monitoring include:

- Shoreline inspections
- Bathymetric surveys
- Physical probing
- Consideration of cap thickness data based on cores collected as part of the cap chemical monitoring program, described in Section 5

The schedule for implementation of the various physical monitoring components during the first 10 years post-construction (2017 through 2026) is shown in Table D.1. A detailed description of each of these tasks is provided below. Additional details on field methods and descriptions of the Quality Assurance Program supporting the physical monitoring field work are described in the QAPP (Parsons et al., 2017a).

4.1 Shoreline Inspection

An inspection and photo documentation will be performed by boat and from the shoreline to document the integrity of the shoreline areas where remedial activities were implemented. The areas to be inspected include shoreline capping areas in Remedial Areas (RAs) A, B, C, D, and E, the Outboard Area (including the berms), the Wastebeds 1-8 connected wetland (including the berms), the Ninemile spits, the Wastebeds 1-8 shoreline stabilization area, and the capped cultural resources located in the shallow areas of RA-E. The inspection and photo documentation will be taken in the spring shortly after ice out in order to identify any impacts due to ice scour. The majority of the photos will be taken from the shoreline. Photos will be taken every 25 ft. along the shoreline when water levels are at elevation 363.5 ft. or less (North American Vertical Datum of 1988 (NAVD88)). Areas that cannot be adequately inspected and photographed from the shoreline, such as the capped RA-E cultural resources, will be inspected and photographed from a boat, or via aerial photography as discussed below. Any signs of potential erosion will be photographed and noted during the inspection. Any other signs of potential impacts to the cap, such as seeps or disturbances, will also be noted. Results may be compared to inspection and photo documentation results from prior events as part of the evaluation. Global Positioning System (GPS) locations (including positioning and orientation of the photograph) will be recorded for each photo location so that photos in subsequent years can be taken from approximately the same location. Surveying of features such as the wave dampers and berms, in addition to what is included in the routine

bathymetry and elevation surveying described in Subsection 4.2 below, will be considered in consultation with NYSDEC if significant changes to them are noted.

Shoreline conditions within the areas discussed above will also be documented to the extent possible considering any no-fly restrictions using aerial photography from a small unmanned aerial system (sUAS, or "drone"). Parsons will work with the certified drone operator in real time during collection of the photos to optimize the height and angle from which the photos are taken.

Following the 2017 shoreline inspection and photo documentation, subject to NYSDEC approval, subsequent events may instead consist of drone aerial photography documentation and a shoreline inspection and identification/photo documentation of any noted anomalies in conjunction with NYSDEC.

4.2 Bathymetry

Comprehensive bathymetric surveys will be conducted per the schedule shown in Table D.1 of capped areas in RAs A, B, C, D, E, F, thin-layer and amended cap areas in Sediment Management Unit (SMU) 8, and the uncapped areas along the RA-E shoreline. Survey procedures, performance criteria, calibration procedures, and data quality assurance will follow the specifications of the *US Army Corps of Engineers Hydrographic Survey Manual* (USCOE, 2013). It is anticipated that the bathymetric survey will be completed using the Z-boat 1800, which is the remotely operated hydrographic survey boat used by the Quality Assurance/Quality Control (QA/QC) team during capping operations. It has an Odom CV100 dual frequency echosounder paired with a Trimble R8 receiver and base station. Data acquisition and processing will be conducted using Hypack hydrographic software. Standard daily calibration procedures will be implemented. The Z-boat is capable of collecting data in water depths greater than 2 ft. Survey transect lines for the target area will be laid out in advance, and programmed into the Z-boat's navigation software. The survey will be conducted on transect lines running perpendicular to the slope and spaced 30 ft. apart, repeating every other survey line that was established during the collection of as-built data during construction, as shown in Figures D.7 through D.12.

In areas that are too shallow for the Z-boat (e.g., where the cap meets the shore), elevations will be manually surveyed using traditional surveys rods, consistent with methods used during cap construction verification. This will include surveying the elevations of the top of the WB 1-8 connected wetland berms, Outboard Area berms and the wave dampers in RA-E (every 5 to 10 ft.), as well as in wetland areas where feasible, including transects across the Harbor Brook channel. Manual surveys will be conducted along each track line to the shoreline or beyond the edge of the cap as necessary.

Within topsoil areas in RA-A, the Ninemile Creek spits, Outboard Area (including lower Harbor Brook), and the Wastebeds 1-8 connected wetlands, the survey lines will be modified as necessary to collect as much data as possible in and around wetland vegetation. However, significant portions of these areas are too shallow and/or will be too vegetated for the Z-boat, and a comprehensive survey using manual methods could damage the wetland vegetation. Vegetation in these areas will be inspected on a regular basis as part of the habitat restoration monitoring,

which will provide the necessary verification that there has not been significant erosion of material in these areas. If significant areas are noted where there is loss of vegetation that may be due to loss of topsoil, these areas will be surveyed using the Z-boat or manual survey methods to determine if there has been a significant loss of cap material.

Following completion of the data processing, a complete surface elevation file will be generated. This surface file will represent the existing lake bottom elevation conditions at the time of data collection and will be able to be used by CAD, GIS, or other mapping software for evaluation and comparison to previous cap elevation data (e.g., comparing year to year surveys or year to post-construction QC survey).

4.3 Probing

As described above in Section 3.0, coarse gravel and gravelly-cobble areas of the cap are too coarse to core through. Instead, probing will be implemented per the schedule shown in Table D.1 to verify the presence of coarse gravel- or gravelly cobble-sized armor stone in these areas of cap. The consistent presence of coarse materials, which are expected to be readily identifiable by probing, will provide confirmation that erosion that could affect cap performance has not occurred. Probing transects were developed to focus more intensely on areas of the highest erosion potential (such as in the surf zone areas of the cap, at the mouths of the tributaries, and around utilities such as storm water outfalls and METRO). Additional probing transects were included in fine gravel areas to supplement the data collected as part of the bathymetric survey and coring in these areas. Probing will be conducted along the transects shown in Figures D.7 through D.12 by manually advancing a steel rod to refusal at 25 ft. intervals along each probing transect. In probing areas where the water depth, water clarity and/or vegetation cover do not interfere, the presence of the coarse substrate will also be verified to the extent possible based on visual observations from the water surface. Probing and visual inspection will also be conducted directly adjacent to shoreline tributaries and outfalls to verify the cap remains physically stable at these locations.

If gravel/cobble is not encountered during probing of an area, multiple additional locations in the immediate vicinity will be probed to estimate the size of the area where the gravel layer may not be present. In the event that sediments exist above the gravel/cobble, and in RA-D where probing includes areas where sand overlies the coarse cap substrate, the thickness of the overlying sediment and/or sand will be determined and recorded if feasible. If probing identifies any anomalies such as the apparent absence of coarse substrate or significant accumulation of sediment on top of the cap, coordinates and elevation measurements of each probing location will be recorded. Additional probing may be completed if warranted based on the results from the baseline probing and bathymetry survey.

4.4 Coring

As described in Section 5, routine chemical monitoring will include collection of cores from throughout the capped areas. The thicknesses of cap material observed in these cores will be documented and considered as part of the overall routine physical monitoring program. Additional

coring for cap thickness verification may be completed if warranted based on the results from the baseline coring and bathymetry survey.

5.0 CHEMICAL MONITORING OVERVIEW

The primary purpose of the chemical monitoring is to measure the concentration of chemical parameters of interest (CPOIs) within the placed cap materials to verify that the performance criteria are not being exceeded, or increasing at a rate greater than expected, and thus confirm the chemical isolation layer is performing consistent with expectations. As shown on Figures D.13 through D.18, the chemical monitoring will include sampling within each of the primary cap modeling areas developed in the design as well as within each modified protective cap (MPC) area. Chemical parameters that will be analyzed for, and cap sampling locations and methods, are detailed below. The scope below will be implemented for the first comprehensive chemical monitoring event, anticipated in 2017. It is anticipated that subsequent comprehensive monitoring events will be consistent with this scope. Any revisions, as well as the scope associated with the focused monitoring events, will be documented in a work plan addendum subject to approval by NYSDEC.

5.1 Chemical Parameters

The cap habitat/erosion protection layer performance criteria include the probable effect concentrations (PECs) for those chemicals that are included in the calculation of the mean Probable Effects Concentration Quotient (PECQ) plus the NYSDEC sediment screening criteria for benzene, toluene, and phenol (Table D.2). Details on how cap sample results will be compared to these criteria are provided in Section 5.3. Chemical monitoring will focus on those chemicals, referred to herein as “indicator chemicals”, which were determined during the design phase to represent the most significant potential for migration through the cap and which therefore dictated cap design, including granular activated carbon (GAC) application rates. Analysis for indicator chemicals will be completed during each cap chemical monitoring event. Table D.3 presents the indicator chemicals for chemical monitoring in each cap modeling area, which represent the chemical constituents that dictated the chemical isolation layer design in each area, plus mercury. Analysis will also include pH in those areas where the cap includes a pH amendment layer.

All chemical groups not identified as indicator chemical groups are identified as additional chemical groups and will be analyzed for in the habitat layer to verify long-term compliance. Indicator chemical groups will be analyzed for during all sampling events. Additional chemical groups will be analyzed for during the first comprehensive monitoring event and each subsequent comprehensive monitoring event (not during the focused events) unless agreed to otherwise by NYSDEC. An evaluation was completed (Attachment B) to identify the frequency of cap performance criteria exceedances for each of the indicator chemicals and additional chemicals in underlying sediments. The results of this analysis may be helpful when evaluating future results of the monitoring program.

Because of porewater detection limit considerations associated with high molecular weight polycyclic aromatic hydrocarbons (PAHs) (HPAHs)[1], which would migrate through the cap much more slowly than most other contaminants, HPAHs will be analyzed for in solid phase cap samples only. Of the PAHs, only the low molecular weight PAHs (LPAHs)[2] will be analyzed for in porewater samples. Therefore, in identifying indicator versus additional chemical groups, LPAHs and HPAHs were considered independently. The five LPAHs have solid phase to porewater partitioning coefficients that are one to two orders of magnitude lower than those of the HPAHs, and thus are the most mobile of the PAHs and appropriate to focus on for cap monitoring purposes. Phenol is not a PAH, but is included in the LPAH chemical group for convenience since PAHs and phenol are both analyzed by EPA Method 8270.

Extensive method development of porewater sampling methods using peepers and centrifugation was completed as part of the pre-design investigation (PDI). This resulted in the development of correction factors that were applied to PDI sediment porewater analytical results. The centrifugation and peeper porewater collection procedures, including the peeper deployment period of five weeks, will be consistent with the PDI and therefore the same correction factors will be applied. Porewater correction factors are provided in Table D.4. As discussed below, porewater samples will also be collected from cores using direct extraction methods. Samples collected via direct extraction are not subject to the same potential losses associated with centrifugation or equilibrium considerations as the peeper; therefore, no correction factor is required for porewater samples collected using direct extraction.

5.2 Sample Collection

Chemical sampling will be completed based on the schedule shown in Table D.1. Methods for collecting samples from various areas of the cap are dependent on several factors including cap thickness and substrate and water depth. This includes the sampling implications associated with Zones 1, 2 and 3 which are based on cap material substrate, as discussed in Section 3.0. Table D.5 presents a summary of the potential sample types that will be collected for each chemical group based on factors such as detection limits, required sample volumes, and applicable sampling methods for various cap media as discussed in Subsections 5.2.1 through 5.2.5 below. Due to detection limit considerations and the high aqueous phase volumes required for analyzing HPAHs and PCBs, these compounds will only be analyzed for in solid phase samples. Based on the results of the solid-phase sample analysis for PCBs and HPAHs, future analysis of porewater samples for these parameters may be reconsidered, including consideration of alternative porewater collection methods such as collection of multiple cores or passive sampling using SPME fibers, subject to NYSDEC approval. The samples and analyses to be completed within any particular area will be a function of the indicator and additional chemical groups specified for the model area and the sample types listed in Table D.5. Figures D.13 through D.18 show cap monitoring locations and

[1] HPAHs will include fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3,-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

[2] LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene and anthracene. Naphthalene is included as a VOC.

methods for all remediation areas. Tables D.6 through D.11 detail the collection methods and laboratory analyses for each remediation area.

Samples will be collected for analysis from the habitat/erosion protection layer of multi-layer caps and from the bioturbation zone of mono-layer MPCs and thin layer caps (TLCs) for comparison to cap performance criteria. These samples are referred to as "compliance samples." Compliance samples will be analyzed for both indicator and additional chemical groups. The substrate material within the habitat zone will dictate whether a solid phase sample (i.e., from sand and topsoil substrates) or a porewater sample (i.e., from gravel and gravely-cobble substrates) will be collected and analyzed for the compliance samples. Porewater rather than cap material samples will be collected for VOC and LPAH analysis from mono-layer MPCs that include GAC since the presence of the GAC could interfere with interpretation of bulk chemistry results.

In addition to habitat/erosion protection layer sampling, core (cap material) and/or porewater samples will be collected for analysis from the chemical isolation layer as a supporting indicator of cap performance (known as "supporting samples"). In areas where the chemical isolation cap does not contain GAC and coring is possible, a solid phase sample of the chemical isolation layer will be analyzed as a supporting analysis. Porewater rather than cap material samples will be collected from the chemical isolation layer in areas where GAC is present and where coring is not possible. Supporting samples (i.e., samples within the chemical isolation layer) will be collected for indicator chemical groups, but typically will not be collected for the additional chemical groups given that the indicator chemicals are more mobile and thus better suited for comparison to model predictions within the chemical isolation layer. The exception to this is Zone 2 in RA-E1(B), as shown in Table D.10.

Porewater will be collected utilizing direct extraction, centrifugation, or peepers depending on the cap substrates at each sample location. During the Cap Sampling Methods Demonstration completed in late 2016, it was determined that the centrifuge SOP developed during the PDI is not applicable to sand or gravel substrates. Because sand does not compress when being centrifuged like softer fine sediments, allowing porewater to be drawn off the top of the sediment sample, porewater is instead collected by draining porewater from the bottom of the centrifuge vessel into a secondary vessel, exposing the porewater to air and potentially stripping VOCs from the porewater sample. Therefore, in sand or fine gravel substrates, porewater will be collected for analysis for all parameters via direct extraction from vibracores utilizing a push point sampler as described in the porewater SOP included in the QAPP. This method was successfully used to collect porewater samples from sand and fine gravel substrates during the 2016 Methods Development Demonstration (Parsons, 2017b). The direct extraction method collects porewater using a dedicated syringe or a peristaltic pump with dedicated tubing and does not expose the sample to air.

In GAC direct application areas where minimal sand may be present, fines in the sediment substrate could clog the openings of the push point sampler and result in turbid samples; therefore, centrifugation will be used if a sample consists primarily of sediment.

The coarse gravel and cobble present in Zone 3 is too coarse to push a core through in order to determine cap thickness or collect a sample. Porewater samples will be collected from the gravel/cobble habitat/erosion protection layer and underlying sand chemical isolation layer in this area using a peeper (porewater sampling device) that can be pushed through this substrate. For determining the correct intervals for porewater sampling, it will typically be assumed that the habitat/erosion protection layer thickness is consistent with the design minimum, and that any cap material beneath this is part of the chemical isolation layer. The exception to this are the peepers located in RA-B where the habitat/erosion protection layer consists of a minimum of 1ft. of coarse gravel which meets erosion protection goals overlain by a 1-ft. fine gravel habitat layer. Since the fine gravel is subject to movement and potential loss due to wind/wave energy, it will be assumed for sampling purposes that the habitat/erosion protection layer is 1 ft.

Due to the volume requirements from the analytical lab, multiple cores may be required at some locations to obtain the required porewater volume. To reduce the volume of porewater from targeted intervals and thus reduce the requirement for multiple cores at a particular location, a lab pre-screen sample may be collected from above or below the target sample interval. A lab pre-screen is a volume of water required by the lab to be collected as part of normal analytical sample volume and used to calibrate the analytical lab's instruments to the approximate concentration of the sample. Most analytical labs require a pre-screen before they analyze a sample on their calibrated instruments to determine if sample dilution is required and prevent having to take instruments out of service for decontamination from elevated samples. Utilizing porewater collected above or below the target sample as the pre-screen will minimize the number of cores required to obtain the full volume required for analysis.

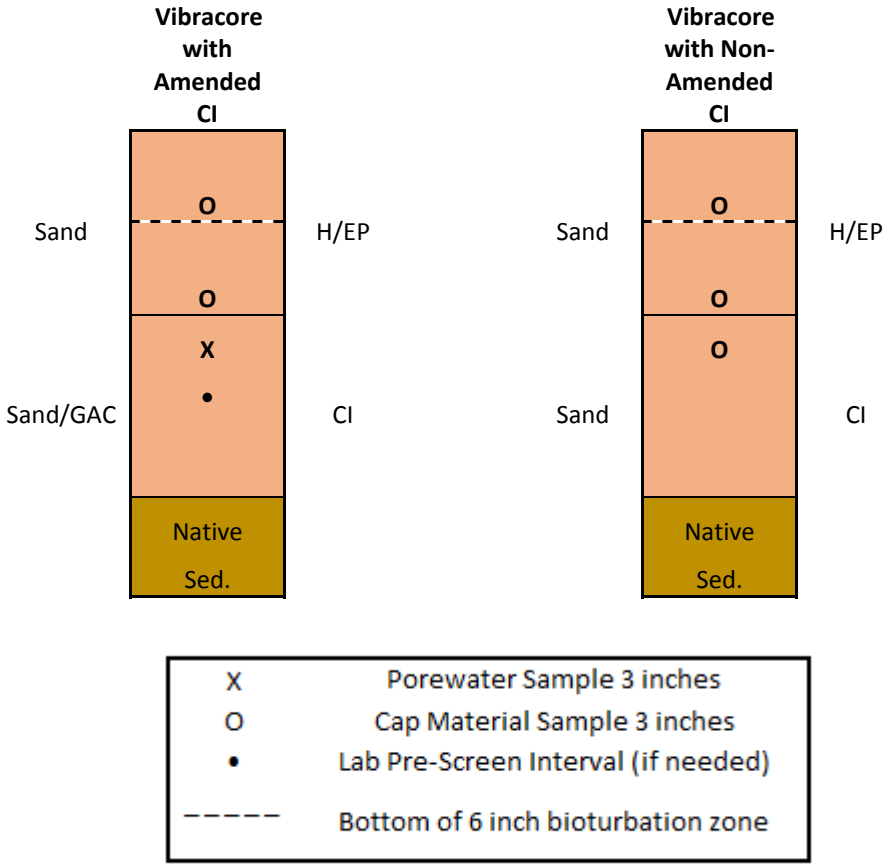
Details of sample collection methods, types, and depths for Zones 1, 2 and 3 and for mono-layer MPCs and SMU 8 TLCs are provided below. Any significant changes to the sample collection methods, types, depths or locations based on field conditions will be discussed with the NYSDEC on-site representative prior to sample collection, as feasible. Details pertaining to these sampling methods are provided in SOPs included as part of the QAPP.

5.2.1 Zone 1 - Sand

In Zone 1, all samples will be collected utilizing a vibracore or gravity corer with an appropriate length core barrel to advance through the full thickness of the cap into the underlying sediment. Physical observation of collected cores will be used to verify the total thickness of the cap. However, it will be very difficult or impossible to differentiate between the habitat and chemical isolation layers because they consist of the same material (sand). Therefore, for purposes of determining sampling intervals, it will be assumed that the habitat layer thickness is equal to the required design minimum and that any cap material beneath this is part of the chemical isolation layer.

Sample depth intervals and types that will be collected in Zone 1 are shown schematically below. All cap sample depth intervals will be measured from the top of the cap surface inclusive of any settled sediments that have mixed into the surface of the cap. Depth interval measurements for sampling will exclude overlying settled sediments that are not mixed with cap material. The

thickness and description of any accumulated sediments will be photographed and described such that an appropriate interval can be determined for assessing compliance with the Bioaccumulation-Based Sediment Quality Value (BSQV), which may result in revised sampling intervals during subsequent sampling events for analysis for mercury, which will be determined in consultation with NYSDEC.

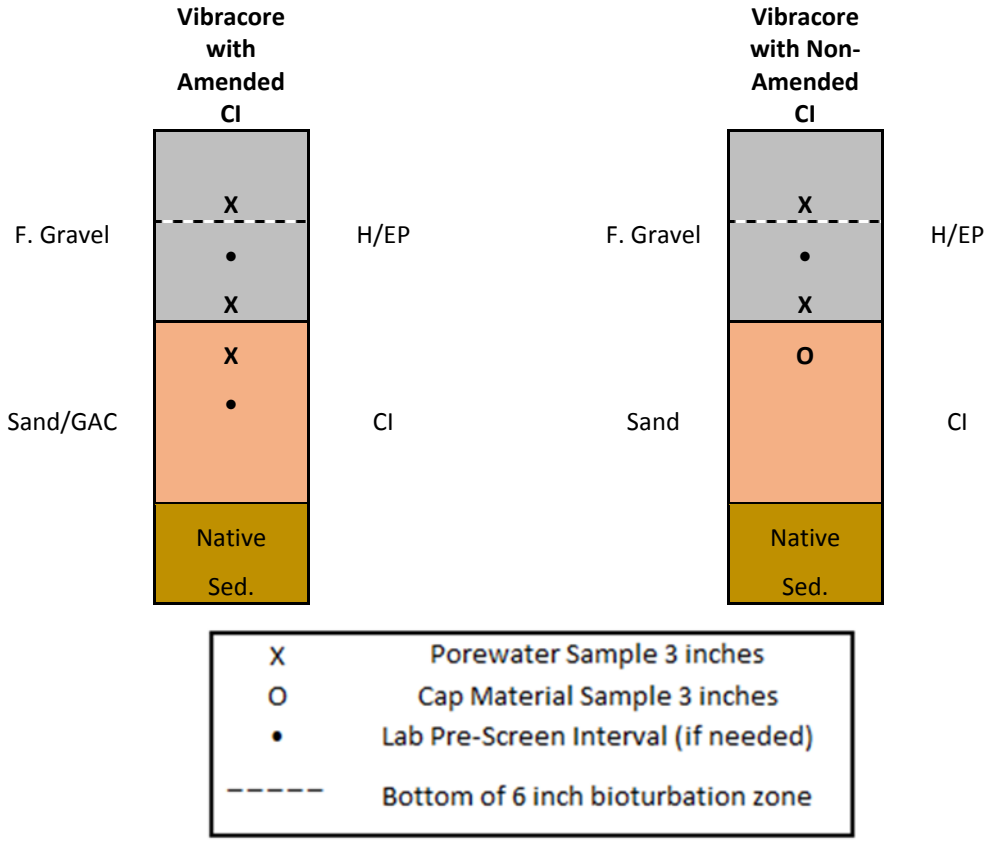


The required design minimum habitat/erosion protection layer thickness in Zone 1 is always 1 ft., therefore, solid phase compliance samples will be collected from both the bottom of the bioturbation zone (3 to 6 inches) and the bottom of the entire habitat/erosion protection layer (9 to 12 inches) to assess performance. Supporting samples will be collected at the top of the chemical isolation layer (12 to 15 inches). For purposes of determining sampling intervals, it will be assumed that the habitat/erosion protection layer thickness is equal to the required design minimum and that any cap material beneath this is part of the chemical isolation layer. If the collected thickness of the habitat/erosion protection layer, if distinguishable from the chemical isolation layer, or the total cap thickness is less than the minimum design thickness, the thickness and coordinates at that location will be recorded and additional attempts will be made. The chemical isolation layer supporting sample will be solid phase in un-amended cap areas. In amended cap areas, a push point

sampler will be used as described in the SOP included in the QAPP to extract a porewater sample directly from the chemical isolation material within the core for supporting sample analysis.

5.2.2 Zone 2 – Fine Gravel

In Zone 2, all samples will be collected utilizing a vibracore with an appropriate length core barrel to advance through the full thickness of the cap into the underlying sediment. Sample depth intervals and types that will be collected in Zone 2 are shown below. All cap sample depth intervals will be measured from the top of the cap surface inclusive of any settled sediments that have mixed into the surface of the cap. Depth interval measurements for sampling will exclude overlying settled sediments that are not mixed with cap material. The thickness and description of any accumulated sediments will be photographed and described such that an appropriate interval can be determined for assessing compliance with the BSQV, which may result in revised sampling intervals during subsequent sampling events for analysis for mercury, which will be determined in consultation with NYSDEC.



Chemical isolation performance in these areas will be verified based on sampling of the porewater within the habitat/erosion protection layer and underlying chemical isolation layer and/or sampling of cap material (via coring) from the underlying chemical isolation layer.

Physical observation of collected cores will be used to verify the thickness of the various cap layers and will be considered in determining the appropriate sampling depth intervals. Compliance samples will be collected from the bottom of the bioturbation zone (3 to 6 inches) and from the bottom of the of the habitat/erosion protection layer. For purposes of determining compliance sampling intervals, it will be assumed that the habitat/erosion protection layer thickness is equal to the required design minimum and that any cap material beneath this is part of the chemical isolation layer. If the collected thickness of the habitat/erosion protection layer is less than the minimum design thickness, the thickness and coordinates at that location will be recorded and additional attempts will be made. Sampling intervals within Zone 2 typically will be:

12-inches Minimum Habitat/Erosion Protection Layer

- 3 to 6 inches (bottom of bioturbation zone)
- 9 to 12 inches (bottom of habitat/erosion protection layer)
- Top 3 inches of chemical isolation layer based on field observation

18-inches Minimum Habitat/Erosion Protection Layer

- 3 to 6 inches (bottom of bioturbation zone)
- 15 to 18 inches (bottom of habitat/erosion protection layer)
- Top 3 inches of chemical isolation layer based on field observation

A push point sampler will be used as described in the SOP included in the QAPP to extract porewater samples directly from the habitat/erosion protection layer for compliance sample analysis. The supporting sample will be collected from the top 3 inches of the chemical isolation layer material based on based on visual observation of the interface between the habitat/erosion protection layer fine gravel substrate and underlying sand layer substrate. The chemical isolation layer supporting sample will be solid phase in un-amended cap areas. In amended cap areas, a push point sampler will be used as described in the SOP included in the QAPP to extract a porewater sample directly from the chemical isolation material within the core for supporting sample analysis.

In addition, sampling in the Zone 2 areas of coarse substrate will be performed in six dedicated sampling “ports” installed during cap construction in RA-D. A sampling port is a rectangular concrete “manhole” riser section that was placed above the chemical isolation layer and filled with a finer-grained material (sand) in place of the larger armor stone in order to allow for cap sampling as part of the cap monitoring program. The concrete manhole will protect the finer-grained cap material from erosion. The sampling ports will facilitate collection of core and porewater samples within the habitat/erosion protection and chemical isolation layers. Sampling port locations are shown in Figure D.16. Additional sampling port details are provided in Attachment E. Sampling methods from the sample ports will be consistent with those specified for Zone 1. Physical observation of collected cores will be used to verify the total thickness of the cap. However, as discussed for Zone 1 sampling, it will be very difficult or impossible to differentiate between the habitat and chemical isolation layers because they consist of the same material (sand). Therefore, for purposes of determining sampling intervals, it will be assumed that the habitat layer thickness

is equal to the required design minimum and that any cap material beneath this is part of the chemical isolation layer. Sampling intervals within the sample ports will be:

12-inches Minimum Habitat/Erosion Protection Layer

- 3 to 6 inches (bottom of bioturbation zone)
- 9 to 12 inches (bottom of habitat/erosion protection layer)
- 12 to 15 inches (top of chemical isolation layer)

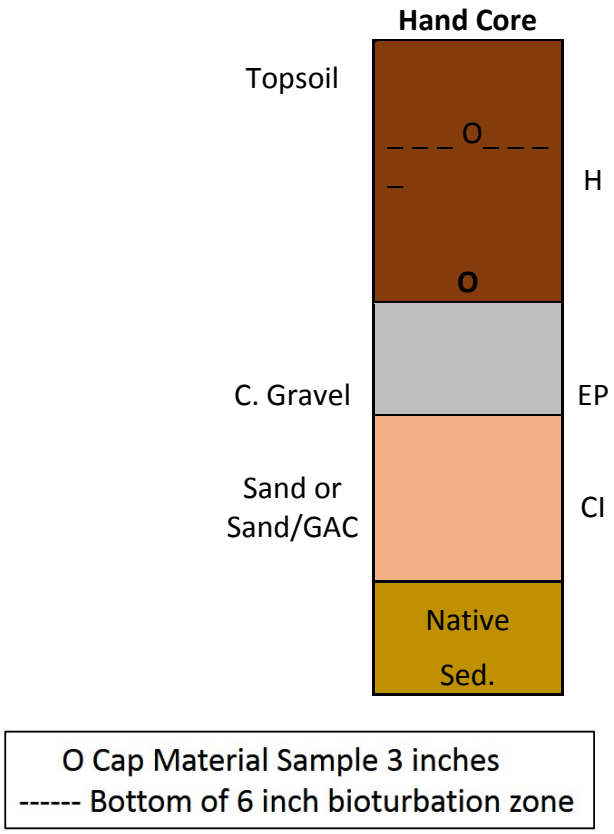
18-inches Minimum Habitat/Erosion Protection Layer

- 3 to 6 inches (bottom of bioturbation zone)
- 15 to 18 inches (bottom of habitat/erosion protection layer)
- 18 to 21 inches (top of chemical isolation layer)

5.2.3 Zone 3 - Coarse Gravel or Gravely-Cobble

As described above, porewater samples will be collected from the gravel/cobble habitat/erosion protection layer and underlying sand chemical isolation layer in this area using a peeper. For determining the correct intervals for porewater sampling, it will typically be assumed that the habitat/erosion protection layer thickness is consistent with the design minimum, and that any cap material beneath this is part of the chemical isolation layer. The exception to this are the peepers located in RA-B where the habitat/erosion protection layer consists of a minimum of 1 ft. of coarse gravel which meets erosion protection goals overlain by a 1-ft. fine gravel habitat layer. Since the fine gravel is subject to movement and potential loss due to wind/wave energy, it will be assumed for sampling purposes that the habitat/erosion protection layer is 1 ft. Peeper porewater sample depth intervals are detailed in Figure D.19. Because peeper sampling is an in-situ method and no cores will be collected which would allow visual inspection, all sample depth intervals will be measured from the top of the cap surface inclusive of any settled sediments that have mixed into the surface of the cap as well as overlying settled sediments that are not mixed with cap material.

In areas where topsoil has been placed over a coarse gravel erosion protection layer and aquatic plantings have been installed, mechanical coring would risk damaging the restored habitat. In these areas, a hand core will be advanced through the topsoil layer and samples from the bottom of the bioturbation zone and from the bottom of the topsoil habitat layer will be collected for analysis. Topsoil sample depth intervals and types that will be collected in Zone 3 are shown below. All cap sample depth intervals will be measured from the top of the cap surface inclusive of any settled sediments that have mixed into the surface of the cap. In topsoil areas, it is unlikely that any overlying accumulated sediments could be differentiated from the topsoil layer, therefore depth interval measurements will include any overlying settled sediments that are not mixed with cap material.



Chemical isolation in the Zone 3 areas will be verified based on sampling of the porewater within the habitat/erosion protection layer and underlying chemical isolation layer, or sampling of the cap material (via coring) from the overlying finer habitat substrate (topsoil) in areas where this is part of the cap design. Sample depth intervals will depend on the habitat layer substrate and design minimum habitat/erosion protection layer thickness. Peeper sample depth intervals are detailed in Figure D.19. Topsoil sample depth intervals are detailed below. If the collected thickness of the topsoil is less than the minimum design thickness, the thickness and coordinates at that location will be recorded and additional attempts will be made.

12-inches Minimum Topsoil Habitat Layer (Remediation Area A)

- 3 to 6 inches (bottom of bioturbation zone)
- Bottom 3 inches of topsoil habitat layer based on field observation

19.5-inches Minimum Topsoil Habitat Layer (Wetland Areas)

- 3 to 6 inches (bottom of bioturbation zone)
- Bottom 3 inches of topsoil habitat layer based on field observation

5.2.4 Modified Protective Caps (MPCs) and Modified Erosion Resistant Caps (MERCs)

MPC designs were developed subsequent to the final design in small areas where sediment movement occurred during cap placement, as well as in other small areas where softer than anticipated sediments were present on relatively steep slopes. In these small areas, the modified design and compliance points differ from those listed above for full thickness caps. Most of the MPC designs include separate dedicated chemical isolation and habitat/erosion protection layers, although one or both of these layers is less than the 1 ft. minimum as specified in the Final Design. For multi-layer MPCs, the sampling strategy will be consistent with those specified for multi-layer caps within the appropriate zone. Compliance samples will be collected from the bottom of the bioturbation zone (3 to 6 inches). In MPCs where the design minimum habitat/erosion protection layer thickness is at least nine inches, a second compliance sample will be collected from the bottom three inches of the habitat/erosion protection layer based on the minimum design thickness. This depth will vary based on the habitat/erosion protection thickness. Supporting samples from the chemical isolation layer are intended to characterize conditions within the top three inches of the chemical isolation layer. Therefore, supporting samples from the MPC multi-layer caps will only be collected if the portion of the chemical isolation layer containing GAC is at least six inches thick. All cap sample depth intervals will be measured from the top of the cap surface inclusive of any settled sediments that have mixed into the surface of the cap. Depth interval measurements for sampling will exclude overlying settled sediments that are not mixed with cap material. The thickness and description of any accumulated sediments will be photographed and described such that an appropriate interval can be determined for assessing compliance with the BSQV.

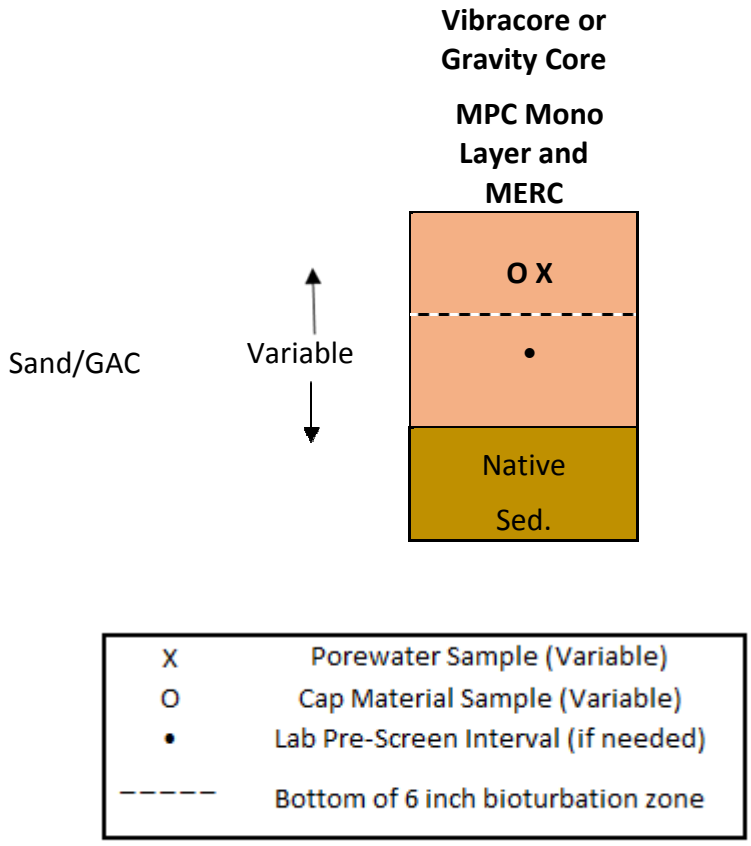
A subset of the MPCs (approximately two percent of the entire capped area) includes areas where underlying soft sediments limited the cap thicknesses such that it was not feasible to construct separate chemical isolation and habitat/erosion protection layers. These areas are referred to as mono-layer caps, and include areas of direct application of GAC and siderite. The areas specified as direct application of GAC also included sand to facilitate GAC placement. Additional sand is present in these areas as a result of capping operations in adjacent areas. A total of six cores were collected from the two areas of direct application in the littoral zone as part of the 2016 Cap Sampling Methods Field Demonstration, and the minimum thickness of sand observed was 5.5 inches. For mono-layer caps, compliance will be verified based on meeting the cap performance criteria based on concentrations measured within sample intervals collected from 0 to 0.5 ft., which corresponds to the anticipated bioturbation depth and is the zone of potential exposure for sediment-dwelling organisms.

In mono-layer caps, potential unacceptable risks to benthic organisms due to organic contaminants are mitigated because organic contaminants sorb to the GAC rather than being present in porewater and cap materials, or sediments in the case of direct application areas. However, laboratory analysis of a solid phase sample that includes GAC would primarily quantify contamination levels on the GAC, and thus would not be relevant. Therefore, mercury analysis will be on solid phase samples while VOC and LPAH analysis will be completed on porewater samples based on the following:

- The top 6 inches of material and porewater will be sampled if the mono-layer cap and any overlying accumulated sediment is at least 6 inches thick.
- The sample interval will be consistent with the thickness of the mono-layer cap and any overlying accumulated sediment if this substrate is between 3 inches and 6 inches thick.
- No sample will be collected if the thickness of the mono-layer cap and any overlying accumulated sediment is less than 3 inches thick. Samples will be collected for analysis in these areas during subsequent sampling events after sufficient mixing and deposition have occurred. The measured thicknesses of the cap material and overlying sediments as well as coordinates of each attempt will be recorded. In the event that a sample is not collected based on thickness, a determination will be made with NYSDEC (as part of the reporting for that year) as to whether additional attempts would be made in that area during the subsequent year rather than waiting for the subsequent planned chemical monitoring event.
- If the design-specified average thickness of the MPC is less than 6 inches, a minimum of three attempts will be made within the MPC area to collect a core that has more than 3 inches of cap and overlying accumulated sediment.
- If the design-specified average thickness of the MPC is greater than 6 inches, a minimum of three attempts will be made within the MPC area to collect a core that has more than 6 inches of cap and overlying accumulated sediment.
- Multiple attempts will be made within the target MPC area, at least 20 ft. apart, and along a line through the original location and perpendicular to shore. This will ensure that subsequent sample attempts are from different capping lanes, which were 20 ft. wide and parallel to shore.

Collection and analysis of porewater samples for HPAHs and PCBs is not practical based on volume and analytical laboratory detection limit considerations. PCBs and HPAHs are 1 to 5 orders of magnitude less mobile, (i.e., exhibit much stronger sorption to GAC), than the other organic contaminants. Therefore, compliance with the criteria for PCBs and HPAHs can be inferred if the criteria for other organic contaminants are met. To provide added demonstration that the mono-layer caps are protective for HPAHs and PCBs, samples will be analyzed for these chemicals in mono-layer caps that consisted of a lift of GAC-amended sand overlain by a lift of sand with no GAC (MPC areas RA-B-1D (10 to 20 ft.), RA-C-1D and RA-C-2C). The design-specified average thickness of the sand lift in these areas is 4.5 inches; therefore, the top 6 inches of cap material will be sampled and analyzed for HPAHs and PCBs in these areas to minimize the likelihood that the sample contains significant GAC. If future monitoring of the mono-layer cap areas indicates significant accumulation of sediments, samples may be collected for analysis of VOCs and LPAHs. However, as settling sediments slowly accumulate, GAC will likely be mixed upward into the overlying sediments, which may prevent meaningful analysis of solid phase samples for these parameters.

The MERC, which was developed to limit loading and potential damage to the in-lake METRO deep water outfall pipeline, is also a monolayer cap and therefore compliance will be verified in a manner consistent with the MPC mono-layer caps. Sample depth intervals and types that will be collected from MPC and MERC mono-layer caps are shown below.



A vibracore or a gravity corer will be used to collect cores in the mono-layer cap areas. Porewater will be collected from the cores using the push point sampler in cap areas where the sample is comprised primarily of sand. In areas where the sample includes a significant volume of overlying sediment, an attempt will be made to collect the porewater sample using the push point sampler. If porewater is unable to be collected by the push point sampler, the collected core will be shipped to the analytical laboratory for porewater centrifuge generation and analysis.

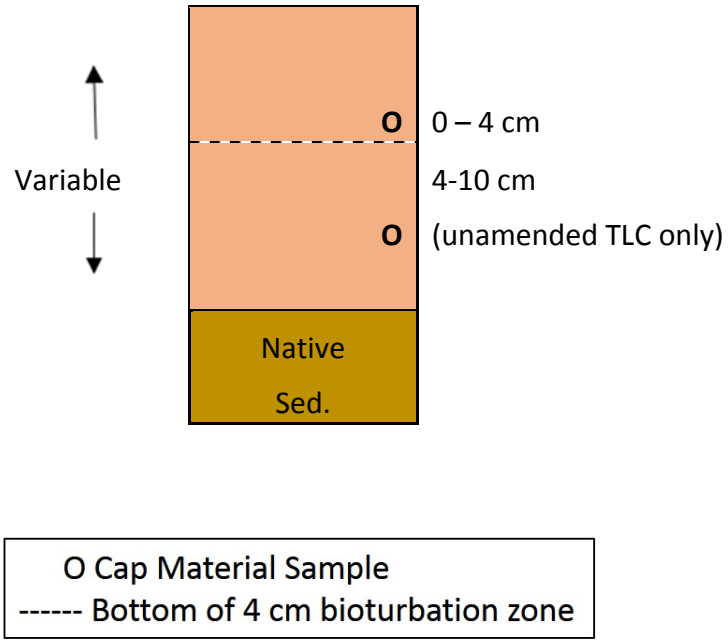
5.2.5 Thin Layer Caps (TLCs) and GAC Direct Application Areas in SMU 8

TLCs were specified for those portions of SMU 8 that exceeded a mean PECQ of 1. Some of the TLCs were amended to include GAC to improve chemical isolation. In addition, there also are areas of direct application of GAC in SMU 8 where sediment strength limitations prevented TLC installation. As discussed in Subsection 5.2, porewater rather than cap material samples will

typically be collected from mono-layer MPCs that include GAC since the presence of the GAC could interfere with interpretation of bulk chemistry results. However, based on current methods available, collection of porewater samples from the SMU 8 4-cm compliance interval would be very challenging and require several cores to get sufficient porewater for analysis of all mean PECQ parameters based on porewater volume requirements. Therefore, solid phase samples will be collected. For the SMU 8 amended TLC and GAC direct application areas, samples will not be collected unless sediment cores show a minimum thickness of sand (placed as part of the direct application construction process) and overlying settled sediments of 4 inches to reduce the likelihood of significant GAC that may have sorbed contaminants in the sampled interval. The presence of GAC may create a higher sorbed phase concentration that is not directly comparable to the performance standards. If the sorbed phase measurement, with GAC included, is less than the standard, then it is appropriate to conclude that the cap is in compliance. If mean PECQ criterion is exceeded in TLC and direct application areas, collection of porewater samples may be reconsidered as a method of demonstrating compliance. A minimum of three attempts will be made at sampling locations with SMU 8 amended TLC and direct application areas to collect a core that has more than 4 inches of cap and overlying accumulated sediment. Multiple attempts will be made within the target sampling area, at least 20 ft. apart, and along a line through the original location and perpendicular to shore. This will ensure that subsequent sample attempts are from different capping lanes, which were 20 ft. wide and parallel to shore. The measured thicknesses of the cap material and overlying sediments as well as coordinates of each attempt will be recorded. In the event that a sample is not collected based on thickness, a determination will be made with NYSDEC (as part of the reporting for that year) as to whether additional attempts would be made in that area during the subsequent year rather than waiting for the subsequent planned chemical monitoring event.

Consistent with the design criteria, the long-term performance criteria for amended and un-amended TLCs and direct application areas will be to meet the mean PECQ criterion of 1 and mercury PEC criterion of 2.2 mg/kg within the top 4 cm (approximately 2 inches), which is the compliance depth specified for SMU 8 in the final design. The sample depth interval of 4 cm that will be collected from TLCs is shown below. In addition, a sample depth interval of 4 to 10 cm will be collected in un-amended TLCs.

SMU 8 Amended Caps, Direct Application and TLCs
Gravity Core



Gravity cores will be utilized for collection of sediment from TLC areas.

5.3 Comparison of Sample Results to Cap Performance Criteria

Analytical results from cap material and cap porewater habitat layer samples will be compared to the cap performance criteria to verify that the cap is performing as expected, or better. The performance criteria for chemicals that are included in the calculation of the mean PECQ are based on cap solid phase concentrations, while the performance criteria for contaminants based on the NYSDEC sediment screening criteria (benzene, toluene, and phenol) are based on cap porewater concentrations. As detailed in Section 5.2, cap sampling will include both solid phase and porewater sampling and analysis. Therefore, cap habitat layer sampling results will be compared to performance criteria as detailed below:

- Cap solid phase sample results will be compared directly to the solid phase performance criteria for chemicals that are included in the calculation of the mean PECQ.
- Cap solid phase sample results for benzene, toluene and phenol will be compared to the porewater performance criteria that are based on the NYSDEC sediment screening criteria by converting the solid phase concentration to a porewater concentration based on partitioning calculations using the equilibrium partitioning coefficients listed in Table D.12 and sample-specific f_{oc} values.

- Cap porewater concentrations will be compared to the solid phase performance criteria for chemicals that are included in the calculation of the mean PECQ by converting the porewater concentration to a solid phase concentration based on partitioning calculations using the equilibrium partitioning coefficients listed in Table D.12. The f_{oc} values used for calculating solid phase concentrations will be based on the following:
    - For Zones 2 and 3 where solid phase samples will not be collected, f_{oc} values consistent with those assumed during the design for cap modeling will be used. The solid phase concentrations will be calculated based on an assumed f_{oc} of 4.56 percent within the 6-inch gravel or cobble bioturbation zone (i.e., upper compliance sample). The solid phase concentrations will be calculated based on an assumed f_{oc} of 0.022 percent at the bottom of the gravel or cobble habitat/erosion protection layer (i.e., lower compliance sample).
    - For mono-layer caps where both solid phase and porewater samples will be collected but the presence of GAC prevents direct measurement of sample-specific f_{oc} values, the solid phase concentrations will be calculated for those parameters that will be analyzed for in porewater samples based on f_{oc} values measured in samples collected from the bioturbation zone as part of the compliance monitoring in adjacent multi-layer caps.
- Cap porewater sample results for benzene, toluene and phenol will be compared directly to the porewater performance criteria that are based on the NYSDEC sediment screening criteria.

This approach addresses the requirements for the Onondaga Lake ROD and provides for consistency with modeling used to develop protective cap designs in the final design and subsequent design revisions.

6.0 CSX SHORELINE MONITORING

A dredging and capping offset was developed in RA-E in the vicinity of the active rail lines along the southeastern shoreline based on rail line stability considerations. This offset ranges from approximately 130 to 200 ft. from the shoreline, and impacts an area of approximately 10.1 acres. As specified in the Design Addendum for this area (Parsons and Anchor QEA, 2014), the remedial program for the offset area includes baseline surface sediment sampling at approximately the same density as sampled during the PDI for the full list of mean PECQ parameters plus benzene, toluene and phenol; total organic carbon (TOC); and grain size, and post-remedy surface sediment sampling at/near baseline locations to confirm natural recovery.

Baseline sampling in this area was completed in autumn 2016. The 2016 baseline samples cores were collected from the 0 to 0.5 ft. depth interval. Sample locations are shown on Figure D.20. The shallowest sample intervals collected from the various borings in this area during the PDI were either 0 to 1 ft. or 0 to 1 meter. Baseline sample locations included the PDI locations where the shallowest sampling interval was 0 to 1 ft. to allow for comparison to historical PDI

shallow sediment analytical results. This includes the shallow PDI sample location in this area with the highest mercury concentration (OL-VC-70128). The maximum mean PECQ value measured in the shallowest interval during the PDI in this area was in the 0 to 1-meter interval of boring OL-VC-70030, therefore this location was also included in the baseline sampling plan. Additional baseline sampling locations were selected in deeper water, adjacent to reoccupied near-shore PDI locations as shown in Figure D.20.

Post-remedy sampling events and bathymetric surveys will be completed in this area in 2019 and 2024 prior to the second and third United States Environmental Protection Agency (USEPA) five-year reviews. The need for scope and timing for subsequent monitoring in this area will be determined based on the results of the 2024 sampling event.

7.0 QUALITY ASSURANCE AND DATA MANAGEMENT (QA/QC)

Sample names, QA/QC samples, procedures, sample collection, data entry, and data validation for this portion of the work will be conducted in accordance with procedures summarized in the QAPP (Parsons et al. 2017a). Analytical results will be incorporated into the Honeywell's data management system and, in conjunction with physical monitoring data, provided to NYSDEC in the preferred electronic data deliverable format following validation.

8.0 REFERENCES

New York State Department of Environmental Conservation and United States Environmental Protection Agency Region 2. 2005. Record of Decision. *Onondaga Lake Bottom Subsite of the Onondaga Lake Superfund Site*. July 2005.

Parsons and Anchor QEA, 2012. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (Sediment Management Unit 8) Final Design. Prepared for Honeywell, Syracuse, New York. March 2012.*

Parsons and Anchor QEA, 2014. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design Remediation Area E Shoreline Design Addendum.*

Parsons, 2017a. *Onondaga Lake Cap Monitoring: Quality Assurance Project Plan.* In preparation for Honeywell, Syracuse, New York.

Parsons, 2017b. *Results Summary Report Onondaga Lake Cap Sampling Methods Demonstration*. Prepared for Honeywell, Syracuse, New York. August 2017.

Parsons, 2017d. *2017 Honeywell – Syracuse Operation, Maintenance, and Monitoring Project Safety, Health, and Environmental Plan*. Prepared for Honeywell. Onondaga County, Syracuse, NY.

USCOE, 2007. *Army Corps of Engineers Hydrographic Survey Manual EM 110-2-1003 2014.* November 2013.

TABLES

TABLE D.1
CAP ROUTINE MONITORING SCHEDULE

	Full Thickness Multi-Layer Caps and SMU 8 TLCs Included in Final Design				MPCs, MERCs, and SMU 8 TLCs and Direct Application Areas Included in Design Revisions	
Year	**Chemical**		**Physical**		**Chemical**	**Physical**
	Comprehensive	**Focused**[1]	**Comprehensive Bathy Survey & Coring**[2]	**Probing & Visual Inspection**	**Comprehensive**	**Comprehensive Bathy Survey & Coring**[2]
2017	X		X	X	X	X
2018			X	X		X
2019		X	X	X	X	X
2020[3]				X		X
2021				X		
2022	X		X[4]		X	X[4]
2023						
2024		X	X[4]		X	X[4]
2025[3]						
2026				X		

1 Focused chemical monitoring events will include at least 50 percent of the locations from the comprehensive monitoring events.

2 Includes coring associated with routine chemical monitoring and additional coring as needed based on bathymetric survey and coring results to verify thickness.

3 USEPA 5-Year Review.

4 Full bathymetric survey unless focused bathymetric survey approved by NYSDEC.
Bathymetry measurements and chemical sampling in the CSX shoreline area will be completed in 2019 and 2024.
Additional work plans documenting the cap monitoring schedule after 2026 will be prepared in 2026, subject to NYSDEC review and approval.
Additional monitoring will be implemented as appropriate based on prior results or occurrence of wind/wave or flow events exceeding triggers.

TABLE D.2
HABITAT LAYER CHEMICAL PERFORMANCE STANDARDS

Chemical	Performance Standard[1]
Benzene	760 µg/L
Chlorobenzene	428 µg/kg
Dichlorobenzenes	239 µg/kg
Ethylbenzene	176 µg/kg
Naphthalene	917 µg/kg
Phenol	250 µg/L
Toluene	480 µg/L
Xylene	561 µg/kg
Trichlorobenzenes	347 µg/kg
PCBs	295 µg/kg
Fluorene	264 µg/kg
Phenanthrene	543 µg/kg
Acenaphthene	861 µg/kg
Acenaphthylene	1,301 µg/kg
Anthracene	207 µg/kg
Pyrene	344 µg/kg
Benzo(a)anthracene	192 µg/kg
Benzo(b)fluoranthene	908 µg/kg
Benzo(k)fluoranthene	203 µg/kg
Chrysene	253 µg/kg
Fluoranthene	1,436 µg/kg
Benzo(a)pyrene	146 µg/kg
Dibenz(a,h)anthracene	157 µg/kg
Indeno(1,2,3-cd)pyrene	183 µg/kg
Benzo(g,h,i)perylene	780 µg/kg
Mercury	2,200 µg/kg

[1] Includes PECs for chemicals that are used for calculation of the mean PECQ plus the NYSDEC sediment screening criteria for benzene, toluene and phenol.

TABLE D.3
CAP MONITORING CHEMICAL PARAMETERS

Remediation Area	Cap Model Area (Inclusive of MPCS)	Chemical Groups That Determined GAC Application Rate	Indicator Chemical Groups	Additional Chemical Groups
A	A1	Sand Only	mercury	VOCs, PCBs, LPAHs, HPAHs
	A2[1]	VOCs	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
B	B1	Phenol	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
	B2	Phenol	VOCs[4], LPAHs, mercury, pH	PCBs, HPAHs
C	C1	Phenol	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
	C2	LPAHs	VOCs, LPAHs, HPAHs, mercury, pH	PCBs
	C3	VOCs	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
D	SMU 2	VOCs	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
	West	Phenol	VOCs, LPAHs, HPAHs, mercury, pH	PCBs
	Center[2]	VOCs	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
	East	VOCs	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
E	E1A[3]	Sand Only	mercury	VOCs, PCBs, LPAHs, HPAHs
	E1B[3]	Sand Only	mercury	VOCs, PCBs, LPAHs, HPAHs
	E2	VOCs	VOCs, LPAHs, mercury	PCBs, HPAHs
	E3	VOCs	VOCs, mercury	PCBs, LPAHs, HPAHs
F	F	Sand Only	mercury	VOCs, PCBs, LPAHs, HPAHs
SMU 8 Amended TLCs and GAC Direct Application	SMU 8	Not Applicable	mean PECQ VOCs, PAHs, PCBs, mercury, pH	None
SMU 8 Unamended TLCs	SMU 8	Not Applicable	mean PECQ VOCs, PAHs, PCBs, mercury	None
Wetlands	WB1-8	VOCs	VOCs, LPAHs, mercury, pH	PCBs, HPAHs
	WBB-East	VOCs	VOCs, LPAHs, mercury	PCBs, HPAHs
	WBB-Center	VOCs	VOCs, LPAHs, HPAHs, mercury, pH	PCBs
	WBB-West	VOCs	VOCs, LPAHs, HPAHs, mercury, pH	PCBs

Notes: Naphthalene is included as a VOC.

LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience since PAHs and phenol are both analyzed by EPA Method 8270. HPAHs include fluoranthene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3,-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene.

[1] Includes Ninemile Creek Spits and Model Area RA-A-40197.

[2] Includes Model Area OL-VC-10138/40.

[3] E1 consists of two separate areas that were modeled as one area.

[4] VOCs are not considered an indicator chemical group for Model Area B2 based on the original cap modeling but are included because they were modeled as part of the design for the MPCs within that area.

TABLE D.4
CORRECTION FACTORS FOR POREWATER CONCENTRATIONS

Porewater Sample Collection Method	Correction Factor
Peepers	
Xylenes (total)	1.1
Chlorobenzene	1.1
Toluene	1.1
Ethylbenzene	1.1
Benzene	1.1
1,3-Dichlorobenzene	1.1
1,4-Dichlorobenzene	1.1
1,2-Dichlorobenzene	1.1
Naphthalene	1.1
Mercury	1.1
1,2,4-Trichlorobenzene	1.1
1,2,3-Trichlorobenzene	1.1
1,3,5-Trichlorobenzene	1.1
Centrifuge	
Xylenes (total)	1.11
Chlorobenzene	1.11
Toluene	1.08
Ethylbenzene	1.07
Benzene	1.09
1,3-Dichlorobenzene	1.10
1,4-Dichlorobenzene	1.14
1,2-Dichlorobenzene	1.15
Naphthalene	1.54
Mercury	1.06
1,2,4-Trichlorobenzene	1.45
1,2,3-Trichlorobenzene	1.53
1,3,5-Trichlorobenzene	1.07

Note: Correction factors are consistent with those specified in Table A1.2 of Appendix B in *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design* (Parsons and Anchor QEA, March 2012). Peeper correction factors in this table are based on a 5-week deployment period.

TABLE D.5
POTENTIAL CAP SAMPLE TYPES

		VOCs		Mercury		LPAHs and Phenol		HPAHs		PCBs	
		Indicator	**Additional**	**Indicator**	**Additional**	**Indicator**	**Additional**	**Indicator**	**Additional**	**Indicator**	**Additional**
Habitat Layer (Compliance Sample)	Cap Mat'l	X	X	X	NA[2]	X	X	X	X	NA[3]	X
	Porewater (direct extraction or peeper)	X	X	X	NA[2]	X	X			NA[3]	
CI Layer (Supporting Sample)	Cap Mat'l	X[1]		X	NA[2]	X[1]		X[1]	X[1]	NA[3]	X[1]
	Porewater (direct extraction or peeper)	X		X	NA[2]	X				NA[3]	
Mono-layer MPC (Compliance Sample)	Cap Mat'l			X	NA[2]			X	X	NA[3]	X
	Porewater (direct extraction or centrifuge)	X	X		NA[2]	X	X			NA[3]	

[1] Only for unamended multi-layer caps.

[2] Mercury is always considered an indicator chemical.

[3] PCBs are never an indicator chemical group.

Table D.6
Remediation Area A Comprehensive Sample Collection and Analytical Summary

Cap Model Area	Water Depth	Number of Sample Locations	Collection Method	Compliance Sample (Habitat/Erosion Protection Layer)												Supporting Sample (Chemical Isolation Layer)									
				Solid Phase Analysis[1]							Porewater Analysis[1]					Solid Phase Analysis[1]						Porewater Analysis[1]			
				Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	TOC	Mercury	VOCs[2]	LPAHs[3]	pH		Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	Mercury	VOCs[2]	LPAHs[3]	pH
A1	Zone 1 20-30 ft	4	Vibracore (Non-Amended Cl)	O	O	O	O		O	O						O									
A1	Zone 1 10-20 ft	2	Vibracore (Non-Amended Cl)	O	O	O	O		O	O						O									
A1	Zone 2 3-10 ft	1	Vibracore (Non-Amended Cl)								X	X	X			O									
A1	Zone 3 0-3 ft	4	Hand Core	O	O	O	O		O	O															
A2	Zone 1 10-20 ft	1	Vibracore (Amended Cl)	O	O	O	O	O	O	O												X	X	X	X
A2	Zone 2 3-10 ft	2	Vibracore (Amended Cl)								X	X	X	X								X	X	X	X
A2	Zone 3 0-3 ft	5	Hand Core	O	O	O	O	O	O	O															
NMC Spits	Zone 3 NA	2	Hand Core	O	O	O	O	O	O	O															

Notes:
1. Black font designates indicator chemical group analyses and red font designates additional chemical group analyses.
2. Naphthalene is included as a VOC.
3. LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene, and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience.
4. HPAHs include the remaining PAHs included in the development of the Mean PECQ.

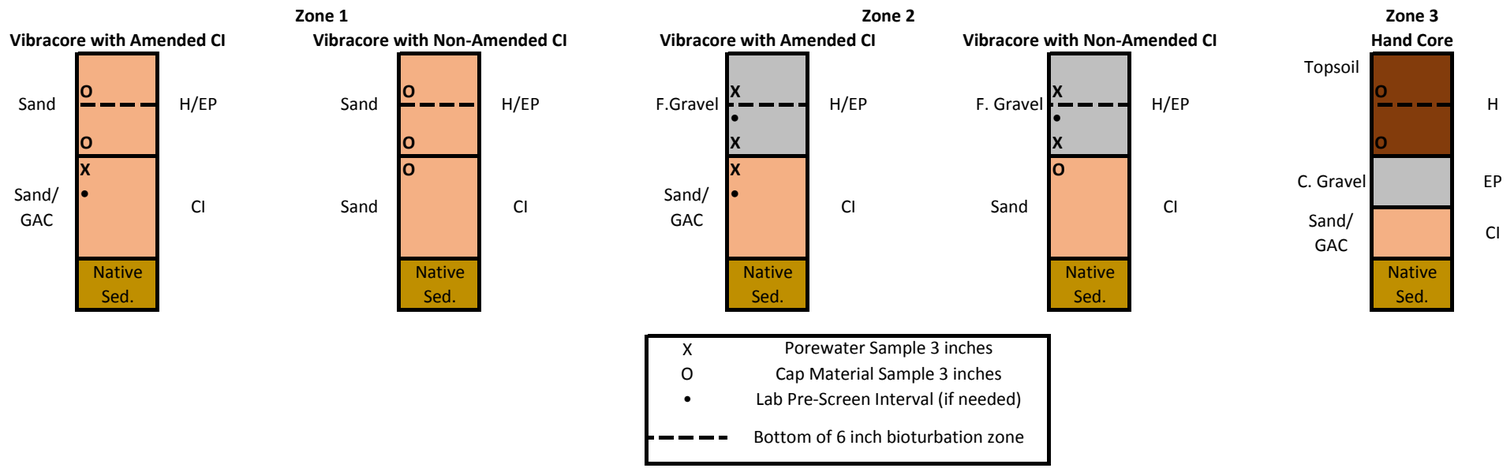


Table D.7
Remediation Area B Comprehensive Sample Collection and Analytical Summary

Cap Model Area	Water Depth	Number of Sample Locations	Collection Method	Compliance Sample (Habitat/Erosion Protection Layer)												Supporting Sample (Chemical Isolation)									
				Solid Phase Analysis[1]							Porewater Analysis[1]					Solid Phase Analysis[1]						Porewater Analysis[1]			
				Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	TOC	Mercury	VOCs[2]	LPAHs[3]	pH		Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	Mercury	VOCs[2]	LPAHs[3]	pH
RA-B-1A (Model Area B2)	Zone 1 10-30 ft	2	Vibracore[5] (Amended CI)	O	O	O	O	O	O	O												X	X	X	X
RA-B-1B (Model Area B2)[6]	Zone 1 10-30 ft	1	Vibracore[5] (Amended CI)	O	O	O	O	O	O	O															
B2	Zone 1 10-30 ft	1	Vibracore (Amended CI)	O	O	O	O	O	O	O												X	X	X	X
RA-B-1C (Model Area B1)	Zone1 20-30 ft	2	MPC Mono Layer[5] Gravity Core	O								X	X	X											
RA-B-1C (Model Area B1)	Zone 1 10-20 ft	1	MPC Mono Layer[5] Gravity Core	O								X	X	X											
RA-B-1C	Zone 2 4-10 ft	1	Vibracore (Amended CI)								X	X	X	X								X	X	X	X
RA-B-1D (Model Area B1)	Zone 1 20-30 ft	1	MPC Mono Layer[5] Gravity Core	O								X	X	X											
RA-B-1D (Model Area B1)	Zone 1 10-20 ft	1	MPC Mono Layer[5] Gravity Core	O			O		O			X	X	X											
RA-B-1E (Model Arae B1/C1)	Zone 1 10-30 ft	1	Vibracore[5] (Amended CI)	O	O	O	O	O	O	O												X	X	X	X
RA-B-1E (Model Area B1/C1)	Zone2 4-10 ft	1	Vibracore[5] (Amended CI)								X	X	X	X								X	X	X	X
B1/C1	Zone 1 10-30 ft	1	Vibracore (Amended CI)	O	O	O	O	O	O	O												X	X	X	X
B1/C1	Zone 3 0-4 ft	3	Peeper[7]								X	X	X[7]	X								X	X		X
WB 1-8 Connected Wetland	Zone 3 NA	3	Hand Core	O	O	O	O	O	O	O															

Notes:
1. Black font designates indicator chemical group analyses and red font designates additional chemical group analyses.
2. Naphthalene is included as a VOC.
3. LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene, and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience.
4. HPAHs include the remaining PAHs included in the development of the Mean PECQ.
5. See Section 5.2.4 for specific details regarding mono-layer and multi-layer MPC cap sampling.
6. Supporting samples not collected since the chemical isolation layer is less than 6 inches thick.
7. HPAHs and PCBs are not being collected due to volume limitations with the peeper collection method. LPAH samples will be collected from OL-RAB-CAP-0012B only. Sample location count of 3 counts peepers 0012A and 0012B as 1 location. See Figure D.19 for details.

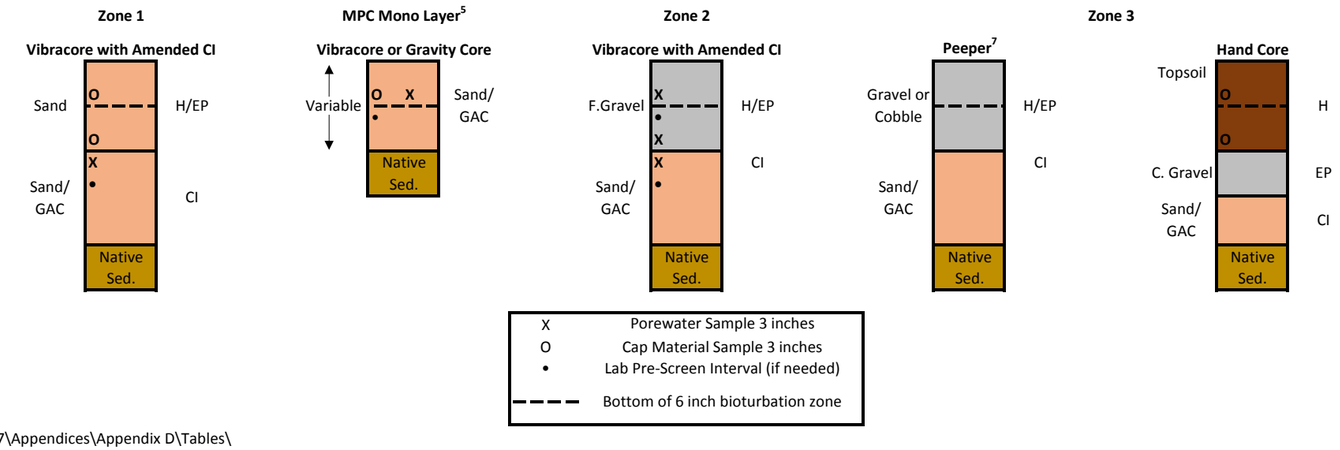


Table D.8
Remediation Area C Comprehensive Sample Collection and Analytical Summary

Cap Model Area	Water Depth	Number of Sample Locations	Collection Method	Compliance Sample (Habitat/Erosion Protection Layer)												Supporting Sample (Chemical Isolation)								
				Solid Phase Analysis[1]							Porewater Analysis[1]					Solid Phase Analysis[1]					Porewater Analysis[1]			
				Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	TOC	Mercury	VOCs[2]	LPAHs[3]	pH		Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	Mercury	VOCs[2]	LPAHs[3]	pH
B1/C1	Zone 1 10-30 ft	1	Vibracore (Amended Cl)	O	O	O	O	O	O	O											X	X	X	X
B1/C1	Zone 2 4-10 ft	1	Vibracore (Amended Cl)								X	X	X	X							X	X	X	X
C2	Zone 1 10-30 ft	2	Vibracore (Amended Cl)	O	O	O	O	O	O	O											X	X	X	X
RA-C-2A (Model Area C2)[6]	Zone 1 10-30 ft	2	Vibracore[5] (Amended Cl)	O	O	O	O	O	O	O														
RA-C-2A (Model Area C2)[6]	Zone 2 4-10 ft	1	Vibracore[5] (Amended Cl)								X	X	X	X										
RA-C-2B (Model Area C2)	Zone 1 10-30 ft	2	MPC Mono Layer[5] Gravity Core	O								X	X	X										
RA-C-2C (Model Area C2)	Zone 1 10-30 ft	2	MPC Mono Layer[5] Gravity Core	O			O		O			X	X	X										
RA-C-2D (Model Area C2)	Zone 2 4-10 ft	2	MPC Mono Layer[5] Gravity Core	O								X	X	X										
RA-C-1C (Model Area C3)	Zone 1 10-30 ft	1	MPC Mono Layer[5] Gravity Core	O								X	X	X										
RA-C-1B (Model Area C3)	Zone 1 10-30 ft	2	MPC Mono Layer[5] Gravity Core	O								X	X	X										
RA-C-1A (Model Area C3)[6]	Zone 1 10-30 ft	2	Vibracore[5] (Amended Cl)	O	O	O	O	O	O	O														
RA-C-1D (Model Area C3)	Zone 1 10-30 ft	1	MPC Mono Layer[5] Gravity Core	O			O		O			X	X	X										
C3	Zone 1 10-30 ft	3	Vibracore (Amended Cl)	O	O	O	O	O	O	O											X	X	X	X
C3	Zone 2 4-10 ft	1	Vibracore (Amended Cl)								X	X	X	X							X	X	X	X
RA-C TLC (inc. Transition Zone and SMU 8 Direct GAC Application Areas)	SMU 8 >30 ft	7	Gravity Core[7]	O	O	O	O	O	O	O														

Notes:
1. Black font designates indicator chemical group analyses and red font designates additional chemical group analyses.
2. Naphthalene is included as a VOC.
3. LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene, and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience.
4. HPAHs include the remaining PAHs included in the development of the Mean PECQ.
5. See Section 5.2.4 for specific details regarding mono-layer and multi-layer MPC cap sampling.
6. Supporting samples not collected since the chemical isolation layer is less than 6 inches thick.
7. Sample intervals in SMU 8 will be:
   a. Unamended TLC: 0 to 4 cm and 4 to 10 cm
   b. Amended TLC and Transition Zone: 0 to 4 cm
   c. GAC Direct Application Areas: 0 to 4 cm.
   d. Samples will not be collected in SMU 8 amended TLC and Direct Application areas until sediment cores show a minimum thickness of sand and overlying settled sediments of 4 inches. A minimum of 3 attempts will be made, See Section 5.2.5 for details.

X	Porewater Sample 3 inches
O	Cap Material Sample 3 inches
•	Lab Pre-Screen Interval (if needed)
- - -	Bottom of 6 inch bioturbation zone

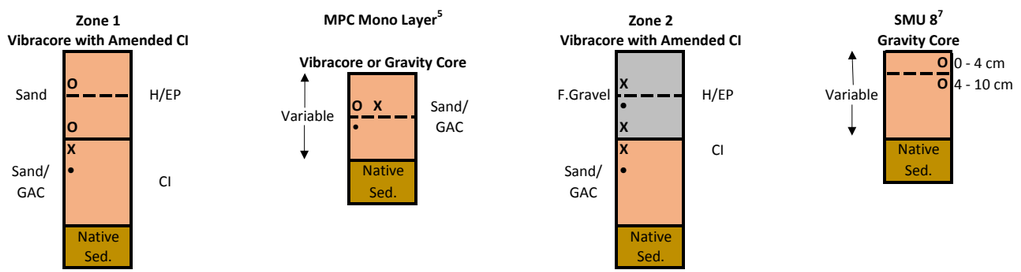


Table D.9
Remediation Area D Comprehensive Sample Collection and Analytical Summary

Cap Model Area	Water Depth	Number of Sample Locations	Collection Method	Compliance Sample (Habitat/Erosion Protection Layer)											Supporting Sample (Chemical Isolation)								
				Solid Phase Analysis[1]							Porewater Analysis[1]				Solid Phase Analysis[1]					Porewater Analysis[1]			
				Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	TOC	Mercury	VOCs[2]	LPAHs[3]	pH	Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	Mercury	VOCs[2]	LPAHs[3]	pH
D-SMU-2	Zone 1 10-30 ft	4	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
RA-D-2	Zone 1 10-30 ft	2	Vibracore (Amended Cl)	O	O	O	O	O	O	O													
D-West	Zone 1 10-30 ft	3	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
D-West	Zone 2 4-7 ft Sample Port	1	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
RA-D-1A	Zone 1 10-30 ft	3	Vibracore[5] (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
RA-D-1B	Zone 1 10-30 ft	2	MPC Mono Layer[5] Gravity Core	O								X	X	X									
D-Center	Zone1 10-30 ft	2	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
D-Center	Zone 2 4-10 ft Sample Port	5	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
D-Center	Zone 2 4-7 ft	2	Vibracore (Amended Cl)								X	X	X	X						X	X	X	X
D-East	Zone 1 10-30 ft	9	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
D-East	Zone 2 7-10 ft	1	Vibracore (Amended Cl)								X	X	X	X						X	X	X	X
D-Addendum East	Zone 1 10-30 ft	1	Vibracore (Amended Cl)	O	O	O	O	O	O	O										X	X	X	X
Outboard West	Zone 3 NA	3	Hand Core	O	O	O	O	O	O	O													
Outboard Center	Zone 3 NA	3	Hand Core	O	O	O	O	O	O	O													
Outboard East	Zone 3 NA	5	Hand Core	O	O	O	O		O	O													
RA-D TLC	SMU 8 >30 ft	13	Gravity Core[6]	O	O	O	O	O[7]	O	O													

Notes:
1. Black font designates indicator chemical group analyses and red font designates additional chemical group analyses.
2. Naphthalene is included as a VOC.
3. LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene, and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience.
4. HPAHs include the remaining PAHs included in the development of the Mean PECQ.
5. See Section 5.2.4 for specific details regarding mono-layer and MPC multi-layer cap sampling.
6. Sample intervals in SMU 8 will be:
   a. Unamended TLC: 0 to 4 cm and 4 to 10 cm
   b. Amended TLC: 0 to 4 cm
7. Amended TLC only.

X Porewater Sample 3 inches
O Cap Material Sample 3 inches
• Lab Pre-Screen Interval (if needed)
Bottom of 6 inch bioturbation zone

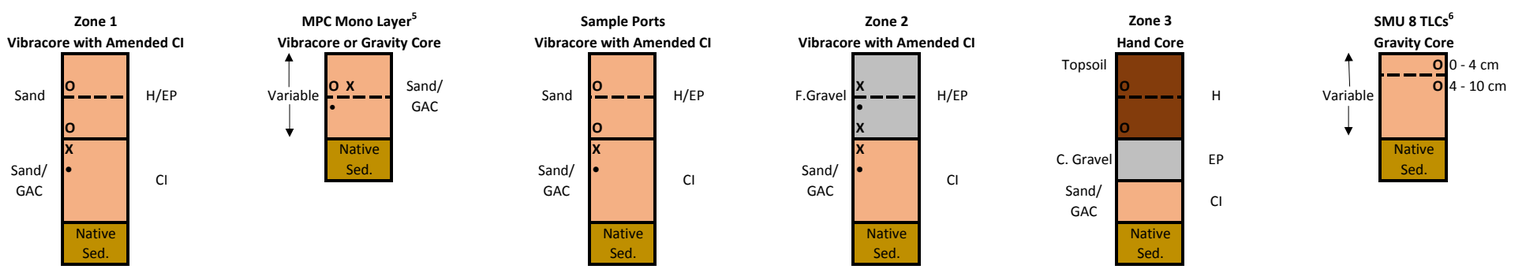


Table D.10
Remediation Area E Comprehensive Sample Collection and Analytical Summary

Cap Model Area	Water Depth	Number of Sample Locations	Collection Method	Compliance Sample (Habitat/erosion Protection Layer)												Supporting Sample (Chemical Isolation)									
				Solid Phase Analysis[1]							Porewater Analysis[1]					Solid Phase Analysis[1]						Porewater Analysis[1]			
				Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	TOC	Mercury	VOCs[2]	LPAHs[3]	pH		Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	Mercury	VOCs[2]	LPAHs[3]	pH
E-1 (B)	Zone 1 20-30 ft	3	Vibracore (Non-Amended Cl)	O	O	O	O		O	O						O									
E-1 (B)	Zone 2 10-20 ft	3	Vibracore (Non-Amended Cl)								X	X	X			O			O		O				
E-1 (A)	Zone 3 2-7 ft	3	Peepers[5]								X	X	X									X	X		
E-2	Zone 1 20-30 ft	2	Vibracore (Amended Cl)	O	O	O	O		O	O												X	X	X	
E-2	Zone 2 10-20 ft	2	Vibracore (Amended Cl)								X	X	X									X	X	X	
E-2	Zone 3 0-10 ft	4	Peepers[5]								X	X	X									X	X		
E-3	Zone 1 20-30 ft	3	Vibracore (Amended Cl)	O	O	O	O		O	O												X	X		
E-3	Zone 2 10-20 ft	4	Vibracore (Amended Cl)								X	X	X									X	X		
E-3	Zone 3 3-7 ft	2	Peepers[5]								X	X	X									X	X		
MERC E1	3-7 ft	1	Vibracore or Gravity Core[6]	O								X	X												
MERC E2	10-20 ft	1	Vibrcore or Gravity Core[6]	O								X	X												
MERC E3	3-7 ft	1	Vibracore or Gravity Core[6]	O								X	X												
TLC	SMU 8 >30 ft	5	Gravity Core[7]	O	O	O	O		O	O															

Notes:
1. Black font designates indicator chemical group analyses and red font designates additional chemical group analyses.
2. Naphthalene is included as a VOC.
3. LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene, and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience.
4. HPAHs include the remaining PAHs included in the development of the Mean PECQ.
5. HPAHs and PCBs (additional chemical group) are not included due to volume limitations with the peeper collection method. See Figure D.19 for details.
6. See Section 5.2.4 for specific details regarding MERC sampling.
7. Sample intervals in SMU 8 will be 0 to 4 cm and 4 to 10 cm.

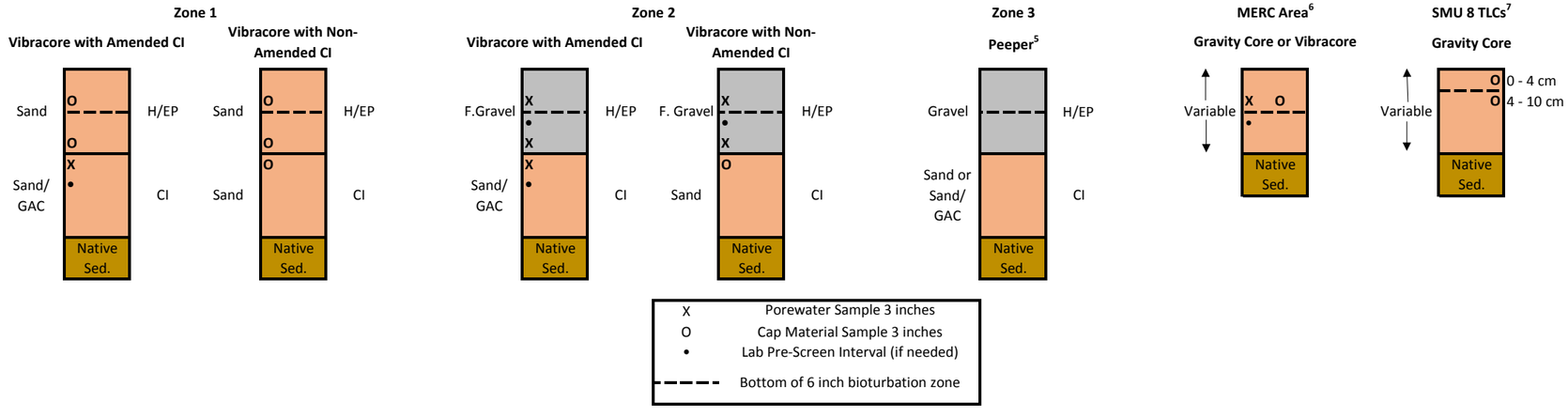


Table D.11
Remediation Area F Comprehensive Sample Collection and Analytical Summary

Cap Model Area	Water Depth	Number of Sample Locations	Collection Method	Compliance Sample (Habitat/Erosion Protection Layer)											Supporting Sample (Chemical Isolation Layer)									
				Solid Phase Analysis							Porewater Analysis				Solid Phase Analysis						Porewater Analysis			
				Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	TOC	Mercury	VOCs[2]	LPAHs[3]	pH	Mercury	VOCs[2]	LPAHs[3]	HPAHs[4]	pH	PCBs	Mercury	VOCs[2]	LPAHs[3]	pH
F	Zone 1 7-30 ft	2	Vibracore (Non-Amended CI)	O	O	O	O		O	O					O									

Notes:
1. Black font designates indicator chemical group analyses and red font designates additional chemical group analyses.
2. Naphthalene is included as a VOC.
3. LPAHs include fluorene, phenanthrene, acenaphthene, acenaphthylene, and anthracene. Phenol is not a PAH but is included in the LPAH indicator and additional chemical group for convenience.
4. HPAHs include the remaining PAHs included in the development of the Mean PECQ.

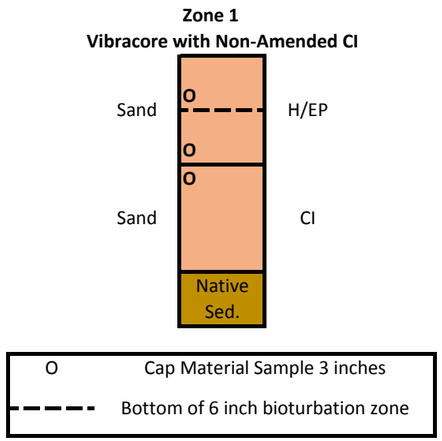


TABLE D.12
CHEMICAL/CAP MATERIAL PARTITIONING COEFFICIENTS

Chemical	log Koc (log L/kg)[1]
Benzene	1.69
Chlorobenzene	2.27
Dichlorobenzenes	2.64
Ethylbenzene	2.59
Naphthalene	2.47
Phenol	2.00
Toluene	2.18
Xylenes	2.53
Trichlorobenzenes	3.05
PCBs	6.14
Fluorene	4.18
Phenanthrene	4.45
Acenaphthene	4.33
Acenaphthylene	3.94
Anthracene	4.45
Pyrene	5.32
Benzo(a)anthracene	5.61
Benzo(b)fluoranthene	6.04
Benzo(k)fluoranthene	6.04
Chrysene	6.04
Fluoranthene	5.19
Benzo(a)pyrene	6.04
Dibenz(a,h)anthracene	6.70
Indeno(1,2,3-cd)pyrene	6.04
Benzo(g,h,i)perylene	6.70
Mercury (Model Area A-1)	3.3
Mercury (Model Area A-2)	2.8
Mercury (Remedial Areas B, C, D and Wetlands Associated w/ WB 1-8, OB West and OB Center)	3.1
Mercury (OB East Wetlands)	4.0
Mercury (Model Area E-1)	3.3
Mercury (Model Area E-2)	3.8
Mercury (Model Area E-3)	3.2

[1] Log Kd presented for Mercury

FIGURES

Cap Model Area A1

0 to 3 ft of water (Cap A)

- Habitat Topsoil 12" min
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3" min

3 to 7 ft of water (Cap B)

- Habitat Fine Gravel 18" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3" min

7 to 10 ft of water (Cap C)

- Habitat Fine Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3" min

10 to 20 ft of water (Cap D)

- Habitat Medium Sand 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3" min

20 to 30 ft of water (Cap E)

- Habitat Medium Sand 12" min
- Chemical Isolation Medium Sand 6" min
- Mixing Medium Sand 3" min

Cap Model Area A2

0 to 3 ft of water (Cap F)

- Habitat Topsoil 12" min
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Nine Mile Spits (Cap U)

- Habitat Topsoil 19.5" min
- Erosion Protection Coarse Gravel 4.5" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Mouth of Nine Mile (Cap I)

- Habitat Coarse Gravel 18" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

3 to 10 ft of water (Cap H)

- Habitat Fine Gravel 18" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

10 to 20 ft of water (Cap J)

- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Note: Cross-Section Profiles Are Not To Scale

N

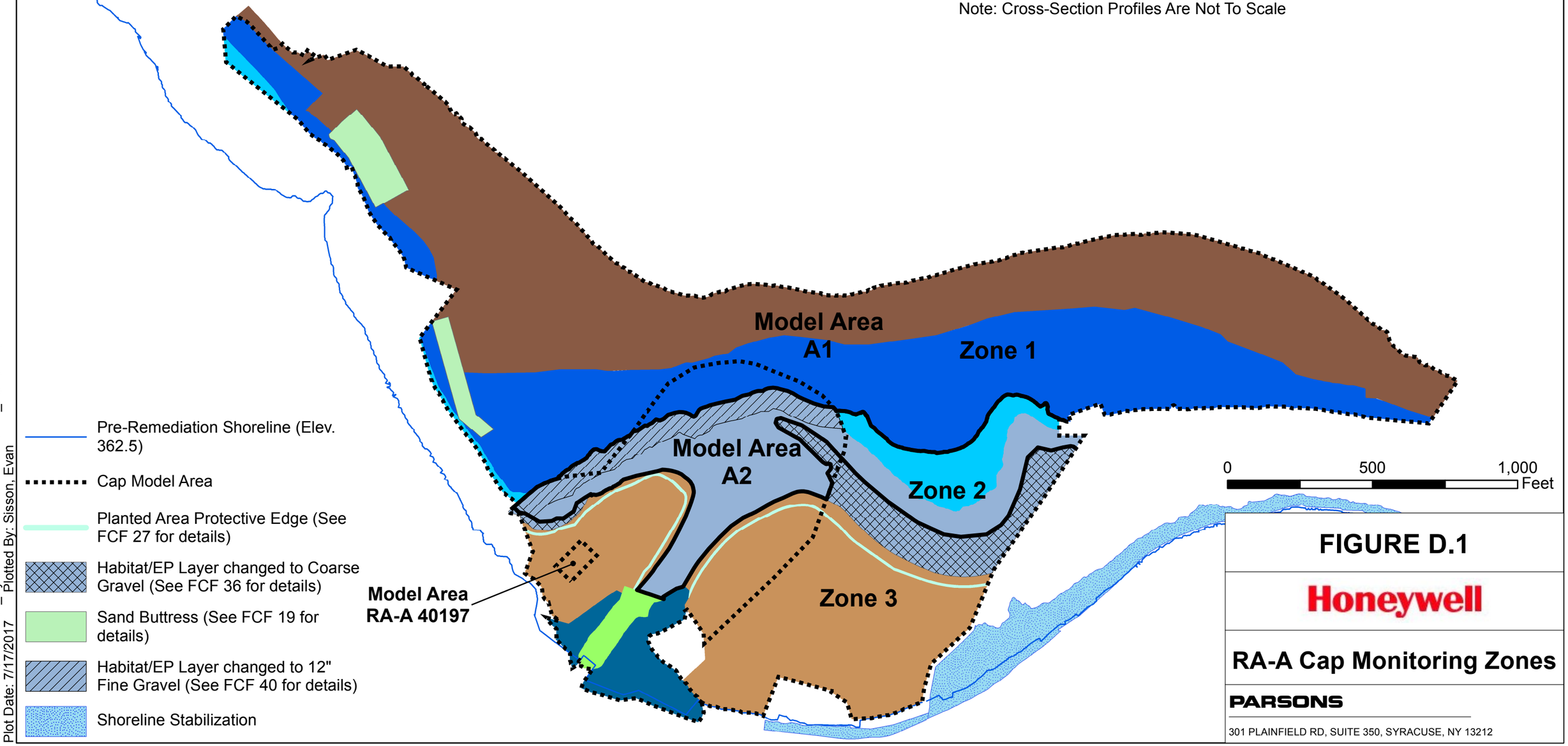


FIGURE D.1

Honeywell

RA-A Cap Monitoring Zones

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

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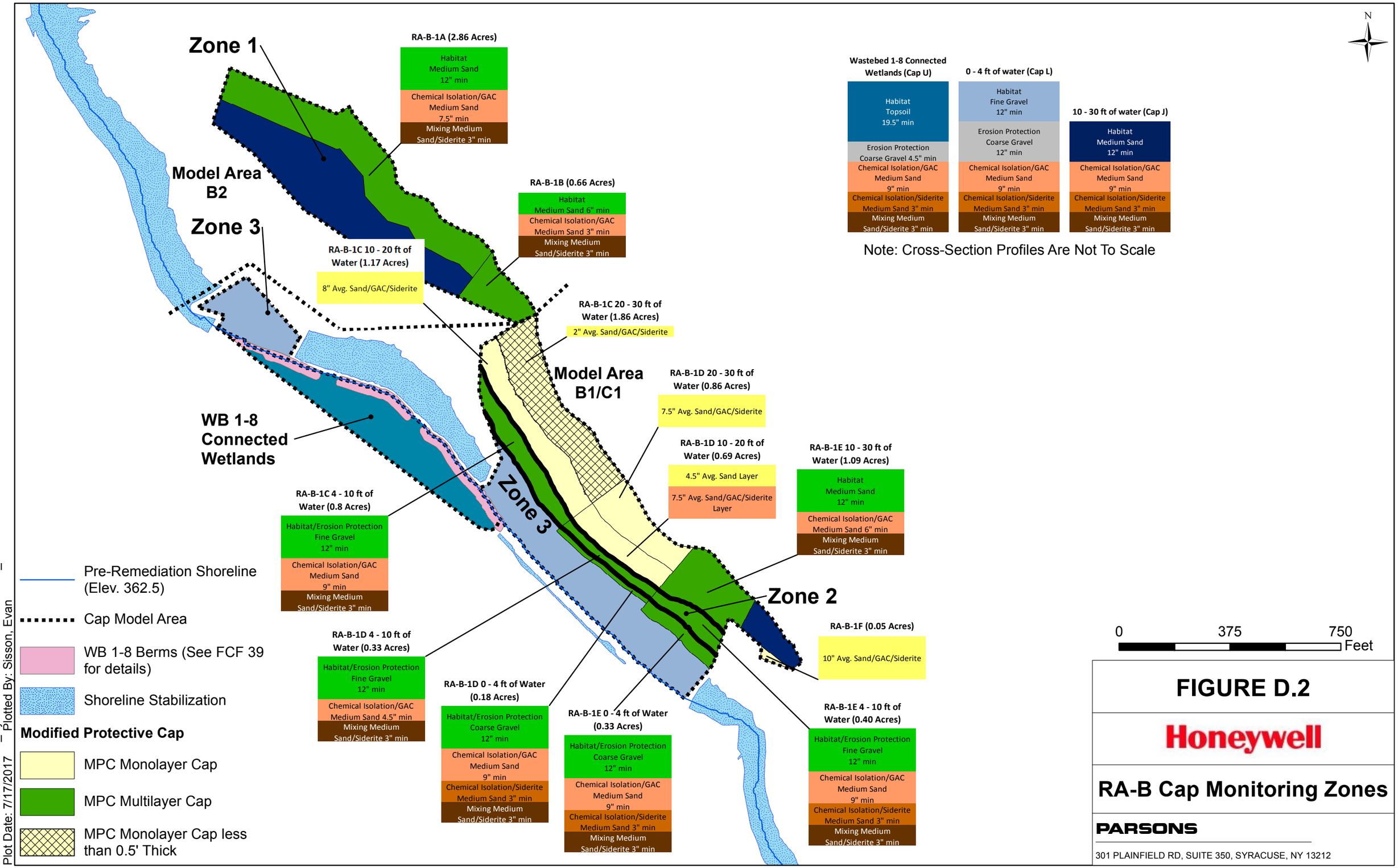
Plot Date: 7/17/2017 Plotted By: Sisson, Evan



Note: Cross-Section Profiles Are Not To Scale

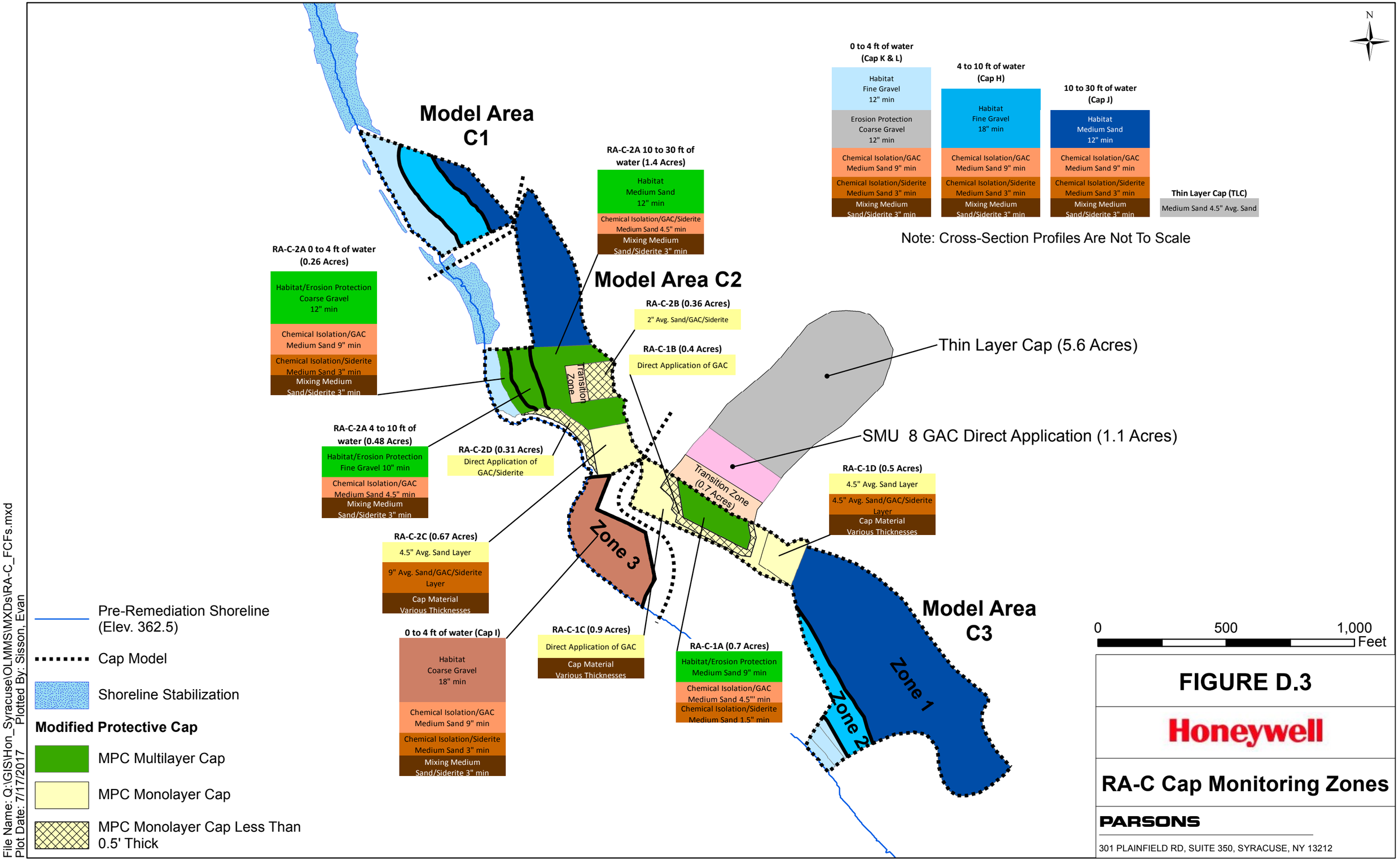
FIGURE D.2

Honeywell

RA-B Cap Monitoring Zones

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-B_FCFs.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan


N
0 to 4 ft of water (Cap K & L)
Habitat Fine Gravel 12" min
Erosion Protection Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
4 to 10 ft of water (Cap H)
Habitat Fine Gravel 18" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
10 to 30 ft of water (Cap J)
Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
Thin Layer Cap (TLC)
Medium Sand 4.5" Avg. Sand
Note: Cross-Section Profiles Are Not To Scale
Model Area C1
Model Area C2
Model Area C3
RA-C-2A 10 to 30 ft of water (1.4 Acres)
Habitat Medium Sand 12" min
Chemical Isolation/GAC/Siderite Medium Sand 4.5" min
Mixing Medium Sand/Siderite 3" min
RA-C-2A 0 to 4 ft of water (0.26 Acres)
Habitat/Erosion Protection Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
RA-C-2B (0.36 Acres)
2" Avg. Sand/GAC/Siderite
RA-C-1B (0.4 Acres)
Direct Application of GAC
Transition Zone
Thin Layer Cap (5.6 Acres)
SMU 8 GAC Direct Application (1.1 Acres)
RA-C-2A 4 to 10 ft of water (0.48 Acres)
Habitat/Erosion Protection Fine Gravel 10" min
Chemical Isolation/GAC Medium Sand 4.5" min
Mixing Medium Sand/Siderite 3" min
RA-C-2D (0.31 Acres)
Direct Application of GAC/Siderite
Transition Zone (0.7 Acres)
RA-C-1D (0.5 Acres)
4.5" Avg. Sand Layer
4.5" Avg. Sand/GAC/Siderite Layer
Cap Material Various Thicknesses
RA-C-2C (0.67 Acres)
4.5" Avg. Sand Layer
9" Avg. Sand/GAC/Siderite Layer
Cap Material Various Thicknesses
Zone 3
Zone 1
Zone 2
0 to 4 ft of water (Cap I)
Habitat Coarse Gravel 18" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
RA-C-1C (0.9 Acres)
Direct Application of GAC
Cap Material Various Thicknesses
RA-C-1A (0.7 Acres)
Habitat/Erosion Protection Medium Sand 9" min
Chemical Isolation/GAC Medium Sand 4.5"' min
Chemical Isolation/Siderite Medium Sand 1.5" min
Pre-Remediation Shoreline (Elev. 362.5)
Cap Model
Shoreline Stabilization
Modified Protective Cap
MPC Multilayer Cap
MPC Monolayer Cap
MPC Monolayer Cap Less Than 0.5' Thick
0
500
1,000
Feet
FIGURE D.3
Honeywell
RA-C Cap Monitoring Zones
PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212
File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-C_FCFs.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

N

Outboard West & Center (Cap U)

Habitat
Topsoil
19.5" min

Erosion Protection
Coarse Gravel 4.5" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

Outboard East (Cap T)

Habitat
Topsoil
19.5" min

Erosion Protection
Coarse Gravel 4.5" min

Chemical Isolation/GAC
Medium Sand 12" min

Mixing Medium Sand/GAC
3" min

0 to 4 ft of water (Cap F & G)

Habitat
Medium Sand
12" min

Erosion Protection/Habitat
Coarse Gravel
12" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

4 to 7 ft of water (Cap H)

Habitat
Fine Gravel
18" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

7 to 10 ft of water (Cap M)

Habitat
Fine Gravel
12" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

10 to 30 ft of water (Cap J)

Habitat
Medium Sand
12" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

Thin Layer Cap (TLC)

Medium Sand 2" min

Amended TLC

Sand/GAC Layer 4.5" Avg.

Note: Cross-Section Profiles Are Not To Scale

1 Extra Foot of Sand Placed Over Former Water Inlet Pipe Valve Structure

RA-D-1B (1.17 Acres)

4.5" Avg. Sand/GAC/Siderite

Amended TLC Area B
(9.3 Acres)

Amended TLC Area A
(7.5 Acres)

RA-D-1A (7.55 Acres)

Habitat
Medium Sand
12" min

Chemical Isolation/GAC
Medium Sand 6" min

Mixing Medium
Sand/Siderite 3" min

RA-D-1A

RA-D-1B

Model Area D-SMU-2

Addendum East

Model Area D-West

RA-D-2 (2.4 Acres)

Habitat
Medium Sand
10.5" min

Chemical Isolation/GAC
Medium Sand 4.5" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

Model Area D-Center

Model Area OL-VC-10138/40

Zone 1

Zone 2

Model Area Outboard West

Zone 3

Model Area D-East

Model Area Outboard Center

Model Area Outboard East

Cobble Armoring w/Topsoil on 5H:1V Slope Adjacent to Barrier Wall (See FCF 62 for details)

West Naturalized Shoreline (See FCF 57 for details)

East Naturalized Shoreline (See FCF 58 for details)

Berms (See FCF 62 for details)

25 ft Zone of Topsoil Habitat

Plateau Armored Edge (See FCF 62 for details)

Marine Mattress and Adjacent Sand Buttress (See FCF 63 for details)

Harbor Brook Channel

Pre-Remediation Shoreline (Elev. 362.5)

Cap Model

Modified Protective Cap

MPC Monolayer Cap Less Than 0.5' Thick

MPC Multilayer Cap

0 500 1,000 Feet

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-D_FCFs.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

FIGURE D.4

Honeywell

RA-D Cap Monitoring Zones

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

Cap Model Area E1

0 to 3 ft of Water (Cap N)
- Habitat Coarse Gravel 12" min
- Erosion Protection Gravelly Cobble 12" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

3 to 7 ft of Water (Cap O)
- Erosion Protection/Habitat Gravelly Cobble 18" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

7 to 10 ft of Water (Cap P)
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3"

10 to 20 ft of Water (Cap C)
- Erosion Protection/Habitat Fine Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3"

20 to 30 ft of water (Cap E)
- Habitat Medium Sand 12" min
- Chemical Isolation Medium Sand 6" min
- Mixing Medium Sand 3"

CRs & Nav Channel (Cap Q)
- Erosion Protection/Habitat Gravelly Cobble 12" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

MERC
- Gravelly Sand/GAC 6" Avg.

Thin Layer Cap (TLC)
- Medium Sand 2" min

Cap Model Areas E2 & E3

0 to 3 ft of Water (Cap NN)
- Habitat Coarse Gravel 12" min
- Erosion Protection Gravelly Cobble 12" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

3 to 7 ft of Water (Cap OO)
- Erosion Protection/Habitat Gravelly Cobble 18" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

7 to 10 ft of Water (Cap PP)
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"

10 to 20 ft of Water (Cap CC)
- Erosion Protection/Habitat Fine Gravel 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"

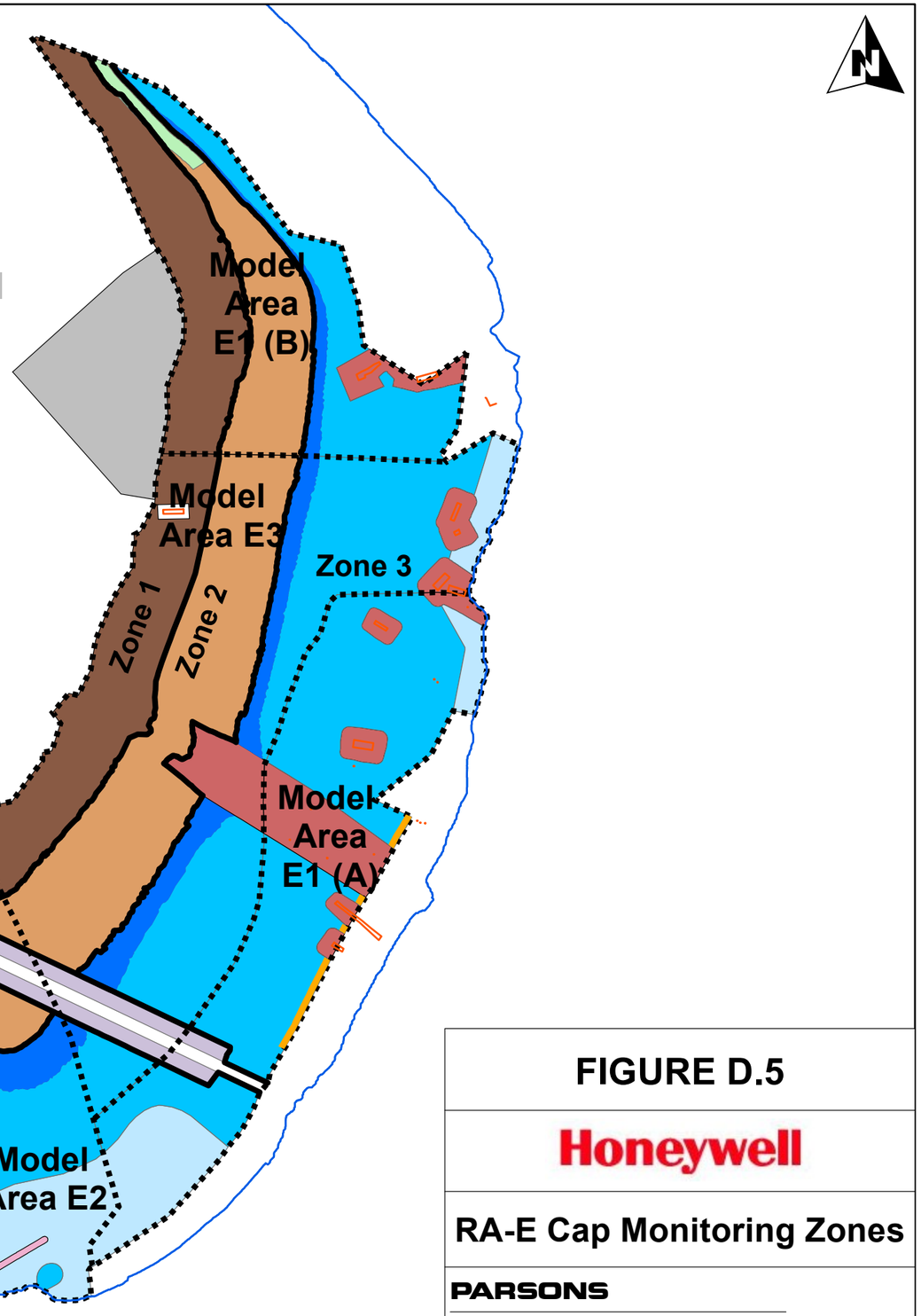
20 to 30 ft of water (Cap S)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 6" min
- Mixing Medium Sand/GAC 3"

CRs & Nav Channel (Cap QQ)
- Erosion Protection/Habitat Gravelly Cobble 12" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

MERC
- Gravelly Sand/GAC 6" Avg.

Note: Cross-Section Profiles Are Not To Scale

20 to 30 ft of water (Cap R)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"



- Cultural Resources
- Pre-Remediation Shoreline (Elev. 362.5)
- Cap Model Area
- Wave Dampers
- Berms (See FCF 62 for details)
- Sand Buttress (See FCF 48 for details)

0 1,000 2,000 Feet

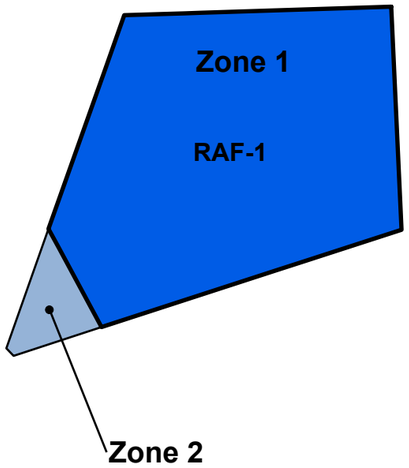
File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-E_FCFs.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

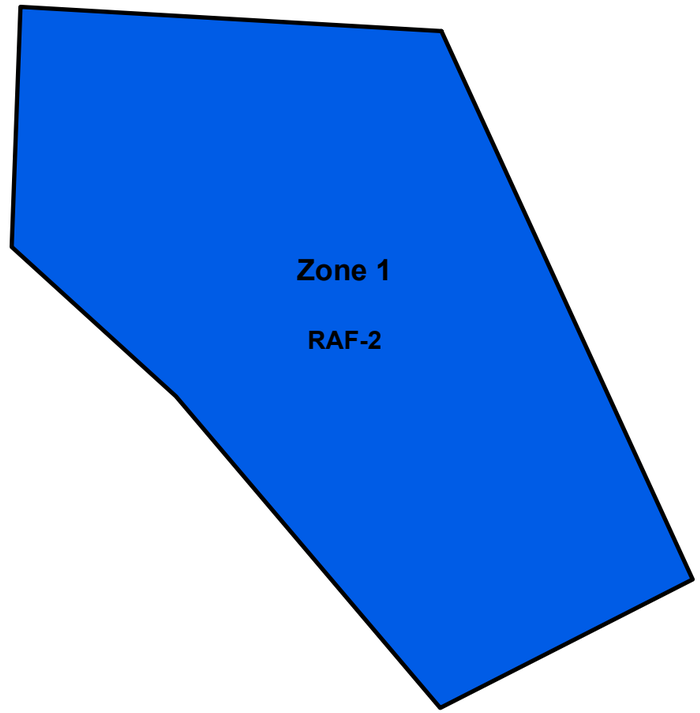
FIGURE D.5

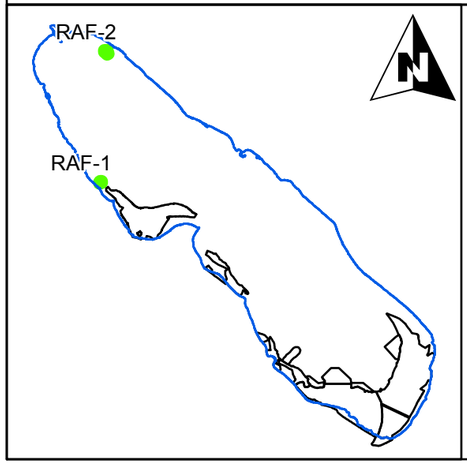
Honeywell

RA-E Cap Monitoring Zones

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212







7 to 30 ft of water (Cap D)

Habitat
Medium Sand
12" min

Chemical Isolation
Medium Sand
12" min

Mixing Medium Sand
3" min

3 to 7 ft of water (Cap B)

Habitat
Fine Gravel
18" min

Chemical Isolation
Medium Sand
12" min

Mixing Medium Sand
3" min

Note: Cross-Section Profiles
Are Not To Scale

0 50 100 Feet

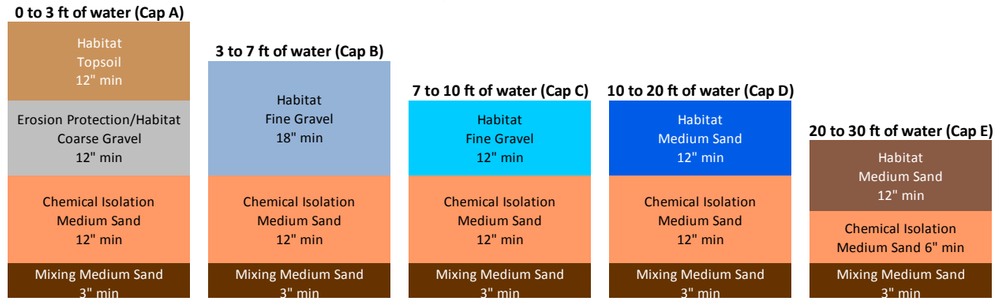
FIGURE D.6

Honeywell

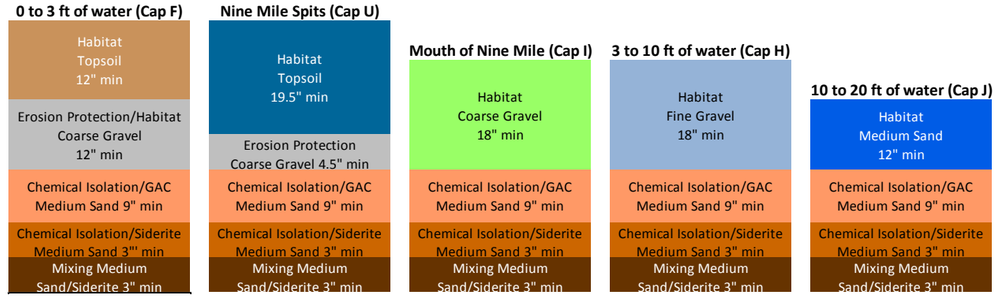
RA-F Monitoring Zones

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

Cap Model Area A1



Cap Model Area A2



Note: Cross-Section Profiles Are Not To Scale

N

Note:
Bathymetry Track Line Must Incorporate A Minimum Of 50' Of The Adjacent Uncapped Area In All Directions

- Bathymetry Track Lines
- Probing Transects
- Planted Area Protective Edge (See FCF 27 for details)
- Cap Model
- Habitat/EP Layer changed to Coarse Gravel (See FCF 36 for details)
- Sand Buttress (See FCF 19 for details)
- Habitat/EP Layer changed to 12" Fine Gravel (See FCF 40 for details)
- Pre-Remediation Shoreline (Elev. 362.5)
- Shoreline Stabilization

Model Area A1
Zone 1
Model Area A2
Zone 2
Zone 3
Model Area RA-A 40197

0 500 1,000 Feet

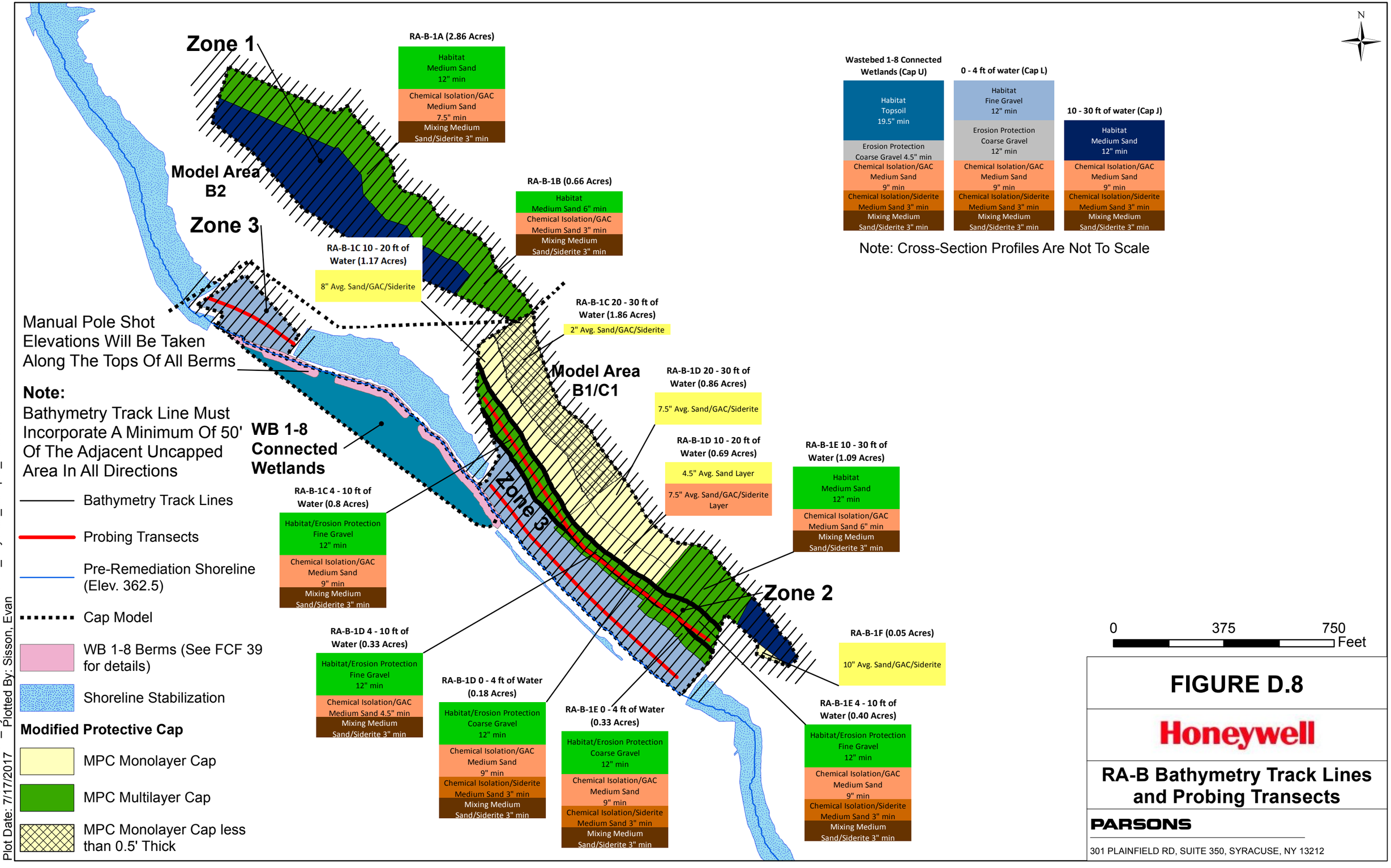
FIGURE D.7

Honeywell

RA-A Bathymetry Track Lines and Probing Transects

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-A_Physical_Sample_Locations.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan



Note: Cross-Section Profiles Are Not To Scale

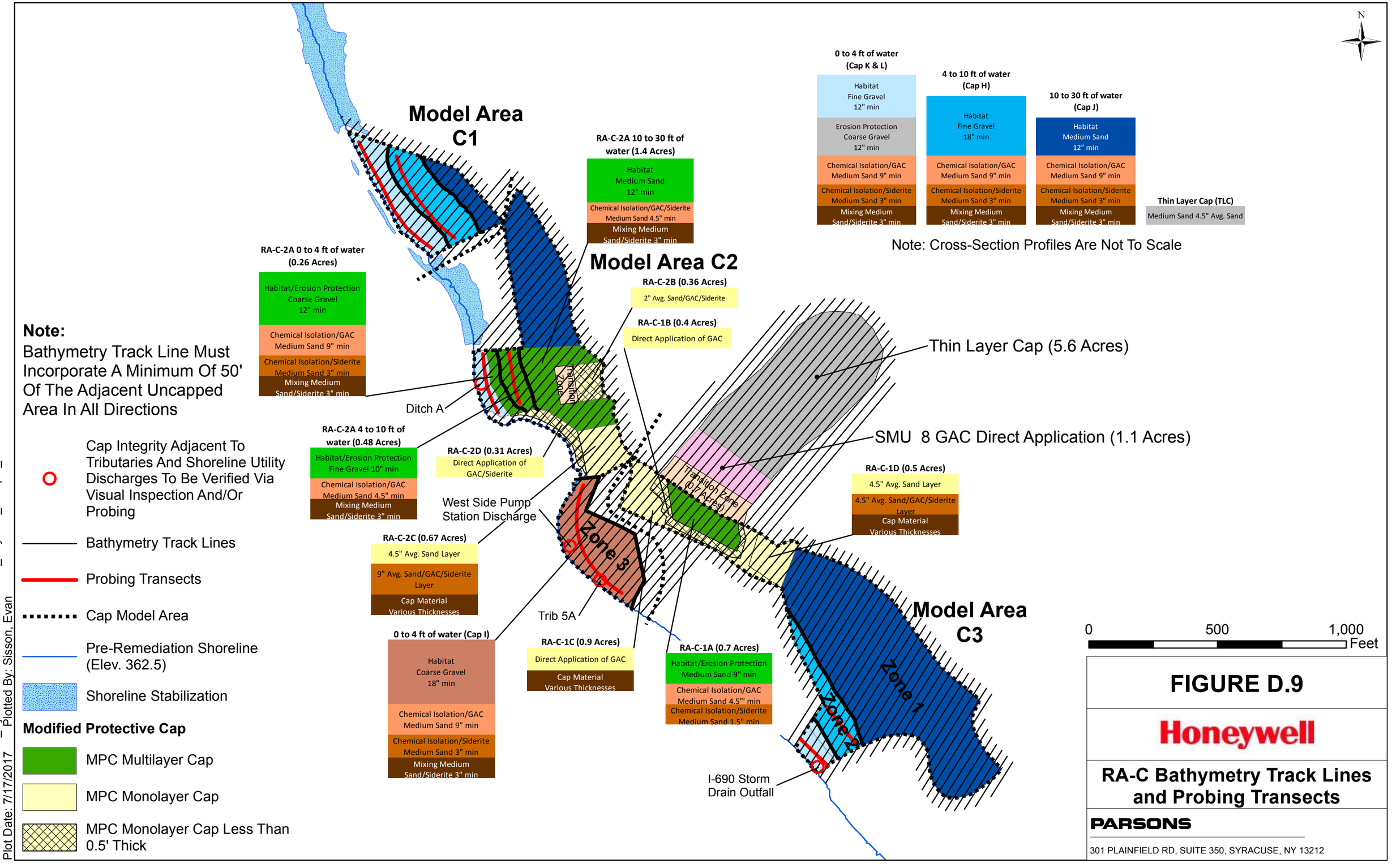
FIGURE D.8

Honeywell

RA-B Bathymetry Track Lines and Probing Transects

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-B_Physical_Sample_Locations.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan



Note:
Bathymetry Track Line Must Incorporate A Minimum Of 50' Of The Adjacent Uncapped Area In All Directions

- Cap Integrity Adjacent To Tributaries And Shoreline Utility Discharges To Be Verified Via Visual Inspection And/Or Probing
- Bathymetry Track Lines
- Probing Transects
- Cap Model Area
- Pre-Remediation Shoreline (Elev. 362.5)
- Shoreline Stabilization

Modified Protective Cap

- MPC Multilayer Cap
- MPC Monolayer Cap
- MPC Monolayer Cap Less Than 0.5' Thick

FIGURE D.9

Honeywell

RA-C Bathymetry Track Lines and Probing Transects

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-C_Physical_Sample_Locations.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

N

Outboard West & Center (Cap U)
- Habitat Topsoil 19.5" min
- Erosion Protection Coarse Gravel 4.5" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Outboard East (Cap T)
- Habitat Topsoil 19.5" min
- Erosion Protection Coarse Gravel 4.5" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3" min

0 to 4 ft of water (Cap F & G)
- Habitat Medium Sand 12" min
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

4 to 7 ft of water (Cap H)
- Habitat Fine Gravel 18" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

7 to 10 ft of water (Cap M)
- Habitat Fine Gravel 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

10 to 30 ft of water (Cap J)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Thin Layer Cap (TLC)
- Medium Sand 2" min

Amended TLC
- Sand/GAC Layer 4.5" Avg.

Note: Cross-Section Profiles Are Not To Scale

Model Area D-SMU-2

1 Extra Foot of Sand Placed Over Former Water Inlet Pipe Valve Structure

RA-D-1B (1.17 Acres)
- 4.5" Avg. Sand/GAC/Siderite

RA-D-1A (7.55 Acres)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 6" min
- Mixing Medium Sand/Siderite 3" min

RA-D-2 (2.4 Acres)
- Habitat Medium Sand 10.5" min
- Chemical Isolation/GAC Medium Sand 4.5" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Amended TLC Area B (9.3 Acres)

Amended TLC Area A (7.5 Acres)

RA-D-1A

RA-D-1B

Addendum East

Model Area D-West

Model Area D-Center

Model Area D-East

Zone 1

Zone 2

Zone 3

48" Stormwater Outlet

Model Area OL-VC-10138/40

Model Area Outboard West

Model Area Outboard Center

Model Area Outboard East

Manual Pole Shot Elevation Transects

Manual Pole Shot Elevations Will Be Taken Along The Tops Of All Berms

Note:
Bathymetry Track Line Must Incorporate A Minimum Of 50' Of The Adjacent Uncapped Area In All Directions

Cap Integrity Adjacent To Tributaries And Shoreline Utility Discharges To Be Verified Via Visual Inspection And/Or Probing

Cobble Armoring w/Topsoil on 5H:1V Slope Adjacent to Barrier Wall (See FCF 62 for details)

West Naturalized Shoreline (See FCF 57 for details)

East Naturalized Shoreline (See FCF 58 for details)

Berms (See FCF 62 for details)

25 ft Zone of Topsoil Habitat

Plateau Armored Edge (See FCF 62 for details)

Marine Mattress and Adjacent Sand Buttress (See FCF 63 for details)

- Bathymetry Track Lines
- Harbor Brook Channel
- Probing Transects
- Pre-Remediation Shoreline (Elev. 362.5)
- Cap Model

Modified Protective Cap
- MPC Monolayer Cap Less Than 0.5' Thick
- MPC Multilayer Cap

0 500 1,000 Feet

FIGURE D.10

Honeywell

RA-D Bathymetry Track Lines and Probing Transects

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-D_Physical_Sample_Locations.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

Cap Model Area E1

0 to 3 ft of Water (Cap N)
- Habitat Coarse Gravel 12" min
- Erosion Protection Gravelly Cobble 12" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

3 to 7 ft of Water (Cap O)
- Erosion Protection/Habitat Gravelly Cobble 18" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

7 to 10 ft of Water (Cap P)
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3"

10 to 20 ft of Water (Cap C)
- Erosion Protection/Habitat Fine Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3"

20 to 30 ft of water (Cap E)
- Habitat Medium Sand 12" min
- Chemical Isolation Medium Sand 6" min
- Mixing Medium Sand 3"

CRs & Nav Channel (Cap Q)
- Erosion Protection/Habitat Gravelly Cobble 12" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

MERC
- Gravelly Sand/GAC 6" Avg.

Thin Layer Cap (TLC)
- Medium Sand 2" min

Cap Model Areas E2 & E3

0 to 3 ft of Water (Cap NN)
- Habitat Coarse Gravel 12" min
- Erosion Protection Gravelly Cobble 12" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

3 to 7 ft of Water (Cap OO)
- Erosion Protection/Habitat Gravelly Cobble 18" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

7 to 10 ft of Water (Cap PP)
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"

10 to 20 ft of Water (Cap CC)
- Erosion Protection/Habitat Fine Gravel 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"

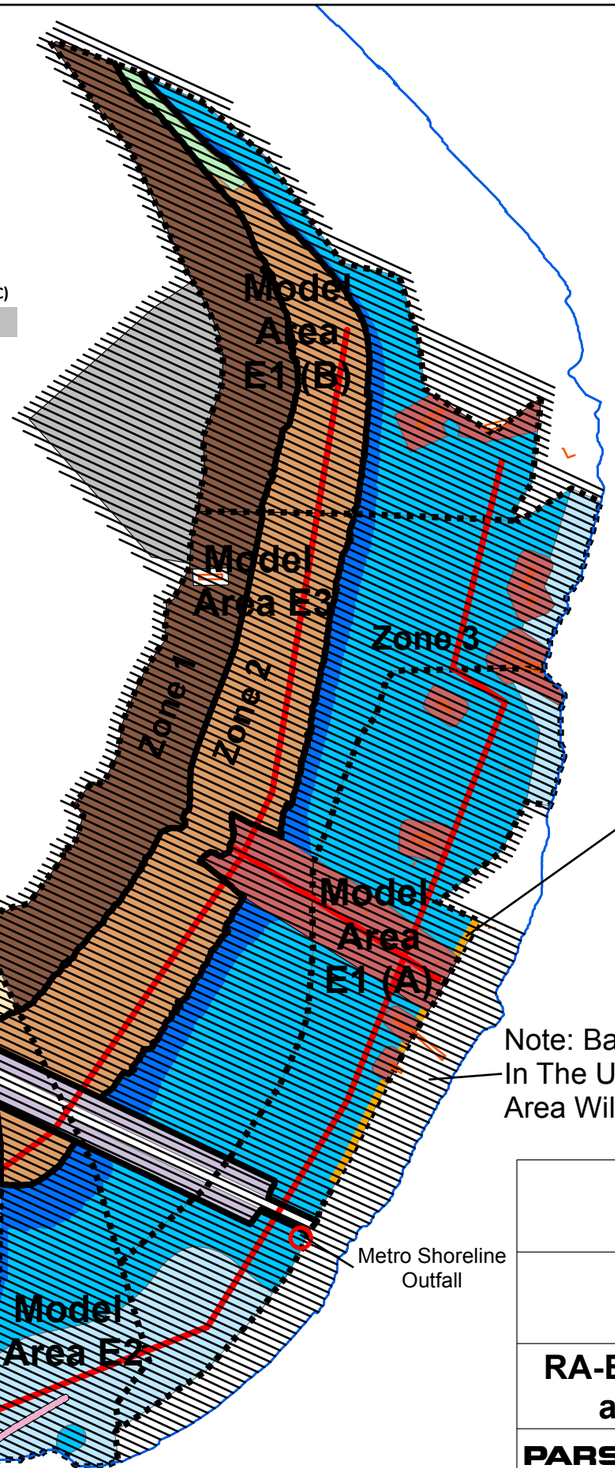
20 to 30 ft of water (Cap S)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 6" min
- Mixing Medium Sand/GAC 3"

CRs & Nav Channel (Cap QQ)
- Erosion Protection/Habitat Gravelly Cobble 12" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

MERC
- Gravelly Sand/GAC 6" Avg.

Note: Cross-Section Profiles Are Not To Scale

20 to 30 ft of water (Cap R)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"



Manual Pole Shot Elevations Will Be Taken Along The Tops Of All Wave Dampers

Note: Bathymetry Measurements In The Uncapped CSX Shoreline Area Will Be Collected In 2019 And 2024

Cap Integrity Adjacent To Tributaries And Shoreline Utility Discharges To Be Verified Via Visual Inspection And/Or Probing

Bathymetry Track Lines

Probing Transects

Cultural Resources

Pre-Remediation Shoreline (Elev. 362.5)

Cap Model Area

Wave Dampers

Berms (See FCF 62 for details)

Sand Buttress (See FCF 48 for details)

Note:
Bathymetry Track Line Must Incorporate A Minimum Of 50' Of The Adjacent Uncapped Area In All Directions

0 1,000 2,000 Feet

FIGURE D.11

Honeywell

RA-E Bathymetry Track Lines and Probing Transects

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

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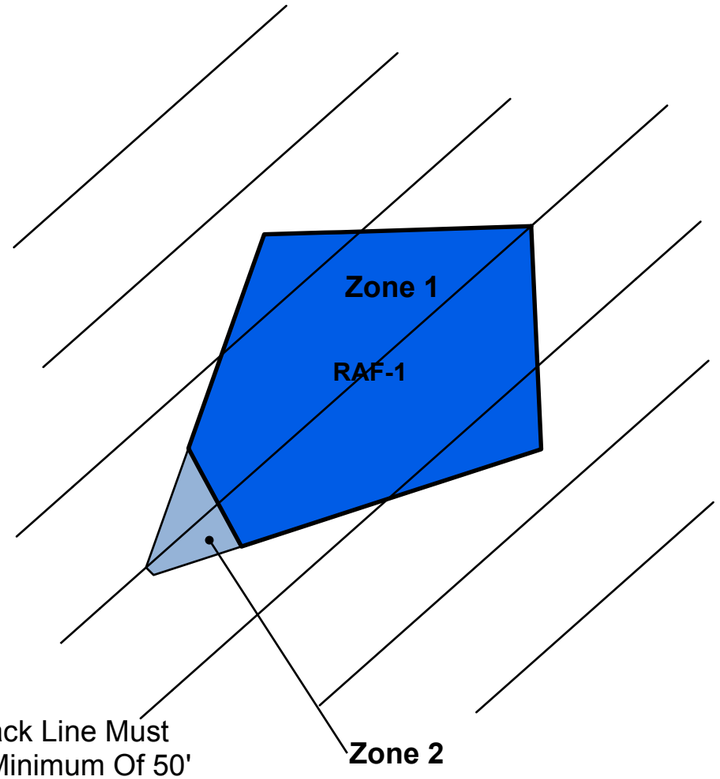
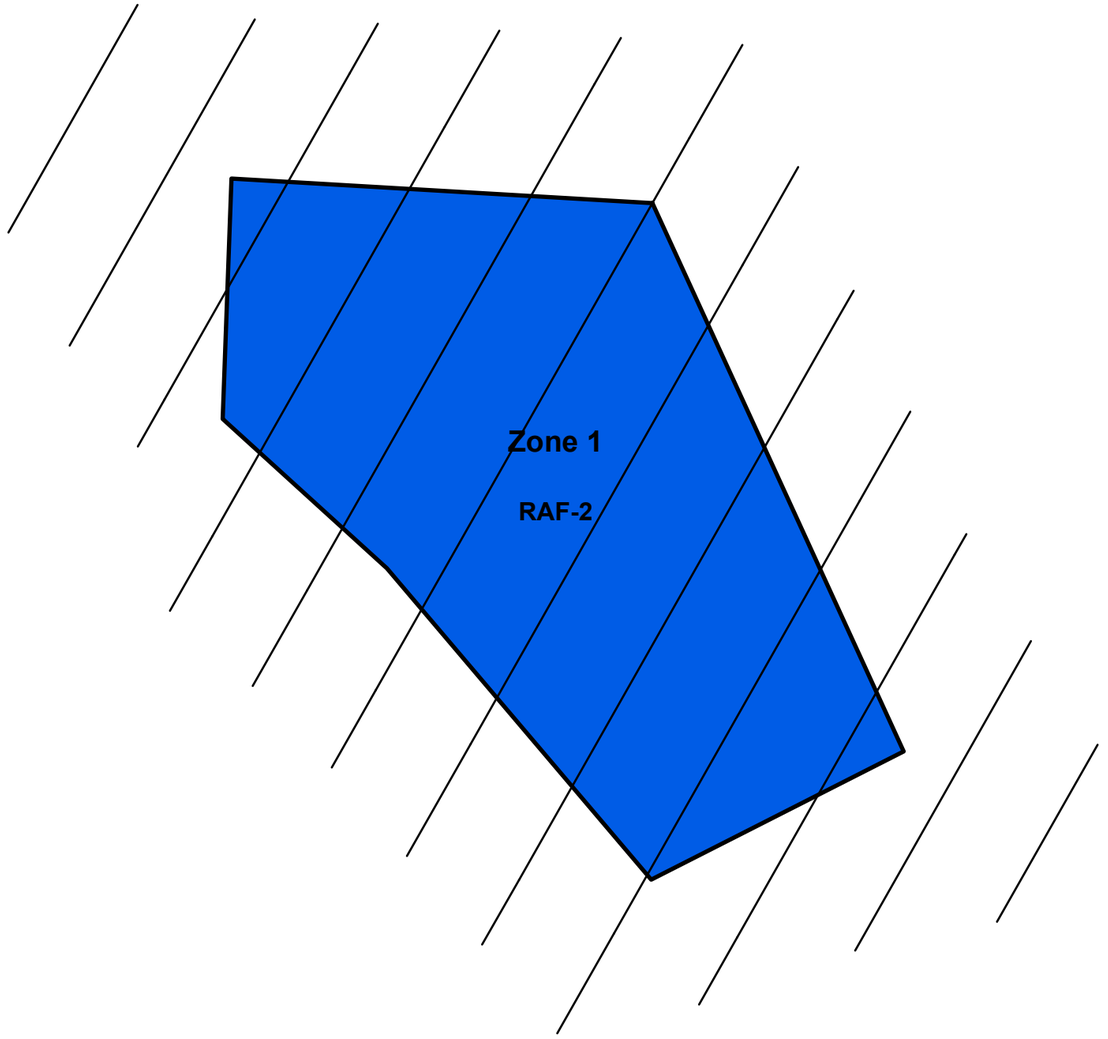
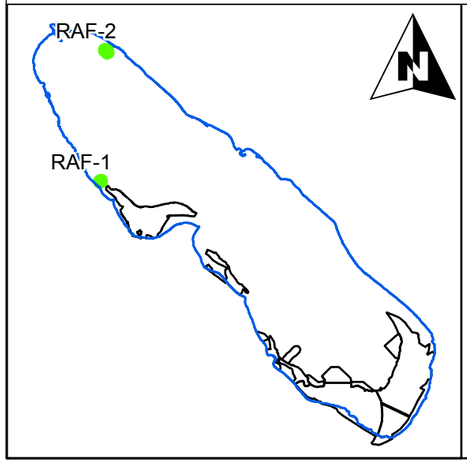
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

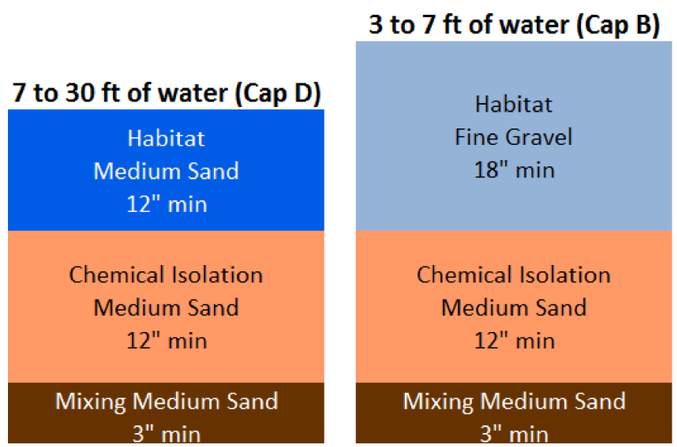


Note:
Bathymetry Track Line Must Incorporate A Minimum Of 50' Of The Adjacent Uncapped Area In All Directions

——— Bathymetry Track Lines







Note: Cross-Section Profiles Are Not To Scale

0 50 100 Feet

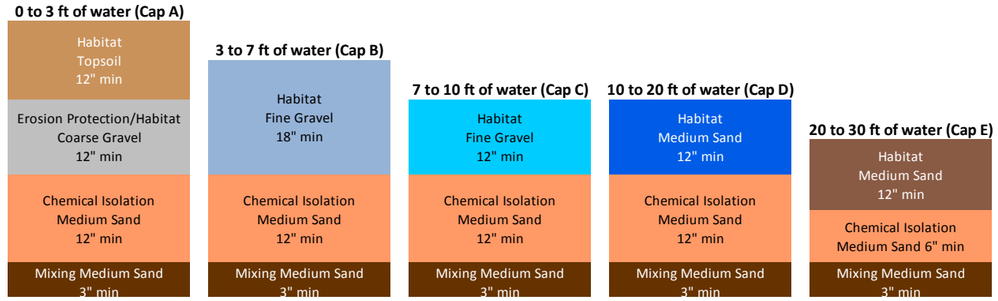
FIGURE D.12

Honeywell

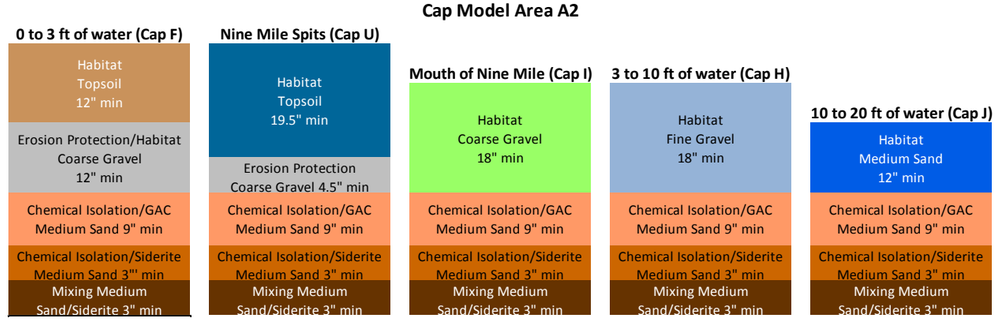
RA-F Bathymetry Track Lines

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

Cap Model Area A1



Cap Model Area A2



Note: Cross-Section Profiles Are Not To Scale

N

Sampling Legend
H - Habitat Layer Sample
CI - Chemical Isolation Layer Sample
M - Monolayer Cap Sample
PW-Peeper - Porewater Peeper Sample
PW-Centrifuge - Porewater Centrifuge Sample
PW-Core - Porewater Core Sample

- Core Sample Location
- Peeper Location
- Planted Area Protective Edge (See FCF 27 for details)
- Cap Model Area
- Habitat/EP Layer changed to Coarse Gravel (See FCF 36 for details)
- Sand Buttress (See FCF 19 for details)
- Habitat/EP Layer changed to 12" Fine Gravel (See FCF 40 for details)
- Pre-Remediation Shoreline (Elev. 362.5)
- Shoreline Stabilization

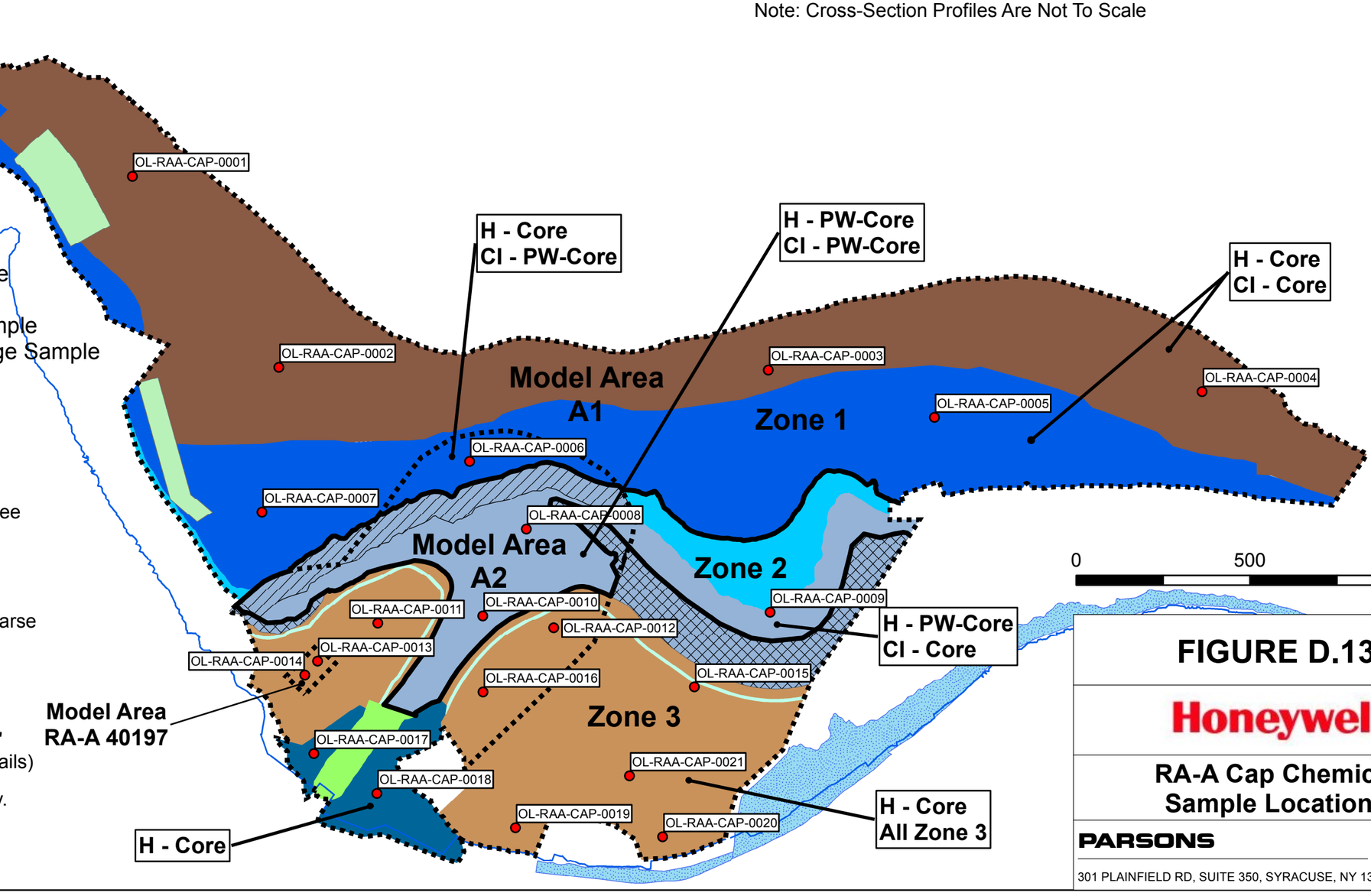


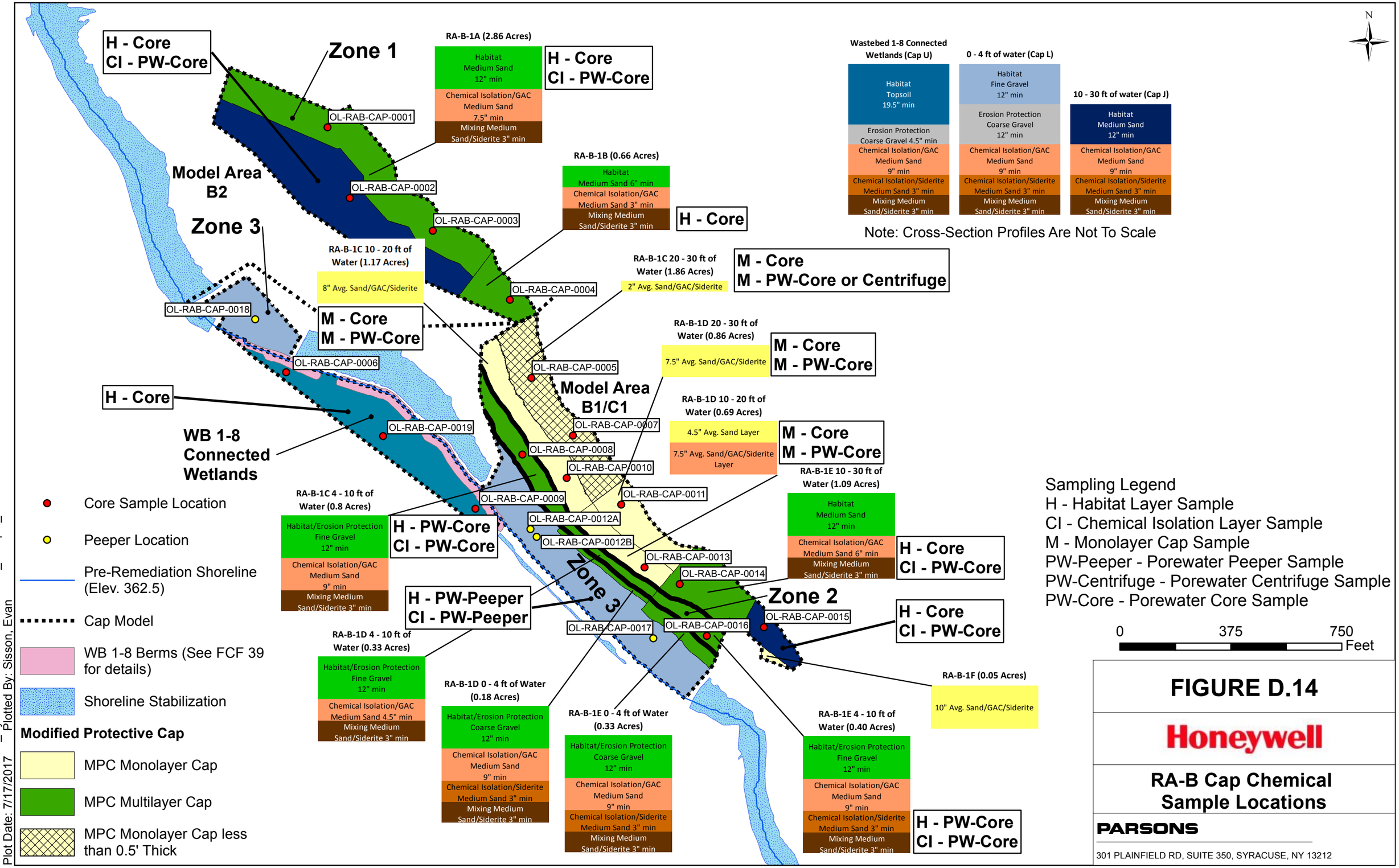
FIGURE D.13

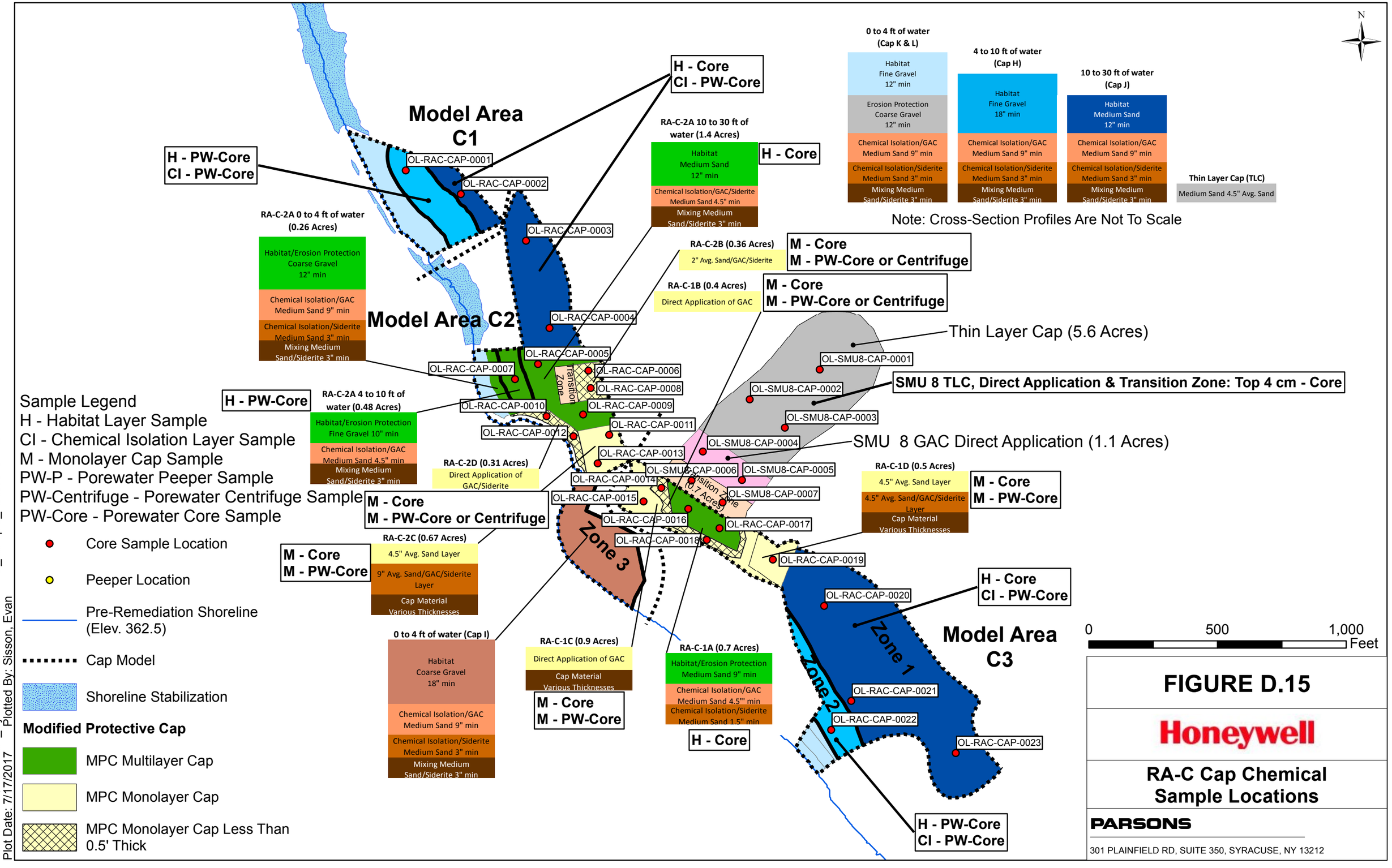
Honeywell

RA-A Cap Chemical Sample Locations

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-A_Sample_Locations.mxd
Plot Date: 8/4/2017 Plotted By: Sisson, Evan


Zone 1
Zone 2
Zone 3
Model Area B2
Model Area B1/C1
WB 1-8 Connected Wetlands
H - Core
CI - PW-Core
RA-B-1A (2.86 Acres)
Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 7.5" min
Mixing Medium Sand/Siderite 3" min
RA-B-1B (0.66 Acres)
Habitat Medium Sand 6" min
Chemical Isolation/GAC Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
H - Core
RA-B-1C 10 - 20 ft of Water (1.17 Acres)
8" Avg. Sand/GAC/Siderite
M - Core
M - PW-Core
RA-B-1C 20 - 30 ft of Water (1.86 Acres)
2" Avg. Sand/GAC/Siderite
M - Core
M - PW-Core or Centrifuge
RA-B-1D 20 - 30 ft of Water (0.86 Acres)
7.5" Avg. Sand/GAC/Siderite
M - Core
M - PW-Core
RA-B-1D 10 - 20 ft of Water (0.69 Acres)
4.5" Avg. Sand Layer
7.5" Avg. Sand/GAC/Siderite Layer
M - Core
M - PW-Core
RA-B-1E 10 - 30 ft of Water (1.09 Acres)
Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 6" min
Mixing Medium Sand/Siderite 3" min
H - Core
CI - PW-Core
RA-B-1C 4 - 10 ft of Water (0.8 Acres)
Habitat/Erosion Protection Fine Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Mixing Medium Sand/Siderite 3" min
H - PW-Core
CI - PW-Core
H - PW-Peeper
CI - PW-Peeper
RA-B-1D 4 - 10 ft of Water (0.33 Acres)
Habitat/Erosion Protection Fine Gravel 12" min
Chemical Isolation/GAC Medium Sand 4.5" min
Mixing Medium Sand/Siderite 3" min
RA-B-1D 0 - 4 ft of Water (0.18 Acres)
Habitat/Erosion Protection Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
RA-B-1E 0 - 4 ft of Water (0.33 Acres)
Habitat/Erosion Protection Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
RA-B-1E 4 - 10 ft of Water (0.40 Acres)
Habitat/Erosion Protection Fine Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
H - PW-Core
CI - PW-Core
RA-B-1F (0.05 Acres)
10" Avg. Sand/GAC/Siderite
OL-RAB-CAP-0001
OL-RAB-CAP-0002
OL-RAB-CAP-0003
OL-RAB-CAP-0004
OL-RAB-CAP-0005
OL-RAB-CAP-0006
OL-RAB-CAP-0007
OL-RAB-CAP-0008
OL-RAB-CAP-0009
OL-RAB-CAP-0010
OL-RAB-CAP-0011
OL-RAB-CAP-0012A
OL-RAB-CAP-0012B
OL-RAB-CAP-0013
OL-RAB-CAP-0014
OL-RAB-CAP-0015
OL-RAB-CAP-0016
OL-RAB-CAP-0017
OL-RAB-CAP-0018
OL-RAB-CAP-0019
Wastebed 1-8 Connected Wetlands (Cap U)
Habitat Topsoil 19.5" min
Erosion Protection Coarse Gravel 4.5" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
0 - 4 ft of water (Cap L)
Habitat Fine Gravel 12" min
Erosion Protection Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
10 - 30 ft of water (Cap J)
Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min
Note: Cross-Section Profiles Are Not To Scale
N
Core Sample Location
Peeper Location
Pre-Remediation Shoreline (Elev. 362.5)
Cap Model
WB 1-8 Berms (See FCF 39 for details)
Shoreline Stabilization
Modified Protective Cap
MPC Monolayer Cap
MPC Multilayer Cap
MPC Monolayer Cap less than 0.5' Thick
Sampling Legend
H - Habitat Layer Sample
CI - Chemical Isolation Layer Sample
M - Monolayer Cap Sample
PW-Peeper - Porewater Peeper Sample
PW-Centrifuge - Porewater Centrifuge Sample
PW-Core - Porewater Core Sample
0
375
750
Feet
FIGURE D.14
Honeywell
RA-B Cap Chemical Sample Locations
PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212
File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-B_Sample_Locations.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan



Sample Legend
H - Habitat Layer Sample
CI - Chemical Isolation Layer Sample
M - Monolayer Cap Sample
PW-P - Porewater Peeper Sample
PW-Centrifuge - Porewater Centrifuge Sample
PW-Core - Porewater Core Sample

- Core Sample Location
- Peeper Location
- Pre-Remediation Shoreline (Elev. 362.5)
- Cap Model
- Shoreline Stabilization

Modified Protective Cap

- MPC Multilayer Cap
- MPC Monolayer Cap
- MPC Monolayer Cap Less Than 0.5' Thick

FIGURE D.15

Honeywell

RA-C Cap Chemical Sample Locations

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-C_Sample_Locations.mxd
Plot Date: 7/17/2017 Plotted By: Sisson, Evan

N

Outboard West & Center (Cap U)
- Habitat Topsoil 19.5" min
- Erosion Protection Coarse Gravel 4.5" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Outboard East (Cap T)
- Habitat Topsoil 19.5" min
- Erosion Protection Coarse Gravel 4.5" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3" min

0 to 4 ft of water (Cap F & G)
- Habitat Medium Sand 12" min
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

4 to 7 ft of water (Cap H)
- Habitat Fine Gravel 18" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

7 to 10 ft of water (Cap M)
- Habitat Fine Gravel 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

10 to 30 ft of water (Cap J)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 9" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

Thin Layer Cap (TLC)
- Medium Sand 2" min

Amended TLC
- Sand/GAC Layer 4.5" Avg.

Note: Cross-Section Profiles Are Not To Scale

M - Core
M - PW-Core

RA-D-1B (1.17 Acres)
- 4.5" Avg. Sand/GAC/Siderite

RA-D-1A (7.55 Acres)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 6" min
- Mixing Medium Sand/Siderite 3" min

H - Core
CI - PW-Core

Model Area D-SMU-2

1 Extra Foot of Sand Placed Over Former Water Inlet Pipe Valve Structure

RA-D-2 (2.4 Acres)
- Habitat Medium Sand 10.5" min
- Chemical Isolation/GAC Medium Sand 4.5" min
- Chemical Isolation/Siderite Medium Sand 3" min
- Mixing Medium Sand/Siderite 3" min

H - Core

OL-SMU8-CAP-0008
OL-SMU8-CAP-0011
OL-SMU8-CAP-0010
OL-SMU8-CAP-0009
Amended TLC Area B (9.3 Acres)
OL-SMU8-CAP-0013
OL-SMU8-CAP-0012
Amended TLC Area A (7.5 Acres)
OL-SMU8-CAP-0014
OL-SMU8-CAP-0016
OL-SMU8-CAP-0015
OL-RAD-CAP-0001
OL-SMU8-CAP-0018
RA-D-1A
OL-SMU8-CAP-0017
OL-RAD-CAP-0003
OL-RAD-CAP-0002
OL-RAD-CAP-0009
OL-RAD-CAP-0006
OL-RAD-CAP-0005
OL-RAD-CAP-0004
OL-SMU8-CAP-0019
OL-RAD-CAP-0008
OL-RAD-CAP-0012
OL-RAD-CAP-0011
OL-RAD-CAP-0007
OL-SMU8-CAP-0020
OL-RAD-CAP-0010
OL-RAD-CAP-0015
OL-RAD-CAP-0013
OL-RAD-CAP-0014
OL-RAD-CAP-0016
OL-RAD-CAP-0017
OL-RAD-CAP-0018
OL-RAD-CAP-0019
OL-RAD-CAP-0021
OL-RAD-CAP-0022
OL-RAD-CAP-0020
OL-RAD-CAP-0025
OL-RAD-CAP-0023
OL-RAD-CAP-0024
OL-RAD-CAP-0027
OL-RAD-CAP-0026
OL-RAD-CAP-0028
OL-RAD-CAP-0030
OL-RAD-CAP-0029
OL-RAD-CAP-0031
OL-RAD-CAP-0034
OL-RAD-CAP-0033
OL-RAD-CAP-0035
OL-RAD-CAP-0032
OL-RAD-CAP-0036
OL-RAD-CAP-0037
OL-RAD-CAP-0038
OL-RAD-CAP-0039
OL-RAD-CAP-0040
OL-RAD-CAP-0041
OL-RAD-CAP-0042
OL-RAD-CAP-0046
OL-RAD-CAP-0043
OL-RAD-CAP-0044
OL-RAD-CAP-0045

Addendum East

SMU 8 TLC & Amended TLC Top 4 cm - Core

H - Core
CI - PW-Core
(Including All Zone 1 and Addendum Cap Areas)

Model Area D-West

H - Core
CI - PW-Core
All Sample Ports

Model Area OL-VC-10138/40

H - PW-Core
CI - PW-Core

Model Area D-Center

Zone 1

Zone 2

Zone 3

Model Area D-East

Model Area Outboard West

H - Core
All Outboard Area

Model Area Outboard Center

Model Area Outboard East

H - PW-Core
CI - PW-Core

- Core Sample Location
- Core Sample Location From Sampling Port
- Cobble Armoring w/Topsoil on 5H:1V Slope Adjacent to Barrier Wall (See FCF 62 for details)
- West Naturalized Shoreline (See FCF 57 for details)
- East Naturalized Shoreline (See FCF 58 for details)
- Berms (See FCF 62 for details)
- 25 ft Zone of Topsoil Habitat
- Plateau Armored Edge (See FCF 62 for details)
- Marine Mattress and Adjacent Sand Buttress (See FCF 63 for details)
- Harbor Brook Channel
- Pre-Remediation Shoreline (Elev. 362.5)
- Cap Model Area

Modified Protective Cap
- MPC Monolayer Cap Less Than 0.5' Thick
- MPC Multilayer Cap

0 500 1,000 Feet

Sampling Legend
H - Habitat Layer Sample
CI - Chemical Isolation Layer Sample
M - Monolayer Cap Sample
PW-P - Porewater Peeper Sample
PW-C - Porewater Centrifuge Sample
PW-Core - Porewater Core Sample

FIGURE D.16

Honeywell

RA-D Cap Chemical Sampling Locations

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-D_Sample_Locations.mxd
Plot Date: 8/4/2017 Plotted By: Sisson, Evan

Cap Model Area E1

0 to 3 ft of Water (Cap N)
- Habitat Coarse Gravel 12" min
- Erosion Protection Gravelly Cobble 12" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

3 to 7 ft of Water (Cap O)
- Erosion Protection/Habitat Gravelly Cobble 18" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

7 to 10 ft of Water (Cap P)
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3"

10 to 20 ft of Water (Cap C)
- Erosion Protection/Habitat Fine Gravel 12" min
- Chemical Isolation Medium Sand 12" min
- Mixing Medium Sand 3"

20 to 30 ft of water (Cap E)
- Habitat Medium Sand 12" min
- Chemical Isolation Medium Sand 6" min
- Mixing Medium Sand 3"

CRs & Nav Channel (Cap Q)
- Erosion Protection/Habitat Gravelly Cobble 12" min
- Chemical Isolation Gravelly Sand 12" min
- Mixing Gravelly Sand 3"

MERC
- Gravelly Sand/GAC 6" Avg.

Thin Layer Cap (TLC)
- Medium Sand 2" min

Cap Model Areas E2 & E3

0 to 3 ft of Water (Cap NN)
- Habitat Coarse Gravel 12" min
- Erosion Protection Gravelly Cobble 12" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

3 to 7 ft of Water (Cap OO)
- Erosion Protection/Habitat Gravelly Cobble 18" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

7 to 10 ft of Water (Cap PP)
- Erosion Protection/Habitat Coarse Gravel 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"

10 to 20 ft of Water (Cap CC)
- Erosion Protection/Habitat Fine Gravel 12" min
- Chemical Isolation/GAC Medium Sand 12" min
- Mixing Medium Sand/GAC 3"

20 to 30 ft of water (Cap S)
- Habitat Medium Sand 12" min
- Chemical Isolation/GAC Medium Sand 6" min
- Mixing Medium Sand/GAC 3"

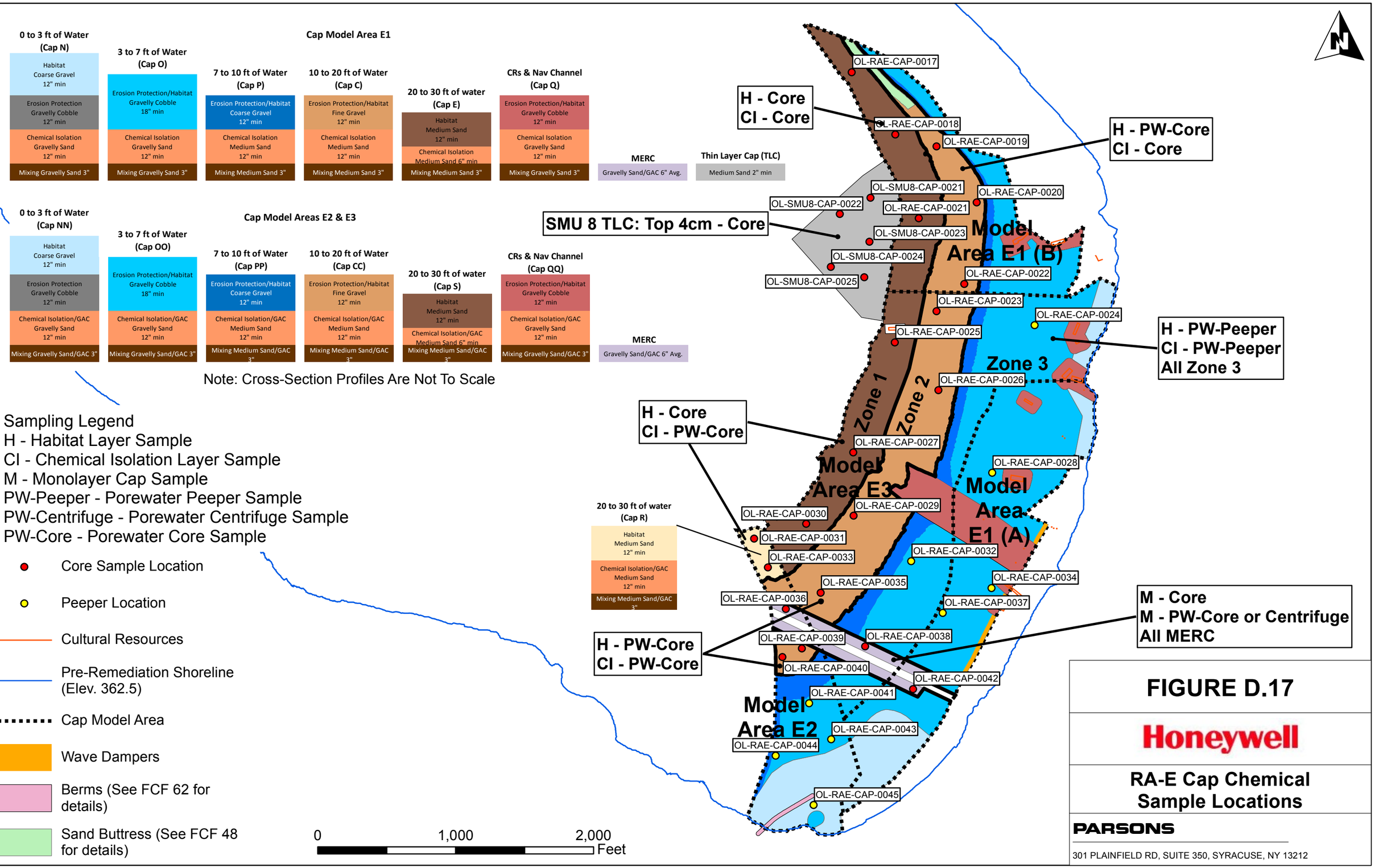
CRs & Nav Channel (Cap QQ)
- Erosion Protection/Habitat Gravelly Cobble 12" min
- Chemical Isolation/GAC Gravelly Sand 12" min
- Mixing Gravelly Sand/GAC 3"

MERC
- Gravelly Sand/GAC 6" Avg.

Note: Cross-Section Profiles Are Not To Scale

Sampling Legend
H - Habitat Layer Sample
CI - Chemical Isolation Layer Sample
M - Monolayer Cap Sample
PW-Peeper - Porewater Peeper Sample
PW-Centrifuge - Porewater Centrifuge Sample
PW-Core - Porewater Core Sample

- Core Sample Location
- Peeper Location
- Cultural Resources
- Pre-Remediation Shoreline (Elev. 362.5)
- Cap Model Area
- Wave Dampers
- Berms (See FCF 62 for details)
- Sand Buttress (See FCF 48 for details)



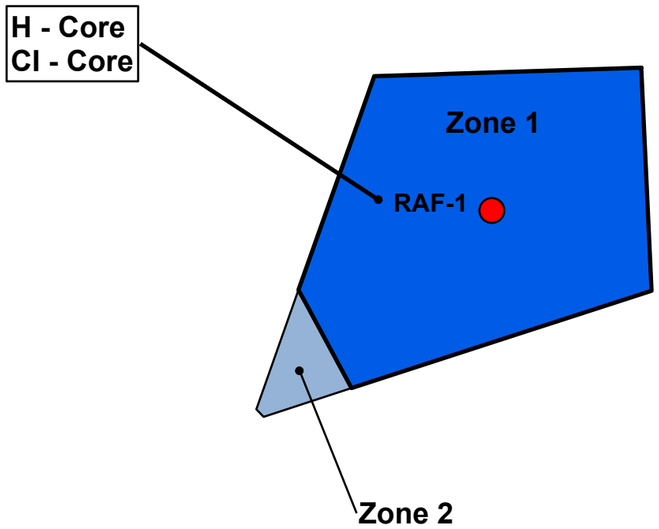
File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-E_Sample_Locations.mxd
Plot Date: 8/25/2017 Plotted By: Sisson, Evan

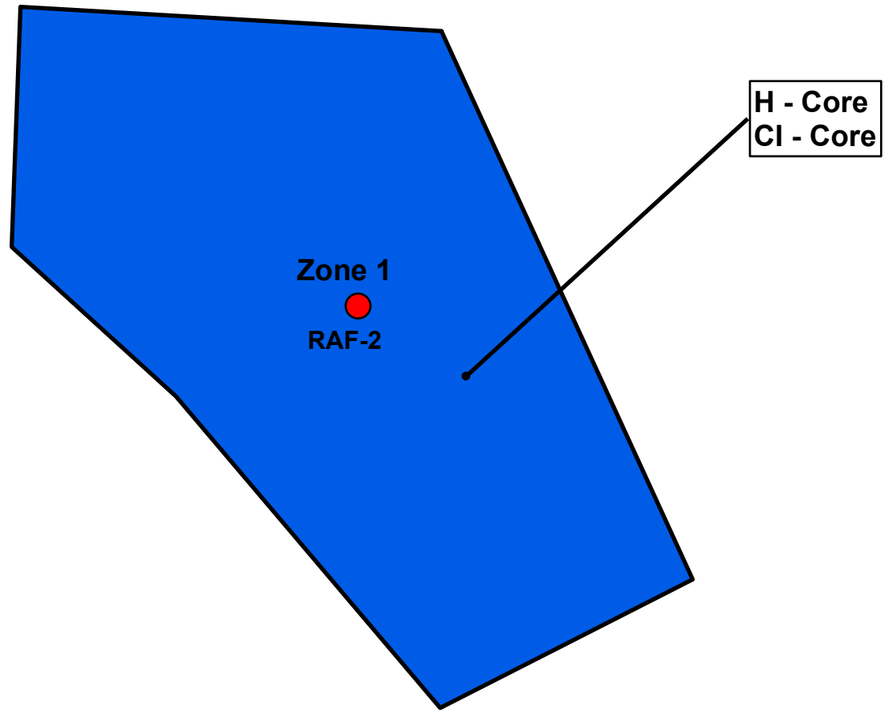
FIGURE D.17

Honeywell

RA-E Cap Chemical Sample Locations

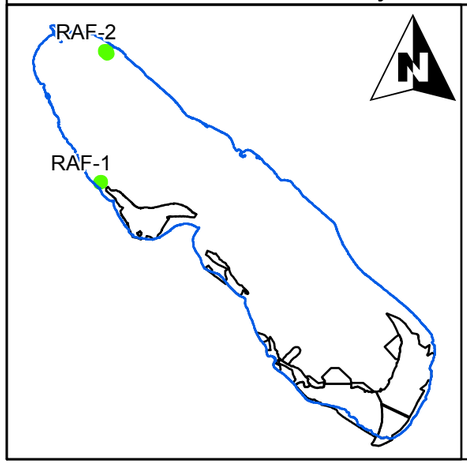
PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

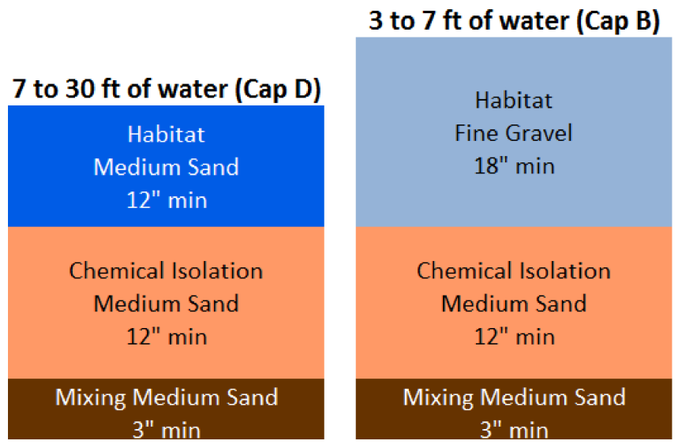




Sampling Legend
- Core Sample Location

H - Habitat Layer Sample
CI - Chemical Isolation Layer Sample





Note: Cross-Section Profiles Are Not To Scale

0 50 100 Feet

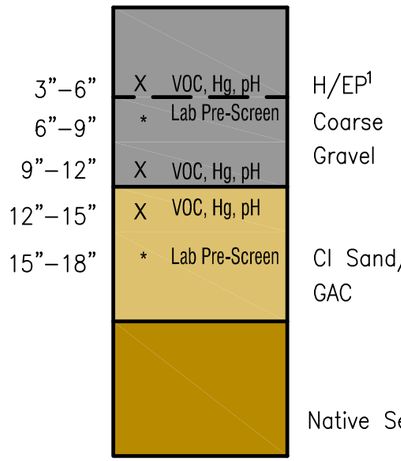
FIGURE D.18

Honeywell

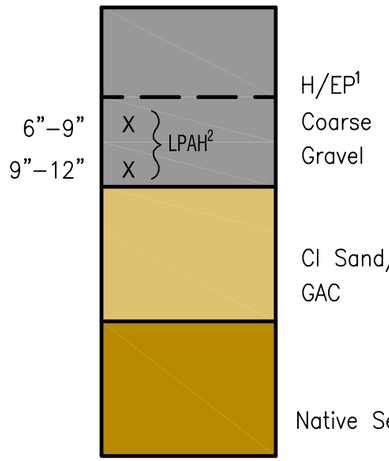
RA-F Cap Chemical Sample Locations

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

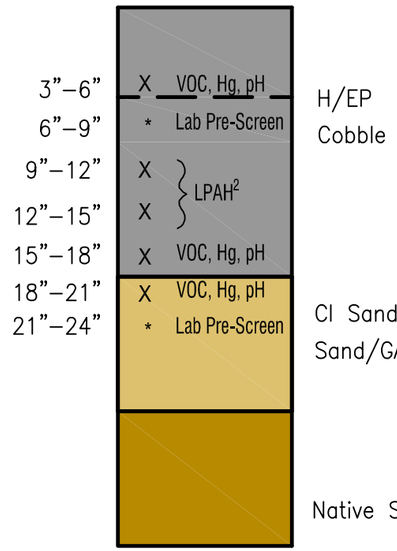
OL–RAB–0012A
OL–RAB–CAP–0017
OL–RAB–CAP–0018



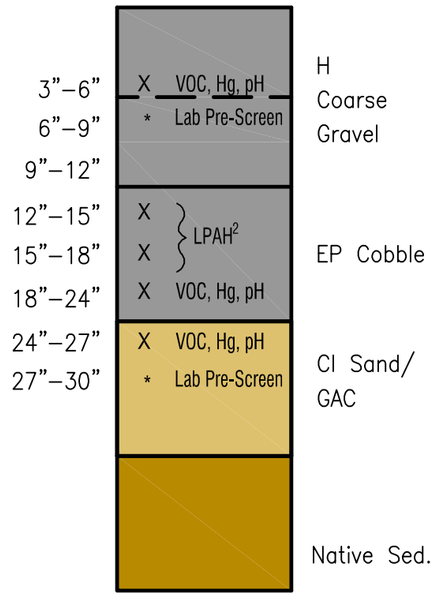
OL–RAB–0012B



OL–RAE–CAP–0024
OL–RAE–CAP–0028
OL–RAE–CAP–0032
OL–RAE–CAP–0034
OL–RAE–CAP–0037
OL–RAE–CAP–0041
OL–RAE–CAP–0043
OL–RAE–CAP–0044



OL–RAE–CAP–0045



X – Porewater Sample Interval–3 inches
* – Lab Pre–Screen Sample, if Needed.

1. The H/EP layer in this area consists of a 12” min. erosion protection layer overlain by a 12” min. fine gravel habitat layer. The fine gravel habitat layer may be subject to movement/loss as per the design. Therefore, sampling intervals were developed assuming a 12” total habitat/erosion protection layer.

2. Each 3” peeper interval will provide 50 ml. Each peeper LPAH sample will consist of two 3” sample intervals, resulting in a LPAH sample volume of 100 ml.

FIGURE D.19

Honeywell — ONONDAGA LAKE SYRACUSE, NY

PEEPER POREWATER SAMPLING SCHEMATICS

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315–451–9560

FILE NAME: P:\HONEYWELL –SYR\446232 – CAP DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\FINAL TO DEC\446232–FIGURE D.19.DWG
PLOT DATE: 8/25/2017 3:09 PM PLOTTED BY: RUSSO, JILL

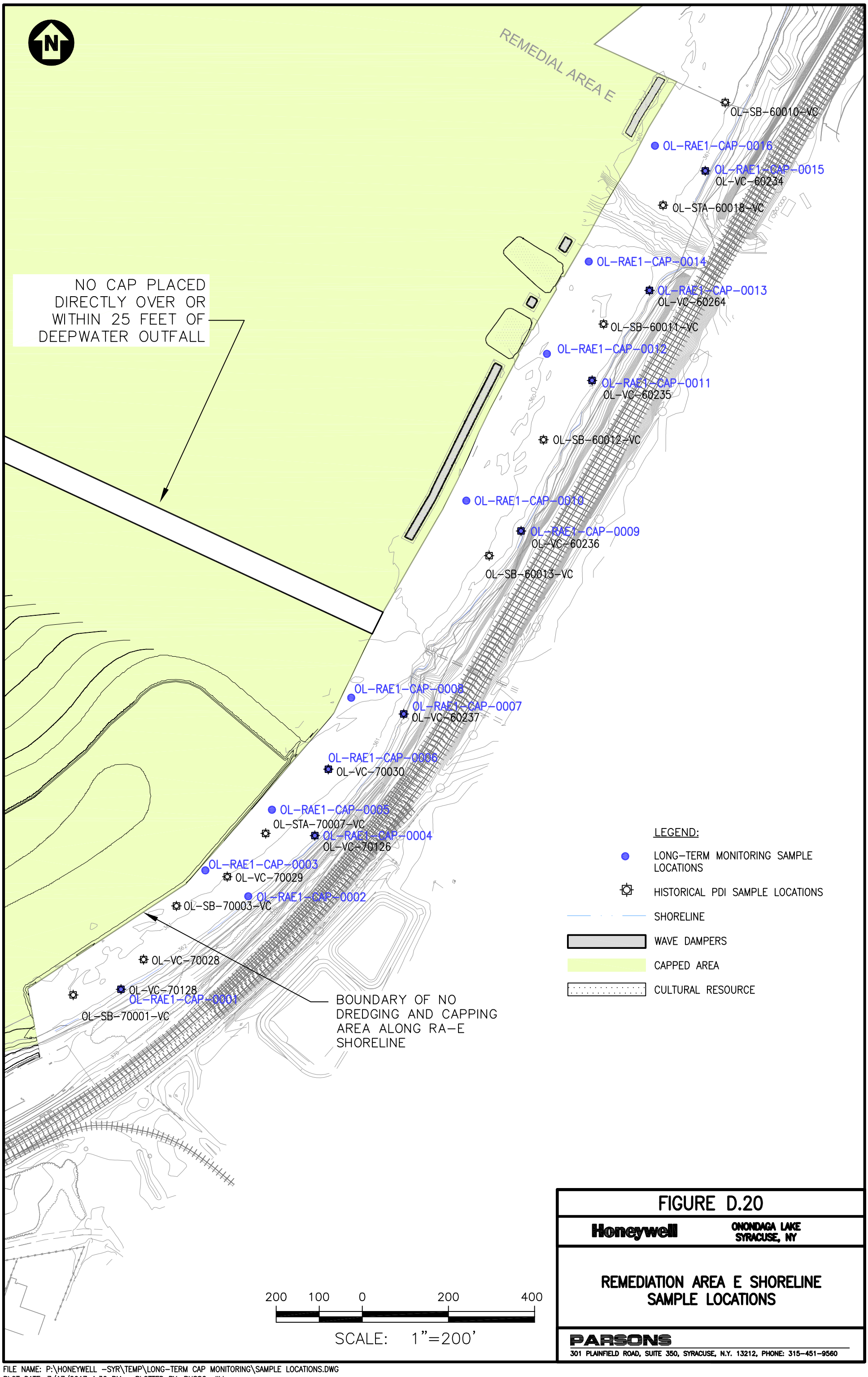


FIGURE D.20

Honeywell

ONONDAGA LAKE
SYRACUSE, NY

REMEDIATION AREA E SHORELINE SAMPLE LOCATIONS

PARSONS
301 PLAINFIELD ROAD, SUITE 350, SYRACUSE, N.Y. 13212, PHONE: 315-451-9560

FILE NAME: P:\HONEYWELL -SYR\TEMP\LONG-TERM CAP MONITORING\SAMPLE LOCATIONS.DWG
PLOT DATE: 7/17/2017 1:36 PM PLOTTED BY: RUSSO, JILL

ATTACHMENT A

CAP MATERIAL OVER-PLACEMENT

CAP MATERIAL OVER-PLACEMENT

This evaluation documents the over-placement of cap material and carbon for the various cap layers, cap types, and model areas within the Onondaga Lake capped areas. Data for these analyses were drawn from the cap layer approval packages that were submitted to and approved by NYSDEC on an ongoing basis during construction of the cap.

Cap Layer Thickness Over-placement

Cap layer over-placements for various areas within Remediation Areas A through E are presented in Tables 1 through 10 and Figures 1 through 5. The material over-placement statistics for each Remediation Area were developed by assembling thickness data collected following cap placement, and reported in individual layer approval packages, and comparing it to the corresponding -specified minimum or average thickness for each layer.

Each remediation area was divided into sub areas corresponding to areas depicted on Figures 1 through 5. These subareas are delineated by based on cap model area, cap type, and cap layer material. Thickness data collected as part of the cap construction verification process (e.g., cores, GPS elevation shots, etc.) was drawn from corresponding cap layer approval records within each subarea, and grouped together for comparison to the design-specified thickness. In some instances, where approval packages encompassed large areas or boundaries, data from a single layer approval package was split, and included into summaries for separate sub areas.

The chemical isolation layer is comprised of sand, granular activated carbon (GAC) with sand, or separate layers of Siderite with sand and GAC with sand. In all cases, the total combined thickness of the layer(s) noted were used for determination of total chemical isolation layer over-placement. For mono-layer caps, statistics were recorded only once in the chemical isolation layer table and not in the erosion protection and habitat layer table.

Based on the cap design, the erosion protection and habitat layer are comprised of either two separate layers or combined into one layer, as noted in the summary tables for each Remediation Area. The erosion protection layer is comprised of either sand, gravel (fine or coarse), or gravelly cobble. The habitat layer is comprised of either sand, gravel (fine or coarse), gravelly cobble, or topsoil. For areas with separate erosion protection and habitat layers, over-placement statistics are reported separately. For areas where these two are combined, over-placement statistics are reported under the habitat layer.

GAC Overdosing

GAC overdose rates are presented in Table 11. For calculation of GAC overdosing rates, Remediation Areas were divided based on the design cap modeling area, and MPC areas. The results from GAC verification, as reported in cap layer completion packages during the implementation of the remedy, were assembled for statistical analysis.

In a majority of areas, reported GAC application rates are based on the thermal quantification method used as part of the cap construction verification process. However, for some cap areas/types, carbon burn testing was not conducted, as specific variables unique to those areas and cap types would invalidate the test results. These areas included direct amendment application areas, where the cap layer was not thick enough to collect a representative sample for testing, and mono layer caps, where the presence of siderite intermixed with the carbon, and the potential for the inclusion of underlying organic material into the test, introduced additional variables which prevented post-placement thermal GAC quantification. For these areas, alternative means of verification were used for estimating carbon dosage. For mono-layer caps, including direct application areas, reported overdosing is based on recorded quantities placed.

TABLE 1
REMEDIATION AREA A
CHEMICAL ISOLATION LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material	Design-Specified Min. Thickness* (in.)	Average O/P (in.)
Zone 1	A1	E	Med. Sand	9	1.0
		D		15	0.9
Zone 2		C			4.3
		B			
Zone 3		A			
Zones 1, 2, & 3	A2	F	Med. Sand with Siderite / GAC	15	5.4
		H			
		I			
		J			
		U			

* Layer thickness includes mixing layer

TABLE 2
REMEDIATION AREA A
EROSION PROTECTION / HABITAT LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Material Type*	Design-Specified Min. Thickness (in.)	Average O/P (in.)
Erosion Protection Layer					
Zone 3	A1, A2	A	Coarse Gravel	12	5.1
		F			
		U	Coarse Gravel	4.5	
Habitat Layer					
Zone 1	A1	E	Med. Sand	12	1.0
		D			0.9
	A2	J			2.5
Zone 2	A1, A2	C	Fine Gravel	12	4.2
		B		18	
		H			
		I	Coarse Gravel	18	
Zone 3	A1, A2	A	Topsoil	12	7.2
		F			
		U		19.5	

* For cap types where EP & H layers are combined, overplacement statistics are reported under HL

TABLE 3
REMEDIATION AREA B
CHEMICAL ISOLATION LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material	Design-Specified Min. Thickness* (in.)	Average O/P (in.)
Zone 1	B-1A	MPC	Med. Sand w/ SID & GAC	10.5	5.6
	B-1B			6	7.2
Zone 2	B-1C (4-10 ft)			12	5.2
Zone 1	B-1C (10-20 ft)	MPC Mono-layer	Med. Sand w/ SID & GAC	8**	1.5
	B-1C (20-30 ft)			2**	1.8
Zone 3	B-1D (<4 ft)	MPC	Med. Sand w/ SID & GAC	15	2.9
Zone 2	B-1D (4-10 ft)		Med. Sand w/ SID & GAC	7.5	10.8
Zone 1	B-1D (10-30 ft S)	MPC Mono-layer	Med. Sand w/ SID & GAC	12**	4.5
	B-1D (10-30 ft D)			7.5**	1.8
Zone 1, Zone 2	B-1E (< 4 ft)	MPC	Med. Sand w/ SID & GAC	15	4.2
	B-1E (4-10 ft)				
Zone 1	B-1E (10-30 ft)	MPC	Med. Sand w/ SID & GAC	9	7.2
	B-1F	MPC Mono-layer	Med. Sand w/ SID & GAC	10**	4
Zone 1	B2	J	Med. Sand w/ SID & GAC	15	6.3
	B1 / C1		Med. Sand w/ SID & GAC		
Zone 3		L			
Zone 3	WB 1-8	U	Med. Sand w/ SID & GAC	15	6.8

* Layer thickness includes mixing layer

** Mono-layer caps specified as average thickness

TABLE 4
REMEDIATION AREA B
EROSION PROTECTION / HABITAT LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material*	Design-Specified Min. Thickness (in.)	Average O/P (in.)
Erosion Protection Layer					
Zone 2	B1 / C1	L	Coarse Gravel	12	4.1
Zone 3	WB 1-8	U	Coarse Gravel	4.5	16.9
Habitat Layer					
Zone 1	B-1A	MPC	Med. Sand	12	1.6
	B-1B	MPC		6	0.6
Zone 2	B-1C (4-10 ft)	MPC	Fine Gravel	12	1.6
Zone 3	B-1D (<4 ft)	MPC	Coarse Gravel	12	3.5
Zone 2	B-1D (4-10 ft)	MPC	Fine Gravel	12	0.2
Zone 3	B-1E (< 4 ft)	MPC	Coarse Gravel	12	4.0
Zone 2	B-1E (4-10 ft)	MPC	Fine Gravel	12	2.9
Zone 1	B-1E (10-30 ft)	MPC	Med. Sand	12	2.1
Zone 1,	B1 / C1	L	Fine Gravel	12	2.8
Zone 3	B1 / C1, B2	J	Med. Sand	12	2.0
Zone 3	WB 1-8	U	Topsoil	19.5	6.5

* For cap types where EP & H layers are combined, overplacement statistics are reported under HL

TABLE 5
REMEDIATION AREA C
CHEMICAL ISOLATION LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material	Design-Specified Min. Thickness* (in.)	Average O/P (in.)
Zone 1, Zone 2, Zone 3	B1/C1, C2, C3	H	Med. Sand with SID & GAC	15	7.9
		I			
		J			
		K			
		L			
	C-2A (< 4 ft)	MPC			
Zone 3	SMU 8	Direct Application	GAC	NA	NA
	C-1A	MPC	Med. Sand with SID & GAC	6	3.9
	C-1B	Direct Application	GAC	NA	NA
	C-1C	Direct Application	GAC	NA	NA
	C-1D	MPC Mono-Layer	Med. Sand with SID & GAC	9**	-0.6
Zone 1, Zone 2	C-2A (4-10 ft)	MPC	Med. Sand with SID & GAC	7.5	3.3
	C-2A (10-30 ft)				
Zone 1	C-2B	MPC Mono-Layer	Med. Sand with SID & GAC	2**	0.5
	C-2C		Med. Sand with SID & GAC	13.5**	2.1
	C-2D	Direct Application	GAC	NA	NA
TLC	TLC	Unamended TLC	Med. Sand	4.5**	0.2

* Layer thickness includes mixing layer

** Mono layer and thin layer caps specified as average thickness

NA - Not applicable

TABLE 6
REMEDIATION AREA C
EROSION PROTECTION / HABITAT LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material	Design-Specified Min. Thickness (in.)	Average O/P (in.)
Erosion Protection Layer					
Zone 3	B1/C1, C2, C3	K	Coarse Gravel	12	4.0
	C2	L			
Habitat Layer					
Zone 3	B1/C1, C2, C3	K	Fine Gravel	12	5.4
		L			
Zone 1		J	Med. Sand	12	3.4
Zone 3	C2	I	Coarse Gravel	18	1.7
Zone 3	C-1A	MPC	Med. Sand	9	1.5
Zone 1	C-2A (< 4 ft)	MPC	Coarse Gravel	12	6.2
Zone 2	C-2A (4-10 ft)		Fine Gravel	10	1.3
Zone 3	C-2A (10-30 ft)		Med. Sand	12	2.4
Zone 2	B1/C1, C3	H	Fine Gravel	18	5.6

* For cap types where EP & H layers are combined, overplacement statistics are reported under HL

TABLE 7
REMEDIATION AREA D
CHEMICAL ISOLATION LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material	Design-Specified Min. Layer Thickness* (in.)	Average O/P (in.)
Zone 1	D-1A	MPC	Med. Sand with Siderite / GAC	9	3.8
	D-1B	MPC Mono-layer	Med. Sand with Siderite / GAC	4.5**	6.3
	D-2	MPC	Med. Sand with Siderite / GAC	10.5	4.7
Zone 1 / Zone 2	D-SMU 2, D-West, D-Center, D-East	J	Med. Sand with Siderite / GAC	15	5.9
		JJ			
		M			
Zone 3	OB-East, OB-Center, OB-West	T	Med. Sand with Siderite / GAC	15	7.0
		U			
TLC	Thin Layer Cap	W	Med. Sand	2	2.0
		Amended TLC	Med. Sand with GAC	4.5**	1.0

* Layer thickness includes mixing layer

** Amended Thin Layer & Mono-layer caps specified as average thickness

TABLE 8
REMEDIATION AREA D
EROSION PROTECTION / HABITAT LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Material Type*	Design-Specified Min. Thickness (in.)	Average O/P (in.)
Erosion Protection Layer					
Zone 2	D-West, D-Center, D-East	F	Coarse Gravel	12	4.9
		G			
Zone 3	OB-West, OB-Center, OB-East	T	Coarse Gravel	4.5	8.7
		U			
Habitat Layer					
Zone 1	D-1A	MPC	Med. Sand	12	2.4
Zone 1	D-2	MPC	Med. Sand	10.5	2.1
Zone 1	D-SMU-2, D-West, D-Center, D-East	J	Med. Sand	12	5.2
Zone 2	D-West, D-Center, D-East	F	Med. Sand	12	3.7
		G			
Zone 2	D-West, D-Center, D-East	H	Fine Gravel	18	5.7
		M		12	
Zone 3	OB-West, OB-Center, OB-East	T	Topsoil	19.5	7.9
		U			

* For cap types where EP & H layers are combined, overplacement statistics are reported under HL

TABLE 9

REMEDIATION AREA E

CHEMICAL ISOLATION LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Cap Material	Design-Specified Min. Thickness* (in.)	Average O/P (in.)
Zone 1	E1	E	Med. Sand	9	1.5
	E2	R	Med. Sand / GAC		3.7
	E3	S	Med. Sand / GAC	15	1.6
Zone 2	E1, E2, E3	C	Med. Sand	15	3.4
		CC	Med. Sand / GAC		
Zone 1, Zone 2, Zone 3	E1, E2, E3	N	Gravely Sand	15	7.3
		NN	Gravely Sand / GAC		
		O	Gravely Sand		
		OO	Gravely Sand / GAC		
		P	Med. Sand		
		PP	Med. Sand / GAC		
		Q	Gravely Sand		
		QQ	Gravely Sand / GAC		
		T	Med. Sand / GAC		
-	TLC	TLC	Med. Sand	2	1.3
-	MERC	MERC Cap	Gravely Sand / GAC	6	-0.5

* Layer thickness includes mixing layer

TABLE 10
REMEDIATION AREA E
EROSION PROTECTION / HABITAT LAYER OVER-PLACEMENTS

Cap Area	Cap Model Area	Cap Type(s)	Material Type*	Design-Specified Min. Thickness (in.)	Average O/P (in.)
Erosion Protection Layer					
Zone 3	E2, E3	N	Gravelly Cobble	12	4.0
		NN			
Habitat Layer					
Zone 1	E1, E2, E3	E	Medium Sand	12	2.4
		R			
		S			
Zone 2, Zone 3	E1, E2, E3	C	Fine Gravel	12	4.6
		CC			
		P	Coarse Gravel		
		PP			
Zone 3	E1, E2, E3	O	Gravelly Cobble	18	4.8
		OO			
		Q		12	
		QQ			
Zone 3	E2, E3	N	Coarse Gravel	12	6.1
		NN			

* For cap types where EP & H layers are combined, overplacement statistics are reported under HL

TABLE 11
GAC OVERDOSING BY MODEL AREA

Model Area	Design-Specified Minimum Dose (lbs/sf)	Average Dose (lbs/sf)	Average Placed Dose as % Of Design Dose
A-2	0.66	0.9	131%
A-40197	6.6	10.3	156%
WB 1-8 Connected Wetland	1.2	1.9	158%
B2	1.22	1.7	136%
RA-B B1/C1	0.6	1.3	209%
B-1A	1.29	1.7	130%
B-1B	1.3	2.0	151%
B-1C (4-10 ft)	0.61	0.9	143%
B-1C (10-20 ft)*	0.49	1.0	202%
B-1C (20-30 ft)*	0.49	1.1	222%
B-1D (<4 ft)	0.6	0.7	116%
B-1D (4-10 ft)	0.64	1.1	175%
B-1D (10-30 ft Shallow)*	0.49	0.9	176%
B-1D (10-30 ft Deep)*	0.49	0.9	178%
B-1E (< 4 & 4-10 ft)	0.6	1.0	170%
B-1E (10-30 ft)	0.63	1.0	166%
B-1F*	0.49	0.9	182%
RA-C B1/C1	0.6	1.0	167%
C2	0.01	0.6	6071%
C-2A*	0.1	0.2	190%
C-2B*	0.1	0.2	180%
C-2C*	0.1	0.2	177%
C-2D*	0.1	0.1	120%
C-1A	0.39	1.1	273%
C-1B*	0.73	1.4	193%
C-1C*	0.73	1.4	193%
C-1D	0.73	1.3	171%
RA-C SMU 8 Direct*	0.73	1.3	177%
RA-C C1 / SMU 8 Transition*	0.73	1.4	192%
C3	0.24	0.4	182%
D-SMU-2	0.044	0.3	658%
D-West	1.33	1.8	133%
D-Center	0.93	1.2	129%
D-10138/40	5	5.3	106%
D-East	0.44	0.6	146%
D-1A	1.26	1.7	138%
D-1B	3.73	7.1	190%
Amended TLC Area A*	1.76	3.4	195%
Amended TLC Area B*	0.1	0.2	220%
D-2	1.53	1.8	119%
Outboard West	0.61	1.2	200%
Outboard Center	0.5	0.9	179%
Outboard East	0.02	0.4	1797%
MERC 1	0.1	0.4	370%
MERC 2	0.7	1.2	167%
MERC 3	0.3	0.4	140%
E-2	0.27	0.6	232%
E-3	0.008	0.25	3125%
E3 (6 to 9 m)	0.084	0.15	179%

* - GAC burn testing not feasible in these areas due to nature of cap design (e.g., direct GAC application, mono-layer cap, etc). Reported quantities based on GAC usage.

Cap Model Area A1

0 to 3 ft of water (Cap A)

Habitat Topsoil 12" min
Erosion Protection/Habitat Coarse Gravel 12" min
Chemical Isolation Medium Sand 12" min
Mixing Medium Sand 3" min

7.2 / 5.1 / 4.3

3 to 7 ft of water (Cap B)

Habitat Fine Gravel 18" min
Chemical Isolation Medium Sand 12" min
Mixing Medium Sand 3" min

4.2 / 4.3

7 to 10 ft of water (Cap C)

Habitat Fine Gravel 12" min
Chemical Isolation Medium Sand 12" min
Mixing Medium Sand 3" min

4.2 / 4.3

10 to 20 ft of water (Cap D)

Habitat Medium Sand 12" min
Chemical Isolation Medium Sand 12" min
Mixing Medium Sand 3" min

0.9 / 0.9

20 to 30 ft of water (Cap E)

Habitat Medium Sand 12" min
Chemical Isolation Medium Sand 6" min
Mixing Medium Sand 3" min

1.0 / 1.0

Cap Model Area A2

0 to 3 ft of water (Cap F)

Habitat Topsoil 12" min
Erosion Protection/Habitat Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3"' min
Mixing Medium Sand/Siderite 3" min

7.2 / 5.1 / 5.4

Nine Mile Spits (Cap U)

Habitat Topsoil 19.5" min
Erosion Protection Coarse Gravel 4.5" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

7.2 / 5.1 / 5.4

Mouth of Nine Mile (Cap I)

Habitat Coarse Gravel 18" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

4.2 / 5.4

3 to 10 ft of water (Cap H)

Habitat Fine Gravel 18" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

4.2 / 5.4

10 to 20 ft of water (Cap J)

Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

2.5 / 5.4

N

Model Area A1

Zone 1

Model Area A2

Zone 2

Zone 3

Model Area RA-A 40197

0 550 1,100 Feet

Average Overplacements (Inches)

- X / Y — Habitat-Erosion Protection Layer / Chemical Isolation Layer
- X / Y / Z — Habitat Layer / Erosion Protection Layer / Chemical Isolation Layer
- Cap Model Area
- Pre-Remediation Shoreline (Elev. 362.5)
- Planted Area Protective Edge (See FCF 27 for details)
- Habitat/EP Layer changed to Coarse Gravel (See FCF 36 for details)
- Sand Buttress (See FCF 19 for details)
- Habitat/EP Layer changed to 12" Fine Gravel (See FCF 40 for details)
- Shoreline Stabilization

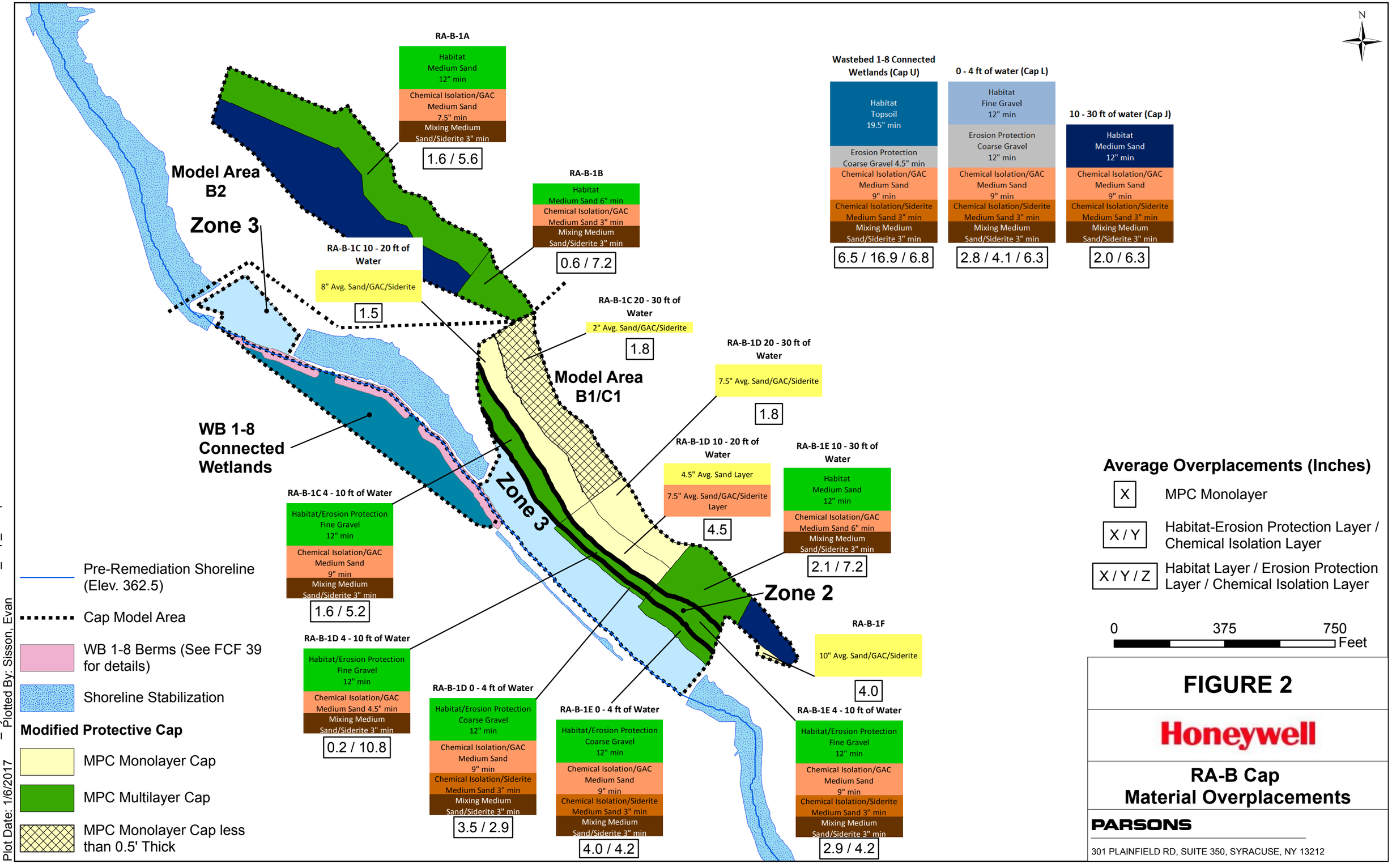
FIGURE 1

Honeywell

RA-A Cap Material Overplacements

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-A_Cap_Overplacement.mxd
Plot Date: 1/6/2017 Plotted By: Sisson, Evan



File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-B_Cap_Overplacement.mxd
Plot Date: 1/6/2017 Plotted By: Sisson, Evan

FIGURE 2

Honeywell

RA-B Cap
Material Overplacements

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

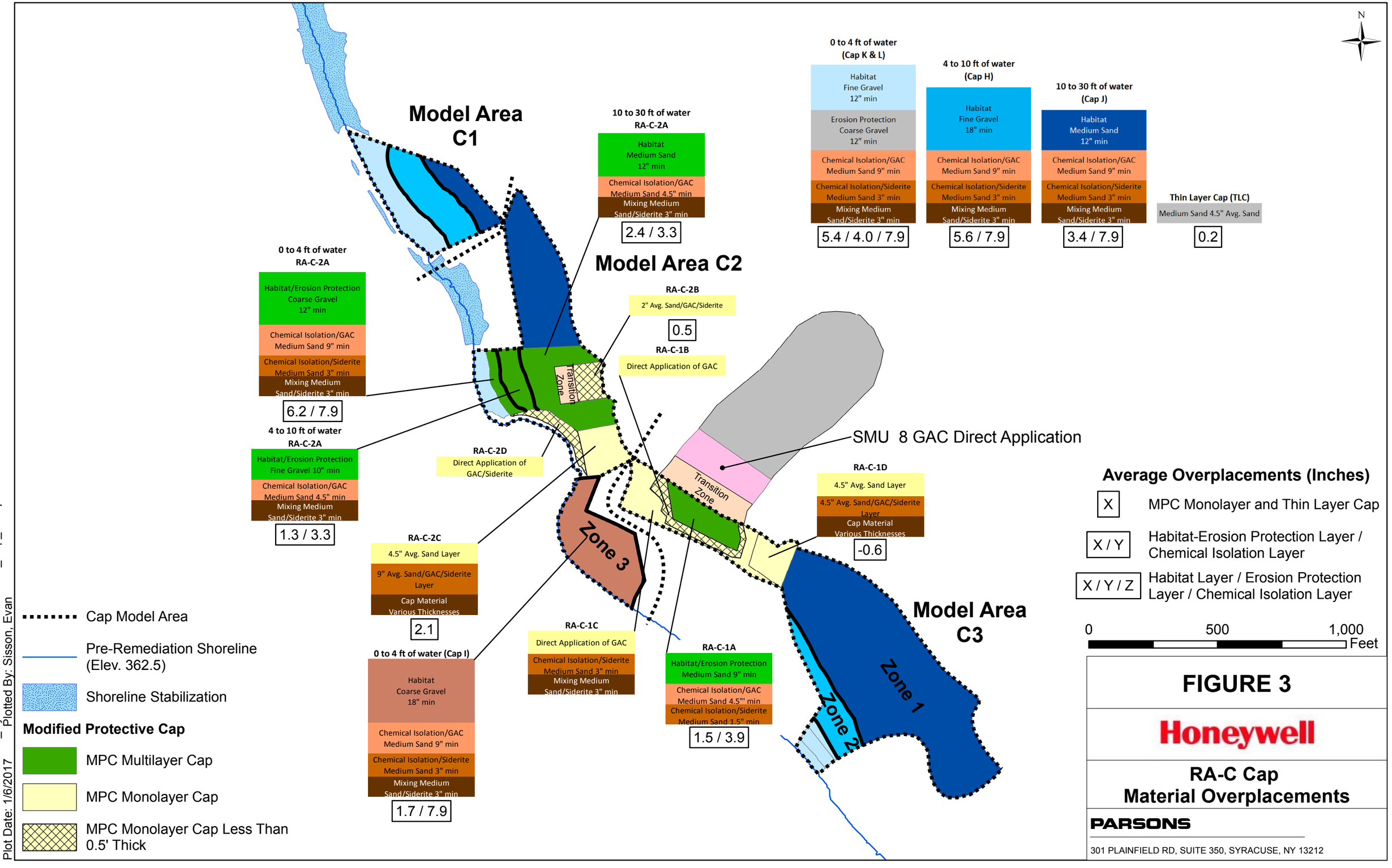


FIGURE 3

Honeywell

RA-C Cap Material Overplacements

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-C_Cap_Overplacement.mxd
Plot Date: 1/6/2017 Plotted By: Sisson, Evan

N

Outboard West & Center (Cap U)

Habitat Topsoil 19.5" min
Erosion Protection Coarse Gravel 4.5" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

7.9 / 8.7 / 7.0

Outboard East (Cap T)

Habitat Topsoil 19.5" min
Erosion Protection Coarse Gravel 4.5" min
Chemical Isolation/GAC Medium Sand 12" min
Mixing Medium Sand/GAC 3" min

7.9 / 8.7 / 7.0

0 to 4 ft of water (Cap F & G)

Habitat Medium Sand 12" min
Erosion Protection/Habitat Coarse Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

3.7 / 4.9 / 5.9

4 to 7 ft of water (Cap H)

Habitat Fine Gravel 18" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

5.7 / 5.9

7 to 10 ft of water (Cap M)

Habitat Fine Gravel 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

5.7 / 5.9

10 to 30 ft of water (Cap J)

Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 9" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

5.2 / 5.9

Thin Layer Cap (TLC)

Medium Sand 2" min

2.0

Amended TLC

Sand/GAC Layer 4.5" Avg.

1.0

RA-D-1B

4.5" Avg. Sand/GAC/Siderite

6.3

RA-D-1A

Habitat Medium Sand 12" min
Chemical Isolation/GAC Medium Sand 6" min
Mixing Medium Sand/Siderite 3" min

2.4 / 3.8

RA-D-2

Habitat Medium Sand 10.5" min
Chemical Isolation/GAC Medium Sand 4.5" min
Chemical Isolation/Siderite Medium Sand 3" min
Mixing Medium Sand/Siderite 3" min

2.1 / 4.7

Amended TLC Area B
Amended TLC Area A
RA-D-1A
RA-D-1B

Model Area D-SMU-2
Model Area D-West
Model Area D-Center
Model Area OL-VC-10138/40
Model Area Outboard West
Model Area Outboard Center
Model Area Outboard East
Addendum East
Zone 1
Zone 2
Zone 3
Model Area D-East

West Naturalized Shoreline (See FCF 57 for details)
East Naturalized Shoreline (See FCF 58 for details)
Berms (See FCF 62 for details)
25 ft Zone of Topsoil Habitat
Plateau Armored Edge (See FCF 62 for details)
Marine Mattress and Adjacent Sand Buttress (See FCF 63 for details)
Shoreline Stabilization

Pre-Remediation Shoreline (Elev. 362.5)
Cap Model Area

Modified Protective Cap

MPC Monolayer Cap Less Than 0.5' Thick
MPC Multilayer Cap

0 500 1,000 Feet

Average Overplacements (Inches)

X — Thin Layer Cap
X / Y — Habitat-Erosion Protection Layer / Chemical Isolation Layer
X / Y / Z — Habitat Layer / Erosion Protection Layer / Chemical Isolation Layer

FIGURE 4

Honeywell

RA-D Cap Material Overplacements

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-D_Cap_Overplacement.mxd
Plot Date: 1/6/2017 Plotted By: Sisson, Evan

Cap Model Area E1

0 to 3 ft of Water (Cap N)
- Habitat: Coarse Gravel 12" min
- Erosion Protection: Gravelly Cobble 12" min
- Chemical Isolation: Gravelly Sand 12" min
- Mixing: Gravelly Sand 3"

6.1 / 4.0 / 7.3

2 to 7 ft of Water (Cap O)
- Erosion Protection/Habitat: Gravelly Cobble 18" min
- Chemical Isolation: Gravelly Sand 12" min
- Mixing: Gravelly Sand 3"

4.8 / 7.3

7 to 10 ft of Water (Cap P)
- Erosion Protection/Habitat: Coarse Gravel 12" min
- Chemical Isolation: Medium Sand 12" min
- Mixing: Medium Sand 3"

4.6 / 7.3

10 to 20 ft of Water (Cap C)
- Erosion Protection/Habitat: Fine Gravel 12" min
- Chemical Isolation: Medium Sand 12" min
- Mixing: Medium Sand 3"

4.6 / 3.4

20 to 30 ft of water (Cap E)
- Habitat: Medium Sand 12" min
- Chemical Isolation: Medium Sand 6" min
- Mixing: Medium Sand 3"

2.4 / 1.5

CRs & Nav Channel (Cap Q)
- Erosion Protection/Habitat: Gravelly Cobble 12" min
- Chemical Isolation: Gravelly Sand 12" min
- Mixing: Gravelly Sand 3"

4.8 / 7.3

MERC
- Gravelly Sand/GAC 6" Avg.

-0.5

Thin Layer Cap (TLC)
- Medium Sand 2" min

1.3

Cap Model Areas E2 & E3

0 to 3 ft of Water (Cap NN)
- Habitat: Coarse Gravel 12" min
- Erosion Protection: Gravelly Cobble 12" min
- Chemical Isolation/GAC: Gravelly Sand 12" min
- Mixing: Gravelly Sand/GAC 3"

6.1 / 4.0 / 7.3

3 to 7 ft of Water (Cap OO)
- Erosion Protection/Habitat: Gravelly Cobble 18" min
- Chemical Isolation/GAC: Gravelly Sand 12" min
- Mixing: Gravelly Sand/GAC 3"

4.8 / 7.3

7 to 10 ft of Water (Cap PP)
- Erosion Protection/Habitat: Coarse Gravel 12" min
- Chemical Isolation/GAC: Medium Sand 12" min
- Mixing: Medium Sand/GAC 3"

4.6 / 7.3

10 to 20 ft of Water (Cap CC)
- Erosion Protection/Habitat: Fine Gravel 12" min
- Chemical Isolation/GAC: Medium Sand 12" min
- Mixing: Medium Sand/GAC 3"

4.6 / 3.4

20 to 30 ft of water (Cap S)
- Habitat: Medium Sand 12" min
- Chemical Isolation/GAC: Medium Sand 6" min
- Mixing: Medium Sand/GAC 3"

2.4 / 1.6

CRs & Nav Channel (Cap QQ)
- Erosion Protection/Habitat: Gravelly Cobble 12" min
- Chemical Isolation/GAC: Gravelly Sand 12" min
- Mixing: Gravelly Sand/GAC 3"

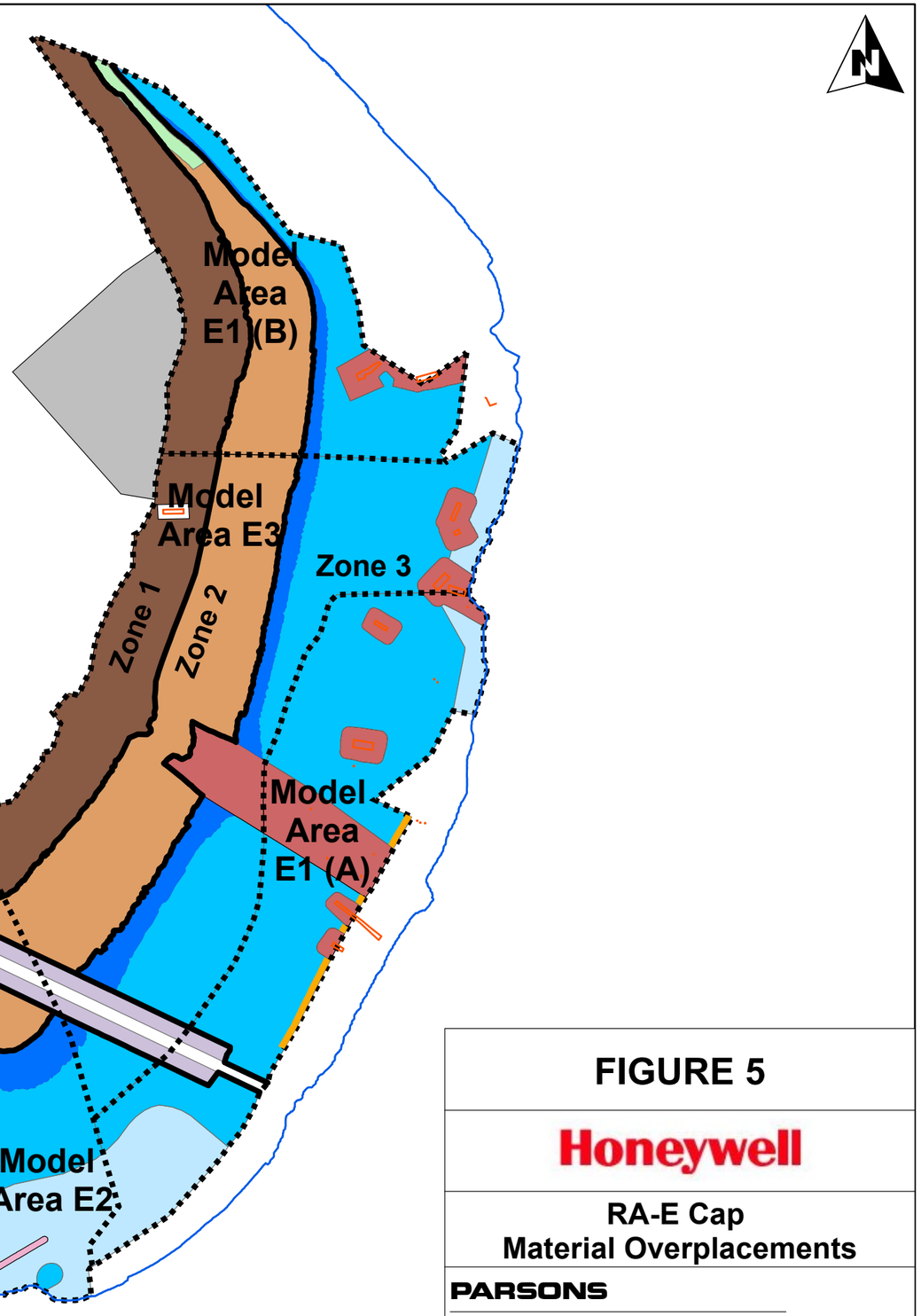
4.8 / 7.3

MERC
- Gravelly Sand/GAC 6" Avg.

-0.5

20 to 30 ft of water (Cap R)
- Habitat: Medium Sand 12" min
- Chemical Isolation/GAC: Medium Sand 12" min
- Mixing: Medium Sand/GAC 3"

2.4 / 3.7



Average Overplacements (Inches)

- X — MERC and Thin Layer Cap
- X / Y — Habitat-Erosion Protection Layer / Chemical Isolation Layer
- X / Y / Z — Habitat Layer / Erosion Protection Layer / Chemical Isolation Layer
- Cultural Resources
- Pre-Remediation Shoreline (Elev. 362.5)
- Cap Model Area
- Wave Dampers
- Berms (See FCF 62 for details)
- Sand Buttress (See FCF 48 for details)

0 1,000 2,000 Feet

FIGURE 5

Honeywell

RA-E Cap Material Overplacements

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-E_Cap_Overplacement.mxd
Plot Date: 1/6/2017 Plotted By: Sisson, Evan

ATTACHMENT B

SURFACE SEDIMENT RESIDUAL CONTAMINATION

290 Elwood Davis Road, Suite 340
Liverpool, New York 13088
315.453.9009

ANCHOR QEA

Memorandum

August 7, 2017

To: Ed Glaza, Parsons

From: Deirdre Reidy and Melisa Kohan, Anchor QEA, LLC

cc: Kevin Russell, Paul LaRosa, and Ram Mohan, Anchor QEA, LLC

Re: Sediment Concentrations Underlying the Onondaga Lake Cap

Introduction

This memorandum describes a data analysis conducted to document contaminant concentrations present underlying the Onondaga Lake cap following dredging. This evaluation incorporates the cap model areas defined during the final design, which consist of in-lake capping areas and the Wastebed B/Harbor Brook (WBB/HB) Outboard Area, the Wastebeds 1-8 (WB1-8) connected wetlands, and the Ninemile Creek Spits.[1] The cap habitat/erosion protection layer performance criteria include the probable effects concentrations (PECs) for those chemicals that are included in the calculation of the mean PECQ plus the NYSDEC sediment screening criteria (SSC) for benzene, toluene, and phenol. Therefore, these chemicals were the subject of this analysis.

The evaluation included in this memorandum was completed to evaluate concentrations observed in sediments and porewater samples collected from depths corresponding to the first 2 meters beneath the cap. This information may prove useful when evaluating results of the cap monitoring program and evaluating whether future modifications in chemical analyses may be appropriate.

Approach

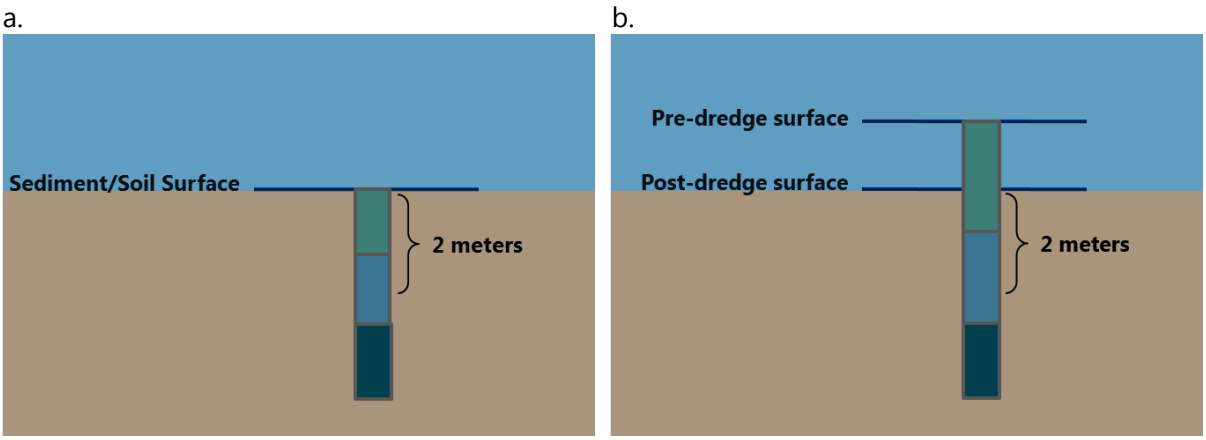
The focus of this analysis was on soil, sediment, and porewater most likely to impact cap performance, which is best characterized by measured concentrations directly beneath the cap. The analysis was conducted using porewater samples for measurements of benzene and toluene, sediment sample measurements converted to porewater concentrations for phenol, and sediment and soil samples for the remaining chemicals collected during the remedial investigation and pre-design investigation within Remediation Area (RA)-A (including the Ninemile Creek Spits), RA-B, RA-C, RA-D, RA-E, the WBB/HB Outboard Area and WB1-8 connected wetlands. To identify samples representative of the post-remediation surface, the elevation difference between the pre-dredge bathymetry (2005 survey) and post-dredge bathymetry (2014 survey) was calculated to obtain an as-built dredge depth. Samples collected from depths less than or equal to the dredge depth were

[1] Parsons and Anchor QEA, LLC, 2012. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Appendix B – Cap Modeling*. Prepared for Honeywell. March 2012.

first eliminated from the analysis. All samples with at least a portion of their sampling interval within the top 2 meters of the post-dredge surface were then used to calculate the maximum concentration beneath the cap at each core sampling location.

The maximum concentration from samples within the top 2 meters of surface sediment or soil beneath the cap[2] at each sample location was compared to the performance criteria (i.e., PEC or SSC). If more than one sample comprised the top 2 meters of the surface sediment or soil beneath the cap at a given core location, the maximum concentration among those individual core interval samples was selected (Figure 1). The schematic shows an example of sample selection from a core collected within a cap only area (Figure 1a) and a core collected within a dredge and cap area (Figure 1b).

Figure 1
Schematic of the Selection of Sample Concentrations from Top 2 Meters of Post-Dredge Surface



a) Sample collected in cap only area
b) Sample collected in a dredge and cap area

Consistent with the final design, benzene and toluene porewater samples were used for comparison to their respective SSCs and phenol sediment concentrations were converted to porewater concentrations using equilibrium partitioning theory (considering the sample-specific TOC) for comparison to its SSC, while sediment concentrations for all other chemicals were directly compared to their respective PECs.

Results

Figures 2 through 6 show the top 2-meter post-dredge concentrations relative to the applicable performance criteria by RA and are separated by analytical group: results for volatile organic

[2] Sediment beneath the cap is defined as surface sediment or soil in areas where the remedy consists of capping alone, or as the post-dredge sediment or soil surface in areas where the remedy consists of dredging followed by capping.

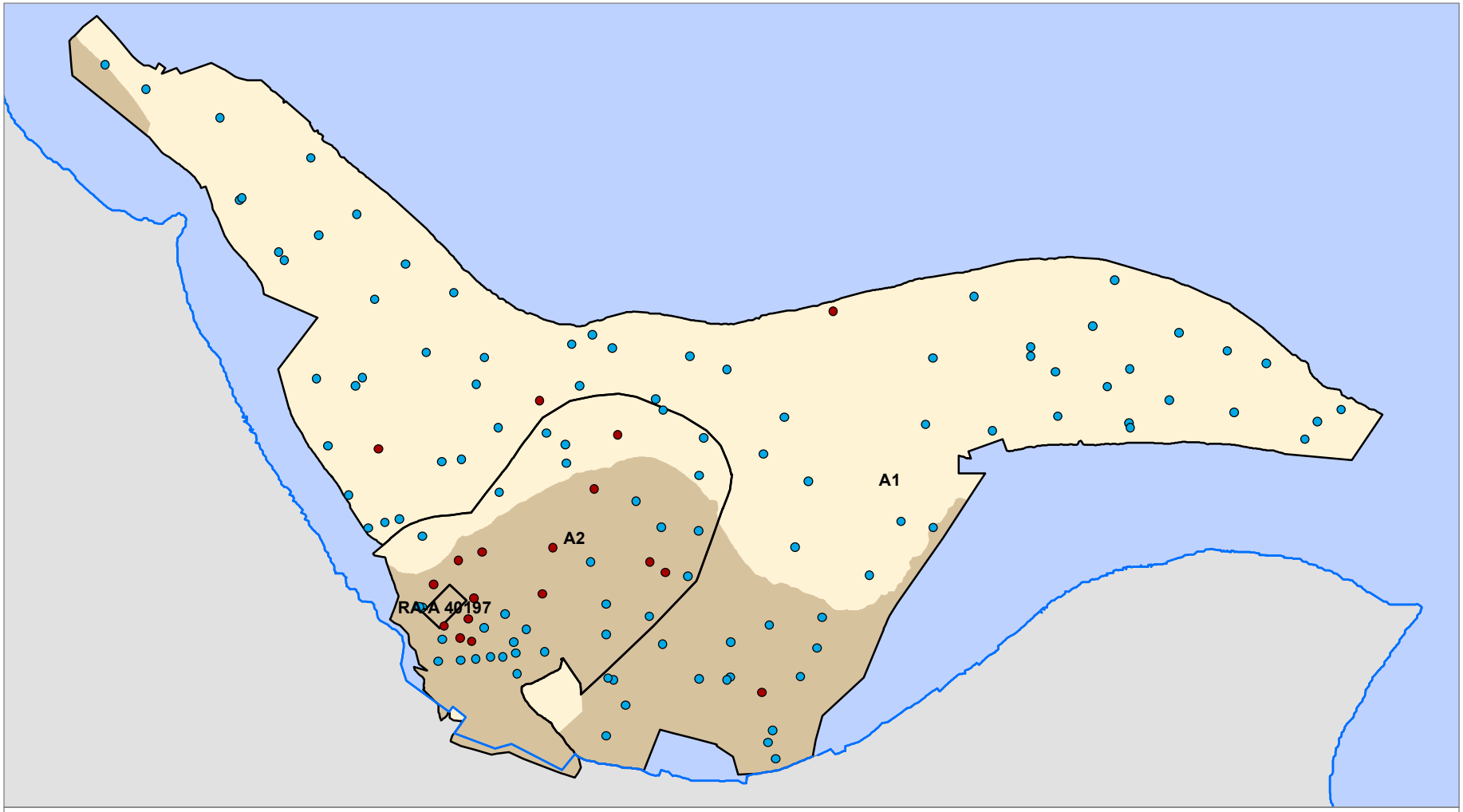
compounds (VOCs), mercury, polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and phenol are displayed separately. Blue-colored symbols represent sample locations where sediment or porewater concentrations for all chemicals within the analytical group have concentrations less than or equal to the PEC or SSC. Red-colored symbols represent sample locations where at least one or more of the chemicals within the analytical group have concentrations greater than the PEC or SSC. Percentages of core locations exceeding the PEC or SSC are summarized in Table 1.

Table 1
Percentage of Samples Exceeding Performance Criteria per Model Area in Top 2 Meters of Post-Dredge Surface

Remediation Area	Model Area	Percent of Locations Exceeding PEC or SSC in Post-Dredge Surface[1,2]				
		VOCs	Mercury	PCBs	PAHs	Phenol
A	A1	4%	**74**	59	58	2
	A2[3]	**31**	**76**	25	**27**	**10**
B	B1	**63**	**35**	35	**42**	**54**
	B2	**0**	**73**	33	**56**	**88**
C[4]	C1	**50**	**0**			
	C2	**26**	**42**	56	**69**	**19**
	C3	**66**	**88**	80	**95**	**9**
D	D-SMU2	**68**	**43**	25	**100**	**36**
	D-West	**92**	**43**	21	**100**	**75**
	D-Center[5]	**99**	**33**	14	**98**	**80**
	D-East	**98**	**71**	39	**97**	**71**
E[6]	E1A	8	**6**	8	29	0
	E1B	34	**56**	83	100	7
	E2	**59**	**74**	71	**78**	**5**
	E3	**42**	**64**	54	77	0
Wetlands[7]	WB1-8	**100**	**0**			
	WBB-Center	**73**	**36**	18	**91**	**82**
	WBB-East	**20**	**20**	7	**80**	**13**
	WBB-West	**92**	**67**	29	**92**	**42**

Notes:

1. Values in bold indicate that these analytical groups will be included in the monitoring program as indicator chemicals; all other chemical groups are considered additional chemical groups (see Section 5.1 of Appendix D).
2. Counts for percent exceedances are based on at least one individual chemical in that group exceeding the PEC/SSC at each location
3. A2 includes Ninemile Creek Spits and Model Area RA-A-40197.
4. No data are available from the depth corresponding to the post-dredge surface within C1 for PCBs, PAHs, or phenol.
5. D-Center includes Model Area OL-VC-10138/10140.
6. E1 consists of two separate areas that were modeled as one area. The E1A and E1B designations were developed for identification of additional chemical groups.
7. No data are available from the depth corresponding to the post-dredge surface within the WB1-8 connected wetlands for PCBs, PAHs, or phenol.



LEGEND:

Post-dredge Concentrations

- Meets Performance Criteria
- Exceeds Performance Criteria

- Cap Model Area
- RA-A Cap
- RA-A Dredge and Cap

- Shoreline

Note:
Porewater samples used for comparison to benzene and toluene cap performance criteria

0 1,000
Feet

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Figure 2a
Sediment and Porewater VOC Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area A
Onondaga Lake

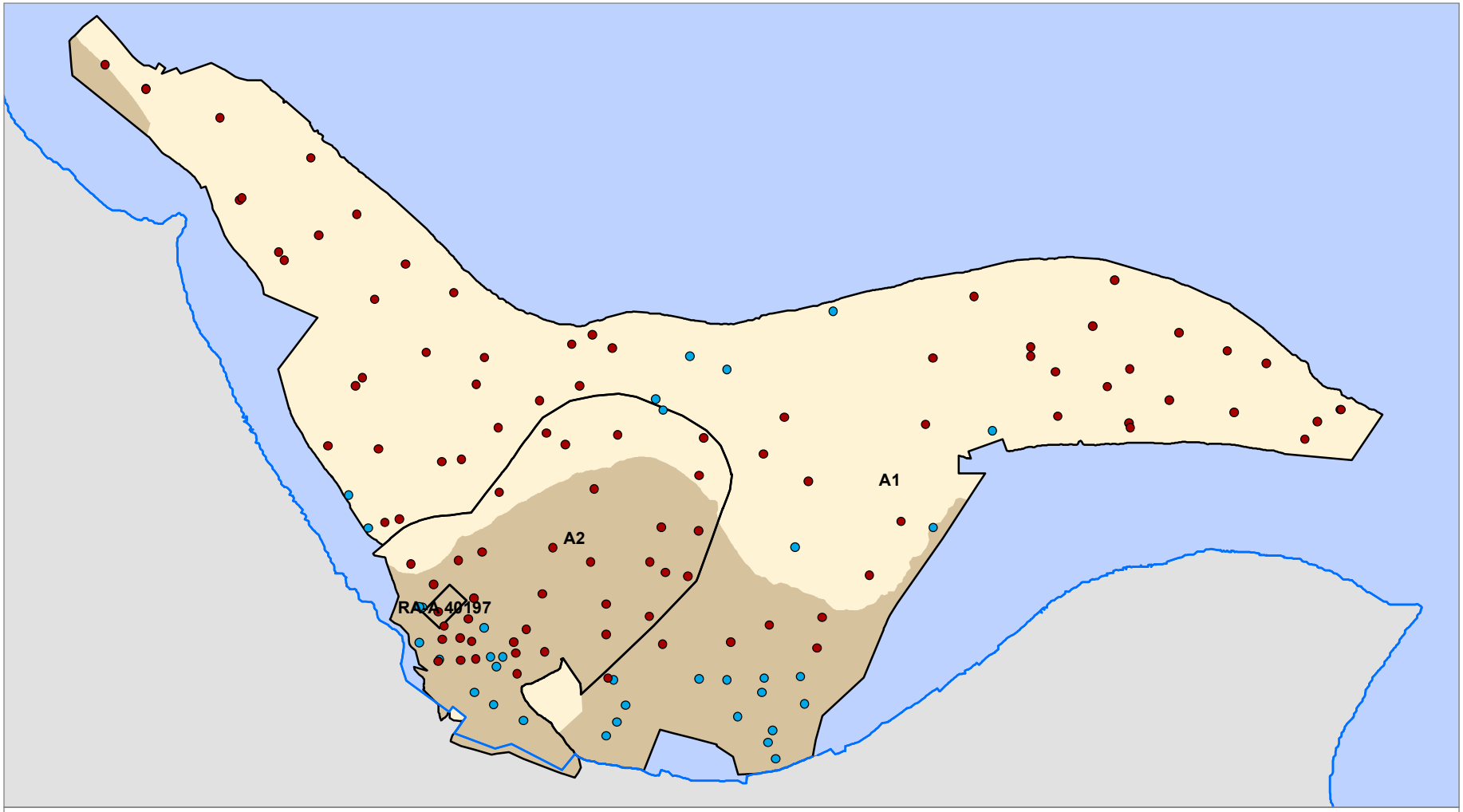

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Figure 2b
Sediment Mercury Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area A
Onondaga Lake

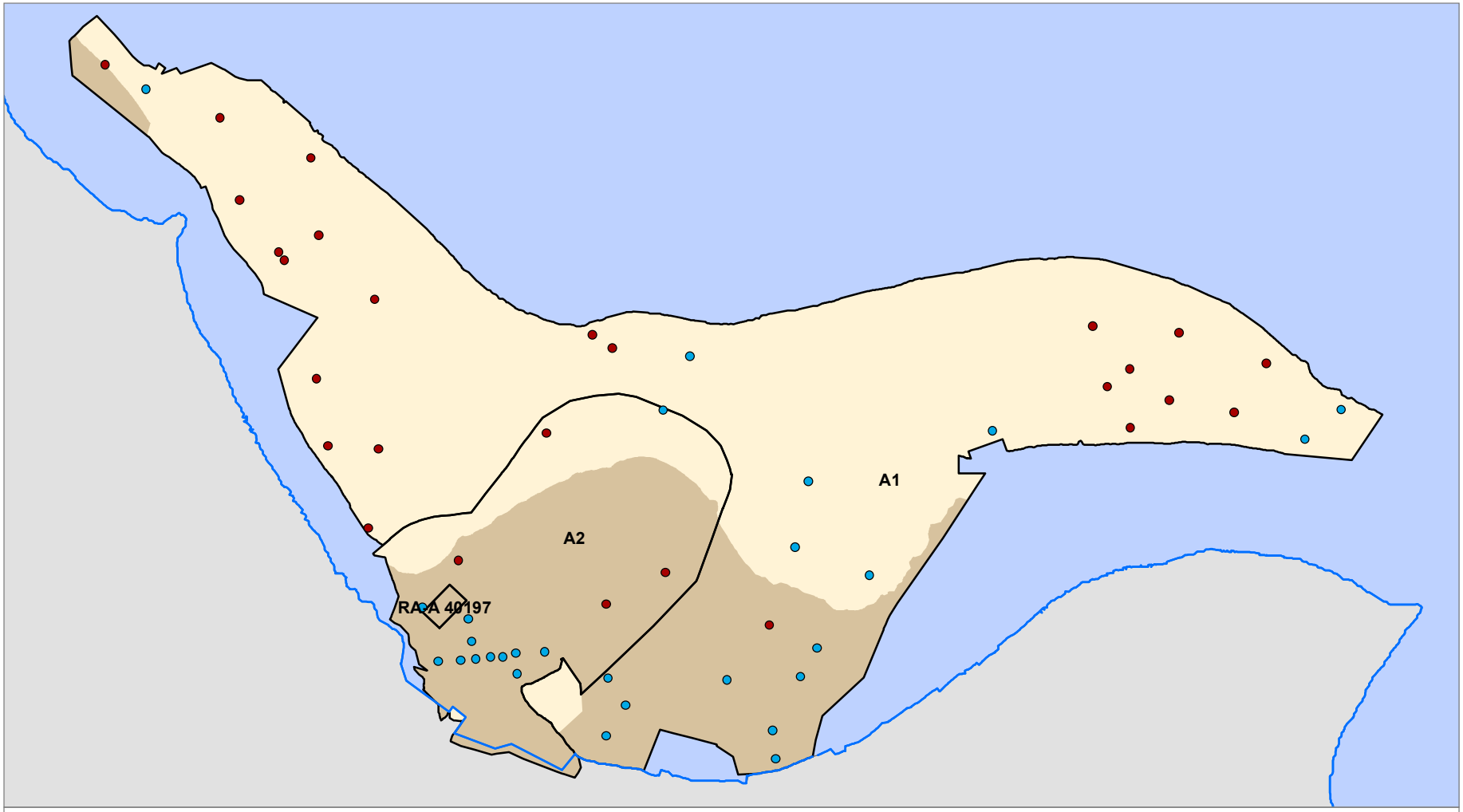

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Figure 2c
Sediment PCB Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area A
Onondaga Lake

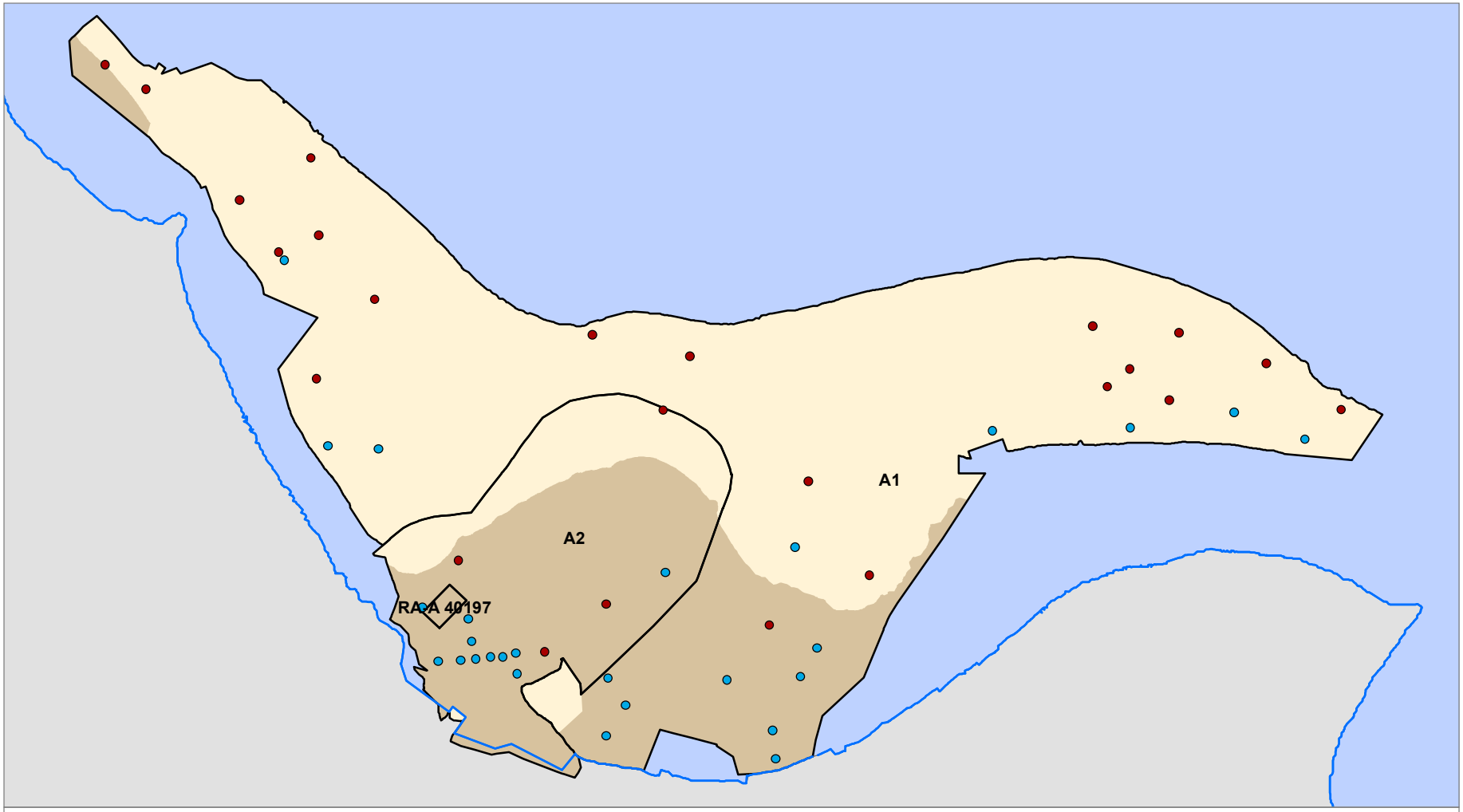

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Figure 2d
Sediment PAH Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area A
Onondaga Lake

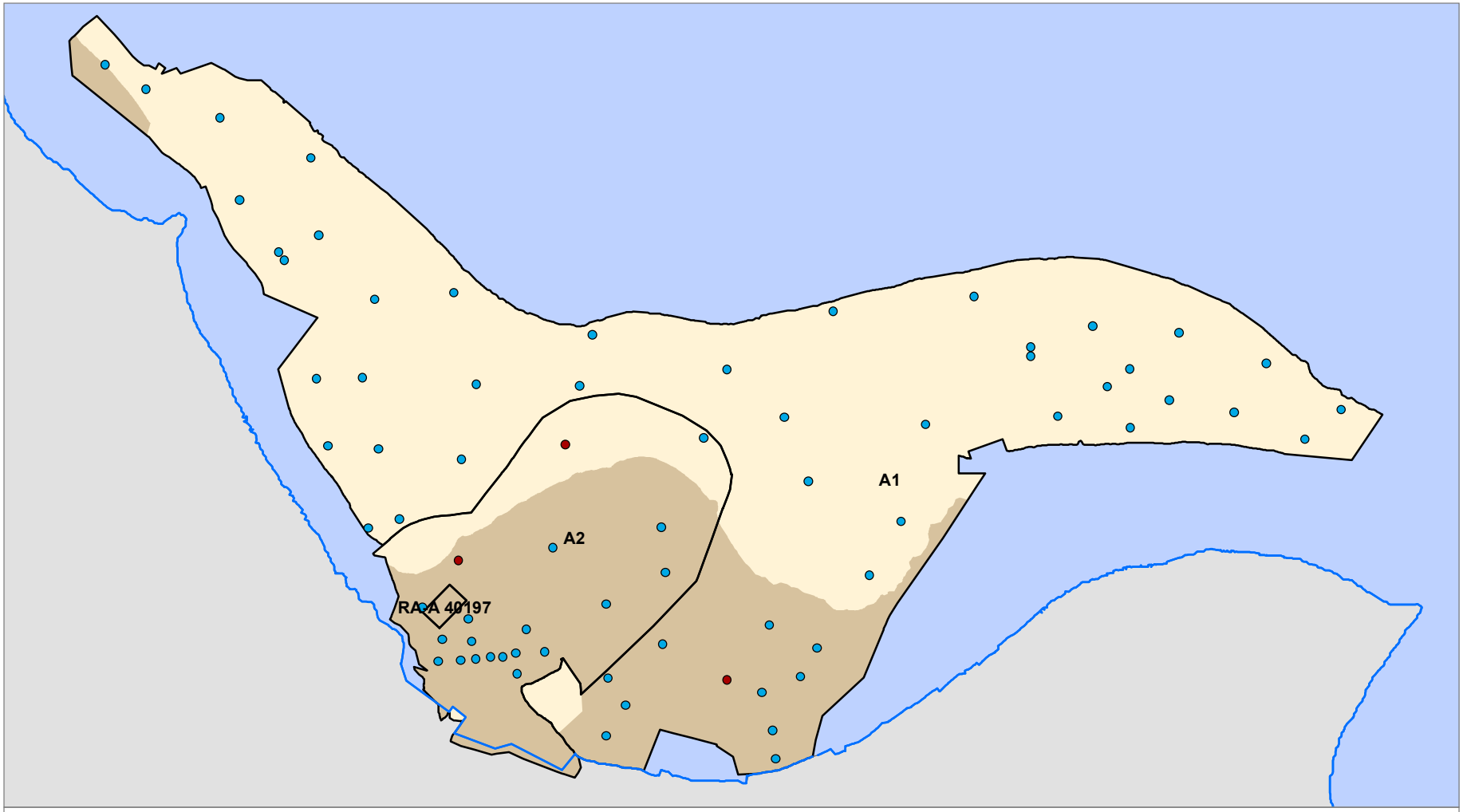

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Figure 2e
Porewater Phenol Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area A
Onondaga Lake

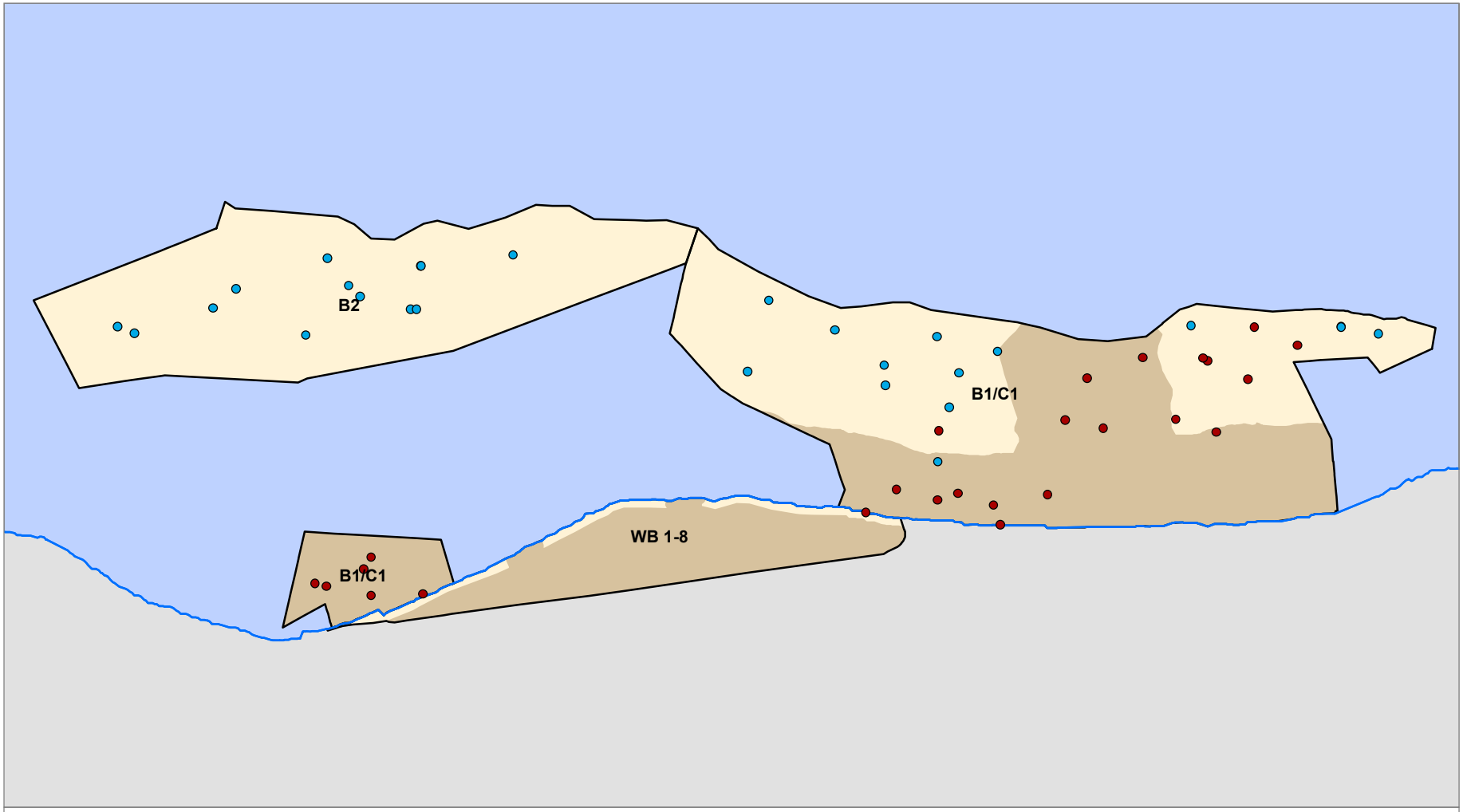

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Figure 3a
Sediment and Porewater VOC Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area B
Onondaga Lake

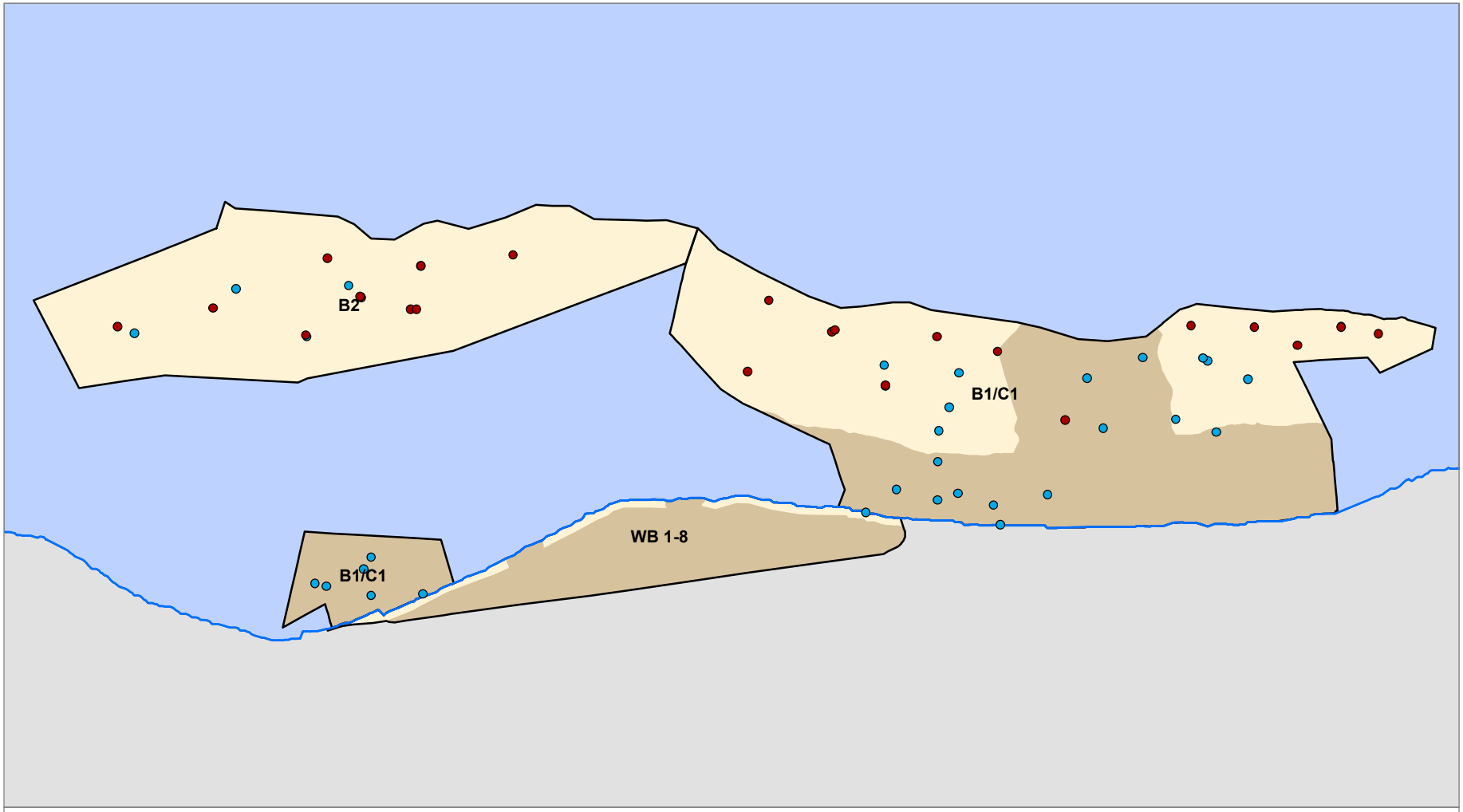

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Figure 3b
Sediment Mercury Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area B
Onondaga Lake

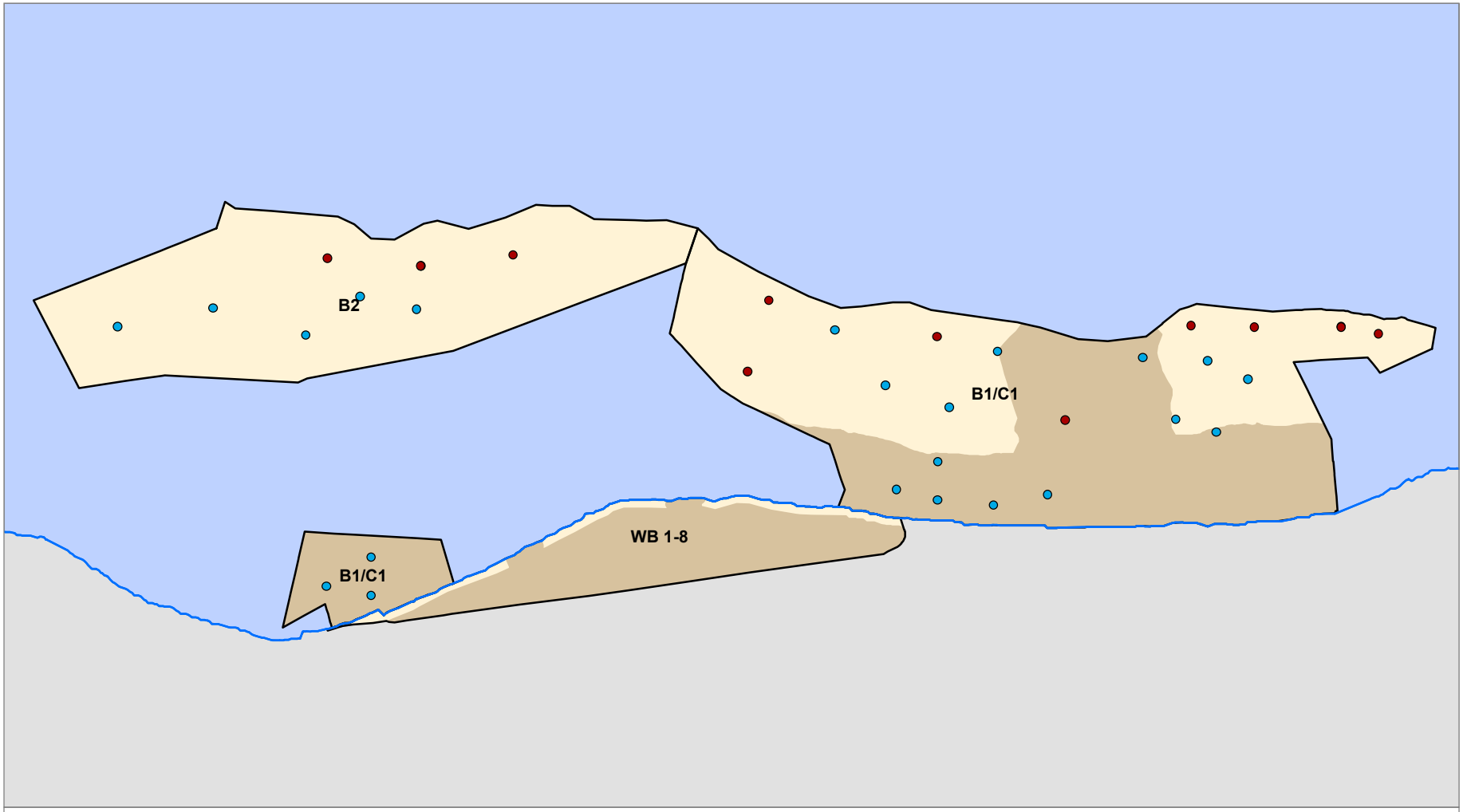

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Figure 3c
Sediment PCB Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area B
Onondaga Lake

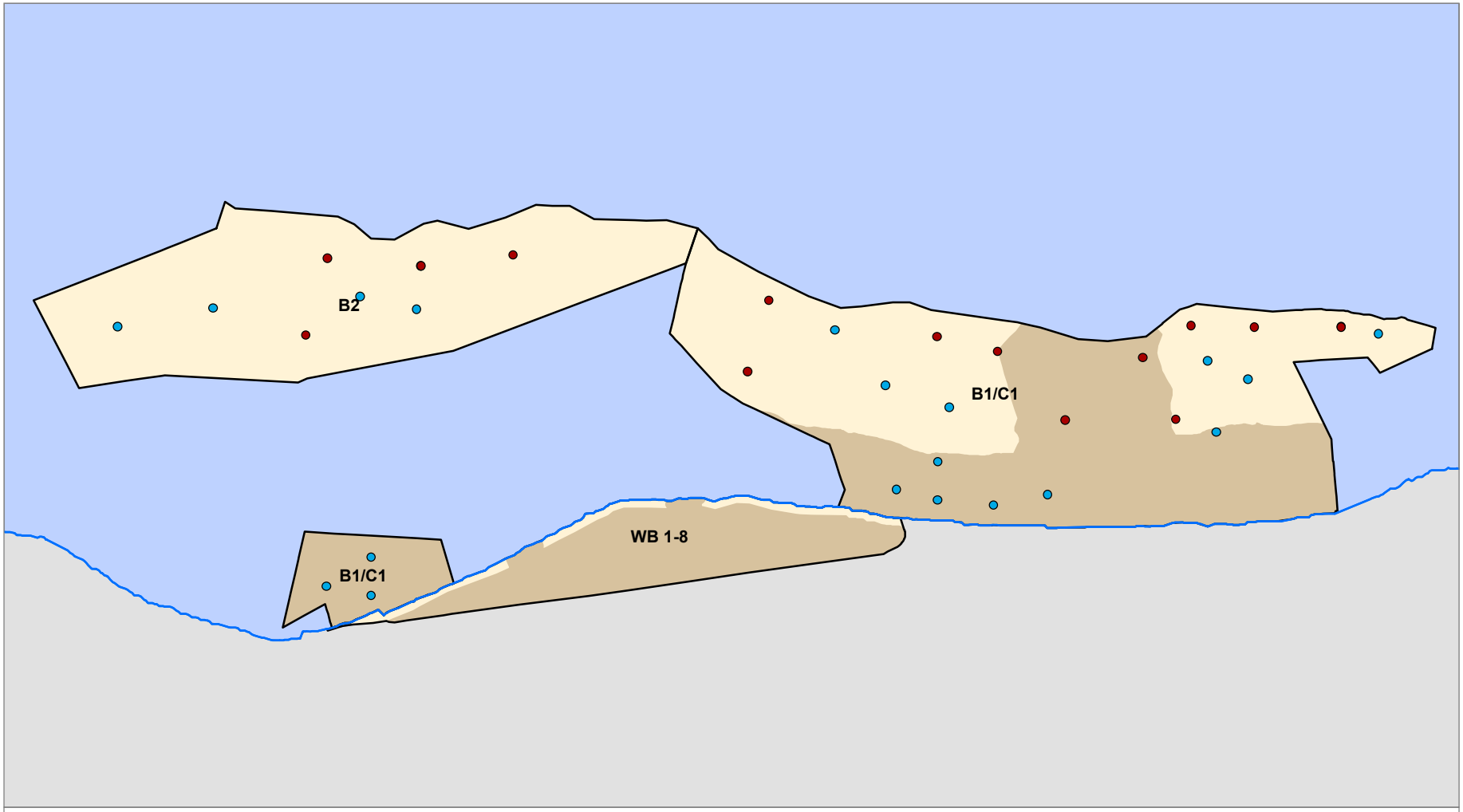

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Figure 3d
Sediment PAH Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area B
Onondaga Lake

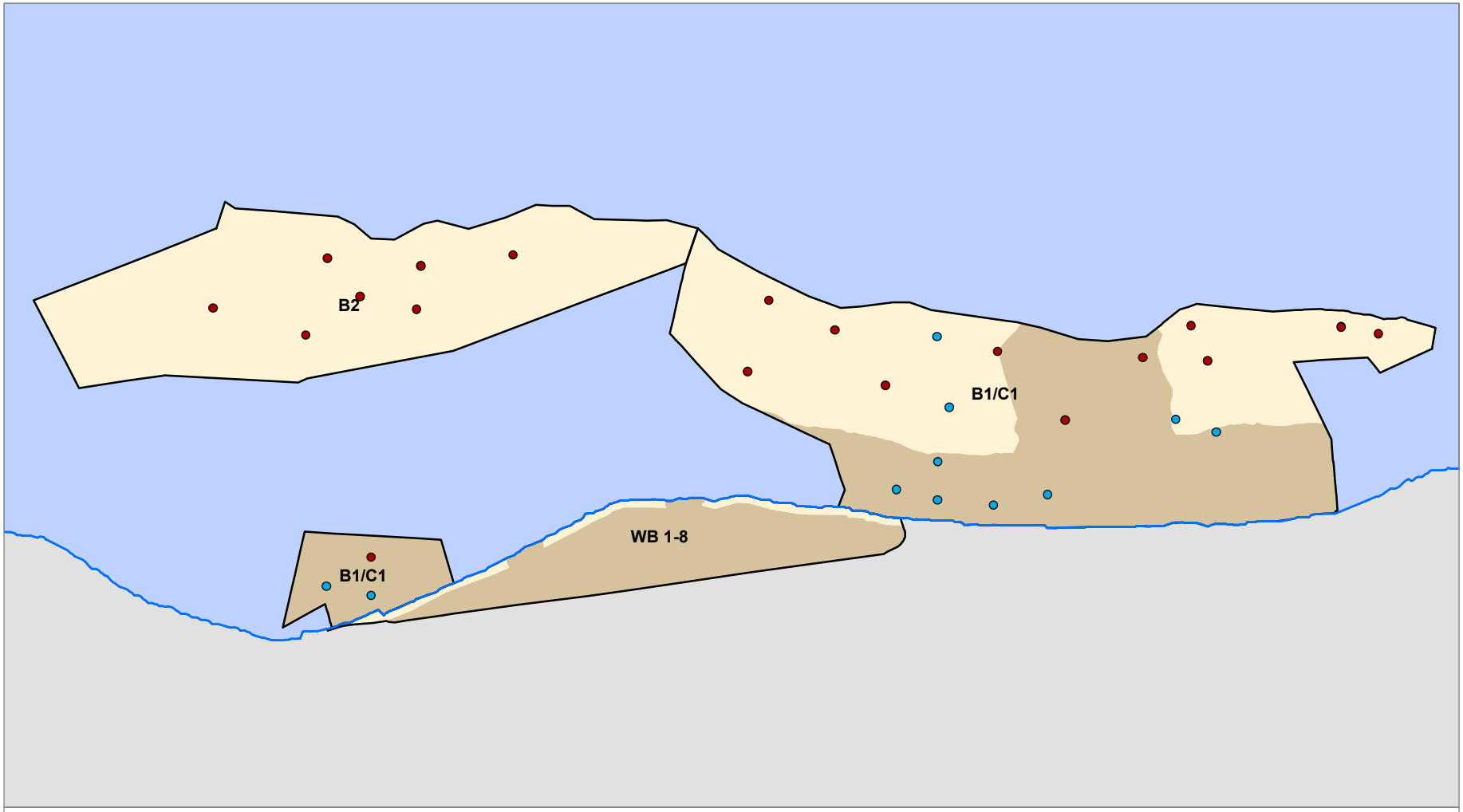

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Figure 3e
Porewater Phenol Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area B
Onondaga Lake

LEGEND:

Post-dredge Concentrations

- Meets Performance Criteria
- Exceeds Performance Criteria

- Cap Model Area
- RA-C Cap
- RA-C Dredge and Cap

- Shoreline

Note:
Porewater samples used for comparison to benzene and toluene cap performance criteria

0 500
Feet

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Figure 4a
Sediment and Porewater VOC Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area C
Onondaga Lake

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Figure 4b
Sediment Mercury Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area C
Onondaga Lake

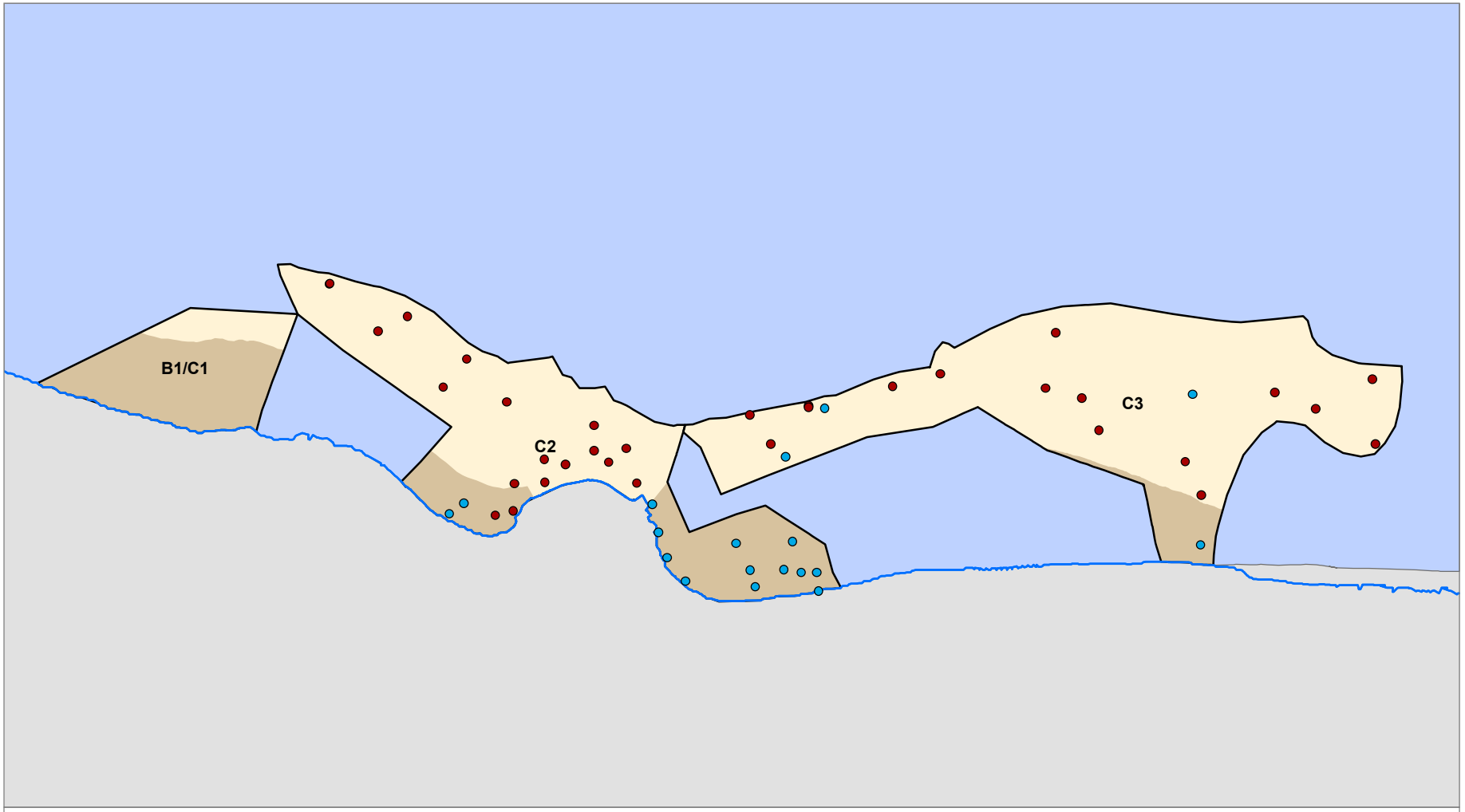

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Figure 4c
Sediment PCB Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area C
Onondaga Lake

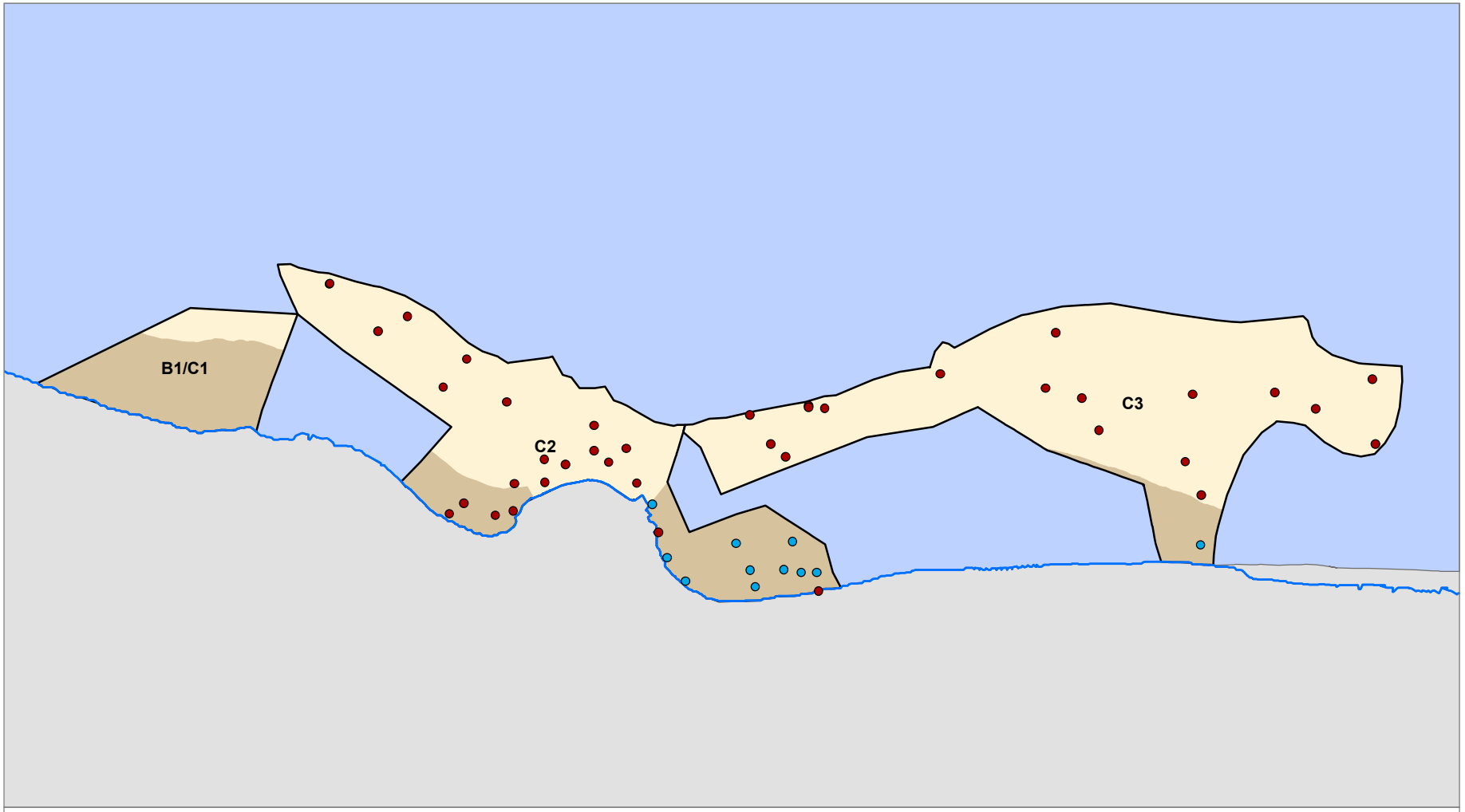

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Figure 4d
Sediment PAH Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area C
Onondaga Lake

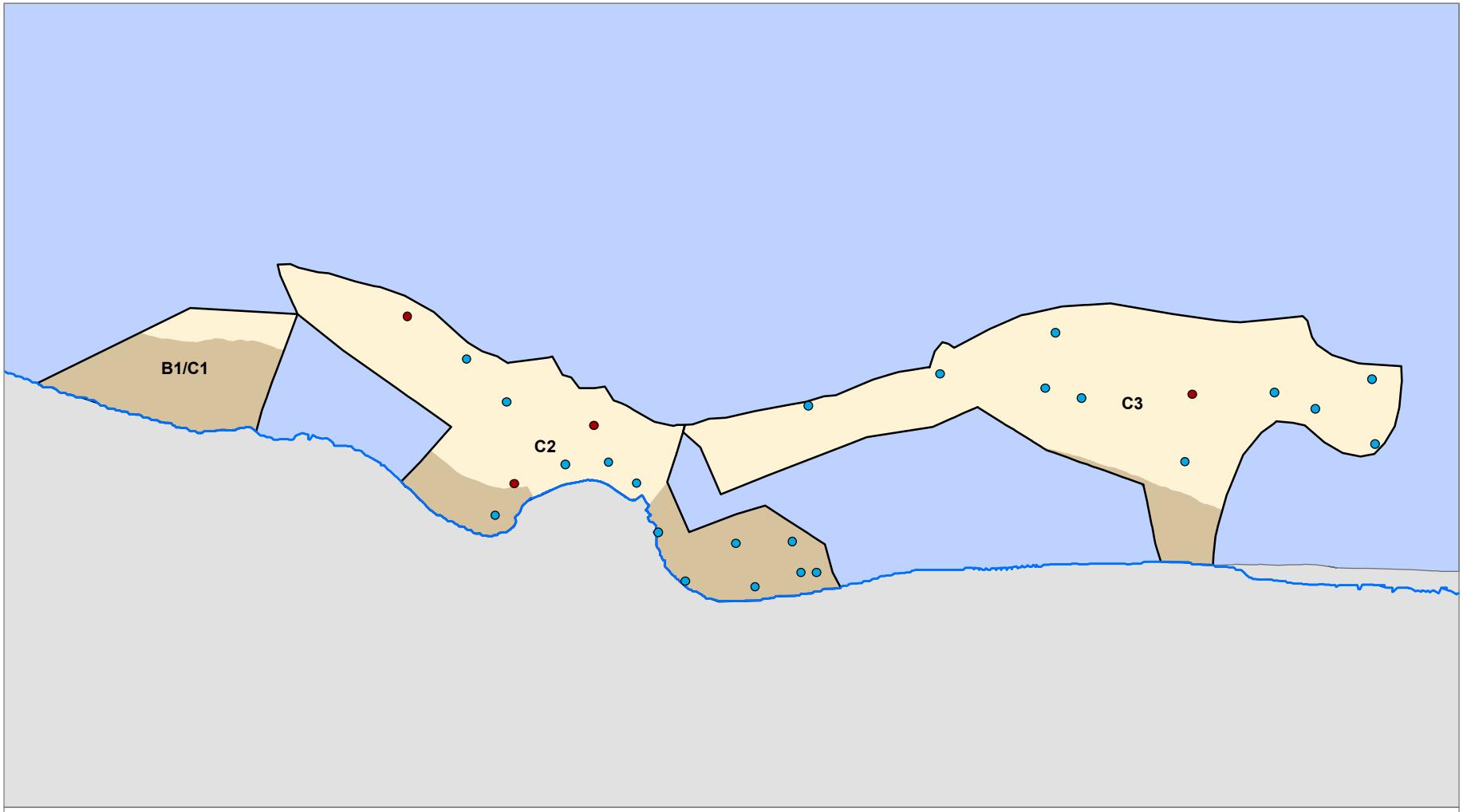

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Figure 4e
Porewater Phenol Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area C
Onondaga Lake

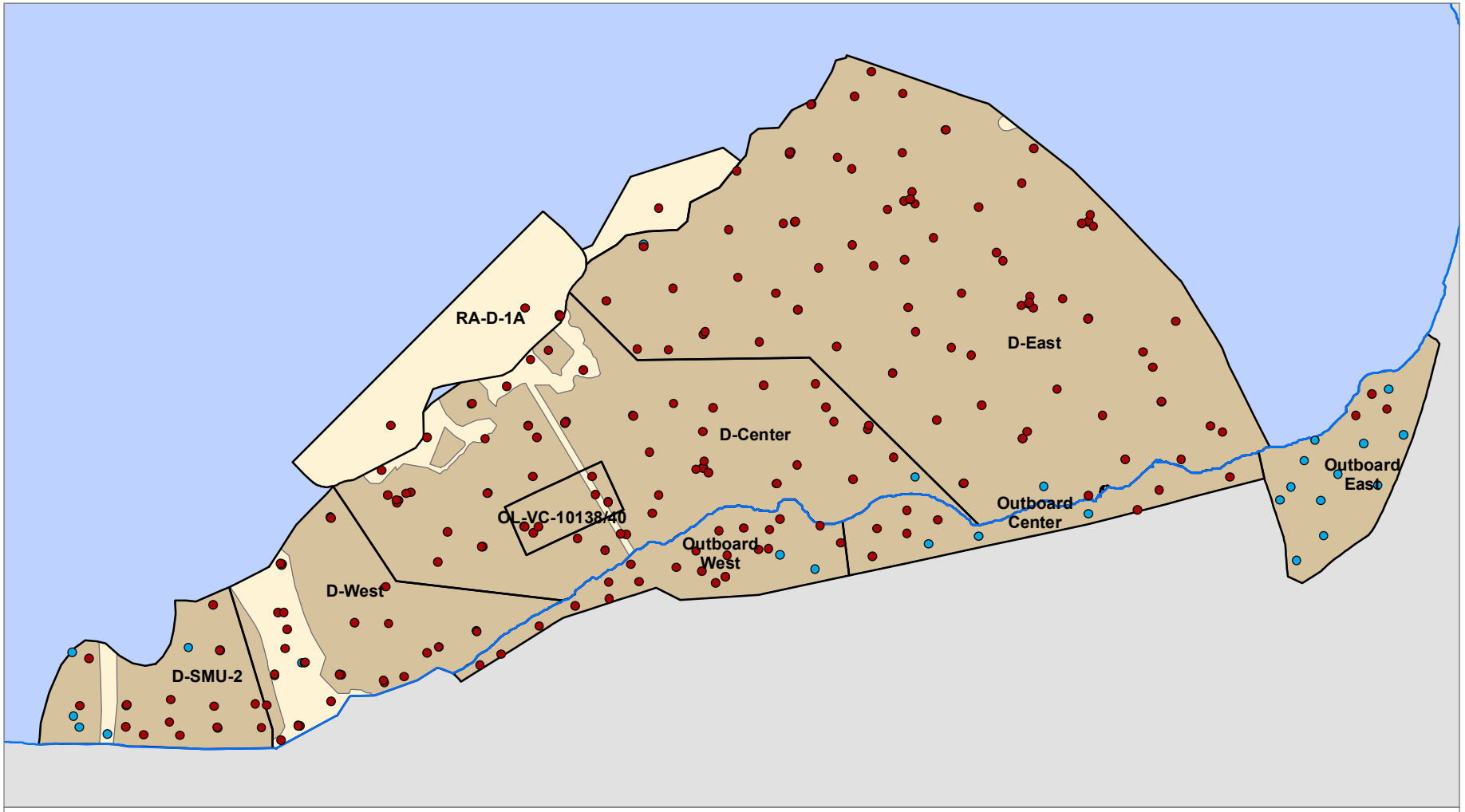

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Figure 5a
Sediment and Porewater VOC Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area D and WB-B/HB Outboard Area
Onondaga Lake

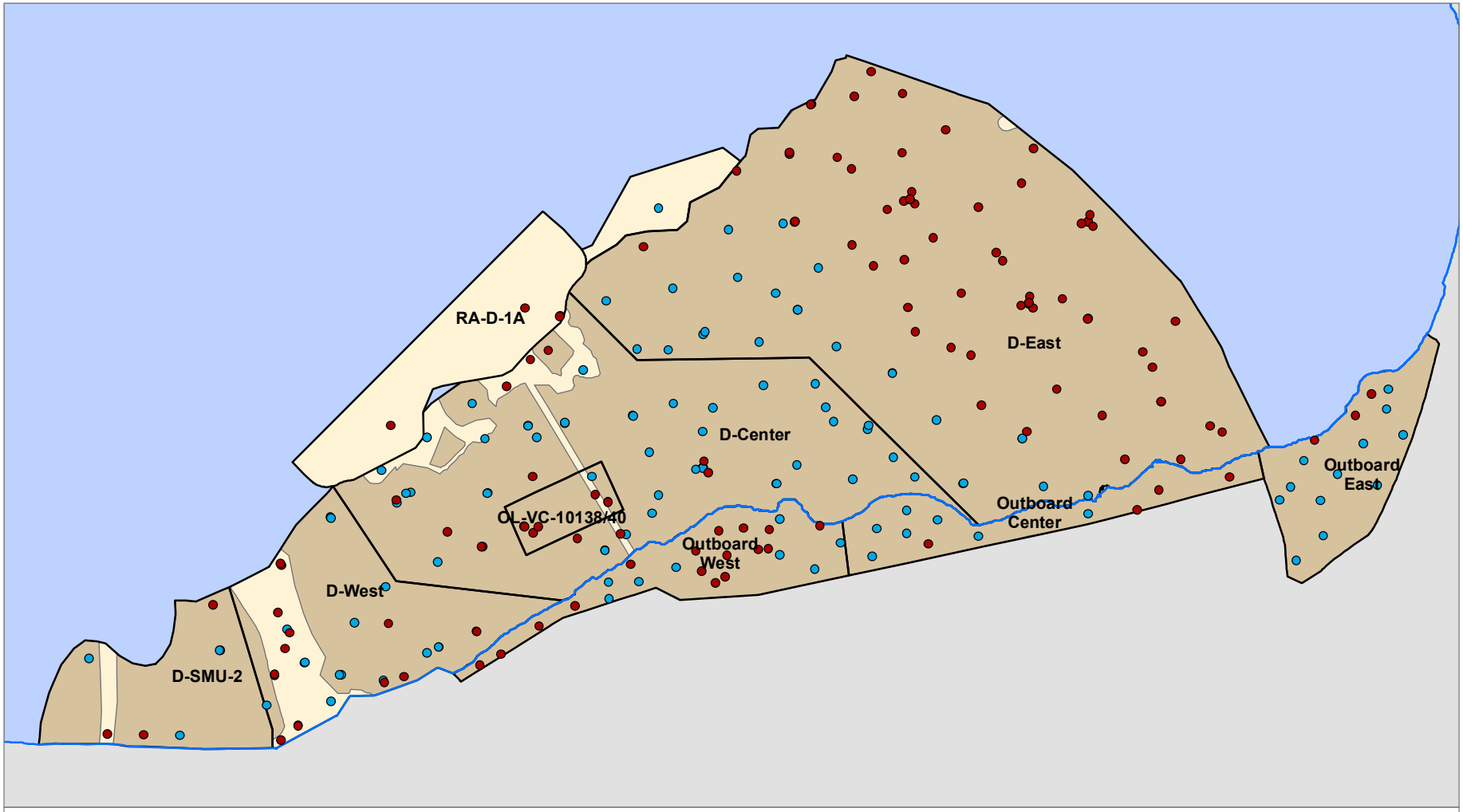

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Figure 5b
Sediment Mercury Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area D and WB-B/HB Outboard Area
Onondaga Lake

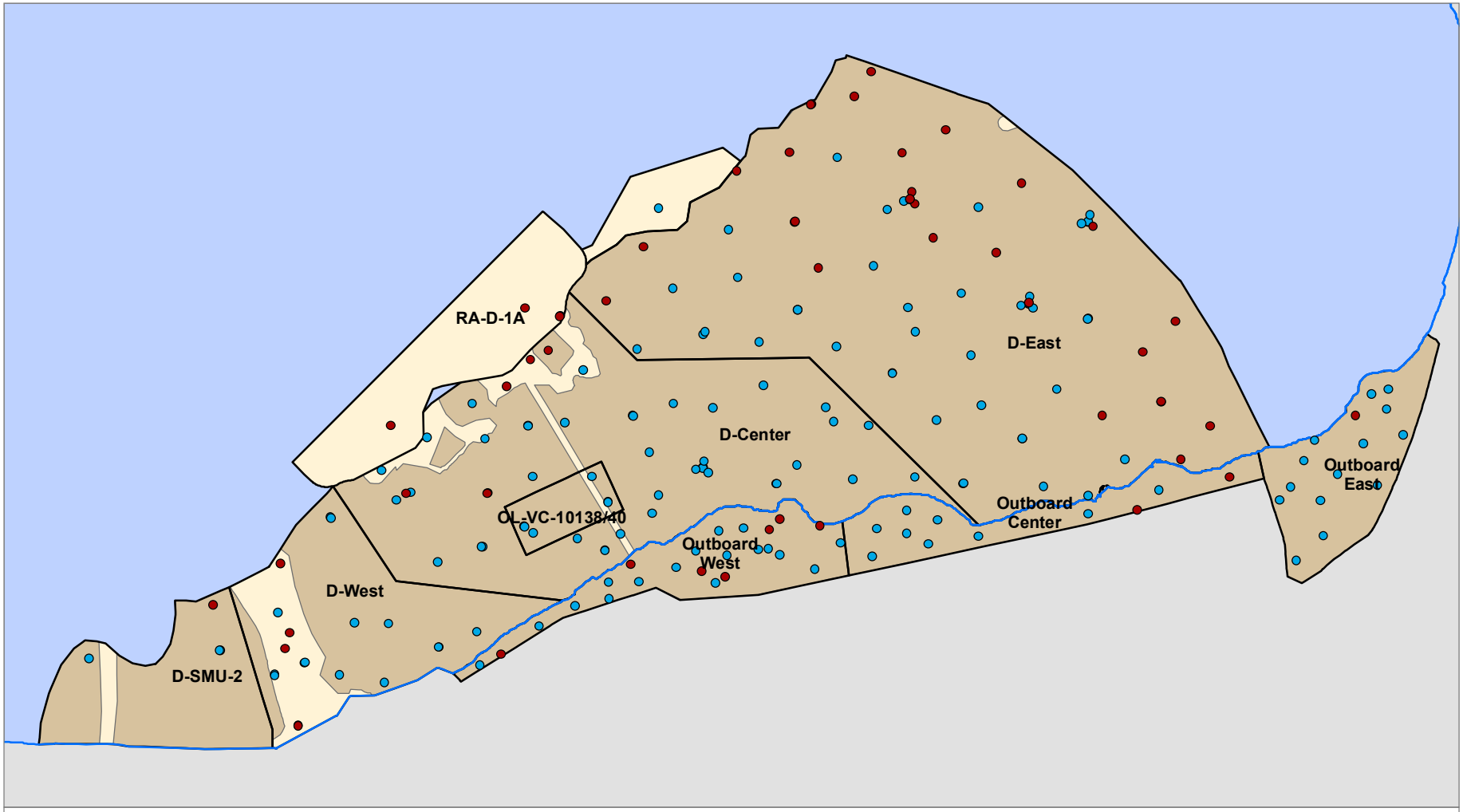

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Figure 5c
Sediment PCB Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area D and WB-B/HB Outboard Area
Onondaga Lake

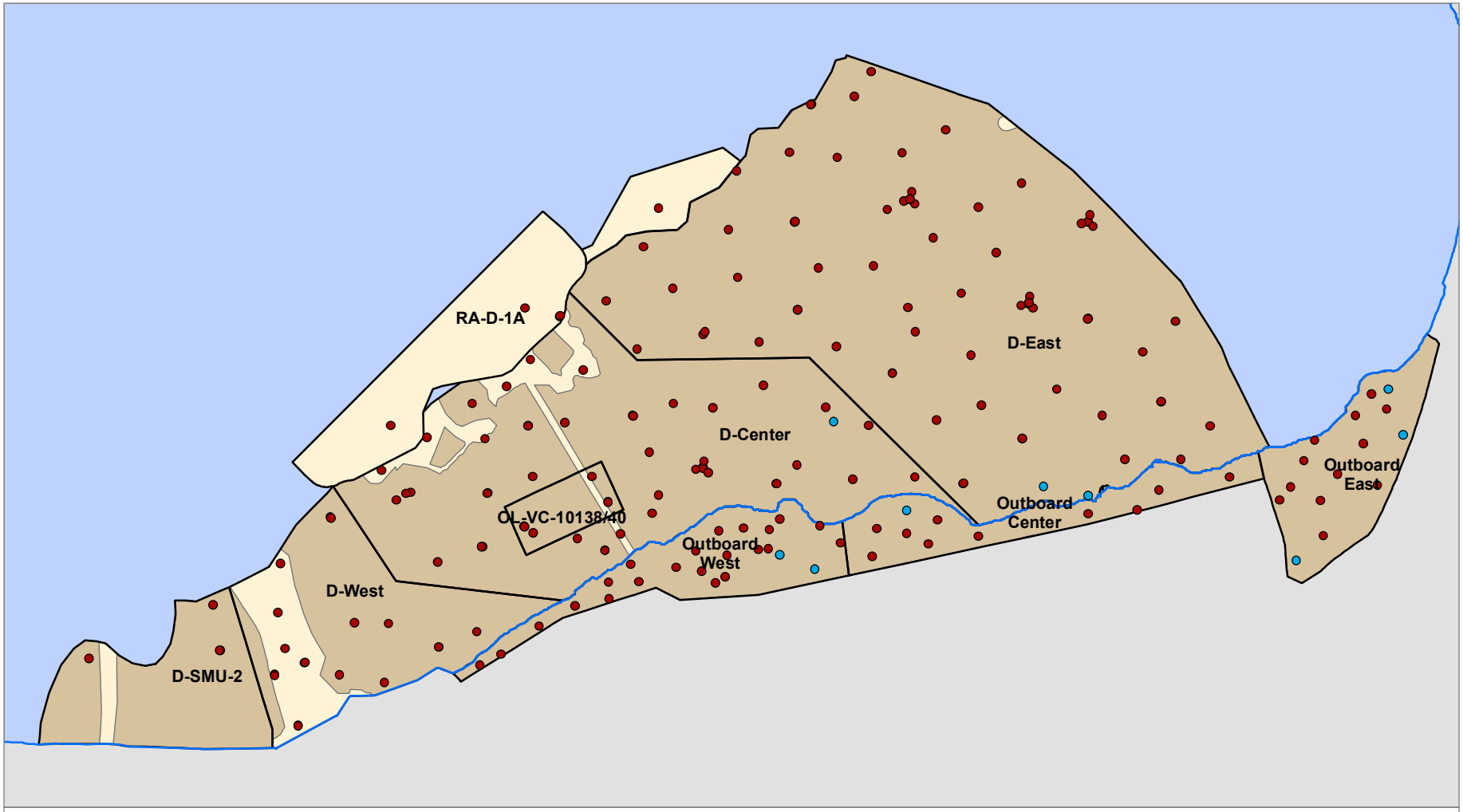

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Figure 5d
Sediment PAH Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area D and WB-B/HB Outboard Area
Onondaga Lake

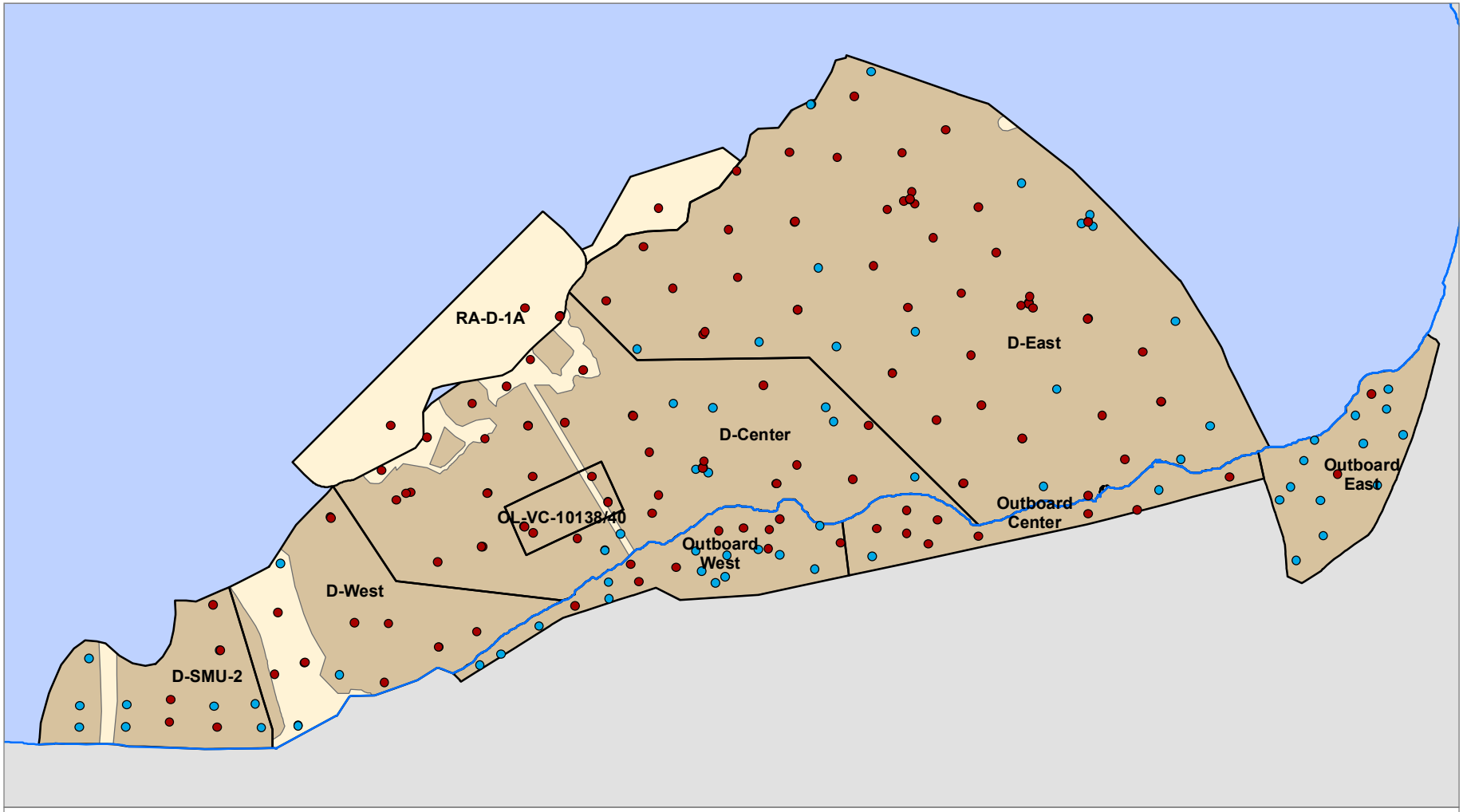

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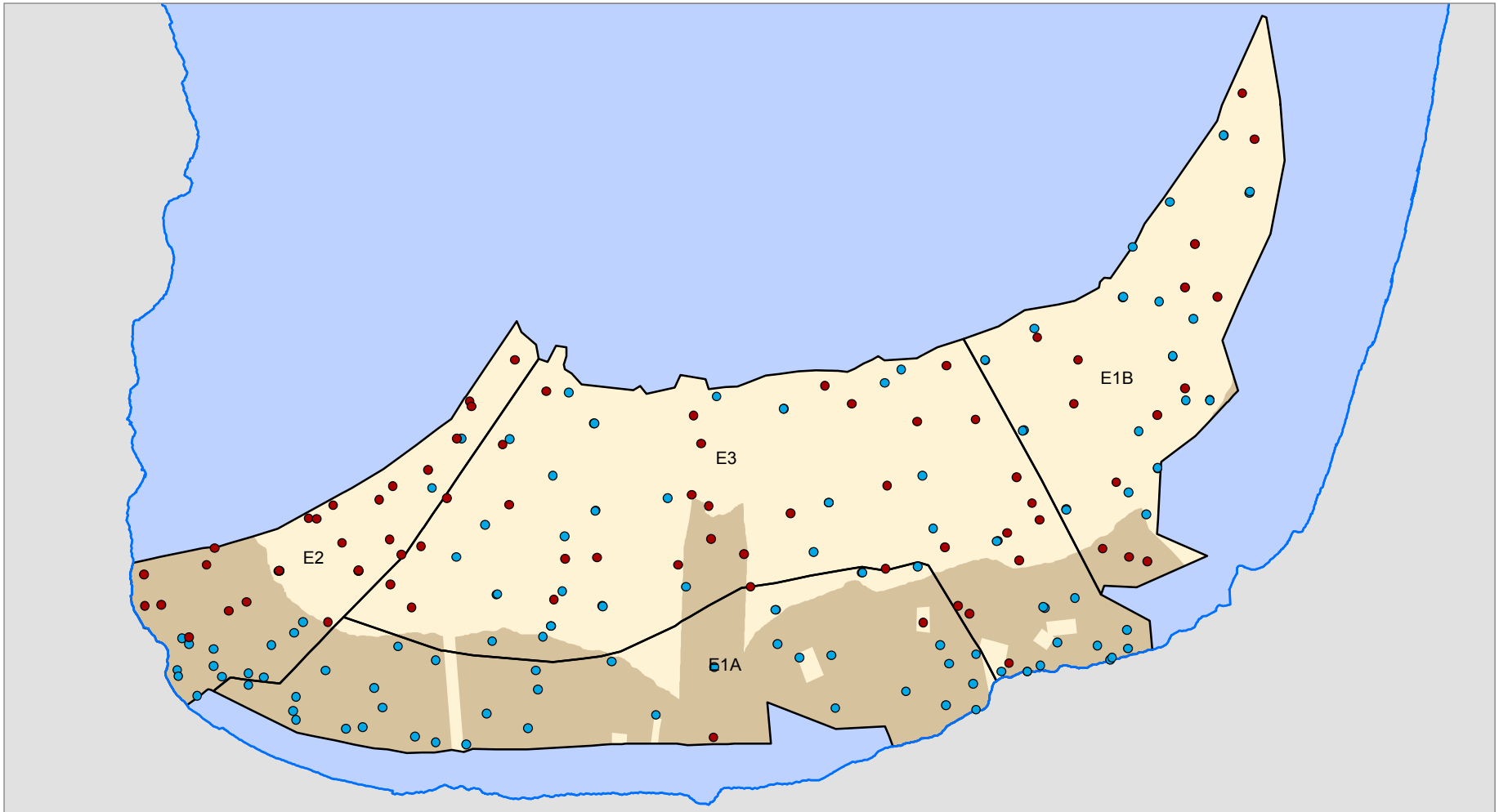
Figure 5e
Porewater Phenol Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area D and WB-B/HB Outboard Area
Onondaga Lake



LEGEND:

Post-dredge Concentrations

- Meets Performance Criteria
- Exceeds Performance Criteria

- Cap Model Area
- RA-E Cap
- RA-E Dredge and Cap

- Shoreline

Note:
Porewater samples used for comparison to benzene and toluene cap performance criteria

0 1,000
Feet

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Figure 6a
Sediment and Porewater VOC Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area E
Onondaga Lake

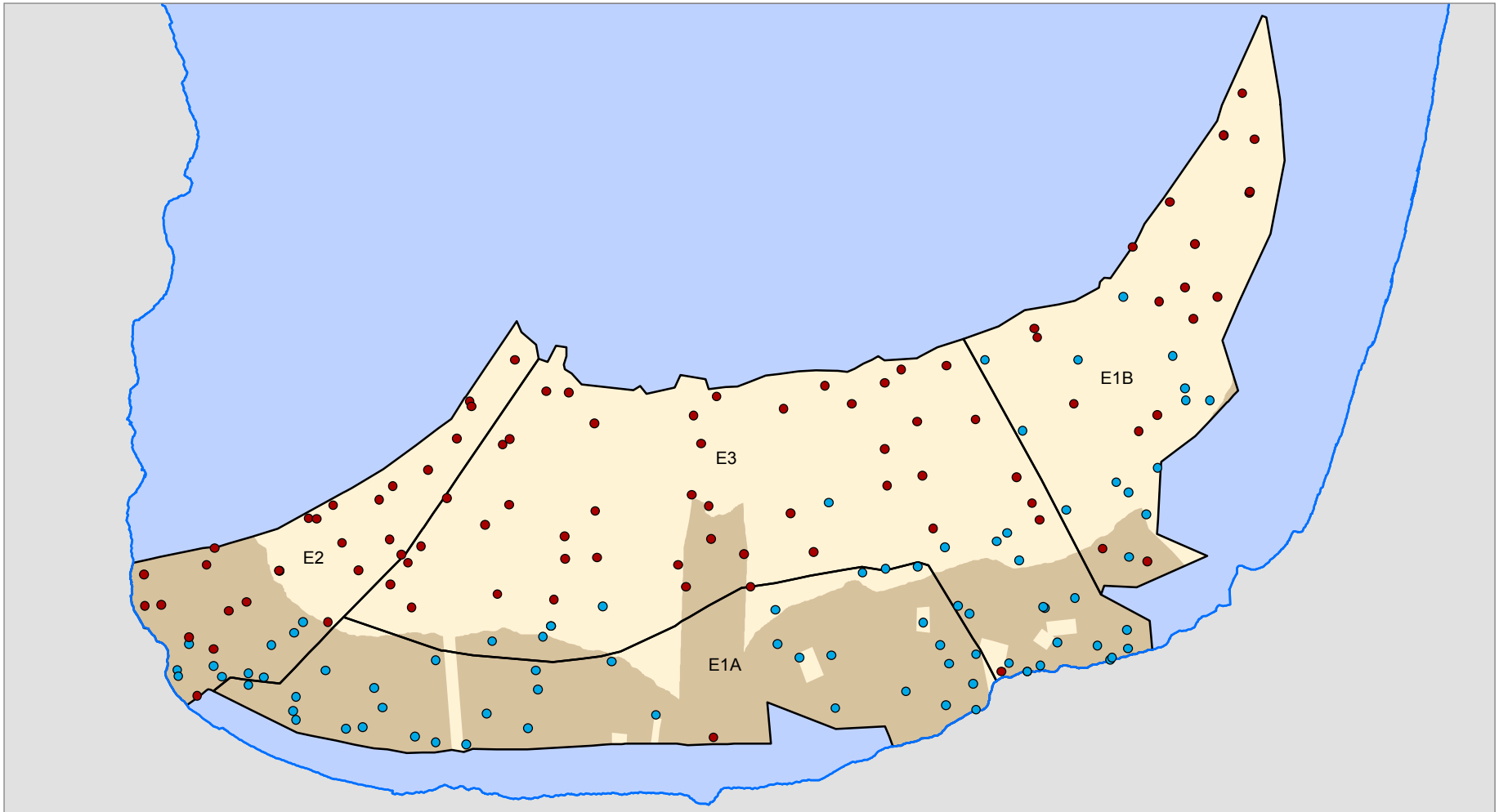

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Figure 6b
Sediment Mercury Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area E
Onondaga Lake

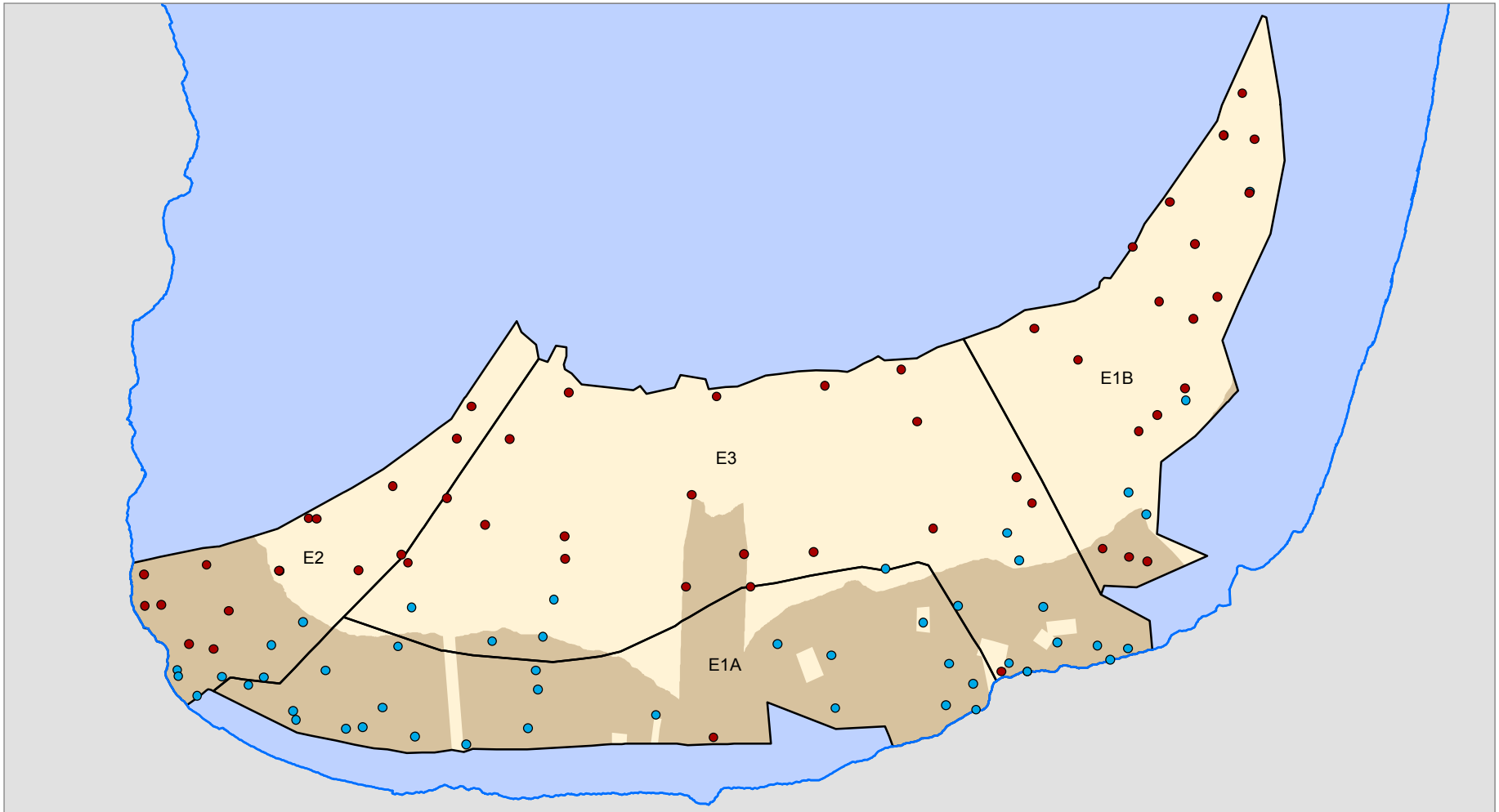

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Figure 6c
Sediment PCB Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area E
Onondaga Lake

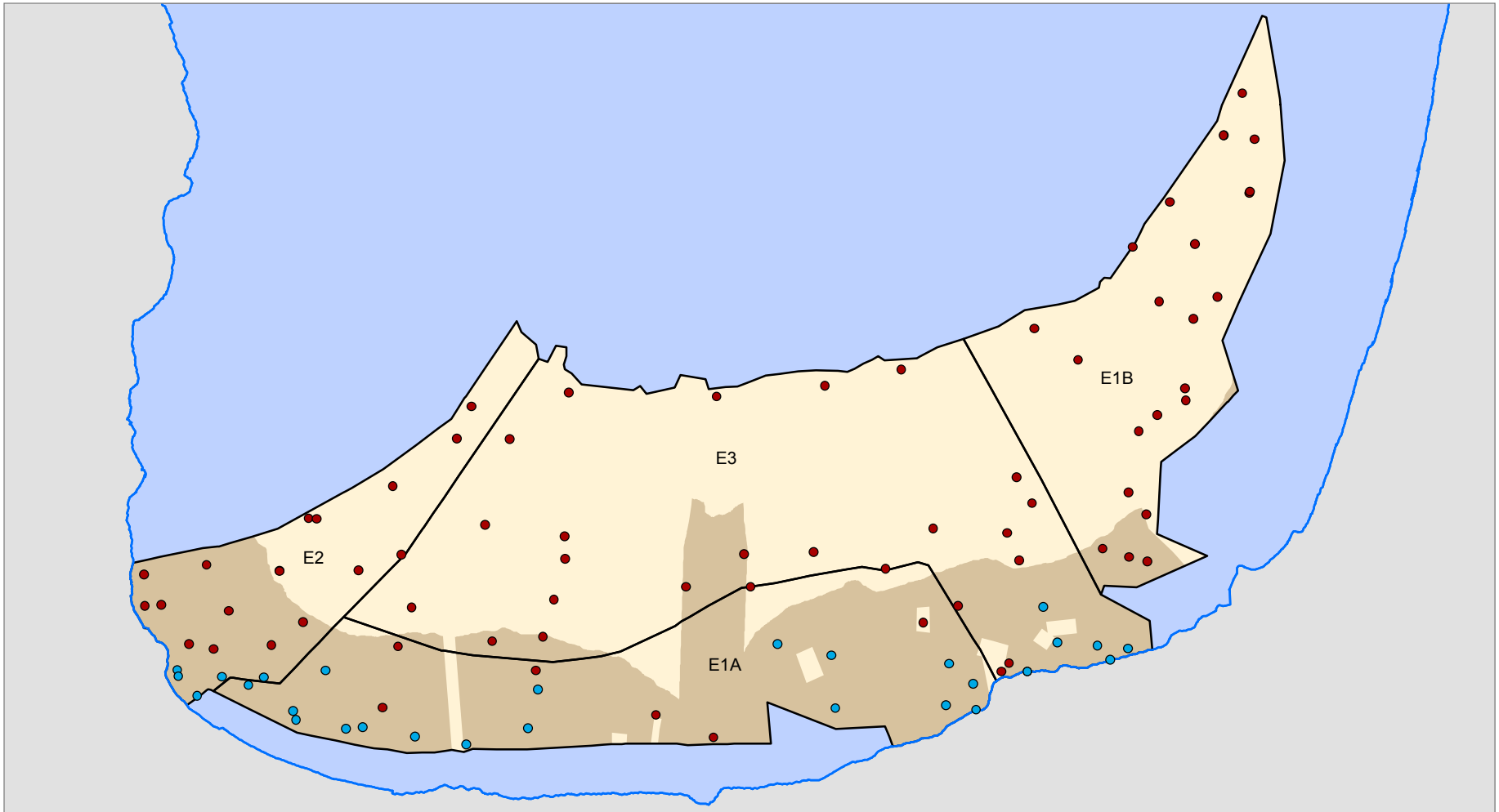

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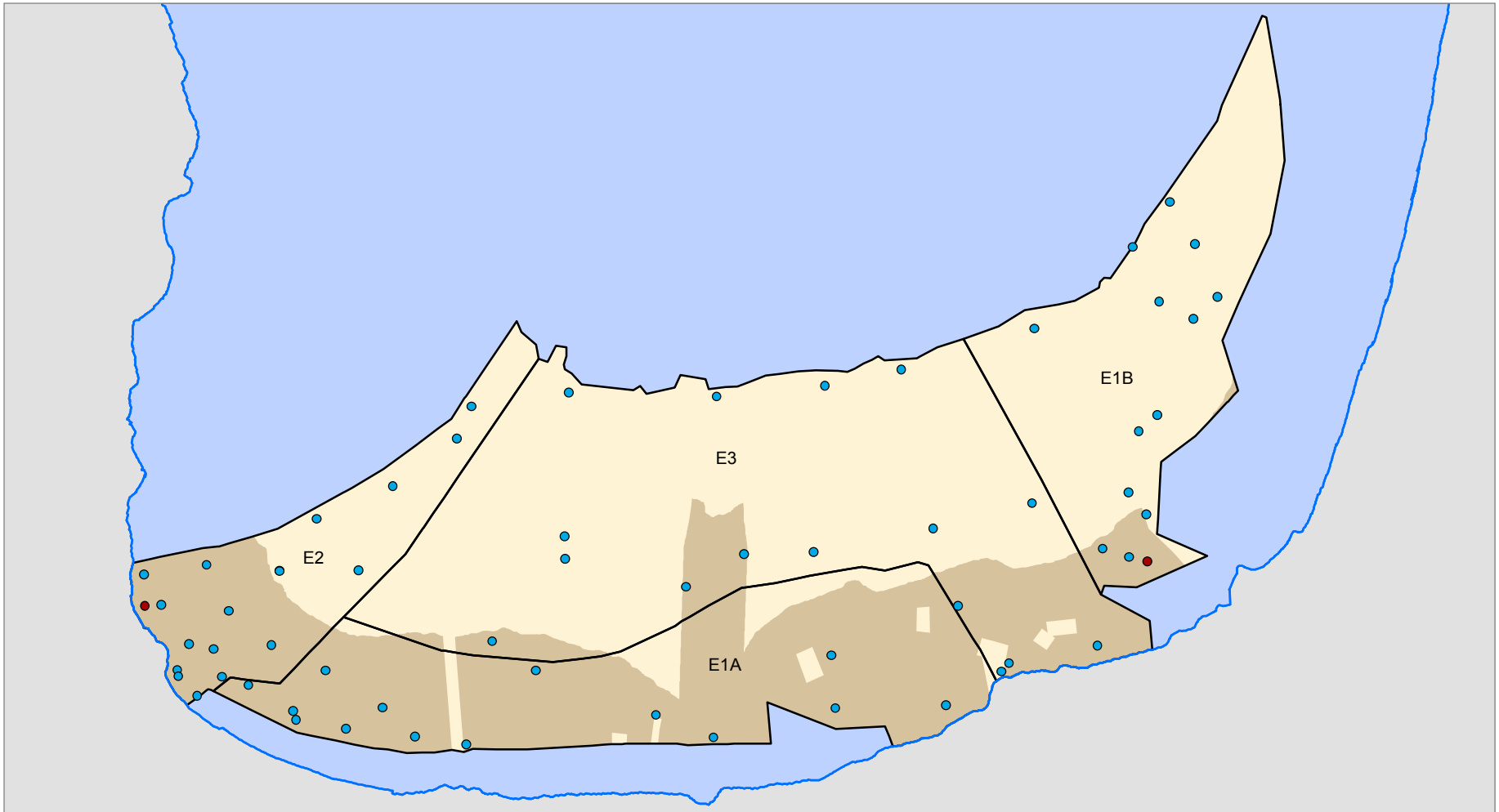
Figure 6d
Sediment PAH Concentrations Beneath the Cap
(Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area E
Onondaga Lake



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ANCHOR QEA

Honeywell PARSONS

Figure 6e
Porewater Phenol Concentrations Beneath the Cap (Within 2 m of Post-dredge Surface) Relative to Cap Performance Criteria in Remediation Area E
Onondaga Lake

ATTACHMENT C

SHORT-TERM CAP MODEL PROJECTIONS

290 Elwood Davis Road, Suite 340
Liverpool, New York 13088
315.453.9009

ANCHOR QEA

Memorandum

August 10, 2017

To: Ed Glaza, Parsons

From: Deirdre Reidy and Peter Song, Anchor QEA, LLC

cc: Paul LaRosa, Kevin Russell, and Ram Mohan, Anchor QEA, LLC

Re: Short-Term Model-Predicted Chemical Concentrations Within the Cap's Habitat and Chemical Isolation Layers

Introduction

As part of the cap monitoring and maintenance plan, chemical monitoring will be conducted to verify that the chemical isolation layer is performing consistent with expectations. Analytical data collected from within the habitat layer will be compared to the cap performance criteria. In addition, analytical data collected within the habitat layer and chemical isolation layer as part of this monitoring will be compared with anticipated concentrations, which will be based on deterministic cap modeling results, consistent with the final design (Parsons and Anchor QEA 2012), design for the Metro Outfall (MERC; Parsons and Anchor QEA 2014), and design for the modified protective caps (MPCs; Parsons and Anchor QEA 2015a, 2015b, 2016a, 2016b, 2016c). Future analysis may also consider comparison of cap monitoring results with probabilistic cap modeling results consistent with the methods included in the final design. This memorandum provides a summary of model-predicted chemical concentrations within the cap's habitat and chemical isolation layers over time, focusing on shorter timeframes that are most relevant to upcoming monitoring events. Because the caps were designed to be protective for more than 1,000 years, it is expected that analytical monitoring of the caps within the first few years of sample collection generally will not result in detectable concentrations. Therefore, as part of this summary, predicted concentrations are compared with typical anticipated laboratory reporting limits to understand when detected concentrations may be observed.

Approach

Model predictions of sorbed-phase and porewater concentrations from the transient numerical modeling conducted as part of the final design (Parsons and Anchor QEA 2012) and modeling conducted as part of the MPC design were compiled based on simulations conducted with the target granular activated carbon (GAC) dose[1] for this evaluation. The planned chemical monitoring for the caps will consist of core collection, and in cases where cap material is such that a core cannot be

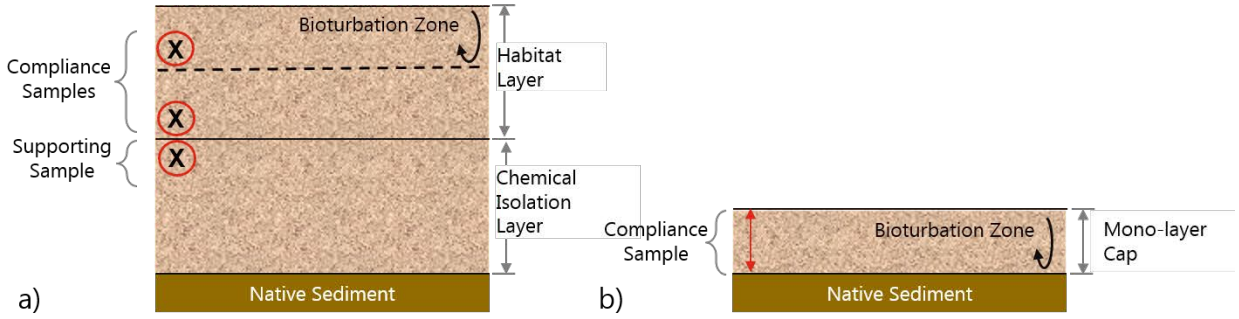
[1] In most cases, the target GAC dose is equal to the GAC dose determined during the final design; however, in Model Areas C2, D-SMU2, E3, E3 (6 to 9 meters), and WBB-East, the design GAC dose was below the minimum practical dose established based on constructability considerations, which was 0.1 lb/sf. The target GAC dose in these areas was set to that value for these evaluations.

collected (e.g., cobble), porewater concentrations will be measured. In addition, porewater concentrations will be measured for samples collected within the chemical isolation layer when GAC is present.[2] Therefore, for the purpose of this evaluation, porewater and sorbed-phase model results were compiled as follows:

- In multi-layer caps, vertically averaged porewater and sorbed-phase concentrations predicted by the model within the 3- to 6-inch and 9- to 12-inch depth intervals were compiled for comparison to the compliance sample measurements to be collected within the habitat restoration layer (Figure 1a). Compliance samples will be collected from within the bottom 3 inches of the bioturbation zone (i.e., from a depth of 3 to 6 inches below the cap surface) and bottom 3 inches of the habitat restoration layer. As discussed in Section 5.2 of the Work Plan, the depth of the sample collected from the bottom of the habitat restoration layer will vary by area/cap type. In multi-layer MPCs where the design minimum habitat/erosion protection layer thickness is at least 9 inches, a second compliance sample will be collected from the bottom 3 inches of the habitat/erosion protection layer based on the minimum design thickness. This depth will vary based on the habitat/erosion protection thickness.
- In multi-layer caps, vertically averaged porewater and sorbed-phase (for sand-only caps with no GAC) concentrations predicted by the model within the top 3 inches of the chemical isolation layer (e.g., 12- to 15-inch depth interval) were compiled for comparison to the supporting sample measurements to be collected from within the top 3 inches of the chemical isolation layer (Figure 1a).
- In mono-layer MPCs and the MERC, porewater concentrations predicted by the model at the mid-point of the mono-layer cap[3] were compiled for comparison to the compliance sample measurements to be collected from the top 6 inches of the mono-layer cap (or if the mono-layer cap is between 3 and 6 inches thick, the compliance sample will be collected from the depth interval that is consistent with the thickness of the mono-layer cap; Figure 1b).

[2] For MPCs, cap material samples may be collected for PCBs and high molecular weight PAHs.
[3] The model-predicted concentrations from the mid-point of the mono-layer cap represent the average concentration predicted to be observed in the mono-layer cap.

Figure 1
Monitoring Locations Within Cap



a) Multi-layer cap
b) Mono-layer cap

These compiled model results were evaluated with respect to laboratory reporting limits to evaluate general timeframes at which concentrations may be detectable for each chemical and model area.

Results

Model predictions of sorbed-phase and porewater concentrations from the transient numerical modeling conducted as part of the final design are summarized in Tables 1 through 4. Table 1 summarizes the model-predicted, sorbed-phase concentrations within the habitat restoration layer; this table shows the maximum concentration between the 3- to 6-inch and 9- to 12-inch vertically averaged depth intervals for each model area and chemical evaluated with the transient model during the final design[4]. Model-predicted, sorbed-phase concentrations from the top of the chemical isolation layer (i.e., 12- to 15-inch vertically averaged depth interval) are summarized in Table 2, for the areas where a sand-only cap was simulated (i.e., mercury in Model Areas A1 and E1, including their respective 6- to 9-meter zones). Similar tables were generated to summarize the model-predicted porewater concentrations with the habitat layer (Table 3) and chemical isolation layer (Table 4) for each model area and chemical evaluated with the transient modeling during the final design. The anticipated laboratory reporting limits for each of the chemicals are included in Tables 1 through 4.

Model predictions of sorbed-phase and porewater concentrations from the transient numerical modeling conducted as part of the MPC and MERC design are summarized in Tables 5 through 7. Table 5 summarizes the model-predicted, sorbed-phase concentrations within the habitat restoration layer of multi-layer MPCs. This table shows the predicted vertically-averaged concentration within the 3- to 6-inch depth interval, which represents the bottom of the bioturbation zone. For those

[4] Only chemicals that did not meet the probable effects concentration (PEC)/sediment screening criteria (SSC) from the initial screening using the steady-state model were simulated with the transient numerical model using deterministic simulations.

multi-layer MPCs where the habitat layer is thick enough to collect a second sample from the bottom of the habitat layer, the predicted concentration shown in Table 5 is the maximum predicted concentration between the two habitat layer sample locations. A similar table was developed to summarize model-predicted porewater concentrations within the habitat restoration layer (Table 6). Model-predicted, porewater concentrations from the 3 inches of the chemical isolation layer of the multi-layer MPCs are provided in Table 7. For mono-layer MPCs and the MERC, Table 7 summarizes the predicted porewater concentrations at the mid-point of the 6-inch bioturbation zone (representing the average concentration within the mono-layer cap).

In all cases, the model-predicted concentrations within the habitat restoration layer are below the performance criteria, as designed. In general, the cap model predicts that concentrations are anticipated to remain below laboratory reporting limits for more than 50 years, with the exception of phenol, for which maximum concentrations are predicted to be above reporting limits within 5 to 10 years in certain model areas.

The results shown in Tables 1 through 7 and described above are based on deterministic cap model predictions. These results provide a single predicted concentration at each depth and time step throughout the cap model simulation for a given model area. These predicted concentrations provide a means of assessing the anticipated trend of measured concentrations during monitoring within a given model area.

References

Parsons and Anchor QEA (Anchor QEA, LLC), 2012. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Appendix B – Cap Modeling*. Prepared for Honeywell. March 2012.

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Parsons and Anchor QEA, 2015b. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Modified Protective Cap RA-B-1 Design Revision*. Prepared for Honeywell. November 2015.

Parsons and Anchor QEA, 2016a. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Modified Protective Cap RA-C-1 Design Revision*. Prepared for Honeywell. April 2016.

Parsons and Anchor QEA, 2016b. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Modified Protective Cap RA-C-2 Design Revision*. Prepared for Honeywell. May 2016.

Parsons and Anchor QEA, 2016c. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Modified Protective Cap RA-D-2 Design Revision*. Prepared for Honeywell. May 2016.

Table 1
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A1	0	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
A2	0.66	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.037	0.051
A2	0.66	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014
A2	0.66	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	0.005	0.016	0.22	0.69	3.4
A2	0.66	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Phenol	250 µg/L	6.67	0.018	0.12	0.49	0.85	1.1	1.2	1.4	0.14	0.077
A2	0.66	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	0.033
A2	0.66	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	0.009	0.054	0.18	2.2	11	343
A2	0.66	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	35	871
B1/C1	0.6	Benzene	760 µg/L	5	2.2	3.0	3.6	3.9	5.4	46	530	320	316
B1/C1	0.6	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.036	0.055
B1/C1	0.6	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014	1.6	3.0
B1/C1	0.6	Phenol	250 µg/L	6.67	1.4	2.0	2.4	2.6	19	100	464	0.017	0.006
B1/C1	0.6	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Toluene	480 µg/L	5	<0.001	0.004	0.046	0.15	0.28	0.44	1.2	1.3	2.8
B1/C1	0.6	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	0.002	0.012	0.039	0.51	2.9	3.8
B1/C1	0.6	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.029
B1/C1	0.6	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Phenol	250 µg/L	6.67	2.9	4.0	5.0	5.4	5.8	21	448	0.044	0.007
B2	1.22	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzene	760 µg/L	5	0.31	0.40	0.44	30	92	139	241	110	110
C2	0.1	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
C2	0.1	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.010
C2	0.1	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.008	0.012
C2	0.1	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.21

Table 1
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
C2	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.12
C2	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.026	0.49	0.71
C2	0.1	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.12
C2	0.1	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Phenol	250 µg/L	6.67	0.57	29	227	317	346	362	383	0.012	0.012
C2	0.1	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.019	0.026
C2	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.023	0.21	0.28
C3	0.24	Benzene	760 µg/L	5	0.14	0.27	0.45	0.52	0.53	0.56	28	76	75
C3	0.24	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.12	0.20
C3	0.24	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014	0.65	1.0
C3	0.24	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	0.005	0.015	0.030	0.14	0.18	1.2
C3	0.24	Naphthalene	917 µg/kg	5	<0.001	<0.001	0.002	0.028	0.11	0.29	2.3	6.7	11
C3	0.24	Phenol	250 µg/L	6.67	0.038	0.091	0.18	0.23	0.24	0.25	4.2	0.008	0.002
C3	0.24	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
C3	0.24	Toluene	480 µg/L	5	<0.001	0.008	0.064	0.16	0.27	0.37	0.75	2.0	27
C3	0.24	Total Xylene	561 µg/kg	5	<0.001	0.006	0.097	0.35	0.72	1.1	3.3	6.4	425
C3	0.24	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
C3	0.24	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.34	3.8
C3	0.24	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.044	1.3
D-Center	0.93	Benzene	760 µg/L	5	0.38	1.8	3.9	4.7	5.0	5.5	297	365	337
D-Center	0.93	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	0.007	0.027	0.42	3.2	4.0
D-Center	0.93	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.027	2.6	4.5
D-Center	0.93	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	0.002	0.009	0.13	0.29	0.49
D-Center	0.93	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	0.001	0.018	0.078	2.3	16	24
D-Center	0.93	Phenol	250 µg/L	6.67	0.020	0.21	0.82	1.2	1.4	1.6	2.4	0.040	0.006
D-Center	0.93	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Toluene	480 µg/L	5	<0.001	0.056	0.86	2.3	3.6	4.8	7.8	92	149
D-Center	0.93	Total Xylene	561 µg/kg	5	<0.001	<0.001	0.046	0.41	1.2	2.5	11	20	402
D-Center	0.93	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.091
D-Center	0.93	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.046
D-East	0.44	Benzene	760 µg/L	5	0.046	0.30	0.80	1.1	1.2	1.2	3.0	66	60
D-East	0.44	Chlorobenzene	428 µg/kg	5	<0.001	0.002	0.095	0.47	1.0	1.7	4.6	9.5	320
D-East	0.44	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	0.010	0.056	0.17	2.0	8.3	14
D-East	0.44	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	0.001	0.011	0.037	0.078	0.37	0.42	1.0
D-East	0.44	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	0.024	0.13	0.40	4.1	12	18
D-East	0.44	Phenol	250 µg/L	6.67	0.14	0.61	1.3	1.5	1.7	5.9	194	0.009	0.005
D-East	0.44	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011
D-East	0.44	Toluene	480 µg/L	5	<0.001	<0.001	0.032	0.14	0.29	0.45	1.1	1.2	6.8
D-East	0.44	Total Xylene	561 µg/kg	5	<0.001	<0.001	0.024	0.19	0.54	1.0	4.2	7.7	77
D-East	0.44	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.13

Table 1
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
D-SMU2	0.1	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.10
D-SMU2	0.1	Benzene	760 µg/L	5	0.11	0.30	0.44	0.50	11	44	144	59	58
D-SMU2	0.1	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	0.004	0.016	0.035	0.17	0.44	18
D-SMU2	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.015	0.045
D-SMU2	0.1	Ethylbenzene	176 µg/kg	5	<0.001	0.002	0.032	0.099	0.17	0.24	0.40	6.8	5.8
D-SMU2	0.1	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.22	1.4
D-SMU2	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.15
D-SMU2	0.1	Naphthalene	917 µg/kg	5	<0.001	0.002	0.16	0.78	1.8	3.0	8.0	230	533
D-SMU2	0.1	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.36	2.2
D-SMU2	0.1	Phenol	250 µg/L	6.67	0.30	0.60	46	166	224	257	290	0.002	0.005
D-SMU2	0.1	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-SMU2	0.1	Toluene	480 µg/L	5	<0.001	0.019	0.16	0.33	0.46	0.55	0.72	26	24
D-SMU2	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	0.017	0.093	0.23	0.39	1.1	11	153
D-West	1.33	Benzene	760 µg/L	5	0.001	0.057	0.43	0.86	1.2	1.4	1.9	131	197
D-West	1.33	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.95	1.6
D-West	1.33	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.14	0.66
D-West	1.33	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.091	0.14
D-West	1.33	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.11	7.0	11
D-West	1.33	Phenol	250 µg/L	6.67	0.16	1.1	3.0	3.9	4.2	4.6	305	0.061	0.030
D-West	1.33	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Toluene	480 µg/L	5	<0.001	<0.001	0.017	0.12	0.33	0.62	2.2	2.7	6.4
D-West	1.33	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	0.001	0.010	0.046	0.97	6.7	9.0
D-West	1.33	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.29
D-West	1.33	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.1	15
D-West	1.33	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.021
D-West	1.33	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.32
D-West	1.33	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014
D-West	1.33	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E1	0	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
E2	0.27	Benzene	760 µg/L	5	0.002	0.006	0.022	0.040	0.055	0.071	0.11	11	23
E2	0.27	Chlorobenzene	428 µg/kg	5	<0.001	0.001	0.022	0.088	0.20	0.34	1.2	3.1	307
E2	0.27	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	0.003	0.014	0.040	0.46	3.9	6.3
E2	0.27	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.010	0.073	0.14
E2	0.27	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	0.001	0.007	0.023	0.40	4.2	6.8
E2	0.27	Phenol	250 µg/L	6.67	0.039	<0.001	<0.001	<0.001	0.001	0.001	0.002	0.002	0.001
E2	0.27	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.045
E2	0.27	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.018	0.11	0.17
E2	0.27	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	0.004	0.012	0.14	1.2	1.7
E2	0.27	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.057
E2	0.27	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E3	0.1	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	0.002	0.003	0.007	0.018	1.5

Table 1
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
E3	0.1	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.12	0.16
E3	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.046	0.11
E3	0.1	Ethylbenzene	176 µg/kg	5	0.001	0.004	0.014	0.027	0.038	0.048	0.093	3.8	5.2
E3	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.021
E3	0.1	Naphthalene	917 µg/kg	5	<0.001	0.001	0.024	0.10	0.24	0.40	1.4	5.3	204
E3	0.1	Phenol	250 µg/L	6.67	0.029	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001
E3	0.1	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006
E3	0.1	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.006
E3	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.013	0.20	0.29
WB1-8	1.11	Benzene	760 µg/L	5	0.33	0.93	2.4	3.8	4.6	5.1	6.2	548	577
WB1-8	1.11	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WB1-8	1.11	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	4.2	9.7
WB1-8	1.11	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.057	0.64	1.0
WB1-8	1.11	Naphthalene	917 µg/kg	5	<0.001	<0.001	0.008	0.12	0.63	1.9	25	146	236
WB1-8	1.11	Phenol	250 µg/L	6.67	<0.001	0.004	0.042	0.12	0.23	0.33	0.82	0.017	0.009
WB1-8	1.11	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WB1-8	1.11	Toluene	480 µg/L	5	<0.001	0.005	0.090	0.39	0.90	1.6	6.1	8.5	100
WB1-8	1.11	Total Xylene	561 µg/kg	5	<0.001	<0.001	0.013	0.12	0.45	1.1	9.5	45	254
WBB-Center	0.5	Benzene	760 µg/L	5	<0.001	0.008	0.12	0.29	0.43	0.53	0.72	83	96
WBB-Center	0.5	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	0.002	0.012	0.038	0.40	1.6	109
WBB-Center	0.5	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	0.001	0.006	0.033	1.0	10	59
WBB-Center	0.5	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	0.068
WBB-Center	0.5	Naphthalene	917 µg/kg	5	<0.001	<0.001	0.005	0.053	0.28	0.91	9.3	25	204
WBB-Center	0.5	Phenol	250 µg/L	6.67	<0.001	0.013	0.20	0.51	0.79	0.99	1.4	0.054	0.018
WBB-Center	0.5	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.091	0.78
WBB-Center	0.5	Toluene	480 µg/L	5	<0.001	<0.001	0.004	0.038	0.12	0.25	1.00	1.5	41
WBB-Center	0.5	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	3.0	4.8
WBB-Center	0.5	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.094
WBB-Center	0.5	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.65	5.0
WBB-Center	0.5	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.13	0.63
WBB-Center	0.5	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.055	0.66
WBB-Center	0.5	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	0.005	0.031	0.11	1.2	21	133
WBB-Center	0.5	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.046	3.2	10
WBB-Center	0.5	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.040
WBB-East	0.1	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
WBB-East	0.1	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.003
WBB-East	0.1	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.032	0.040
WBB-East	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.064	0.085
WBB-East	0.1	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.013

Table 1
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
WBB-East	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	1.1	1.8
WBB-East	0.1	Phenol	250 µg/L	6.67	0.001	0.008	0.062	0.12	0.16	0.20	1.6	42	34
WBB-East	0.1	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.009
WBB-East	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.015	0.037
WBB-West	0.61	Benzene	760 µg/L	5	<0.001	0.005	0.098	0.27	0.42	0.54	0.76	125	145
WBB-West	0.61	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	0.001	0.007	0.027	0.35	1.6	165
WBB-West	0.61	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	0.002	0.017	0.85	11	55
WBB-West	0.61	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.021	0.073
WBB-West	0.61	Naphthalene	917 µg/kg	5	<0.001	<0.001	0.003	0.025	0.21	0.69	8.8	27	345
WBB-West	0.61	Phenol	250 µg/L	6.67	<0.001	0.010	0.18	0.50	0.80	1.0	1.5	0.080	0.032
WBB-West	0.61	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.067	0.74
WBB-West	0.61	Toluene	480 µg/L	5	<0.001	<0.001	0.002	0.025	0.098	0.21	1.00	1.7	72
WBB-West	0.61	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.013	3.1	5.2
WBB-West	0.61	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.064
WBB-West	0.61	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.50	4.8
WBB-West	0.61	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.092	0.60
WBB-West	0.61	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.033	0.54
WBB-West	0.61	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	0.002	0.016	0.068	0.95	24	98
WBB-West	0.61	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.025	3.0	12
WBB-West	0.61	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.026
A1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.50	30
E1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.55	30
E3 (6- to 9-meter zone)	0.1	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.031	6.0	8.9
E3 (6- to 9-meter zone)	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.13	0.19
E3 (6- to 9-meter zone)	0.1	Ethylbenzene	176 µg/kg	5	0.012	0.023	0.059	0.092	0.11	0.13	0.19	16	16
E3 (6- to 9-meter zone)	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.2	72
E3 (6- to 9-meter zone)	0.1	Naphthalene	917 µg/kg	5	0.008	0.050	0.32	0.79	1.3	1.8	3.6	71	595
E3 (6- to 9-meter zone)	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	0.002	0.006	0.013	0.080	0.32	0.38
A2 (Ninemile Creek Spits)	0.66	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.57	47
A2 (OL-VC-40197)	6.56	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	0.009	0.045	1.5	9.6	15
A2 (OL-VC-40197)	6.56	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.089	2.2
A2 (OL-VC-40197)	6.56	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 1
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A2 (OL-VC-40197)	6.56	Total Xylene	561 µg/kg	5	<0.001	<0.001	0.003	0.088	0.61	2.2	35	207	463
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Benzene	760 µg/L	5	<0.001	0.071	0.92	2.3	3.5	4.7	7.5	148	497
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.26	1.2
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.018	0.35
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.051	0.14
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.091
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.3	6.1
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Phenol	250 µg/L	6.67	<0.001	<0.001	0.008	0.054	0.14	0.26	0.87	0.017	0.012
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	0.005	0.031	0.10	1.2	3.7	5.3
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.044	6.3	11
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes:
Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.
µg/kg: micrograms per kilogram
DCBs: dichlorobenzenes
GAC: granular activated carbon
lb/sf: pounds per square foot

Table 2
Model-Predicted Sorbed-Phase Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/kg]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A1	0	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.15
E1	0	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.016
A1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	33	<0.001	0.001	0.014	0.055	0.14	0.27	1.7	33	72
E1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	33	<0.001	<0.001	0.004	0.010	0.023	0.041	0.21	3.2	6.9

Notes:
Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.
µg/kg: micrograms per kilogram
GAC: granular activated carbon
lb/sf: pounds per square foot

Table 3
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A1	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.015	0.021
A2	0.66	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
A2	0.66	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.015	0.050	0.28
A2	0.66	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Phenol	250 µg/L	10	0.010	0.041	0.12	0.19	0.22	0.24	0.28	0.18	0.10
A2	0.66	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.005
A2	0.66	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	0.002	0.007	0.020	0.16	0.71	26
A2	0.66	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.059	1.5
B1/C1	0.6	Benzene	760 µg/L	3	2.1	2.8	3.2	3.5	5.7	50	482	314	310
B1/C1	0.6	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.011
B1/C1	0.6	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.34	0.62
B1/C1	0.6	Phenol	250 µg/L	10	0.76	0.96	1.1	1.2	13	55	218	0.062	0.022
B1/C1	0.6	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Toluene	480 µg/L	3	<0.001	0.002	0.021	0.057	0.10	0.15	0.38	0.52	1.2
B1/C1	0.6	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.003	0.009	0.082	0.48	0.62
B1/C1	0.6	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Phenol	250 µg/L	10	1.6	2.0	2.4	2.6	2.9	14	219	0.16	0.024
B2	1.22	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzene	760 µg/L	3	0.27	0.33	0.36	30	81	118	200	98	98
C2	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
C2	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
C2	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001

Table 3
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
C2	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.090	0.13
C2	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Phenol	250 µg/L	10	0.25	26	105	137	148	154	162	0.039	0.038
C2	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.009
C2	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.031	0.041
C3	0.24	Benzene	760 µg/L	3	0.14	0.26	0.40	0.46	0.48	0.50	26	74	73
C3	0.24	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.032	0.054
C3	0.24	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.083	0.13
C3	0.24	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	0.001	0.003	0.005	0.019	0.034	0.23
C3	0.24	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	0.009	0.029	0.065	0.41	1.4	2.2
C3	0.24	Phenol	250 µg/L	10	0.024	0.049	0.086	0.10	0.11	0.12	2.3	0.029	0.007
C3	0.24	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C3	0.24	Toluene	480 µg/L	3	<0.001	0.005	0.026	0.059	0.092	0.12	0.23	0.82	11
C3	0.24	Total Xylene	561 µg/kg	3	<0.001	0.003	0.026	0.074	0.13	0.20	0.49	1.1	68
C3	0.24	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C3	0.24	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.019
C3	0.24	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
D-Center	0.93	Benzene	760 µg/L	3	0.75	2.4	4.6	5.4	5.8	6.4	361	463	426
D-Center	0.93	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.004	0.013	0.16	1.1	1.4
D-Center	0.93	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.47	0.79
D-Center	0.93	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.026	0.078	0.13
D-Center	0.93	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.009	0.031	0.61	4.5	6.6
D-Center	0.93	Phenol	250 µg/L	10	0.034	0.20	0.56	0.78	0.88	0.95	1.7	0.14	0.023
D-Center	0.93	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Toluene	480 µg/L	3	0.002	0.060	0.51	1.1	1.7	2.1	3.2	50	81
D-Center	0.93	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.027	0.15	0.37	0.65	2.2	4.5	90
D-Center	0.93	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-East	0.44	Benzene	760 µg/L	3	0.10	0.43	1.00	1.3	1.4	1.5	4.0	86	79
D-East	0.44	Chlorobenzene	428 µg/kg	3	<0.001	0.002	0.062	0.23	0.45	0.68	1.7	3.6	118
D-East	0.44	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	0.004	0.019	0.049	0.37	1.5	2.6
D-East	0.44	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	0.004	0.011	0.020	0.071	0.12	0.29
D-East	0.44	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	0.013	0.056	0.14	1.1	3.5	5.4
D-East	0.44	Phenol	250 µg/L	10	0.19	0.50	0.82	0.95	1.1	5.9	124	0.002	0.018
D-East	0.44	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-East	0.44	Toluene	480 µg/L	3	<0.001	<0.001	0.023	0.078	0.14	0.21	0.48	0.69	3.9
D-East	0.44	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.014	0.071	0.16	0.28	0.89	1.8	18
D-East	0.44	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 3
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
D-SMU2	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
D-SMU2	0.1	Benzene	760 µg/L	3	0.17	0.36	0.48	0.58	16	52	157	70	69
D-SMU2	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	0.002	0.007	0.014	0.058	0.15	6.0
D-SMU2	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.007
D-SMU2	0.1	Ethylbenzene	176 µg/kg	3	<0.001	0.001	0.011	0.024	0.035	0.044	0.064	1.6	1.4
D-SMU2	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.017
D-SMU2	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-SMU2	0.1	Naphthalene	917 µg/kg	3	<0.001	0.002	0.073	0.26	0.49	0.75	1.7	61	135
D-SMU2	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.022
D-SMU2	0.1	Phenol	250 µg/L	10	0.27	0.37	41	103	131	147	163	0.006	0.017
D-SMU2	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-SMU2	0.1	Toluene	480 µg/L	3	<0.001	0.016	0.081	0.14	0.19	0.22	0.28	13	12
D-SMU2	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.008	0.029	0.057	0.088	0.21	2.6	31
D-West	1.33	Benzene	760 µg/L	3	0.004	0.095	0.54	1.0	1.4	1.6	2.1	161	241
D-West	1.33	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.33	0.55
D-West	1.33	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.024	0.11
D-West	1.33	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	0.036
D-West	1.33	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.032	1.9	3.1
D-West	1.33	Phenol	250 µg/L	10	0.24	0.90	1.9	2.3	2.5	2.7	194	0.065	0.11
D-West	1.33	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Toluene	480 µg/L	3	<0.001	<0.001	0.013	0.069	0.16	0.28	0.89	1.4	3.4
D-West	1.33	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.004	0.015	0.21	1.4	1.9
D-West	1.33	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
D-West	1.33	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.041	0.23
D-West	1.33	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E1	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E2	0.27	Benzene	760 µg/L	3	0.002	0.007	0.022	0.039	0.053	0.069	0.11	10	21
E2	0.27	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	0.009	0.030	0.063	0.10	0.31	0.82	80
E2	0.27	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.003	0.008	0.067	0.49	0.79
E2	0.27	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.013	0.025
E2	0.27	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.002	0.007	0.089	0.84	1.4
E2	0.27	Phenol	250 µg/L	10	0.023	0.003	0.002	0.004	0.004	0.005	0.008	0.006	0.005
E2	0.27	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
E2	0.27	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.007	0.042	0.066
E2	0.27	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.001	0.003	0.024	0.19	0.27
E2	0.27	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E2	0.27	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E3	0.1	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	0.002	0.003	0.007	0.017	1.4

Table 3
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
E3	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.031	0.042
E3	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.014
E3	0.1	Ethylbenzene	176 µg/kg	3	<0.001	0.001	0.004	0.006	0.008	0.010	0.018	0.71	0.95
E3	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E3	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	0.009	0.030	0.061	0.096	0.30	1.1	41
E3	0.1	Phenol	250 µg/L	10	0.016	0.001	0.002	0.002	0.003	0.003	0.004	0.002	0.002
E3	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E3	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.002
E3	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.031	0.045
WB1-8	1.11	Benzene	760 µg/L	3	0.37	0.72	1.4	1.9	2.1	2.3	2.7	259	272
WB1-8	1.11	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WB1-8	1.11	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.29	0.59
WB1-8	1.11	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.059	0.093
WB1-8	1.11	Naphthalene	917 µg/kg	3	<0.001	<0.001	0.025	0.14	0.40	0.81	4.1	15	25
WB1-8	1.11	Phenol	250 µg/L	10	0.001	0.006	0.025	0.049	0.078	0.10	0.19	0.037	0.019
WB1-8	1.11	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WB1-8	1.11	Toluene	480 µg/L	3	0.001	0.011	0.072	0.18	0.30	0.43	1.1	1.6	20
WB1-8	1.11	Total Xylene	561 µg/kg	3	<0.001	0.002	0.027	0.099	0.21	0.35	1.3	3.5	26
WBB-Center	0.5	Benzene	760 µg/L	3	0.001	0.026	0.14	0.26	0.34	0.40	0.52	65	74
WBB-Center	0.5	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	0.003	0.012	0.025	0.12	0.35	25
WBB-Center	0.5	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	0.003	0.014	0.038	0.29	1.2	11
WBB-Center	0.5	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.012
WBB-Center	0.5	Naphthalene	917 µg/kg	3	<0.001	<0.001	0.016	0.12	0.31	0.60	2.3	4.6	47
WBB-Center	0.5	Phenol	250 µg/L	10	0.003	0.047	0.18	0.30	0.37	0.42	0.54	0.18	0.061
WBB-Center	0.5	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.010	0.054
WBB-Center	0.5	Toluene	480 µg/L	3	<0.001	<0.001	0.009	0.039	0.078	0.12	0.30	0.52	14
WBB-Center	0.5	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.45	0.70
WBB-Center	0.5	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009
WBB-Center	0.5	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.055	0.15
WBB-Center	0.5	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.019	0.083
WBB-Center	0.5	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.019
WBB-Center	0.5	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	0.001	0.009	0.030	0.33	2.2	37
WBB-Center	0.5	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.49	0.81
WBB-Center	0.5	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.002
WBB-East	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.008	0.010
WBB-East	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	0.011
WBB-East	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002

Table 3
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
WBB-East	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.20	0.32
WBB-East	0.1	Phenol	250 µg/L	10	0.005	0.024	0.056	0.073	0.085	0.096	2.0	18	14
WBB-East	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.003
WBB-East	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.006
WBB-West	0.61	Benzene	760 µg/L	3	<0.001	0.017	0.12	0.23	0.33	0.39	0.52	92	106
WBB-West	0.61	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	0.002	0.007	0.017	0.10	0.35	36
WBB-West	0.61	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	0.001	0.007	0.022	0.23	1.2	9.8
WBB-West	0.61	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.012
WBB-West	0.61	Naphthalene	917 µg/kg	3	<0.001	<0.001	0.008	0.065	0.23	0.46	2.1	4.7	75
WBB-West	0.61	Phenol	250 µg/L	10	0.002	0.035	0.16	0.28	0.37	0.42	0.54	0.24	0.097
WBB-West	0.61	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.048
WBB-West	0.61	Toluene	480 µg/L	3	<0.001	<0.001	0.005	0.026	0.063	0.10	0.29	0.51	22
WBB-West	0.61	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006	0.43	0.70
WBB-West	0.61	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006
WBB-West	0.61	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.043	0.14
WBB-West	0.61	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014	0.074
WBB-West	0.61	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.016
WBB-West	0.61	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	0.004	0.019	0.27	2.3	6.2
WBB-West	0.61	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.47	0.83
WBB-West	0.61	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014
E1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.015
E3 (6- to 9-meter zone)	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.044	0.060
E3 (6- to 9-meter zone)	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.017	0.024
E3 (6- to 9-meter zone)	0.1	Ethylbenzene	176 µg/kg	3	0.004	0.007	0.014	0.020	0.023	0.026	0.036	3.0	3.0
E3 (6- to 9-meter zone)	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.043
E3 (6- to 9-meter zone)	0.1	Naphthalene	917 µg/kg	3	0.005	0.022	0.100	0.21	0.31	0.42	0.76	15	121
E3 (6- to 9-meter zone)	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.001	0.003	0.014	0.050	0.060
A2 (Ninemile Creek Spits)	0.66	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.078
A2 (OL-VC-40197)	6.56	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.001	0.005	0.10	0.70	1.1
A2 (OL-VC-40197)	6.56	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
A2 (OL-VC-40197)	6.56	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 3
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) (maximum value between 3- to 6-inch and 9- to 12-inch depths) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A2 (OL-VC-40197)	6.56	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	0.017	0.087	0.25	2.6	13	36
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Benzene	760 µg/L	3	0.003	0.13	1.2	2.9	4.3	5.6	8.7	190	630
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.095	0.42
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.063
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014	0.037
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.38	1.7
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Phenol	250 µg/L	10	<0.001	<0.001	0.008	0.042	0.099	0.17	0.53	0.062	0.041
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	0.003	0.019	0.056	0.55	2.0	2.9
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.012	1.4	2.5
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes:
Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.
µg/L: micrograms per liter
DCBs: dichlorobenzenes
GAC: granular activated carbon
lb/sf: pounds per square foot

Table 4
Model-Predicted Porewater Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/L]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A1	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
A2	0.66	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.020	0.028
A2	0.66	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
A2	0.66	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	0.001	0.003	0.005	0.024	0.084	2.3
A2	0.66	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Phenol	250 µg/L	10	0.028	0.073	0.16	0.23	0.26	0.28	11	0.57	0.40
A2	0.66	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2	0.66	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.008
A2	0.66	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.003	0.013	0.032	0.060	0.26	0.94	74
A2	0.66	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.5	7.6
B1/C1	0.6	Benzene	760 µg/L	3	2.8	3.5	12	48	98	161	618	426	420
B1/C1	0.6	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.014	0.021
B1/C1	0.6	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.023	0.59	1.00
B1/C1	0.6	Phenol	250 µg/L	10	1.0	1.2	9.6	31	57	97	275	0.27	0.13
B1/C1	0.6	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B1/C1	0.6	Toluene	480 µg/L	3	0.005	0.017	0.060	0.12	0.18	0.24	0.51	0.99	5.9
B1/C1	0.6	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.002	0.008	0.019	0.035	0.16	0.69	0.90
B1/C1	0.6	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009
B1/C1	0.6	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Phenol	250 µg/L	10	2.2	2.6	7.6	27	54	85	294	0.64	0.14
B2	1.22	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
B2	1.22	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Benzene	760 µg/L	3	0.33	0.72	16	52	103	143	234	123	123
C2	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
C2	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
C2	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.004
C2	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002

Table 4
Model-Predicted Porewater Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/L]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
C2	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.006
C2	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.013	0.13	0.19
C2	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
C2	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Phenol	250 µg/L	10	11	49	127	161	174	180	189	0.18	0.18
C2	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C2	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.010	0.015
C2	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.007	0.041	0.14
C3	0.24	Benzene	760 µg/L	3	0.22	0.35	0.50	0.59	1.5	4.4	44	98	97
C3	0.24	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.045	0.071
C3	0.24	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	0.12	0.19
C3	0.24	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	0.001	0.004	0.007	0.010	0.027	0.13	0.74
C3	0.24	Naphthalene	917 µg/kg	3	<0.001	0.001	0.015	0.051	0.11	0.18	0.67	2.2	25
C3	0.24	Phenol	250 µg/L	10	0.042	0.072	0.11	0.13	0.17	0.50	6.9	0.10	0.034
C3	0.24	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C3	0.24	Toluene	480 µg/L	3	0.005	0.017	0.054	0.097	0.14	0.17	0.29	5.2	18
C3	0.24	Total Xylene	561 µg/kg	3	0.004	0.019	0.075	0.15	0.23	0.31	0.64	17	97
C3	0.24	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
C3	0.24	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.033
C3	0.24	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.011
D-Center	0.93	Benzene	760 µg/L	3	1.6	3.8	6.3	7.5	18	53	564	664	613
D-Center	0.93	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	0.001	0.009	0.028	0.059	0.31	1.6	2.3
D-Center	0.93	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.035	0.78	1.2
D-Center	0.93	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	0.002	0.005	0.010	0.050	0.16	0.34
D-Center	0.93	Naphthalene	917 µg/kg	3	<0.001	<0.001	0.003	0.028	0.097	0.21	1.4	7.7	12
D-Center	0.93	Phenol	250 µg/L	10	0.11	0.37	0.81	1.1	1.2	1.4	23	0.56	0.13
D-Center	0.93	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Toluene	480 µg/L	3	0.030	0.24	0.99	1.8	2.5	3.0	4.3	100	137
D-Center	0.93	Total Xylene	561 µg/kg	3	<0.001	0.011	0.15	0.45	0.83	1.3	3.2	21	183
D-Center	0.93	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center	0.93	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.046
D-Center	0.93	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
D-East	0.44	Benzene	760 µg/L	3	0.26	0.73	1.4	1.7	1.9	2.6	33	126	115
D-East	0.44	Chlorobenzene	428 µg/kg	3	0.001	0.028	0.21	0.51	0.83	1.1	2.3	31	178
D-East	0.44	Total DCBs	239 µg/kg	3	<0.001	<0.001	0.007	0.037	0.089	0.16	0.67	2.6	20
D-East	0.44	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	0.004	0.014	0.027	0.041	0.11	0.33	1.1
D-East	0.44	Naphthalene	917 µg/kg	3	<0.001	<0.001	0.021	0.10	0.25	0.46	1.9	6.2	21
D-East	0.44	Phenol	250 µg/L	10	0.37	0.77	1.2	5.4	17	35	174	0.12	0.054
D-East	0.44	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
D-East	0.44	Toluene	480 µg/L	3	<0.001	0.010	0.070	0.16	0.25	0.34	0.67	2.5	9.2
D-East	0.44	Total Xylene	561 µg/kg	3	<0.001	0.006	0.072	0.20	0.36	0.54	1.3	5.8	45
D-East	0.44	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.11

Table 4
Model-Predicted Porewater Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/L]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
D-SMU2	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
D-SMU2	0.1	Benzene	760 µg/L	3	0.27	0.48	2.0	15	39	77	202	96	95
D-SMU2	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	0.002	0.009	0.018	0.028	0.085	0.45	11
D-SMU2	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.011
D-SMU2	0.1	Ethylbenzene	176 µg/kg	3	<0.001	0.005	0.020	0.037	0.051	0.061	0.17	2.9	2.5
D-SMU2	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.008	0.027
D-SMU2	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.028
D-SMU2	0.1	Naphthalene	917 µg/kg	3	0.001	0.026	0.22	0.52	0.84	1.2	2.3	119	212
D-SMU2	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.012	0.035
D-SMU2	0.1	Phenol	250 µg/L	10	0.38	6.3	67	137	169	187	206	0.088	0.084
D-SMU2	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-SMU2	0.1	Toluene	480 µg/L	3	0.007	0.040	0.13	0.20	0.25	0.29	0.78	20	19
D-SMU2	0.1	Total Xylene	561 µg/kg	3	<0.001	0.003	0.025	0.061	0.10	0.14	0.28	12	45
D-West	1.33	Benzene	760 µg/L	3	0.040	0.26	0.89	1.5	1.9	2.2	2.8	232	338
D-West	1.33	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.020	0.49	0.77
D-West	1.33	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.060	0.19
D-West	1.33	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.046	0.069
D-West	1.33	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.003	0.009	0.17	3.2	5.0
D-West	1.33	Phenol	250 µg/L	10	0.54	1.4	2.6	3.1	7.9	23	297	0.91	0.39
D-West	1.33	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Toluene	480 µg/L	3	<0.001	0.005	0.064	0.19	0.34	0.51	1.3	2.6	19
D-West	1.33	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.001	0.012	0.035	0.076	0.43	2.1	2.9
D-West	1.33	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.014
D-West	1.33	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.11	0.39
D-West	1.33	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-West	1.33	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
D-West	1.33	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.092
D-West	1.33	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
D-West	1.33	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E1	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003
E2	0.27	Benzene	760 µg/L	3	0.006	0.015	0.037	0.059	0.078	0.096	0.14	15	28
E2	0.27	Chlorobenzene	428 µg/kg	3	<0.001	0.005	0.027	0.066	0.12	0.17	0.44	5.0	107
E2	0.27	Total DCBs	239 µg/kg	3	<0.001	<0.001	0.001	0.005	0.013	0.025	0.12	0.69	8.1
E2	0.27	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.005	0.025	0.097
E2	0.27	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	0.004	0.014	0.029	0.19	1.3	2.6
E2	0.27	Phenol	250 µg/L	10	0.037	0.012	0.014	0.020	0.025	0.030	0.045	0.031	0.028
E2	0.27	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
E2	0.27	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	0.002	0.003	0.014	0.066	0.11
E2	0.27	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	0.002	0.005	0.009	0.046	0.26	0.52
E2	0.27	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
E2	0.27	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E3	0.1	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	0.002	0.003	0.004	0.010	0.085	2.0

Table 4
Model-Predicted Porewater Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/L]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
E3	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.041	0.054
E3	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.020
E3	0.1	Ethylbenzene	176 µg/kg	3	0.002	0.004	0.008	0.012	0.016	0.019	0.033	1.4	1.7
E3	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.010
E3	0.1	Naphthalene	917 µg/kg	3	0.001	0.006	0.032	0.078	0.13	0.19	0.50	4.8	68
E3	0.1	Phenol	250 µg/L	10	0.022	0.006	0.010	0.014	0.017	0.019	0.024	0.012	0.011
E3	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
E3	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.004
E3	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005	0.044	0.063
WB1-8	1.11	Benzene	760 µg/L	3	0.76	1.2	2.0	2.5	2.8	2.9	26	351	366
WB1-8	1.11	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WB1-8	1.11	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014	0.49	0.88
WB1-8	1.11	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	0.001	0.003	0.006	0.027	0.11	0.19
WB1-8	1.11	Naphthalene	917 µg/kg	3	0.005	0.038	0.28	0.79	1.5	2.4	7.6	24	231
WB1-8	1.11	Phenol	250 µg/L	10	0.009	0.021	0.056	0.090	0.13	0.15	0.25	0.21	0.11
WB1-8	1.11	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WB1-8	1.11	Toluene	480 µg/L	3	0.021	0.067	0.21	0.39	0.58	0.75	1.5	7.9	42
WB1-8	1.11	Total Xylene	561 µg/kg	3	0.007	0.034	0.16	0.35	0.59	0.84	2.1	7.8	107
WBB-Center	0.5	Benzene	760 µg/L	3	0.011	0.073	0.25	0.39	0.50	0.56	0.74	94	107
WBB-Center	0.5	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	0.005	0.017	0.037	0.061	0.19	3.7	39
WBB-Center	0.5	Total DCBs	239 µg/kg	3	<0.001	<0.001	0.005	0.028	0.070	0.14	0.56	2.6	53
WBB-Center	0.5	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.011	0.024
WBB-Center	0.5	Naphthalene	917 µg/kg	3	<0.001	0.006	0.13	0.45	0.86	1.4	3.7	14	186
WBB-Center	0.5	Phenol	250 µg/L	10	0.021	0.11	0.31	0.45	0.54	0.59	1.4	0.71	0.27
WBB-Center	0.5	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.030	0.10
WBB-Center	0.5	Toluene	480 µg/L	3	<0.001	0.004	0.035	0.094	0.16	0.22	0.44	5.6	25
WBB-Center	0.5	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.001	0.004	0.049	0.72	2.9
WBB-Center	0.5	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.021
WBB-Center	0.5	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.11	0.25
WBB-Center	0.5	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.054	0.16
WBB-Center	0.5	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.050
WBB-Center	0.5	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Fluorene	264 µg/kg	10	<0.001	<0.001	0.003	0.029	0.081	0.17	0.85	3.8	325
WBB-Center	0.5	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-Center	0.5	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.048	0.92	1.4
WBB-Center	0.5	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
WBB-East	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002
WBB-East	0.1	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.004
WBB-East	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.012	0.014
WBB-East	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.013	0.016
WBB-East	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.003

Table 4
Model-Predicted Porewater Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/L]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
WBB-East	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.31	0.48
WBB-East	0.1	Phenol	250 µg/L	10	0.014	0.047	0.091	0.11	0.13	0.16	5.8	25	21
WBB-East	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-East	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.003	0.004
WBB-East	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.009
WBB-West	0.61	Benzene	760 µg/L	3	0.007	0.055	0.21	0.36	0.47	0.54	0.70	131	149
WBB-West	0.61	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	0.003	0.012	0.026	0.047	0.17	3.8	54
WBB-West	0.61	Total DCBs	239 µg/kg	3	<0.001	<0.001	0.003	0.017	0.045	0.094	0.47	2.2	64
WBB-West	0.61	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.009	0.023
WBB-West	0.61	Naphthalene	917 µg/kg	3	<0.001	0.002	0.083	0.30	0.68	1.1	3.3	14	267
WBB-West	0.61	Phenol	250 µg/L	10	0.015	0.092	0.28	0.43	0.52	0.58	1.0	0.89	0.41
WBB-West	0.61	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.023	0.092
WBB-West	0.61	Toluene	480 µg/L	3	<0.001	0.002	0.025	0.071	0.13	0.19	0.41	6.9	38
WBB-West	0.61	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.034	0.69	2.8
WBB-West	0.61	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.016
WBB-West	0.61	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.094	0.23
WBB-West	0.61	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.043	0.14
WBB-West	0.61	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.007	0.042
WBB-West	0.61	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Fluorene	264 µg/kg	10	<0.001	<0.001	0.002	0.016	0.054	0.13	0.72	3.7	305
WBB-West	0.61	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
WBB-West	0.61	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.033	0.87	1.4
WBB-West	0.61	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004
A1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	0.002	0.004	0.027	0.52	1.1
E1 (6- to 9-meter zone)	0	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	0.002	0.004	0.006	0.033	0.51	1.1
E3 (6- to 9-meter zone)	0.084	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	0.002	0.003	0.012	0.44	4.3
E3 (6- to 9-meter zone)	0.084	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	0.001	0.002	0.006	0.029	0.086
E3 (6- to 9-meter zone)	0.084	Ethylbenzene	176 µg/kg	3	0.020	0.027	0.039	0.076	0.19	0.36	1.4	5.7	5.4
E3 (6- to 9-meter zone)	0.084	Mercury	2200 µg/kg	0.2	<0.001	<0.001	0.001	0.004	0.008	0.013	0.066	0.85	1.7
E3 (6- to 9-meter zone)	0.084	Naphthalene	917 µg/kg	3	0.15	0.26	0.48	0.67	0.85	0.98	2.1	102	218
E3 (6- to 9-meter zone)	0.084	Total Xylene	561 µg/kg	3	<0.001	0.002	0.005	0.009	0.013	0.017	0.036	0.24	1.8
E3 (6- to 9-meter zone)	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	0.008	0.15	2.4
E3 (6- to 9-meter zone)	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	0.004	0.027	0.048
E3 (6- to 9-meter zone)	0.1	Ethylbenzene	176 µg/kg	3	0.015	0.021	0.033	0.042	0.067	0.13	0.82	5.4	5.4
E3 (6- to 9-meter zone)	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	0.001	0.004	0.008	0.013	0.066	0.85	1.7
E3 (6- to 9-meter zone)	0.1	Naphthalene	917 µg/kg	3	0.10	0.19	0.37	0.55	0.69	0.83	1.3	63	189
E3 (6- to 9-meter zone)	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.003	0.006	0.010	0.013	0.029	0.11	1.0
A2 (Ninemile Creek Spits)	0.66	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.045	0.55
A2 (OL-VC-40197)	6.56	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 4
Model-Predicted Porewater Concentrations Within the Chemical Isolation Layer

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Chemical Isolation Layer (12- to 15-inch depth interval [µg/L]) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
A2 (OL-VC-40197)	6.56	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	0.004	0.015	0.032	0.21	1.1	8.7
A2 (OL-VC-40197)	6.56	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.020
A2 (OL-VC-40197)	6.56	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
A2 (OL-VC-40197)	6.56	Total Xylene	561 µg/kg	3	<0.001	<0.001	0.032	0.18	0.46	0.89	4.3	17	905
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Benzene	760 µg/L	3	0.061	0.56	2.5	4.6	6.4	7.9	12	350	916
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.22	0.67
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.024	0.16
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.036	0.079
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.046
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	1.1	3.3
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Phenol	250 µg/L	10	<0.001	0.003	0.039	0.11	0.21	0.31	0.77	0.37	0.25
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Toluene	480 µg/L	3	<0.001	<0.001	0.006	0.041	0.11	0.22	1.0	3.5	4.9
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	0.004	0.086	2.3	3.8
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
D-Center (OL-VC-10138 & OL-VC-10140)	5.04	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Notes:
Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.
µg/L: micrograms per liter
DCBs: dichlorobenzenes
GAC: granular activated carbon
lb/sf: pounds per square foot

Table 5
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1A	1.29	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Phenol	250 µg/L	6.67	3.0	4.2	5.1	5.5	7.1	39	442	0.12	7.5E-02
RA-B-1A	1.29	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzene	760 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.4E-03
RA-B-1B	1.3	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.4E-03
RA-B-1B	1.3	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	9.5E-02	1.2
RA-B-1B	1.3	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 5
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1B	1.3	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Phenol	250 µg/L	6.67	10	12	21	238	474	646	1001	39	36
RA-B-1B	1.3	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzene	760 µg/L	5	2.1	2.9	3.6	3.9	5.1	44	510	387	384
RA-B-1C-1	0.61	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.2E-03	3.7E-02	5.8E-02
RA-B-1C-1	0.61	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-02
RA-B-1C-1	0.61	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.3E-02	1.6	3.0
RA-B-1C-1	0.61	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Phenol	250 µg/L	6.67	1.4	1.9	2.4	2.6	21	105	455	3.7E-02	2.8E-02
RA-B-1C-1	0.61	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Toluene	480 µg/L	5	<0.001	2.6E-03	4.0E-02	0.14	0.28	0.44	1.2	1.3	6.4
RA-B-1C-1	0.61	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	2.2E-03	1.2E-02	4.0E-02	0.52	3.0	3.9
RA-B-1D-1	0.64	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzene	760 µg/L	5	3.3	3.7	3.7	24	115	218	544	534	532
RA-B-1D-1	0.64	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 5
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1D-1	0.64	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	1.7E-03	2.4E-02	8.4E-02	0.11
RA-B-1D-1	0.64	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.9E-02	4.6
RA-B-1D-1	0.64	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	2.3E-03	1.1E-02	0.31	3.8	5.0
RA-B-1D-1	0.64	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Phenol	250 µg/L	6.67	2.0	2.4	2.5	45	139	218	457	0.43	0.42
RA-B-1D-1	0.64	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Toluene	480 µg/L	5	7.0E-03	5.2E-02	0.29	0.61	0.90	1.2	2.0	1.7	37
RA-B-1D-1	0.64	Total Xylene	561 µg/kg	5	<0.001	<0.001	1.5E-02	8.7E-02	0.24	0.47	2.0	4.2	4.9
RA-B-1E	0.63	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzene	760 µg/L	5	2.8	3.5	3.8	4.5	45	141	526	480	478
RA-B-1E	0.63	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	9.9E-03	6.4E-02	8.8E-02
RA-B-1E	0.63	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-02
RA-B-1E	0.63	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	1.3E-03	9.9E-02	2.8	4.3
RA-B-1E	0.63	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Phenol	250 µg/L	6.67	1.8	2.3	2.5	12	87	176	456	0.18	0.17
RA-B-1E	0.63	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Toluene	480 µg/L	5	1.3E-03	1.6E-02	0.13	0.35	0.58	0.83	1.7	1.6	23
RA-B-1E	0.63	Total Xylene	561 µg/kg	5	<0.001	<0.001	2.5E-03	2.3E-02	8.2E-02	0.19	1.2	3.8	4.5
RA-C-1A	0.39	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 5
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-1A	0.39	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzene	760 µg/L	5	0.10	0.27	0.51	0.61	0.63	0.66	1.4	125	140
RA-C-1A	0.39	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.8E-03	0.17	0.28
RA-C-1A	0.39	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.4E-02	1.0	1.6
RA-C-1A	0.39	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	6.6E-03	1.9E-02	4.0E-02	0.18	0.33	3.9
RA-C-1A	0.39	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-03	0.16
RA-C-1A	0.39	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-02	1.3
RA-C-1A	0.39	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Naphthalene	917 µg/kg	5	<0.001	<0.001	3.0E-03	4.0E-02	0.16	0.42	3.1	11	14
RA-C-1A	0.39	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.2E-02
RA-C-1A	0.39	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Phenol	250 µg/L	6.67	2.7E-02	8.9E-02	0.20	0.27	0.29	0.30	0.37	0.37	0.33
RA-C-1A	0.39	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.0E-03
RA-C-1A	0.39	Toluene	480 µg/L	5	<0.001	6.2E-03	6.9E-02	0.19	0.32	0.45	0.90	1.3	62
RA-C-1A	0.39	Total Xylene	561 µg/kg	5	<0.001	4.1E-03	0.10	0.41	0.89	1.5	4.1	6.8	397
RA-C-2A-1	0.1	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.3E-03
RA-C-2A-1	0.1	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.1E-03	4.3E-02
RA-C-2A-1	0.1	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.0E-02
RA-C-2A-1	0.1	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzene	760 µg/L	5	0.45	0.48	17	77	120	152	233	270	270
RA-C-2A-1	0.1	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.3E-03	9.3E-03
RA-C-2A-1	0.1	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-02	3.4E-02
RA-C-2A-1	0.1	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.7E-03	2.9E-02	3.2E-02
RA-C-2A-1	0.1	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.14	0.94
RA-C-2A-1	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.20	6.1
RA-C-2A-1	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	1.9E-03	8.6E-03	2.3E-02	0.21	1.2	1.3
RA-C-2A-1	0.1	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.6E-02	0.69
RA-C-2A-1	0.1	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Phenol	250 µg/L	6.67	8.3	141	289	341	357	366	376	374	374
RA-C-2A-1	0.1	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.8E-03

Table 5
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-2A-1	0.1	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	1.6E-03	3.2E-03	1.5E-02	4.8E-02	5.0E-02
RA-C-2A-1	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	2.9E-03	9.7E-03	2.1E-02	0.11	0.38	0.38
RA-C-2A-2	0.1	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.0E-03
RA-C-2A-2	0.1	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.0E-03	4.0E-02
RA-C-2A-2	0.1	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-02
RA-C-2A-2	0.1	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzene	760 µg/L	5	0.42	0.44	18	74	113	144	229	274	274
RA-C-2A-2	0.1	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.1E-03	8.6E-03
RA-C-2A-2	0.1	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-02	3.1E-02
RA-C-2A-2	0.1	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.1E-03	2.7E-02	3.0E-02
RA-C-2A-2	0.1	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.13	0.89
RA-C-2A-2	0.1	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.26	7.1
RA-C-2A-2	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	1.5E-03	7.3E-03	2.0E-02	0.19	1.2	1.2
RA-C-2A-2	0.1	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.3E-02	0.66
RA-C-2A-2	0.1	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Phenol	250 µg/L	6.67	7.2	122	272	330	348	360	378	379	379
RA-C-2A-2	0.1	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.8E-03
RA-C-2A-2	0.1	Toluene	480 µg/L	5	<0.001	<0.001	<0.001	<0.001	1.6E-03	3.2E-03	1.4E-02	4.4E-02	4.5E-02
RA-C-2A-2	0.1	Total Xylene	561 µg/kg	5	<0.001	<0.001	<0.001	3.2E-03	9.9E-03	2.1E-02	0.11	0.35	0.35
RA-D-2	1.53	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.11	1.7
RA-D-2	1.53	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzene	760 µg/L	5	2.6E-02	0.28	1.0	1.6	1.9	2.0	2.3	175	285
RA-D-2	1.53	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	2.7E-03	9.5E-02	1.8	2.3
RA-D-2	1.53	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.57	1.6
RA-D-2	1.53	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.1E-02	0.25	0.33
RA-D-2	1.53	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.0E-02
RA-D-2	1.53	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.1E-02

Table 5
Model-Predicted Sorbed-Phase Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/kg)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/kg) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-D-2	1.53	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	4.9E-03	3.0E-02	1.1	16	20
RA-D-2	1.53	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03	0.17
RA-D-2	1.53	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Phenol	250 µg/L	6.67	0.70	2.5	4.4	4.9	5.2	6.0	364	0.56	0.38
RA-D-2	1.53	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Toluene	480 µg/L	5	<0.001	4.5E-03	0.16	0.59	1.1	1.7	3.7	4.3	48
RA-D-2	1.53	Total Xylene	561 µg/kg	5	<0.001	<0.001	2.3E-03	4.1E-02	0.18	0.46	3.2	10	13
RA-D-1A	1.26	Acenaphthene	861 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Acenaphthylene	1301 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Anthracene	207 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(a)anthracene	192 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(b)fluoranthene	908 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(a)pyrene	146 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(g,h,i)perylene	780 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(k)fluoranthene	203 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzene	760 µg/L	5	2.5E-02	0.31	1.2	1.8	2.0	2.2	2.5	207	244
RA-D-1A	1.26	Chlorobenzene	428 µg/kg	5	<0.001	<0.001	<0.001	3.3E-03	2.5E-02	7.6E-02	0.81	4.2	5.1
RA-D-1A	1.26	Chrysene	253 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Dibenz(a,h)anthracene	157 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Total DCBs	239 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.2E-03	0.93	2.1
RA-D-1A	1.26	Ethylbenzene	176 µg/kg	5	<0.001	<0.001	<0.001	<0.001	1.7E-03	6.2E-03	0.11	0.33	0.48
RA-D-1A	1.26	Fluoranthene	1436 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Fluorene	264 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Mercury	2200 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.3
RA-D-1A	1.26	Indeno(1,2,3-cd)pyrene	183 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Naphthalene	917 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	5.2E-03	0.44	9.4	13
RA-D-1A	1.26	PCBs	295 µg/kg	33	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Phenanthrene	543 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Pyrene	344 µg/kg	6.67	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Phenol	250 µg/L	6.67	2.0E-02	0.22	0.86	1.3	1.4	1.5	2.1	0.21	0.14
RA-D-1A	1.26	Trichlorobenzene	347 µg/kg	5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Toluene	480 µg/L	5	<0.001	3.3E-03	0.14	0.56	1.1	1.7	3.8	4.5	110
RA-D-1A	1.26	Total Xylene	561 µg/kg	5	<0.001	<0.001	4.5E-02	0.39	1.2	2.5	10	19	384

Notes:
Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.
µg/L: micrograms per liter
µg/kg: micrograms per kilogram
GAC: granular activated carbon
lb/sf: pounds per square foot

Table 6
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1A	1.29	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Phenol	250 µg/L	10	1.7	2.1	2.5	2.6	4.2	25	218	0.45	0.27
RA-B-1A	1.29	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	1.29	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 6
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1B	1.3	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Phenol	250 µg/L	10	2.1	2.4	4.3	49	98	134	208	8.0	7.6
RA-B-1B	1.3	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	1.3	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Benzene	760 µg/L	3	2.0	2.7	3.2	3.5	5.3	48	467	383	380
RA-B-1C-1	0.61	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.4E-03	1.2E-02
RA-B-1C-1	0.61	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-03	0.34	0.64
RA-B-1C-1	0.61	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Phenol	250 µg/L	10	0.74	0.95	1.1	1.2	15	58	215	0.13	0.10
RA-B-1C-1	0.61	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	0.61	Toluene	480 µg/L	3	<0.001	1.9E-03	1.9E-02	5.5E-02	0.10	0.15	0.39	0.54	2.7
RA-B-1C-1	0.61	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	3.2E-03	8.9E-03	8.6E-02	0.49	0.64
RA-B-1D-1	0.64	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Benzene	760 µg/L	3	3.1	3.4	3.3	29	117	210	503	537	535
RA-B-1D-1	0.64	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.5E-03	1.7E-02	2.2E-02
RA-B-1D-1	0.64	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 6
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1D-1	0.64	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.4E-03
RA-B-1D-1	0.64	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-03	6.2E-02	0.83	1.1
RA-B-1D-1	0.64	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Phenol	250 µg/L	10	1.0	1.1	1.5	30	74	110	218	1.6	1.5
RA-B-1D-1	0.64	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	0.64	Toluene	480 µg/L	3	6.0E-03	3.0E-02	0.12	0.22	0.31	0.40	0.64	0.71	16
RA-B-1D-1	0.64	Total Xylene	561 µg/kg	3	<0.001	<0.001	5.1E-03	2.2E-02	5.1E-02	9.0E-02	0.31	0.70	0.81
RA-B-1E	0.63	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Benzene	760 µg/L	3	2.6	3.2	3.5	4.6	50	140	485	480	478
RA-B-1E	0.63	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.5E-03	1.3E-02	1.8E-02
RA-B-1E	0.63	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.0E-02	0.61	0.92
RA-B-1E	0.63	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Phenol	250 µg/L	10	0.93	1.1	1.1	9.4	50	91	217	0.65	0.61
RA-B-1E	0.63	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	0.63	Toluene	480 µg/L	3	1.3E-03	9.8E-03	5.7E-02	0.13	0.21	0.28	0.55	0.66	9.8
RA-B-1E	0.63	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	6.4E-03	1.9E-02	3.9E-02	0.20	0.63	0.75
RA-C-1A	0.39	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Benzene	760 µg/L	3	8.2E-02	0.19	0.35	0.41	0.43	0.44	0.98	86	97
RA-C-1A	0.39	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.3E-02	5.5E-02
RA-C-1A	0.39	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 6
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-1A	0.39	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.5E-03	9.2E-02	0.14
RA-C-1A	0.39	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	2.5E-03	4.6E-03	1.8E-02	3.6E-02	0.42
RA-C-1A	0.39	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03
RA-C-1A	0.39	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	7.8E-03	2.7E-02	6.4E-02	0.40	1.5	1.9
RA-C-1A	0.39	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Phenol	250 µg/L	10	1.3E-02	3.6E-02	7.3E-02	9.3E-02	1.0E-01	0.10	0.13	0.31	0.27
RA-C-1A	0.39	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	0.39	Toluene	480 µg/L	3	<0.001	2.4E-03	2.0E-02	5.0E-02	8.1E-02	0.11	0.21	0.33	16
RA-C-1A	0.39	Total Xylene	561 µg/kg	3	<0.001	1.2E-03	1.8E-02	5.9E-02	0.11	0.18	0.45	0.75	44
RA-C-2A-1	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Benzene	760 µg/L	3	0.32	0.34	15	58	88	111	168	194	194
RA-C-2A-1	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-03
RA-C-2A-1	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.0E-03
RA-C-2A-1	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-03	3.2E-03
RA-C-2A-1	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.8E-03
RA-C-2A-1	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.6E-03
RA-C-2A-1	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.6E-03	4.0E-03	3.0E-02	0.16	0.17
RA-C-2A-1	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.0E-03
RA-C-2A-1	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Phenol	250 µg/L	10	9.9	64	110	127	133	136	139	138	138
RA-C-2A-1	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.9E-03	1.2E-02	1.3E-02
RA-C-2A-1	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.5E-03	3.0E-03	1.4E-02	4.3E-02	4.3E-02
RA-C-2A-2	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 6
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-2A-2	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Benzene	760 µg/L	3	0.35	0.35	20	66	98	124	193	230	230
RA-C-2A-2	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.0E-03
RA-C-2A-2	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-03	3.3E-03
RA-C-2A-2	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.1E-03	3.5E-03
RA-C-2A-2	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.5E-03
RA-C-2A-2	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.3E-03
RA-C-2A-2	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.8E-03	4.4E-03	3.2E-02	0.17	0.18
RA-C-2A-2	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.4E-03
RA-C-2A-2	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Phenol	250 µg/L	10	13	70	122	143	151	156	162	163	163
RA-C-2A-2	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-03	4.3E-03	1.3E-02	1.3E-02
RA-C-2A-2	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.9E-03	3.6E-03	1.5E-02	4.6E-02	4.6E-02
RA-D-2	1.53	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.0E-03	2.3E-02
RA-D-2	1.53	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Benzene	760 µg/L	3	4.8E-02	0.35	1.1	1.6	1.9	2.0	2.3	182	295
RA-D-2	1.53	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-03	3.1E-02	0.52	0.68
RA-D-2	1.53	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	8.2E-02	0.22
RA-D-2	1.53	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.4E-03	4.7E-02	6.1E-02
RA-D-2	1.53	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.9E-03	9.6E-03	0.25	3.4	4.4
RA-D-2	1.53	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-03
RA-D-2	1.53	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Phenol	250 µg/L	10	0.66	1.6	2.3	2.5	2.7	3.4	194	1.5	0.92
RA-D-2	1.53	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	1.53	Toluene	480 µg/L	3	<0.001	4.5E-03	8.4E-02	0.25	0.45	0.64	1.3	1.7	20
RA-D-2	1.53	Total Xylene	561 µg/kg	3	<0.001	<0.001	1.3E-03	1.4E-02	4.9E-02	0.11	0.58	1.8	2.2
RA-D-1A	1.26	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 6
Model-Predicted Porewater Concentrations Within the Habitat Restoration Layer of Multi-layer MPCs

Model Area	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within the Habitat Restoration Layer (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
					Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-D-1A	1.26	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Benzene	760 µg/L	3	6.9E-02	0.50	1.5	2.2	2.5	2.7	3.1	278	326
RA-D-1A	1.26	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	2.4E-03	1.4E-02	3.8E-02	0.32	1.6	1.9
RA-D-1A	1.26	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.18	0.40
RA-D-1A	1.26	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	2.1E-03	2.3E-02	9.2E-02	0.13
RA-D-1A	1.26	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	2.6E-03	0.13	2.8	4.0
RA-D-1A	1.26	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Phenol	250 µg/L	10	3.9E-02	0.22	0.62	0.84	0.93	0.98	1.5	0.74	0.49
RA-D-1A	1.26	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	1.26	Toluene	480 µg/L	3	<0.001	5.0E-03	0.10	0.32	0.57	0.81	1.7	2.6	63
RA-D-1A	1.26	Total Xylene	561 µg/kg	3	<0.001	<0.001	2.9E-02	0.16	0.39	0.70	2.3	4.4	92

Notes:
Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.
µg/L: micrograms per liter
µg/kg: micrograms per kilogram
GAC: granular activated carbon
lb/sf: pounds per square foot

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1A	Multi-layer	1.29	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Benzene	760 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Phenol	250 µg/L	10	2.4	3.6	22	52	81	110	295	2.3	1.8
RA-B-1A	Multi-layer	1.29	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1A	Multi-layer	1.29	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Acenaphthylene	1301 µg/kg	10	4.5E-03	3.2E-03	<0.001	1.4E-03	<0.001	1.2E-03	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Anthracene	207 µg/kg	10	2.1E-03	1.1E-03	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Benzene	760 µg/L	3	- <0.021	2.4E-02	2.1E-02	1.8E-02	- <0.011	1.7E-02	1.5E-02	1.4E-02	1.3E-02
RA-B-1B	Multi-layer	1.3	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.8E-03	7.2E-03	<0.001
RA-B-1B	Multi-layer	1.3	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Total DCBs	239 µg/kg	3	3.8E-02	<0.001	<0.001	2.6E-02	- <0.011	2.4E-02	- <0.011	1.7E-02	<0.001
RA-B-1B	Multi-layer	1.3	Ethylbenzene	176 µg/kg	3	1.4E-02	1.3E-02	<0.001	9.4E-03	<0.001	<0.001	<0.001	6.7E-03	<0.001
RA-B-1B	Multi-layer	1.3	Fluoranthene	1436 µg/kg	10	2.5E-03	2.2E-03	1.9E-03	1.7E-03	1.5E-03	1.4E-03	1.1E-03	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Fluorene	264 µg/kg	10	4.3E-03	1.3E-03	1.4E-03	1.3E-03	1.2E-03	1.1E-03	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	1.2E-03	1.4E-03	2.4E-03	6.8E-03	1.0E-02
RA-B-1B	Multi-layer	1.3	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Naphthalene	917 µg/kg	3	4.1E-02	3.3E-02	2.9E-02	- <0.011	- <0.011	- <0.011	2.2E-02	2.0E-02	- <0.011
RA-B-1B	Multi-layer	1.3	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Phenanthrene	543 µg/kg	10	5.2E-03	3.5E-03	2.6E-03	2.2E-03	2.0E-03	1.8E-03	1.3E-03	<0.001	<0.001

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1B	Multi-layer	1.3	Pyrene	344 µg/kg	10	1.9E-03	1.8E-03	1.5E-03	1.4E-03	1.3E-03	1.2E-03	<0.001	<0.001	<0.001
RA-B-1B	Multi-layer	1.3	Phenol	250 µg/L	10	239	226	223	230	247	268	340	33	32
RA-B-1B	Multi-layer	1.3	Trichlorobenzene	347 µg/kg	3	4.5E-02	2.3E-02	2.7E-02	2.4E-02	2.2E-02	1.0E-02	1.6E-02	1.2E-02	5.8E-03
RA-B-1B	Multi-layer	1.3	Toluene	480 µg/L	3	1.3E-02	1.1E-02	- <0.011	- <0.011	- <0.011	- <0.011	- <0.011	<0.001	6.4E-03
RA-B-1B	Multi-layer	1.3	Total Xylene	561 µg/kg	3	1.3E-02	1.1E-02	<0.001	8.8E-03	8.5E-03	8.2E-03	7.2E-03	6.2E-03	<0.001
RA-B-1C-1	Multi-layer	0.61	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Benzene	760 µg/L	3	2.8	3.5	12	48	98	159	600	520	515
RA-B-1C-1	Multi-layer	0.61	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.5E-03	1.5E-02	2.2E-02
RA-B-1C-1	Multi-layer	0.61	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.3E-03
RA-B-1C-1	Multi-layer	0.61	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.3E-03	2.4E-02	0.61	1.0
RA-B-1C-1	Multi-layer	0.61	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Phenol	250 µg/L	10	1.0	1.2	11	32	60	100	271	0.71	0.61
RA-B-1C-1	Multi-layer	0.61	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-1	Multi-layer	0.61	Toluene	480 µg/L	3	3.5E-03	1.5E-02	5.8E-02	0.12	0.18	0.25	0.52	1.2	11
RA-B-1C-1	Multi-layer	0.61	Total Xylene	561 µg/kg	3	<0.001	<0.001	2.1E-03	8.5E-03	2.0E-02	3.7E-02	0.17	0.71	0.94
RA-B-1D-1	Multi-layer	0.64	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Benzene	760 µg/L	3	79	121	178	226	282	352	655	731	728
RA-B-1D-1	Multi-layer	0.64	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	2.4E-03	4.0E-03	5.6E-03	7.3E-03	1.4E-02	4.4E-02	0.13
RA-B-1D-1	Multi-layer	0.64	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1D-1	Multi-layer	0.64	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.0E-02	0.16
RA-B-1D-1	Multi-layer	0.64	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Naphthalene	917 µg/kg	3	5.0E-03	1.7E-02	5.9E-02	0.11	0.16	0.22	0.47	1.5	3.3
RA-B-1D-1	Multi-layer	0.64	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Phenol	250 µg/L	10	35	53	78	101	132	163	279	9.4	9.3
RA-B-1D-1	Multi-layer	0.64	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1D-1	Multi-layer	0.64	Toluene	480 µg/L	3	0.16	0.24	0.38	0.50	0.58	0.66	1.3	13	35
RA-B-1D-1	Multi-layer	0.64	Total Xylene	561 µg/kg	3	4.4E-02	8.4E-02	0.16	0.23	0.30	0.36	0.61	3.3	11
RA-B-1E	Multi-layer	0.63	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Benzene	760 µg/L	3	8.1	35	95	150	206	277	629	655	652
RA-B-1E	Multi-layer	0.63	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.3E-03	2.0E-03	6.7E-03	2.6E-02	4.0E-02
RA-B-1E	Multi-layer	0.63	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.3E-03
RA-B-1E	Multi-layer	0.63	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Naphthalene	917 µg/kg	3	<0.001	<0.001	2.7E-03	1.0E-02	2.4E-02	4.2E-02	0.18	1.1	1.5
RA-B-1E	Multi-layer	0.63	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Phenol	250 µg/L	10	6.0	20	47	73	105	141	277	3.9	3.8
RA-B-1E	Multi-layer	0.63	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1E	Multi-layer	0.63	Toluene	480 µg/L	3	4.2E-02	9.0E-02	0.20	0.30	0.39	0.47	0.73	6.5	25
RA-B-1E	Multi-layer	0.63	Total Xylene	561 µg/kg	3	2.6E-03	1.1E-02	4.0E-02	8.0E-02	0.12	0.17	0.39	0.98	4.5
RA-C-1A	Multi-layer	0.39	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Benzene	760 µg/L	3	0.27	0.55	2.3	4.4	6.8	9.3	22	128	143
RA-C-1A	Multi-layer	0.39	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	1.6E-03	2.9E-03	4.4E-03	1.3E-02	6.1E-02	0.11
RA-C-1A	Multi-layer	0.39	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-1A	Multi-layer	0.39	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Total DCBs	239 µg/kg	3	<0.001	<0.001	2.2E-03	5.5E-03	9.5E-03	1.4E-02	3.9E-02	0.20	0.93
RA-C-1A	Multi-layer	0.39	Ethylbenzene	176 µg/kg	3	<0.001	2.7E-03	7.2E-03	1.2E-02	1.6E-02	2.0E-02	3.8E-02	0.86	2.3
RA-C-1A	Multi-layer	0.39	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.8E-03	8.0E-03
RA-C-1A	Multi-layer	0.39	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-02	4.7E-02
RA-C-1A	Multi-layer	0.39	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Naphthalene	917 µg/kg	3	1.6E-02	5.7E-02	0.17	0.30	0.43	0.56	1.1	17	62
RA-C-1A	Multi-layer	0.39	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.4E-03
RA-C-1A	Multi-layer	0.39	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1A	Multi-layer	0.39	Phenol	250 µg/L	10	5.6E-02	9.9E-02	0.42	0.91	1.4	2.0	4.9	1.7	1.6
RA-C-1A	Multi-layer	0.39	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.5E-03
RA-C-1A	Multi-layer	0.39	Toluene	480 µg/L	3	2.7E-02	5.5E-02	0.11	0.15	0.19	0.23	0.47	9.9	31
RA-C-1A	Multi-layer	0.39	Total Xylene	561 µg/kg	3	4.3E-02	9.4E-02	0.20	0.30	0.39	0.48	1.0	27	88
RA-C-2A-1	Multi-layer	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03
RA-C-2A-1	Multi-layer	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03
RA-C-2A-1	Multi-layer	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Benzene	760 µg/L	3	15	27	51	87	119	144	210	241	241
RA-C-2A-1	Multi-layer	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.8E-03	3.0E-03
RA-C-2A-1	Multi-layer	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-03	5.0E-03
RA-C-2A-1	Multi-layer	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03	1.9E-03	3.8E-02	0.18
RA-C-2A-1	Multi-layer	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.8E-03	9.3E-03
RA-C-2A-1	Multi-layer	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-02	9.1E-02
RA-C-2A-1	Multi-layer	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Naphthalene	917 µg/kg	3	2.3E-03	6.5E-03	1.7E-02	2.8E-02	3.8E-02	4.8E-02	9.3E-02	1.4	7.5
RA-C-2A-1	Multi-layer	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.1E-03	6.2E-03
RA-C-2A-1	Multi-layer	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Phenol	250 µg/L	10	54	95	140	158	165	169	173	171	171
RA-C-2A-1	Multi-layer	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-1	Multi-layer	0.1	Toluene	480 µg/L	3	<0.001	<0.001	1.9E-03	2.9E-03	3.8E-03	4.7E-03	8.2E-03	9.6E-02	0.58
RA-C-2A-1	Multi-layer	0.1	Total Xylene	561 µg/kg	3	1.2E-03	3.1E-03	6.8E-03	1.0E-02	1.4E-02	1.7E-02	3.0E-02	0.55	2.8
RA-C-2A-2	Multi-layer	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03
RA-C-2A-2	Multi-layer	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-03
RA-C-2A-2	Multi-layer	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-2A-2	Multi-layer	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Benzene	760 µg/L	3	16	28	53	91	123	150	226	267	268
RA-C-2A-2	Multi-layer	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.8E-03	3.0E-03
RA-C-2A-2	Multi-layer	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.0E-03	5.1E-03
RA-C-2A-2	Multi-layer	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03	1.9E-03	3.9E-02	0.18
RA-C-2A-2	Multi-layer	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.9E-03	9.6E-03
RA-C-2A-2	Multi-layer	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.2E-02	9.5E-02
RA-C-2A-2	Multi-layer	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Naphthalene	917 µg/kg	3	2.0E-03	5.8E-03	1.6E-02	2.7E-02	3.8E-02	4.8E-02	9.3E-02	1.4	7.6
RA-C-2A-2	Multi-layer	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.2E-03	6.4E-03
RA-C-2A-2	Multi-layer	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Phenol	250 µg/L	10	54	96	145	167	176	181	189	189	189
RA-C-2A-2	Multi-layer	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2A-2	Multi-layer	0.1	Toluene	480 µg/L	3	<0.001	<0.001	2.0E-03	3.1E-03	4.0E-03	4.9E-03	8.4E-03	0.10	0.58
RA-C-2A-2	Multi-layer	0.1	Total Xylene	561 µg/kg	3	1.6E-03	3.6E-03	7.4E-03	1.1E-02	1.4E-02	1.8E-02	3.1E-02	0.58	2.8
RA-D-2	Multi-layer	1.53	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03
RA-D-2	Multi-layer	1.53	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.2E-03	4.2E-02	1.0E-01
RA-D-2	Multi-layer	1.53	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.2E-03
RA-D-2	Multi-layer	1.53	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Benzene	760 µg/L	3	0.57	1.2	2.0	2.8	4.3	6.6	26	288	445
RA-D-2	Multi-layer	1.53	Chlorobenzene	428 µg/kg	3	<0.001	1.5E-03	1.4E-02	3.4E-02	5.8E-02	8.5E-02	0.22	0.85	1.6
RA-D-2	Multi-layer	1.53	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	1.1E-03	3.0E-03	5.8E-03	2.8E-02	0.25	0.42
RA-D-2	Multi-layer	1.53	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	2.3E-03	5.4E-03	9.0E-03	1.3E-02	3.2E-02	0.11	0.27
RA-D-2	Multi-layer	1.53	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.9E-03	1.8E-02
RA-D-2	Multi-layer	1.53	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.4E-02
RA-D-2	Multi-layer	1.53	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Naphthalene	917 µg/kg	3	<0.001	1.3E-02	0.11	0.28	0.46	0.68	1.8	6.6	18
RA-D-2	Multi-layer	1.53	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-02	3.6E-02
RA-D-2	Multi-layer	1.53	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-2	Multi-layer	1.53	Phenol	250 µg/L	10	1.8	4.3	24	54	82	114	332	6.8	5.6
RA-D-2	Multi-layer	1.53	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03	5.6E-03
RA-D-2	Multi-layer	1.53	Toluene	480 µg/L	3	7.8E-02	0.24	0.56	0.86	1.1	1.3	2.1	24	65
RA-D-2	Multi-layer	1.53	Total Xylene	561 µg/kg	3	7.7E-03	5.4E-02	0.20	0.37	0.54	0.70	1.4	7.5	30
RA-D-1A	Multi-layer	1.26	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-D-1A	Multi-layer	1.26	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Benzene	760 µg/L	3	0.44	1.2	2.4	3.1	3.8	5.9	37	410	477
RA-D-1A	Multi-layer	1.26	Chlorobenzene	428 µg/kg	3	<0.001	1.5E-03	2.3E-02	7.5E-02	0.15	0.24	0.73	2.5	11
RA-D-1A	Multi-layer	1.26	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.6E-03	2.0E-02	0.38	0.67
RA-D-1A	Multi-layer	1.26	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	1.4E-03	5.4E-03	1.1E-02	1.8E-02	6.1E-02	0.23	1.2
RA-D-1A	Multi-layer	1.26	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.6E-02	0.22
RA-D-1A	Multi-layer	1.26	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Naphthalene	917 µg/kg	3	<0.001	<0.001	4.5E-03	2.8E-02	7.6E-02	0.15	0.79	5.2	9.2
RA-D-1A	Multi-layer	1.26	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1A	Multi-layer	1.26	Phenol	250 µg/L	10	0.20	0.51	0.97	1.3	2.8	5.7	30	4.0	3.1
RA-D-1A	Multi-layer	1.26	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.2E-03
RA-D-1A	Multi-layer	1.26	Toluene	480 µg/L	3	1.5E-02	0.11	0.43	0.80	1.1	1.4	2.4	40	122
RA-D-1A	Multi-layer	1.26	Total Xylene	561 µg/kg	3	4.6E-03	5.7E-02	0.37	0.80	1.3	1.8	3.8	56	241
RA-B-1C-2	Mono-layer	0.49	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Benzene	760 µg/L	3	278	427	522	571	598	608	567	454	452
RA-B-1C-2	Mono-layer	0.49	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	2.1E-03	5.1E-03	8.2E-03	1.1E-02	2.1E-02	4.8E-02	0.46
RA-B-1C-2	Mono-layer	0.49	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.6E-02	0.11
RA-B-1C-2	Mono-layer	0.49	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Naphthalene	917 µg/kg	3	<0.001	1.8E-03	3.6E-02	0.12	0.22	0.32	0.75	1.7	5.9
RA-B-1C-2	Mono-layer	0.49	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-B-1C-2	Mono-layer	0.49	Phenol	250 µg/L	10	133	181	214	231	236	234	207	157	155
RA-B-1C-2	Mono-layer	0.49	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-B-1C-2	Mono-layer	0.49	Toluene	480 µg/L	3	0.11	0.29	0.51	0.64	0.72	0.77	1.1	47	89
RA-B-1C-2	Mono-layer	0.49	Total Xylene	561 µg/kg	3	6.7E-03	5.7E-02	0.21	0.34	0.45	0.53	0.78	10	41
RA-C-1B	Mono-layer[1]	0.73	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.4E-03
RA-C-1B	Mono-layer[1]	0.73	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Benzene	760 µg/L	3	8.5E-02	0.20	0.35	0.44	0.49	0.54	3.1	71	94
RA-C-1B	Mono-layer[1]	0.73	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.3E-03	4.0E-02	6.2E-02
RA-C-1B	Mono-layer[1]	0.73	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	8.0E-03	0.12	0.18
RA-C-1B	Mono-layer[1]	0.73	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	2.4E-03	4.9E-03	7.7E-03	2.1E-02	5.6E-02	1.0
RA-C-1B	Mono-layer[1]	0.73	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.0E-03	2.9E-02
RA-C-1B	Mono-layer[1]	0.73	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Naphthalene	917 µg/kg	3	<0.001	<0.001	4.1E-03	2.7E-02	7.2E-02	0.14	0.53	2.0	5.7
RA-C-1B	Mono-layer[1]	0.73	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03	1.0E-02
RA-C-1B	Mono-layer[1]	0.73	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Phenol	250 µg/L	10	1.5E-02	3.9E-02	7.6E-02	9.8E-02	0.11	0.12	0.54	17	23
RA-C-1B	Mono-layer[1]	0.73	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1B	Mono-layer[1]	0.73	Toluene	480 µg/L	3	<0.001	4.8E-03	3.1E-02	6.5E-02	9.7E-02	0.12	0.22	1.5	16
RA-C-1B	Mono-layer[1]	0.73	Total Xylene	561 µg/kg	3	<0.001	3.2E-03	3.7E-02	9.6E-02	0.16	0.23	0.48	1.7	36
RA-C-1C	Mono-layer[2]	0.73	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.4E-03
RA-C-1C	Mono-layer[2]	0.73	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Benzene	760 µg/L	3	8.5E-02	0.20	0.35	0.44	0.49	0.54	3.1	71	94
RA-C-1C	Mono-layer[2]	0.73	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.3E-03	4.0E-02	6.2E-02
RA-C-1C	Mono-layer[2]	0.73	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	8.0E-03	0.12	0.18
RA-C-1C	Mono-layer[2]	0.73	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	2.4E-03	4.9E-03	7.7E-03	2.1E-02	5.6E-02	1.0
RA-C-1C	Mono-layer[2]	0.73	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.0E-03	2.9E-02
RA-C-1C	Mono-layer[2]	0.73	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.7E-03	3.1E-02

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-1C	Mono-layer[2]	0.73	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Naphthalene	917 µg/kg	3	<0.001	<0.001	4.1E-03	2.7E-02	7.2E-02	0.14	0.53	2.0	5.7
RA-C-1C	Mono-layer[2]	0.73	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03	1.0E-02
RA-C-1C	Mono-layer[2]	0.73	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Phenol	250 µg/L	10	1.5E-02	3.9E-02	7.6E-02	9.8E-02	0.11	0.12	0.54	17	23
RA-C-1C	Mono-layer[2]	0.73	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1C	Mono-layer[2]	0.73	Toluene	480 µg/L	3	<0.001	4.8E-03	3.1E-02	6.5E-02	9.7E-02	0.12	0.22	1.5	16
RA-C-1C	Mono-layer[2]	0.73	Total Xylene	561 µg/kg	3	<0.001	3.2E-03	3.7E-02	9.6E-02	0.16	0.23	0.48	1.7	36
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Chlorobenzene	428 µg/kg	3	<0.001	3.0E-03	9.6E-03	1.4E-02	1.7E-02	2.0E-02	2.6E-02	9.1E-02	0.33
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Total DCBs	239 µg/kg	3	5.2E-03	2.4E-02	5.2E-02	7.1E-02	8.4E-02	9.1E-02	0.12	2.8	4.9
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Ethylbenzene	176 µg/kg	3	0.35	4.9	11	14	17	18	19	12	9.6
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.2E-03	6.7E-03	9.2E-03
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Naphthalene	917 µg/kg	3	0.94	1.5	2.0	3.2	10	21	65	154	136
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	2.3E-03	5.5E-03	8.6E-03	1.2E-02	2.2E-02	9.3E-02	0.50
RA-C-1-SMU8-DA	Mono-layer[1]	0.1	Total Xylene	561 µg/kg	3	9.9E-02	0.17	0.23	0.26	0.30	0.47	3.7	16	16
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Benzene	760 µg/L	3	14	46	79	101	111	116	118	116	116
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-03	2.9E-03
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.0E-03	4.8E-03
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.8E-03	1.7E-02	0.30

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.5E-03	9.4E-03
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	4.1E-03	1.3E-02	2.5E-02	3.8E-02	9.1E-02	0.27	12
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.7E-03	6.3E-03
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Phenol	250 µg/L	10	79	101	108	104	98	95	88	84	84
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	2.0E-03	3.1E-03	4.2E-03	8.1E-03	2.1E-02	0.98
RA-C-2B/RA-C-2D[3]	Mono-layer	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	2.7E-03	6.8E-03	1.1E-02	1.5E-02	3.0E-02	0.20	4.8
RA-C-2C	Mono-layer	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03
RA-C-2C	Mono-layer	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Benzene	760 µg/L	3	14	46	79	101	111	116	118	116	116
RA-C-2C	Mono-layer	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-03	2.9E-03
RA-C-2C	Mono-layer	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.0E-03	4.8E-03
RA-C-2C	Mono-layer	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.8E-03	1.7E-02	0.30
RA-C-2C	Mono-layer	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.5E-03	9.4E-03
RA-C-2C	Mono-layer	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.4E-03	5.2E-02
RA-C-2C	Mono-layer	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	4.1E-03	1.3E-02	2.5E-02	3.8E-02	9.1E-02	0.27	12
RA-C-2C	Mono-layer	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.7E-03	6.3E-03
RA-C-2C	Mono-layer	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Phenol	250 µg/L	10	79	101	108	104	98	95	88	84	84
RA-C-2C	Mono-layer	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-C-2C	Mono-layer	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	2.0E-03	3.1E-03	4.2E-03	8.1E-03	2.1E-02	0.98
RA-C-2C	Mono-layer	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	2.7E-03	6.8E-03	1.1E-02	1.5E-02	3.0E-02	0.20	4.8
RA-D-1B	Mono-layer	3.73	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Benzene	760 µg/L	3	8.9E-02	0.49	1.3	1.9	2.3	2.6	3.5	130	274
RA-D-1B	Mono-layer	3.73	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	8.5E-03	3.1E-02	6.9E-02	0.36	1.8	2.3

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
RA-D-1B	Mono-layer	3.73	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.2E-03	0.20	0.44
RA-D-1B	Mono-layer	3.73	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.8E-03	4.2E-03	2.7E-02	0.16	0.21
RA-D-1B	Mono-layer	3.73	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	2.4E-03	1.0E-02	0.24	3.7	5.6
RA-D-1B	Mono-layer	3.73	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Phenol	250 µg/L	10	4.4E-02	0.21	0.53	0.76	0.91	1.0	1.4	73	116
RA-D-1B	Mono-layer	3.73	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
RA-D-1B	Mono-layer	3.73	Toluene	480 µg/L	3	<0.001	9.0E-03	0.12	0.31	0.52	0.73	1.5	3.3	38
RA-D-1B	Mono-layer	3.73	Total Xylene	561 µg/kg	3	<0.001	<0.001	5.1E-02	0.21	0.45	0.73	2.0	5.5	36
TLC-A	Mono-layer	1.76	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.4E-03	7.8E-02	0.14
TLC-A	Mono-layer	1.76	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.11	0.23
TLC-A	Mono-layer	1.76	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	2.7E-03	1.1E-02	2.5E-02	4.0E-02	0.11	0.32	5.7
TLC-A	Mono-layer	1.76	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.1E-02	1.0E-01
TLC-A	Mono-layer	1.76	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Naphthalene	917 µg/kg	3	<0.001	<0.001	3.0E-02	0.22	0.57	1.1	3.9	13	94
TLC-A	Mono-layer	1.76	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-A	Mono-layer	1.76	Total Xylene	561 µg/kg	3	<0.001	5.8E-03	0.12	0.39	0.71	1.0	2.2	10	151
TLC-B	Mono-layer	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.7E-03	1.5E-02	2.1E-02

Table 7
Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
TLC-B	Mono-layer	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.5E-03	3.1E-03
TLC-B	Mono-layer	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.9E-02	0.44
TLC-B	Mono-layer	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
TLC-B	Mono-layer	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	1.5E-03	3.4E-03	5.8E-03	1.8E-02	4.7E-02	0.35
MERC (E1)	Mono-layer	0.1	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	7.8E-03	1.4E-02
MERC (E1)	Mono-layer	0.1	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Benzene	760 µg/L	3	<0.001	<0.001	1.2E-03	2.0E-03	2.7E-03	3.3E-03	5.0E-03	6.9E-02	0.39
MERC (E1)	Mono-layer	0.1	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	1.7E-03	5.3E-03	1.6E-02	2.3E-02
MERC (E1)	Mono-layer	0.1	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	5.3E-03	8.0E-03
MERC (E1)	Mono-layer	0.1	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-03	7.5E-03
MERC (E1)	Mono-layer	0.1	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.4E-03	0.13
MERC (E1)	Mono-layer	0.1	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Naphthalene	917 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.9E-03	2.5E-02	3.6E-02
MERC (E1)	Mono-layer	0.1	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.0E-03	3.4E-03
MERC (E1)	Mono-layer	0.1	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Phenol	250 µg/L	10	3.8	4.7	3.2	2.5	2.1	1.9	1.4	1.0	0.99
MERC (E1)	Mono-layer	0.1	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.8E-03	3.7E-03
MERC (E1)	Mono-layer	0.1	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E1)	Mono-layer	0.1	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.4E-03	3.8E-03
MERC (E2)	Mono-layer	0.7	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.3E-03
MERC (E2)	Mono-layer	0.7	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Table 7

Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000
MERC (E2)	Mono-layer	0.7	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Benzene	760 µg/L	3	7.0E-03	2.6E-02	6.3E-02	8.9E-02	0.11	0.12	0.16	5.4	15
MERC (E2)	Mono-layer	0.7	Chlorobenzene	428 µg/kg	3	<0.001	1.1E-02	7.7E-02	0.17	0.25	0.33	0.59	3.2	32
MERC (E2)	Mono-layer	0.7	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Total DCBs	239 µg/kg	3	<0.001	<0.001	8.4E-03	3.1E-02	6.6E-02	0.10	0.29	0.82	7.0
MERC (E2)	Mono-layer	0.7	Ethylbenzene	176 µg/kg	3	<0.001	<0.001	<0.001	1.7E-03	3.4E-03	5.2E-03	1.4E-02	3.7E-02	0.23
MERC (E2)	Mono-layer	0.7	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	6.1E-03
MERC (E2)	Mono-layer	0.7	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Naphthalene	917 µg/kg	3	<0.001	<0.001	1.0E-02	4.5E-02	0.11	0.18	0.57	1.8	3.0
MERC (E2)	Mono-layer	0.7	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E2)	Mono-layer	0.7	Phenol	250 µg/L	10	3.6E-02	5.2E-02	7.8E-02	9.8E-02	0.11	0.13	0.41	1.3	1.3
MERC (E2)	Mono-layer	0.7	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.5E-03	1.5E-02
MERC (E2)	Mono-layer	0.7	Toluene	480 µg/L	3	<0.001	<0.001	1.4E-03	4.8E-03	9.5E-03	1.5E-02	3.8E-02	9.7E-02	0.14
MERC (E2)	Mono-layer	0.7	Total Xylene	561 µg/kg	3	<0.001	<0.001	2.8E-03	1.1E-02	2.4E-02	3.9E-02	0.11	0.32	0.50
MERC (E3)	Mono-layer	0.3	Acenaphthene	861 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Acenaphthylene	1301 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Anthracene	207 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Benzo(a)anthracene	192 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Benzo(b)fluoranthene	908 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Benzo(a)pyrene	146 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Benzo(g,h,i)perylene	780 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Benzo(k)fluoranthene	203 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Benzene	760 µg/L	3	<0.001	<0.001	1.7E-03	3.6E-03	5.4E-03	6.9E-03	1.2E-02	3.1E-02	0.49
MERC (E3)	Mono-layer	0.3	Chlorobenzene	428 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.1E-03	2.2E-03	1.0E-02	4.3E-02	5.6E-02
MERC (E3)	Mono-layer	0.3	Chrysene	253 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Dibenz(a,h)anthracene	157 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Total DCBs	239 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.5E-02	2.5E-02
MERC (E3)	Mono-layer	0.3	Ethylbenzene	176 µg/kg	3	<0.001	2.9E-03	1.1E-02	1.9E-02	2.5E-02	3.0E-02	4.5E-02	2.0	4.0
MERC (E3)	Mono-layer	0.3	Fluoranthene	1436 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Fluorene	264 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Mercury	2200 µg/kg	0.2	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	3.5E-03	4.4E-02
MERC (E3)	Mono-layer	0.3	Indeno(1,2,3-cd)pyrene	183 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Naphthalene	917 µg/kg	3	<0.001	5.3E-03	6.0E-02	0.16	0.26	0.36	0.73	2.3	39
MERC (E3)	Mono-layer	0.3	PCBs	295 µg/kg	0.5	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Phenanthrene	543 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Pyrene	344 µg/kg	10	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
MERC (E3)	Mono-layer	0.3	Phenol	250 µg/L	10	1.6E-02	2.1E-02	3.2E-02	4.0E-02	4.7E-02	5.4E-02	0.23	0.55	0.55
MERC (E3)	Mono-layer	0.3	Trichlorobenzene	347 µg/kg	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	1.9E-03
MERC (E3)	Mono-layer	0.3	Toluene	480 µg/L	3	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	4.1E-03	5.9E-03
MERC (E3)	Mono-layer	0.3	Total Xylene	561 µg/kg	3	<0.001	<0.001	<0.001	<0.001	1.5E-03	2.9E-03	1.3E-02	5.2E-02	6.7E-02

Notes:

Reporting limits shown are typical values. Actual reporting limits will be developed once laboratories are selected.

Table 7

Model-Predicted Porewater Concentrations Within Mono-Layer MPCs/ MERC or Within the Chemical Isolation Layer of Multi-Layer MPCs

Model Area	Simulated Cap Type	Target GAC Dose (lb/sf)	Chemical	PEC/SSC	Reporting Limit (µg/L)	Model-Predicted Concentration Within Mono-layer Caps or Within the Chemical Isolation Layer of Multi-layer Caps (µg/L) *Blue shading indicates results are greater than the reporting limit.*								
						Year 5	Year 10	Year 20	Year 30	Year 40	Year 50	Year 100	Year 500	Year 1,000

µg/L: micrograms per liter

µg/kg: micrograms per kilogram

GAC: granular activated carbon

lb/sf: pounds per square foot

1. Direct application of GAC to sediments simulated as a mono-layer cap.

2. Direct application over existing 6 inches of sand/siderite that was previously placed simulated as a mono-layer cap.

3. Subarea RA-C-2D was simulated in the numerical transient model using the same cap configuration, model parameters, and input chemical concentrations as RA-C-2B; therefore, no independent numerical modeling was conducted for RA-C-2D, and results from RA-C-2B are applied to this area.

ATTACHMENT D

HABITAT / EROSION PROTECTION LAYER SENSITIVITY ANALYSIS

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Liverpool, New York 13088
315.453.9009

ANCHOR QEA

Memorandum

August 7, 2017

To: Ed Glaza, Parsons

From: Deirdre Reidy and Peter Song, Anchor QEA, LLC

cc: Kevin Russell, Paul LaRosa, and Ram Mohan, Anchor QEA, LLC

Re: Model Sensitivity Analysis to Evaluate Cap Protectiveness with Reduced Habitat Layer Thickness

Introduction

Numerical modeling conducted as part of the final cap design (Parsons and Anchor QEA 2012) was based on a cap configuration consisting of a 12-inch-thick habitat/erosion protection layer overlying the chemical isolation layer for all modeling areas.[1] The top 6 inches of the habitat layer served as the bioturbation zone in the model. In support of the monitoring and maintenance plan for physical cap monitoring, a model sensitivity analysis was conducted to evaluate the potential impacts on long-term protectiveness of the cap in the unlikely event some loss of erosion protection/habitat layer material may occur. The sensitivity analysis consisted of repeating model simulations for the hypothetical case of only 6 inches of material (i.e., 50% of the minimum design thickness) above the chemical isolation layer. Conclusions from these sensitivity analyses are applicable to cap configurations simulated in the final design and may not be applicable to the modified protective cap areas.

Approach

The numerical transient cap modeling conducted during the final design (Parsons and Anchor QEA 2012) was used to simulate chemical transport through a cap having a reduced habitat layer thickness of 6 inches. Compliance with the probable effects concentrations (PECs) and sediment screening criteria (SSC) was assessed against the maximum predicted concentration within the habitat layer, consistent with the final design. This sensitivity analysis focused on cap model areas within potentially higher energy environments (Remediation Areas [RAs] A through E, including supplemental areas[2]). Due to their location within low energy and/or depositional environments, caps within the Wastebed B/Harbor Brook Outboard Area, Wastebeds 1-8 connected wetlands, and the 6- to 9-meter zones in RA-A and RA-E were not included in this sensitivity analysis.

[1] The minimum of 12 inches of material was simulated. Some areas of the cap have a habitat/erosion protection layer with a minimum specified thickness greater than 12 inches.

[2] Supplemental areas include an area in Model Area A2 with elevated ethylbenzene and xylene (OL-VC-40197) and an area in Model Area D-Center with elevated benzene porewater concentrations (OL-VC-10138 and OL-VC-10140).

The transient numerical model was used to conduct deterministic simulations of these modified cap thicknesses, using the target granular activated carbon (GAC) dose for each model area[3]. The target GAC dose is the minimum GAC application rate defined during the final design, except in areas where the design dose was less than the minimum practical dose that could be applied based on constructability considerations, which was specified as 0.1 pound per square foot (lb/sf). However, during construction, average GAC application rates where consistently higher than the target. In situ GAC doses were quantified during cap placement sampling and documented in the construction completion forms. The additional GAC dose applied during construction provides additional protectiveness, which may offset any potential reduction in effectiveness that could occur due to the loss of erosion protection/habitat material. Therefore, in cases where the model-predicted concentrations at the bottom of the habitat restoration layer exceeded the performance criteria in fewer than 1,000 years at the target GAC dose, the model sensitivity analysis was repeated using the area-specific measured average in situ GAC dose.

Results

Model simulations were performed for each of the 15 cap model areas (including the supplemental areas), at the target GAC dose. Table 1 lists the predicted time to exceed the PEC or SSC (in cases where an exceedance was predicted during the 1,000-year simulation period) based on the reduced erosion protection/habitat restoration layer thickness of 6 inches that was evaluated.

Table 1
Model Sensitivity Analysis Results: Effectiveness of Cap with Reduced Erosion Protection/Habitat Restoration Layer Material

Model Area	GAC Dose (lb/sf)	GAC Dose Description	Time to Exceed PEC or SSC (years)	Driving Chemical
A1	0	Sand only	> 1,000	--
A2	0.66	Target	> 1,000	--
B1/C1	0.6	Target	> 1,000	--
B2	1.22	Target	> 1,000	--
C2	0.1	Target	>1,000	--
C3	0.24	Target	781	xylenes
	0.4	Average Measured In Situ	> 1,000	--
D-Center	0.93	Target	872	xylenes
	1.2	Average Measured In Situ	>1,000	--
D-East	0.44	Target	766	chlorobenzene
	0.6	Average of Measured In Situ	>1,000	--

[3] Probabilistic modeling was not conducted for this sensitivity analysis. During the final design, although probabilistic modeling was performed for 13 separate modeling areas, the GAC dose was increased in one model area only—WBB1-8, which is not an area of concern for this evaluation. Results indicate that the deterministic modeling drives the GAC application rate in nearly all cases, so probabilistic modeling is not needed for this sensitivity analysis.

Model Area	GAC Dose (lb/sf)	GAC Dose Description	Time to Exceed PEC or SSC (years)	Driving Chemical
D-SMU 2	0.1	Target	559	naphthalene
	0.3	Average Measured In Situ	>1,000	--
D-West	1.33	Target	>1,000	--
E1	0	Sand only	> 1,000	--
E2	0.27	Target	910	chlorobenzene
	0.6	Average Measured In Situ	>1,000	--
E3	0.1	Target	>1,000	--
A2 (OL-VC-40197)	6.6	Target	898	xylenes
	10.3	Average Measured In Situ	>1,000	--
D-Center (OL-VC-10138 and OL-VC-10140)	5	Target	>1,000	--

Notes:
-- = not applicable

The results indicate that with only 6 inches of erosion protection/habitat restoration material on top of the chemical isolation layer, model-predicted concentrations for all chemicals in Model Areas A1, A2, B1/C1, B2, C2, D-West, E1, E3, and D-Center (OL-VC-10138 and OL-VC-10140) meet the performance criteria for more than 1,000 years with the target GAC dose. Although the habitat layer thickness was reduced, these caps remain protective for more than 1,000 years. At least one chemical was predicted to have concentrations that exceed the performance criteria in fewer than 1,000 years within the following five Model Areas: C3, D-Center, D-East, D-SMU 2, E2, and A2 (OL-VC-40197). The shortest time within which the performance criteria were predicted to be exceeded occurred in Model Area D-SMU 2, with naphthalene concentration predicted to exceed the PEC after 559 years. For these five model areas, simulations were repeated using the average measured in situ GAC dose. The model results show that with the average in situ GAC dose, the performance criteria are predicted to be met for more than 1,000 years in all five of these areas.

Reference

Parsons and Anchor QEA (Anchor QEA, LLC), 2012. *Onondaga Lake Capping, Dredging, Habitat and Profundal Zone (SMU 8) Final Design. Appendix B – Cap Modeling*. Prepared for Honeywell. March 2012.

ATTACHMENT E

POST CONSTRUCTION BATHYMETRY

POST CONSTRUCTION BATHYMETRY

Following placement of the final habitat/erosion protection layer in an area, achievement of the specified habitat elevation objectives was demonstrated as part of the construction Quality Assurance/Quality Control (QA/QC) program by surveying the cap surface. Survey data were used to verify that target elevations and the horizontal limits and extents of capping required by the design were achieved for each Cap Management Unit (CMU). For areas with sufficient water depth, single-beam dual-frequency bathymetric survey data were collected along track lines spaced 15 ft. apart. If the survey area was sloped, the track lines were oriented perpendicular to the slope. Manual pole survey measurements were used in areas of shallow water depth that could not be accessed by the single-beam survey vessel. Surveying methods were consistent with those specified in the Construction Quality Assurance Plan (Anchor QEA and Parsons, 2012)

Post-construction cap surface bathymetry for each remediation area is provided in Figures 1 through 6. Figures 7 through 12 include CMU boundaries and final bathymetric survey dates for each. These comprehensive baseline maps were generated using CMU approval survey data collected following the construction of each individual CMU, as discussed above. This was done by compiling all the CMU bathymetry data into a small number of manageable data files, which were then imported into geographic information system (GIS). Once in GIS, the data were clipped based on the CMU boundaries. Clipping the data set to their respective CMU boundaries ensured that there was no data overlap and that the data being used to represent each individual CMU were the data collected at the time of completion and approval for each individual CMU.

REFERENCES

Parsons and Anchor QEA, 2012. *Construction Quality Assurance Plan Onondaga Lake Capping, Dredging and Habitat.* Prepared for Honeywell International Inc. August 2012.

POST CONSTRUCTION BATHYMETRY

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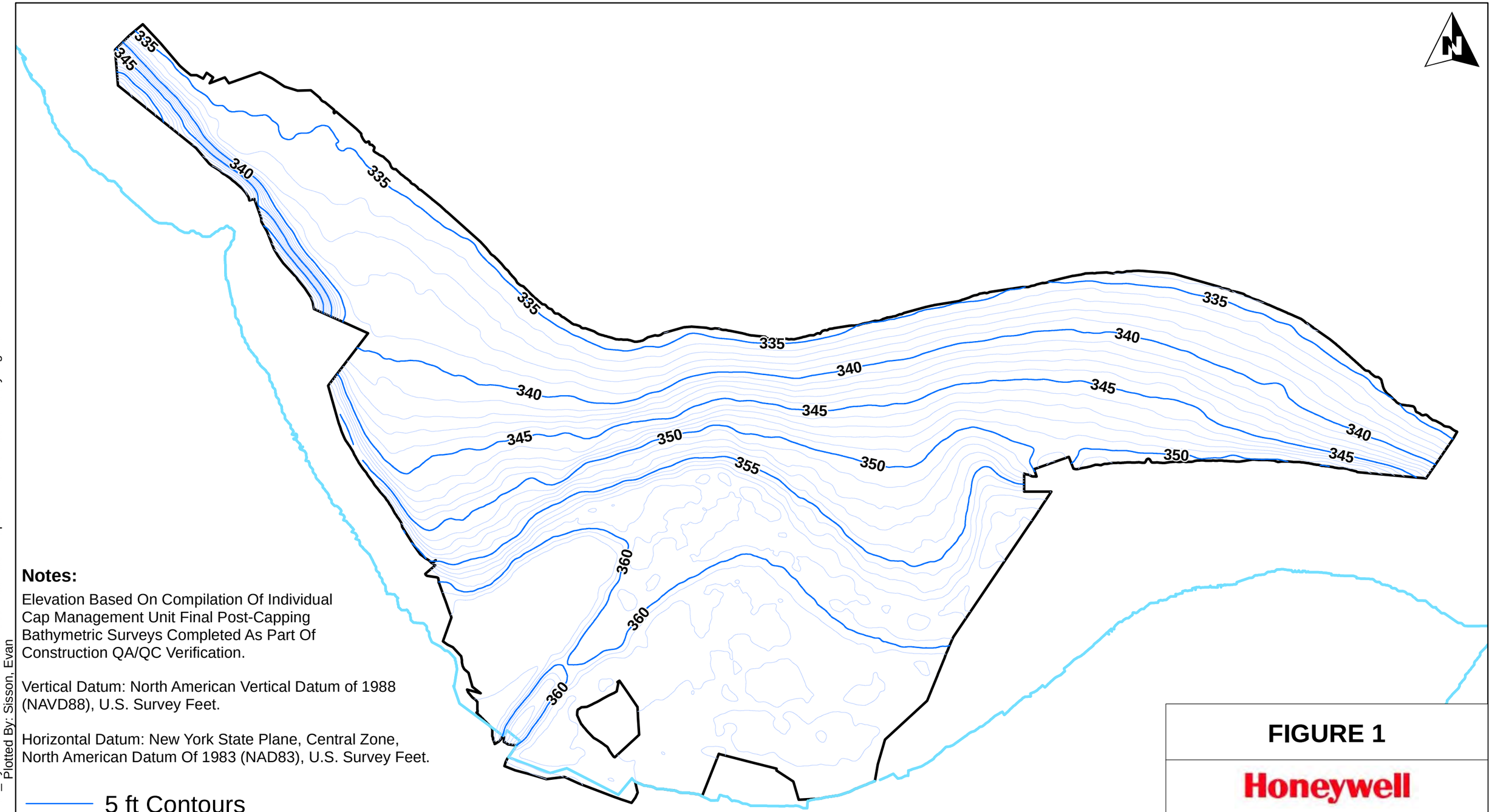
References

Parsons and Anchor QEA, 2012. *Construction Quality Assurance Plan Onondaga Lake Capping, Dredging and Habitat.* Prepared for Honeywell International Inc. August 2012.



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

0 500 1,000 Feet

FIGURE 1

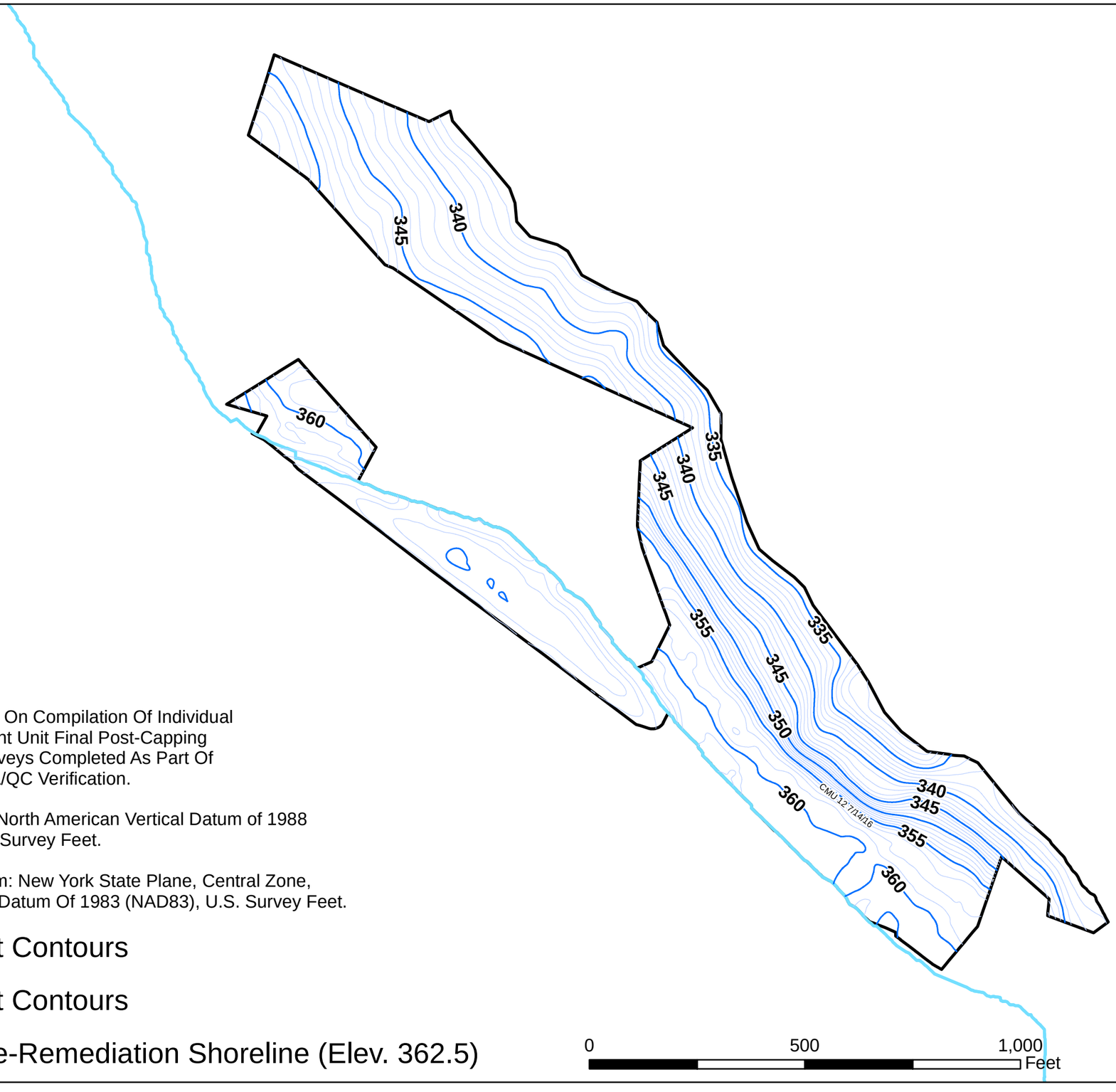
Honeywell

RA-A Post-Capping Final Bathymetry

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 1.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

0 500 1,000 Feet

FIGURE 2

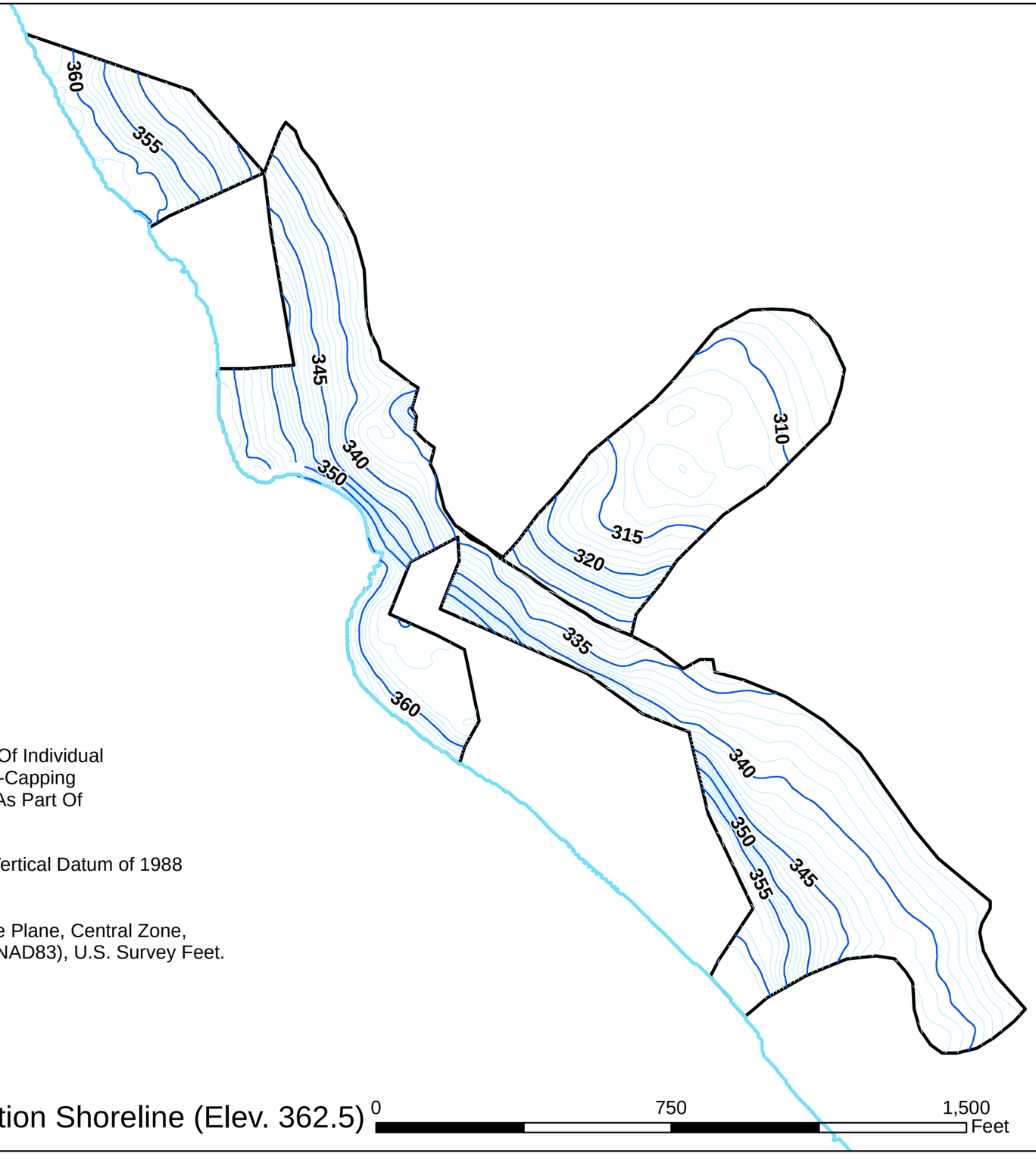
Honeywell

RA-B Post-Capping Final Bathymetry

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 2.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

0 750 1,500 Feet

FIGURE 3

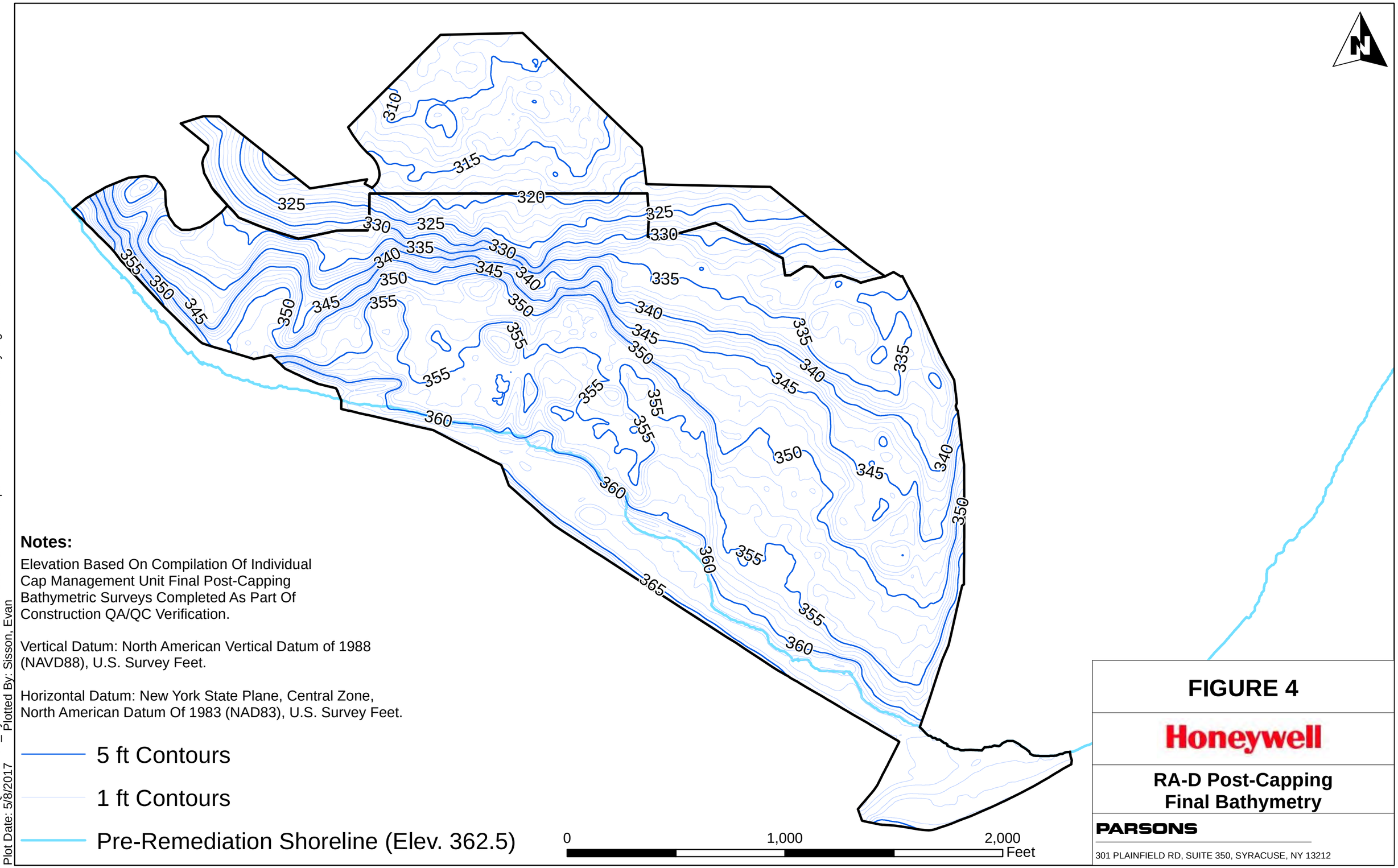
Honeywell

RA-C Post-Capping Final Bathymetry

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 3.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

FIGURE 4

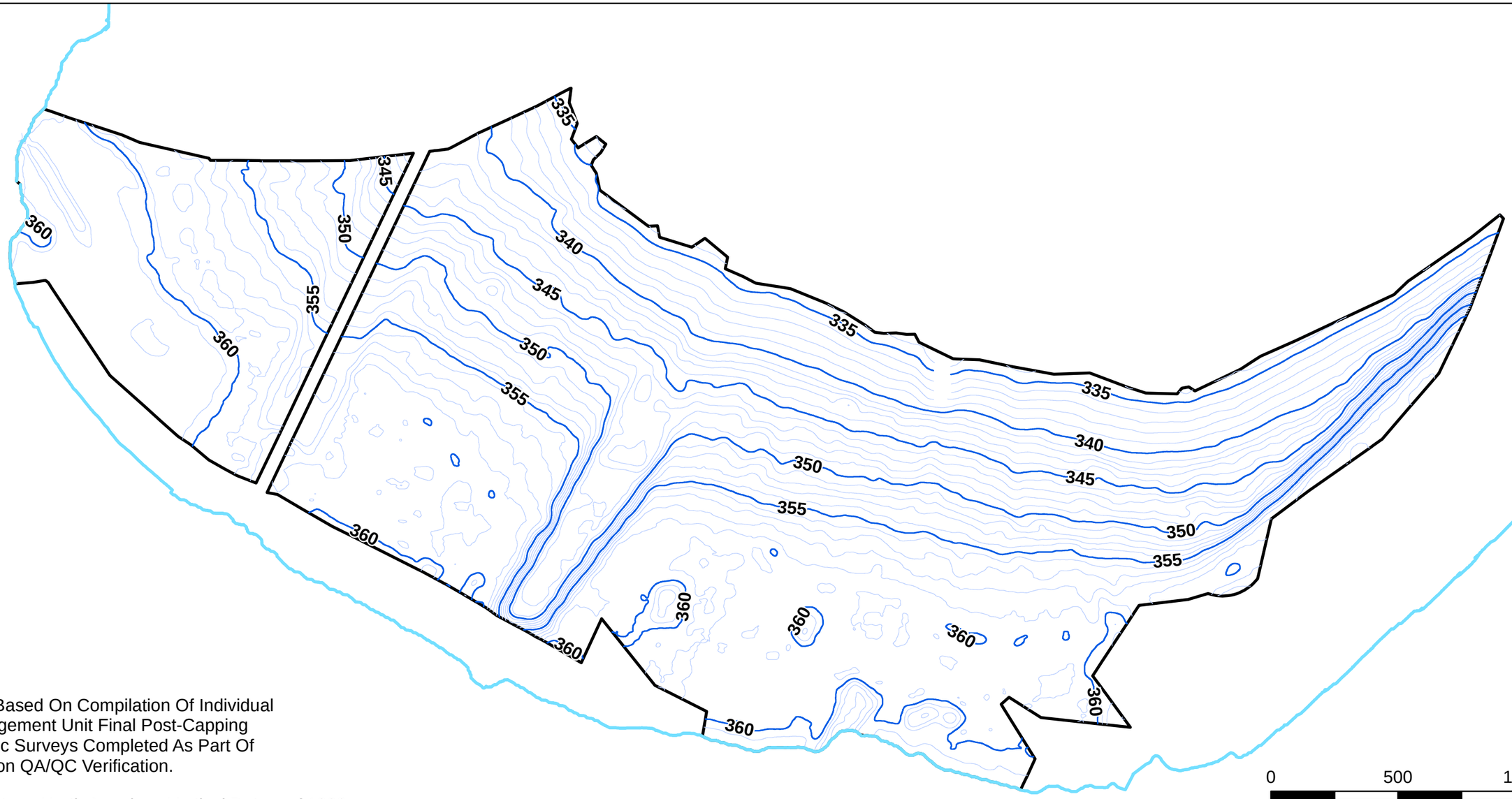
Honeywell

RA-D Post-Capping Final Bathymetry

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 4.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

Pre-Remediation Shoreline (Elev. 362.5)

5 ft Contours

1 ft Contours

FIGURE 5

Honeywell

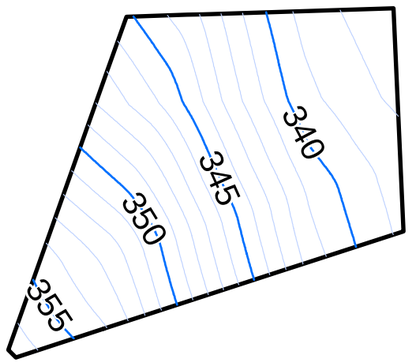
RA-E Post-Capping Final Bathymetry

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 5.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan

RA-F 1



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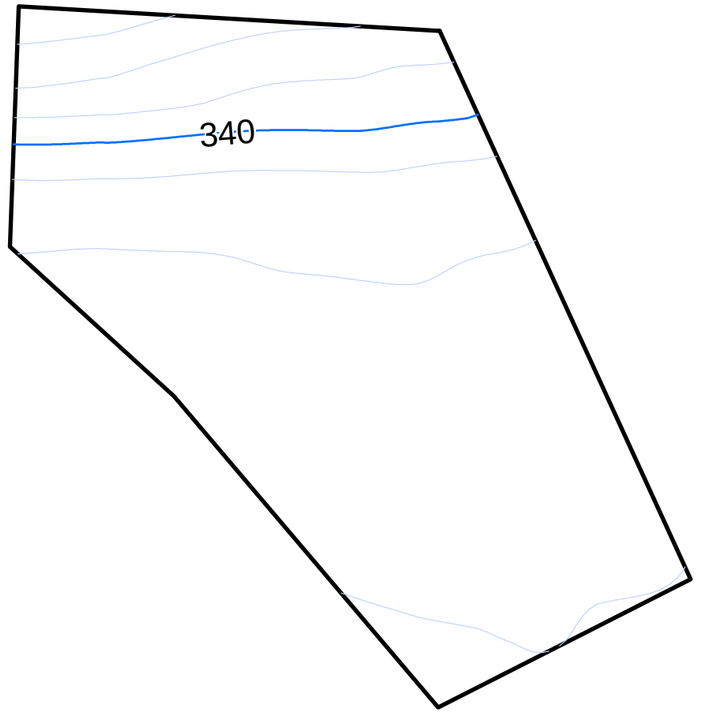

Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

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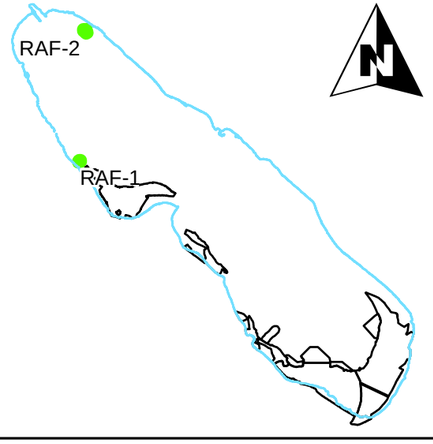
Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.



5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

0 50 100 Feet

FIGURE 6

Honeywell

RA-F Post-Capping Final Bathymetry

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 6.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan

CMU 1
04/17/15

CMU 2
5/20/15

CMU 3A
8/20/15

CMU 3B
10/19/15

CMU 4A
10/5/15

CMU 4B
10/16/15

CMU 4C
10/9/15

CMU 4D
11/19/15

CMU 6A
7/29/15

CMU 6B
4/7/16

CMU 7
6/10/15

CMU 8A
11/19/15

CMU 8B
5/31/16

CMU 9A
1/14/16

CMU 9B
06/27/16

CMU 9C 06/27/16

CMU 10
6/14/16

CMU 11A
12/22/15

CMU 11B
06/29/16

335
340
345
350
355
360

Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

Cap Management Unit Boundary

1/14/16 CMU Post-Construction Survey Date

0 500 1,000 Feet

FIGURE 7

Honeywell

RA-A Post-Capping Final Bathymetry With CMU Outlines And Survey Dates

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 7.mxd
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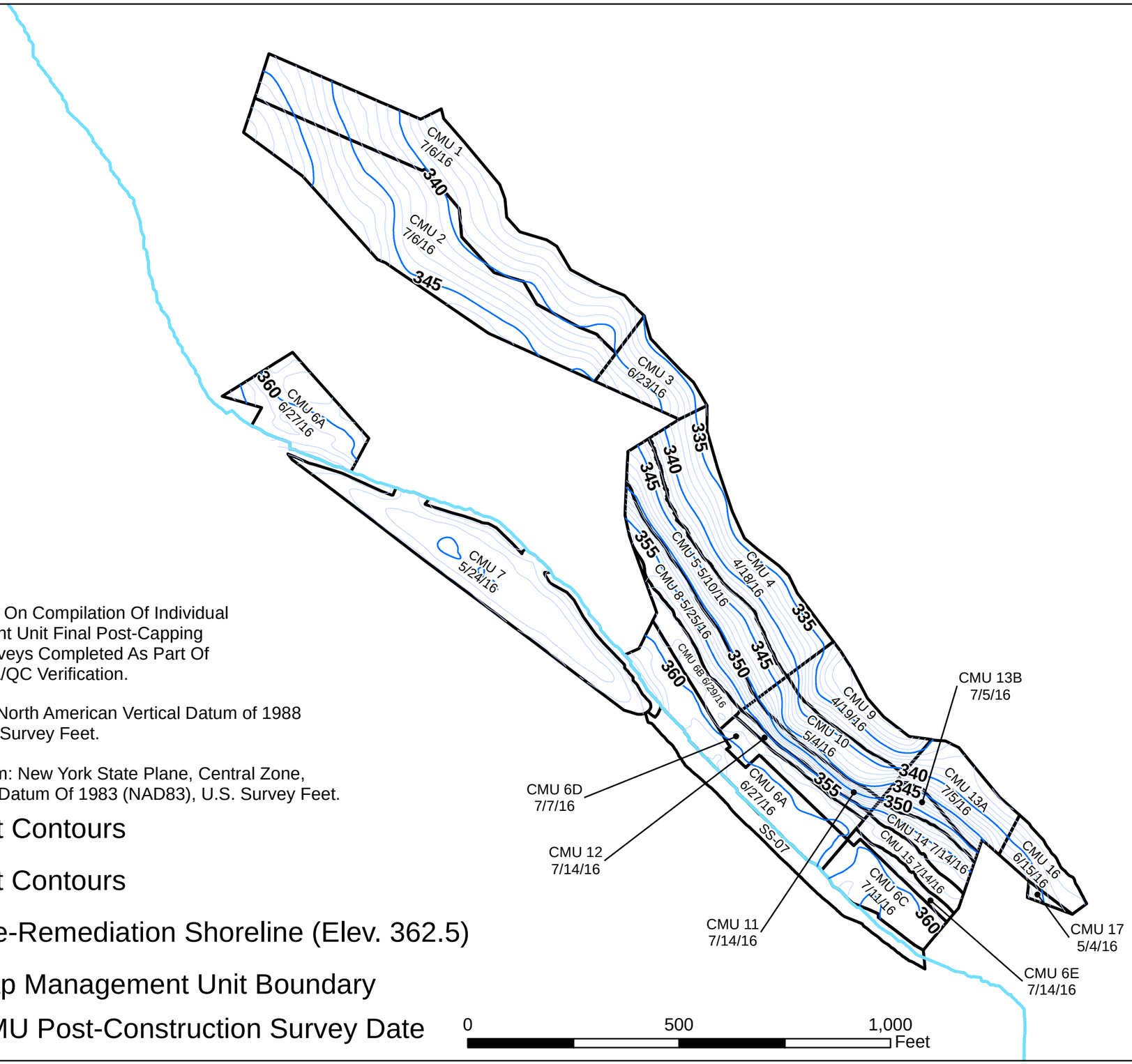

Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

Cap Management Unit Boundary

4/19/16 CMU Post-Construction Survey Date

FIGURE 8

Honeywell

RA-B Post-Capping Final Bathymetry With CMU Outlines And Survey Dates

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 8.mxd
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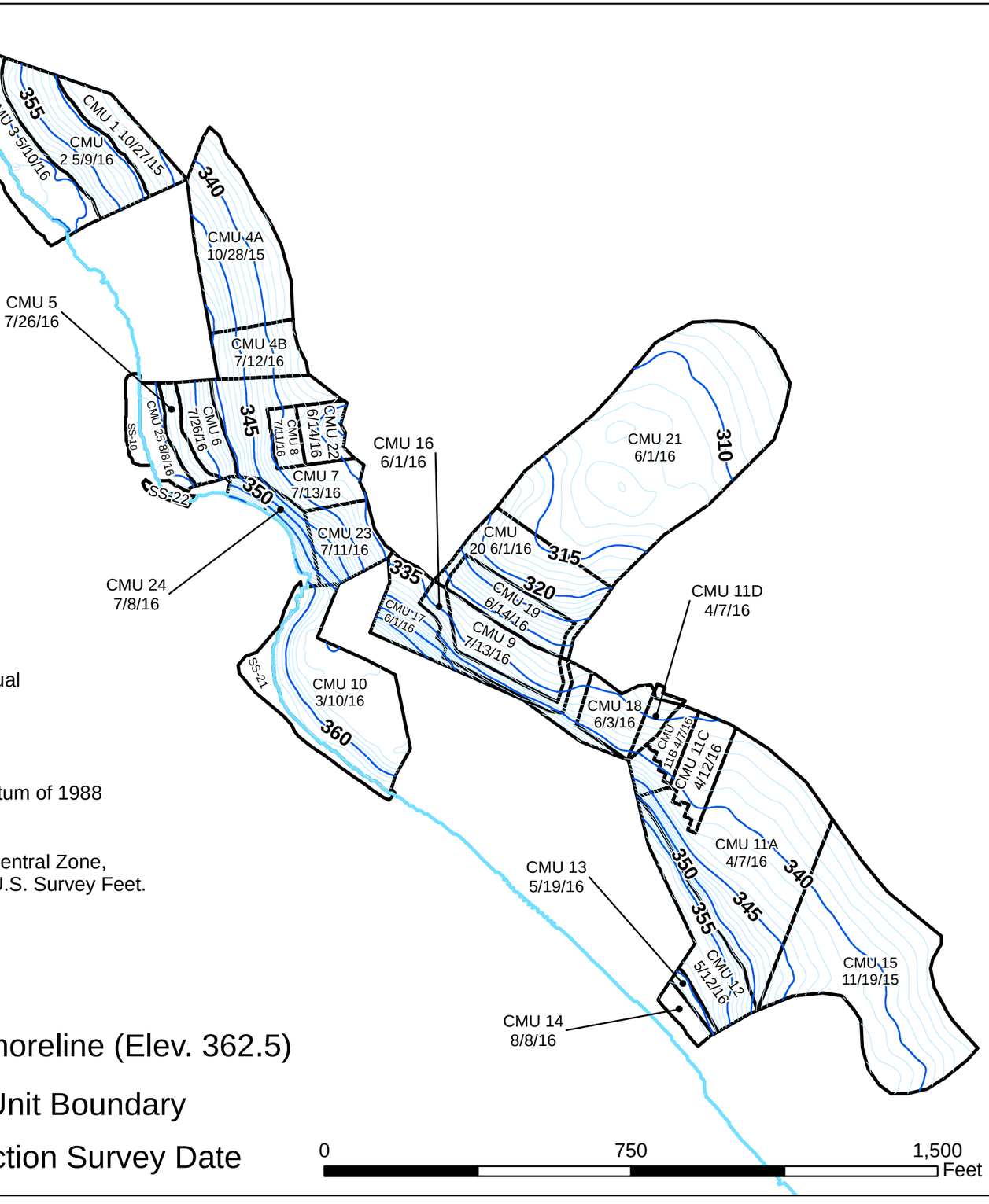

Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

Cap Management Unit Boundary

3/10/16 CMU Post-Construction Survey Date

FIGURE 9

Honeywell

RA-C Post-Capping Final Bathymetry With CMU Outlines And Survey Dates

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 9.mxd
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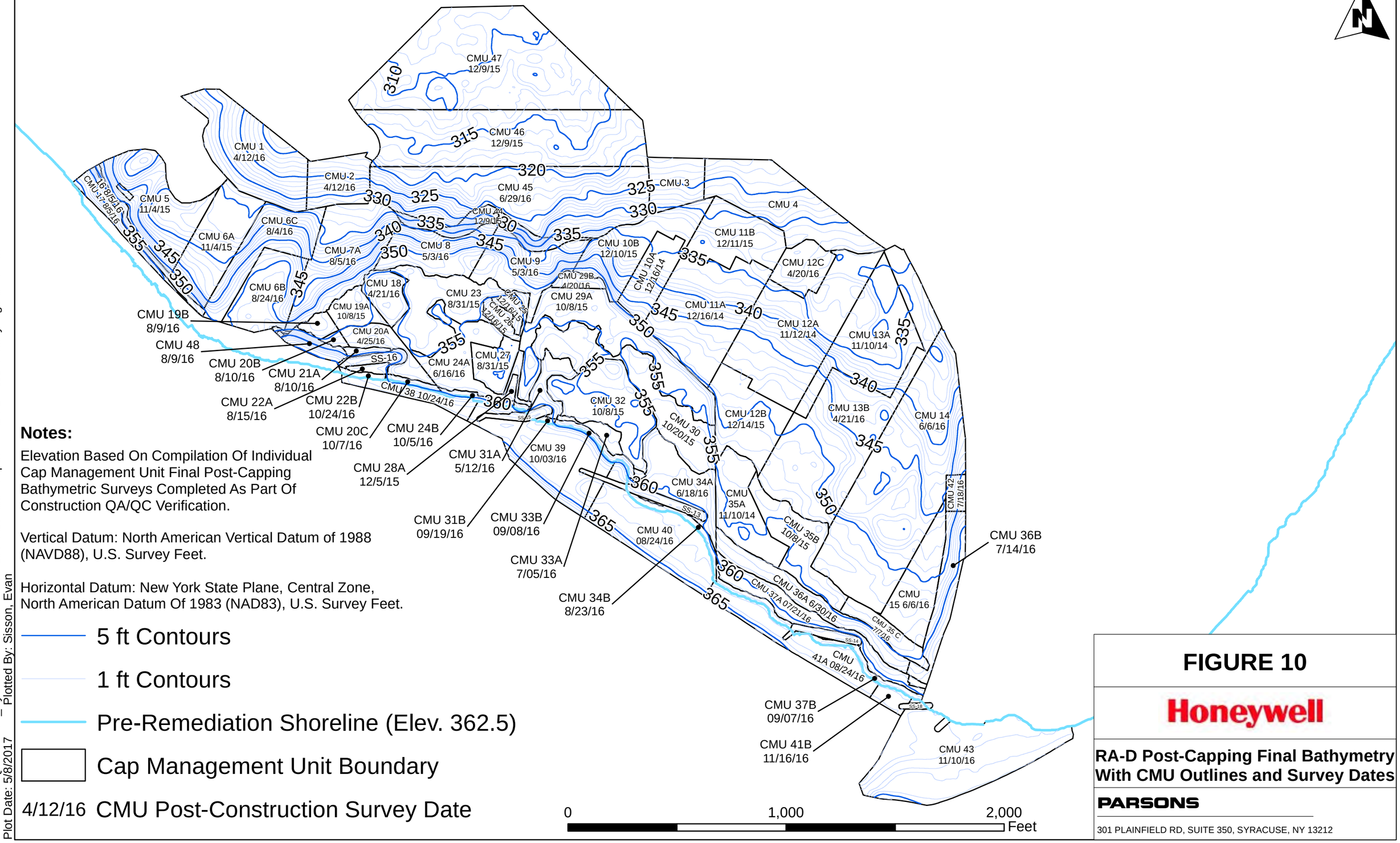


Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

Cap Management Unit Boundary

4/12/16 CMU Post-Construction Survey Date

FIGURE 10

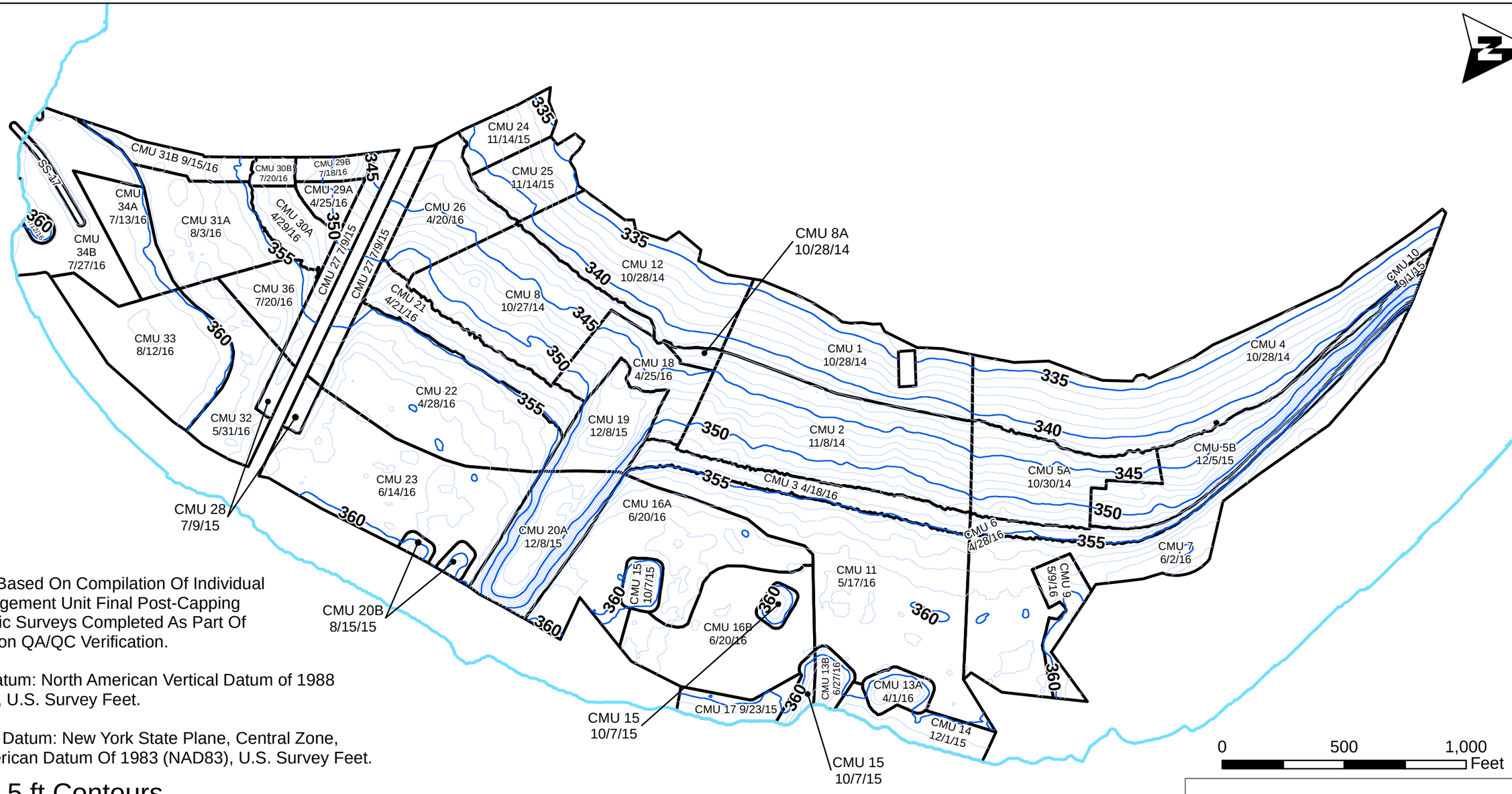
Honeywell

RA-D Post-Capping Final Bathymetry With CMU Outlines and Survey Dates

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 10.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

Vertical Datum: North American Vertical Datum of 1988 (NAVD88), U.S. Survey Feet.

Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.

5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

Cap Management Unit Boundary

6/14/16 CMU Post-Construction Survey Date

FIGURE 11

Honeywell

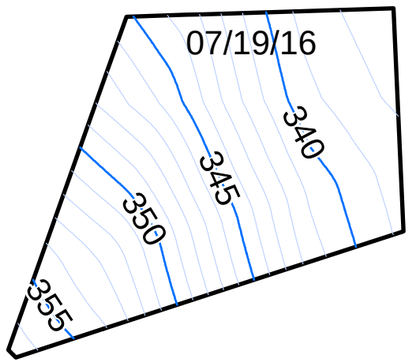
RA-E Post-Capping Final Bathymetry With CMU Outlines And Survey Dates

PARSONS

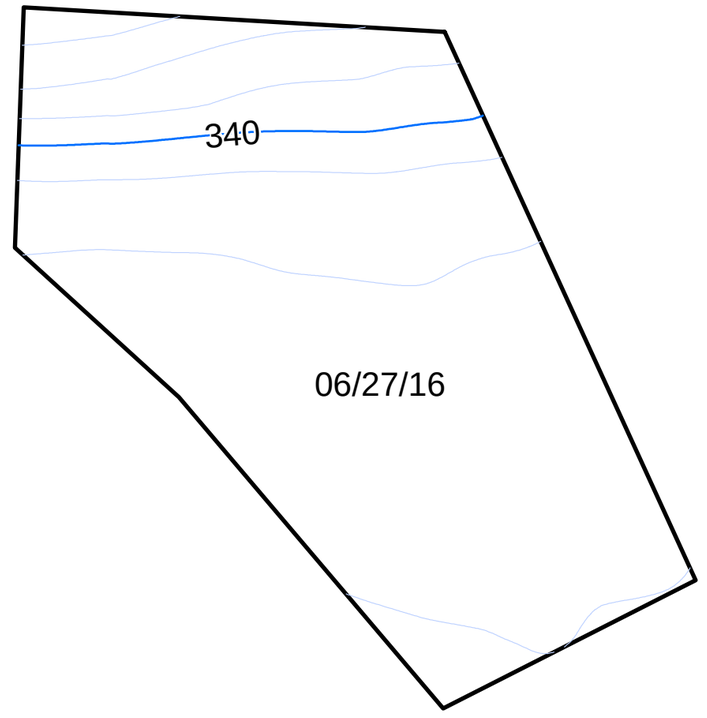
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 11.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan

RA-F 1



RA-F 2



Notes:

Elevation Based On Compilation Of Individual Cap Management Unit Final Post-Capping Bathymetric Surveys Completed As Part Of Construction QA/QC Verification.

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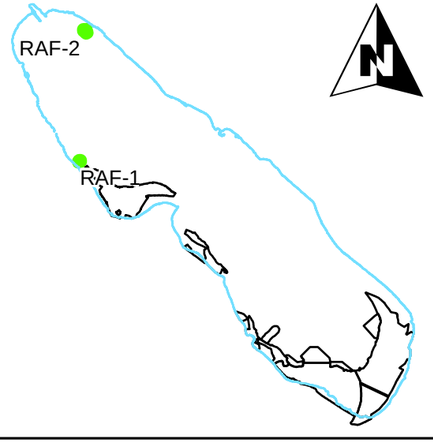
Horizontal Datum: New York State Plane, Central Zone, North American Datum Of 1983 (NAD83), U.S. Survey Feet.



5 ft Contours

1 ft Contours

Pre-Remediation Shoreline (Elev. 362.5)

Cap Management Unit Boundary

7/19/16 CMU Post-Construction Survey Date

0 50 100 Feet

FIGURE 12

Honeywell

RA-F Post-Capping Final Bathymetry With CMU Outlines And Survey Dates

PARSONS

301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\Asbuilt Contour Maps\RAA CMU Asbuilt Bathy Figure 12.mxd
Plot Date: 5/8/2017 Plotted By: Sisson, Evan

ATTACHMENT F

CAP MONITORING PORTS

REMEDIATION AREA D CAP SAMPLING PORTS

In shallow water portions of the cap, the habitat/erosion protection substrate overlying the chemical isolation layer consists of fine or coarse gravel or gravelly-cobble. Six sampling "ports" were installed during construction in Remediation Area D (RA-D) to facilitate sample collection in areas where coarse substrate was required by the design for the habitat/erosion protection layer, as shown in Figure 1. The sampling ports consist of rectangular concrete manhole-type riser sections placed on top of the chemical isolation layer and filled with a finer-grained material (sand) in lieu of the larger armor stone surrounding it, as shown in Figure 2. This finer-grained material will allow collection of core and porewater samples within the habitat/erosion protection and chemical isolation layers from within the sampling port. The sampling port design includes a steel cover to minimize the erosive forces on the sand within the port. Holes were pre-cut in the cover prior to installation to allow for collection of cores and porewater samples from within the ports without removing the cover.

The sampling ports were installed in 2014. The coordinates and elevations of the corners of each sampling port following construction in 2014 are shown in Table 1. Verification that the sampling ports and lids were installed consistent with the design was completed using an underwater camera and by collecting elevation measurements as part of construction QA/QC procedures in July 2016. Cap thicknesses and cap surface elevations collected in 2016 based on measurements within a subset of the sampling port holes within each sampling port are shown in Table 2.

During the fall 2016 cap sampling methods demonstration, the field crew was able to successfully locate and insert a core barrel into sample Port #6. The lid of the sample port was not in place. While attempting to collect a core from this location, large cobbles repeatedly clogged up the core preventing the successful collection of a cap sample. Based on these observations, each sample port was inspected via underwater camera. Observations are provided below.

- Sample Port #1: Unable to locate sample port.
- Sample Port #2: Lid was off the port, on the side sticking up. Minor gravel/cobble present in port, not enough to hinder collecting a core.
- Sample Port #3: Lid was off the port, on the side of the box. Minor gravel/cobble present in port, not enough to hinder collecting a core.
- Sample Port #4: Lid was off the port, on the side of the box. Minor gravel/cobble present in port, not enough to hinder collecting a core.
- Sample Port #5: Lid was off the port, on the side of the box. Minor gravel/cobble present in port, not enough to hinder collecting a core.
- Sample Port #6: Lid was off the port, on the side of the box. Attempted to collect a core, cobbles jammed core tube preventing sample collection.

Based on the above observations, it is recommended that a diver inspection be completed of each sampling port in 2017 prior to sampling. Any gravel/cobble present that would interfere with sampling will be removed, and the elevation of the cap surface within each port will be measured for comparison to post construction surfaces to verify there has not been a significant loss of material from within the ports. A determination will be made following the inspections regarding whether the covers should be replaced.

TABLE 1
CAP MONITORING PORT POST-CONSTRUCTION CORNER DATA

Monitoring Port	Northing	Easting	Elevation (ft. MSL)[1]
1	1117971.0	923722.6	357.8
	1117961.0	923721.6	357.9
	1117962.0	923713.7	358.0
	1117971.0	923714.8	357.8
2	1118160.0	923994.2	354.9
	1118167.0	923996.5	355.2
	1118166.0	924004.0	355.7
	1118160.0	923999.7	355.5
3	1117944.0	924376.9	357.6
	1117949.0	924383.0	357.8
	1117939.0	924380.7	357.1
	1117944.0	924386.8	357.7
4	1118113.0	924633.3	354.5
	1118110.0	924628.9	355.3
	1118120.0	924630.5	354.5
	1118117.0	924625.3	354.7
5	1117758.0	924837.3	354.7
	1117753.0	924835.1	355.1
	1117755.0	924827.0	355.1
	1117761.0	924829.1	354.9
6	1117540.6	925120.8	357.6
	1117539.1	925131.3	357.7
	1117548.7	925132.8	357.8
	1117550	925122.6	357.6

Measurements taken 11/3/14 through 11/6/14 as part of construction QA/QC

[1] North American Vertical Datum of 1988 (NAVD88)

TABLE 2
CAP SAMPLING PORT POST-CONSTRUCTION CAP THICKNESSES AND ELEVATIONS

Point	Northing	Easting	Cap Surface Elev. (ft. MSL)[1]	Post Dredge As-built Elev. (ft. MSL)[1]	Total Cap Thickness (in.)[2]
Sampling Port #1					
Hole1	1117965.7	923718.7	357.5	352.9	55.2
Hole 2	1117966.8	923720.6	357.3	352.9	52.1
Hole 3	1117968.4	923716.8	357.4	352.8	55.5
Avg, Thickness (in.)					**54.2**
Sampling Port #2					
Hole 1	1118166.3	923997.6	353.7	350.4	39.5
Hole 2	1118162	923996.1	353.8	350.3	42.3
Hole 3	1118164.7	923998.3	354.3	350.4	47
Avg, Thickness (in.)					**42.9**
Sampling Port # 3					
Hole 1	1117949.2	924369.5	355.4	352.3	37.5
Hole 2	1117945.7	924371.3	355.4	352	40.8
Hole 3	1117943.5	924373.4	356	352.1	47.1
Hole 4	1117945.6	924367.4	355.1	351.9	38.1
Avg, Thickness (in.)					**40.9**
Sampling Port #4					
Hole 1	1118117.4	924626	354.6	351.7	34.1
Hole 2	1118117.6	924627.5	354.3	351.9	29.4
Hole 3	1118118.8	924629.5	354.3	351.9	29.4
Avg, Thickness (in.)					**31**
Sampling Port #5					
Hole 1	1117758.9	924829.6	353.2	349.9	39.1
Hole 2	1117755.3	924829.4	352.9	350	34.2
Hole 3	1117759.7	924826	353.8	350.1	44.3
Hole 4	1117756.7	924834.2	353	350.1	34.9
Avg, Thickness (in.)					**38.1**
Sampling Port #6					
Hole 1	1117554.7	925125.7	355.5	353	30.6
Hole 2	1117557	925124.4	355.6	352.9	32.4
Hole 3	1117557	925126	355.7	352.8	35
Hole 4	1117555.9	925122.2	355.6	352.9	32.4
Avg, Thickness (in.)					**32.6**

Measurements taken7/7/16 as part of construction QA/QC

[1] North American Vertical Datum of 1988 (NAVD88)

[2] Total thickness including chemical isolation layer beneath the sample port and habitat/ erosion protection layer within the sample port

N

Outboard West & Center (Cap U)

Habitat
Topsoil
19.5" min

Erosion Protection
Coarse Gravel 4.5" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

Outboard East (Cap T)

Habitat
Topsoil
19.5" min

Erosion Protection
Coarse Gravel 4.5" min

Chemical Isolation/GAC
Medium Sand 12" min

Mixing Medium Sand/GAC
3" min

0 to 4 ft of water (Cap F & G)

Habitat
Medium Sand
12" min

Erosion Protection/Habitat
Coarse Gravel
12" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

4 to 7 ft of water (Cap H)

Habitat
Fine Gravel
18" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

7 to 10 ft of water (Cap M)

Habitat
Fine Gravel
12" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

10 to 30 ft of water (Cap J)

Habitat
Medium Sand
12" min

Chemical Isolation/GAC
Medium Sand 9" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

Thin Layer Cap (TLC)

Medium Sand 2" min

Amended TLC

Sand/GAC Layer 4.5" Avg.

Note: Cross-Section Profiles Are Not To Scale

RA-D-1B (1.17 Acres)

4.5" Avg. Sand/GAC/Siderite

RA-D-1A (7.55 Acres)

Habitat
Medium Sand
12" min

Chemical Isolation/GAC
Medium Sand 6" min

Mixing Medium
Sand/Siderite 3" min

1 Extra Foot of Sand Placed Over Former Water Inlet Pipe Valve Structure

Amended TLC Area B

Amended TLC Area A

RA-D-1A

RA-D-1B

Model Area D-SMU-2

Model Area D-West

Addendum East

Model Area D-Center

Model Area OL-VC-10138/40

Model Area Outboard West

Model Area D-East

Model Area Outboard Center

Model Area Outboard East

1 2 3 4 5 6

RA-D-2 (2.4 Acres)

Habitat
Medium Sand
10.5" min

Chemical Isolation/GAC
Medium Sand 4.5" min

Chemical Isolation/Siderite
Medium Sand 3" min

Mixing Medium
Sand/Siderite 3" min

Cobble Armoring w/Topsoil on 5H:1V Slope Adjacent to Barrier Wall (See FCF 62 for details)

West Naturalized Shoreline (See FCF 57 for details)

East Naturalized Shoreline (See FCF 58 for details)

Berms (See FCF 62 for details)

25 ft Zone of Topsoil Habitat

Plateau Armored Edge (See FCF 62 for details)

Marine Mattress and Adjacent Sand Buttress (See FCF 63 for details)

Cap Sampling Port

Harbor Brook Channel

Pre-Remediation Shoreline (Elev. 362.5)

Cap Model

Modified Protective Cap

MPC Monolayer Cap Less Than 0.5' Thick

MPC Multilayer Cap

0 500 1,000 Feet

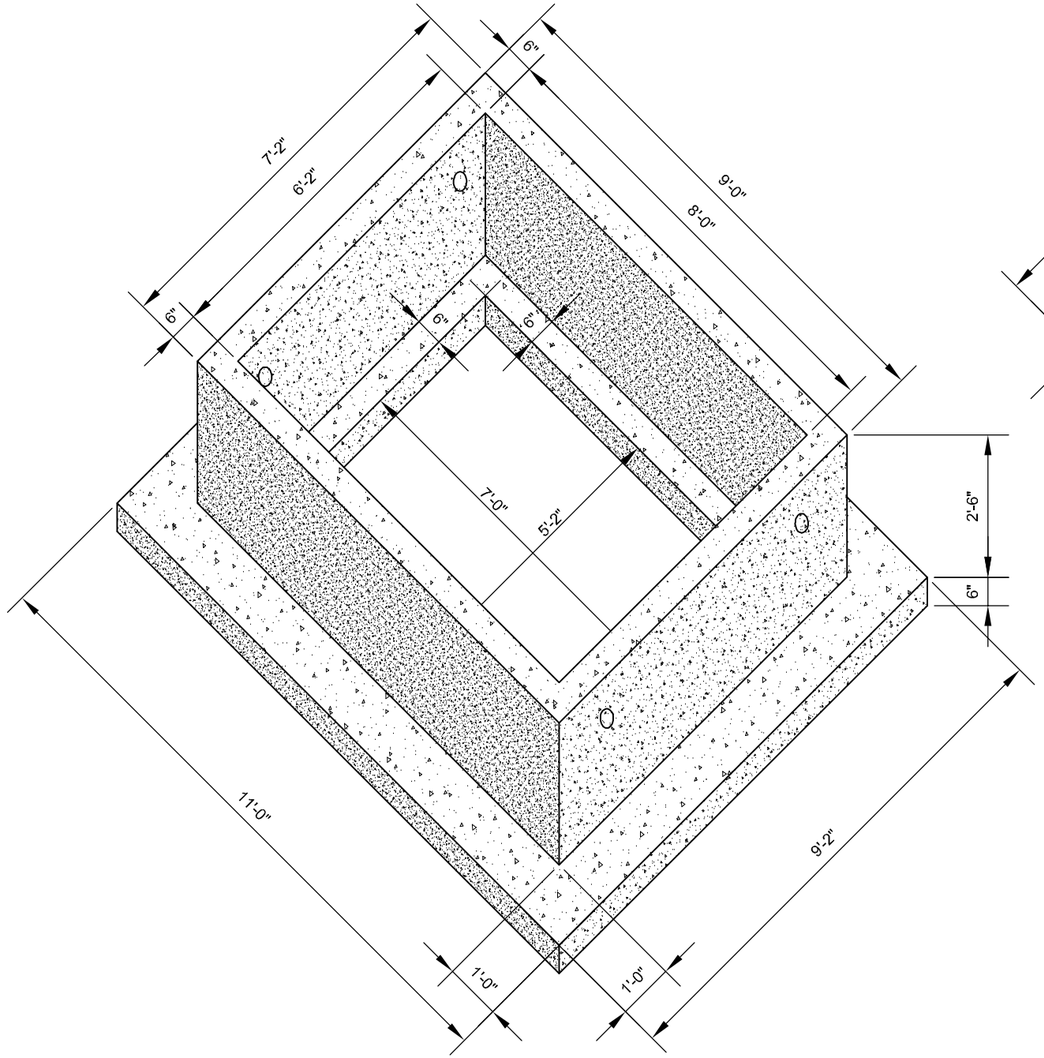
FIGURE 1

Honeywell

RA-D Cap Sampling Port Locations

PARSONS
301 PLAINFIELD RD, SUITE 350, SYRACUSE, NY 13212

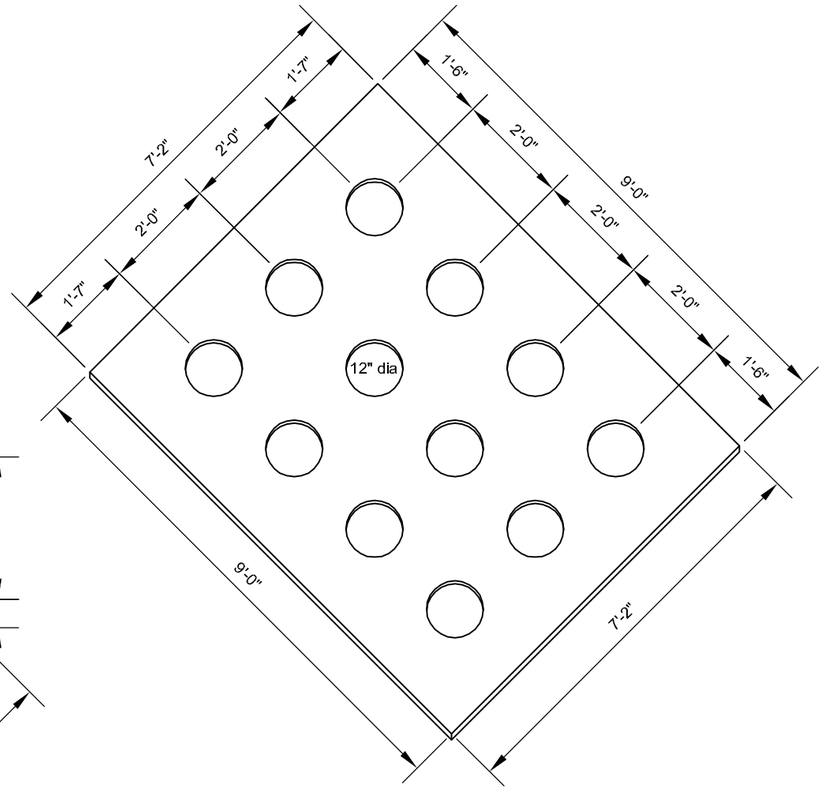
File Name: Q:\GIS\Hon_Syracuse\OLMMS\MXDs\RA-D Figure 1 Sampling Ports.mxd
Plot Date: 5/1/2017 Plotted By: Sisson, Evan



CONCRETE RISER

WEIGHT 12,000 LBS
BASE FOOTPRINT AREA = 65 SF

SUBMERGED WEIGHT = 7620 LBS



1/4 INCH STEEL PLATE

WEIGHT = 560 LBS
SUBMERGED WEIGHT = 480 LBS

COMBINED LOAD

SUBMERGED STEEL PLATE WT. = 480 LBS.

SUBMERGED CONCRETE WT. = 7620 LBS
TOTAL = 8100 LBS
/ 65 SF
125 LBS/SF

FIGURE 2

Honeywell ONONDAGA LAKE SYRACUSE, NY

CAP SAMPLING PORT DESIGN

PARSONS
301 PLAINFIELD ROAD • SUITE 350 • SYRACUSE, NY 13212 • 315/451-9560
OFFICES IN PRINCIPAL CITIES

FILE NAME: P:\HONEYWELL -SYR\446232 - CAP DESIGN\10 TECHNICAL CATEGORIES\10.1 CAD\DESIGN\DRAWING4.DWG
PLOT DATE: 10/30/2012 9:22 AM PLOTTED BY: RUSSO, JILL